



**Verified Carbon
Standard**

VALIDATION REPORT “BATMAN LANDFILL GAS (LFG) CAPTURE AND UTILIZATION PROJECT”



Document Prepared by Carbon Check (India) Private Ltd.

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Summary:

- **A brief description of the validation and the project**

Validation: Anahtar Enerji Sanayi ve Ticaret Anonim Şirketi as the Project Owner, has commissioned Carbon Check (India) Private Ltd., to carry out the validation of the project “Batman Landfill Gas (LFG) Capture and Utilization Project”, with regards to the relevant requirements of VCS Standard Version **4.3** /B01/.

Project: The purpose of the project is to capture and utilize landfill gas for power generation. The recovered LFG will be combusted through gas engines and the electricity is fed into the grid. The project enables reduction of GHG incurred from existing landfill gas which was directly emitted into the atmosphere.

The project is located in Merkez District, in the city of Batman, in Turkey.

The estimated annual average emission reduction saving for this Project is **59,642** tCO₂e and total GHG emission reductions and removals over the crediting period is **417,494** tCO₂e.

- **The purpose and scope of validation**

Purpose: The purpose of a validation is to have a thorough and independent assessment of the proposed project activity against the applicable VCS requirements, in particular, the project's

baseline, monitoring plan and the project's compliance with relevant VCS and host party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions. Carbon Check's objective is to perform a thorough, independent assessment of the validation of the project activity.

Scope: The validation scope is defined as an independent and objective review of the Project Description (PD). The PD is reviewed against the relevant criteria and guidance documents provided by VCS which included the following: VCS Program Guide, version 4.2, VCS Standard, version 4.3, Program Definitions, version 4.2, Registration & Issuance Process, version 4.2 and in line with the VCS Validation and Verification Manual, version 3.2 applicable at the time in order to confirm that the project meets the applicability conditions of the selected baseline and monitoring methodologies: AMS-III.G. (version 10.0); AMS-I.D. (version 18.0) and also assess the claims and assumptions made in the PD without limitation on the information provided by the project proponents.

- **The method and criteria used for validation**

Validation consists of the following four phases:

- I. A desk review of the project description documents
 - A review of data and information;
 - Cross checks between information provided in PD and information from sources with all necessary means without limitations to the information provided by the project proponent;
- II. Remote site visit and follow-up interviews with project stakeholders
 - Interviews with relevant stakeholders in host country with personnel having knowledge with the project development via telephone, email or remote site visits;
 - Cross checking between information provided by interviewed personnel with all necessary means without limitations to the information provided by the project proponent;
- III. Reference to available information relating to projects or technologies similar to project under validation and review based on the approved methodology being applied for the appropriateness of formulae and accuracy of calculations.
- IV. The resolution of outstanding issues and the issuance of the final validation report and opinion.

- **The number of findings raised during validation**

During the course of validation, a total of **15 findings** were raised, which include:

04 Corrective Action Requests (CARs);

11 Clarification Requests (CLs);

00 Forward Action requests (FARs).

All the above findings have been successfully closed.

- **Any uncertainties associated with the validation**

The PD /01.2/, emissions reduction calculations /02.2/ along with the supporting documents provided are considered to be in line with the VCS version 4 requirements. The validation team has detected no further uncertainties or quality restriction.

- **Summary of the validation conclusion**

Carbon Check (India) Private Ltd. hereby confirms that the project is fulfilling the criteria specified by VCS PD template version 4.1 /B06/, VCS Standard version 4.3 /B01/, applied methodologies, AMS-III.G. version 10.0, and AMS-I.D. version 18.0 /B07/ and hence be successfully validated under VCS. Carbon Check confirms a positive validation opinion confirming the project complies with the applicable VCS requirements, thus recommending the project for registration.

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1 INTRODUCTION

Anahtar Enerji Sanayi ve Ticaret Anonim Şirketi has commissioned the VVB, Carbon Check (India) Private Ltd. to perform a validation of the VCS Project Activity “Batman Landfill Gas (LFG) Capture and Utilization Project”. The project is located in Merkez District of in the city of Batman , in Turkey. This report summarises the findings of the validation of the project, performed based on the VCS Program Guide, version 4.2 /B02/, VCS Standard, version 4.3 /B01/, VCS Program Definitions, version 4.2 /B05/, Registration & Issuance Process, version 4.2 /B04/ and VCS Validation and Verification Manual, version 3.2 /B03/. This report contains the findings and resolutions from the validation of the project activity.

1.1 Objective

The purpose of a validation is to have a thorough and independent assessment of the proposed project activity against the applicable VCS requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. These are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reductions, VCU's.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the Project Description (PD), project design, the project's baseline study and monitoring plan and other relevant documents. The PD is reviewed against the relevant criteria and decisions by the VCSA, including the approved baseline and monitoring methodology. Carbon Check has employed a risk-based approach in the validation, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The validation is not meant to provide any consulting towards the project proponents. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The validation is carried out based on the following requirements, applicable for this project activity:

- VCS Program Guide (v4.2)
- VCS Standard (v4.3)
- Program Definitions (v4.2)

- Registration & Issuance Process (v4.2)
- VCS Validation and Verification Manual (v 3.2)
- CDM approved small scale methodologies: AMS-III.G.: Landfill methane recovery -- Version 10.0; AMS-I.D.: Grid connected renewable electricity generation -- Version 18.0.
- Other relevant rules, including the host country legislation

1.3 Level of Assurance

Reasonable level of assurance

Limited level of assurance

1.4 Summary Description of the Project

The proposed project activity is a landfill gas capture and utilization project that will generate renewable energy by capturing landfill gas from Batman landfill. The recovered LFG will be combusted through gas engines and the electricity is fed into the grid.

The project enables reduction of GHG incurred from existing system of landfill gas generated by decomposition of waste dumped at the Batman SWDS, being directly emitted into the atmosphere. It also replaces the electricity that would have otherwise been generated by the national grid which is primarily dependent on fossil-fuel-based resources.

The project proponents for the project activity are Anahtar Enerji Sanayi ve Ticaret Anonim Şirketi and BIO SOLUTIONS Yenilenebilir Enerji ve Danışmanlık Hizmetleri Sanayi ve Ticaret Limited Şirketi (LLC.)

The total estimated GHG emission reductions expected from the project activity over the crediting period are 417,494 tCO₂e and average of 59,642 tCO₂e per year.

2 VALIDATION PROCESS

2.1 Method and Criteria

Anahtar Enerji Sanayi ve Ticaret Anonim Şirketi has commissioned Carbon Check (India) Private Ltd., to carry out the validation of the project "BATMAN LANDFILL GAS (LFG) CAPTURE AND UTILIZATION PROJECT", with regards to the relevant requirements of VCS Standard, version 4.3 /B01/.

The validation includes a thorough and independent assessment of the proposed project activity against the applicable VCS requirements, in particular, the project's baseline, monitoring plan and the project's compliance with relevant VCS and host Party criteria. The validation involves

assessment of the project and to confirm that the project meets the applicability conditions of the selected baseline and monitoring methodologies, AMS-III.G. version 10.0 and AMS-I. D version 18.0, and also assess the claims and assumptions made in the PD without limitation on the information provided by the project proponents. The overall validation was conducted using Carbon Check's internal procedures.

2.2 Document Review

The VCS project description, emission reduction calculation spread sheet and supporting documents related to the project design and baseline were reviewed as per VCS Standard, version 4.3 standard /B01/ requirements. The desk review included:

- A review of the data and information presented to verify completeness and consistency in accordance with VCS version 04 requirements;
- A review of the project description and monitoring methodology, paying particular attention to the applicability conditions of the methodology and baseline and additionality related requirements.
- A review of the monitoring plan and the project's compliance with relevant VCS criteria.

Furthermore, the validation team used additional documentation by third parties like host-party legislation, technical reports referring to the project design or to the basic conditions and technical data.

2.3 Interviews

A remote site visit to the project activity was undertaken on 09-August-2022 to confirm the information as outlined in the table below and to resolve issues identified in the document review. The remote site visit was conducted to assess the implementation and operation of the project activity and to review evidence, and interview key personnel to confirm evidence associated with the project design, implementation, plant operations, environmental impacts, stakeholders etc.

The key personnel interviewed, and the main topics of the interviews are summarized in the table below:

	Date	Name	Organisation	Topic
/a/	09-August-2022	Abdullah BAŞ	Anahtar Enerji	<ul style="list-style-type: none"> • Project Design • Project start date and Project Location
/b/	09-August-2022	Mehmet Masum KURT	Anahtar Enerji	<ul style="list-style-type: none"> • Baseline Scenario • Baseline Identification and Additionality

				<ul style="list-style-type: none"> • Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts • Compliance with relevant laws
/c/	09-August-2022	Rojda Ekmen ÖZDEMİR	Anahtar Enerji	
/d/	09-August-2022	Serim Baysun	Bio Solutions	
/e/	09-August-2022	Hüseyin Dinçer	Bio Solutions	
/f/	09-August-2022	İlayda Onaran	Bio Solutions	
/g/	09-August-2022	Ferdi ÖZDEMİR	Local stakeholder	<ul style="list-style-type: none"> • Local Stakeholder Consultation • Social and Environmental Impacts

2.4 Site Inspections

The VVB has not conducted the on-site inspection. However, the VVB has ensured that reasonable level of assurance has been achieved as per Verra regulations.

The DOE has used alternative measures of validation in place of mandatory on-site inspections and has used standard auditing techniques as per section 7.1.3.1 of CDM VVS PA v3.0 to conduct the remote assessment of the PA with the help of web meetings and video conferencing. The interviews and discussions were conducted successfully with the PP and their representatives. The interviews and discussions were conducted successfully.

2.5 Resolution of Findings

This section summarizes the findings from the validation of the project activity. In this section the findings from the document review, site visit, assessments and interviews are provided.

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

Corrective action requests (CAR) are issued, where:

- i. mistakes have been made with a direct influence on project results requiring adjustments of the VERs/VCUs monitoring report;
- ii. applicable methodological specific requirements have not been met.

A **Clarification request (CL)** may be used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

A **forward action request (FAR)** should be issued, where:

- i. the actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
- ii. an adjustment of the MP is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high quality emissions reductions in the future, i.e. by deviations from standard procedures as defined by the MP. As a consequence, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions.

A total of 04 CARs and 11 CLs have been raised for the validation of the project activity. Please refer to Appendix 4 below for the details of the CARs/CLs and their closure.

2.5.1 Forward Action Requests

No Forward action requests have been raised during the course of validation.

3 VALIDATION FINDINGS

3.1 Project Details

The project will generate renewable energy by capturing landfill gas from Batman SWDS to produce electric energy.

The proposed project activity has 4 biogas engines installed at the landfill gas, with the total capacity of 6.24 MWe. The electricity generated is directly fed to the national grid.

Whilst providing sustainable development benefits to the host communities and the host country, the proposed project activity will reduce greenhouse gas (GHG) emissions mainly by

- preventing GHG emissions, methane in particular, from being emitted directly to the atmosphere from waste at the Batman SWDS that would be otherwise left to be decomposed;

- replacing the electricity that would have otherwise been generated by the national grid which is heavily dependent on fossil-fuel-based resources, through generating renewable energy and feeding it to the grid;

The project includes a single location or installation only and is not a grouped project.

The project proponents for the project activity are Anahtar Enerji Sanayi ve Ticaret Anonim Şirketi and BIO SOLUTIONS Yenilenebilir Enerji ve Danışmanlık Hizmetleri Sanayi ve Ticaret Limited Şirketi (LLC.)

PP has demonstrated the ownership of the project activity and documents showing proof of title and ownership of the emission reductions are as follows:

- ✓ Electricity generation license (EGL) issued by the Energy Market Regulatory Authority (EMRA), Turkey, dated 15-October-2020. /07/

The start date of the project activity is 30-October-2020 which is the commissioning date of the project and the date from which the project started generating emission reductions /09/. The start date of the project activity meets the requirements of the definition of start date as stated in Program Definitions version 04.2 /B05/.

The start date of the first crediting period is 30-October-2020 and end date of 29-October-2020. PP has chosen a renewable crediting period of 7 years, maximum renewable 2 times in a total of 21 years.

The scale of the project is "Project" and the total estimated emission reductions over the crediting period are 417,494 tCO₂e with an average of 59,642 tCO₂e per year.

The Batman Solid Waste Landfill Facility in Batman Province, Merkez District, Turkey is where the project was executed over an area of approximately 70 acres. The facility is located approximately 15 km south of Batman province and 2.10 km southeast of Yolveren Village, which is the closest settlement to the facility. The project coordinates are longitude of 41° 15'17.43"E and latitude of 37° 48'11.86"N.

Prior to project implementation, landfill gas produced by decomposition of dumped waste in the SWDS, was emitted directly into the atmosphere.

Batman landfill is operational since 2005 and the project does not fall into the enforcement of conducting Environmental Impact Assessment (EIA). Therefore, EIA has not been carried out for the project activity which is supported by the EIA exemption certificate. /6/.

It has been confirmed through the description in PD /01.2/ and through interviews during remote site visit that the project activity does not participate in any emission trading program or any other GHG program and has not sought or received any other form of environmental credit. The proposed project activity has not been rejected under any GHG programs.

The appropriate measures for leakage management have been taken into consideration in accordance with the methodologies AMS-III.G. version 10.0 and AMS-I.D. version 18.0 /B07/.

The information provided in the PD is not commercially sensitive as has been confirmed in section 1.18 of the PD /01.2/.

In section 1.17 of the VCS PD, PP has explained the sustainable development taking place due to the implementation of the project activity in terms of Environmental, Social, Economic and Technological wellbeing.

The description contained in the VCS PD of the project activity provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation. The project description was verified by CCIPL through comparing to the real practice during the remote site visit and via checking with the supporting documents listed in Appendix 1 below. As a result, CCIPL confirms that the project description of the project contained in the VCS PD to be complete and accurate. The VCS PD complies with the relevant forms and guidance for completing the VCS PD.

3.2 Safeguards

3.2.1 No Net Harm

From the procedure involving interviews and document reviews, it is concluded that there are no negative impacts of the project activity to the socio-environment topics. The project has minimum impact on terrestrial fauna, aquatic life, and takes precautionary approach in regard to environmental challenges. More information on environmental impacts is discussed in section 3.2.3 below.

3.2.2 Local Stakeholder Consultation

Local stakeholder consultation was undertaken on 22-March-2022.

Stakeholders had been directly asked to comment on the project through an online meeting among local stakeholders, project proponent and local authorities. It was decided to have the meeting online due to the widespread instances caused by the Covid-19 pandemic. The locals were reached out via an announcement in local newspaper, invitation letters which were stuck at various public places, hand delivery of invitation letters and e-mail invitations. The attendees had registered for the meeting via online registration page made by the PP.

Contact information of the project developer was shared electronically and on invitations. The mukhtar of the neighbourhood was handed feedback forms and the project manager's business card in order to maintain communication with the stakeholders and encourage feedback. No adverse comments were received in the meeting or after it, and this is addressed in the PD. This was also confirmed by the validation team during the remote interviews.

3.2.3 Environmental Impact

The Environmental Impact Assessment (EIA) has not been conducted for the project activity as it does not fall into the enforcement of obtaining an EIA certificate. The validation team has reviewed the supporting document i.e., EIA exemption certificate and found it to be acceptable.

However, all licenses necessary to comply with Environmental Law No. 2872 requirements were acquired for the project activity and examined by the validation team. These included:

- Solid Waste Control Regulation, which came into force by being published in the Official Gazette dated 14-March-1991 and numbered 20814
- Noise Control Regulation (entered into force by being published in the Official Gazette dated 11-December-1986 and numbered 19308)
- Water Pollution Control Regulation (entered into force by being published in the Official Gazette dated 04-September-1988 and numbered 19919)
- Regulation on the Protection of Air Quality, which came into force after being published in the Official Gazette dated 02-November-1986 and numbered 19269.

It is therefore possible to assert that the project has no net environmental impact given that the project activity already has the permissions necessary to comply with legal requirements.

3.2.4 Public Comments

The public commenting period for the project was from 23-May-2022 to 22-June-2022. No public comments were received for the project activity.

3.2.5 AFOLU-Specific Safeguards

Since the project is a non-AFOLU project, this section is not applicable.

3.3 Application of Methodology

3.3.1 Title and Reference

The project uses CDM approved baseline and monitoring small-scale methodologies:

- AMS-III.G.: Landfill methane recovery, Version 10.0
- AMS-I.D.: Grid connected renewable electricity generation, Version 18.0

Sectoral scopes: 13 and 1

The tools used are:

- TOOL04 “Emissions from solid waste disposal sites” (Version 08.0)
- TOOL05 “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” (Version 03.0)
- TOOL32 “Positive lists of technologies” (Version 04.0)
- TOOL06 “Project emissions from flaring” (Version 04.0).
- TOOL03 Methodological tool: Tool to calculate project or leakage CO2 emissions from fossil fuel combustion. (Version 03.0)
- TOOL07 Tool to calculate the emission factor for an electricity system (version 07.0)

3.3.2 Applicability

The project applies the approved baseline and monitoring methodologies, AMS-III.G. version 10.0 and AMS-I.D. version 18.0 /B07/. Applicability criteria for the baseline methodologies are assessed by the validation team by means of document reviews and interviews. It is agreed in the validation team’s opinion that the project activity fully met the criteria as described below:

	Applicability Criteria	Applicability to the Project	Validation team assessment
AMS-III.G.: Landfill methane recovery, Version 10.0			
1.	<p>Different options to utilize the recovered landfill gas as detailed in paragraph 4 of “AMS-III.H.: Methane recovery in wastewater treatment” (version 19.0) are eligible for use under this methodology.</p> <p>The relevant procedures in AMS- III.H. shall be followed in this regard.</p>	<p>The project is to capture and utilized the landfill gas for electrical energy generation directly, which falls under 4(a) of para.4 of AMS-III.H. And the LFG power generation component of the project shall apply methodology AMS-I.D.</p>	<p>Since the proposed project activity utilizes recovered methane from SWDS for electricity generation, AMS-I.D. is applied. This was found to be acceptable by the validation team after reviewing relevant documents.</p> <p>Conclusion: The methodology applicability criterion is fulfilled.</p>

	<p>AMS-III.H (version 19.0): paragraph 4 states that the recovered biogas from the above measures may also be utilized for the following applications instead of combustion/flaring:</p> <p>(a) Thermal or mechanical, electrical energy generation directly.</p> <p>AMS-III. H: paragraph 5 states that If the recovered biogas is used for project activities covered under paragraph 4(a), that component of the project activity can use a corresponding methodology under Type I.</p>		
<p>2.</p>	<p>Measures are limited to those that result in aggregate emission reductions of less than or equal to 60 kt CO₂ equivalent annually from all Type III components of the project activity</p>	<p>Applicable The emissions from the anaerobic digestion project activity will result in aggregate emissions less than 60 kt CO₂e.</p>	<p>Maximum estimated emission reductions of this project in any year of the crediting period are less than 60 ktCO₂ equivalent annually.</p> <p>Conclusion: The methodology applicability criterion is fulfilled.</p>
<p>3.</p>	<p>The proposed project activity does not reduce the amount of organic waste that would have been recycled in the absence of the project activity.</p>	<p>Applicable. The project does not impact the management of the landfill, also does not reduce the amount of organic waste that would have been recycled in the absence of the project activity.</p>	<p>The validation team, by reviewing relevant documents, has found that there is no regulation about waste recycling at the landfill or disposing sites and no recycling activity is currently performed at the site.</p> <p>Conclusion: The methodology applicability criterion is fulfilled.</p>

<p>4.</p>	<p>This methodology is not applicable if the management of the solid waste disposal site (SWDS) in the project activity is deliberately changed in order to increase methane generation compared to the situation prior to the implementation of the project activity (e.g. other than to meet a technical or regulatory requirement). Such changes may include, for example, the addition of liquids to a SWDS, pre-treating waste to seed it with bacteria for the purpose of increasing the rate of anaerobic degradation of the SWDS or changing the shape of the SWDS to increase methane production.</p>	<p>The management of the solid waste disposal site (SWDS) in the project activity is not deliberately changed in order to increase methane generation compared to the situation prior to the implementation of the project activity.</p>	<p>in order to increase methane generation compared to the situation prior to the implementation of the project activity.</p>
<p>AMS-I.D.: Grid connected renewable electricity generation, Version 18.0</p>			
<p>1.</p>	<p>This methodology is applicable to project activities that:</p> <ul style="list-style-type: none"> (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; 	<p>The project installs a Greenfield LFG power plant at the existing Batman Landfill where there was no renewable energy power plant operating prior to the implementation of the project activity.</p>	<p>From the review on the PD and supporting documents, validation team confirms that the project is installation of Greenfield plant. This was also confirmed during remote site visit.</p>

	(e) Involve a replacement of (an) existing plant(s).		
2.	<p>Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <p>(a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir;</p> <p>(b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4W/m² ;</p> <p>(c) The project activity results in new reservoirs and the power density of the powerplant, as per definitions given in the project emissions section, is greater than 4W/m² .</p>	Not applicable. The project is not a hydro power plant.	From the review on the PD and supporting documents, validation team confirms that the project is not a hydro power plant with reservoirs. This was also confirmed during remote site visit. Therefore, this criterion is not applicable.
3.	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 fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	<p>Applicable</p> <p>The new unit has only renewable components, and the installed capacity of the gas engines is 4.68 MW, significantly less than 15MW.</p>	From the review on the PD and supporting documents, validation team confirms that the project does not include non-renewable components. This was also confirmed during remote site visit interviews. Therefore, this criterion is not applicable.
4.	Combined heat and power (co-generation) systems are not eligible under this category.	The project does not involve co-generation system.	From the review on the PD and supporting documents, validation team confirms that the project involves only electricity generation. This was also confirmed during

			remote site visit interviews. Therefore, this criterion is not applicable.
5.	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.	The project does not involve the capacity addition at an existing renewable power generation facility yet. If it happens in the near future, It's still going to be lower 15 MW and be physically distinct.	From the review on the PD and supporting documents, validation team confirms that the project does not involve retrofit, rehabilitation or replacement. This was also confirmed during remote site visit interviews. Therefore, this criterion is not applicable.
6.	In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	Applicable. The project recovers LFG for electricity generation. Hence recovered methane emissions are eligible under Type III methodology AMS-III.G. And the baseline for the electricity component is in accordance with procedure prescribed in AMS-I.D.	Since this project involves landfill gas (methane) capture and recovery for electricity generation, the methodologies AMS-III.G. was used. This was confirmed from PD and supporting document reviews and remote site visit interviews.

7.	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool “Project emissions from cultivation of biomass” shall apply	The project does not involve biomass sourced from dedicated plantations.	From the review on the PD and supporting documents, validation team confirms that the project does not involve sourcing of biomass from dedicated plantations. This was also confirmed during remote site visit interviews. Therefore, this criterion is not applicable.
TOOL05 “Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation” (Version 03.0)			
	<p>This tool can be referred to in methodologies to provide procedures to monitor amount of electricity generated in the project scenario, only if one out of the following three project scenarios applies to the recipient of the electricity generated:</p> <p>(a) Scenario I: Electricity is supplied to the grid;</p> <p>(b) Scenario II: Electricity is supplied to consumers/electricity consuming facilities; or</p> <p>(c) Scenario III: Electricity is supplied to the grid and consumers/electricity consuming facilities.</p>	Scenario I is the scenario of the Batman project, the electricity is supplied to the Grid.	<p>From the review of PD and supporting documents, validation team confirms that the electricity is supplied to the grid.</p> <p>Conclusion: The tool is applicable.</p>
TOOL04 “Emissions from solid waste disposal sites” (Version 08.0)			
	Application A: The CDM project activity mitigates methane emissions from a specific existing SWDS. Methane emissions are mitigated	Application A applies to the project, since with the rehabilitation of the LF methane emissions are mitigated.	From the review of PD and supporting documents, validation team confirms that the project activity mitigates

<p>by capturing and flaring or combusting the methane (e.g. “ACM0001: Flaring or use of landfill gas”). The methane is generated from waste disposed in the past, including prior to the start of the CDM project activity. In these cases, the tool is only applied for an ex ante estimation of emissions in the project design document (CDM-PDD). The emissions will then be monitored during the crediting period using the applicable approaches in the relevant methodologies (e.g. measuring the amount of methane captured from the SWDS);</p> <p>(b) Application B: The CDM project activity avoids or involves the disposal of waste at a SWDS. An example of this application of the tool is ACM0022, in which municipal solid waste (MSW) is treated with an alternative option, such as composting or anaerobic digestion, and is then prevented from being disposed of in a SWDS. The methane is generated from waste disposed or avoided from disposal during the crediting period. In these cases, the tool can be applied for both ex ante and ex post estimation of emissions.</p>		<p>methane emissions from a specific existing SWDS.</p> <p>Conclusion: This tool is applicable.</p>
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	<p>These project activities may apply the simplified approach detailed in 0 when calculating baseline emissions.</p>		
<p>TOOL03 Methodological tool: Tool to calculate project or leakage CO2 emissions from fossil fuel combustion. Version 03.0</p>			
	<p>It can be used in cases where CO2 emissions from fossil fuel combustion are calculated based on the quantity of fuel combusted and its properties. Methodologies using this tool should specify to which combustion process j this tool is being applied.</p>	<p>This applies because there is a emergency backup diesel generator mandatory for regulations.</p>	<p>From the review of PD, the validation team confirms that CO2 emissions from fossil fuel combustion are calculated based on the quantity of fuel combusted and its properties.</p> <p>Conclusion: The tool is applicable.</p>
<p>TOOL32 “Positive lists of technologies” (Version 04.0)</p>			
	<p>The use of this methodological tool is not mandatory for the project participants of a CDM project activity or CDM POA for demonstrating their additionality.</p>	<p>Applicable.</p>	<p>✓</p>
	<p>This methodological tool shall be applied in conjunction with a small-scale or large-scale methodology which refers to this tool.</p>	<p>Applicable. This tool is applied in conjunction with small-scale methodology AMS-III.G. Version 10.0)</p>	<p>From the review of PD, the validation team confirms that the tool is applied in conjunction with small-scale methodology AMS-III.G.</p> <p>Conclusion: The tool is applicable.</p>
<p>TOOL06 “Project emissions from flaring” (Version 04.0).</p>			

	<p>This tool is applicable to the flaring of flammable greenhouse gases where:</p> <p>(a) Methane is the component with the highest concentration in the flammable residual gas; and</p> <p>(b) The source of the residual gas is coal mine methane or a gas from a biogenic source (e.g. biogas, landfill gas or wastewater treatment gas).</p>	<p>a) Applicable, even though flare is being used just emergency, methane has the highest concentration in the flammable residual gas.</p> <p>b) The residual gas is a biogenic source; it is a Landfill gas.</p>	<p>From the review of PD, the validation team confirms that Methane is the component with the highest concentration in the flammable residual gas and the residual gas is a biogenic source.</p> <p>Conclusion: This tool is applicable.</p>
	<p>The tool is not applicable to the use of auxiliary fuels and therefore the residual gas must have sufficient flammable gas present to sustain combustion. In the case of an enclosed flare, there shall be operating specifications provided by the manufacturer of the flare and these shall be followed by the project participant.</p>	<p>All the flares in the project activity are enclosed flares, ARİŞ ENERJİ is the manufacturer and the flare specification are attached to the document.</p>	<p>From the review of PD and supporting documents, the validation team confirms that the flare is enclosed and operating specifications have been provided by the manufacturer which are followed by the PP.</p> <p>Conclusion: This tool is applicable.</p>
<p>TOOL 07: Tool to calculate the emission factor for an electricity system (version 07.0)</p>			
	<p>This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have</p>	<p>Applicable. This tool is applied to estimate the OM, BM and/or CM.</p>	<p>From the review of PD, the validation team confirms that the tool is applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity.</p>

	<p>been provided by the grid (e.g., demand-side energy efficiency projects).</p>		<p>Conclusion: The tool is applicable.</p>
	<p>Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option II.a and option II.b. If option II.a is chosen, the conditions specified in "Appendix 1: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.</p>	<p>Applicable. The emission factor for the project electricity system is calculated for grid power plants only.</p>	<p>From the review of PD, validation team confirms that the project electricity system is calculated for grid power plants only.</p> <p>Conclusion: This tool is applicable.</p>

	In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Not applicable. The project electricity system is located in Turkey.	From the review of PD, the validation team confirms that the project is located in Turkey. Hence not applicable.
	Under this tool, the value applied to the CO2 emission factor of biofuels is zero.	Not applicable.	From the review of PD, the validation team confirms that biofuels are not used in the project. Hence, not applicable.

3.3.3 Project Boundary

According to the applied methodologies AMS-III.G and AMS-I.D., the spatial extent of the project boundary encompasses the following:

- the physical/geographical site of the landfill where the gas should be captured to use the renewable generation source.
- the project power plant and all power plants connected physically to the electricity system that the VCS project power plant is connected to.

The relevant GHG sources included in or excluded from the project boundary are shown on the Table below:

	Source	Gas	Included?	Justification/Explanation
Baseline	Emissions from the decomposition of waste at the SWDS site	CO2	No	CO2 emissions from the decomposition of organic waste are not accounted since the CO2 is also released under the project activity.
		CH4	Yes	CH4 is the major source of emissions in the baseline.
		N2O	No	NO2 emissions are small compared to CH4 emissions from SWDS. Exclusion of this gas is conservative.
		Other	No	Excluded for simplification. This is conservative.
	Emissions from grid connected electricity production	CO2	Yes	Main source of emission, since power generation is included in the project activity.

Project		CH4	No	Excluded for simplification. This is conservative.
		N2O	No	Excluded for simplification. This is conservative.
		Other	No	Excluded for simplification. This is conservative.
	Emissions from fossil fuel consumption for purposes other than electricity generation or transportation due to the project activity	CO2	Yes	Included. This system is used when the grid cannot be utilized in case of power failures.
		CH4	No	Excluded for simplification. This emission source is assumed to be very small
		N2O	No	Excluded for simplification. This emission source is assumed to be very small
		Other	-	N/A
	Emissions from electricity consumption due to the project activity	CO2	Yes	Main source of emission. CO2 emissions will be accounted for electricity consumed from the grid.
		CH4	No	Excluded for simplification. This emission source is assumed to be very small
		N2O	No	Excluded for simplification. This emission source is assumed to be very small
		Other	No	Excluded for simplification. This emission source is assumed to be very small
	Emissions from flaring	CO2	Yes	The flare system would be used only in exigencies. In case the flare operation, the emission reduction will be excluded during this period, and thus emission source is not included.
		CH4	No	Emissions are considered negligible
		N2O	No	Emissions are considered negligible

Methane emissions from storage/disposal/treatment of waste (tCO ₂ e)	Other	-	N/A
	CO ₂	No	Excluded for simplification. This is conservative.
	CH ₄	Yes	CH ₄ is a source of emissions for project activity.
	N ₂ O	No	Excluded for simplification. This is conservative.
	Other	No	Excluded for simplification. This is conservative.

The project boundary and identified GHG sources, sinks and reservoirs for the project and baseline scenarios (including leakage if applicable) are appropriately defined in the VCS PD /01.2/. The selection and justification for inclusion or exclusion is appropriate and duly supported by the observation during the remote site visit. In addition to the table, a diagram of the project boundary, showing the physical locations of the various installations as part of the project activity are included in the PD. The choice of GHGs is also appropriate to the context of the project description. There is no GHG source that is omitted.

3.3.4 Baseline Scenario

The PP has identified baseline scenario in accordance with the approved baseline and monitoring methodologies:

- AMS-III.G.: Landfill methane recovery, Version 10.0
- AMS-I.D.: Grid connected renewable electricity generation, Version 18.0

According to the applied methodology, baseline scenario is identified as:

In the absence of the project activity, biomass and other organic matter are left to decay within the project boundary, and methane is emitted to the atmosphere and the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.

The validation team finds this to be acceptable based on the review of relevant documentation and through remote site visit activity. The VVB also confirms that the project activity follows all laws and regulations in Turkey and there are no mandatory laws or regulations for capture or destruction of LFG.

3.3.5 Additionality

According to paragraph 11 of the applied TOOL 32: 'Positive list of technologies' (Version 04.0), *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.*

Prior to the implementation of the project, the landfill gas (LFG) was an open dumping site. The landfill is in operation since 2020 wherein the landfill gas is captured and used to generate electricity.

It is concluded that the project meets the requirements of Tool 32 and is additional.

3.3.6 Quantification of GHG Emission Reductions and Removals

The following formulae will be followed by the project activity as per the following methodologies:

- AMS-III.G.: Landfill methane recovery, Version 10.0
- AMS-I.D.: Grid connected renewable electricity generation, Version 18.0

BASELINE EMISSIONS

Baseline emissions are determined according to the applied methodologies as follows:

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

Where:

BE_y	=	Baseline emissions in year y (t CO ₂ e/yr)
$BE_{CH_4,y}$	=	Baseline emissions of methane from the SWDS in year y (t CO ₂ e/yr)
$BE_{electricity,y}$	=	Baseline emissions from electricity displacement

Baseline emissions from landfill methane recovery ($BE_{CH_4,y}$)

Baseline emissions from animal waste treatment are determined according to the applied methodology, AMS-III.G., version 10 - equation (1):

$$BE_{CH_4,y} = \eta_{PJ} \times BE_{CH_4,SWDS,y} - (1-OX) \times F_{CH_4,BL,y} \times GWP_{CH_4}$$

$BE_{CH_4,y}$	=	Baseline emissions of methane from the SWDS in year y (t CO ₂ e/yr)
$BE_{CH_4,SWDS,y}$	=	<p>Methane emission potential of a solid waste disposal site (in t CO₂e), calculated using the methodological tool “Emissions from solid waste disposal sites”. This tool may be used:</p> <ul style="list-style-type: none"> • With the factor “f=0.0” because the amount of LFG that would have been captured and destroyed is already accounted for in this equation; • With the definition of year x as ‘the year since the landfill started receiving wastes, x runs from the first year of landfill operation (x=1) to the year for which emissions are calculated (x=y)’. <p>The amount of waste type j deposited each year x (W_{j,x}) shall be determined by sampling (as specified in the above-mentioned tool), in the case that waste is generated during the crediting period. Alternatively, for existing SWDS, if the pre-existing amount and composition of the wastes in the landfill are unknown, they can be estimated by using parameters related to the serviced population or industrial activity, or by comparison with other landfills with similar conditions at regional or national level</p>
OX	=	Oxidation factor (reflecting the amount of methane from SWDS that is oxidised in the soil or other material covering the waste) (dimensionless). A default value of 0.1 may be used
η_{PJ}	=	Efficiency of the LFG capture system that will be installed in the project activity. It is used for ex ante estimation only. A default value of 50 per cent may be used.
$F_{CH_4,BL,y}$	=	Methane emissions that would be captured and destroyed to comply with national or local safety requirement or legal regulations in the year y (t CH ₄). The relevant procedures in “ACM0001: Flaring or use of landfill gas” may be followed, as well as taking into account the compliance with the relevant local laws and regulation if such laws and regulations exist

$$GWP_{CH_4} = \text{Global Warming Potential for methane (value of 28)}$$

Determination of $F_{CH_4,BL,y}$

$F_{CH_4,BL,y}$ is determined according to section 5.4.1.3 of methodology, ACM0001 (version 19.0). The case (according to table 3 of the methodology) applicable to the project activity is Case 1 since there are no regulations in Turkey to destroy methane and there is no existing LFG capture and destruction system in the project area. This was found to be acceptable by the validation team after relevant document reviews and remote site inspection.

In this situation $F_{CH_4,BL,y} = 0$ (equation 6 of ACM0001)

Determination of $BE_{CH_4,SWDS,y}$

$BE_{CH_4,SWDS,y}$ is determined according to equation (1) of CDM methodological tool: "Emissions from solid waste disposal sites" (TOOL 04, version 08).

$$BE_{CH_4,SWDS,y} = \varphi y * (1 - fy) * GWP_{CH_4} * (1 - OX) * \frac{16}{12} * F * DOC_{f,y} * MCF_y * \sum_{x=1}^y \sum_j (W_{j,x} * DOC_j * e^{-kj*(y-x)} * (1 - e^{-kj}))$$

Where,

- $BE_{CH_4,SWDS,y}$ = Baseline methane emissions occurring in year y generated from waste disposal at the solid waste disposal site (SWDS) during a period ending in year y (tCO₂e/y)
- φ = Model correction factor to account for model uncertainties (default value of 0.75), Option 1 in the Tool has been selected, value as per Table 3 of the Tool (Application A and humid wet conditions).
- f = 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. As this is already accounted for in $F_{CH_4,BL,y}$, "f" in the Tool shall be assigned a value of 0.
- GWP_{CH_4} = Global warming potential of CH₄ (tCO₂e/tCH₄)

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) (0.5)
$DOC_{f,y}$	=	Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction). Default value of 0.5 used as per page 65 of the Tool.
MCF_y	=	Methane correction factor for year y (1.0)
$W_{j,x}$	=	Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)
DOC_j	=	Fraction of degradable organic carbon (by weight fraction) in the waste type j
k	=	Decay rate for the waste type j (1/yr)
j	=	Type of residual waste or types of waste in the MSW
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 ($x = y$)
y	=	Year for which methane emissions are calculated (considering a consecutive period of 12 months)

Therefore,

$$BE_{CH_4,LF,y} = 51,530.40 \text{ tCO}_2\text{e/yr}$$

Baseline emissions from electricity displacement ($BE_{electricity,y}$)

This section demonstrates the calculation of baseline emissions associated with electricity generation using equation (1) of the applied AMS-I.D. methodology.

$$BE_{electricity,y} = EG_{PJ,y} * EF_{grid,y}$$

Where,

$BE_{electricity,y}$ = Baseline emissions in year y (t CO₂)

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

$EF_{grid,y}$ = Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh)

Therefore,

$$BE_{electricity,y} = 8,111.67 \text{ tCO}_2\text{e/yr}$$

PROJECT EMISSIONS

Project emissions are determined according to the applied methodologies as follows

$$PE_y = PE_{CH_4,y} + PE_{electricity,y}$$

PE_y = Project emissions (tCO₂ e/yr)

$PE_{CH_4,y}$ = Project emission in year y for recovering methane from LF. (tCO₂ e)

$PE_{electricity,y}$ = Project emissions from LFG electricity generation estimated as per AMS-I.D (tCO₂ e)

Project emissions from the recovery of Landfill Gas ($PE_{LF,y}$)

It is calculated in accordance with section 5.4 of the applied methodology AMS-III.G., ver 10.0.

Project emissions consist of:

- a) CO₂ emissions from fossil fuel or electricity used by the project activity facilities ($PE_{power,y}$);
- b) Emissions from flaring or combustion of the gas stream ($PE_{flare,y}$);
- c) Emissions from the landfill gas upgrading process ($PE_{process,y}$), where applicable.

$$PE_{LF,y} = PE_{power,y} + PE_{flare,y} + PE_{process,y}$$

Where,

$PE_{LFG,y}$	=	Project emissions from recovery of LFG in year y (t CO ₂ e)
$PE_{Power,y}$	=	Emissions from the use of fossil fuel or electricity for operation of the installed facilities in the year y (t CO ₂ e)
$PE_{flare,y}$	=	Emissions from flaring or combustion of the landfill gas stream in the year y (t CO ₂ e)
$PE_{process,y}$	=	Emissions from the landfill gas upgrading process in year y (t CO ₂ e), determined by following the relevant procedures described in annex 1 of AMS-III.H.

Since a flare will only be used in an emergency if the engines cannot be used and the project activity is not relevant to an upgrading process, $PE_{flare,y}$ and $PE_{process,y}$ are both 0.

Accordingly,

$$PE_{LFG,y} = PE_{Power,y}$$

Project emissions from the use of electricity (PE_{power,y})

$PE_{power,y}$ is determined according to equation (1) of the CDM TOOL 05: "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" (version 03.0)

$$PE_{Power,y} = EC_{project,y} * EF_{grid,y} * (1 + TDL_{j,y})$$

Where:

$EC_{project,y}$	=	Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr)
$EF_{grid,y}$	=	Emission factor for electricity generation for source j in year y (tCO ₂ /MWh)
$TDL_{j,y}$	=	Average technical transmission and distribution losses for providing electricity to source j in year y

The value for Emission factor ($EF_{grid,y}$) is obtained from Turkish National Electricity Network and is determined according to CDM TOOL 07: "Tool to calculate the emission factor for an electricity system." However, no electricity is used for the operation of installed facility.

Therefore, $PE_{power,y} = 0$

Project emissions from flaring

Methodological TOOL06 show the calculation procedure to determine the project emissions from flaring the residual gas PE, flare based on the flare efficiency (flare) and the mass flow of methane to the flare (FCH₄,RG,m). The flare efficiency is determined based on monitored data or default values.

A flare is used in case the engines are out of operation and exigencies. The landfill gas upgrading process is not applicable to this project, so it is excluded.

Project emissions from fossil fuel combustion

$PE_{FC,j,y}$ is determined by “TOOL03 Methodological tool: Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion. Version 03.0”. They are the CO₂ emissions from fossil fuel combustion in process j during the year y (tCO₂/yr).

CO₂ emissions from fossil fuel combustion in process j are calculated based on the quantity of fuels combusted and the CO₂ emission coefficient of those fuels, as follows:

$$PE_{FC,j,y} = \sum_j FC_{PJ,j,y} * COEF_{i,y}$$

Where:

- $PE_{FC,j,y}$ = Are the CO₂ emissions from fossil fuel combustion in process j during the year y (tCO₂/yr)
- $FC_{PJ,j,y}$ = Is the quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr)
- $COEF_{i,y}$ = Is the CO₂ emission coefficient of fuel type i in year y (tCO₂/mass or volume unit)
- i = Are the fuel types combusted in process j during the year y

According to regulation there has to be a captive power plant or urgency diesel generator in case of shortage on methane or a breakout. $PE_{FC,j,y}$ has been excluded for simplification as the generator is almost never used.

Project emissions from renewable electricity production ($PE_{electricity,y}$)

According to paragraph 39 of the applied methodology, AMD-I.D. (version 18.0), the project emissions from most of the renewable energy projects is 0 except for emissions related to operation of geothermal plants and emissions from water reservoirs of hydro power plants. Therefore, project emissions from electricity generation for the project activity will be zero.

$$PE_{electricity,y} = 0$$

Following the equations above, project emissions from recovery of landfill gas is calculated and the annual average value is,

$$PE_{LF,y} = 0 \text{ tCO}_2\text{e/yr}$$

LEAKAGE

According to the applied methodologies, AMS-III.G. (version 10.0) *“If the methane recovery technology is equipment transferred from another activity, leakage effects are to be considered”* and *“If the project technology is the equipment transferred from another activity or if the existing equipment is transferred to another activity, leakage effects are to be considered.”* Leakage effects are not considered because the methane recovery/project technology/equipment is not transferred from another activity and any existing equipment is not transferred to another activity.

For the methodology AMS-I.D. (version 18.0), only the leakage pertaining to the use of biomass residues is considered.

Therefore,

$$LE_y = 0$$

EMISSION REDUCTIONS

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y	=	Emission reductions in year y (t CO ₂ e/yr)
BE_y	=	Baseline emissions in year y (t CO ₂ e/yr)
PE_y	=	Project emissions in year y (t CO ₂ /yr)
LE_y	=	Leakage emissions in year y (t CO ₂ /yr)

Accordingly,

$$ER_y = 59,642 \text{ t CO}_2\text{e/y}$$

The validation team confirms the following:

- All the assumptions and data are listed in the project description are relevant, including their references and sources.
- All data and parameter values used in the project description are considered reasonable in the context of the project.
- All estimates of the baseline emissions can be replicated using the data and parameter values provided in the project description.

Hence, the validation team confirms that the methodology and the above referenced tools have been applied correctly to calculate baseline emissions, project emissions, leakage and net GHG emission reductions and removals.

3.3.7 Methodology Deviations

The project does not seek any methodology deviations.

3.3.8 Monitoring Plan

The project activity has correctly applied the following CDM approved monitoring methodologies:

- AMS-III.G.: Landfill methane recovery, Version 10.0
- AMS-I.D.: Grid connected renewable electricity generation, Version 18.0

The monitoring plan provides detailed information related to the collection and archiving of all relevant data needed to:

- Estimate or measure emissions occurring from GHG sources, sinks and reservoirs
- Determine the baseline emissions

The monitoring plan has been clearly described in section 5 of the VCS PD. It covers all the monitoring parameters required to monitor by the project activity and emission reductions due to the project activity accurately.

The monitoring plan/procedure followed to measure the emission reduction is applied accurately and with a conservative approach.

Parameters Determined ex-ante

The following parameters are determined ex-ante and mentioned in section 5.1 of the PD:

Parameter	Unit	Value	Assessment
ϕ_{default}	-	0.75	PP has chosen a default value for the model correction factor to account for model uncertainties for Application A. The same is as per TOOL 04 “Emissions from solid waste disposal sites.” The justification was accepted by the validation team
OX	-	0.1	PP has chosen a default value for Oxidation factor. The same is as per the methodology AMS-III.G. (version 10.0). The justification was accepted by the validation team
F	-	0.5	PP has chosen a default value for the fraction of methane in SWDS gas. The same is as per TOOL 04 “Emissions from solid waste disposal sites.” The justification was accepted by the validation team
$\text{DOC}_{f,\text{default}}$	Weight fraction	0.5	PP has chosen a default value for the fraction of methane in SWDS gas. The same is as per TOOL 04 “Emissions from solid waste disposal sites.” The justification was accepted by the validation team
$\text{MCF}_{\text{default}}$	-	1	PP has chosen a default value for the Methane correction factor according to IPCC 2006 guidelines for national greenhouse gas inventories. The same is as per TOOL 04 “Emissions from solid waste disposal sites.” The justification was accepted by the validation team
DOC_j	%(Wet waste)	Wood and wood products – 43	PP has chosen a default value for fraction of degradable organic carbon in the waste type j (weight fraction) according to IPCC 2006 guidelines for national greenhouse

		<p>Pulp, paper and cardboard (other than sludge) – 40</p> <p>Food, food waste, beverages and tobacco (other than sludge) – 15</p> <p>Textiles – 24</p> <p>Garden, park and yard waste – 20</p> <p>Glass, plastic, metal, other inert – 0</p> <p>Sewage sludge - 5</p>	<p>gas inventories. The same is as per TOOL 04 “Emissions from solid waste disposal sites.” The justification was accepted by the validation team</p>
k_j	1/yr	<p>Refer to Data/parameter table 7 of section 6.4. of TOOL 04 (version 8.0)</p>	<p>PP has chosen a default value for Decay rate for the waste type j according to IPCC 2006 guidelines for national greenhouse gas inventories. The same is as per TOOL 04 “Emissions from solid waste disposal sites.” The justification was accepted by the validation team</p>
GWP_{CH_4}	t CO ₂ e/t CH ₄	28	<p>Default value from IPCC is used as per the applied methodology and as per version 4.3 of the VCS standard</p>
D_{CH_4}	Tonnes/m ³	0.00067	<p>This default value is chosen in accordance with the applied methodology. (Version 1.0)</p>
η_{PJ}	Dimensionless	70%	<p>This value is determined according to the project’s pre-feasibility study and was accepted by the validation team.</p>
NCV_{CH_4}	MJ/Nm ³ CH ₄	35.9	<p>PP has chosen a default value for net calorific value offuel type j in year y. The same is as per TOOL 04 “Emissions from solid waste disposal sites.” The justification was accepted by the validation team</p>

$EF_{CO_2,m,i,y}$ (combined)	tCO ₂ /MWh	0.5706	This value is obtained from Turkish National Electricity Network and is calculated according to CDM TOOL07
EG_y	MWh	13,338.09	The data is estimated based on operational hours and gas engine software,
$\eta_{m,y}$	-	0.43	This value is obtained from the factsheet of the gas engines.
$TDL_{j,y}$	-	0.11	This value is obtained from ANNUAL DEVELOPMENT OF ELECTRICITY GENERATION- CONSUMPTION AND LOSSES IN TURKEY (1993-2019) (https://webapi.teias.gov.tr/file/512cbf1d-0ca3-4492-b901-3722c7b682f7?download)
W_x	Ton	-	The data is obtained from Landfill gas power generation report of Batman Landfill gas project
$\rho_{CH_4, n}$	kg/m ³	0.716	Default Value is taken from TOOL06
SPECflare	Temperature - °C Flow rate or heat flux - kg/h or m ³ /h Maintenance schedule - number of days	Flare specifications attached	The value is obtained from manufacturer Aris Enerji.

Parameters Monitored ex-post

Monitoring of the project activity involves all the parameters necessary for calculation of GHG emission reduction by the proposed project activity. These parameters are mentioned in section 5.2 of the PD. The parameters, which are to be monitored include:

Parameter	Unit	Value	Assessment
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$LFG_{total,y}$	Nm ³	-	Continuous measurement by the flowmeters in real time.
$LFG_{electricity,y}$	Nm ³	-	Continuous measurement by the flowmeters in real time.
$PE_{power,y}$	MWh	-	Monitored by electricity meter installed at the outlet of gas generator. Meter readings will be read and recorded by the project staff monthly
$F_{CH4,RG,m}$	kg	-	Continuous measurement by the flowmeters in real time.
W_{CH4}	%	-	Continuous measurement by the flowmeters in real time.
Operation of the power plant	h	-	Monitored daily, monthly, and yearly
$T_{EG,m}$	°C	-	Monitored daily
ER_y	t CO ₂ e/y	-	Once for each monitoring period
$EG_{PJ,y}$	MWh/yr	-	Measured continuously and recorded at least monthly.
W_x	tons	-	The total amount of waste is continuously measured, and the data is aggregated at least annually.
Number of health and safety trainings	Quantity	-	Once at each monitoring period. Changes due to new employment are reported.
Avoided H ₂ S	tons	-	The amount of H ₂ S avoided is continuously measured and the data is aggregated at least annually.

The quantity of hazardous waste delivered to recycling and disposal facilities	tons	-	The total amount of hazardous waste is continuously measured, and the data is aggregated at least annually.
--	------	---	---

Detailed responsibilities and authorities for project management, monitoring procedures, calibration procedures and QA/QC procedures have been presented and were verified during follow up interviews. The detailed monitoring practice is considered appropriate and the implementation of these will enable subsequent verification of the project's emission reductions.

All relevant data will be archived electronically and further maintained for the entire crediting period plus two years. Based on the above assessment the validation team concludes that the PP is capable to implement the monitoring plan and hence confirms compliance of VCS guidelines /B01/ and the applied methodologies /B07/.

3.4 Non-Permanence Risk Analysis

This is not applicable to the project activity as the Project is not an AFOLU (Agriculture, Forestry and Other Land Use) project.

4 VALIDATION CONCLUSION

Anahtar Enerji Sanayi ve Ticaret Anonim Şirketi has commissioned Carbon Check (India) Private Ltd. (CCIPL) to validate the project "BATMAN LANDFILL GAS (LFG) CAPTURE AND UTILIZATION PROJECT", with regard to VCS Version 4 requirements and the information provided by the project proponent related to the project design, operation, monitoring and reporting.

CCIPL has reviewed the project description documents and subsequently carried out remote site visit interviews to confirm the fulfilment of stated criteria. The project intends to reduce GHG emissions by displacing grid electricity. A risk-based approach has been followed to perform this validation. During validation, 04 CARs and 11 CLs are raised which have been resolved by the PP.

The project activity has applied the following baseline and monitoring methodologies:

- AMS-III.G.: Landfill methane recovery, Version 10.0
- AMS-I.D.: Grid connected renewable electricity generation, Version 18.0

These are approved methodologies under the CDM programme and are acceptable under VCS Version 4. The baseline has been determined in accordance with the stated approved baseline methodologies.

Analysis of the proposed project activity reveals that the emission reductions resulting from the project activity are real, measurable and give long term benefits and are additional to what would

have occurred in the absence of the project activity. The annual average emission reductions from the project activity are estimated to be 59,642 tCO₂e per annum. The emission reductions forecast has been checked and is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan makes sufficient provision for monitoring relevant project and baseline emission indicators. Responsibilities and authorities for project management, monitoring and reporting and QA/QC procedures have also been addressed.

Based on the information provided by the project developer, it is CCIPL's opinion that the project, "BATMAN LANDFILL GAS (LFG) CAPTURE AND UTILIZATION PROJECT" in Turkey as described in the VCS PD, Version 02.0 dated 22-August-2022, meets all relevant VCS Version 4 requirement and correctly applied approved CDM baseline and monitoring methodologies AMS-III.G. (version 10.0) and AMS-I.D. (version 18.0).

CC IPL's validation opinion is purely based on the information made available to us by the project proponent during the course of validation and hence CCIPL cannot guarantee the accuracy or correctness of the information. Keeping this in mind, no party can hold CCIPL liable for any decisions made or not made in this report.

APPENDIX 1.1: REFERENCE DOCUMENTS

Ref	Document
/01/	1. Draft VCS PD version 01, dated 23-March-2022 2. Final VCS PD version 02, dated 22-August-2022
/02/	ER spread sheet
/03/	Legal status of the project proponents and evidence for the relationship between them (Anahtar Enerji Sanayi ve Ticaret Anonim Şirketi and BIO SOLUTIONS Yenilenebilir Enerji ve Danışmanlık Hizmetleri Sanayi ve Ticaret Limited Şirketi (LLC.))
/04/	Evidence for the start date of the project activity on 30-October-2020
/05/	Evidence for the supply of electricity to the national grid (Electricity Generation License issued by EMRA)
/06/	Evidence for the project location (GPS coordinates) including photographs, nameplates of the installed units, and technical specifications of key project equipment installed at the project site.
/07/	All relevant statutory clearances for construction and operation of the project activity
/08/	Third party PLF report or Feasibility study report
/09/	Project implementation status (evidence for key project milestones)
/10/	Evidence for the technical specifications of the project plant including installed capacity, lifetime, efficiency, load factor etc
/11/	Purchase order copies for the project plant equipment and License for construction
/12/	Electricity generation Invoices corresponding to the quantity of electricity supplied by the project
/13/	Distribution diagram for the electricity supply to the project including the monitoring points
/14/	Technical specifications of the monitoring instruments including their calibration frequency specified by the manufacturer
/15/	ODA declaration letter
/16/	Evidence for the calibration frequency of electricity and gas flow meters
/17/	Evidence supporting the operation of Batman landfill since 2005
/18/	Evidence for the compliance of each methodology applicability criteria (AMS-III.G. version 10.0, AMS-I.D. version 18.0)

/19/	Commissioning evidence for the project activity
/20/	Evidence supporting that the project does not fall into the enforcement of conducting EIA
/21/	Evidence for each of the identified plausible baseline scenarios with credible evidence source for either considering or negating the same
/22/	Relevant national and / or sectoral policies, regulations and circumstances for determine the baseline scenario
/23/	Evidence for the quantity and types of waste received by the facility.
/24/	Declaration of non-participation under other GHG programs
/25/	Evidence for the MAT, MAP, and PET for Batman where the project site is located
/26/	Evidence for the calculation of grid emission factor in line with the latest applicable version of TOOL 07
/27/	Details of the monitoring of generation and supply of project electricity (including location for the monitoring equipment)
/28/	All evidence related to Local Stakeholders Consultation process (invitations, attendance, photos/videos, minutes of meeting, etc.)
/29/	Training records
/30/	Evidence that only the landfill gas recovered in the project is used for power generation; no other gas or fuels except a start-up fuel are used.

APPENDIX 1.2: BACKGROUND DOCUMENTS

	Document
/B01/	VCS Standard (v4.3)
/B02/	VCS Program Guide (v4.2)
/B03/	VCS Validation and Verification Manual version 3.2
/B04/	Registration & Issuance Process (v4.2)
/B05/	VCS Programme Definitions version 4.2
/B06/	VCS PD template version 4.1
/B07/	Applied methodologies, AMS-III.G. version 10.0, and AMS-I.D. version 18.0


/B08/	https://cdm.unfccc.int/
/B09/	CDM Tool 04: Emissions from solid waste disposal sites, Version 8.0
/B10/	CDM Tool 05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, Version 03.0
/B11/	CDM Tool 07: Tool to calculate the emission factor for an electricity system, Version 07.0
/B12/	CDM Tool 32: Positive lists of technologies, Version 4.0

APPENDIX 2: ABBREVIATION

CDM	Clean Development Mechanism
BE	Baseline Emission
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO₂	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DPR	Detailed project report
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FVR	Final validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MW	Mega Watt
MWh	Mega Watt Hour
NA	Not Applicable
OSV	On Site Visit
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard

VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VM	Validation and Verification Manual
VVS	Validation and Verification Standard

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon Check (India) Private Ltd.

Mr. Sanjay Agarwalla

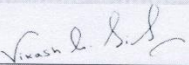
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

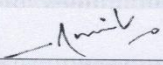
Validator	<input checked="" type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Assessor ¹	<input checked="" type="checkbox"/>

In the following Technical Areas:

TA 1.1	<input checked="" type="checkbox"/>	TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input checked="" type="checkbox"/>	TA 9.2	<input checked="" type="checkbox"/>	TA13.2	<input type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 4.1	<input checked="" type="checkbox"/>	TA 8.1	<input type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA14.1	<input type="checkbox"/>
TA 2.1	<input checked="" type="checkbox"/>	TA 5.1	<input checked="" type="checkbox"/>	TA 9.1	<input checked="" type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>		



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
24/12/2021

Valid Till
23/12/2022

Revision History of the Document

01/03/2020 ²	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision

¹ India

² Please refer to previous version of competency certificates for the revision history.

CARBON CHECK (INDIA) PRIVATE LIMITED
CIN: U74930DL2012PTC232495
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh
Tel: +91 120 4373114 | **URL:** www.carboncheck.co.in | **e-mail:** info@carboncheck.co.in



Carbon Check (India) Private Ltd.

Ms. Indumathi. C

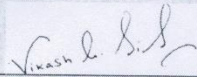
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

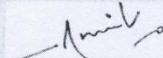
Validator Team Leader Technical reviewer
 Verifier Technical Expert Local Assessor¹

In the following Technical Areas:

TA 1.1 TA 4.1 TA 9.1 TA 13.1
 TA 1.2 TA 5.1 TA 9.2 TA 13.2
 TA 3.1 TA 5.2 TA 10.1 TA 14.1



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
24/12/2021

Valid Till
23/12/2022

Revision History of the Document

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Tel: +91 120 4373114 | URL: www.carboncheck.co.in | e-mail: info@carboncheck.co.in

APPENDIX 4: FINDINGS LOG

Table 1. CLs from this Validation

CL ID	01	Section no.	1.1	Date: 20-August-2022
Description of CL				
In section 1.1 of the PD, the nature of the crediting period (renewable or fixed) is not specified.				
Project participant response				Date: 22-August-2022
In section 1.1 of the PD, the nature of the crediting period has been specified.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date: 31-August-2022
PP has revised section 1.1 of the PD to specify the nature of crediting period. This CL is closed.				

CL ID	02	Section no.	1.3	Date: 20-August-2022
Description of CL				
In section 1.3 of the PD, reference of VCS standard version 4.1 is provided which is not the latest applicable version. PP is requested to give reference to latest applicable versions of VCS rules and requirements at all relevant places.				
Project participant response				Date: 22-August-2022
In section 1.3 of the PD, reference of VCS standard version and it's footnote have been updated.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date: 31-August-2022
PP has revised section 1.3 of the PD to provide latest version of VCS standard. Similarly, PP has provided latest applicable versions of VCS rules and requirements at relevant places. Hence, this CL is closed.				

CL ID	03	Section no.	1.5, 1.6	Date: 20-August-2022
Description of CL				
The entity, BIO SOLUTIONS Yenilenebilir Enerji ve Danışmanlık Hizmetleri Sanayi ve Ticaret Limited Şirketi (LLC.) is one of the project proponents as per section 1.5 of the PD. However, it is also mentioned as the other entity involved in the project in section 1.6 of the PD. Clarification is requested.				
Project participant response				Date: 22-August-2022
The mentioned entity, BIO SOLUTIONS Yenilenebilir Enerji ve Danışmanlık Hizmetleri Sanayi ve Ticaret Limited Şirketi (LLC.) has been removed from the section 1.6 of the PD.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date: 31-August-2022
PP has revised section 1.6 of the PD to remove BIO SOLUTIONS Yenilenebilir Enerji ve Danışmanlık Hizmetleri San. Ve Tic. Ltd. Şti as the other entity involved in the project. This CL is closed.				

CL ID	04	Section no.	1.7	Date: 20-August-2022
Description of CL				

<p>In section 1.7 of the PD it is stated that, “Both the attached approval of Environmental Impact Assessment (EIA) issued by the Ministry of Environment and Urbanization, Directorate General of Environmental Management in Turkey and the attached Electricity Generation License (EGL) issued by the Energy Market Regulatory Authority (EMRA) in Turkey established the project ownership to Batman Landfill Gas Power Generating Plant to Anahtar Enerji Sanayi ve Ticaret A.Ş.” However, in sections 1.1 and 1.14 of the PD it is stated that the project does not fall into the enforcement of carrying out EIA and a supporting document stating the same has been provided to the VVB. Clarification is requested.</p>	
Project participant response	Date: 22-August-2022
<p>Section 1.7 of the PD has been updated by adding Environmental Impact Assessment Exemption Letter and it’s footnote.</p>	
Documentation provided by the Project participant	
<p>Please refer the revised PD.</p>	
DOE assessment	Date: 31-August-2022
<p>PP has updated section 1.7 of the PD by providing reference to Environmental Impact Assessment Exemption letter at relevant places. The CL is closed.</p>	

CL ID	05	Section no.	1.11	Date: 20-August-2022
Description of CL				
<p>As per section 1.11 Description of Project Activity, paragraph (d), of PD” The <i>gas utilization unit is fitted with 2 engines (2 x Caterpillar 1.602 MWm / 1.560 MWe) total 3.120 MWe.</i>” However, during the remote interviews, it was found that a 3rd gas engine has been commissioned and installation of 4th gas engine is also considered. Also, the electricity generation license is acquired for 6.24 MWe. Therefore, PP is requested to clarify how the inclusion of 3rd and 4th gas engine aligns with the description of the project activity.</p>				
Project participant response				Date: 22-August-2022
<p>Section 1.11 Description of the Project Activity of PD has been updated by mentioning new installed capacity, generation license capacity and plans for 4th engine.</p>				
Documentation provided by the Project participant				
<p>Please refer the revised PD.</p>				
DOE assessment				Date: 31-August-2022
<p>PP has updated section 1.1 to explain the inclusion of 3rd and 4th Gas engine. Hence the CL is closed.</p>				

CL ID	06	Section no.	1.12	Date: 20-August-2022
Description of CL				
<p>Table 5 of Section 1.12 of the PD lists 11 pairs of location coordinates. PP is requested to clarify its significance.</p>				
Project participant response				Date: 22-August-2022
<p>Section 1.12 of the PD has been updated and the table 5 has been removed.</p>				
Documentation provided by the Project participant				
<p>Please refer the revised PD.</p>				
DOE assessment				Date: 31-August-2022
<p>PP has updated section 1.12 to indicate the project coordinates. The CL is closed.</p>				

CL ID	07	Section no.		Date: 20-August-2022
Description of CL				
<p>PP is requested to justify the applicability of emission factor published by the Turkish National Electricity Network in the year 2019, where it is calculated in accordance with version 6 of CDM TOOL07, which is not the latest applicable version.</p>				
Project participant response				Date: 22-August-2022

<p>In according to emission factor published by the Turkish National Electricity Network, TOOL07 version 6 has been used. When we check the difference between version 6 and version 7, the only change is "Revision to include monitoring requirements for parameters used to determine the emission factor of the isolated grid". Due to our grid is national and not isolated, it will give the same value as a result for emission factor.</p>	
<p>Documentation provided by the Project participant</p>	
<p>Please refer the revised PD.</p>	
<p>DOE assessment</p>	<p>Date: 31-August-2022</p>
<p>PP has justified the applicability of the emission factor and the justification is found to be satisfactory. Hence the CL is closed.</p>	

CL ID	08	Section no.	3.5	Date : 20-August-2022
Description of CL				
<p>Section 3.5 of the PD mentions, "The landfill is in operation since 2020, the landfill gas is captured and used to generate electricity." However, section 1.1 of the PD indicates that the landfill is in operation since 2005. Clarification is requested.</p>				
Project participant response				Date : 22-August-2022
<p>Section 3.5 of the PD has been updated.</p>				
Documentation provided by the Project participant				
<p>Please refer the revised PD.</p>				
DOE assessment				Date: 31-August-2022
<p>PP has updated the section 3.5 to indicate that the landfill gas is captured and used to generate electricity since 2020. The CL is closed.</p>				

CL ID	09	Section no.	4.4	Date : 20-August-2022
Description of CL				
<p>Table 10 in section 4.4 summarises estimated net GHG emission reduction or removals. However, discrepancy is noted in the values for year 2. Also, the total estimated net GHG emission reductions or removals is calculated incorrectly. PP needs to clarify regarding the discrepancies.</p>				
Project participant response				Date : 22-August-2022
<p>In PD, all the values about net GHG emission reduction or removals have been corrected.</p>				
Documentation provided by the Project participant				
<p>Please refer the revised PD.</p>				
DOE assessment				Date: 31-August-2022
<p>PP has revised section 4.4 of the PD to resolve discrepancy related to net GHG emission reductions. This CL is closed.</p>				

CL ID	10	Section no.	4.1, 5.1	Date: 20-August-2022
Description of CL				
<p>In sections 4.1 and 5.1 of the PD, the methane capture efficiency is stated as 70%. However, in Table 9 of the PD, the same is stated as 65%. Therefore, PP is requested to clarify the discrepancy.</p>				
Project participant response				Date: 22-August-2022
<p>In the document named SEF-Batman-visit-report-4 10-2020.pdf, methane capture efficiency has been stated as a between 65% and 75%. Therefore, 70% has been used and table 9 has been updated to 70%.</p>				
Documentation provided by the Project participant				
<p>Please refer the revised PD.</p>				
DOE assessment				Date: 31-August-2022
<p>PP has updated the section 4.1 and 5.1 to revise the methane capture efficiency value to 70%. This can be confirmed from the Third part feasibility report. Hence, the CL is closed.</p>				

CL ID	11	Section no.	5.1	Date : 20-August-2022
Description of CL				
The value for the parameter DCH4 in section 5.1 does not match with the one stated in the ER spreadsheet. PP needs to clarify regarding the discrepancy.				
Project participant response				Date : 22-August-2022
The value for the parameter D _{CH4} in the ER spreadsheet, has been corrected in according to section 5.1.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date: 31-August-2022
PP has updated the value for parameter DCH4 in the ER spreadsheet and the PD. Hence this CL is closed.				

Table 2. CARs from this Validation

CAR ID	01	Section no.	3.9.1	Date : 20-August-2022
Description of CAR				
According to section 3.9.1 of the VCS project standard (v.4.3), “Project size categorizations are as follows: 1) Projects: Less than or equal to 300,000 tonnes of CO ₂ e per year. 2) Large projects: Greater than 300,000 tonnes of CO ₂ e per year” and in section 1.10 of PD template (v4.1), the project scale is categorized into “project” and “large project.” However, in section 1.10 of the PD, PP has categorised project scale into “project” and “small project.”				
Project participant response				Date : 22-August-2022
The project scale category has been corrected and ‘project’ has been chosen.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date: 31-August-2022
PP has updated the section 1.10 to indicate the project scale as that of category ‘Project’. This agrees with the VCS standard (v.4.3). The CAR has been closed.				

CAR ID	02	Section no.	2.4	Date : 20-August-2022
Description of CAR				
PP is requested to revise section 2.4 of the PD, since the window for public comment has closed.				
Project participant response				Date : 22-August-2022
Section 2.4 of the PD has been revised.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date: 31-August-2022
PP has revised section 2.4 of the PD to address any public comments. Accordingly, PP has reported that no public comments were received. Hence the CAR has been closed.				

CAR ID	03	Section no.	3.2	Date: 20-August-2022
Description of CAR				
Section 3.2 of Project Description completing guidelines states that, “Demonstrate and justify how the project activity(s) meets each of the applicability conditions of the methodology(s), and tools (where applicable) applied by the project”. However, applicability conditions of the tools have not been demonstrated and justified in section 3.2 of the PD.				
Project participant response				Date: 22-August-2022
Applicability conditions of the tools have been demonstrated and justified in section 3.2 of the PD.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date: 31-August-2022

Section 3.2 of the PD has been updated to demonstrate the applicability of the relevant tools. Hence, this CAR has been closed.

CAR ID	04	Section no.	5.1	Date : 20-August-2022
Description of CAR				
The data/parameter tables for $\eta_{m,y}$ and $TDLj,y$ in section 5.1 of the PD do not match to those in the same section of the PD template (version 4.1)				
Project participant response				Date : 22-August-2022
The data/parameter tables for $\eta_{m,y}$ and $TDLj,y$ in section 5.1 of the PD have been updated according to their PD template.				
Documentation provided by the Project participant				
Please refer the revised PD.				
DOE assessment				Date : 31-August-2022
PP has updated the tables for $\eta_{m,y}$ and $TDLj,y$ in section 5.1 of the PD. This change has been found in conformance with the PD template. The CAR has been closed.				

Table 3. FARs from this Validation

FAR ID		Section no.		Date:
Description of FAR				
-				
Project participant response				Date: DD/MM/YYYY
Documentation provided by the Project participant				
DOE assessment				Date: DD/MM/YYYY