

Samsun Landfill Gas to Energy Project, Turkey (GS 935)

Design Renewal Review under Gold Standard for the Global Goals

This document summarizes the results of GS4GG Design Renewal Review:

- Where present, Clarification/Corrective Action Requests are summarised in the **Comment/Request boxes** found beneath the Project Summary Information. These require a satisfactory explanatory response from the GS-VVB, or the Project Developer, before a project can achieve Certified Design.
- Where present, Forward Action Requests are summarized in the **table immediately below**. These must be resolved during Verification or Performance Review, as applicable.

Summary of Forward Action Requests (FARs):	
FAR # 1:	Under GS4GG, crediting period is continuing but PP cannot claim the ERs during delay period, i.e. 9 Feb 2018 – 4 Sep 2019 of CP2.
FAR # 2:	The next verifying GS VVB shall confirm that the temperature of the gaseous stream is in compliance with the requirements of dry basis used to calculate the mass flow of GHG in the gaseous stream.
FAR # 3:	The fraction of methane value has been calculated as "0" according to historical data average of Samsun LFG In PDD and baseline calculations. The next verifying GS VVB shall verify the same during monitoring period and review the historical data.
FAR # 4:	PP can claim realized ERs from design change part maximumly two years prior to GS design change 4W end date (i.e. 03/05/2017 - 02/05/2019)

Review Feedback Round:	1 st X 2 nd X 3 rd X 4 th X 5 th ☐ 6 th ☐ 7 th ☐
4 Week Review Period End Date:	02/10/2019

<u>Project summary</u>	
Project Type:	Biogas-Electricity
Project Size:	Large
Project Location:	Turkey
Impact Methodologies Applied:	ACM0001 v.19.0 ACM0002 v.19.0
Date of Registration/ Design Certification	24/06/2011
Certification Pathway (Project Certification/Impact Statements & Products)	Impact Statements& Products: VER Crediting
GS VVB for Validation:	Re Carbon Ltd. Carbon Department
GS VVB Onsite Date:	16/04/2019

Crediting Period(before renewal):	09/02/2011 to 08/02/2018			
Estimated Annual Average Product Totals:	VER	GS-CER	GS-REL	Other
	135,155			
Crediting Period (after renewal):	09/02/2018-08/02/2025 (no crediting claiming during delay period)			
Estimated Average Annual SDG Impacts (min 3, including SDG 13)				
SDG 13 - Climate Action	135,155 tCO2e			
SDG 7 - Affordable and Clean Energy	54,600 MWh			
SDG 8 - Decent Work and Economic Growth	20-25 people to be employed during operation			
Estimated Annual Average Product Totals:	VER	GS-CER	GS-REL	Other
	135,155			
Project Details:				
The proposed activity involves the collection and utilization of the LFG with an electricity component with an installed capacity 8.4 MWe. The project also has Biogas application, but it is not added to project boundary. The sime pipe has biogas and LFG gas. Both LFG and Biogas sides have their own flowmeters. The electricity energy produced from LFG is calculated based on conservative assumptions and measurements Calculations will be done through the Biogas and LFG Gas amounts. Expected disposed waste amount is 304,466 tonnes per year. The registration date of PDD v.4 is 24/06/2011 which dated 13/04/2012 for the first crediting period. The project owner has applied to GS for design change and 4W review end date is02/05/2019. In comparison with the initial design (4 gas motor turbine with a rated power of 4.8 MW), the project activity is extended by further 4 turbines with a rated capacity of 1.2 MW each, summing up to total installed capacity of 8.4 MWe from 4.8 MW. The initial estimation of annual electricity generation has been modified to be in line with the increased installed capacity.				

Document (s) provided and reviewed - I round:

- Project Design Document (Final_PDD_Samsun landfill_v07_03SEP2019.pdf)
- ER Calculation Sheet (Final_ER Calculations_544 Samsun landfill_v06_03SEP2019.xlsx)
- Supporting evidence and documentation
- GS VVB re-Validation Report
(Final_Val Report_544 Samsun landfill_Sandeep Kanda_v02_03SEP2019.pdf)

Document (s) provided and reviewed - II round:

- Project Design Document (PDD_Samsun LFG_v08_15.10.2019_wotc_CP renewal.pdf)
- ER Calculation Sheet (Baseline Study v0.7_Samsun Avdan LFG_15.10.2019_CP renewal.xlsx)

- GS VVB re-Validation Report
(Final_Val Report_544 Samsun landfill_Sandeep Kanda_v03_02-12-2019.pdf)

Document (s) provided and reviewed - III round:

- Cover Letter (GS4GG Cover Letter of Samsun Avdan LFG.pdf)
- Terms and Conditions (GS4GG Terms and Conditions_signed by PP.pdf)

Document (s) provided and reviewed - IV round:

- PDD_Samsun LFG_v09_21.01.2020_wtc_CP renewal
- Final_Val Report_544 Samsun landfill_Sandeep Kanda_v3.1_22-01-2020
- Cover Letter GS4GG_Samsun Avdan LFG

Review Results: The following Clarification/Corrective Action Requests must be resolved to renew a GS4GG Certified Design

Comment/Request 1.	FARs/Findings from previous rounds
GS VVB shall include the FARs from previous GS certification reviews in the validation report and PP shall give response accordingly.	
1) FAR#1 from Design Change Review: 2ndCP start has been indicated as 01/06/2019 but no credits can be claimed during delay period for crediting period renewal. Thus, PP and VVB may be asked to revisit the 2nd CP start date In PDD at further review for CP renewal. CP1: 9 Feb 2011- 8 Feb 2018 and CP2: 9 Feb 2018 – 8 Feb 2025. Since the PP did not submit CP renewal request within one year after CP1 end date, the crediting period cannot be renewed under GS 2.1 version. FAR#1 Under GS4GG, crediting period is continuing but PP cannot claim the ERs during delay period, i.e. 9 Feb 2018 – 4 Sep 2019 of CP2. PP and GS VVB shall revise the CP2 start date. 2) FAR#2 from Design Change Review: According to ACM0001 v.18.1 para 5(a), the methodology is not applicable in combination with other approved methodologies. Thus, PP and GS VVB shall discuss how ACM0002 is demonstrated as well If It Is the same case for CP renewal. 3) FAR#3 from Design Change Review: GS VVB is requested to provide the verification opinion on leachate water management during next verification/validation. 4) FAR#4 from Design Change Review: GS VVB shall interview local stakeholders about the design change and project implementation during next verification/validation and ensure the requested Grievance mechanism is in place. 5) FAR#1 from MP2 Issuance Review: The verifying GS VVB shall confirm that the temperature of the gaseous stream is in compliance with the requirements of dry basis used to calculate the mass flow of GHG in the gaseous stream.	
Response by GS VVB – 1st round	
1) The PP has revised the PDD and ER sheet with the continued CP2 crediting period start date as 09/02/2018, also indicating that they cannot claim the ERs during delay period, i.e. 9 Feb 2018 – 4 Sep 2019 of CP2 due to delay In submission of the renewal request. This has also been Included in the validation report section 2.3. 2) The specific clause of combinaton with other approved methodologies along with ACM0001 is more in context of energy efficiency measures. The quantification of emission reductions due to use of landfill gas for electricity generation is where ACM0002 has been referred. More so, both ACM0001 and ACM0002 refer to “TOOL05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation”. 3) Please refer to section 4.5 of the validation report wherein the following is stated 'the signed letter dated as 05/03/2014 by Samsun Metropolitan Municipality about the leachate water has been provided to VVB and it has been stated in the letter that there hadn't been observed significant change on the leachate water parameters according to the conducted analysis by them'. Also, refer to section 5.1 of the validation report wherein through	

interviews with local stakeholders the VVB could confirm that there hadn't been any complaint on waste management practices implemented by PP

- 4) Please refer to section 5.1 of the validation report wherein through interviews with local stakeholders the VVB could confirm that the grievance mechanism is in place. Also, The document showing the contact details of the relevant person within PP with the signature of AşağıAvdan Mukhtar (Village Head) dated as 13/02/2019 was also provided to VVB.
- 5) The VVB confirms through site visit and submitted documents that the the temperature of the gaseous stream is in compliance with the requirements of dry basis used to calculate the mass flow of GHG in the gaseous stream.

Response by Project Representative – 1st round

- 1) The PP has been revised the second crediting period as 09/02/2018 instead of 01/06/2019 in the PDD. And PP accept that the ERs will not be issued between 09/02/2018 to 04/09/2019.
- 2) The first crediting period has been approved with ACM0001 and ACM0002 methodologies. The methodology covers Sectoral scope 1 and 13. The methodology (ACM0001) is not applied with other approved methodologies for a project combination. For the emission reductions stemming from electricity generation, the ACM0002 v.19 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" is used.
- 3) We have submitted related letter to the GSVVB during the site visit of the crediting Renewal Period/revalidation process and verification process.
- 4) The GS VVB has already interviewed with the local stakeholders during the site visit of the Crediting Renewal Period/revalidation process and verification process.
- 5) The GS VVB has confirmed the temperature of the gaseous stream is in compliance with the requirements of dry basis used to calculate the mass flow of GHG in the gaseous stream.

Response by SustainCERT – 2nd round

- 1) This Issue Is closed.
- 2) This Issue Is closed.
- 3) This Issue Is closed.
- 4) This Issue Is closed.
- 5) This Issue Is closed. Please see FAR #2.

Comment/Request 1. Is closed.

Comment/Request 2. Sustainable Development Goal Outcomes(including application of GS approved methodologies)

- 1) Estimated amount of SDG impacts shall be defined for each SDG on Cover Page of PDD – not only for SDG 13.
- 2) Under SDG 7, PP to discuss the monitoring equipment specs for internal consumption as stated in PDD and GS VVB to validate the same.

3) Under B.6.5 of PDD, Table for SDG 7, baseline estimates and net benefit are different values for first and last year. Please clarify and GS VVB to validate the same.
4) Under SDG 13 on page 86 of PDD, the baseline estimates and net benefit are not corresponding, despite estimating zero project emissions. Please clarify and GS VVB to validate the same.
5) As per the registered GS Passport, the project activity will contribute positively to air quality, water quality and quantity, soil condition, other pollutants, balance of payments and investment, technology transfer and technological self-reliance. PP shall clarify why these positive contributions are not linking with any relevant SDG when transition to GS4GG.
Response by GS VVB – 1st round
1) The PP has revised the PDD to Include the estimated amount of SDG impacts for each SDG on Cover Page of PDD.
2) The bidirectional energy meter measures the electricity import and export. Thereby, the internal consumption gets accounted under electricity import.
3) The PP has corrected the editorial mistake in the revised PDD.
4) The PP has corrected the editorial mistake in the revised PDD.
5) The VVB concurs with the response provided by the PP.
Response by Project Representative – 1st round
1) Estimated amount of SDG impacts defined for each SDG on Cover Page of PDD.
2) The project is expected to generate 54,600 MWh of clean energy per annum. This is the net generation. The netgeneration and internal consumption identified and approved by authorized electricity company. The meters legally responsible is under electricity distribution company. The PDD has been revised accordingly.
3) It was typo mistakes under B.6.5 of PDD, Table for SDG 7. Because the baseline estimates and net benefit should be the same values for first and last year. So, these are revised accordingly in the PDD.
4) It was typo mistakes under SDG13 on page 86 of PDD. Because the baseline estimates and net benefit should be the same values for first and last year. So, these are revised accordingly in the PDD.
5) The project activity has contributed positively to air quality, water quality and quantity, soil condition, other pollutants, balance of payments and investment, technology transfer and technological self-reliance. But it is not possible to monitoring and find to relevant SDGs for directly linking for these positive contributions when transition to GS4GG.
Response by SustainCERT – 2nd round
1) This Issue Is closed.
2) This Issue Is closed.
3) This issue Is closed.
4) This Issue Is closed.
5) Please discuss the same parameters In registered passport as observed to have positive contributions under PDD section B.7.1 In accordance with GS4GG Safeguarding Principles. This Issue Is open.
Response by Project Representative – 2nd round
5) The PP has already talked and discussed this issue with VVB. And we agreed that there is

no need to monitor these contributions and linking with any relevant SDG when transition to GS4GG for CP2.
Response by SustainCERT – 3rd round
5) Given to the nature of the project activity, please monitor and discuss the contributions of the following parameters and mitigations In PDD, In accordance with relevant GS4GG Safeguarding Principles -as per registered GS Passport: a) Waste terraces and capping layers b) Hazardous waste processing - not being admitted to the processing facility c) Leachate quality - management by assigned third party and/or Samsun Municipality. d)Odour observation and related mitigations. This Issue Is open.
Response by Project Representative – 3rd round
5) The section B.7.1 of PDD has been revised accordingly.
Response by GS VVB – 3rd round
5) PP has revised the PDD adding the parameters in the monitoring plan. Please also see the Section 4.3 of the revised validation report.
Response by SustainCERT – 4th round
5)This issue is closed.
Comment/Request 2. Is closed.

Comment/Request 3. Monitoring Plan
1) Under B.7.1 of PDD, for parameter EGpjy, crosscheck means are not in-line with Tool 05 QA/QC procedures as per methodology. Please adopt records for electricity sales.
2) Under B.7.3, please clarify and discuss data substitution for methane content or LFG flow as per Tool 08 Appendix as part of monitoring plan. GS VVB to validate the same.
3) “Samsun Avdan Technical Feasibility Report” to be provided to GS as the available feasibility study doesn’t include 70% efficiency rate for LFG capture system. Please deliver the related evidence with related page number.
4) Under ACM0001, fraction of methane value for “0” is not available. Please provide the related reference.
5) Under B.7.1 of PDD, the monitoring frequency of PEfcy is not in-line with Tool 03.
6) Temperature of the gaseous stream (Tn) shall be measured continuously in terms of Kelvin (K) as per the referred tool. The PP is requested to justify the monitoring frequency of once in 2 days as stated in PDD.
7) PP to provide the reference for the methane density value of 0.0007168 tCH4/ m3tCH4.
Response by GS VVB – 1st round
2) The PP has revised the PDD section B.7.3 with reference to the appendix provided in TOOL08.
Response by Project Representative – 1st round
1) The methodology says;Electricity meter will be subject to regular (in accordance with

stipulation of the meter supplier) maintenance and testing to ensure accuracy. The readings will be double checked by the electricity distribution company. This was already provided in PDD as below;

"The periodical calibration or maintenance is under the responsibility of YEDAŞ and has been fixed as once in 10 years. Since YEDAŞ meters are sealed by YEDAŞ, the project proponent cannot intervene with the devices" The net electricity export/supplied to a grid is the difference between the measured quantities of the grid electricity export and the import. Data measured by meters will be crosschecked with the YEDAŞ notice via e-mail or fax mail.

- 2) Data substitution for methane content or LFG flow has been conveniently provided in Appendix of TOOL08 (Tool to determine the mass flow of a greenhouse gas in a gaseous stream Version 03.0) in the PDD section B.7.3. Methane content is measured continuously through Gas Analyser, Flow Meter Nr.1 and Flow Meter Nr. 2. The calculation steps are already provided in PDD. Also related metering device details have been provided.
- 3) "Samsun Avdan Technical Feasibility Report" have been already provided to GS and VVB. The page 2 includes 70% efficiency rate for LFG capture system)
- 4) The fraction average has been calculated as 0 according to historical data average of Samsun LFG. This related reference has been added on the PDD.
- 5) The PDD has been revised accordingly as methodology and Corrected as continuously.
- 6) It was a typo mistake in the PDD, so it has been revised accordingly. Temperature of the gaseous stream (Tn) has been measured continuously in terms of Kelvin (K) as per the referred tool. And GS VVB has already checked it during the site visit of Samsun LFG.
- 7) The density is thermodynamic calculation. At standard temperature and pressure (0 degree Celsius and 1,013 bar) the density of methane is 0.0007168 tCH₄/m³.

Response by SustainCERT – 2nd round

- 1) This Issue is closed.
- 2) This Issue is closed.
- 3) This Issue is closed.
- 4) This Issue is closed. Please see FAR #3.
- 5) This Issue is closed.
- 6) This Issue is closed.
- 7) This Issue is closed.

Comment/Request 3. Is closed.

Comment/Request 4. Safeguarding Principles Assessment

- 1) Based on SDG 8, GS VVB to provide opinion on the working conditions such as weekly working hours and wages compared to regional standards in terms of fair compensation and health/safety cautions based on site visit interviews and document vetting based on GS4GGSafeguarding Principles Assessment and Principles and Requirements.

Response by GS VVB – 1st round

- 1) The payrolls of the PP site employees have been provided to VVB. Based on the provided records, it can be concluded that payment to PP site employees is claimed to be better than

local average or above/at minimum wage. The safety precautions were also available at the project site during the site visit. Besides that, there hadn't been any complaint by the interviewed employees during the site visit on both issues, either. Please see the Section 4.5 of the revised validation report.
Response by Project Representative – 1st round
1) The GS VVB has already interviewed with the stakeholders and employees of Samsun LFG.
Response by SustainCERT – 2nd round
1. This Issue Is closed.
Comment/Request 4. Is closed.

Comment/Request 5. Stakeholder Consultation
1) GS VVB to provide opinion on the grievance process book as mentioned in PDD – if any feedbacks received, available since when, etc.
2) GS VVB to validate the stakeholder invitations for CP renewal of 13/03/2019 as discussed in PDD.
Response by GS VVB – 1st round
1) In line with the provided records by PP, there hasn't been any comment/complaint received by PP. Besides that, there hadn't been any complaint by the interviewed local stakeholders during the site visit. Please see the Sections 4.6 and 5 of the revised validation report.
2) The grievance feedback logbook has been submitted to AşağıAvdan Village Mukhtar (Village Head) on 13/03/2019 in line with the provided document by PP and similarly in line with the provided records by PP, there hasn't been any comment/complaint received by PP. Please see the Sections 4.6 and 5 of the revised validation report.
Response by Project Representative – 1st round
1) There is no opinion, or any feedbacks received on the grievance process book until now. The GS VVB has already checked the grievance process notebook and confirmed this issue.
2) The GS VVB has validated the stakeholder invitations for CP renewal of 13/03/2019 as discussed in PDD during the site visit of the Samsun LFG.
Response by SustainCERT – 2nd round
1) This Issue Is closed.
2) This Issue Is closed.
Comment/Request 5. Is closed.

Comment/Request 6. Other
1) Product requirements on cover page of PDD are for energy labels. Please clarify if any renewable energy products to be issued such as RECs. GS VVB to validate the same as the issue has been raised and concluded OK on pg 31 CAR of validation report contradicting PDD.

2) PP to include a declaration under A.2 of PDD confirming that the project is not registered with any other schemes and GS VVB to validate the same.
3) Under C.1.1 please include the start date of design change in terms of "start date" glossary of GS4GG, i.e first material action for implementation. PP can claim realized ERs from design change part maximumly two years prior to GS design change 4W end date.
4) PP shall upload signed GS4GG cover letter and terms and conditions.
Response by GS VVB – 1st round
1) The PP has revised the PDD confirming not to claim under other schemes.
2) The PP has revised the PDD confirming not to claim under other schemes.
Response by Project Representative – 1st round
1) The text has been deleted in the cell for the row on 'Product requirements applied' on the cover page of the PDD. The project is not registered with any renewable energy products to be issued such as RECs as already explained in the PDD.
2) The project is not registered with any other schemes as explained under A.2 of PDD.
3) The start date of design change has revised according to first material action for equipment agreement which is 06/12/2017 as already explained and submitted to the GS during feedback round of GS Design Change Review. And PDD has revised as according to GS4GG's rule which is ERs from design change part maximumly two years prior to GS design change 4W end date. The PP cannot claim the ERs during delay period, 9 Feb 2018 – 4 Sep 2019 of CP2. Thus, PP has lost the electricity generation between 09/02/2018 and 04/09/2019. The project can produce ERs between 05/09/2019 to 08/02/2025 for CP2
4) The signed GS4GG cover letter and terms and conditions have been uploaded to GS registry.
Response by SustainCERT – 2nd round
1) This Issue Is closed.
2) This Issue Is closed.
3) This Issue Is closed. Please see FAR #4.
4) The signed GS4GG Cover Letter and Terms and Conditions are not available In provided documents. Please upload the same on registry. This Issue Is open.
Response by Project Representative – 2nd round
4) The signed GS4GG Cover Letter and Terms and Conditions have been uploaded to GS registry.
Response by SustainCERT – 3rd round
4) Please provide the signature of Project Representative on Cover Letter as well. This Issue Is open.
Response by Project Representative – 3rd round
Response by SustainCERT – 4th round
4) The comment/request is closed.

FAR#1 PP Response

The start date of design change has been revised according to first material action for equipment agreement which is 06/12/2017 as already explained and submitted to the GS during feedback

round of GS Design Change Review. And PDD has been revised as according to GS4GG's rule which states ERs from design change part maximumly two years prior to GS design change 4W end date can be issued. The PP cannot claim the ERs during delay period, 9 Feb 2018 – 4 Sep 2019 of CP2. Thus, PP has lost the electricity generation between 09/02/2018 and 04/09/2019. The project can produce ERs between 05/09/2019 to 08/02/2025 for CP2.

FAR#2 PP Response

The next verifying 3rd MR which include 16/04/2016-08/02/2018 will be provided to the VVB in the January 2020 and GS VVB can confirm that the temperature of the gaseous stream is in compliance with the requirements of dry basis used to calculate the mass flow of GHG in the gaseous stream.

FAR#3 PP Response

The fraction of methane value has been calculated as "0" according to historical data average of Samsun LFG In PDD and baseline calculations. The next verifying (3rd MR) which include 16/04/2016-08/02/2018 will be provided to the VVB in the January 2020 GS VVB shall verify the same during monitoring period and review the historical data.

FAR#4 PP Response

For the 3rd Monitoring Report the PP claims following ERs: (1) the ERs generated from design change (the capacity of 8.4MW) between 03/05/2017 – 08/02/2018 (2) the ERs prior to design change (with capacity of 4.8MW) between 16/04/2016 – 02/05/2017. This related confirmation e-mail by GS which dated 10th September 2019 has provided to the VVB.