



Validation report form for GS project activities

VALIDATION REPORT

Title of the project activity	Sakarya Landfill Gas Power Plant
Version number of the validation report	1.1Aa
Completion date of the validation report	19/04/2021
Version number of PDD to which this report applies	05 of 05/04/2021
Version number of GS Passport to which this report applied	Not applicable
Project participant(s)	Sakarya Entegre Kati Atik Yonetimi A.S. (project owner, private entity)
Host Party	Turkey
Estimated annual average GHG emission reductions or net removals in the crediting period (tCO₂e)	67,702 tCO ₂
Sectoral scope(s) and selected methodology(ies)	Sectoral scope 1: Energy Industries (Renewable-/non-renewable sources) Sectoral scope 13: Waste handling and disposal ACM0001: Flaring or use of landfill gas --- Version 19.0 ACM0002: Grid-connected electricity generation from renewable sources --- Version 20.0
Name of DOE	RINA Services S.p.A. (RINA)
Name, position and signature of the approver of the validation report	Laura Severino (Authorized officer signing for the VVB) Head of Sustainability Compliance & New Scheme Development Coordination Unit 

SECTION A. Executive summary

Purpose and general description of the project

The purpose of the project activity is to recover LFG gas accumulated in the landfill area and generate electricity via gas engines to generate electricity with a total installed capacity of 4.68 MWe as per the Generation License [/19/](#). The generated electricity will be fed to national grid. The project activity fits into the renewable energy supply category, qualifies as a large scale, as defined in the GS4GG project activity.

Location

The project is within boundaries of Adapazari, Sakarya Province of Turkey, located at near Taskisigi Village.

Scope of validation

The scope of the Validation is to have an independent evaluation of a project activity by a DOE against the GS4GG requirements and principles [/21/](#), on the basis of the PDD [/1/](#). Validation is a requirement and it is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of VERs and sustainability development.

Validation process

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

Conclusion

RINA commissioned by Sakarya Entegre Kati Atik Yonetimi A.S. has performed the validation of the project activity “Sakarya Landfill Gas Power Plant”, regarding the relevant GS4GG requirements and principles for project activities.

In conclusion, it is RINA’s opinion that the project activity “Sakarya Landfill Gas Power Plant”, in “Turkey”, as described in the PDD version 05 of 05/04/2021 [/1/](#) meets all relevant requirements for GS activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 [/9/](#) and “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.0 of 28/11/2019 [/10/](#).

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader, Validator, Technical Expert TA 1.2	IR	Kiratli	Tugce	RINA Turkey	✓	✓	✓	✓

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Ekinci Özen	Fulya	RINA Turkey
2.	Approver	IR	Severino	Laura	RINA HO

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

The PDD version 05 of 05/04/2021 and previous versions [/1/](#), in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date, the project eligibility, the monitoring plan, the sustainability indicators, the stakeholder consultation, the emission reductions calculation [/2-5/](#) were assessed as part of the validation. All documents reviewed or referenced during the validation are listed in Appendix 3.

C.2. On-site inspection

Duration of on-site inspection: 26/02/2020				
No.	Activity performed on-site	Site location	Date	Team member
1.	- Implementation and operation of the proposed project activity; - Baseline and Additionality - Emission reductions calculations - Interviewed key personnel of the plant to confirm the operational and data collection procedures; QA QC procedures - GS Sustainable Indicators - Local stakeholder consultation	Sakarya, Turkey	26/02/2020	Tugce Kiratli

C.3. Interviews

No	Interview			Date	Subject	Team member
	Last name	First name	Affiliation			
1	Arslan	Serkan	Sakarya Entegre <i>Project Responsible</i>	26/02/2020	Description of the project activity Baseline and Additionality Emission reductions calculations Monitoring plan and monitoring arrangements GS Sustainable Indicators (SDGs) Local stakeholder consultation Environmental and social impacts Monitoring equipment and operation	Tugce Kiratli
2	YILMAZ	Yalcin	Green CF Danismanlik <i>Carbon Consultant</i>	26/02/2020		Tugce Kiratli
3	OCAL	Alper	Sakarya Entegre <i>Electrician Technician</i>	26/02/2020		Tugce Kiratli
4	SAGDIC	Volkan	Sakarya Entegre <i>Mechanical Engineer</i>	26/02/2020		Tugce Kiratli
5	SUZER	Fethi	Sakarya Entegre <i>Mechanical Technician</i>	26/02/2020		Tugce Kiratli
6	KURAK	Fatih	Sakarya Entegre <i>Electrician Technician</i>	26/02/2020		Tugce Kiratli
7	ERKAN	Murat	Sakarya Entegre <i>Electrician Technician</i>	26/02/2020		Tugce Kiratli
8	GUZEL	Zafer	Sakarya Entegre <i>Environmental Technician</i>	26/02/2020		Tugce Kiratli
9	GARIP	Fatih	Sakarya Entegre <i>Environmental Engineer</i>	26/02/2020		Tugce Kiratli
10	CEVIK	Sinan	Sakarya Entegre <i>Environmental Engineer</i>	26/02/2020		Tugce Kiratli
11	YILDIRIM	Bahadir	Sakarya Entegre <i>Site Chief</i>	26/02/2020		Tugce Kiratli
12	DEMIREL	Elif	Sakarya Entegre <i>Environmental Technician</i>	26/02/2020		Tugce Kiratli
13	MUSLIM	Yasin	Sakarya Entegre <i>Environmental Technician</i>	26/02/2020		Tugce Kiratli
14	BEKTAS	Muharrem	Taskisigi Village <i>Mukhtar</i>	26/02/2020	Benefit of the project to the village Earthquake Isolation Leachate drainage Endangered creatures Odour Local employees Roads Dust	Tugce Kiratli
15	YAKUPOGLU	Ali Riza	Taskisigi Village <i>Retired</i>	26/02/2020		Tugce Kiratli
16	TORLAK	Mustafa	Taskisigi Village <i>Retired</i>	26/02/2020		Tugce Kiratli
17	YAKUPOGLU	Suleyman	Taskisigi Village <i>Retired</i>	26/02/2020		Tugce Kiratli
18	BEKTAS	Hasan	Taskisigi Village <i>Retired</i>	26/02/2020		Tugce Kiratli
19	YAKUPOGLU	Ali	Taskisigi Village <i>Retired</i>	26/02/2020		Tugce Kiratli
20	AKYILDIZ	Piri	Taskisigi Village <i>Retired</i>	26/02/2020		Tugce Kiratli
21	BEKTAS	Recep	Sakarya Entegre <i>Formen</i>	26/02/2020		Tugce Kiratli

During on site visit, project responsible and carbon consultant were interviewed about the project activity and calculation of emission reduction; Mechanical & Technical Electrician Technicians were interviewed about monitoring plan, monitoring arrangements, monitoring equipment and operation of the project activity. Environmental Technician & Engineers were interviewed about the environmental and social impacts of the project activity.

The mukhtar (headman) of Taskisigi Village and stakeholders were interviewed about odour problem, baseline of the project area, local employees, dust emission and state of the roads. No complaints were raised during these discussions. In addition, the opinion (log) book was left to the Muhtar on the site visit date and it has been confirmed that there are no comments today.

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

C.4. Sampling approach

There is no sampling approach applied.

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

Areas of validation findings	No. of CR	No. of CAR	No. of FAR
Project design document	1		
Description of project activity			
Application of selected baseline and monitoring methodology and selected standardized baseline			
- Applicability of methodology and standardized baseline			
- Deviation from methodology			
- Clarification on applicability of methodology, tool and/or standardized baseline			
- Project boundary	1		
- Establishment and description of baseline scenario			
- Project eligibility			
- Demonstration of additionality			
-Sustainability assessment			
- Emission reductions	1	1	
- Monitoring plan			
- Sustainability Monitoring plan		1	
Duration and crediting period	1		
Environmental impacts	1	1	
Local stakeholder consultation	1		
Pre-feasibility assessment			
Others (please specify)			
Total	6	3	

SECTION D. Validation findings

D.1. Project design document

Means of validation	The title of the project activity is defined as "Sakarya Landfill Gas Power Plant" in the PDD version 05 of 05/04/2021 /1/ which is in line with the GS Registry. The version and the completion date of the report are available at the cover page of the PDD. "GS4GG Project Design Document Template /23/ , version 1.1" which is the latest version is applied with the PDD /1/ .
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Findings	CR 1: Please revise and correct the issues listed below: 1. Sectoral scope of the project activity should be presented in the PDD. 2. For the methodology and tools, the most up-to-date versions of the documents should be used. 3. In page 2, Please specify that the project proponent is public or private. 4. In Page 3, instead of pre-license date, please give the current license date. 5. Instead of Q1-Q2-Q4, please give the correct dates. 6. The coordinates of the project activity are not in line with the generation license. Please check. 7. Please remove the template sentences from all sections of the PDD. 8. According to the connection agreement and generation license, please mentioned the grid where the project is connected to. 9. Please provide the supporting document for Table 2 – Waste Projection. 10. Please provide the supporting document for Table 3 – Technical Specifications of Gas Engines. 11. In Section A.6 of the PDD, please give the actual estimated value calculated (please revise the sentence “more than 60.000 tCO₂e”). 12. In Section B.1 of the PDD, methodologies and tools are presented. However, please make sure all related tools are shown (such as “Project Emissions From Flaring”). 13. In Section B.6.2./1 – SDG 13 Climate action, the given emission reduction value (308,672 tCO₂e) does not exceed 5 times the annual emission reduction (61,734 tCO₂e). Please check. 14. In Section B.6.2./3 – SDG 11 Sustainable cities and communities, the given tons of organic municipal waste could not be verified since no supporting document is provided. 15. Since the project activity is in operation, please remove all sentences given with future tense and mention the current situation 16. In the Table given under “Applicability of ACM0002” there is a miswriting “ACM0001, version 20”. Please correct this information as “ACM0002, version 20”. In addition, in the emission sources table the title is given as “ACM0021”. Please correct. 17. In the tool table given for ACM0001, the references no.7 and no.8 is the same. Please remove one of them. 1. Sectoral scope of the project activity is now presented in the PDD. 2. For the methodology and tools, the most up-to-date versions of the documents are now applied. 3. In page 2, it is now specified that the project proponent is private. 4. In Page 3, the current license date is now given. 5. The correct dates are now given instead of Q1-Q2-Q4. 6. The coordinates of the project activity are now in line with the generation license. 7. The template sentences are now removed from all sections of the PDD. 8. The grid is now mentioned according to the connection agreement and generation license. 9. The reference (municipality mail) given for Table 2 – Waste Projection is now sufficient to confirm the amounts. 10. The supporting document for Table 3 – Technical Specifications of Gas Engines is now provided. 11. In Section A.6 of the PDD, the actual estimated value is now given. 12. In Section B.1 of the PDD, all methodologies and tools are now presented. 13. In Section B.6.2./1 – SDG 13 Climate action, the given emission reduction value (334,750 tCO₂e) now exceeds 5 times the annual emission reduction (67,702 tCO₂e). 14. In Section B.6.2./3 – SDG 11 Sustainable cities and communities, the given tons of organic municipal waste could now be verified with the provided e-mail from Municipality. 15. Since the project activity is in operation, all sentences is now given without future tense. 16. In the Table given under “Applicability of ACM0002” the miswriting “ACM0001, version 20” is now corrected.
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	17. In the tool table given for ACM0001, the references no.7 and no.8 is the same and now one of them is removed. <u>Hence, CR 1 is closed.</u>
Conclusion	RINA confirms that the PDD is based on the currently valid GS4GG Project Design Document Template /23/ , version 1.1.

D.2. GS Passport

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

D.3. Description of project activity

Means of validation	The proposed project is a Greenfield project where no other power plant was located at the same site prior to the implementation of the project activity, which is confirmed during the on-site inspection. The project activity consists of 3 gas engines with 1.56 MWe capacities as confirmed through the Generation License /19/. The technical specifications of engine are discussed in PDD. The generated electricity will be fed to grid at Dagdibi Distribution Center, Sakarya TM as per the Generation License /19/. The expected annual electricity generation is defined as 4,68 MWh in the PDD /1/ which refers to Generation License /19/. It was confirmed that all gas engines were commissioned in one phase on 30/10/2018 /20/. The latitude and longitude of the plant is presented in the PDD /1/ as confirmed through the Generation License /19/. The category of the project activity is identified correctly in the PDD /1/. The project activity is a landfill plant and considered as a Waste Handling and Disposal. The sectoral scope is “13” and “1” as defined in Section A.2 of the PDD /1/. Technical specifications of gas generators and gas engines are given at Table 3 and Table 4 of the PDD and they are in line with the data sheet of the equipment /37/ and equipment agreement /32/.
Findings	NA
Conclusion	RINA confirms that the given explanation of project activity provided in PDD is in accordance with what was checked during the on-site visit and based on the above referred documents.

D.4. Application of selected baseline and monitoring methodology

D.4.1. Applicability of methodology

Means of validation	The project correctly applies the approved baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 /9/ and “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.0 of 28/11/2019 /10/ as indicated in the PDD /1/. The applied methodology is approved by CDM and the applied version is the latest version at the time of PDD submission.	
	Applicability criteria	Project activity
	1. The methodology is applicable under the following conditions:	
	(a) Install a new LFG capture system in an existing or new (Greenfield) SWDS where no LFG capture system	A new LFG capture system has been installed in an existing SWDS where no LFG capture system was or would have

	was or would have been installed prior to the implementation of the project activity; or (b) Make an investment into an existing LFG capture system to increase the recovery rate or change the use of the captured LFG, provided that: (i) The captured LFG was vented or flared and not used prior to the implementation of the project activity; and (ii) In the case of an existing active LFG capture system for which the amount of LFG cannot be collected separately from the project system after the implementation of the project activity and its efficiency is not impacted on by the project system: historical data on the amount of LFG capture and flared is available;	been installed prior to the implementation of the project activity.
	(c) Flare the LFG and/or use the captured LFG in any (combination) of the following ways: (i) Generating electricity; (ii) Generating heat in a boiler, air heater or kiln (brick firing only) or glass melting furnace; and/or (iii) Supplying the LFG to consumers through a natural gas distribution network; (iv) Supplying compressed/liquefied LFG to consumers using trucks; (v) Supplying the LFG to consumers through a dedicated pipeline;	In scope of the project activity, the captured LFG is used for only generating electricity.
	(d) Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.	The project activity has no effect on the amount of organic waste that would be recycled in the absence of the project activity, since there is no current treatment for the wastes on the landfill site.
	2. The methodology is only applicable if the application of the procedure to identify the baseline scenario confirms that the most plausible baseline scenario is:	
	(a) Atmospheric release of the LFG or capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons;	The baseline scenario for LFG is assumed to be the atmospheric release of the LFG since there was no capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons before the project activity.
	(b) In the case that the LFG is used in the project activity for generating electricity and/or generating heat in a boiler, air heater, glass melting furnace or kiln: (i) For electricity generation: that electricity would be generated in the grid or in captive fossil fuel fired power plants; and/or (ii) For heat generation: that heat would be generated using fossil fuels in equipment located within the project boundary;	The LFG is used in the project activity for generating electricity that is fed into the grid.
	(c) In the case of LFG supplied to the end-user(s) through natural gas	In scope of the project, there is no LFG supply to the end-user(s).

	distribution network, trucks or the dedicated pipeline, the baseline scenario is assumed to be displacement of natural gas.	
	(d) In the case of LFG from a Greenfield SWDS, the identified baseline scenario is atmospheric release of the LFG or capture of LFG in a managed SWDS and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons.	A new LFG capture system has been installed in an existing SWDS. The baseline scenario for LFG is assumed to be the atmospheric release of the LFG since there was no capture of LFG and destruction through flaring to comply with regulations or contractual requirements, to address safety and odour concerns, or for other reasons before the project activity.
	3. This methodology is not applicable:	
	(a) In combination with other approved methodologies. For instance, ACM0001 cannot be used to claim emission reductions for the displacement of fossil fuels in a kiln or glass melting furnace, where the purpose of the CDM project activity is to implement energy efficiency measures at a kiln or glass melting furnace;	Project is not involved in an activity related with kiln, glass melting furnace or any other energy efficiency activity.
	(b) If the management of the SWDS in the project activity is deliberately changed during the crediting in order to increase methane generation compared to the situation prior to the implementation of the project activity	If any situation occurs related with change of the management of the SWDS in the project activity during the crediting, the VVB and the Gold Standard will be informed.
	1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass a) supplying electricity to a national or a regional grid; or b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project is renewable energy generation through installation of landfill project. The project will supply electricity to the national grid, sale to grid as well as third party. Thus, the project activity complies with this criterion.
	2. Illustration of respective situations under which each of the methodology (i.e. AMS I.D, AMS I.F and AMS I.A2) applies is included in Table	The 1st and 3rd option of Table 2 of AMS I.D. Version 18 is applicable
	3. This methodology is applicable to project activities that (a) Install a Greenfield plant; b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	3. This methodology is applicable to project activity as, it's a Greenfield project where Option (a)i.e. install a new power plant at a site where there was no renewable energy power plant operating prior to implementation of the project activity (Greenfield plant). Hence the project activity fulfils the applicable criterion.
	4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:	The project activity is not Hydro Power Project; therefore; this eligibility criterion is not applicable to the proposed project activity.
	5.If the new unit has both renewable and non- renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small- scale CDM project activity applies only to the renewable component. If the new unit co-fires	The project activity has only renewable component with 4.68 MW capacity. The average annual emission reduction of the project activity is more than 60,000 tCO ₂ e. Therefore, scale of the project is large. The capacity of the

	fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	project shall remain the same for the entire crediting period. Further, the project does not involve any use of fossil fuel. Thus, this criterion is not applicable to the project activity.
	6. Combined heat and power (cogeneration) systems are not eligible under this category.	The project activity generates only power and hence is not a cogeneration system. Thus, this criterion is not applicable to the project activity.
	7. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	The project activity is the new installation of large LFG power project and does not involve the addition of new unit to any of existing renewable power generation facility therefore the given criterion is not applicable to the project activity.
	8. In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	Not applicable, project activity is neither retrofit nor modification of existing facility.
Findings	NA	
Conclusion	RINA confirms that the selected baseline and monitoring methodologies have been previously approved by the CDM Executive Board and are applicable to the project, which complies with all the applicability conditions therein the selected versions are valid at the time of submission of crediting period. It is also confirmed that the methodologies are correctly applied by comparing them with the actual text of the applicable versions.	

D.4.2. Deviation from methodology

Means of validation	There is no deviation from methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 /9/ and “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.0 of 28/11/2019 /10/ .
Findings	NA
Conclusion	RINA verified that no deviation from methodology is available.

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

Means of validation	The project correctly applies the approved baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 /9/ and “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.0 of 28/11/2019 /10/ as indicated in the PDD /1/. The applied methodology is approved by CDM and the applied version is the latest version at the time of PDD submission. The following tools are applied: 1. Emissions from solid waste disposal sites (version 08.0.0 of 04/05/2017); /13/ 2. Positive lists of technologies (version 02.0.0 of 28/11/2019) /14/. 3. Tool to determine the remaining lifetime of equipment (version 01.0.0 of 16/10/2009); /16/ 4. Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation (version 03.0.0 of 22/09/2017); /17/ 5. Project emissions from flaring (version 03.0.0 of 28/03/2019); /15/ 6. Tool to determine the mass flow of a greenhouse gas in a gaseous stream (version 03.0.0 of 27/11/2015); /33/ 7. Combined tool to identify the baseline scenario and demonstrate additionality (version 07.0.0 of 22/09/2017); /18/
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	8. Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion (version 03.0.0 of 22/09/2017); /34/ 9. Determining the baseline efficiency of thermal or electric energy generation systems (version 03.0.0 of 12/06/2020); /35/ 10. Tool to calculate the emission factor for an electricity system (version 07.0.0 of 31/08/2018); /11/
Findings	NA
Conclusion	RINA verified that the baseline was updated assessed according to the tool “Combined tool to identify the baseline scenario and demonstrate additionality” (version 07.0.0 of 22/09/2017 /18/ .

D.4.4. Project boundary

Means of validation	The project boundary clearly defined in accordance with the applied methodology, According to the approved baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 /9/ and “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.0 of 28/11/2019 /10/. the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project is connected to. A flow diagram of the project boundary, physically delineating the project activity is presented in the PDD /1/. The source of baseline emission CO₂ and CH₄ emissions are included in baseline calculation since fossil fuels fired for electricity generation. N₂O emissions are neglected regarding to the methodologies. Project emissions are calculated regarding to the methodology of ACM0001. The geographic and system boundaries for the relevant electricity grid can be clearly identified and information on the characteristics of the grid is available in the PDD /1/ in accordance with the “Tool to calculate emission factor of electricity system” /11/.
Findings	CR 2: - Make sure that each item regarding the applicability of the methodology is evaluated in Section B.2 of the PDD. In both methodologies, there is much more articles to be examined. - In Section B.3 Project boundary, table should be filled also for the methodology of ACM0002. - Each item regarding the applicability of the methodology is now evaluated in Section B.2 of the PDD. - In Section B.3 Project boundary, table is now filled for the methodology of ACM0002. Hence, CR 2 is closed.
Conclusion	RINA confirmed that the project boundary is clearly defined and in accordance with the applied methodology, ACM0001 and ACM0002. /9-10/ .

D.4.5. Establishment and description of baseline scenario

Means of validation	The baseline scenario for the project activity for ACM0001 /9/ project participants may either apply the simplified procedures to identify the baseline scenario and demonstrate additionality or the procedures according to the “Combined tool to identify the baseline scenario and demonstrate additionality” to select the most plausible baseline scenario and demonstrate additionality and involves the installation of a new grid-connected renewable power plant is already defined in the approved methodology ACM0002 /10/. The baseline scenario is defined as “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources” is in line with the PDD /1/. Since the baseline is defined by the approved methodology, no further analysis is requested.
Findings	NA
Conclusion	RINA confirmed that the baseline scenario is clearly defined and in accordance with

the applied methodology, ACM0001 and ACM0002. [/9-10/](#).

D.4.6. Proof of project eligibility

Means of validation	Eligibility project type: The proposed GS project activity falls under ‘waste handling and disposal’ as it involves landfill project to deliver mechanical energy. Scale of the project activity: Project activity falls under large scale project activity. Host country or State: The project’s host Party is Turkey and eligible as per Gold Standard. Greenhouse Gases: CO₂ is considered in the project activity and the same is eligible under Gold Standard. Legal Ownership: Legal ownership of the GS carbon credit generated from the project activity is Sakarya Entegre Kati Atik Yonetimi A.S.. Official Development Assistance (ODA) Declaration: The project does not involve any ODA. Therefore, the proposed project activity is deemed to be eligible under gold standard GS4GG. It is confirmed that the project activity does not benefit other VER certification schemes /38/.
Findings	NA
Conclusion	RINA hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board and allowed the use of GS Board, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for registration. It is also confirmed that the methodologies are correctly applied by comparing it with the actual text of the applicable version of the methodology.

D.4.7. Demonstration of additionality and conservativeness

Means of validation	According to the GS Requirements /21/, the additionality of the project has been established applying the “Tool for the demonstration and assessment of additionality”, version 07.0 of 23/11/2012 /18/. As per ACM0001 and referenced tool “Positive lists of technologies”; “The project activities and PoAs at new or existing landfills (greenfield or brownfield) are deemed automatically additional, if it is demonstrated that prior to the implementation of the project activities and PoAs the landfill gas (LFG) was only vented and/or flared (in the case of brownfield projects) or would have been only vented and/or flared (in the case of greenfield projects) but not utilized for energy generation, and that under the project activities and PoAs any of the following conditions are met: (a) The LFG is used to generate electricity in one or several power plants with a total nameplate capacity that equals or is below 10 MW; (b) The LFG is used to generate heat for internal or external consumption; (c) The LFG is flared.” The Project is a greenfield project which uses LFG as a renewable energy source for electricity generation and feed into the grid. Therefore, prior to the implementation of the project activity the LFG was not utilized for energy generation. Additionally, the LFG is used to generate electricity in one power plant with a total nameplate capacity that equals 4.68 MW which is less than the total benchmark capacity (10 MW) defined by the applicable methodology ACM0001 and the methodological tool “ Positive lists of technologies” Hence, the proposed project meets the criteria for deemed additionality. Project starting date The starting date of the project activity is defined as 27/02/2018 in the PDD /1/ which is the date of Gas Engine agreement /32/.
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Findings	NA
Conclusion	RINA confirmed that the additionality of the project has been established applying the “Tool for the demonstration and assessment of additionality” (Version 07.0) /18/ .

D.4.8. Sustainability assessment

Means of validation	As per GS4GG Safeguarding principles and requirements version 1.1 of March 2018, all projects shall conform to the Gold Standard for the Global Goals Safeguarding Principles & Requirements. The assessment is done as follows: <u>Principle 1- Human Rights:</u> The Project Owner and the Project respect internationally proclaimed human rights and does not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. The Project shall not discriminate with regards to participation and inclusion. <u>Principle 2 – Gender Equality and Women’s Rights:</u> The project will not accept any kind of discrimination including gender inequality. This is guaranteed by Laws and Acts; Article 10 of the Turkish Constitution; “Everyone is equal before the law without distinction as to language, race, color, sex, political opinion, philosophical belief, religion and sect, or any such grounds. Men and women have equal rights. The State has the obligation to ensure that this equality exists in practice.” Article 5 of the Labour Act of Turkey No. 4857 and ILO Convention 100&111 on “Equal Remuneration & Discrimination in Employment/Occupation”. Turkey signed Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1985 and its Additional Protocol in 2000. Turkey signed the Beijing Declaration of the Fourth World Conference on Women and committed itself to its Action Plan in 1995. As a member of the Council of Europe, Turkey is also under the obligation to “combat against stereotypes and sexism, prevent and combat violence against women, guarantee equal success of women to justice, achieve balanced participation of women and men in political and public decision-making, and achieve gender mainstreaming in all policies and measures” under the Gender Equality Strategy 2014-2017 of Council of Europe. <u>Principle 3 – Community Health, Safety and Working Conditions:</u> For the health, safety and working conditions; All the issues related with the health, safety and working conditions are protected by Labor Law, regulations and UN Agreement on Human Rights. For the community health; The project will contribute providing healthy environment for the community by means of reducing methane emissions and the precautions through the water sources. <u>Principle 4 – Cultural Heritage, Indigenous Peoples, Displacement and Resettlement:</u> The Project Area does not include sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture. The Project does not require or cause the physical or economic relocation of peoples. The Project does not require any change to land tenure arrangements and/or other rights. The project area is the state-owned and tenure permissions is given by the state bodies. Therefore, there is no uncertainties with regards land tenure, access rights, usage rights or land ownership. Indigenous peoples are not present in or within the area of influence of the Project and/or is the Project located on land/territory claimed by indigenous peoples as confirmed through the Project Introduction File /25/. The closest settlement area to the project is Taşkısığı Neighbourhood (village) and the distance between Taşkısığı and the project site is 760 m. <u>Principle 5 – Corruption:</u> The project does not involve and is not complicit in corruption. It is guaranteed by law in Turkey that no action can not involve and is not complicit in corruption. Turkey is a party to United Nation Convention against Corruption since 2006. Turkey also ratified the Council of Europe Civil and Criminal Law Conventions on Corruption and became a member of the Group of States against Corruption
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(GRECO), in 2004.

Principle 6 – Economic Impacts:

Employees are by law allowed to form associations or collectively bargain employment conditions. This is guaranteed by the Trade Union Act of Turkey No. 2821. Project does not involve any form of forced or compulsory labor. This is guaranteed by the Labor Act of Turkey No. 4857. Project does not employ and is not complicit in any form of child labor. This is in compliance with Article 71 “Working age and restrictions on the employment of children” of Labor Law No. 4857 and ILO Minimum Age Convention. The Project Owner ensures the use of appropriate equipment, training of workers, documentation and reporting of accidents and incidents, and emergency preparedness and response measures.

In order to avoid negative economic consequences, the project Owner has prepared a feasibility assessment which is detailed in the Project introduction File.

ENVIRONMENTAL & ECOLOGICAL SAFEGUARDING PRINCIPLES:

Principle 1 – Climate and Energy:

The project reduces greenhouse gas emissions when compared to the Baseline Scenario in two ways;

1-Methane avoidance,

2-Electricity generation from renewable energy sources.

In addition to these, the project will result in a substantial improvement in air quality in the region as compared to the common practice of dumping municipality waste in open areas near to the human habitats, causing strong bad odor (avoidance of H₂S).

Furthermore, the share of the electricity generated from fossil fuel fired plants is dominantly higher than electricity generated from renewable energy sources and these fossil fuel fired plants causes SO_x and NO_x emissions. Therefore, SO_x and NO_x emissions of LFG fired plants are significantly lower than the average (mainly coal fired) grid connected power plant in the baseline.

The project may use energy from national grid. This issue will be clarified after electromechanical equipment contract. However, even if the project would use electricity from national grid, the electricity generated and supplied by the project will be much more than the consumed. On the other hand, in order to generate electricity and heat, the project will use municipal waste as fuel resource which is not used by the local people.

Principle 2 – Water:

Ground water will not be used for the project activities. There is no lake or pond in the impact area of the project. Existing watercourses and watersheds will be protected and in order to drain the rainwater from the project site an interception channel will be digged. There is no flooding potential due to the high alteration of the project site.

Units of the facility will be constructed on leakproof concrete. Base isolation, leachate drainage and storage system of the landfill site is already available. Hence, when compared to baseline, the Project will not 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. The Project does not cause directly or indirectly cause additional erosion and/or water body instability or disrupt the natural pattern of erosion.

The precautions towards Water Body Instability is explained in the above section “2.1 - Impact on Natural Water Patterns/Flows”. Additionally, Project proponent confirms that the project the Project does not cause directly or indirectly cause additional erosion.

Principle 3 – Environment, ecology and land use:

The Project does not involve the use of land and soil for production of crops or other products. Earthquake: The Project site is located in a 1st degree earthquake

	zone. Landslide/Subsidence: There is no landslide risk of project site. Wind: Average wind speed in the project region is 1.6 m/s. Recorded max. wind speed is 27.1 m/s and annual stormy day average is 1.8. During the construction and operation phase there will be some emissions due to vehicles, but the quantity of these emissions is quite small and negligible. Hazardous wastes will not be accepted to the facility. If hazardous wastes are detected after process at mechanical waste separation unit, they will be sent to the recycling and disposal facilities which are licensed by the Ministry of Environment and Urbanization. There may occur some hazardous wastes (fluorescent lamp, waste oil, ink cartridge) due to the construction and operation process. These hazardous wastes will also be sent to the recycling and disposal facilities which are licensed by the Ministry of Environment and Urbanization. In order to prevent fly formation. 1- Process take place in closed environments (bunkers, closed storage areas), 2- The wastes will be processed immediately. The required time interval for the fly formation is 10 days in average. Therefore, these precautions will prevent fly formation. However, despite these precautions, if fly formation is observed pesticides will be used for the protection of public health. Even though possibility of using pesticides due to the precautions to be taken is quite low, if it becomes inevitable, the pesticides will be used in line with the "Regulation on Procedures and Principles of Public Health Pesticide Treatment". The Project does not modify the quantity or nutritional quality of food available such as through crop regime alteration or export or economic incentives. The Project will not involve animal husbandry. There are no High Conservation Value (HCV) ecosystems, critical habitats, landscapes, key biodiversity areas or sites identified in the impact area of the Project. Two different methodologies were used to identify presence of the endangered species in the Project area and its impact area; 1- Observation 2- Literature review As a result of Observation, there is no endangered species observed. However, according to the Literature, one plant species and one animal species listed in the IUCN Red List as vulnerable may be present in the Project area. Those species are; 1. Lathyrus undulatus BOISS. (plant) 2. Testudo graeca (animal)
Findings	NA
Conclusion	RINA confirms that conservative approach has been applied by PP to demonstrate sustainable development of the project activity which is in line with GS4GG requirements.

D.4.9. Emission reductions

Means of validation	Emission Reduction $ER_y = BE_y - PE_y$ ER_y = Emission reductions in year y (t CO₂e/yr) BE_y = Baseline emissions in year y (t CO₂e/yr) PE_y = Project emissions in year y (t CO₂/yr) Baseline Emissions $BE_y = BE_{CH_4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y}$ BE_y = Baseline emissions in year y (t CO₂e/yr) $BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (t CO₂e/yr) $BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y (t CO₂/yr) $BE_{HG,y}$ = Baseline emissions associated with heat generation in year y (t CO₂/yr) $BE_{NG,y}$ = Baseline emissions associated with natural gas use in year y (t CO₂/yr) Project activity does not include heat generation and natural gas use. Therefore; $BE_{HG,y} = 0$ $BE_{NG,y} = 0$ Thus, baseline emissions are;
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- Emissions of methane from the SWDS,
- Emissions associated with electricity generation

a. Emissions of methane from the SWDS

$$BE_{CH4} = ((1 - OX_{top_layer}) \times F_{CH4,PJ,y} - F_{CH,BL,y}) \times GWP_{CH4}$$

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

OX_{top_layer} = Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)

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

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

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

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

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

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

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

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

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

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

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

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

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

y = Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)

$DOC_{f,y}$ = Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)

$W_{j,x}$ = Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)

φ_y = Model correction factor to account for model uncertainties for year y (0.75)

f_y = Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y

GWP_{CH4} = Global Warming Potential of methane

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

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

MCF_y = Methane correction factor for year y

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

k = Decay rate for the waste type j

	j = Type of residual waste or types of waste in the MSW b. Emissions associated with electricity generation The calculation of baseline emission reductions is carried out in a conservative manner providing documentation and references to data sources. An approved CDM methodology, ACM0002 /10/ and methodological tool “Tool to calculate the emission factor for an electricity system /11/” is applied. The official published data, TEIAS statistics, are used to determine the emission factor of the grid. The emission factor is calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the tool. <i>OM Calculation</i> Option (a) simple OM is selected to calculate the operating margin (OM) emission factor of the grid as per the tool since the average share of electricity generation by low-cost/must-run plants for five most recent years is found to be less than 50%. The ex-ante option is selected for OM, from the years 2016 to 2018. <i>BM Calculation</i> The build margin (BM) emission factor calculation is in line with the latest version of methodological tool “Tool to calculate the emission factor for an electricity system /11/”. <i>CM Calculation</i> The combined Margin is calculated for Wind and solar power generation project activities: $W_{OM} = 0.75$ and $W_{BM} = 0.25$ for the first crediting period and for subsequent crediting periods. Project Emissions $PE_y = PE_{EC,y} + PE_{FC,y} + PE_{DT,y} + PE_{SP,y}$ PE_y = Project emissions in year y (t CO₂/yr) $PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (t CO₂/yr) $PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO₂/yr) $PE_{DT,y}$ = Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (t CO₂/yr) $PE_{SP,y}$ = Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (t CO₂/yr) Leakage The leakage emissions are neglected as per AMS-I.D. /5/. Emission Reduction The ex-ante emission reduction has been calculated as following equation in line with the AMS-I.D. /5/: $ER_y = BE_y - PE_y - LE_y$ The project emission and leakage emissions are zero for the project activity. Therefore, the emission reduction equals to baseline emissions. All the assumptions and data used by the project participants are listed in the PDD including their references and sources. All the documentation used by the project participants as the basis for assumptions and source of data are quoted and interpreted in the PDD and the Emission Reduction Calculation Spread Sheet /2/.
Findings	CR 3: For the ex-ante and monitored parameters, please give the value instead of referring to the calculation excel sheet. Please refer to the tables provided in the PDD for calculation. For the ex-ante and monitored parameters the values are now given instead of referring to the calculation excel sheet. Hence, CR 3 is closed. CAR 1: Most recent data (year of 2018) is available for the calculations. Please re-calculate

	and also check that new versions of the methodologies have the same parameters. If not, please revise the parameters (such as F_{CH_4} seems as $F_{CH_4, BL, y}$). In addition, please check that all the necessary parameters have been included to fixed ex-ante parameters. Also please give the unit of the parameters instead of giving “mass or volume unit”. Most recent data (year of 2018) is now used for the calculations. All the unit of the parameters is now given correctly instead of giving “mass or volume unit”. Hence, CAR 1 is closed.
Conclusion	It is RINA's opinion: (a) All assumptions and data used by the PP are listed in the PDD; (b) All documentation used by the PP as the basis for assumption and source of data is correctly quoted and interpreted in the PDD (c) All values used in the PDD and CERs spreadsheet including GWPs are considered reasonable in the context of the proposed project activity (d) The baseline methodology and methodological tools have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; All estimates of the baseline and project emissions can be replicated using the data and parameters values provided in the PDD and CERs spreadsheet.

D.4.10. Monitoring plan

Means of validation	The monitoring plan (data and parameters fixed ex ante) includes all data and parameters fixed ex ante required by the applied methodology /9-10/.			
	Parameters ex-ante:			
		Data/ parameter	Unit	Value applied
	/1/	$\phi_{default}$	-	0.75
	/2/	OX	-	0.1
	/3/	F	-	0.5
	/4/	$DOC_{f, default}$	-	0.5
	/5/	$MCF_{default}$	-	1
	/6/	DOC_j	-	Different Values
	/7/	k_j	1/yr	Different values

The value has been applied according to the methodological tool “Tool to determine emissions avoided from disposal of waste at a solid waste disposal site” /13/.

According to methodology ACM0001 /9/, the oxidation factor is taken as 0.1.

A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories /27/.

A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories /27/.

According to IPCC /27/ the value of 1 has been used justified for unmanaged solid waste disposal sites – deep and/or with high water table.

The following values for the different waste types have been applied (% wet waste):

- 43% wood and wood products
- 40% pulp, paper and cardboard
- 15% food, food waste, beverages and tobacco
- 24% textile
- 20% non-food organic
- 20% Garden, yard and park waste

Decay rate for the waste type j

The following values for the different waste types have been applied (boreal and temperature – dry):

- 0.03% wood, wood products and straw
- 0.06% pulp, paper, cardboard

					–0.185% food, food waste, sewage sludge, beverage and tobacco –0.10% non-food organics, putrescible garden and park waste
/8/	GWP _{CH4}	tCO ₂ e/ tCH ₄	28		As per the IPCC /27/ , the value is fixed. It shall be updated according to any future COP/MOP decision
/9/	η _{PJ}	%	50		According to methodology ACM0001 /9/ , the default value is taken as 50%.
/10/	EF _{grid,OM,y} Operating Margin of Turkey National Grid	tCO ₂ e/ MWh	0.6891		The data used to determine the OM emission factor of the grid is obtained from “Electricity Generation & Transmission Statistics of Turkey, 2012”, which is published by TEIAS. The validation team has confirmed that this is updated data at the time for submission for validation, which is considered as appropriate. The emission factors of fuels used in the calculations are based on IPCC default values at the lower limit of uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter 1 of Volume 2 of the 2006 IPCC Guidelines on National GHG Inventories /27/, which is in line with the methodological tool, and considered as appropriate.
/11/	EF _{grid,BM,y} Build Margin of Turkey National Grid	tCO ₂ e/ MWh	0.3198		The data used to determine the OM emission factor of the grid is obtained from Turkish Electrical Energy 10-Year Generation Capacity Projection, which is published by TEIAS. The validation team has confirmed that this is the most updated data at the time for submission for validation, which is considered as appropriate. The net energy conversion efficiencies of power unit are taken from the tool /11/ which is deemed reasonable. The emission factors of fuels used in the calculations are based on IPCC default values at the lower limit of uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter 1 of Volume 2 of the 2006 IPCC Guidelines on National GHG Inventories /27/, which is in line with the methodological tool, and considered as appropriate.
/12/	EF _{grid,CM,y} Combined Margin of Turkey National Grid	tCO ₂ e/ MWh	0.5045		The emission factor is calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the tool /11/ .

Parameters ex-post:

	Parameter	Description/Assessment
/1/	EG _{PJ,y} (MWh/yr)	SDG7 Affordable and Clean Energy/ Indicator: 7.2.1 Renewable energy share in the total final energy consumption: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y The quantity of electricity supplied by the project plants/units to the grid and the quantity of electricity delivered to the project plant/unit

		from the grid will be measured. Net generation will be calculated via subtracting energy delivered by the project activity to the grid for internal consumption from electricity fed to the grid. The electricity generation of the plant will be calculated based on TEIAS records. The net electricity will be measured continuously and recorded at least monthly. Net electricity generation will be measured by two meters which will be sealed by TEIAS and located at project site. The meters will comply with EMRA (Energy Market Regulatory Authority) regulation /26/. The accuracy class of the meters defined and confirmed as 0.5s are in line with the “Communiqué for Measurement Devices used in the Electricity Market” /29/ as explained in the VCS-PD /1/. The maintenance and calibration of meters are under TEIAS responsibility. If any major discrepancy occurs between the two meters, TEIAS performs necessary calibration.
/2/	LFG _{total,y}	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Total amount of landfill gas captured under Normal Temperature and Pressure in year y (Nm³): This parameter will be monitored continuously by flow meters. The flow meters will be calibrated as per the regulations.
/3/	LFG _{flare,y}	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Total amount of landfill gas flared under Normal Temperature and Pressure in year y (Nm³): This parameter will be monitored continuously by flow meters. The flow meters will be calibrated as per the regulations.
/4/	LFG _{electricity,y}	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Total amount of landfill gas combusted in the gas generator under Normal Temperature and Pressure in year y: This parameter will be monitored continuously by flow meters. The flow meters will be calibrated as per the regulations.
/5/	F _{CH4,RG,m}	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Mass flow of methane in the residual gas in the minute m (kg): This parameter will be monitored continuously by flow meters. The flow meters will be calibrated as per the regulations.
/6/	W _{CH4}	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Methane fraction in the landfill gas (%): This parameter will be monitored continuously by gas analyzers. The gas analyzer will be calibrated as per the regulations.
/7/	PE _{flare,y}	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Project emissions from flaring of the residual gas stream in year y (t CO_{2e}): This parameter will be monitored continuously by flow meters. The flow meters will be calibrated as per the regulations.
/8/	Operation of the power plant	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Operational duration of the power plant (h) will be monitored

			annually by data log system of the power plant.
	/9/	T _{EG,m}	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Temperature in the exhaust gas of the enclosed flare in minute m (°C): This parameter will be monitored annually by temperature meter. The temperature meters will be calibrated as per the regulations.
	/10/	ER _y	SDG13 Climate Action/ Indicator: 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula: Emission Reductions in year y (t CO ₂ e): This parameter will be calculated once for each monitoring period by electricity meters and emission factor of the project.
	/11/	W _{org,x}	SDG11 Sustainable Cities and Communities/ Indicator: 11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities: Total amount of organic waste disposed in a SWDS in year x (kg): The total amount of waste is continuously measured, and the data is aggregated at least annually. Maintenance and calibration of weighbridges is carried out according to the instructions of the manufacturer or legal requirements.
Findings	NA		
Conclusion	It is RINA's opinion that the monitoring plan is in accordance with the monitoring methodology; the monitoring plan will give opportunity for real measurement of achieved emission reductions. RINA has checked all the parameters presented in the monitoring plan against the requirements of the methodology and methodological tools. RINA confirms that the monitoring arrangements described in the monitoring plan, including the data management and quality assurance and quality control procedures, are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure the emission reductions achieved by/resulting from the proposed GS4GG project activity can be reported ex post and verified.		

D.4.11. Sustainability Monitoring plan

Means of validation	The Sustainability Monitoring Plan includes the way of monitoring for each GS indicator.		
		Parameter	Description/Assessment
	1	SDG8 Decent Work and Economic Growth	Indicator: 8.8.2 Increase in national compliance of labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status: Number of health and safety trainings: This parameter will be monitored once at each monitoring period by copies of training certificates.
	2	SDG3 Good Health and Well Being	Indicator: 3.9.1 Mortality rate attributed to household and ambient air pollution: Total amount of H ₂ S avoided due to the project activity is continuously measured and the data is aggregated at least annually.
	3	SDG3 Good Health and Well Being	Indicator: 3.9.1 Mortality rate attributed to household and ambient air pollution: Total amount of SO _x and NO _x emissions avoided will be monitored once at each monitoring period

	4	SDG3 Good Health and Well Being	Indicator: 3.91 Mortality rate attributed to household and ambient air pollution: Total amount of hazardous waste delivered to recycling and disposal facilities is stored separately, weighed, and the data is recorded continuously.
		SDG3 Good Health and Well Being	Indicator: 3.91 Mortality rate attributed to household and ambient air pollution: The number pesticide and the amount of pesticide usage will be recorded continuously and the data is aggregated at least annually.
Findings	CAR 2: - Please check that all the necessary parameters have been included to monitoring parameters. In addition, please check that all SGDs are given for the correct parameter (such as SDG 13 should be monitored for the emission reduction, not for the electricity generation-EG_{PJ,y}). - Please crosscheck the description of the monitoring parameters with the applied methodologies and tools. They are not inline. - All the necessary parameters have now been included to monitoring parameters. - The descriptions of the monitoring parameters are now in line with the applied methodologies and tools. Hence, CAR 2 is closed.		
Conclusion	RINA confirms that sustainability monitoring plan and indicators included in the PDD confirm to the sustainable development requirements of GS4GG.		

D.5. Duration and crediting period

Means of validation	The project is already listed in Markit registry. The crediting starting date is defined as 01/07/2019 under section C.2.1 of the PDD /1/ which is the real action. The length of crediting period is defined as 5 years and is planned to be renewed twice.
Findings	CR 4: - The expected implementation date is not in line with the Temporary Acceptance Protocol. Please clarify why where the date is mentioned in the report. - The same issue should be clarified for the start date of the crediting period. - In section C.2.2 Total length of crediting period, it should be mentioned how many times the selected crediting period will be renewed. - The expected implementation date is now in line with the Temporary Acceptance Protocol. - The same issue is now clarified for the start date of the crediting period. - In section C.2.2 Total length of crediting period, it is now mentioned that how many times the selected crediting period will be renewed. Hence, CR 4 is closed.
Conclusion	RINA confirmed that this is the first crediting period of the registered GS4GG project activity.

D.6. Environmental impacts

Means of validation	According to the article submitted by the "Ministry of Environment and Urban Planning of Sakarya Province" on 08/03/2016, EIA is not required for the project activity /24/. It could be confirmed that the proposed project activity is in line with the current environmental legislation in Turkey.
Findings	CR 5: In section D of the PDD, please give a brief information about social, economic and environmental impacts of the project activity. In section D of the PDD, a brief information about social, economic and environmental impacts of the project activity is now given. Hence, CR 5 is closed. CAR 3:

	- In section D of the PDD, please give a brief information about social, economic and environmental impacts of the project activity. - In Section E of the PDD, please give a brief information about local stakeholder meeting, comments of the meeting and grievance mechanism. - Stakeholder Feedback Round should be completed. - In section D of the PDD, a brief information about social, economic and environmental impacts of the project activity is now given. - In Section E of the PDD, a brief information about local stakeholder meeting, grievance mechanism and comments of the meeting is now given. - Stakeholder Feedback Round is completed. <u>Hence, CAR 3 is closed.</u>
Conclusion	RINA confirmed that the project activity has no impact to the environment as per the EIA is not required article /24/ .

D.7. Local stakeholder consultation

Means of validation	The local stakeholder consultation is found conducted following guideline as outlined in GS4GG 'stakeholder consultation & Engagement procedure, requirement and guidelines. For Regular Projects, the Stakeholder Consultation is conducted before the Project Start Date. The stakeholder consultation was held on 25/12/2017 at Tekeler Village. The stakeholders were invited via e-mails, phone calls and face to face with the villager on 11/12/2017. No negative comment or grievance found recorded during the stakeholder meeting. VVB also noted during site visit that no negative comments from stakeholders from the project activity. It is also noted that a continuous grievance mechanism as detailed during stakeholder meeting is found in practice at site. They can contact the project owners by phone and report any complaints or suggestions. The logbook was seen and confirmed that no feedback is received.
Findings	CR 6: In Section E of the PDD, please give a brief information about local stakeholder meeting, comments of the meeting and grievance mechanism. In addition, Stakeholder Feedback Round should be completed and presented in the PDD. In Section E of the PDD, a brief information about local stakeholder meeting and comments of the meeting is now given. In addition, Stakeholder Feedback Round is now completed and presented in the PDD. Continuous Input / Grievance Expression Process Book was given to the Mukhtar of Taşkısıği. <u>Hence, CR 6 is closed.</u>
Conclusion	RINA verified that the stakeholder meeting was held on 25/12/2017 in line with the GS4GG.

D.8. Pre-feasibility assessment

Means of validation	As part of GS4GG requirement, a preliminary review is required to undergo for each project for listing under GS4GG. It is noted that preliminary review for the project successfully completed on 11/12/2019 /36/ .
Findings	NA
Conclusion	The project has successfully completed the GS preliminary review and listed under GS4GG.

SECTION E. Internal quality control

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

SECTION F. Validation opinion

RINA Services Spa (RINA) has performed validation of the project activity Sakarya Landfill Gas Power Plant in Turkey, with regard to the relevant GS requirements and principles.

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

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

The project correctly applies the approved baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 and “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.0 of 28/11/2019.

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

The total emission reductions from the “Sakarya Landfill Gas Power Plant” are estimated to be on average 67,702 tCO₂ per year over the selected 5 years renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

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

In conclusion, it is RINA’s opinion that the project activity Sakarya Landfill Gas Power Plant in Turkey, as described in the PDD, version 05 of 05/04/2021 [/1/](#) meets all relevant GS requirements and principles and correctly applies the baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 19.0 of 14/06/2019 [/9/](#) and “ACM0002”, “Grid-connected electricity generation from renewable sources”, version 20.0 of 28/11/2019 [/10/](#).

Abbreviations

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

Appendix 1. Competence of team members and technical reviewers



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

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

Tugce Kirtli

è qualificato come:
is qualified as:

TEC, VAL, VER, TL, ITRP
LOCAL EXPERT

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

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
13.1	Solid waste and wastewater	13

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2016	First issue with new template
1	09/06/2017	Added qualification as ITRP and Local Expert

Responsabile di schema
Scheme Leader
Laura Severino

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

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

RINA Services S.p.A. è accreditato/riconosciuto da
RINA Services S.p.A. is accredited /recognized by

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



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

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

Fulya Ekinci Ozen

è qualificato come:
 is qualified as:

TEC, VAL, VER, LOCAL EXPERT, TL, ITRP

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
13.1	Solid waste and wastewater	13

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	27/01/2017	First issue
5	08/12/2017	Update qualification as VAL

Head of QPT
 Laura Severino

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

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

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

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

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

Appendix 2. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	Green CF	PDD for “Sakarya Landfill Gas Power Plant” in Turkey	version 0.2 of 12/11/2019 version 0.3 of 27/04/2020 version 0.4 of 01/11/2020 version 0.5 of 05/04/2021	Project Participant
2.	Green CF	Baseline Emission Factor “Total Baseline Emissions from Electricity Component_Sakarya LFG.xlsx”	version 0.1 of 06/02/2020 version 0.2 of 27/04/2020 version 0.3 of 01/11/2020	Project Participant
3.	Green CF	Excel Sheet of “Summary of ex ante Emissions_Sakarya LFG.xlsx”	version 0.1 of 06/02/2020 version 0.2 of 27/04/2020 version 0.3 of 01/11/2020	Project Participant
4.	Green CF	Excel Sheet of “Waste Projection Sakarya LFG.xlsx”	version 0.1 of 06/02/2020 version 0.2 of 27/04/2020 version 0.3 of 01/11/2020	Project Participant
5.	Green CF	Excel Sheet of “Calculating Baseline Emissions Methane_Sakarya LFG - Expanded.xlsx”	version 0.1 of 06/02/2020 version 0.2 of 27/04/2020 version 0.3 of 01/11/2020	Project Participant
6.	Green CF	Sakarya LFG LSC Report v02.doc	version 02, submitted on 06/02/2020	Project Participant
7.	CDM Executive Board	Clean Development Mechanism Project Standard	version 02.0 of 28/11/2018	Publicly Available
8.	CDM Executive Board	Clean Development Mechanism Validation and Verification Standard	version 02.0 of 29/11/2018	Publicly Available
9.	CDM Executive Board	Baseline and Monitoring Methodology ACM0001: “Flaring or use of landfill gas”	Version 19.0 of 14/06/2019	Publicly Available
10.	CDM Executive Board	Baseline and Monitoring Methodology “ACM0002: Grid-connected electricity generation from renewable sources”	version 20.0 of 28/11/2019	Publicly Available
11.	CDM Executive Board	Methodological Tool “Tool to calculate the emission factor for an electricity system”	version 07.0 of 31/08/2018	Publicly Available
12.	CDM Executive Board	Glossary of CDM terms	version 10.0 of 12/09/2019	Publicly Available
13.	CDM Executive Board	Methodological tool “Emissions from solid waste disposal sites”	Version 08.0 of 04/05/2017	Publicly Available

14.	CDM Executive Board	Methodological tool “Positive lists of technologies”	Version 02.0 of 28/11/2019	Publicly Available
15.	CDM Executive Board	Methodological tool “Project emissions from flaring”	Version 03.0 of 28/03/2019	Publicly Available
16.	CDM Executive Board	Methodological Tool “Tool to determine the remaining lifetime of equipment”	Version 01.0 of 16/10/2009	Publicly Available
17.	CDM Executive Board	Methodological tool “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation”	Version 03.0 of 16/10/2009	Publicly Available
18.	CDM Executive Board	Baseline and Monitoring Tool “Tool for the demonstration and assessment of additionality”	version 07.0 of 23/11/2012	Publicly Available
19.	Sakarya Entegre	Generation License, No. EU/8115-4/04074	of 04/10/2018	Project Participant
20.	Sakarya Entegre	Temporary Acceptance Protocol	of 30/10/2018	Project Participant
21.	GS4GG	GS4GG Principles & Requirements	version 1.2 of 24/10/2019	Publicly available
22.	GS4GG	Certification Procedures & Requirements for Validation/Verification Bodies (VVBs)	version 1.0 of 14/08/2019	Publicly Available
23.	GS4GG	Project Design Document Template	version 1.1 of 24/08/2017	Publicly Available
24.	Environment and Urban Ministry	EIA not Required Certificate	of 08/03/2016	Project Participant
25.	Duru Çevre Teknolojileri ve Lab. Hiz. Müh. Müş. İnş. Taah. San. ve Tic. Ltd. Şti.	The Environmental Impact Assessment Report of Sakarya Landfill	of 02/02/2016	Project Participant
26.	Energy Market Regulatory Authority	Environmental Law No: 2872	of 11/08/1983	Publicly Available
27.	Intergovernmental Panel on Climate Change	IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Chapter 1, Table 1.4 “Default CO ₂ Emission Factors for Combustion”	2006	Publicly Available
28.	The Ministry of Trade and Industry	Regulation of Metering and Testing of Metering Systems	of 24/07/1994	Publicly Available
29.	Turkish Energy Market Regulatory Authority	Communiqué for Measurement Devices used in the Electricity Market	of 22/03/2003	Publicly Available
30.	Sakarya Metropolitan Municipality	Land Delivery Record	of 28/09/2017	Project Participant
31.	Gold Standard	Official Development Assistance Declaration	of: 05/11/2019	Project Participant
32.	Borusan Makina	Gas Engine Contract	of: 27/02/2018	Project Participant
33.	CDM Executive Board	Methodological Tool “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”	version 03.0.0 of 27/11/2015	Publicly Available
34.	CDM Executive Board	Methodological Tool “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion”	version 03.0.0 of 22/09/2017	Publicly Available
35.	CDM Executive Board	Methodological Tool “Determining the baseline efficiency of thermal or electric energy generation systems”	version 03.0.0 of 12/06/2020	Publicly Available
36.	GS4GG	Preliminary Review under Gold Standard for the	Date of	Project

		Global Goals	11/12/2019	Participant
37.	CAT	Technical Data of the Gas Engines	Date of 29/11/2017	Project Participant
38.	Website: Argument: Language:	https://registry.goldstandard.org/projects/details/1764 GS4GG Registry English	Retrieved on: 09/01/2021	Publicly Available
39.	Website: Argument: Language:	https://registry.goldstandard.org/projects/details/1788 GS4GG Registry English	Retrieved on: 09/01/2021	Publicly Available

Appendix 3. Clarification requests, corrective action requests and forward action requests

Table 1. CR from this validation

CR ID	1	Section no.	Date: 17/03/2020
Description of CR			
Please revise and correct the issues listed below:			
1. Sectoral scope of the project activity should be presented in the PDD. 2. For the methodology and tools, the most up-to-date versions of the documents should be used. 3. In page 2, Please specify that the project proponent is public or private. 4. In Page 3, instead of pre-license date, please give the current license date. 5. Instead of Q1-Q2-Q4, please give the correct dates. 6. The coordinates of the project activity are not in line with the generation license. Please check. 7. Please remove the template sentences from all sections of the PDD. 8. According to the connection agreement and generation license, please mentioned the grid where the project is connected to. 9. Please provide the supporting document for Table 2 – Waste Projection. 10. Please provide the supporting document for Table 3 – Technical Specifications of Gas Engines. 11. In Section A.6 of the PDD, please give the actual estimated value calculated (please revise the sentence “more than 60.000 tCO₂e”). 12. In Section B.1 of the PDD, methodologies and tools are presented. However, please make sure all related tools are shown (such as “Project Emissions From Flaring”). 13. In Section B.6.2./1 – SDG 13 Climate action, the given emission reduction value (308,672 tCO₂e) does not exceed 5 times the annual emission reduction (61,734 tCO₂e). Please check. 14. In Section B.6.2./3 – SDG 11 Sustainable cities and communities, the given tons of organic municipal waste could not be verified since no supporting document is provided. 15. Since the project activity is in operation, please remove all sentences given with future tense and mention the current situation.			
Project participant response			Date: 03/07/2020

1. Sectoral scope of the project activity has been presented in the PDD. Below explanatory paragraph has been added to Section A.2;
 “The sectoral scopes of the project are 1 (Energy industries) and 13 (Waste handling and disposal) since the project involves renewable energy production from municipal waste.”
2. The versions of below methodologies and tools has been updated:
 - ACM0002 (changed from version 19.0 to version 20.0)
 - TOOL32 - Positive lists of technologies (changed from version 01 to version 02.0)

Moreover, referenced paragraph numbers have also been updated accordingly.
3. The below statement has been indicated in the “Brief description of Project” part of KEY PROJECT INFORMATION, in page 2;
 “The project proponent, *Sakarya Entegre Katı Atık Yönetimi Anonim Şirketi*, is a private company”.
4. The date of the current electricity production license is updated as 04.10.2018.
5. The exact dates have been given as indicated below;
 “The waste disposal site is delivered by the municipality on 02.01.2018 and the start of operation of the facility is 30.10.2018.”
6. Format of the coordinates of the project activity has been updated in line with the generation license. The first corner point is used as the coordinates of the project activity.
7. The template sentences from all sections of the PDD have been removed.
8. The below statement has been indicated in the A.5 Section of the PDD;
 “Transformer station of the project will be connected to the MV busbar of Sakarya Transformer Center by means of the Dagdibi Distribution Center. Therefore, the project will be connected to the national grid.”
9. The confirmation e-mail of Sakarya Metropolitan Municipality has been shared with the DOE on 27.02.2020.
10. Signed data sheet of the Gas Engines will be shared with the DOE as “Attachment 1”. Additionally, “Table 3 – Technical Specifications of Gas Engines” has also been updated according to this document.
11. In Section A.6 of the PDD, the actual estimated value calculated has been indicated and the sentence is revised.
12. All related tools including “Project Emissions From Flaring” has been indicated in the table under the Section B.1.
13. Recently calculated emission reduction values have been rounded down. Therefore, calculated annual emission reduction 69,750 tCO₂e and the total emission reduction for the 5 years crediting period is 334,750 CO₂e
14. The amounts of the organic waste have been indicated in the confirmation e-mail of Sakarya Metropolitan Municipality which has been shared with the DOE on 27.02.2020
15. All necessary changes have been made. The only statements related with the verification and effects that might be observed in the future has been remained with future tense.

Documentation provided by project participant

Attachment 1- CAT BORUSAN EK-W DATA SHEET

DOE assessment
Date: 07/09/2020

Please revise and correct the issues listed below:

1. Sectoral scope of the project activity is now presented in the PDD.
2. For the methodology and tools, the most up-to-date versions of the documents are now applied.
3. In page 2, it is now specified that the project proponent is private.
4. In Page 3, the current license date is now given.
5. The correct dates are now given instead of Q1-Q2-Q4.
6. The coordinates of the project activity are not in line with the generation license. The given information is only related with "Dot 1". Please add the other dots given in the generation license.
7. The template sentences are now removed from all sections of the PDD.
8. The grid is now mentioned according to the connection agreement and generation license.
9. The reference (municipality mail) given for Table 2 – Waste Projection is not sufficient to confirm the amounts since the table includes the years after 2019.
10. The supporting document for Table 3 – Technical Specifications of Gas Engines is now provided.
11. In Section A.6 of the PDD, the actual estimated value is now given.
12. In Section B.1 of the PDD, all methodologies and tools are now presented.
13. In Section B.6.2./1 – SDG 13 Climate action, the given emission reduction value (334,750 tCO₂e) now exceeds 5 times the annual emission reduction (67,702 tCO₂e).
14. In Section B.6.2./3 – SDG 11 Sustainable cities and communities, the given tons of organic municipal waste could now be verified with the provided e-mail from Municipality.
15. Since the project activity is in operation, all sentences is now given without future tense.
16. In the Table given under "Applicability of ACM0002" there is a miswriting "ACM0001, version 20". Please correct this information as "ACM0002, version 20". In addition, in the emission sources table the title is given as "ACM0021". Please correct.
17. In the tool table given for ACM0001, the references no.7 and no.8 is the same. Please remove one of them.

Hence, CR 1 is not closed.

Project participant response	Date: 25/10/2020
6. All 5 dots in the generation license have been included. 9. Confirmed (by the municipality) amount of the realized waste data has already been provided. Waste projection calculation methodologies by 2020, and waste fractions after separation of feedstock for Sakarya Biogas Power Plant (GS 7151) which is planned to put into operation by the end of 2020 has been explained and confirmed in the attached documentation; "Attachment 2- Era Waste Projection Calculation&Confirmation" 16. All mentioned miswritings have been corrected. 17. Repeated reference has been removed.	

Documentation provided by project participant

Attachment 2- Era Waste Projection Calculation&Confirmation

DOE assessment	Date: 30/11/2020
Please revise and correct the issues listed below: 6. The coordinates of the project activity are now in line with the generation license. 9. The provided reference given for Table 2 – Waste Projection is now sufficient to confirm the amounts. 16. In the Table given under "Applicability of ACM0002" the miswriting "ACM0001, version 20" is now corrected. 17. In the tool table given for ACM0001, the references no.7 and no.8 is the same and now one of them is removed.	

Hence, CR 1 is closed.

CR ID	2	Section no.	Date: 17/03/2020
Description of CR			
- Make sure that each item regarding the applicability of the methodology is evaluated in Section B.2 of the PDD. In both methodologies, there is much more articles to be examined. - In Section B.3 Project boundary, table should be filled also for the methodology of ACM0002.			
Project participant response			Date: 03/07/2020

- Each item regarding the applicability of the methodology is evaluated for both methodologies - The table indicating emission sources included in or excluded from the project boundary has also been filled for the methodology of ACM0002.	
Documentation provided by project participant	
N/A	
DOE assessment	Date: 07/09/2020
- Each item regarding the applicability of the methodology is now evaluated in Section B.2 of the PDD. - In Section B.3 Project boundary, table is now filled for the methodology of ACM0002.	
Hence, CR 2 is closed.	

CR ID	3	Section no.		Date: 17/03/2020
Description of CR				
For the ex-ante and monitored parameters, please give the value instead of referring to the calculation excel sheet. Please refer to the tables provided in the PDD for calculation.				
Project participant response				Date: 03/07/2020
All of the ex-ante and monitored parameters that were referenced to the calculation excel sheet have been referenced to the tables indicated in the PDD, or appendixes in the PDD.				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 07/09/2020
For the ex-ante and monitored parameters the values are now given instead of referring to the calculation excel sheet.				
Hence, CR 3 is closed.				

CR ID	4	Section no.		Date: 17/03/2020
Description of CR				
4. The expected implementation date is not in line with the Temporary Acceptance Protocol. Please clarify why where the date is mentioned in the report. 5. The same issue should be clarified for the start date of the crediting period. 6. In section C.2.2 Total length of crediting period, it should be mentioned how many times the selected crediting period will be renewed.				
Project participant response				Date: 03/07/2020
1. The expected implementation date has been updated in line with the Temporary Acceptance Protocol. 2. The start date of the crediting period has been updated in line with the Temporary Acceptance Protocol. 3. The duration of each crediting period, number of renewals and total length of crediting period are indicated in section C.2.2				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 07/09/2020
4. The expected implementation date is now in line with the Temporary Acceptance Protocol. 5. The same issue is now clarified for the start date of the crediting period. 6. In section C.2.2 Total length of crediting period, it is now mentioned that how many times the selected crediting period will be renewed.				
Hence, CR 4 is closed.				

CR ID	5	Section no.		Date: 17/03/2020
Description of CR				
In section D of the PDD, please give a brief information about social, economic and environmental impacts of the project activity.				
Project participant response				Date: 03/07/2020
In section D of the PDD, consolidated analysis of social, economic and environmental impacts of the project activity has been indicated as it was required by the PDD template guidance note.				
Documentation provided by project participant				
N/A				

DOE assessment			Date: 07/09/2020
In section D of the PDD, a brief information about social, economic and environmental impacts of the project activity is now given. Hence, CR 5 is closed.			
CR ID	6	Section no.	Date: 17/03/2020
Description of CR			
In Section E of the PDD, please give a brief information about local stakeholder meeting, comments of the meeting and grievance mechanism. In addition, Stakeholder Feedback Round should be completed and presented in the PDD.			
Project participant response			Date: 03/07/2020
Information related with the stakeholder consultation process including Local Stakeholder Consultation Meeting and Stakeholder Feedback Round has been inserted to the Section E.			
Documentation provided by project participant			
N/A			
DOE assessment			Date: 07/09/2020
In Section E of the PDD, a brief information about local stakeholder meeting and comments of the meeting is now given. In addition, Stakeholder Feedback Round is now completed and presented in the PDD. However, there is no information about grievance mechanism. Please add. Hence, CR 6 is not closed.			
Project participant response			Date: 25/10/2020
The details on continuous Input / Grievance mechanism expression method have been indicated under the section "E.2. Summary of comments received".			
DOE assessment			Date: 30/11/2020
Continuous Input / Grievance Expression Process Book was given to the Mukhtar of Taşkısıği. Hence, CR 6 is closed.			

Table 2. CAR from this validation

CAR ID	1	Section no.	Date: 17/03/2020
Description of CAR			
Most recent data (year of 2018) is available for the calculations. Please re-calculate and also check that new versions of the methodologies have the same parameters. If not, please revise the parameters (such as FCH4 seems as FCH4,BL,y). In addition, please check that all the necessary parameters have been included to fixed ex-ante parameters. Also please give the unit of the parameters instead of giving "mass or volume unit".			
Project participant response			Date: 03/07/2020
The calculations have been updated according to the most recent data (2018). FCH4 has been updated as FCH4,BL,y. Unit of the parameters have been indicated.			
Documentation provided by project participant			
N/A			
DOE assessment			Date: 07/09/2020
Most recent data (year of 2018) is now used for the calculations. All the unit of the parameters is now given correctly instead of giving "mass or volume unit". Hence, CAR 1 is closed.			
CAR ID	2	Section no.	Date: 17/03/2020
Description of CAR			
- Please check that all the necessary parameters have been included to monitoring parameters. In addition, please check that all SGDs are given for the correct parameter (such as SDG 13 should be monitored for the emission reduction, not for the electricity generation-EG_{PJ,y}). - Please crosscheck the description of the monitoring parameters with the applied methodologies and tools. They are not inline.			
Project participant response			Date: 03/07/2020

-All the necessary parameters have been included to monitoring parameters have been checked, updated and/or included to monitoring parameters. Additionally, there are some parameters such as monitoring the number of health and safety trainings, the number of pesticide usage, etc. that are not mentioned in the applied methodologies and tools but have been included in the monitoring plan since it is advised by the GS s the outcomes of Local Stakeholders Meeting	
Documentation provided by project participant	
N/A	
DOE assessment	Date: 07/09/2020
- All the necessary parameters have now been included to monitoring parameters. - The descriptions of the monitoring parameters are now in line with the applied methodologies and tools. <u>Hence, CAR 2 is closed.</u>	

CAR ID	3	Section no.		Date: 17/03/2020
Description of CAR				
- In section D of the PDD, please give a brief information about social, economic and environmental impacts of the project activity. - In Section E of the PDD, please give a brief information about local stakeholder meeting, comments of the meeting and grievance mechanism. - Stakeholder Feedback Round should be completed.				
Project participant response				Date: 03/07/2020
- In section D of the PDD, consolidated analysis of social, economic and environmental impacts of the project activity has been indicated as it was required by the PDD template guidance note. - Information related with the stakeholder consultation process including Local Stakeholder Consultation Meeting and Stakeholder Feedback Round has been inserted to the Section E. -Stakeholder Feedback Round has been completed and the outcomes has been indicated in the PDD				
Documentation provided by project participant				
N/A				
DOE assessment				Date: 07/09/2020
- In section D of the PDD, a brief information about social, economic and environmental impacts of the project activity is now given. - In Section E of the PDD, a brief information about local stakeholder meeting, and comments of the meeting is now given. However, there is no information about grievance mechanism. - Stakeholder Feedback Round is completed. <u>Hence, CAR 3 is not closed.</u>				
Project participant response				Date: 25/10/2020
The details on continuous Input / Grievance mechanism expression method have been indicated under the section "E.2. Summary of comments received".				
DOE assessment				Date: 17/12/2020
In Section E of the PDD, a brief information about local stakeholder meeting, grievance mechanism and comments of the meeting is now given.				
<u>Hence, CAR 3 is closed.</u>				

Table 3. FAR from this validation

FAR ID	xx	Section no.		Date: 03/07/2020
Description of FAR				
Project participant response				Date: 03/07/2020
Documentation provided by project participant				
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