



**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	Panuco Bagasse Cogeneration Project UNFCCC ID: 10055 20/021
Process track	<input checked="" type="checkbox"/> Prior approval <input type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report	1.1
Completion date of the validation report	05/02/2021
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 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	7
Project participants	Ingenio Panuco SAPI de CV
Host Party	Mexico
Applied methodologies and standardized baselines	ACM0006: Consolidated methodology for electricity and heat generation from biomass, version 12
Mandatory sectoral scopes	1: Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	N/A
Name and UNFCCC reference number of the DOE	TÜV NORD CERT GmbH (TÜV NORD) Ref No.: E-0022

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, position and signature of the
approver of the validation report


Alexandra Nuske

Final Approver

SECTION A. Executive summary

Ingenio Panuco SAPI de CV has commissioned the TÜV NORD JI/CDM Certification Program (CP) to assess post registration changes of the project activity;

“Panuco Bagasse Cogeneration Project”

The assessment of appropriateness of proposed post registration changes is assessed in this report.

The related project activity intends to reduce GHG emissions by the replacement of an existing cogeneration plant with installed capacity of around 17 MW by an installed capacity of 117 MW. The purpose of the project activity is to supply electricity and heat to the various processes of the Panuco sugar mill by replacing fossil fuel (Bunker) by biomass combustion only. In addition, the project will also export excess electricity to the grid, further contributing to reduction of greenhouse gas emissions.

Essential data of the project is presented in the following tables.

Boiler

Parameter	Unit	Value
Type/Manufacturer	--	Bidrum/ISGEC
Quantity		2
Capacity	t/h	200
Steam pressure	lb/in ²	1,200 (85 kg/cm ²)
Steam temperature	°C	540
Efficiency	%	85
Fuel	--	Biomass
Lifetime	years	25
Serial number	--	IWT6363

Back-Pressure Steam Turbine 1

Parameter	Unit	Value
Type/Manufacturer	--	TGM/RENK
Capacity	MW	45.466
Input steam pressure	lb/in ²	1200
Output steam pressure	lb/in ²	26
Input steam temperature	°C	540
Output steam temperature	°C	140
Efficiency	%	75
Lifetime	years	25
Serial number	--	2014-1441161

Condensing Steam Turbine 2

Parameter	Unit	Value
Type/Manufacturer	--	TGM/RENK
Capacity	MW	60
Input steam pressure	lb/in ²	1200
Output steam pressure	lb/in ²	28.5
Input steam temperature	°C	540
Output steam temperature	°C	140
Efficiency	%	75
Lifetime	years	25

Electric generator 1

Parameter	Unit	Value
Type/Manufacturer	--	GE
Voltage	Volt	13.8
Apparent power	kVA	53.012
Active power	MW	45.466
Power factor	--	0.83
Speed	rpm	1800
Frequency	Hz	60
Efficiency	%	100
Lifetime	years	25
Serial number	--	EJH227002038

Electric generator 2

Parameter	Unit	Value
Type/Manufacturer	--	GE
Voltage	Volt	13.8
Apparent power	kVA	53.012
Active power	MW	60
Power factor	--	0.83
Speed	rpm	3600
Frequency	Hz	60
Efficiency	%	100
Lifetime	years	25

For a detailed project description please refer to the registered PDD.

SECTION B. Validation team, technical reviewer and approver

On the basis of a competence analysis and individual availabilities an assessment team, consistent of one team leader. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the following table below.

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	EI	Oliver	Quireza	TN Mexico	x	x	x	x
2.	Team Member	EI	Guadalupe	Avendano	TN Mexico	x	x	x	x

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	Stöhr	Christina	TÜV NORD CERT
2	Approver	IR	Nuske	Alexandra	TÜV NORD CERT

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

The assessment of post registration changes consisted of the following steps:

- Appointment of team members and technical reviewers
- A desk review of the registered and revised PDD/^{PDD/} submitted by the client and additional supporting documents
- On-Site assessment (if required)
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Resolution of corrective actions (CARs / CLs) (if any)
- Final reporting
- Technical review
- Final approval.

In this case all activities were carried out as part of the 1st verification of this project activity.

The registered PDD and supporting background documents related to the post registration changes were reviewed.

As far as required the assessment team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

A list all documents reviewed or referenced during this validation is presented in **Fehler! Verweisquelle konnte nicht gefunden werden.**

C.2. On-site inspection

Duration of on-site inspection: 26/02/2018 to 28/02/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Kick off meeting	Sugar mill	26/02/2018	Oliver Quireza Guadalupe Avendano
2.	Checking relevant site points	Sugar mill	26&28/02/2018	Oliver Quireza Guadalupe Avendano
3.	Evidence assessment	Sugar mill	26-28/02/2018	Oliver Quireza Guadalupe Avendano
4.	Preparation of the DVR	Sugar mill	26-28/02/2018	Oliver Quireza Guadalupe Avendano
6.	Findings summary to the client	Sugar mill	28/02/2018	Oliver Quireza Guadalupe Avendano
7.	Closing meeting	Sugar mill	28/02/2018	Oliver Quireza Guadalupe Avendano

C.3. Interviews (on site visit and telephonic)

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Yarza	Gilberto	IngenioPánuco	26-28/02/2018	Business Management	Oliver Quireza Guadalupe Avendano
2.	Soto	Daniel	IngenioPánuco	26-28/02/2018	Environmental Manager	Oliver Quireza Guadalupe Avendano
3.	Montoya	José Augusto	IngenioPánuco	26-28/02/2018	Business Coordinator	Oliver Quireza Guadalupe Avendano
4.	Varkulya Jr	Américo	Beng	26-28/02/2018	CDM Consultant	Oliver Quireza Guadalupe Avendano
5.	López	Jorge	IngenioPánuco	26-28/02/2018	Boiler Department Coordinator	Oliver Quireza Guadalupe Avendano
6.	Espinoza	Allán	IngenioPánuco	26-28/02/2018	Automation Manager	Oliver Quireza
7.	Martínez	José Mauro	IngenioPánuco	26-28/02/2018	Energy Generation Chief	Oliver Quireza
8.	Consani	Carlos	IngenioPánuco	26-28/02/2018	Electric Department Manager	Oliver Quireza
9.	Hernández	Ricardo	IngenioPánuco	26-28/02/2018	Maintenance Manager	Oliver Quireza
10.	Hernández	Dulio	IngenioPánuco	26-28/02/2018	Environmental Coordinator	Oliver Quireza
11.	Contreras	Eric	IngenioPánuco	26-28/02/2018	Energy Generation Manager	Oliver Quireza
12.	Arteaga	Álvaro	IngenioPánuco	26-28/02/2018	Steam Production Manager	Oliver Quireza
13.	Hernández	Dulio	Ingenio Pánuco	24/09/2020	Environmental Manager	Oliver Quireza
14.	Santo	Francisco	Beng	24/09/2020*	CDM Consultant	Oliver Quireza
15.	Sprovieri	Joao	Beng	24/09/2020*	CDM Consultant	Oliver Quireza

*Telephonic interviews

C.4. Sampling approach**C.4.1. Sampling during validation**

<input checked="" type="checkbox"/>	No sampling approach has been used by the PP to determine the monitored parameters				
<input type="checkbox"/>	A sampling approach has been taken for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

1) Sampling Approaches:

SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling
 AS: Acceptance Sampling

2) Sampling Types:

PS: Parameter Sampling

C.4.2. Sampling approaches during validation

<input checked="" type="checkbox"/>	No sampling approach has been used by the VT to verify the monitored parameters				
<input type="checkbox"/>	A sampling approach has been applied by the VT for the following monitored parameter(s):				
	Parameter	Sampling approach ¹⁾	Sampling Type ²⁾	Population	Sample Size

1) Sampling Approaches:

SiRS: Simple Random Sampling
 StRS: Stratified Random Sampling
 SS: Systematic Sampling
 CS: Cluster Sampling
 MSS: Multi-stage Sampling

2) Sampling Types:

AS: Acceptance Sampling
 PS: Parameter Sampling
 COM: Full data check at higher data aggregation levels and sampling at original data levels

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	-	4	-
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	-	1	-
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	-	2	-
Changes to the project design	-	1	-
Changes specific to afforestation and reforestation project activities	-	-	-
Additionality	-	4	-
Total	-	11	-

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

Means of validation	The project participants used a later version of the PDD form for the revised PDD than the version of the PDD form of the registered PDD. By means of checking updated PDD with the latest applicable and available PDD template form the DOE can confirm that the information transferred to the later version of the PDD form is materially the same as that in the registered PDD besides those changes highlighted and assessed under this report.		
Findings	<input checked="" type="checkbox"/>	The latest reporting template CDM-PDD-FORM as listed on the UNFCCC website has been used for the PDD.	
	<input type="checkbox"/>	The latest instructions for filling out the PDD have been followed. No adverse finding has been identified in the course of this validation.	
	<input checked="" type="checkbox"/>	The respective requirements have widely been complied with; however; the following issues needed to be addressed in this context: CARs 02, 07, 09 and 10	
Conclusion	<input type="checkbox"/>	No CARs/CLs have been raised in this context. No correction was required in the context. The project is in line with the respective requirements.	
	<input checked="" type="checkbox"/>	The raised CARs/CLs have been addressed appropriately. The PP has carried out the requested corrections. All respective findings could be closed out. For details please refer to Appendix 4.	
	The updated PDD is in line with the latest applicable PDD form. The validation team can confirm that the information transferred to the later version of the form is materially the same as the information in the registered PDD		

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

Means of validation	
Findings	
Conclusion	

D.3. Corrections

Means of validation	Description of post registration change			
	Start Date: Please provide the start date of the change	01/09/2016	End Date: Please provide the end date of the change, if applicable	N/A
	Description: Please give a detailed description of the change(s)	<p>1. The PP identified that the harvest days which is a key parameter in the operation of the sugar mill was wrong in the original financial analysis used at validation. So the PP corrected the harvest days based on the historic harvest days. The harvest days from 01/09/2016 to 2019 are taken from the actual historic data, from the 2020 as the average from the last 3 years is calculated with 180 days.</p> <p>The corrected harvest days result in a value which is less than the one in the original calculation (from average 221 to 180). As the harvest days affect directly the operation time of the sugar mill the electricity demand is reduced. This is checked in sheet BL Step 6 RESULTS BL in parameters:</p> <ul style="list-style-type: none"> ✓ $EL_{BL,GR,y}$ = Baseline minimum electricity generation in the grid in year y (MWh) ✓ $FF_{BL,HG,y,f}$ = Baseline fossil fuel demand for process heat in year y (GJ) ✓ $EL_{BL,FF/GR,y}$ = Baseline uncertain electricity generation in the grid or on-site in year y (MWh) <p>in consequence the generation of electricity and heat from fossil fuels and the final ER calculation is reduced. (from 697,430 tCO₂e to 683,622 tCO₂e).</p>		

		<p>No discount factors or any assumptions have been updated in the calculation other than the harvest days. The updated harvest days together with the updated installed capacity (assessed in section D.7) generate a lower ER amount. Such change in the ER have been properly considered in the updated PDD.</p> <ol style="list-style-type: none"> The outlet pressure of the back-pressure steam turbine (g6) changed from 28.5 lb/in² to 26 lb/in² to be in line with the nameplate of the actual steam-turbine for Phase 1. The original installed capacity of electrical generators changed from 17.0 MW to 17.2 MW due to an error when adding up electrical generators from g1 to g5. The rotation speed of electrical generator (e1) has been changed from 3600 rpm to 1800 rpm. <p>The provided corrections (1 to 4) were errors not identified during the validation process at registration stage, and can be categorized as typo errors when the PDD was elaborated. There is no other means than the validation to know such errors, so the changes would not have been known prior to the registration.</p> <p>The provided corrections (2 to 4) don't affect the operation/ability of the project to deliver the ER as stated in the registered PDD.</p>
Assessment of post registration change – Corrections		
	<p>Accuracy: Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.</p>	<ol style="list-style-type: none"> As the harvest days is taken from historic data, the accuracy of the ER calculation is not affected. The change in the outlet pressure doesn't affect the enthalpy values at the same temperature so that the thermal energy calculation is not affected and in consequence the ER calculation accuracy did not change. The difference of 0.2 MW can be checked in cell L8 of the updated sheet "Forecast Electricity". This change affects directly the operational installed capacity, checked in cell L9, which is used to estimate the electricity generation. This change in capacity is assessed together with the capacity change described in section D.7 of this report. The rotation speed of the electric generator (e1) changed to 1800 rpm. This was corrected to match the actual plate information which doesn't affect the ER calculation.
	<p>Conservativeness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.</p>	<ol style="list-style-type: none"> The corrected harvest days result in a value which is less than the one in the original calculation (from average 221 to 180). As the harvest days affect directly the operation time of the sugar mill the electricity demand is reduced. This is checked in sheet BL Step 6 RESULTS BL in parameters: <ul style="list-style-type: none"> ✓ $EL_{BL,GR,y}$ = Baseline minimum electricity generation in the grid in year y (MWh) ✓ $FF_{BL,HG,y,f}$ = Baseline fossil fuel demand for process heat in year y (GJ) ✓ $EL_{BL,FF/GR,y}$ = Baseline uncertain electricity generation in the grid or on-site in year y (MWh) <p>in consequence the generation of electricity and heat from fossil fuels and the final ER calculation is reduced. (from 697,430 tCO₂e to 683,622 tCO₂e).</p> <p>No discount factors or any assumptions have been updated in the calculation other than the harvest days.</p>

		<p>The updated harvest days together with the updated installed capacity (assessed in section D.7) generate a lower ER amount.</p> <p>It is concluded that the updated ER calculation as a result of the harvest days correction is conservative.</p> <ol style="list-style-type: none"> The conservativeness of the ER calculation is not affected, though the pressure changes to 26 lb/in², as the resulting enthalpy remains the same. The capacity change of 0.2 MW together with the capacity change from 40 MW to 45.466 MW described in section A1 of the updated PDD is considered in the spreadsheet Electricity Forecast where the updated total capacity is fixed at 122.66 MW. The rotation speed of the electric generator (e1) changed to 1800 rpm which was corrected to match the actual plate information. This correction doesn't affect the energy calculation, so the ER calculation remains conservative. 																		
	Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	As per PS ver.2 §1 (a) these corrections do affect the design because the energy demand is modified, so the exclusion of Appendix 1 are not applicable.																		
Findings																				
Conclusion	Based on the above stated the corrections to the registered PDD are in accordance with applicable validation requirements related to the corrections in the VVS.																			
	<table border="1"> <tr> <td colspan="3">Revised PDD</td> </tr> <tr> <td rowspan="3"> Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD. </td> <td><input checked="" type="checkbox"/></td> <td>The changes have correctly been reflected in the revised PDD.</td> </tr> <tr> <td><input type="checkbox"/></td> <td>A revision of the PDD is not required (in case of temp. changes).</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The revised PDD has been forwarded in (i) track-change and (ii) clean version.</td> </tr> <tr> <td colspan="3">Prior Approval</td> </tr> <tr> <td rowspan="2"> Prior approval: Assess whether the change requires prior approval of the board </td> <td><input checked="" type="checkbox"/></td> <td>The post registration change requires prior approval</td> </tr> <tr> <td><input type="checkbox"/></td> <td>The post registration change does not require prior approval</td> </tr> </table>		Revised PDD			Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).	<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.	Prior Approval			Prior approval: Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval	<input type="checkbox"/>	The post registration change does not require prior approval
Revised PDD																				
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.																		
	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).																		
	<input type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.																		
Prior Approval																				
Prior approval: Assess whether the change requires prior approval of the board	<input checked="" type="checkbox"/>	The post registration change requires prior approval																		
	<input type="checkbox"/>	The post registration change does not require prior approval																		

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

Means of validation	
Findings	
Conclusion	

D.5. Inclusion of a monitoring plan

Means of validation	
Findings	
Conclusion	

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	Type of change(s):	<input checked="" type="checkbox"/>	Permanent Change from Monitoring Plan	
		<input type="checkbox"/>	Permanent Change from Monitoring Methodology	
	Description of post registration change			
	Start Date: Please provide the start date of the change	01/09/2016	End Date: Please provide the end date of the change, if applicable	N/A
Description: Please give a detailed description of the change(s)	<p>The accuracy class of meters and scales has been modified as follow:</p> <p>For parameters, $BR_{PJ,n,y}$ = Quantity of biomass residues of category n used in the CDM project activity in year y (tonnes on dry-basis) $BR_{B4,n,y}$ - Quantity of biomass residues of category n used in the CDM project activity in year y for which the baseline scenario is B4 (tonne on dry-basis)</p> <p>The weighbridge class (accuracy class IV) was eliminated because the accuracy class IV is nor required by the methodology neither by the national legislation in Mexico.</p> <p>For parameter: $EL_{PJ,gross,y}$ - Gross quantity of electricity generated in all power plants which are located at the project site and included in the project boundary in year y (MWh)</p> <p>the statement ...“the accuracy and uncertainty of the monitoring instrument may range up to 1.5%”... has been eliminated because the accuracy and uncertainty of 1.5% is nor required by the methodology neither by the national legislation in Mexico.</p> <p>For parameters: $EL_{PJ,imp,y}$ - Project electricity imports from the grid in year y (MWh) $EL_{PJ,aux,y}$ - Total auxiliary electricity consumption required for the operation of the power plants at the project site in year y (MWh)</p> <p>the statement ...“the accuracy and uncertainty of the monitoring instrument may range up to 1.5%”... has been deleted because the accuracy and uncertainty of 1.5% is nor required by the methodology neither by the national legislation in Mexico.</p> <p>The calibration frequency of meters has been modified as follow:</p> <p>For Parameters: $BR_{PJ,n,y}$ = Quantity of biomass residues of category n used in the CDM project activity in year y (tonnes on dry-basis) $BR_{B4,n,y}$ - Quantity of biomass residues of category n used in the CDM project activity in year y for which the baseline scenario is B4 (tonne on dry-basis)</p> <p>For the calibration requirements, the following has been included ...“the calibration methods, as well as, the calibration frequency will be done in line with manufacturer specifications”...in order to be more precise.</p> <p>For parameter: $EL_{PJ,gross,y}$ - Gross quantity of electricity generated in all power plants which are located at the project site and included in the</p>			

		<p><i>project boundary in year y (MWh)</i></p> <p>It has been added in the PDD, that the calibration requirements have to be done as per the authority in Mexico CRE (Energy Regulator Commission) which regulates the interconnected power plant to the national grid.</p> <p>For parameters: $EL_{PJ,imp,y}$ - Project electricity imports from the grid in year y (MWh) $EL_{PJ,aux,y}$ - Total auxiliary electricity consumption required for the operation of the power plants at the project site in year y (MWh)</p> <p>It has been added in the PDD, that "...the calibration methods, as well as, the calibration frequency will be done in line with manufacturer specifications..." in order to be more precise.</p> <p>As the project is doing the 1st verification the proposed changes shall take place from the beginning of the CP 01/06/2016 on.</p> <p>The proposed changes in the monitoring plan are done in order to be more precise according to the actual situation of the project and the be aligned with the regulation in the host countries Mexico.</p>
	Assessment of post registration change – Permanent changes from MP or MM	
	<p>MM compliance: Please check in case of changes to the registered MP, whether they are in compliance with the MM.</p>	<p>1. accuracy class of electricity meters and scales</p> <p>For parameters, ✓ $BR_{PJ,n}$ ✓ $BR_{B4,n,y}$</p> <p>The weighbridge class (accuracy class IV) was eliminated because the accuracy class is not defined in the host country Mexico. Furthermore it is not relevant for the applied methodology ACM0006, version 12.1.1 or other UNFCCC rules.</p> <p>For parameter: ✓ $EL_{PJ,gross,y}$</p> <p>the statement "...the accuracy and uncertainty of the monitoring instrument may range up to 1.5%"... has been eliminated because it isn't defined in the applied methodology ACM0006, version 12.1.1.. Furthermore the electricity meter class has to be defined by the local authority in Mexico CRE (Energy Regulator Commission) for the case of commercial electricity meters.</p> <p>For parameters: ✓ $EL_{PJ,imp,y}$ ✓ $EL_{PJ,aux,y}$</p> <p>the statement "... the accuracy and uncertainty of the monitoring instrument may range up to 1.5%..." has been eliminated because it isn't defined in the applied methodology ACM0006, version 12.1.1.. Furthermore, the electricity meter class has been included as per manufacturer recommendation which is correct because no requirement is established in Mexico for other electricity meters (no commercial).</p> <p>As there are no specific requirements define in the applied</p>

		<p>methodology ACM0006, version 12.1.1., the changes regarding metres' class are considered in compliance with the MM.</p> <p>2. The calibration frequency of meters has been modified as follow:</p> <p>For Parameters:</p> <ul style="list-style-type: none"> ✓ $BR_{PJ,n,y}$ ✓ $BR_{B4,n,y}$ - <p>The calibration information has been included to be more precise. There is no national regulation in the host country which defines the calibration requirements and there are no specific instructions in the applied methodology ACM0006, version 12.1.1.</p> <p>For parameter:</p> <ul style="list-style-type: none"> ✓ $EL_{PJ,gross,y}$ - <p>For sales/commercial electricity meters the calibration frequency will be defined by the electricity authority in Mexico CRE (Energy Regulator Commission) and implemented by the national net operator CFE (Federal commission of electricity).</p> <p>For parameters:</p> <ul style="list-style-type: none"> ✓ $EL_{PJ,imp,y}$ ✓ $EL_{PJ,aux,y}$ <p>For non-commercial electricity meters there is no national regulation in the host country which defines the calibration requirements and there are no specific instructions in the applied methodology ACM0006, version 12.1.1.</p> <p>As there are no specific requirements defined in the applied methodology ACM0006, version 12.1.1., the changes regarding calibration are considered in compliance with the MM.</p>
	<p>Later version of MM:</p> <p>Please check in cases where compliance with a later version of the MM is demonstrated that the conservativeness of the monitoring and verification is not affected.</p>	<p>The version of the applied MM ACM0006, version 12.1.1. is still applicable, therefore no later MM versions are applied.</p>
	<p>Accuracy:</p> <p>Please give a detailed assessment whether the deviation is likely to lead to a reduction in the accuracy of the ER calculation.</p>	<p>1. The proposed changes related to the accuracy class are intended to avoid PRCs during further verification stages. For the case of the weighbridge no accuracy class is determined by authorities of the host country Mexico or by the applied methodology ACM0006.</p> <p>For the electricity meters the accuracy class is not determined by the applied methodology ACM0006. or any UNFCCC rule, but by national authorities of the host country Mexico (CRE). The accuracy classes of the installed meters will be in accordance with the CRE rules.</p> <p>The accuracy changes do not affect the monitoring parameters or the accuracy of the ER calculation.</p> <p>2. The proposed changes related to the calibration frequency are intended to avoid PRCs during further</p>

		<p>verification stages. For the case of the weighbridge no calibration frequency is determined by authorities of the host country Mexico or by the applied methodology ACM0006.</p> <p>For the electricity meters the calibration is not determined by the applied methodology ACM0006. or any UNFCCC rule, but by national authorities of the host country Mexico (CRE). The calibration frequency of the installed meters will be in accordance with the CRE rules and the interconnection permit issued by the CRE.</p> <p>The changes of the calibration frequency do not affect the monitoring parameters or the accuracy of the ER calculation.</p>																										
	Conservative-ness: Please give a detailed assessment whether conservative assumptions or discount factors have been applied to ensure that ER will not be overestimated.	<ol style="list-style-type: none"> 1. The conservativeness of the ER calculation is not affected because the changes regarding accuracy classes do not affect the ER. ER will not be overestimated. 2. The conservativeness of the ER calculation is not affected because the changes regarding calibration frequency do not affect the ER calculation. ER will not be overestimated. 																										
	Appendix 1 PS: Check if the changes fall under one of the scenarios of appendix 1 of the PS.	As per Appendix §(c) the changes do not have material impact on the accuracy of the monitoring plan, so the request is suitable for approval under the issuance track.																										
Findings	CARs 08 and 11																											
Conclusion	Based on the above stated the permanent changes from the registered monitoring plan, applied monitoring methodology and/or applied standardized baseline are in accordance with applicable validation requirements related to the permanent changes from the registered monitoring plan, monitoring methodology and/or standardized baseline in the VVS.																											
<table border="1"> <tr> <td colspan="4">Revised PDD</td> </tr> <tr> <td rowspan="3"> Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD. </td> <td><input checked="" type="checkbox"/></td> <td colspan="2">The changes have correctly been reflected in the revised PDD.</td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">A revision of the PDD is not required (in case of temp. changes).</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td colspan="2">The revised PDD has been forwarded in (i) track-change and (ii) clean version.</td> </tr> <tr> <td colspan="4">Prior Approval</td> </tr> <tr> <td rowspan="2"> Prior approval: Assess whether the change requires prior approval of the board </td> <td><input type="checkbox"/></td> <td colspan="2">The post registration change requires prior approval</td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">The post registration change does not require prior approval</td> </tr> </table>				Revised PDD				Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.		<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).		<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.		Prior Approval				Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval		<input type="checkbox"/>	The post registration change does not require prior approval	
Revised PDD																												
Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD.	<input checked="" type="checkbox"/>	The changes have correctly been reflected in the revised PDD.																										
	<input type="checkbox"/>	A revision of the PDD is not required (in case of temp. changes).																										
	<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.																										
Prior Approval																												
Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The post registration change requires prior approval																										
	<input type="checkbox"/>	The post registration change does not require prior approval																										

D.7. Changes to the project design

Means of validation	Type of change(s):	<input checked="" type="checkbox"/>	Changes to the project design	
		<input type="checkbox"/>	Changes to the PoA design	
	Description of post registration change			
	Start Date: Please provide the start date of the change	01/09/2016	End Date: Please provide the end date of the change, if applicable	N/A
	Description:	At validation stage (January 2014) for the 1 st Phase of the		

	Please give a detailed description of the change(s)	<p>project, the steam turbine g6 and electric generator e1 were defined with 40 MW and 44 MW respectively, but during the actual equipment commissioning (April 2016) a generator with plate and final output of 45.466 MW was installed.. This change impacts the total installed capacity of this phase from 57.0 MW to 62.666 MW and the exported electricity from 147,207 MWh/yr to 154,753 MWh/yr. Consequently the total capacity for the 2nd Phase turns from 117.0 MW to 122.666 MW.</p> <p>CAR 12 was raised and closed out. The VT reviewed the commissioning documents, purchase order and validation report to confirm the dates and equipment capacity and confirms that the changes would not have been known prior to the registration due to the variation between nominal and net capacity of the electricity generators which are very typical in the praxis in the power generation sector. The revised PDD include the proper clarification.</p>
	Applicability and application of the Approved Baseline Methodology	
	Description: Please give a detailed description on how the changes affect the applicability and application of the approved Baseline Methodology. Check if the actual changes would adversely affect the conclusions during validation.	ACM0006: "Consolidated methodology for electricity and heat generation from biomass" - version 12.1.1 is still applicable because no limit on the electric capacity is established.
	Additionality assessment	
	Description: Please give a detailed description re-assessment of additionality, Check whether the actual changes would adversely affect the conclusions during validation. If required please make use of the assessment tables in the annex.	<p><u>Methodology:</u></p> <p>In the original project documentation the additionality was justified in line with the requirements of ACM0006, version 12.1.0. This methodology does require making use of the tool: Tool for the demonstration and assessment of additionality", version 7.0.0.</p> <p><u>Decisive Route of Additionality</u></p> <p>During the original validation additionality was justified on the basis of a financial analysis option II with NPV as indicator, in line with the TOOL. A corresponding Excel file was presented and attached to the validation report. The NPV (25 years) of this project activity (scenario 1) was determined to be negative (-9,260 kUSD) at discount rate 11.2%, whereas scenario 2 turn in a NPV (-2,090 kUSD).</p> <p>The project scenario (scenario 1) includes the phased installation of two biomass boilers to supply the sugar mill own energy requirements, avoiding bunker use and electricity from the grid, and the electricity surplus feed into the Mexican grid.</p> <p>Whereas the scenario 2 is the continuation of the actual situation where bunker and biomass are co-combusted and part of the electricity is taken from the grid.</p> <p><u>Re-Assessment of Additionality</u></p> <p>During this PRC a revised version of the Excel spreadsheet was considered which was provided by PP. The modifications mainly reflect the design change. Nevertheless some further minor modifications were included in the PDD and assessed by the DOE. In this context 11 CARs were raised and successfully closed out.</p>

		<p>Similar than in the original assessment the additionality justification is based on 2 different scenarios regarding the reduction of electricity from the Mexican grid and replacement of bunker by biomass. The first scenario which consist of the project implementation without CDM revenues reflects a pessimistic scenario because of high investment is required. The second scenario consisting of the continuation of the pre-project situation where bunker and biomass is used as main energy source and when needed also electricity is imported from the national grid, is considered to be the conservative scenario for the additionality justification during PRC.</p> <p>Two financial parameters are modified (Gross Electricity Generation (GEG) and NPV) in order to reflect the technical changes in the financial analysis. For a detailed analysis of the values applied and their verification, please refer to Appendix 5.</p> <p><u>Result of Additionality Re-Assesement</u></p> <p>The revised Excel sheet shows that scenario 2 remains the most attractive option with no change in the NPV (-2,090 kUSD), while the financial loss of scenario 1 turns even larger (NPV = -16,936 kUSD)</p> <p>Thus, the validation team has arrived at the conclusion that the additionality of the project is not negatively affected by the technical changes of the project design in comparison to the additionality originally validated and registered.</p> <p>As the actual increase of capacity is 5%, which is less than the established limit of 20%, the PP can claim 100% of the calculated CERs. This is in line with PS §241(a).</p> <p>Common practice analysis.</p> <p>As a result of the capacity increase, the capacity in step 1 of the common practice analysis was updated from to 122.666 MW and the +/-50% were updated to 61.333MW and 183.999 MW. The xls-file and the official information from the CRE were reviewed and the conclusion provided by the PP is correct. There are no other plants in Mexico that use the same fuel and technology within the calculated range of 61.333MW to 183.999 MW. This was properly provided in step 2. Therefore, it can be confirmed that that final outcome of the additionality demonstration and the common practice analysis is correct and did not change.</p>
	Scale of the Project activity	
	Description: Please give a detailed regarding the effect of the changes on the scale of the PA (i.e. LSC or SSC).	The capacity change from 117.0 MW to 122.666 MW does not change the project activity scale. This is a large scale project activity; no change of scale applies.
	Revised PDD	

	Rev. of PDD: Check whether the changes have been fully addressed in a revised PDD. In this context pl. refer to <ul style="list-style-type: none"> - Changes in the effective output capacity. - Addition of components or extension of technology - In case of multiple site projects: Removal or addition of sites - Operational parameters under the control of PPs differing from expected parameters - Changes to the baseline Meth (e.g. addition of a new Meth or change of the BL scenario. - Effects with regards to B, C and D above incl. compliance with the MP and level of accuracy and completeness of monitoring. 	<input type="checkbox"/>	<p>The post registration change has correctly been reflected in the revised PDD. This assessment is based on the following considerations:</p> <p>As described above the changes in the effective output capacity were done base on the consideration that the the electric generator e1 was defined with 40 MW at validation stage, but during the actual equipment purchase a 45.466 MW generator was installed impacting the total installed capacity of 1st phase from 57.0 MW to 62.666 MW.</p>
Findings	CARs 01, 03, 05 and 06		
Conclusion	Based on the above the changes to the project design of a registered project activity are in accordance with applicable validation requirements related to the changes to the project design of a registered project activity in the VVS.		
	Traceability: Check if the PPs have provided a revised PDD in both clean and track-change version.	<input checked="" type="checkbox"/>	The revised PDD has been forwarded in (i) track-change and (ii) clean version.
	Prior approval: Assess whether the change requires prior approval of the board	<input type="checkbox"/>	The changes do not raise concerns with respect to aspects outlined in the PS: <ol style="list-style-type: none"> applicability and application of the Approved Baseline Methodology under which the project activity has been registered. additionality of the project scale of the CDM project activity and Prior Approval by the Board is not required.
		<input checked="" type="checkbox"/>	The post registration change requires prior approval.

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

Means of validation	N/A
Findings	
Conclusion	

SECTION E. Internal quality control

Before submission of the final assessment report a technical review is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the assessment opinion as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

SECTION F. Validation opinion

The below listed changes have occurred after the registration of the project / PoA.

<i>Type of Change occurred</i>	<i>Total No. of changes</i>	<i>No. of changes which require prior approval</i>
<input type="checkbox"/> Temporary deviations from the MP	-	-
<input type="checkbox"/> Temporary deviations from the MM	-	-
<input checked="" type="checkbox"/> Corrections that do not affect the project	4	1
<input type="checkbox"/> Change to the start date of the crediting p.	-	-
<input checked="" type="checkbox"/> Permanent changes from the MP	2	0
<input type="checkbox"/> Permanent changes from the MM	-	-
<input checked="" type="checkbox"/> Design changes to the project activity / PoA	1	1
<input type="checkbox"/> Changes specific to AR projects	-	-

Querétaro, 05/02/2021



Oliver Quireza
TÜV NORD JI/CDM CP
Assessment Team Leader

Essen, 05/02/2021




Alexandra Nuske
TÜV NORD JI/CDM CP
Final Approval

Appendix 1. Abbreviations

Abbreviations	Full texts
CL	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CENACE	National Center of Energy Control
CER	Certified Emission Reduction
CO ₂	Carbon dioxide
CFE	Electricity Federal Commission
CO _{2eq}	Carbon dioxide equivalent
CRE	Regulator Energy Commission
CL	Clarification Request
DVerR	Draft Verification Report
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GSC	Global Stakeholder Consultation
INEEL	National Institute of Electricity and Clean Energies
IM	Interview Memo
IPSA	Panuco Sugar mill
MP	Monitoring Plan or Monitoring Period
MR	Monitoring Report
PA	Project Activity
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
TRE	Tampico Renewable Energy
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
XLS	Emission Reduction Calculation Spread Sheet
VT	Validation/Verification Team

Appendix 2. Competence of team members and technical reviewers



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD JI/CDM Certification Program

Mr. Oliver Quireza Campos


SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2021-05-28
VCS / ISO 14064-2	Lead Assessor	2021-05-28

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
13.1	Solid waste and wastewater
13.2	Manure

337 - Rev. 5, Date: 2018-08-17

337_001-VA060-F20_2018-08-17_wv5.docx



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD JI/CDM Certification Program

Ms. Christina Stöhr


SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification) Technical Reviewer	2023-05-05
VCS / ISO 14064-2	Lead Assessor/ Technical Reviewer	2023-05-05

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
13.1	Solid waste and wastewater

200 - Rev. 7 Date: 2020-10-07

200_001-VA060-F20_2020-10-07_rev.7



Statement of Competence
Appointment and authorization according to the procedures
of the TUV NORD JI/CDM Certification Program

Ms. Guadalupe Avendaño Reyes

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2021-01-25
VCS / ISO 14064-2	Lead Assessor (Validation, Verification)	2021-01-25

Authorization status for technical areas within sectoral scopes:

355 - Rev. 1 Date: 2018-01-22

355_001-VA060-F20_wv1_2018-01-22.docx

Appendix 3. Documents reviewed or referenced

No .	Author	Reference	Title			References to the document	Provider
1.	UNFCCC	/ACM0006/	Consolidated methodology for electricity and heat generation from biomass --- Version 12.1.0			https://cdm.unfccc.int/methodologies/DB/SZBV79HP36KDU7RQI5HFCZJB6OC597	Other
2.	DOE	/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)			N/A	Other
3.	PP	/DSD/	Documents for monitoring sustainable development co-benefits				Other
4.	UNFCCC	/GOT/	Glossary “CDM terms” (version 10)			https://cdm.unfccc.int/filestorage/e/x/t/extfile-20170831165430180-Glos_CDMv9_1.pdf/Glos_CDMv9_1.pdf?t=THR8cDB1cjhifDA3nY9J2NxQKB7POsLROrM-	Other
5.	IPCC	/IPCC/	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book			www.ipcc-nggip.iges.or.jp	Other
6.	UNFCCC	/KP/	Kyoto Protocol (1997)			http://unfccc.int/kyoto_protocol/items/2830.php	Other
7.	UNFCCC	/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)			http://cdm.unfccc.int/Reference/COP/MOP/index.html	Other
8.	UNFCCC	/PDD/	Registered Project Design Document for CDM project:“Panuco Bagasse Cogeneration Project” version 4, dated 17/03/2015 Updated Project Design Document for CDM project:“Panuco Bagasse Cogeneration Project” <ul style="list-style-type: none">• version 6, dated 22/09/2020• version 7, dated 05/02/2021			https://cdm.unfccc.int/Projects/DB/IC/ONTEC1413814561.64/view	Other
9.	UNFCCC	/PS/	CDM Project Standard (Version 2.0)			http://cdm.unfccc.int/Reference/Standards/index.html	Other
10.	UNFCCC	/TOOL/	Rel.	Name	Ver.	http://cdm.unfccc.int/Reference/tools/index.html	Other
			<input checked="" type="checkbox"/>	Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion	2		
			<input type="checkbox"/>	Emissions from solid waste disposal sites	7		
			<input checked="" type="checkbox"/>	Tool to calculate baseline, project and/or leakage emissions from	1		

No.	Author	Reference	Title		References to the document	Provider
				electricity consumption		
			<input type="checkbox"/>	Project emissions from flaring Version	2.0.0	
			<input checked="" type="checkbox"/>	Tool to calculate the emission factor for an electricity system	4.0	
			<input type="checkbox"/>	Tool to determine the mass flow of a greenhouse gas in a gaseous stream	2.0.0	
			<input checked="" type="checkbox"/>	Tool to determine the baseline efficiency of thermal or electric energy generation systems	1	
			<input checked="" type="checkbox"/>	Tool to determine the remaining lifetime of equipment	1	
			<input checked="" type="checkbox"/>	Project and leakage emissions from transportation of freight	1.1.0	
			<input type="checkbox"/>	Project and leakage emissions from composting	1	
			<input type="checkbox"/>	Project and leakage emissions from anaerobic digesters	1	
			<input type="checkbox"/>	Upstream leakage emissions associated with fossil fuel use	2.0	
			<input type="checkbox"/>	Project and leakage emissions from biomass	2	
			<input type="checkbox"/>	Leakage in biomass small-scale project activities	4.0	
11.	PP	/VAL/	Validation Report for CDM project "Panuco Bagasse Cogeneration Project" version 0.3, dated 13/04/2015			Other
12.	UNFCCC	/NVS/	CDM Validation and Verification Standard (Version 02.0)		http://cdm.unfccc.int/Reference/Standards/index.html	Other
13.	PP	/XLS/	ER version 2, 17/03/2015 ER version 5, 29/01/2021		N/A	PP
14.	CRE SEDEMA SEMARN AT	/LIC/	<ul style="list-style-type: none"> •CRE, Título de permiso para generar energía (Energy Generation Permission), E/1399/C OG/2015, 19/03/2015 •CRE, Contrato de interconexión (Inteconnection Contract granting permission to generate renewable energy) CIRCCU01-01_2015, 28/01/2016 •CFE: Autorización de entrada en operación (Operation Authorization), 01/12/2016, DU000/GER/O/1346/2016 •LAF: Licencia Ambiental de Funcionamiento (Functioning Environmental License granted by Veracruz State), 24/05/2016 •LAU: Licencia Ambiental Única 		N/A	PP

No .	Author	Reference	Title	References to the document	Provider
			(Unique Environmental License granted by Federal Government), initial contact: OFICIO No. TRE-GE-XVI-XII-2105, 18/12/2015, Following communication: TRE-GE-024/2017, 18/07/2015. Still ongoing		
15.	INTERCO NT -SEL - YOKOGA WA -DP Harp	/INST/	<ul style="list-style-type: none"> •Instrument Manual- Scale, Schenk Process, BV-H2346 •Tech sheet SEL-735 electricity Meters, SEL •Tech sheet EJA110Ediff. Pressure meter, DP Harp •Tech sheet YTA110 Temp. Transmitter, Yokogawa 	N/A	PP
16.	PP	/O&M/	<ul style="list-style-type: none"> •Reparation TRE 2016 (Project file) •Laboratory Daily Reports for the whole MP 	N/A	PP
17.	INEEL	/LAB/	<ul style="list-style-type: none"> •Bagasse Chemical Analysis Report December 2017 and January 2018 	N/A	PP
18.	-PP -SEL -CAL PRO	/CAL/	<ul style="list-style-type: none"> •Calibration sheets 2017 •SEL Certified Test Reports 2015 File •Scale Calibration report 2016 and 2017 	N/A	PP
19.	PP	/PROC/	<ul style="list-style-type: none"> •CERs from the CDM project Procedure (Gestión de proyectos de Reducciones Certificadas de Emisiones del mecanismo de desarrollo limpio) 	N/A	PP
20.	PP	/TRAIN/	<ul style="list-style-type: none"> •Relevant Trainings with Ingenio personnel regarding the CDM project 	N/A	PP
21.	PP	/FIN/	<ul style="list-style-type: none"> •Panuco Cashflow ver. 5, 03/08/2020 	N/A	PP
22.	PP	/DFR/	<ul style="list-style-type: none"> •Daily factory reports (informe diario de fabrica) covering years 2009-2020 issued by the Laboratory head •Summary harvest historic, covering 1996-2019 	N/A	PP

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			
Project participant response			Date: DD/MM/YYYY
Documentation provided by project participant			
DOE assessment			Date: DD/MM/YYYY

Table 2. CARs from this validation

CAR ID	01	Section no.	Investment analysis/PDD Appendix 7				Date: 25/06/2020																																																																																																																										
Description of CAR																																																																																																																																	
As a correction of the harvest days is proposed (change from 221 to 182 days average). Justification has to be provided. Furthermore, evidence to confirm that the actual harvest days are correctly prognosticated for the project life time has to be provided.																																																																																																																																	
Project participant response (round 1)							Date: 30/06/2020																																																																																																																										
<i>The harvest days were corrected since the information in the original cashflow was incorrect according to PP. Thus, it has been changed this key parameter in line with this corrected information provided.</i>																																																																																																																																	
<i>The evidence to confirm that the actual harvest days are correctly prognosticated for the project life time has been provided by the PP and sent to DOE.</i>																																																																																																																																	
<i>By inserting the corrected value of the key parameter it was observed that the additionality of the project is maintained.</i>																																																																																																																																	
Documentation provided by project participant																																																																																																																																	
PDD ver 6																																																																																																																																	
Historic harvest spreadsheet																																																																																																																																	
DOE assessment (round 1)							Date: 07/07/2020																																																																																																																										
The correction of the harvest days is appropriate. Nonetheless from the provided sheet “historicos zafra” is not clear how the updated harvest days for each year are calculated in the new “Forecast electricity” calculations row 10. Clarification from PP is requested to explain how the harvest days from year 2016 on are established. As the updated days don't match the historic ones.																																																																																																																																	
<table><tr><td colspan="2">Forecast Electricity</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td></td><td>Units</td><td>Used Conversion Ratios</td><td>2016</td><td>2017</td><td>2018</td><td>2019</td><td>2020</td><td>2021</td><td>2022</td></tr><tr><td>Sugarcane crushed</td><td>Tonnes</td><td></td><td>2,000,000</td><td>2,250,000</td><td>2,400,000</td><td>2,500,000</td><td>2,900,000</td><td>3,200,000</td><td>3,400,000</td></tr><tr><td>Load Factor of CG</td><td>%</td><td></td><td>63.0%</td><td>63.0%</td><td>73.0%</td><td>73.0%</td><td>48.0%</td><td>48.0%</td><td>49.0%</td></tr><tr><td>Total installed Capacity</td><td>MW</td><td></td><td>62.666</td><td>62.666</td><td>62.666</td><td>62.666</td><td>122.666</td><td>122.666</td><td>122.666</td></tr><tr><td>Standby installed Capacity</td><td>MW</td><td></td><td>0.000</td><td>0.000</td><td>0.000</td><td>0.000</td><td>17.200</td><td>17.200</td><td>17.200</td></tr><tr><td>Operational installed Capacity</td><td>MW</td><td></td><td>62.666</td><td>62.666</td><td>62.666</td><td>62.666</td><td>105.466</td><td>105.466</td><td>105.466</td></tr><tr><td>Harvest Days</td><td>days</td><td></td><td>211</td><td>225</td><td>198</td><td>175</td><td>169</td><td>180</td><td>180</td></tr><tr><td>After crop season Generating days</td><td>days</td><td></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>19</td></tr><tr><td>Total Bagasse Generation</td><td>Tonnes</td><td>27% (tonnes of bagasse/tonnes sugarcane)</td><td>540,000</td><td>607,500</td><td>648,000</td><td>675,000</td><td>783,000</td><td>864,000</td><td>918,000</td></tr><tr><td>Gross electricity generation</td><td>MWh</td><td></td><td>199,925</td><td>213,190</td><td>217,386</td><td>192,134</td><td>205,330</td><td>218,694</td><td>246,196</td></tr></table>										Forecast Electricity													4	5	6	7	8	9	10		Units	Used Conversion Ratios	2016	2017	2018	2019	2020	2021	2022	Sugarcane crushed	Tonnes		2,000,000	2,250,000	2,400,000	2,500,000	2,900,000	3,200,000	3,400,000	Load Factor of CG	%		63.0%	63.0%	73.0%	73.0%	48.0%	48.0%	49.0%	Total installed Capacity	MW		62.666	62.666	62.666	62.666	122.666	122.666	122.666	Standby installed Capacity	MW		0.000	0.000	0.000	0.000	17.200	17.200	17.200	Operational installed Capacity	MW		62.666	62.666	62.666	62.666	105.466	105.466	105.466	Harvest Days	days		211	225	198	175	169	180	180	After crop season Generating days	days		0	0	0	0	0	0	19	Total Bagasse Generation	Tonnes	27% (tonnes of bagasse/tonnes sugarcane)	540,000	607,500	648,000	675,000	783,000	864,000	918,000	Gross electricity generation	MWh		199,925	213,190	217,386	192,134	205,330	218,694	246,196
Forecast Electricity																																																																																																																																	
			4	5	6	7	8	9	10																																																																																																																								
	Units	Used Conversion Ratios	2016	2017	2018	2019	2020	2021	2022																																																																																																																								
Sugarcane crushed	Tonnes		2,000,000	2,250,000	2,400,000	2,500,000	2,900,000	3,200,000	3,400,000																																																																																																																								
Load Factor of CG	%		63.0%	63.0%	73.0%	73.0%	48.0%	48.0%	49.0%																																																																																																																								
Total installed Capacity	MW		62.666	62.666	62.666	62.666	122.666	122.666	122.666																																																																																																																								
Standby installed Capacity	MW		0.000	0.000	0.000	0.000	17.200	17.200	17.200																																																																																																																								
Operational installed Capacity	MW		62.666	62.666	62.666	62.666	105.466	105.466	105.466																																																																																																																								
Harvest Days	days		211	225	198	175	169	180	180																																																																																																																								
After crop season Generating days	days		0	0	0	0	0	0	19																																																																																																																								
Total Bagasse Generation	Tonnes	27% (tonnes of bagasse/tonnes sugarcane)	540,000	607,500	648,000	675,000	783,000	864,000	918,000																																																																																																																								
Gross electricity generation	MWh		199,925	213,190	217,386	192,134	205,330	218,694	246,196																																																																																																																								
Project participant response (round 2)							Date: 09/07/2020																																																																																																																										
Up to crop season 2020 the number of harvest days is based on historical data, from crop season 2021 on the number of the harvest days is based on per standard the averaged of the last three years.																																																																																																																																	
Documentation provided by project participant																																																																																																																																	
<ul style="list-style-type: none">HISTORICOS ZAFRAS INGENIO PANUCO.pdfHISTORICOS ZAFRAS INGENIO PANUCO.xlsx																																																																																																																																	
DOE assessment (round 2)							Date: 09/07/2020																																																																																																																										
The provided evidence directly from the PP confirms that the updated harvest days are based on historic data from the sugar mill, the expected harvest days from 2021 on are correctly calculated as the average of																																																																																																																																	

the 3 latest years. Finding is closed
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CAR ID	02	Section no.		Date: 25/06/2020
Description of CAR				
Last PPD version 11 has to be used.				
Project participant response				Date: 30/06/2020
<i>The PDD template has been updated</i>				
Documentation provided by project participant				
<i>PDD ver 06</i>				
DOE assessment				Date: 07/07/2020
The used PDD form is the latest one available on the UNFCCC website. Finding is closed				

CAR ID	03	Section no.		Date: 25/06/2020
Description of CAR				
The figures 147,207 MWh/yr to 165,792 MWh/yr on page 105 of the PDD don't match the figures in the investment analysis. It is not clear where they come from.				
Project participant response				Date: 01/07/2020
<i>The value 147,207 MWh/yr is the average in sheet "Forecast Electricity" of the original cashflow for years from 2016 to 2019 of "Available to sell" (line 16). Similarly, the value 165,792 MWh/yr is the average in sheet "Forecast Electricity" of the updated cashflow for years from 2016 to 2019 of "Available to sell" (line 18). In the sheet "Base case - Scenario 1", it was considered the electricity generation year by year since 2016 up to 2037, not average values.</i>				
Documentation provided by project participant				
<i>PDD ver 6, cashflow</i>				
DOE assessment				Date: 07/07/2020
The average electricity figures provided in the updated cashflow analysis is correct and calculated as per the original cashflow used at validation stage. Finding is closed.				

CAR ID	04	Section no.	Cashflow	Date: 17/07/2020
Description of CAR				
Installed Capacity:				
1. Clarification on why the rows 8 and 9 (Standby installed capacity and Operational installed capacity) in the updated Forecast Electricity were added.				
2. The total installed capacity "Cell D9 Assumptions" was updated from 100 to 122.7 MW, nonetheless the 100 MW from the original calculation represents the operational capacity (not the total capacity), please correct or clarify.				
Project participant response				Date: 21/07/2020
1. it was added in the cash flow, since in Phase II of the project activity the total installed capacity totalizes 122.666 MW, being that 105.466 MW (Row 9) in operation and 17.2 MW (Row 8) in stand-by. This is stated in the revised PDD in section A.3. The installed capacity of the stand-by equipment (17.2 MW) is not considered as for electricity generation, since this equipment is only be put into operation when the operational installed capacity (105.466 MW) presents issues such as shutdown, maintenance, etc.				
2. Cell D9 in sheet "Assumptions" of the cash flow is the total installed capacity of the project, including the stand-by equipment. Thus, the issue is clarified.				
Documentation provided by project participant				
<i>PDD v6 Cashflow v5 2020-08-03 FES</i>				
DOE assessment				Date: 05/08/2020
1. The provided clarification is correct. In the second phase of the project there is a standby capacity with 17.2 MW. The calculation is clear.				
2. As explained in point 1 the updated cashflow differentiates the stand by from the operational capacity. The calculation is clear.				
Finding is closed				
CAR ID	05	Section no.	ER calculation	Date: 17/07/2020

Description of CAR	
<ol style="list-style-type: none"> 1. In column B (emission Reductions sheet) the harvest days have to be updated as CERs are affected 2. Cell F29 step 1.1 was not updated with the updated harvest day (200) 3. Cell C25 of sheet BL Step 1.3 was not updated with the corrected value 17.2 MW. 4. Clarify where the corrected value (26 lb/in²) is applied in the ER calc? 	
Project participant response	Date: 22/07/2020
<ol style="list-style-type: none"> 1. Harvest days have been amended in the updated CERs spreadsheet 2. The harvest days in line 29 of sheet "BL Step 1.1" are correct according to reports from historical crop seasons. 3. The cell C25 was corrected accordingly. 4. The value corresponds to nominal pressure of the outlet steam turbine (26 lb/in² or 1.8 bar) and it was considered in the verification emission reduction spreadsheet on sheet "BL Step 1.1" column "I" and the values applied were provided by supervisory system verified at sugar mill. 	
Documentation provided by project participant	
PDD v6 2020-08-03 Panuco CERs Calculation v5 FES	
DOE assessment	Date: 05/08/2020
<ol style="list-style-type: none"> 1. The updated harvest days included in emission reductions sheets are in line with the days taken from the historic registers of the sugar mill. Factory reports and historic data spreadsheet of sugar mill issued by the sugar mill laboratory were checked from 2009 to 2020. 2. The harvest days provided in step 1.1 for year 2011 is correct 202, in line with the registered harvest days, taken from the Factory reports and historic data spreadsheet of sugar mill issued by the sugar mill laboratory. 3. The baseline capacity in sheet step 1.3 is in line with the correct value 17.2 MW, observed in the technical sheet and equipment plates. 4. The corrected value 26 lb/in² has been correctly applied in BL Step 1.1" column "I. The pressure value is checked vs. the technical parameters of the equipment technical sheet. 	
Finding is closed	

CAR ID	06	Section no.	PP Step 1.3	Date: 17/07/2020
Description of CAR				
The CAP _{EG,CG,i} = 17.0 MW in page 67 has not been updated				
Project participant response				Date: 22/07/2020
The CAP _{EG,CG,i} was amended accordingly				
Documentation provided by project participant				
PDD v6				
DOE assessment				Date: 05/08/2020
The CAP _{EG,CG,i} = 17.2 MW has been updated in PDD v6				
Finding is closed				

CAR ID	07	Section no.	PDD	Date: 17/07/2020
Description of CAR				
Appendix 7				
<p>Although the PP has provided some changes details in appendix 7, further information for each change is requested to comply with PS §242 - <i>"the PP shall report in the revised PDD the impact of the actual changes to the registered CDM project on the following"</i>:</p> <p>(a) <i>The applicability and application of the applied methodologies, the applied standardized baselines documents with which the project activity has been registered;</i></p> <p>(b) <i>The compliance of the monitoring plan with the applied methodologies, the applied standardized baselines documents</i></p> <p>(c) <i>The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan;</i></p>				

(d) The additionality of the project activity; (e) The scale of the project activity	
Project participant response	Date: 22/07/2020
Appendix 7 has been amended in order to provide changes details according to PS §242.	
Documentation provided by project participant	
PDD v6	
DOE assessment	Date: 05/08/2020
The provided PRC information summary in Appendix 7 of the updated PDD is in line the actual changes requested by the PP. The changes are assessed in detail in PRC validation report. Finding is closed	

CAR ID	08	Section no.	B.7.1	Date: 06/08/2020
Description of CAR				
As the accuracy is being modified in the updated PDD for the following parameters:				
<ul style="list-style-type: none"> ✓ $BR_{PJ,n,y}$ - Quantity of biomass residues of category n used in the CDM project activity in year y (tonnes on dry-basis) ✓ $BR_{B4,n,y}$ - Quantity of biomass residues of category n used in the CDM project activity in year y for which the baseline scenario is B4 (tonne on dry-basis) ✓ $EL_{PJ,gross,y}$ - Gross quantity of electricity generated in all power plants which are located at the project site and included in the project boundary in year y (MWh) ✓ $EL_{PJ,imp,y}$ - Project electricity imports from the grid in year y (MWh) 				
In line with PS §242 (c), details about accuracy class have to be provided for the monitoring parameters or proper justification has to be provided.				
Project participant response				Date: 22/09/2020
In the registered PDD, it was defined the accuracy of each metering equipment of the project activity. However, the definition of accuracy was made at a time prior to the implementation of the project activity, not reflecting the currently technical configuration already installed.				
The error and accuracy class for the scales of parameters $BR_{PJ,n,y}$ and $BR_{B4,n,y}$ was defined (Class IV) at registration time, nonetheless nor the authorities neither the CDM board require such classes; so in absence of National standards the manufacturer recommendation will be followed.				
The error, uncertainty and accuracy of meters for parameters $EL_{PJ,gross,y}$ and $EL_{PJ,imp,y}$ was defined at registration (up to 1.5%), nonetheless nor the authorities neither the CDM board require such classes. So the meters classes will be defined as per the Energy Regulatory Commission (CRE) rules or manufacturer recommendation will be followed.				
Documentation provided by project participant				
PDD v6				
DOE assessment				Date: 27/10/2020
The DOE has review the local regulation in Mexico and UNFCCC/methodology requirements. The justification provided by the PP is correct and appropriate. As no requirements for the scales accuracy class has been established the scales class will be defined as per manufacturer recommendation. Furthermore the electricity meters accuracy class will be defined as per the CRE which is the responsible agency to define the meters specifications for energy export and import to the Mexican electricity grid. Finding is closed				

CAR ID	09	Section no.	A,B	Date: 17/11/2020
Description of CAR				
<ol style="list-style-type: none"> 1. Section A.6: the instructions to fill the PDD, show another point 2., that is not sufficiently answered in this section. 2. Section B.3: as per instructions to fill the PDD, the following is requested: <ol style="list-style-type: none"> a. "Define the project boundary of the project activity, including the physical delineation of the project activity, and which sources and GHGs are included in the project boundary, in accordance with the applied methodologies and the applied standardized baselines..." b. "...In addition to the table, where possible, present a flow diagram of the project boundary based on the description provided in section A.3 above. Include in the flow diagram all the facilities, systems and equipment, and flows of mass and energy described in that section. In particular, indicate in the 				

<i>diagram the emission sources and GHGs included in the project boundary and the data and parameters to be monitored"</i>	
Project participant response	Date: 25/11/2020
In Section A.6 instruction to fill the PDD was sufficiently answered. In Section B.3 instruction to fill the PDD was sufficiently answered.	
Documentation provided by project participant	
PDD version 06	
DOE assessment	Date: 26/11/2020
<ol style="list-style-type: none"> Section A.6 has been fulfilled as per the instructions to fill the PDD. The project boundary section B.3. has been properly described in line with the applied methodology and as per instructions to fill the PDD Finding is closed	

CAR ID	10	Section no.	C	Date: 17/11/2020
Description of CAR				
<ol style="list-style-type: none"> Section C.1: the start date is missing. Section C.2: the stated lifetime does not go together with the lifetime presented in section A.3 Section C.3.2.: the date is not in the correct format. 				
Project participant response				Date: 25/11/2020
<i>In item 1 – Start date of the project activity included</i> <i>In item 2 - Lifetime presented in Section C.2 is the lifetime of project activity (3 x 7 years). Lifetime presented in Section A.3 is the lifetime of the equipment. Thus, both should not be the same.</i> <i>In item 3 - Correct format of the date was corrected.</i>				
Documentation provided by project participant				
PDD version 06				
DOE assessment				Date: 26/11/2020
<ol style="list-style-type: none"> The start date was included based on the payment of the main equipment in line with the start date definition as per the CDM glossary of terms The project activity lifetime was correctly included in section C.2 The date format was correctly included Finding is closed				

CAR ID	11	Section no.	B.7.1	Date: 17/11/2020
Description of CAR				
For the electricity meters for parameter $EL_{PJ, gross, y}$, the actual accuracy and calibration requirements established by the Energy Regulatory Commission (CRE) could be included in the QA/QC procedures.} Also it is said that the accuracy and calibration frequency will be defined base on manufacturer recommendation, but that could be different than the CRE requirements. This is not consistent.				
Project participant response				Date: 25/11/2020
The actual accuracy and calibration requirements established by the Energy Regulatory Commission (CRE) was included in the QA/QC procedures. Regarding parameter $EL_{PJ, gross, y}$, as wel as, for all other parameter in the PDD, the accuracy and calibration frequency are required, but there is no need to present real values in the PDD. The actual values will be presented during a verification. Despite that, the inconsistency between manufacture recommendation and CRE recommendation have been amended.				
Documentation provided by project participant				
PDD version 06				
DOE assessment				Date: 26/11/2020
In accordance with the Mexican regulation the accuracy and calibration frequency are established by th CRE. The Parameter QA/QC is correctly defined in PDD. Finding is closed				

CAR ID	12	Section no.	B.5	Date: 25/06/2020
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Description of CAR	
<p>According to the time line provided in section B.5 of the additionality the electricity generator was bought on 12/02/2013, and the validation took place later in January 2014.</p> <p>The PP is requested to clarify and confirm if the proposed changes would have been known prior the registration (17/04/2015) of the project.</p>	
Project participant response	Date: 30/06/2020
<p>At the time of the registration of the project activity in 2015, the installed capacity values declared in the PDD for (g6) and (e1) were based on the purchasing invoices dated from 2013. Those invoices states that the installed capacity would be 40 MW (g6) and 44 MW (e1). However, the installed capacity defined at the project plant operational reality after tests and commissioning (equipment nameplate) usually range from the technical nominal data defined in the invoices. Thus, we were not aware of the correct nameplate installed capacity at the time of registration of the PDD (2015) since the commissioning of those equipment, event when tests and technical adjustments including installed capacity definition in the nameplate are carried out, occurred only in April/2016. So, the intention of the PRC is to be transparent and correct a technical value that was incorrectly declared at the time of the registration of the PDD.</p>	
Documentation provided by project participant	
Commissioning documents of g6 and e1	
DOE assessment	Date: 05/02/2021
<p>The statements of the PP in the revised PDD are correct. The VT reviewed the commissioning documents, purchase order and validation report to confirm the dates and equipment capacity and confirms that the changes would not have been known prior to the registration due to the variation between nominal and net capacity of the electricity generators which are very typical in the praxis in the power generation sector.</p> <p>The change has a slight impact in the final electricity generation amount, ER calculation and the additionality. The additionality was assessed by the VT in section D.7 of this report.</p> <p>The revised PDD includes a proper clarification.</p> <p>Finding is closed.</p>	

CAR ID	13	Section no.	Step 3.1 BL ex ante calc.	Date: 25/06/2020
Description of CAR				
<p>Correction /clarification is requested on why parameter $LFC_{HG,y}$ in step 3.1 page 75 of the track changes PDD is (0.879) which is not consistently applied in the revised PDD and it differs from the value in the registered PDD. Also the source of that values was updated.</p> <p>If the change is affecting the ER calculation proper justification and evidence has to be provided.</p>				
Project participant response				Date: 30/06/2020
<p>There was a typo mistake and the value in the PDD and ER spreadsheet was corrected according to original registered PDD. It is important to highlight that this correction does not affect any ER calculation.</p>				
Documentation provided by project participant				
Revised PDD				
DOE assessment				Date: 05/02/2021
<p>The parameter $LFC_{HG,y}$ on page 75 of the PDD has been corrected to 0.76. It was a typo. The parameter is consistently used in the PDD and in line with the registered PDD. The source has been checked. Furthermore the ER calculation was checked to confirm that the correct value of 0.76 is applied. No error was found in the spreadsheets and there is no change in the ER-calculation result.</p> <p>Finding is closed.</p>				

Table 3. FARs from this validation

N/A

Appendix 5. Assessment of Financial Parameters

Assessment of Financial Parameters (VVS, §§ 129, 130 / in case financial parameters from FSR §131 and §132)

<input type="checkbox"/>	No financial parameters are used for additionality justification
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below

Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
Gross Electricity Generation (GEG)	5,657,474	MWh/year	Forecast Electricity	/FIN/ /ER/	<input checked="" type="checkbox"/>	<p><i>Description:</i> GEG Precedents: the gross electricity generation is calculated in sheet Forecast Electricity, it is the only income and furthermore one of the most important variables to determine the profitability of the project. The GEG is dependent on the following parameters:</p> <ul style="list-style-type: none"> ✓ Load Factor of CG ✓ Operational Installed Capacity ✓ Harvest days and ✓ After crop season generation days <p>The load Factor of CG and After crop season generation days are not updated as these are pre-established based on the historic data from the sugar mill (sheet Load Factor). The harvest days were corrected as per description in section D.3 of this report. The correctness of the harvest days were confirm by the email from the PP and the evidence directly from the sugar mill logbooks "historicos zafras Ingenio Panuco"</p> <p>GEG Dependents: As the GES is the only income source the following financial variables are directly affected in the cashflow analysis:</p> <ul style="list-style-type: none"> ✓ Electricity revenues ✓ Gross revenues ✓ Operational Results -EBITDA

Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<ul style="list-style-type: none"> ✓ EBIT ✓ EBT ✓ Net Operational Profit ✓ Net cashflow Equity ✓ NPV <p><i>Validator's action:</i> the updated cash flow calculation was reviewed, specially the spread sheet Forecast electricity. Furthermore the evidence "Daily factory reports" from 2009 to 2020^{DFR/} was reviewed to confirm their correctness and authenticity of the updated harvest days as these parameter has a big impact on the GEG estimation.</p> <p>In line with PS §243(a) it was reviewed that only the GEG was updated in the cashflow. Such change depends on the two changes performed by the PP (change in the installed capacity and the harvest days as described in sections D.3 and D.7 of this report. Other relevant variables such as the electricity price and O&M total Costs were not updated in line with PS §243(a).</p> <p>The actual electricity generator e1 plate was checked to confirm the correctness of the actual installed capacity (45.466 MW) and the evidence Daily Factory Reports to confirm the correct harvest days was reviewed.</p> <p><i>Conclusion:</i> The updated GEG was correctly determined and applied in the updated cash flow analysis and ER calculation spreadsheet (BL Step 1.2).</p>
NPV	-16,936.69	kUSD	Cashflow - Basecase Scenario 1	/FIN/	☒	<p><i>Description:</i> as the NPV was used as the financial analysis indicator, this has been re-assessed by the VT. The updated parameter was basically the GEG described above. The updated NPV moved from -9,260.29 to -16,936.69</p> <p>Sensitivity Analysis:</p> <p>Also the sensitivity analysis in Cashflow spreadsheets and PDD was reviewed. In line with "Combined tool to identify the baseline scenario and demonstrate additionality", the following variables were moved up and down with 10% to see it the NPV change the financial situation of the project:</p>

Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT	
					Correctness of value applied	Comment
						<ul style="list-style-type: none"> ✓ CapEx ✓ Revenues ✓ O&M <p>As in the original sensitivity analysis the main variables were move until they reach the financially attractive scenario (with NPV=0). It was found that the three variables have to be moved drastically further than 10% to reach the NPV =0, as follow:</p> <ul style="list-style-type: none"> ✓ CapEx + 26.6% ✓ Revenues + 32.5% ✓ O&M + 133.6 % <p>In conclusion the updated NPV shows that scenario 1 is still not the most financially attractive scenario.</p>

Appendix 6. Assessment of Barrier Analysis

Assessment of Barrier Analysis (VVS, §§ 133-136)

<input checked="" type="checkbox"/>	No barrier parameters are used for additionality justification
<input type="checkbox"/>	Assessment of barriers see below

Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result
			<input type="checkbox"/>	
			<input type="checkbox"/>	

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		