




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

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Brazil NovaGerar Landfill Gas to Energy Project UNFCCC Ref. Number: 0008
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	25/11/2021
Type(s) of PRCs	<input checked="" 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 checked="" 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 checked="" 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	11
Project participants	Haztec Tecnologia e Planejamento Ambiental S.A. ALLCOT AG
Host Party	Brazil
Applied methodologies and standardized baselines	ACM0001 – Flaring or use of landfill gas – version 19.0
Mandatory sectoral scopes	1 - Energy industries (renewable / non-renewable sources) 13 - Waste handling and disposal
Conditional sectoral scopes, if applicable	-

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).

Name and UNFCCC reference number of the DOE	Earthood Services Private Limited UNFCCC Ref. Number: E-0066
Name, position and signature of the approver of the validation report	 Dr. Kaviraj Singh Managing Director

SECTION A. Executive summary

Brief summary of the project activity

The project activity is an LFG collection and flaring system installed at NovaGerar landfill consists of a LFG collecting system, LFG pre-treatment system, flaring system and electricity generation. The landfill gas is collected and through a network composed of transportation pipes, the landfill gas reaches the pre-treatment system in which the moisture is removed and then sent to the flaring system and electricity generation, so reducing the greenhouse gas emissions previously emitted into the atmosphere.

The project activity is located in the city of Nova Iguaçu, State of Rio de Janeiro, Brazil. The GPS coordinates are: 22.666667 S and 43.466667 W.

Scope of validation

Haztec Tecnologia e Planejamento Ambiental S.A. has contracted ESPL to conduct the validation of PRCs of the CDM project activity "Brazil NovaGerar Landfill Gas to Energy Project".

The scope of the validation is to establish that the PRCs are in accordance with PS for project activities 03.0.

Validation process

The validation process involved the following:

- contract with Haztec Tecnologia e Planejamento Ambiental S.A. for the scope of validation of the PRCs, along with the verification;
- publication of monitoring report;
- desk review;
- physical on-site inspection;
- issuance of validation findings;
- reporting, calculation checks, QA/QC and resolution of findings;
- issuance of draft validation report;
- independent technical review of the project documentation;
- issuance of the final validation report.

Conclusion

ESPL has performed the validation of the PRCs of the CDM PA "Brazil NovaGerar Landfill Gas to Energy Project", with UNFCCC Ref. Number 0008.

The validation team has confirmed that the PRCs are in accordance with PS for project activities 03.0, relevant CDM rules and requirements and conditions of the applied methodology ACM0001 – version 19.0.

Therefore, the request for registration of the PRCs is being submitted in accordance with the CDM procedures.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader	OR	Cruz	Sergio	Verifit	Y	N	Y	Y
2.	Local Expert	OR	Cruz	Sergio	Verifit	Y	N	Y	Y
3.	Methodologic al Expert	OR	Cruz	Sergio	Verifit	Y	N	Y	Y

4.	Technical Expert	OR	Cruz	Sergio	Verifit	Y	N	Y	Y
5.	Technical Expert	OR	Sebben	Marcelo	Verifit	Y	N	Y	Y

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	Gautam	Ashok	Central Office
2.	Technical Expert	IR	Gautam	Ashok	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

SECTION C. Means of validation

C.1. Desk/document review

A desk review was conducted by the validation team that included:

- a review of the data and information presented to assess its completeness;
- a review of the registered project activity, the applied methodology including applicable tool(s) and, where applicable, the applied standardized baseline;
- a review of supporting documents.

A complete list of documents/evidences reviewed is included as Appendix 3 of this Validation Report.

C.2. On-site inspection

Duration of on-site inspection: -				
No.	Activity performed on-site	Site location	Date	Team member
-	-	-	-	-

A site visit was not performed for the verification of the monitoring period, as Brazil is facing the 3rd wave of COVID and it is now the epicentre of the pandemic in the world, with a very difficult situation and very limited conditions for safe travel.

In addition, the PP has an ERPA and an obligation to deliver the issued CERs in 2021. Therefore, a delay in the present verification could lead to severe financial losses for the project owner.

In order to allow a credible and sufficient means for the present validation, the DOE used other standard auditing techniques for validation, as referred to in section 7.1.3 of the VVS-PA, as follows:

- confirmation from PP that no changes occurred in the installed technology, monitoring plan, measuring equipment;
- current pictures of main equipment;
- live/real time video tour;
- document review; and
- interview with PP's representatives (responsible for the management and monitoring of project activity).

Therefore, the PPs have provided all necessary information for a clear and precise understanding of the project activity, which has been considered sufficient by the audit team for the purpose of the present verification.

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Mondini	Jonney	Orizon	01/06/2021	Project activity management	Sergio Cruz
2.	Paulino	Ivan	Orizon	01/06/2021	Project monitoring	Sergio Cruz

3.	Sprovieri	João	Beng	01/06/2021	Project monitoring ER calculations	Sergio Cruz
5.	Veiga	Ana Paula	Beng	01/06/2021	CDM aspects ER calculations	Sergio Cruz
6.	Varkulya Jr	Américo	Beng	01/06/2021	CDM aspects ER calculations	Sergio Cruz
7.	de Souza de Almeida	Sullivan	AB (Niegar)	01/06/2021	Supervision of data of Niegar	Sergio Cruz
8.	Abreu	Carlos Henrique	Niegar	01/06/2021	Data of electricity Generation and consumption of Niegar	Sergio Cruz
9.	Aquino	Carlos	Agrekko	01/06/2021	Data of electricity Generation and consumption of Agrekko	Sergio Cruz

C.4. Sampling approach

Not applicable as no sampling has been used during the validation.

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	-	-	-
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	-	-	-
Corrections	-	-	-
Changes to the start date of the crediting period	-	-	-
Inclusion of a monitoring plan	-	-	-
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents	1	-	-
Changes to the project design	-	1	-
Changes specific to afforestation and reforestation project activities	-	-	-
Others (please specify)	-	-	-
Total	01	01	0

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The PDD was crosschecked with the CDM-PDD-FORM template available at the UNFCCC website and with the instructions for filling it out.
Findings	-
Conclusion	The latest version of the verification template (CDM-PDD-FORM – version 12.0) available at the UNFCCC website has been used. It has been filled out in accordance with the instructions.

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

Means of validation	From 01/11/2020 to 31/12/2020 , the PP was unable to provide information from the monitored data of the biogas flow that was used by group generators 13, 14, 15 and 16 to generate electricity, as the flow meter start to operate just on 01/01/2021. Thus, the PP is proposing an alternative reverse calculation for this period. The PP is proposing that the estimative of methane volume into power plant will be conservatively based on the electricity exported to the grid instead of gross
----------------------------	--

electricity generated by the power plant, which is conservative as the amount of electricity exported to the grid is smaller due to the self-consumption of plant equipment. The methane fed to the engines will be calculated as follows:

$$F_{CH_4,EL,y} = \frac{EC_{BL} \times (Conversion\ rate\ MWh\ to\ TJ)}{(NCV_{CH_4}) \times (El. eff)}$$

Where:

$F_{CH_4EL,y}$	Amount of methane in the LFG which is used for electricity generation (t_{CH_4});
EC_{BL}	Net amount of electricity generated using LFG and exported to the grid during the monitoring period applying deviation (MWh);
<i>Conversion rate MWh to TJ</i>	Unit conversion rate from MWh to TJ (0.0036 TJ/MWh);
NCV_{CH_4}	Net calorific value of methane at reference conditions (0.0504 TJ/ t_{CH_4}), according to ACM0001 – v. 19.0;
<i>El. eff</i>	Efficiency of engine, assuming a 100% plant load factor as a conservative approach (38.72%).

Then, the emission reductions will be normally calculated according to the methodologies and tools defined in the registered PDD and demonstrated in Section E of the Monitoring Report, to which this assessment report is attached.

The monitoring of LFG flow is totally separate: there are one flow meter to monitor the LFG to the flare, 12 flow meters to monitor the LFG to the GG1 through GG12 (managed by company Niegar and which delivers the electricity to the grid) and one flow meter (not operating at the time of the deviation, managed by company Aggreko and which directly sells the electricity) to monitor the LFG to GGs 13, 14, 15 and 16).

Then, in order to calculate the ERs, the PP conducted calculations as per registered PDD and monitoring plan using the following steps:

1. Calculation of methane destroyed in the baseline;
2. Calculation of baseline emissions;
3. Calculation of project emissions.

It is important to note that the deviation is not likely to lead to a reduction in the accuracy of the ER calculations, as it is mentioned above, the monitoring of LFG flow is totally separate and the only portion of methane to be accounted is the one from GGs 13, 14, 15 and 16.

Taking into consideration that the measured electricity exported to the grid by the project power plant could only be produced using the available LFG² and that the electricity has been duly measured, the volume of methane destroyed can conservatively be estimated by the quantity of electricity generated using the formula above.

The parameters applied in this equation were assessed, as follow:

- **EC_{BL}** : Quantity of electricity exported to the grid measured as per the monitoring plan during the monitoring period applying deviation. This parameter corresponds to the electricity effectively measured by the electricity meters (delivered to the grid), already discounting self-consumption. This information is measured by the electricity meters and they are available in the electricity reports provided by internal meters and Light (company responsible for electricity distribution in the State of Rio de Janeiro);

² according to the ACM0001 – v.19.0, it is plausible to assume that the combustion of methane from biogas is the only responsible for generating heat and electricity.

- **Conversion rate MWh to TJ:** the unit conversion rate from MWh to TJ is a simple unit conversion obtained from MIT Units & Conversions Fact Sheet. Source: <https://cngcenter.com/wp-content/uploads/2013/09/UnitsAndConversions.pdf>. It is considered correct and applicable. The applied value is 0.0036 TJ/MWh;
- **NCV_{CH4}:** Net calorific value of methane at reference conditions. The ex-ante value is 0.0504 TJ/t_{CH4}, according to ACM0001 – version 19.0;
- **El.eff:** Efficiency of engine, assuming a 100% plant load factor as a conservative approach, as per group generators data sheet. Therefore, the value used was 38.72% of the efficiency of the engine, according to group generator data sheet, in order to lower the calculated volume of CH₄ fed into the group generators.

The accuracy of the other steps of the ERs calculations was verified and it is considered in accordance with registered monitoring plan.

Thus, it is concluded that the proposed deviation is accurate.

The conservativeness of this measure was verified through the comparison^{/20/} of the ratio of the volume of methane fed to the group generators 13, 14, 15 and 16 by the electricity generation of the months November and December/2020, with deviation (and consequently, with this alternative calculation) and the three subsequent months (January, February and March/2021), in which the flow meter was operating, and with no deviation. The values calculated with deviation are 50% lower than the lowest value of the subsequent months, as showed below:

Month	Methane volume in the LFG	Generated electricity	Ratio (Nm ³ /MWh)
Nov/2020 (calculated as per the deviation)	447,644 Nm ³	1,739 MWh	257
Dec/2020 (calculated as per the deviation)	403,497 Nm ³	1,568 MWh	257
Jan/2021 (with the flow meter in regular operation)	614,828 Nm ³	1,584 MWh	388
Feb/2021 (with the flow meter in regular operation)	573,020 Nm ³	1,357 MWh	422
Mar/2021 (with the flow meter in regular operation)	724,169 Nm ³	1,790 MWh	405

From the comparison above, it can be concluded that much less methane is being accounted for generating 1 MWh during the deviation period when comparing with the period when the methane is actually being measured. Therefore, it is concluded that the deviation proposed is conservative, as it generates less baseline emissions due to methane destruction.

In addition, when comparing^{/20/} the net electricity generation and ERs of the months with deviation with the estimated in the registered PDD, it is also possible to verify that the values for November and December/2020 represent less than 50% of the estimated values, as demonstrated below:

Estimated values, as demonstrated below:			
Estimate of electricity in registered PDD		Electricity generation considered in the deviation (Nov and Dec/2020)	
Net capacity for GGs 13 to 16: 1,250 MW			
Number of GGs: 4			
Load factor: 92%			
Days in Nov and Dec/2020: 61		November	December
		1,739 MWh	1,568 MWh
Maximum electricity generation: 6.734 MW		3.307 MWh	

Based on the results demonstrated by the PP, the validation team understands that the application of the temporary deviation is conservative and does not lead to an increase of the estimated ERs.

Findings

-

Conclusion	<p>The formulae applied to estimate the amount of methane fed into the engine, as well as to calculate the amount of methane destroyed to generate electricity was assessed and is considered correct by the validation team. The parameters applied are conservative and/or taken from reliable literature.</p> <p>The validation team attested the information that the started to operate on 01/01/2021 and it is operating normally after the end of the requested deviation period.</p> <p>The validation team could verify that the flow meter is now in place and operating normally.</p> <p>In addition, it is important to point out that only landfill gas is used to generate electricity in the project activity, including during the deviation period. The validation team observed at the remote site visit and by all interviews that the other group generators that exist at the site (GG1 to GG12) deliver electricity to the grid (with a complete independent monitoring and cross checking) are from another company (Niegar). Furthermore, according to the technical description^{/20/}of the installed group generators 13, 14, 15 and 16, they were built to combust LFG only. In addition, the validation team verified that no natural gas network is available at the landfill area. This information could be verified by technical documents of the plant and equipment and confirmed by biogas plant manager. It is therefore totally reasonable to assume that all electricity monitored by Aggreko's system and cross checked by invoices of Light was generated using the available LFG for GGs 13, 14, 15 and 16.</p> <p>Also, by checking the project registration at ANEEL website, biogas will be the only source of fuel of the power plant. Thus, it is confirmed that no other fuel could be used to generate electricity in this project activity using the installed facilities other than LFG.</p> <p>The basis for the reverse calculation was the monitored parameter electricity exported to the grid, which was cross check against invoices of Light, which is the company responsible for electricity distribution in the State of Rio de Janeiro, and therefore the information is considered highly reliable, totally independent from PP.</p> <p>Moreover, the validation team confirms that according to interviews carried out during remote site visit, there is no manual record of missing data. The validation team had access to all calibration certificates^{/17/} for the period. It was observed that specifically the calibration of electricity meter ELO2173, used for the monitoring of export and import of electricity of Aggreko is up to date and so.</p> <p>It is important to state that the maintenance of equipment was not left aside during the deviation period and this can be evidenced with calibration certificates provided to validation team during site visit and from biogas plant internal procedures. No delayed calibrations were observed. But most important is that no measured parameters were used to determine the ERs during the deviation period, apart from electricity meter, which is duly calibrated and maintained during period. But even not having influence in the ERs calculated, the equipment was all duly controlled as per registered PDD.</p> <p>As per the information above about the parameters used for the calculation of the volume of CH₄ fed into the group generators 13, 14, 15 and 16, it was demonstrated that the calculations are conservative.</p> <p>A very similar approach to the same kind of temporary deviation has been used for project activity "Exploitation of the biogas from Controlled Landfill in Solid Waste Management Central – CTRS / BR.040" – UNFCCC Reference Number # 3464 during its 2nd verification and approved as PRC-3464-0002 on 04/04/2017 and for project activity "Projeto de Gás de Aterro TECIPAR – PROGAT" – UNFCCC Reference Number # 7799 during its 2nd verification and approved as PRC-7799-002 on 13/02/2020.</p> <p>Therefore, the validation team concludes that the proposed alternative deviation is not likely to lead to a reduction in the accuracy of the ER calculations.</p> <p>The proposed deviation is in accordance with paragraph 231 (a) of PS for project activities – version 03.0.</p>
-------------------	--

	<p>In addition, the requested change is in accordance with paragraphs 281, 282, 283 and 286 of VVS for project activities – version 03.0, as the parameter value is accurate.</p> <p>The proposed alternative monitoring arrangements is conservative in the calculation of ERs and hence, in line with paragraph 1(b) of its Appendix.</p>
--	---

D.3. Corrections

Means of validation	<p><u>Correction # 1</u></p> <p>At Section A.4 of the registered PDD, it was indicated that the Party <u>Switzerland</u> of Project Participant ALLCOT AG wanted to be considered as <u>Project Participant</u>. Nevertheless, this information is incorrect as Party <u>Switzerland</u> does not want to be considered as <u>Project Participant</u>. Thus, the field “Indicate if the Party involved wishes to be considered as project participant” has been corrected as “No”.</p>
Findings	-
Conclusion	<p>The requested change is in accordance with paragraph 232 of Project Standard for project activities – version 03.0, as the PPs are correcting a project information that was incorrectly stated at the renewal of the crediting period of the project activity.</p> <p>In addition, the requested change is in accordance with paragraphs 287, 288 and 289 of VVS for project activities – version 03.0, as the project information is correct.</p> <p>The corrected information accurately reflects the actual project information.</p> <p>The proposed change does not affect the conservativeness in the calculation of ERs and hence, in line with paragraph 1(a) of Appendix of PS for project activities – version 03.0.</p>

Means of validation	<u>Correction # 2</u>			
	The parameter “Waste composition” was not correctly described at the renewal of the crediting period of the project, as there was a third party’s gravimetry study of the waste composition ^{18/} from January/2020 about the waste composition of the residues disposed in the NovaGerar landfill, which was not considered during the renewal process (which considered a study from 2010), but with impacts on the operation of the biogas plant.			
	The changes are as follows:			
	Registered PDD		Revised PDD – correct gravimetry	
	A) Wood and wood products	0.00%	A) Wood and wood products	0.31%
	B) Pulp, paper and cardboard (other than sludge)	16.10%	B) Pulp, paper and cardboard (other than sludge)	10.26%
	C) Food, food waste, beverages and tobacco (other than sludge)	48.68%	C) Food, food waste, beverages and tobacco (other than sludge)	32.96%
	D) Textiles	4.90%	D) Textiles	11.15%
	E) Garden, yard and park waste	0.00%	E) Garden, yard and park waste	21.56%
	F) Glass, plastic, metal, other inert waste	30.32%	F) Glass, plastic, metal, other inert waste	23.75%
	Total	100%	Total	100%
	It is important to note that there was no change in the amount of waste validated at the renewal of crediting period. Moreover, it is not considered an update of the parameter but a correction, as the values informed in the renewed PDD were incorrectly included at the time of renewal of CP.			
	The change has an impact on the ERs estimates only and no impact on actual ERs, so their calculation was revised to reflect the correct scenario.			
Findings	-			

Conclusion	<p>The requested change is in accordance with paragraph 232 of Project Standard for project activities – version 03.0, as the PPs are correcting the information of the fixed parameter “Waste composition” that was set at the renewal of the crediting period of the project activity.</p> <p>In addition, the requested change is in accordance with paragraphs 287, 288 and 289 of VVS for project activities – version 03.0, as the parameter information is accurate and enables a correct monitoring of the project activity.</p> <p>No changes in the application of the applied methodologies, registered monitoring plan and other applied methodological regulatory documents occurred due to these corrections.</p> <p>The proposed change is an accurate reflection of the situation on the ground and conservative in the calculation of ERs as it only affects the estimation of ERs in the PDD and not the actual ERs. Hence, in line with paragraph 1(a) of Appendix of PS for project activities – version 03.0.</p>
-------------------	--

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

Means of validation	Not applicable
Findings	-
Conclusion	Not applicable

D.5. Inclusion of a monitoring plan

Means of validation	Not applicable
Findings	-
Conclusion	Not applicable

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	<p>The proposed PRC is a permanent change to the registered monitoring plan.</p> <p>The change is necessary as the volumetric fraction of GHG in the waste stream may also be monitored in wet basis, as it is not possible to ensure that the temperature of the gaseous stream is below 60°C (333.15 K) at the flow measurement point at all the time.</p> <p>Hence, Option C of TOOL08 – version 03.0 may be used to determine this parameter when the gaseous stream is measured in wet basis.</p> <p>This option was not included in latest version of the registered PDD. Therefore, Option C, when applicable, is to be used to determine the mass flow of the gaseous flow. As a consequence of this inclusion, fixed parameters P_n (Total pressure at normal conditions) and T_n (Temperature at normal conditions) were included, in accordance with requirements of TOOL08 and all equations used by Option C can be used for the calculation of the mass flow of greenhouse gas.</p>
Findings	CL 01
Conclusion	<p>The proposed permanent change to the registered monitoring plan is in accordance with paragraph 238 of PS for project activities – version 03.0.</p> <p>The validation team can confirm that it is in accordance with paragraphs 296 – 299 of VVS for project activities – version 03.0, as the change:</p> <ul style="list-style-type: none"> a. is in compliance with PS for project activities – version 03.0; b. is in compliance with applied methodology and tools; c. it does not reduce the accuracy of monitoring. <p>The revised PDD clearly describes the permanent change to the registered monitoring plan.</p> <p>The change does not reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.</p>

	<p>In addition, the change does not lead to a reduction in the accuracy of the calculation of GHG emission reductions, as the calculations are done as per the applied methodology and tools, in accordance with technology used and the change only refers to the inclusion of an option that exists in the applied tool.</p> <p>Therefore, no change has been done that may cause any impact to the accuracy of the monitoring and calculations.</p> <p>The proposed alternative monitoring arrangements is conservative in the calculation of ERs and hence, in line with paragraph 1(c) of Appendix of PS for project activities – version 03.0.</p>
--	--

D.7. Changes to the project design

Means of validation	<p>It was verified that the LFG collection efficiency is much better than it is considered by the default value set by applied methodology ACM0001 – version 19.0, i.e., 50%.</p> <p>Due to the configuration of implementation of the collection system (drains, wells, distances, quantities, etc.), it is possible for the LFG implementer (Biotechnogas) to ensure that the LFG collection efficiency reaches 95%. A complete report “Technical specifications of the biogas collection network – CTR Nova Iguaçu”^{19/} was presented to the validation team to evidence those specifications.</p> <p>Therefore, considering all improvements performed by the PP, it is necessary to request this change from 50% to 95% of LFG collection efficiency, to make possible to account for those improvements.</p> <p>In order to evaluate the impact of the increase in the LFG collection efficiency in the electricity generation of the plant and consequently to the additionality of the PA, a revised additionality assessment was presented. In fact, the increase in the LFG collection efficiency has absolutely no impact in the estimated electricity generation. To ensure that no adverse impact is observed for the additionality assessment, it was performed a new assessment^{25/}, changing the key parameter impacted by change, i.e., quantity of LFG. Even to be more conservative, it was considered the hypothetical scenario of 100% of PLF, in other words, that no maintenance at all would be necessary for the engines, which obviously is not feasible. Even though, the project continues additional. Refer to the new assessment that is submitted along with this request.</p> <p>For CERs estimates ex-ante, there is also no impact regarding the change in the LFG collection efficiency, which is evidenced by the revised CERs calculations ex-ante^{18-2/}, where the plant load factor used is 100% and no variation in the amount of CERs is verified for the generated electricity.</p> <p>Thus, the change has no negative impact to:</p> <ul style="list-style-type: none"> - the registered monitoring plan, as the monitoring continues being in accordance with the applied methodology and tools. The monitoring necessary for parameters used in the calculations will not suffer any negative changes; - the level of accuracy of the monitoring activity, as the monitoring continues being in accordance with the applied methodology and tools. The level of accuracy of the monitoring activity continues the same as before; - the applied methodology and other methodological regulatory documents, as all requirements of ACM0001 and related tools continue being applied to the project activity. <p>In addition, the change does not adversely impact:</p> <ul style="list-style-type: none"> - the additionality of the registered CDM project activity. A new assessment was performed to confirm this, as demonstrated above; - the scale of the registered CDM project activity, as it is already a large-scale project activity; - the applicability and application of the applied methodologies and other methodological regulatory documents, as all requirements of ACM0001 and related tools continue being applied; - the compliance of the monitoring plan with the applied methodologies and other methodological regulatory documents. as all requirements of ACM0001 and related tools continue being applied.
----------------------------	---

	Moreover, the revised PDD also complies with all requirements of the applied methodologies and other methodological regulatory documents.
Findings	CAR 01
Conclusion	<p>The proposed change to the project design is in accordance with paragraph 241 (h) of PS for project activities – version 03.0, as it represents a change to an actual operational parameter that is within the control of the project participants, differing from the expected parameter.</p> <p>In addition, the change is in accordance with paragraph 242 of PS, as:</p> <ul style="list-style-type: none"> - it has no impact to the applicability and application of the applied methodology, as the methodology allows open flares and all requirements of ACM0001 and related tools continue being applied; - it has no impact to the project boundary and any implications on the inclusion or exclusion of emissions sources and leakage emissions; - the monitoring plan is in compliance with the applied methodology and tools. Actually, a permanent change to the monitoring plan is also being required exactly to allow a proper monitoring of the entire project activity and demonstrate that all requirements of ACM0001 and related tools continue being applied; - it has no impact to the level of accuracy and completeness in the monitoring of the project activity, which remains as accurate and complete as before; - it has no negative impact to the additionality of the project activity, as only a new investment was done, with probable reduction of revenues; - the change has no impact to the scale of the project activity, as it continues being a large-scale project activity. <p>The validation team can confirm that it is in accordance with paragraphs 309 and 310 of VVS for project activities – version 03.0:</p> <ul style="list-style-type: none"> - the change refers to a much better LFG collection efficiency (i.e., 95%) than the default value set by applied methodology ACM0001 – version 19.0, i.e., 50%, due to “Technical specifications of the biogas collection network – CTR Nova Iguaçu”^{19/}, from LFG implementer; - the change occurred in order to have a better performance of the system, which could not be known before, as it is a result of several actions taken by PP to improve the operation of the PA, in accordance with directives from LFG implementer; - the change has no impact to the applicability and application of the applied methodology; - the change has no impact to the project boundary and associated leakages; - the monitoring plan is in compliance with the applied methodology and tools; - the change has no impact to the level of accuracy and completeness in the monitoring of the project activity; - the change has no impact to the additionality of the project activity; - the change has no impact to the scale of the project activity. <p>In addition, no findings of previous verification and certification reports had any relationship with the present change to the project design.</p>

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

Means of validation	Not applicable
Findings	-
Conclusion	Not applicable

SECTION E. Internal quality control

The draft validation report that is prepared by validation team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by ESPL were duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable CDM rules/requirements.

The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope to which the project activity is related. All members of technical review team are independent of the validation team.

During the technical review process, additional findings may be identified or the closed-out findings may be opened, which needs to be satisfactorily resolved before the request for the renewal of the crediting period is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same, in such case, providing the comments/findings/issues that needs to be resolved by the validation team. The decision taken by the technical reviewer is final and is authorized on behalf of ESPL.

SECTION F. Validation opinion

The following changes are being requested under the issuance track, in accordance with paragraph 246 of PS for project activities – version 03.0 and also in accordance with paragraph 130 of PCP for project activities – version 03.0, as per PP's discretion.

They are:

- the Temporary deviation from the registered monitoring plan is in accordance with paragraph 231 (a) of Project Standard for project activities – version 03.0, with a proposed alternative monitoring arrangements for the non-conforming monitoring period;
- the proposed Corrections are in accordance with paragraph 232 of Project Standard for project activities – version 03.0, as the PPs are correcting the information of the participation of Switzerland as not being a project participant; and correcting the value of fixed parameter *Waste composition*;
- the proposed Permanent change to the registered monitoring plan is in accordance with paragraph 238 of PS for project activities – version 03.0, as the PPs are complementing the information in the monitoring plan;
- the proposed Change of project design is in accordance with paragraph 241 (h) of PS for project activities – version 03.0, as it represents a change to an actual operational parameter that is within the control of the project participants, differing from the expected parameter.

All changes are in line with paragraph 1 of the Appendix of PS for project activities – version 03.0, as the Corrections do not affect the design of the project activity; the Temporary deviation from the registered monitoring plan produces a conservative estimate of greenhouse gas (GHG) emission reductions; the Change to the monitoring of the CDM project activity has no material impact to the applicability and application of the applied methodology or the accuracy and completeness of the monitoring; and the Change to the project design does not adversely impact the applicability and application of methodology and tools, the additionality and scale of the PA.

As per VVS sections 8.2, 8.3.1, 8.3.4 and 8.3.5, the validation team concludes the following:

- the changes above reflect the actual information observed during the remote site visit and are considered in compliance with CDM PS for PA;
- project participants have proposed alternative monitoring arrangements referred to in the CDM PS for PA for the non-conforming monitoring period and the applied arrangements are conservative;
- the assumptions to the calculations ensure that GHG emission reductions will not be overestimated as a result of the deviation;
- the changes above are considered accurate by the validation team as observed during the remote site inspection;
- the permanent change to the registered monitoring plan described in the revised PDD is in compliance with the applied methodology and the other applied methodological regulatory documents, and do not reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan;
- the permanent change to the registered monitoring plan are not likely to lead to a reduction in the accuracy of the calculation of GHG emission reductions;
- the change of project design does not adversely affect the conclusions of the validation report of the registered PDD with regard to:
 - applicability and application of methodology and tools;
 - project boundary and any implications on the inclusion or exclusion of emissions sources and leakage emissions;
 - level of accuracy and completeness of the monitoring compared with the requirements contained in the registered monitoring plan;
 - additionality of the project activity; and

- scale of the project activity;
- the revised PDD complies with all requirements of applied methodologies and all information was duly transferred from original PDD to the revised version.

The new version of the PDD accurately and clearly reflects the proposed changes.

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
BE	Baseline Emissions
BM	Build Margin
CAR	Corrective Action Request
CCEE	Chamber of Commerce of Electric Energy
CDM	Clean Development Mechanism
CH ₄	Methane
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Crediting Period
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact Assessment
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GG	Electricity Generation Group
GHG	Green House Gas
GSC/GSP	Global Stakeholder Consultation Process
INEA	Institute of the Environment of the State of Rio de Janeiro
IPCC	Intergovernmental Panel on Climate Change
LE	Leakage Emissions
LFG	Landfill gas
KP	Kyoto Protocol
LoA	Letter of Approval/Authorization
MP	Monitoring Plan
OM	Operating Margin
PA	Project Activity
PCP	Project Cycle Procedure
PDD	Project Design Document
PE	Project Emissions
PP	Project Participant
PS	Project Standard
tCO ₂ e	Tonnes of Carbon di oxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VT	Verification Team
VVS	Validation and Verification Standard
VT	Verification Team

Appendix 2. Competence of team members and technical reviewers

Name	Sergio Bonanno Cruz		
Country	Brazil		
Education	Post Graduate Diploma in Environment		
Experience	+25 Years		
Field	Environmental Law, CDM, Energy, Climate Change		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	Yes (ACM0001, ACM0002, AM0026, ACM0006, AMS ID)		
Local expert	Brazil, Chile, Colombia		
Financial Expert	Yes		
Technical Reviewer	No		
TA Expert	Yes (TA 1.2, 13.1)		
Reviewed by	Shreya Garg	Date	29/08/2019
Approved by	Anshika Gupta	Date	29/08/2019

Competence Statement			
Name	Marcelo Sebben		
Country	Brazil		
Education	M.Sc. (Sustainable Energy System) B. Eng. (Chemical Engineering)		
Experience	+12.5 Years		
Field	Chemical process industry, CDM, Energy, Climate Change		
Approved Roles			
Team Leader	Yes		
Validator	Yes		
Verifier	Yes		
Methodology Expert	Yes (ACM0001, ACM0002, ACM0006, AM0065, AMS.I.D, AMS.I.C, AMS.I.E, AM0026, AMS.I.A, AMS.I.F, AMS. IIIE. AMS.IIIH, AMS.III.I, AMS.III.J.)		
Local expert	Brazil, Chile, Honduras, Colombia		
Financial Expert	Yes		
Technical Reviewer	No		
TA Expert	Yes (TA 1.1, 1.2, 5.1, 9.1,13.1)		
Reviewed by	Shreya Garg	Date	29/07/2020
Approved by	Anshika Gupta	Date	29/07/2020

Competence Statement	
Name	Ashok Gautam
Country	India

Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AMS III.AR, AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0009, AM0034, AMS.I.B, ACM0003		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shreya Garg	Date	15/04/2021
Approved by	Anshika Gupta	Date	15/04/2021

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UNFCCC	Standard: CDM PS for project activities	version 03.0	Others
2.	UNFCCC	Standard: CDM PCP for project activities	version 03.0	Others
3.	UNFCCC	Standard: CDM VVS for project activities	version 03.0	Others
4.	UNFCCC	Form: CDM-PDD-FORM	version 12.0	Others
5.	PP	Registered PDD	version 8 – 05/03/2021	Others
6.	PP	Revised PDD (draft)	version 9 – 09/06/2021 version 10 – 02/07/2021	PP
7.	PP	Revised PDD (final)	version 11 – 11/11/2021	PP
8.	PP	1. Revised ER estimates 2. Updated CERs ex ante Rev V5	- version 1 - 11/11/2021	PP
9.	UNFCCC	Methodology ACM0001 – Flaring or use of landfill gas	version 19.0	Others
10.	UNFCCC	Methodological tools - TOOL03 – Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion	version 03.0	Others
		- TOOL04 – Emissions from solid waste disposal sites	version 08.0	
		- TOOL05 – Baseline, project and/or leakage emissions from electricity consumption and	version 03.0	

		monitoring of electricity generation		
		- TOOL06 – Project emissions from flaring	version 03.0	
		- TOOL07 – Tool to calculate the emission factor for an electricity system	version 07.0.0	
		- TOOL08 – Tool to determine the mass flow of a greenhouse gas in a gaseous stream	version 03.0	
		- TOOL09 – Determining the baseline efficiency of thermal or electric energy generation systems	version 02.0	
		- TOOL12 – Project and leakage emissions from transportation of freight	version 01.1.0	
11.	INEA	<u>License</u> Operation license # IN044886 – valid until 08/05/2023	08/05/2018	PP
12.	AB AB Jenbacher	<u>Commissioning and installation of Group Generators</u> - Operation tests – Commissioning report – Group Generators # 1 to # 6 - Operation tests – Commissioning report – Group Generators # 7 to # 12 - Installation report – Group Generators # 13 to # 16	19/12/2018 21/12/2018 from 08/06/2020 to 01/07/2020	PP
13.	Jenbacher	Datasheet of Group Generator – 1562 kVA (1250 kW) – Group Generators # 13 to # 16	05/02/2019	PP
14.	Orizon	<u>Electricity consumption – Haztec</u> - Records (monitoring of electricity meter Schneider PM1200)	Mar to Dec/2020	PP
15.	Niegar	<u>Electricity generation and consumption – Niegar</u> - Records (monitoring of electricity meter Schneider ION8650)	Mar to Dec/2020	PP
	CCEE	- CCEE reports	Mar to Dec/2020	
16.	Aggreko	<u>Electricity generation and consumption – Aggreko</u> - Records (monitoring of electricity meter ELO2173)	Nov and Dec/2020	PP
	Light (company responsible for electricity distribution in the State of Rio de Janeiro)	- Invoices of Light	Nov and Dec/2020	
17.	CTJ	<u>Calibration Certificates</u> 1. <u>Thermal Flow Meter</u> (open flare) - Serial # 3K646618029790 o Certificate # P-0898/20	27/01/2020 – valid until 26/01/2024	PP
		2. <u>Thermal Flow Meter</u> (group generators)		

ABB	- GG1 – Serial # 3K646618004288 o Certificate # 1000867578	15/02/2018 – valid until 14/02/2022
ABB	- GG2 – Serial # 3K646618004287 o Certificate # 1000867577	14/02/2018 – valid until 13/02/2022
ABB	- GG3 – Serial # 3K646618004283 o Certificate # 1000867573	15/02/2018 – valid until 14/02/2022
ABB	- GG4 – Serial # 3K646618008068 o Certificate # 1000873758	19/03/2018 – valid until 18/03/2022
ABB	- GG5 – Serial # 3K646618005641 o Certificate # 1000869811	26/02/2018 – valid until 25/02/2022
ABB	- GG6 – Serial # 3K646618004284 o Certificate # 1000867574	15/02/2018 – valid until 14/02/2022
ABB	- GG7 – Serial # 3K646618004285 o Certificate # 1000867575	16/02/2018 – valid until 15/02/2022
ABB	- GG8 – Serial # 3K646618004289 o Certificate # 1000867579	15/02/2018 – valid until 14/02/2022
ABB	- GG9 – Serial # 3K646618004294 o Certificate # 1000867582	15/02/2018 – valid until 14/02/2022
ABB	- GG10 – Serial # 3K646618004282 o Certificate # 1000867572	20/02/2018 – valid until 19/02/2022
ABB	- GG11 – Serial # 3K646618004293 o Certificate # 1000867581	15/02/2018 – valid until 14/02/2022
ABB	- GG12 – Serial # 3K646618004286 o Certificate # 1000867576	20/02/2018 – valid until 19/02/2022
Isocell	3. <u>Gas Analyser (ULTRAMAT 23)</u> - Serial # N1- C7778 o Certificate # 119.0/2019	16/04/2019 – valid until 15/04/2020
Aselco	o Certificate # 1953-2/20	18/03/2020 – valid until 17/03/2021
Aselco	- Serial # N1- F6767 o Certificate # 1953-1/20	18/03/2020 – valid until 17/03/2021
CTJ	4. <u>Pressure meter</u> - Serial 3K646619004047 o Certificate # P-0901/20	27/01/2020 – valid until 26/01/2021
	5. <u>Temperature meter</u>	

	CTJ	- Serial # E19TP0083 o Certificate # T-0787/20	29/01/2020 – valid until 28/01/2022	
	Supervisory System	6. Electricity Meter - Serial # MW-1802B061-02 – Schneider ION8650 o Meter Configuration Report	05/02/2019 – valid until 04/02/2024	
	Supervisory System	- Serial # MW-1801A681-02 – Schneider ION8650 o Meter Configuration Report	05/02/2019 – valid until 04/02/2024	
	Schneider Electric	- Serial # 34152820065 – Schneider PM1200 o Test and Calibration Certificate	07/07/2015 – valid until 06/07/2020	
	CTJ	o Calibration certificate # E-1349/20	22/06/2020 – valid until 21/06/2025	
	Light	- Serial # 9581101 – ELO2173 o Meter Configuration Report	20/10/2020 – valid until 19/10/2025	
	JRF	7. Diesel consumption meter - Serial # 17081046 o Certificate # 126/2019	08/11/2019 – valid until 07/11/2020	
	JRF	o Certificate # 051/2020	04/11/2020 – valid until 03/11/2021	
18.	Fundação COPPETEC	<u>Waste Composition</u> Third party's study of the gravimetry of waste composition	January/2020	PP
19.	Biotechogas	LFG collection efficiency Technical specifications of the biogas collection network – CTR Nova Iguaçu	rev.00 – Sep/2021	PP
20.	PP	<u>Temporary Deviation</u> - Deviation spreadsheet	version 2	PP
	PP	- Cross check spreadsheet	version 2	
	Light (company responsible for electricity distribution in the State of Rio de Janeiro)	- Invoices of Light – used for cross check of conservativeness of temporary deviation	Jan, Feb and Mar/2021	
	Jenbacher	- Datasheet of Group Generator – 1562 kVA (1250 kW) – Group Generators # 13 to # 16	05/02/2019	
21.	-	DNA of Brazil – Emission factor	https://antigo.mctic.gov.br/mctic/opencms/ciencia/SEPED/clima/texto_geral/emissao_despacho.html	Other
22.	-	CCEE	https://www.ccee.org.br	Other
23.	-	IPCC publications	www.ipcc-nggip.iges.or.jp	Other
24.	-	UNFCCC	http://cdm.unfccc.int	Other
25.	PP	<u>Revised Cash flow</u> Updated NovaGerar Cash Flow 2004 v2 2019 11 26 FES Rev V3	Rev V3	PP

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

Table 1. CLs from this validation

CL ID	01	Section no.	D.6	Date:	02/07/2021
Description of CL					
<i>In Section B.6.1 of the PDD, when choosing Option C, it is not clear how the conversion from actual conditions to normal conditions will be done, in accordance with TOOL08 paragraph 30.</i>					
Project participant response					Date: 02/07/2021
The explanation was included in the PDD.					
Documentation provided by project participant					
PDD (version 10, dated 29/06/2021)					
DOE assessment					Date: 03/07/2021
It was included in Section B.6.1 that the following equation will be used to convert the volumetric flow of the gaseous stream from actual conditions to normal conditions of temperature and pressure:					
$V_{t,wb,n} = V_{t,wb} \times [(T_n/T_t) \times (P_t/P_n)]$					
Where:					
$V_{t,wb,n}$ Volumetric flow of the gaseous stream in a time interval t on a wet basis at normal conditions; $V_{t,wb}$ Volumetric flow of the gaseous stream in time interval t on a wet basis; P_t Pressure of the gaseous stream in time interval t ; T_t Temperature of the gaseous stream in time interval t ; P_n Absolute pressure at normal conditions; T_n Temperature at normal conditions.					
CL is closed					

Table 2. CARs from this validation

CAR ID	01	Section no.	D.7	Date:	08/09/2021							
Description of CAR												
Regarding the change in the LFG collection efficiency:												
<div>a. the change of the LFG collection efficiency was classified as Correction. Nevertheless, as it was verified that there are some design changes, the classification is not correct;</div> <div>b. there is no assessment of the impact of the LFG collection efficiency in the electricity generation estimated ex-ante;</div> <div>c. the proposed change is not in accordance with applied methodology, as it requires a project to apply either default 50% value or an efficiency based on the “technical specifications of the LFG capture system to be installed”, whereas the revised value proposed by the PP is based on the historical/actual data provided by the LFG implementer.</div>												
Project participant response					Date:	21/11/2021						
<div>a. In the PDD version 10, the change of collection efficiency was considered as a correction because this data was not updated when the previous PRC was done. Based on incompleteness request received, PP decided to categorize the change of the LFG collection efficiency as a Change to Project Design (PRC) in face of the nature of the change. PRC PDD as well as the Monitoring Report have been amended accordingly.</div> <div>b. The proposed change in the LFG collection efficiency has no impact on the electricity generation that was estimated prior to the PRC and consequently the project financial additionality. LFG collection efficiency change did not impact forecast installed capacity and electricity generated by the project activity. LFG collection efficiency has changed from 50% (according to Data / Parameter table 6 from ACM0001 version 19.0, default value) to 95%. This change does not adversely impact the electricity generation that was estimated prior to the PRC and therefore the additionality by the fact that electricity generation was estimated in the previously approved additionality financial analysis, under tab “Schedule Engines”, cells I19 to I25, according to the calculation rational below:</div>												
<table><tr><td>Ex-ante yearly</td><td>=</td><td>Sum of the installed capacity</td><td>x</td><td>number of hours</td><td>x</td><td>Plant Load</td></tr></table>						Ex-ante yearly	=	Sum of the installed capacity	x	number of hours	x	Plant Load
Ex-ante yearly	=	Sum of the installed capacity	x	number of hours	x	Plant Load						

electricity generation (MWh)	of electricity generation plant (MW)	in the year (h/year)	Factor (%) ³
<p>Thus, it is demonstrated that collection efficiency does not impact electricity generation that was estimated prior to the PRC and therefore the additionality.</p> <p>These revisions neither influences the applicability of the methodology nor the additionality and scale of the project, as determined in the provisions of the applicable paragraph of the Project Standard.</p> <p>Furthermore, revised versions of the Emission Reductions spreadsheets are included in the current post registration changes PDD with a collection efficiency of 95%, as well as a revised Financial Spreadsheet where an additional tab is added to demonstrate that the increased amount of LFG due to the increase of the LFG collection efficiency has no effect on the amount of electricity generated.</p> <p>This is due to the fact that the electricity generation plant is already operating at its maximum capacity. Thus, to generate additional revenues additional gensets would have to be installed.</p> <p>As per the above mentioned non increase on electricity generation it is deemed justified that there is no impact in additionality.</p> <p>In addition, to demonstrate that there is no impact in additionality even in the hypothetical case that a Plant Load Factor of 100% is obtained in the most conservative scenario of the Electricity Generation Plant being operational 100% of the time, additional scenarios were included in the financial analysis as well as sensitivity analysis for the Plant Load Factor of 100%. In all cases the project activity is additional.</p>			
<p>c. In line with ACM0001 version 19 (table 6, page 27) and with the objective to present a technical specification of the LFG capture system to be installed, instead of historical/actual data, a new Technical Specification Report carried out by Biotechnogas, company currently responsible for project LFG collection system continuous management has been presented to the DOE.</p>			
Documentation provided by project participant			
<p>PDD version 10</p> <p>Technical specifications of the biogas collection network – CTR Nova Iguaçu^{19/}</p> <p>Cash flow revised assessment^{25/}</p>			
DOE assessment			Date: 25/11/2021
<p>a. as design changes were evidenced, the PRC was reclassified to Change to the project design;</p> <p>b. it was evidenced by the equation of calculation of estimated electricity generation that it was calculated considering the total installed capacity of the engines used to generate electricity and a PLF (considering maintenance activities). Therefore, the increase in the LFG collection efficiency has absolutely no impact in the estimated electricity generation.</p> <p>In addition, to ensure that no adverse impact is observed for the additionality assessment, it was performed a new assessment^{25/}, where it was included the evaluation of the increase in the amount of LFG. Even to be more conservative, it was considered the hypothetical scenario of 100% of PLF, in other words, that no maintenance at all would be necessary for the engines, which obviously is not feasible. Even though, the project continues additional.</p> <p>For CERs estimates ex-ante, there is also no impact regarding the change in the LFG collection efficiency, which is evidenced by the revised CERs calculations ex-ante^{8-2/}, where the plant load factor used is 100% and no variation in the amount of CERs is verified for the generated electricity;</p> <p>c. to support the request for PRC Change to the project design, in accordance with ACM0001, a report with the technical specifications of the LFG capture system from LFG implementer – Technical specifications of the biogas collection network – CTR Nova Iguaçu^{19/} – is being presented with the evaluation that the LFG collection efficiency of the PA is 95%. Therefore, this value of 95% should be used instead of the default 50% value.</p> <p>Refer to Section D.7 above.</p> <p>CAR is closed</p>			

Table 3. FARs from this validation

Not applicable.

³ Maximum possible value to demonstrate conservativeness on the additionality analysis (100%) where:
 Load Factor (%) = Electricity generated in the plant (MWh) / Installed capacity (MW) / 8760 (h/year)

- - - -

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		