




**Validation report form for post-registration changes for
CDM project activities
(Version 03.0)**

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	ESTRE's Paulínia Landfill Gas Project (EPLGP) (UNFCCC reference number 0165)
Process track	<input type="checkbox"/> Prior approval <input checked="" type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report	2.0
Completion date of the validation report	14/10/2021
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents ¹ <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan <input type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents <input type="checkbox"/> Changes to the project design <input type="checkbox"/> Changes specific to afforestation and reforestation project activities
Version number of PDD to which this report applies	PDD Version 6.0, dated 13/10/2021
Project participants	ESTRE Ambiental S/A Nordic Environment Finance Corporation
Host Party	Brazil
Applied methodologies and standardized baselines	ACM0001 - "Flaring or use of landfill gas" (version 19.0)
Mandatory sectoral scopes	13 - Waste handling and disposal
Conditional sectoral scopes, if applicable	Not applicable.
Name and UNFCCC reference number of	EPIC Sustainability Services Pvt. Ltd. (EPIC);

¹ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied (selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

the DOE	UNFCCC reference number: E-0062
Name, position and signature of the approver of the validation report	 R. B. Venkataramanaiah (Director)

SECTION A. Executive summary

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Background and summary of the post-registration changes:

EPIC Sustainability Services Pvt. Ltd. (EPIC) was commissioned by the project participant ESTRE Ambiental S/A to perform a validation assessment of a post-registration change (PRC) applicable for the registered CDM project activity “ESTRE’s Paulínia Landfill Gas Project (EPLGP)” (UNFCCC Project no. 0165) as part of the performance of an also previously commissioned verification assessment for the 31st periodic verification of the same project activity (monitoring period from 14/09/2020 to 31/12/2020).

The post-registration change for the project activity was assessed by EPIC under the “Issuance” process track and encompasses the following type/category and description of PRC (as correctly summarized in Appendix 7 of the revised version of the PDD for the 3rd 7-year crediting period of the project activity):

- *Corrections in information (that do not affect the project design):*
 - *Specification details related to maximum operational LFG flow for 4 of the currently installed 6 high temperature enclosed flares (Flare 3, Flare 4, Flare 5 and Flare 6) are corrected in Sections A.3 and B.6.2 as per the specifications of the flares which are defined by their manufacturer Biotecnogas s.r.l. and also as per previously made description in the registered PDD valid for the currently expired 2nd 7-year renewable crediting period for the project activity. References to 2,000 Nm³/h were corrected to 2,500 Nm³/h in Sections A.3 and B.6.2.*

The above-summarized correction was addressed through the compilation of a revised version of the PDD valid for the 3rd 7-year renewable crediting period of the project activity (PDD version 6.0, dated 13/10/2021) ^{/2/}. This Validation Opinion Report includes the EPIC assessment and the validation opinion for the addressed PRC as per this latest version of the revised PDD ^{/2/}. This Validation Opinion Report and the revised version of the PDD ^{/2/} will be submitted to UNFCCC for approval under the “Issuance” process track.

In accordance with applicable CDM requirements, the revised version of the PDD ^{/2/} correctly applies the latest version of the CDM-PDD form (version 12.0) ^{/11/}. Moreover, the revised version of the PDD ^{/2/} was completed by correctly taking into account all applicable guidance/requirements for completing the CDM-PDD form (version 12.0) (as established by the Attachment to the CDM-PDD form (version 12.0) - Instructions for completing this form”). For the completion of the revised version of the PDD ^{/2/}, besides of addressing the PRCs encompassed by this Validation Opinion Report, previously existent project description information (as per the previous version of the registered PDD (version 05.0, dated 20/11/2020) ^{/3/}) were fully and correctly considered in the completion of the revised PDD as also required by applicable CDM rules.

Brief summary of the project activity:

As outlined in both the previous version of the registered PDD ^{/3/} and the revised version of the PDD ^{/2/}, the project activity was initially conceived, implemented and has operated since year 2006 as a project-based initiative implemented at the CGR Paulínia landfill that promotes efficient collection and destruction (through combustion in a set of high temperature enclosed flares) of landfill gas (LFG) that has been historically generated at this landfill site. LFG (which is rich in CH₄) has been historically generated at the project site as result of the anaerobic decomposition of municipal solid waste (MSW) disposed in the landfill site for which appropriate MSW landfilling techniques and procedures has been continuously applied.

The landfill where the project activity is implemented serves as a Municipal Solid Waste (MSW) disposal site serving several municipalities in the State of São Paulo and it is named CGR Paulínia

landfill. The landfill's address is at Estrada Municipal PLN 190, s/no., Parque da Represa, Paulínia – SP, Brazil. The geographical coordinates of the project site are as follows:

- Latitude: -22.773506
- Longitude: -47.196161

Summary of the assessed (validated) PRC:

The PRC addressed in the revised version of the PDD ^{/2/} and assessed/validated by EPIC is summarized above in a quotation from summarized description of the PRC that is appropriately included in Appendix 7 of the revised version of the PDD ^{/2/}.

Scope and objective of the validation assessment for post-registration changes:

The objective of the validation assessment for PRCs is to have an independent evaluation (validation opinion) being performed by a Designated Operational Entity (DOE) for project related documents (including, if applicable, a revised version of the PDD of a project activity) in order to validate occurred or yet to occur (planned) post-registration changes of a registered CDM project activity, with such independent evaluation being performed as per applicable CDM rules and requirements for addressing and validating/assessing PRCs. The validation assessment for PRCs aims to confirm whether occurred or planned PRCs applicable for a registered CDM project activity are correctly addressed by the project participant(s) and whether such changes are under compliance with all applicable CDM rules and requirements.

In summary, the objective of the validation assessment for PRCs of a CDM project activity is thus, by following applicable guidance and requirements from the CDM Validation and Verification Standard for Project Activities (CDM-VVS-PA) ^{/1/}, performing an independent third party assessment in order to determine whether the project participant(s) has/have *inter alia* correctly revised the PDD (if applicable) as per the latest guidance from the CDM-EB as required in the CDM Project Standard for Project Activities (CDM-PS-PA) ^{/8/}, CDM Project Cycle Procedure for Project Activities (CDM-PCP-PA) ^{/9/} and other relevant applicable guidance/standard. Furthermore, the use of complementary standard auditing techniques for validation assessments (as referred to in section 7.1.3.1 of the CDM-VVS-PA ^{/1/}) was systematically applied/considered as part of the performed validation assessment in light of the decision agreed by the CDM Executive Board (CDM-EB) (in March/2020) to relax mandatory site visits by DOEs for a 3-month period (from 23/03/2020 to 23/06/2020) because of COVID-19 pandemic (+ decisions also agreed by the CDM-EB to extend the relaxation of mandatory site visits until 31/12/2021) ^{/13/}.

The outcome/result of a validation assessment for PRCs is a positive or negative validation opinion regarding its/their compliance with all applicable criteria/requirements and recommending or not its/their later approval by the CDM-EB.

In the particular case of the assessed/validated PRC, its validation assessment was carried out on the basis of the following rules and requirements that are applicable for the particular case of the PRC for the project activity:

- Article 12 of the Kyoto Protocol ^{/5/},
- Guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 ^{/6/} and subsequent decisions made by the Executive Board and COP/MOP,
- Other relevant rules, including applicable and valid host country legislation/regulations,
- The CDM Validation and Verification Standard for Project Activities (CDM-VVS-PA) version 03.0 ^{/1/}.
- The CDM baseline and monitoring methodology ACM0001 "Flaring or use of landfill gas" (version 19.0) ^{/4/},

- The CDM methodological tool “Project emissions from flaring” (version 03.0) ^{/7/}
- The CDM methodological tool “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” (version 03.0) ^{/12/}
- The previous version of the registered PDD^{/3/} (version 05.0, dated 20/11/2020) that is valid for the 3rd 7-year crediting period of the project activity.
- The revised version of the PDD ^{/2/} for the 3rd 7-year crediting period of the project activity (version 6.0, dated 13/10/2021) that addresses the assessed/validated PRCs.
- Decision agreed by the CDM Executive Board (CDM-EB) (in March/2020) to relax mandatory site visits by DOEs for a 3-month period (from 23/03/2020 to 23/06/2020) because of COVID-19 pandemic (+ decisions also agreed by the CDM-EB to extend the relaxation of mandatory site visits until 31/12/2021) ^{/13/}.

Process of validation opinion for PRCs:

The process for validation opinion for PRCs is an independent assessment performed by a DOE that is based on applicable and valid guidelines described in the latest version of the CDM-VVS-PA^{/1/}. In addition to that, standard auditing techniques have been systematically applied by the assessment team appointed by EPIC as part of the performed validation assessment. EPIC assessment team initially performed a desk review on related documents, followed by interviews with representative of the project participants in order to confirm the correctness and appropriateness of information added and/or editing's in the revised version of the PDD^{/2/}. For all identified inconsistencies and lack of clarity, related findings (list of outstanding issues) are raised. The next steps of the performed assessment is closing out the findings through direct communication with the representatives of the project participant and receipt of updated version of the PDD ^{/2/} and/or supporting documents (if applicable) and finally preparing the Validation Opinion Report. The draft version of the Validation Opinion Report undergoes a technical review by EPIC prior to its approval and submission to the CDM-EB.

Validation opinion assessment conclusion and summary of its validation opinion:

As part of the conducted validation assessment, while no outstanding issues (findings) were identified by the EPIC assessment team, it is the opinion of EPIC that the revised version of the PDD ^{/2/} for the CDM project activity “ESTRE’s Paulínia Landfill Gas Project (EPLGP)” appropriately and correctly addresses the PRCs that are summarized and assessed in this Validation Opinion Report. All applicable CDM rules and requirements for addressing the assessed/validated PRC were sufficiently met.

The EPIC assessment team also confirms that, *inter alia* other relevant requirements, the previously assessed and demonstrated additionality for the project activity is not undermined by the assessed/validated PRC. Furthermore, the assessed/validated PRC does not adversely affects the application of the CDM baseline and monitoring methodology ACM0001 (version 19.0) + applicable methodological tools either.

Finally, the previously defined scale of the project activity (registered as large-scale project activity) is not adversely impacted by the assessed/validated PRC either. Thus, in accordance with applicable rules as per the latest version of the CDM-PS-PA ^{/8/}, the PRC is correctly addressed and it is assessed under the so-called “*Issuance*” process track. EPIC thus recommends the CDM-EB to approve the PRCs addressed for the project activity.

SECTION B. Validation team, technical reviewer and approver

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B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader / Technical Expert	EI	Ratton	Marco	EPIC - Central Office	X	N/A	X	X

Note: IR: Internal Resources, EI: External Individuals, OR: Outsourced Resource.

Demonstration how the appointed EPIC assessment team meets the competence required for the performance of the validation assessment of renewal of crediting period is included in Appendix 2.

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Vijayaraghavan	Radhamadhavan	EPIC - Central office
2.	Approver	IR	Venkataramanaiah	R. B.	EPIC - Central office

Note: IR: Internal Resources, EI: External Individuals, OR: Outsourced Resource.

Demonstration how the appointed EPIC technical review and approval team meets the competence required for the performance of the validation assessment of renewal of crediting period is included in Appendix 2.

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

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A detailed and extensive document review was performed by the EPIC assessment team in order to assess the revised version of the PDD^{/2/} addressing the assessed/validated PRCs. Besides the revised version of the PDD^{/2/}, documents such as the applied CDM baseline and monitoring methodology ACM0001^{/4/} and the methodological tool "Project emissions from flaring"^{/7/} were also reviewed by the EPIC assessment team by *inter alia* applying standard auditing techniques in order to assess the quality and relevance of information provided. The performed document review encompassed the following:

- Review of data and information made available in the revised version of the PDD ^{/2/} in order to verify the correctness of its completion, credibility and interpretation of the presented information;
- Confirmation, based on review of the applied CDM baseline and monitoring methodology ACM0001 ^{/4/} + methodological tool “Project emissions from flaring” ^{/7/} of the appropriateness/correctness of the corrections made in the revised version of the PDD ^{/2/}.
- Besides of the revised PDD ^{/2/}, the following documents were inter alia assessed:
 - The currently registered version of the PDD valid for the 3rd 7-year crediting period (version 05.0, dated 20/11/2020) ^{/3/}.
 - Relevant decisions, clarifications and guidance from the CMP and the CDM-EB

A complete list of all documents reviewed or referred to in the course of the performed validation opinion assessment for the PRC is included in Appendix 3.

C.2. On-site inspection

Duration of on-site inspection: DD/MM/YYYY to DD/MM/YYYY				
No.	Activity performed on-site	Site location	Date	Team member
1.				

No on-site inspection was conducted. It is relevant to note that the validation assessment of post-registration change addressed in this Validation Opinion Report was performed, under the “Issuance” process track, in the context of the 31st periodic verification assessment for the project activity (monitoring periods from 14/09/2020 to 31/12/2020) for which on-site inspection to the project site was not conducted either. While the need of correcting information made available in the currently registered version of the PDD for the project activity was identified as part of the performance of desk review of the verification assessment, interviews with representatives of the project participants performed on 06/09/2021 and additional complementary audit measures^{2/}; the need of correction in information available in the currently registered version of the PDD ^{/3/} (through the compilation of a revised version of the PDD ^{/2/}) was verified on the basis of additional desk-review phase (document review) + performed interviews with representatives of the project participant ESTRE Ambiental S/A.

Such additional interviews with representatives of the project participants were conducted by EPIC on 06/09/2021 by means of remote communication using Google Meet application (with details about such performed interviews presented in the Section C.3).

By taking into account the category and nature of the assessed post-registration change (“Corrections (in information that do not affect the project design)”) and by also taking into account the CDM-EB recently agreed relaxing of the rule requiring mandatory on-site inspection by DOEs (valid for the period from 23/03/2020 to 23/06/2020 and because of COVID-19 pandemic (+

² It is relevant to note that, as detailed in the Verification Report for the 31st period verification of the project activity, by taking into account the deadline in terms of delivery/forwarding of Certified Emission Reductions (CERs) generated by project activity during the considered monitoring period, by acknowledging that a previously planned physical on-site inspection to the project site could not be performed as part of the verification assessment due to the COVID-19 pandemic, by assuming that such on-site inspection could not be postponed, and by taking into consideration all guidance and requirements of the CDM-EB recently agreed relaxing of the rule requiring mandatory on-site inspection by DOEs for a 3-month period (from 23/03/2020 to 23/06/2020) because of COVID-19 pandemic (+ decisions also agreed by the CDM-EB to extend the relaxation of mandatory site visits until 31/12/2021)); the verification team appointed by EPIC performed, as part of its verification assessment, document review and interviews with representatives of the project participants by incorporating the following additional checking/s/assessments (complementary auditing measures):

- Remote (online) watching by the EPIC verification team of live videos (movies) produced by members of project operational staff located on-site (allowing remote complete and comprehensive assessment and observations for the project activity).

decisions also agreed by the CDM-EB to extend the relaxation of mandatory site visits until 31/12/2021))^{/13/}, EPIC judged the conduction of an on-site inspection to the project site (as part of its validation opinion assessment) as not necessary.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Barbosa	Nuno, (Mr.)	UniCarbo - Energia e Biogás Ltda. ³	06/09/2021	Interview through Google Meet application encompassing the following topics: - General technical aspects about details for the correction in information (that do not affect the project design) as per the revised version of the PDD ^{/2/} including correctness and appropriateness of texts/figures added in the revised version of the PDD ^{/2/} and their compliance with applicable CDM rules.	Marco A. Ratton

³ As confirmed by the EPIC verification team, UniCarbo Energia e Biogás Ltda. is a CDM consulting and advisory service company that has supported the host-country project participant Estre Ambiental S/A with CDM related issues (inter alia completion of the Monitoring Report). This CDM consulting and advisory service company is confirmed as not being a project participant.

C.4. Sampling approach

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Not applicable.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	CAR 1	-
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	-	-	-
Corrections	-	-	-
Changes to the start date of the crediting period	-	-	-
Inclusion of a monitoring plan to a registered project activity	-	-	-
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	-	-	-
Changes to the project design of a registered project activity	-	-	-
Types of changes specific to afforestation and reforestation project activities	-	-	-
Others (please specify)	-	-	-
Total	-	1	-

SECTION D. Validation findings**D.1. Compliance with PDD form**

Means of validation	<p>In accordance with applicable requirements of the CDM-VVS-PA (version 03.0) ^{/1/}, the EPIC assessment team assessed and evaluated the completion of the revised version of the PDD ^{/2/} addressing a PRC in order to <i>inter alia</i> determine whether this PDD was completed by correctly applying a valid version of the CDM-PDD form (and by correctly following all applicable guidance for its completion).</p> <p><i>General assessment for the completion of the revised version of the PDD:</i> While the currently registered version of the PDD valid for the 3rd 7-year crediting period ^{/3/} was completed by applying the latest version of the CDM-PDD form (version 12.0) ^{/11/}, the EPIC assessment team verified that the revised version of the PDD ^{/2/} (made available in both clean and tracked changes versions) was also completed by the project participants by correctly applying the latest version of the CDM-PDD form (version 12.0) ^{/11/} (with all applicable guidance for its completion being sufficiently and appropriately followed). Applicable guidance and requirements for completing the CDM-PDD form (version 12.0) as established by its attachment "Instructions for completing this form" ^{/11/} were confirmed by the EPIC assessment team to be correctly and sufficiently considered for the completion of the revised version of the PDD ^{/2/}.</p> <p>Relevant rules and requirements as per the CDM Project Standard for Project Activities (CDM-PS-PA) (version 03.0) ^{/8/} were also confirmed to be met/followed in the completed revised version of the PDD ^{/2/}.</p> <p>In summary, the EPIC assessment team was able to confirm that the revised version of the PDD ^{/2/} is correctly completed and provides clear understanding of the project activity design and monitoring as well as the assessed/validated PRC.</p>
Findings	<p>A CAR was raised regarding the completion of the revised PDD for the 3rd 7-year crediting period ^{/3/} under conformance with application of a valid/latest version of the CDM-PDD form and applicable guidance for its completion</p> <p>CAR 1: The revised PDD does not apply the latest version of the CDM Project Design form</p>

	(CDM-PDD-FORM).
Conclusion	In summary, the EPIC assessment team was able to confirm, upon closure of the related raised CAR, that the revised version of the PDD ^{/2/} addressing the assessed/validated PRC (made available in both clean and tracked changes versions) was completed by correctly applying the latest version of the CDM-PDD form (version 12.0) ^{/11/} (with all applicable guidance for its completion being sufficiently followed). It is also the opinion of the EPIC assessment team that the revised version of the PDD ^{/2/} provides clear understanding of the project activity design and its monitoring, including the assessed/validated PRCs.

D.2. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	Not applicable. No temporary deviations from the registered monitoring plan are encompassed by the performed validation assessment for PRCs.
Findings	Not applicable. No temporary deviations from the registered monitoring plan are encompassed by the performed validation assessment for PRCs.
Conclusion	Not applicable. No temporary deviations from the registered monitoring plan are encompassed by the performed validation assessment for PRCs.

D.3. Corrections

Means of validation	<p>In accordance with applicable requirements of the CDM-VVS-PA (version 03.0) ^{/17/}, the EPIC assessment team assessed and evaluated performed correction (in information that do not affect the project design) implemented in the revised version of the PDD ^{/2/} addressing PRC in order to <i>inter alia</i> determine whether such performed corrections are under compliance with applicable CDM rules and requirements for addressing PRCs.</p> <p><i>D.3.1 - General description of the performed Corrections (that do not affect the project design):</i> As verified by the EPIC assessment team, the performed Corrections (in information that do not affect the project design) are summarized as follows (as correctly outlined in Appendix 7 of the revised version of the PDD ^{/2/}):</p> <p><i>Corrections in information (that do not affect the project design):</i></p> <ul style="list-style-type: none"> - <i>Specification details related to maximum operational LFG flow for 4 of the currently installed 6 high temperature enclosed flares (Flare 3, Flare 4, Flare 5 and Flare 6) are corrected in Sections A.3 and B.6.2 as per the specifications of the flares which are defined by their manufacturer Biotechnogas s.r.l. and also as per previously made description in the registered PDD valid for the currently expired 2nd 7-year renewable crediting period for the project activity. References to 2,000 Nm³/h were corrected to 2,500 Nm³/h in Sections A.3 and B.6.2.</i> <p><i>Assessment of the performed Corrections (that do not affect the project design):</i> The EPIC assessment team confirmed that the performed correction in the indication of the maximum operational LFG flow for 4 of the 6 currently installed high temperature enclosed flares (Flare 3, Flare 4, Flare 5 and Flare 6) was made in Sections A.3 and B.6.2 of the PDD. This correction was confirmed by the EPIC assessment team as being under conformance with the technical design of these flares and as indicated in the specification sheet and technical documentation for the flares which were previously issued by the company Biotechnogas s.r.l. (manufacturer of the flares) ^{/12/}. EPIC has also confirmed that the correct value of maximum operational LFG flow for Flare 3, Flare 4, Flare 5 and Flare 6 was correctly indicated in the previous version of the PDD valid for the currently expired 2nd 7-year crediting period of the</p>
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	<p>project activity (PDD version 04.5, dated 29/02/2016) ^{/10/}, with such value being correctly applied/considered for all previously performed verification assessments from the currently expired 2nd 7-year renewable crediting period for the project activity.</p> <p>It was confirmed by the EPIC assessment team that the previously made indication of 2,000 Nm³/h as the maximum LFG operational flow for Flare 3, Flare 4, Flare 5 and Flare 6 (instead of 2,500 Nm³/h) clearly represents a typographic mistake which was made by the CDM consultants hired by the project participant ESTRE Ambiental S/A when completing the currently registered version of the PDD (version 5.0).</p> <p>In summary, it is the opinion of the EPIC assessment team that the indication of the maximum LFG operational flow for the installed flares as being 2,500 Nm³/h (as indicated in Sections A.3 and B.6.2 of the revised version of the PDD (under details for ex-ante determined parameter SPEC_{flare})) represents full conformance with the project design and applicable CDM rules.</p> <p>It is relevant to note that no change or modification was made in the previously installed flares. Thus, the project design per se is confirmed as not changed.</p>
Findings	No related findings (CARs, CLs and/or FARs) were raised regarding the performed Corrections (in information that do not affect the project design):
Conclusion	It is the opinion of the EPIC assessment team that the description of the performed Corrections (in information that do not affect the project design) is correctly and sufficiently described in the revised version of PDD ^{/2/} .

D.4. Changes to the start date of the crediting period

Means of validation	Not applicable. No changes to the start date of the crediting period for the project activity have occurred and/or are encompassed by the performed validation assessment for PRC.
Findings	Not applicable. No changes to the start date of the crediting period for the project activity have occurred and/or are encompassed by the performed validation assessment for PRC.
Conclusion	Not applicable. No changes to the start date of the crediting period for the project activity have occurred and/or are encompassed by the performed validation assessment for PRC.

D.5. Inclusion of a monitoring plan

Means of validation	Not applicable. No inclusion of a monitoring plan are encompassed by the performed validation assessment for PRC.
Findings	Not applicable. No inclusion of a monitoring plan are encompassed by the performed validation assessment for PRC.
Conclusion	Not applicable. No inclusion of a monitoring plan are encompassed by the performed validation assessment for PRC.

D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

Means of validation	Not applicable. No permanent changes to the registered monitoring plan, or permanent deviation from the applied CDM baseline and monitoring methodology and/or methodological tools are encompassed by the performed validation assessment for PRC.
Findings	Not applicable. No permanent changes to the registered monitoring plan, or permanent deviation from the applied CDM baseline and monitoring methodology and/or methodological tools are encompassed by the performed validation assessment for PRC.
Conclusion	Not applicable. No permanent changes to the registered monitoring plan, or permanent deviation from the applied CDM baseline and monitoring methodology and/or methodological tools are encompassed by the performed validation assessment for PRC.

D.7. Changes to the project design

Means of validation	Not applicable. No change to the project design are encompassed by the performed validation assessment for PRC.
Findings	Not applicable. No change to the project design are encompassed by the performed validation assessment for PRC.
Conclusion	Not applicable. No change to the project design are encompassed by the performed validation assessment for PRC.

D.8. Changes specific to afforestation and reforestation project activities

Means of validation	Not applicable. The project activity is not of afforestation and/or reforestation category.
Findings	Not applicable. The project activity is not of afforestation and/or reforestation category.
Conclusion	Not applicable. The project activity is not of afforestation and/or reforestation category.

SECTION E. Internal quality control

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The Validation Opinion Report underwent a Technical Review (TR) prior of being approved and submitted to UNFCCC in the context of the request for approval of post-registration changes (PRCs) of the registered CDM project activity. The TR is an independent process that is performed by an internal technical review team (a qualified technical reviewer, with assistance from specialists where necessary) and aims to examine thoroughly that the process of validation assessment for PRCs has been fully performed under conformance with applicable CDM rules and requirements for assessment of PRCs (as established by the latest version of the CDM-VVS-PA (version 03.0) ^{/1/} as well as under conformance with internal working procedures of EPIC.

The Team Leader provides a copy of the draft version of the Validation Opinion Report to the appointed Technical Review Team Leader (including any necessary validation documentation). The Technical Review Team reviews the documentation. It is the role of the Technical Review Team to ensure that all related assessment activities have been performed by the assessment team by exercising utmost diligence and complete adherence to the applicable CDM rules and

requirements for assessment of PRCs (including compilation of the Validation Opinion Report). The review encompasses all aspects related to the assessment of the post-registration changes as well as, if applicable, the closure of raised CARs, CLs and/or FARs during the assessment process.

As part of its performed tasks, the technical review team may raise Clarification Requests to the assessment team and/or discuss raised issues with the Team Leader. After the agreement of the responses to the Clarification Requests received from the assessment team (as well as from the project participant(s) if applicable), the final version of the Validation Opinion Report is thus accepted for further processing (such as approval and uploading phases via the UNFCCC interface).

SECTION F. Validation opinion

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EPIC Sustainability Services Pvt. Ltd. (EPIC) was commissioned to perform the 31st periodic verification assessment for the CDM project activity titled “ESTRE’s Paulínia Landfill Gas Project (EPLGP)” (UNFCCC reference number 0165) (monitoring period from 14/09/2020 to 31/12/2020). As part of the performance of such verification assessment, it was identified the need of correcting information previously made available in the registered version of the PDD for the project activity. Thus, a validation assessment of post-registration change (PRC) applicable for the project activity was performed by an assessment team appointed by EPIC.

The occurred post-registration change (PRC) valid for the CDM project activity was assessed and addressed by EPIC under the so-called “*Issuance*” process track and such change encompasses the following Corrections:

Corrections in information (that do not affect the project design):

- *Specification details related to maximum operational LFG flow for 4 of the currently installed 6 high temperature enclosed flares (Flare 3, Flare 4, Flare 5 and Flare 6) are corrected in Sections A.3 and B.6.2 as per the specifications of the flares which are defined by their manufacturer Biotecnogas s.r.l. and also as per previously made description in the registered PDD valid for the currently expired 2nd 7-year renewable crediting period for the project activity. References to 2,000 Nm³/h were corrected to 2,500 Nm³/h in Sections A.3 and B.6.2.*

Addressing by the project participant ESTRE Ambiental S/A of the above summarized PRC was correctly performed through the compilation of a revised version of the PDD (version 6.0, dated 13/10/2021). The revised version of the PDD had its performed changes validated by the appointed EPIC assessment team. The revised version of the PDD was made available and was assessed by the assessment team.


As also verified by the EPIC assessment team, the revised version of the PDD is completed on the basis of its previous version (currently registered version of the PDD (version 05.0, dated 20/11/2020) by correctly applying the previously selected CDM baseline and monitoring methodology ACM0001 (version 19.0) – “Flaring or use of landfill gas” + all the methodological tools the previous version of the PDD refers to. Moreover, the EPIC assessment team was also able to confirm that the revised version of the PDD was completed by correctly applying the latest version of the CDM-PDD form (version 12.0) with applicable guidance for its completion being appropriately and systematically followed by the project participants.

As an outcome of its performed validation opinion assessment, it is the opinion of EPIC that the revised version of the PDD sufficiently addresses and incorporates the above summarized eligible PRC. Furthermore, all explanations and justifications provided to EPIC by the representatives of the project participant ESTRE Ambiental S/A regarding the assessed PRC, as outlined in the revised version of the PDD, are deemed reasonable, trustful, and under conformance with applicable general CDM rules and procedures for addressing PRCs.

In summary, applied corrections (in information that do not affect the project design) correctly reflect the application of the applicable CDM guidance and procedures regarding this particular category of PRC as per the latest version of the Clean Development Mechanism Project Standard for Project Activities (CDM-PS-PA). EPIC thus recommends approval of the revised version of the PDD for the CDM project activity titled “ESTRE’s Paulínia Landfill Gas Project (EPLGP)” (UNFCCC reference number 0165) which correctly and appropriately addresses the PRC of the category

“Corrections (in information that do not affect the project design)” under the so-called “*Issuance*” process track.

Note: EPIC hereby highlights that, as part of its performed validation opinion assessment of post-registration changes valid for the CDM project activity “ESTRE’s Paulínia Landfill Gas Project (EPLGP)” (as reflected in the revised version of the PDD), the appointed EPIC assessment team did not perform any re-assessment of CDM requirements and criteria other than the ones specifically applicable/required for the validation opinion assessment of the PRCs in question (which are summarized in Appendix 7 of such revised version of the PDD and are also listed in this validation opinion statement). Thus, assessments which were to be previously performed as part of the previously occurred CDM validation assessment of the project activity and/or its CDM renewal of crediting period were not re-assessed by EPIC. Such limited scope of the validation opinion assessment performed by EPIC for the assessed/validated PRCs is under full compliance with applicable assessment requirements and rules as per the latest version of the CDM Validation and Verification Standard for Project Activities (CDM-VVS-PA).

Prepared by
 (Marco A. Ratton) Verification Team Leader

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM-EB	Clean Development Mechanism Executive Board
CDM-M&P	Modalities and Procedures for Clean Development Mechanism
CDM-PCP-PA	Clean Development Mechanism Project Cycle Procedures for Project Activities
CDM-PS-PA	Clean Development Mechanism Project Standard for Project Activities
CDM-VVS-PA	Clean Development Mechanism Validation and Verification Standard for Project Activities
CER	Certified Emission Reduction
CH ₄	Methane
CL	Clarification Request
CMP	Meeting of Parties to the Kyoto Protocol
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COP/MOP	The Conference of the Parties to the United Nations Framework Convention on Climate Change serving as the Meeting of the Parties to the Kyoto Protocol
COVID-19	Coronavirus-19 disease (infectious disease caused by a new virus that caused a worldwide pandemic in year 2020).
DOE	Designated Operational Entity
ER	Emission Reduction
GHG	Greenhouse Gas
LFG	Landfill gas
IPCC	Intergovernmental Panel on Climate Change
MSW	Municipals solid waste
PDD	Project Design Document
PP	Project Participant
PRC	Post-registration change
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention for Climate Change

Appendix 2. Competence of team members and technical reviewers

All personnel being engaged in CDM validation opinion assessments performed by EPIC are qualified based on the established procedures of EPIC to assure the resource requirements that satisfy all the requirements of competence criteria of the CDM Accreditation Standard for operational entities. EPIC is accredited as a DOE and holds the full responsibility on decision-making regarding the validation opinion assessment in accordance with the accreditation requirements of the CDM-EB.

The following assessment team has been assigned to carry out the validation opinion assessment of post-registration changes (PRCs) for the assessed project activity.

Name	Mr Marco A. Ratton	Mr. R. Vijayaraghavan
Role	Lead Auditor	Technical Reviewer
Competence in relevant sectoral scope(s):	Sectors 1 and 13	Sectors 1 and 13
Responsibility	Performance of document review, performance of interviews with project participants representatives, preparation of initial list of findings, assessment of responses from the project participants for all list of findings and assessment of updated/corrected documents, preparation of the and draft Validation Opinion Report, addressing comments from the performed technical review and preparation of final Validation Opinion Report.	Performance of Technical review

Mr. Marco A. Ratton is based in Brazil and has acted as a CDM auditor since 2007. He holds vast experience with independent assessments of CDM project activities within the area of solid waste management and effluent treatment implemented in Latin America and other regions. He also has previous working experience with planning of municipal waste management as well as educational background in mechanical fabrication & manufacturing technologies, economics and environmental management & policy. He has undergone extensive training on CDM validation and verification and is a qualified Lead Auditor for Sectoral Scope 13 under Technical Area "Waste handling and disposal" and Sector Scope 1 in accordance with procedures of EPIC sustainability services Pvt. Ltd. He also has previous experience on conducting ISO 9001/14001 assessments.

Mr. R. Vijayaraghavan holds BE in Mechanical Engineering, M.Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has 10 years of working experience in energy sector including validation / verification of fifty CDM and VCS/GS projects and has undergone extensive training on CDM validation and verification and has been qualified as Lead Auditor and Technical Reviewer with Sectoral Scope 1 and 13. He is also an ISO 26000 lead auditor certified by Professional Evaluation and Certification Board (PECB).

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/1/	UNFCCC/CDM-EB	Clean Development Mechanism Validation and Verification Standard for Project Activities (CDM-VVS-PA), (version 03.0)	Dated 09/09/2021. Available online: http://cdm.unfccc.int/Reference/Standards/index.html	Others
/2/	ESTRE Ambiental S/A	Revised version of the Project Design Document (PDD) for the 2 nd 7-year renewable crediting period for the CDM project activity: “ESTRE’s Paulínia Landfill Gas Project (EPLGP)” (version 6.0) (in both clean and tracked changes versions).	Dated 13/10/2021	Project Participants ⁴
/3/	ESTRE Ambiental S/A	Project Design Document (PDD) for the 2 nd 7-year renewable crediting period for the CDM project activity: “ESTRE’s Paulínia Landfill Gas Project (EPLGP)” (version 05).	Dated 20/11/2020 Available online: https://cdm.unfccc.int/Projects/DB/DNV-CUK1134989999.25/view	Project Participants
/4/	UNFCCC/CDM-EB	Consolidated baseline and monitoring methodology ACM0001 - “Flaring or use of landfill gas” (version 19.0).	Dated 04/05/2017. Available online: https://cdm.unfccc.int/methodologies/DB/JPYB4DYQUXQPZLBDVPHA87479EMY9M	Others
/5/	UNFCCC	Kyoto Protocol to the United Nations Framework Convention on Climate Change	Dated 1998. Available online: http://unfccc.int/resource/docs/convkp/kpeng.pdf	Others
/6/	UNFCCC	Decision 3/CMP. 1 (Marrakesh – Accords)	Dated 30/03/2006. Available online: https://cdm.unfccc.int/Reference/COPMOP/08a01.pdf	Others
/7/	UNFCCC/CDM-EB	Methodological tool “Project emissions from flaring” (version 03.0).	Dated 20/07/2012. Available online: https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-06-v3.0.pdf	Others
/8/	UNFCCC/CDM-EB	Clean Development Mechanism Project Standard for Project Activities (CDM-PS-PA) (version	Dated 09/09/2021. Available online: http://cdm.unfccc.int/Reference	Others

⁴ All document with provider indicated as “Project Participants” were sourced by the host-country project participant and project owner ESTRE Ambiental S/A.

		03.0)	nce/Standards/index.html	
/9/	UNFCCC/CDM-EB	Clean Development Mechanism Project Cycle Procedure for Project Activities (CDM-PCP-PA) (version 03.0)	Dated 09/09/2021. Available online: Available online: https://cdm.unfccc.int/sunsets/cms/storage/contents/store-d-file-20210921110741000/pc_proc03_v03.0.pdf	Others
/10/	ESTRE Ambiental S/A	Registered Project Design Document (PDD) for the currently expired 2 nd 7-year renewable crediting period for the CDM project activity: "ESTRE's Paulínia Landfill Gas Project (EPLGP)" (version 04.5).	Dated 29/02/2016 Available online: https://cdm.unfccc.int/Projects/DB/DNV-CUK1134989999.25/view?cp=2	Project Participants
/11/	UNFCCC	Project design document form for CDM project activities (incl. the Attachment "Instructions for completing this form", version 12.0.	Dated 08/10/2021. Available online: https://cdm.unfccc.int/Reference/PDDs_Forms/index.html	Others
/12/	Biotechogas s.r.l.	Technical specification sheet and technical documentation for the 4 of the currently installed 6 high temperature enclosed flares as part of the for the CDM project activity: "ESTRE's Paulínia Landfill Gas Project (EPLGP)" (Flare 3, Flare 4, Flare 5 and Flare 6).	Dated August/2007.	Others
/13/	CDM-EB	Agreed relaxing of the rule requiring mandatory on-site inspection by DOEs (valid for the period from 23/03/2020 to 23/06/2020 and because of COVID-19 pandemic (+ decisions also agreed by the CDM-EB to extend the relaxation of mandatory site visits until 31/12/2021))	Dated March/2020 Available online: https://cdm.unfccc.int/newsroom/latestnews/releases/2020/01041_index.html	Others
/14/	ESTRE Ambiental S/A	Monitoring Report for the CDM project activity "ESTRE's Paulínia Landfill Gas Project (EPLGP)" - monitoring period from 14/09/2020 to 31/12/2020, version 3.	Dated 13/10/2021.	Project Participants
/15/	ESTRE Ambiental S/A	Revised version of the Project Design Document (PDD) for the 2nd 7-year renewable crediting period for the CDM project activity: "ESTRE's Paulínia Landfill Gas Project (EPLGP)" (version 5.1).	Dated 08/09/2021	Project Participants

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	xx	Section no.	-	Date: DD/MM/YYYY
Description of CL				
No CLs were raised as part of the performed validation opinion assessment.				
Project participant response				Date: DD/MM/YYYY
-				
c				
-				
DOE assessment				Date: DD/MM/YYYY
-				

Table 2. CARs from this validation

CAR ID	1	Section no.	D.1	Date: 12/10/2021
Description of CAR				
The revised PDD does not apply the latest version of the CDM Project Design form (CDM-PDD-FORM).				
Project participant response				Date: 13/10/2021
As a response to the raised CAR, the latest version of the CDM Project Design form (CDM-PDD-FORM) (version 12.0) is applied for the completion of the revised version of the PDD.				
Documentation provided by project participant				
No additional documentation was provided.				
DOE assessment				Date: 14/10/2021
The EPIC assessment team confirmed the application of the latest version of the CDM Project Design form (CDM-PDD-FORM) (version 12.0) for the completion of the latest revised version of the PDD. This CAR is thus closed.				

Table 3. FARs from this validation

FAR ID	xx	Section no.	-	Date: DD/MM/YYYY
Description of FAR				
No FARs were raised as part of the performed validation opinion assessment.				
Project participant response				Date: DD/MM/YYYY
-				
Documentation provided by project participant				
-				
DOE assessment				Date: DD/MM/YYYY
-				

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);• Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements in the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		