

# VCS PROJECT REVIEW REPORT

<b>Project ID</b>	1186
<b>Project Name</b>	<i>Vinales Biomass Power Plant</i>
<b>Project Proponent</b>	<i>Celulosa Arauco y Constitución S.A.</i>
<b>Methodology</b>	<i>ACM0006: Consolidated methodology for electricity and heat generation from biomass --- Version 12.1.1</i>
<b>Sectoral Scope(s)</b>	1. <i>Energy (renewable/non-renewable)</i>
<b>Validation/Verification Body (VVB)</b>	<i>LGAI Technological Center S.A.</i>
<b>Registry</b>	<i>Markit</i>

<b>Assessment Criteria</b>	<i>VCS Standard, v3.5</i>
<b>Date of First Issue</b>	<i>9 September 2016</i>
<b>Date of Final Issue</b>	<i>7 December 2016</i>

## Summary:

An accuracy review of the Vinales Biomass Power Plant issuance request has been conducted by VCS in accordance with Section 4.3 of the *Registration and Issuance Process*.

The accuracy review has raised 3 assessment findings and 0 minor findings, detailed below. The VVB, in coordination with the project proponent, is hereby required to provide a response to the assessment findings presented in Section 1. The 3 assessment findings must be addressed to the satisfaction of VCS. The VVB need not address any minor finding(s) during this review. Please note, however, that where VCS finds consistent minor findings by the VVB in future reviews, minor findings shall be escalated to assessment findings.

This findings report may be made publically available. Confidential information may be provided as separate attachments.

## 1 ASSESSMENT FINDINGS

### Finding 1

The VCS *Program Definitions*, v3.5 defines “Project Crediting Period Start Date” as “The date on which the first monitoring period commences”.

Section 1.6 of the Monitoring Report states that “the project crediting period start date is 01/01/2014”. However, Section 1.1 of the Monitoring Report states that the first monitoring period (the current monitoring period) commenced on July 1<sup>st</sup> 2014.

As such, there is a mismatch between the project crediting period start date and the commencement date of the first monitoring period, which is inconsistent with the VCS definition for “Project Crediting Period Start Date”. The project proponent is therefore requested to either (1) revise the time period covered by this first monitoring period to align with the stated project crediting period start date or (2) revise the project crediting period start date to align with the stated commencement date of this first monitoring period (which may be handled via a project description deviation).

Regardless of which option is followed by the project proponent, the monitoring report and associated verification report must be updated to ensure consistency between the project crediting period start date and the monitoring period start date.

### VVB Response:

The baseline methodology applied to the VCS Viñales project clearly states that moisture content of the biomass residues (directly associated with the calculation of biomass residues on a dry-basis) must be measured on-site and for each batch of biomass of homogeneous quality (page 67 of ACM0006/Version 12.1.1).

Due to logistic and administrative issues, Viñales Power plant took some time to implement a laboratory on-site to monitor the moisture content of the different biomass types, which started to measure from July 2014.

In this case, the Project Participant proposed a deviation to change the crediting period start date by 6 months from 01/01/2014 to 01/07/2014. The reasons to delay the start date are:

- 1) The impossibility to measure directly all monitoring parameters would have compromised seriously the possibility of the project activity to generate CERs since this constitutes a direct non-compliance of the monitoring plan.
- 2) The impossibility to check the consistency of direct measurement of all monitored parameters as per procedure would have compromised the possibility of the project and generate a direct non-compliance of the standards of the monitoring plan.

### VCS Response:

The VVB response is sufficient to close this finding. No further action is required.

### Finding 2

Section 3.6 of the *VCS Standard, v3.5* sets out the requirements for Project Description Deviations. These requirements state that “the procedures for documenting [project description deviations] depend on whether the deviation impacts the applicability of the methodology, additionality or the appropriateness of the baseline scenario”. Namely, only where a project description impacts one of these characteristics is a new project description needed; otherwise the project description deviation should be described and justified in the Monitoring Report.

Section 2.2.2 of the Monitoring Report lists two project description deviations. However, there is no discussion as to whether the deviations impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario. Section 2.2.2 of the Monitoring Report does reference an updated version of the project description, though VCS has not received the updated version. In addition, VCS notes that Section 3.3 of the Verification Report suggests that the deviations do not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, meaning a new version of the project description is not needed, and the deviations may be described and justified in the monitoring report.

Therefore, (1) please clarify whether the project description deviations described in Section 2.2.2 of the Monitoring Report impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario, (2) based on that clarification, either provide an updated version of the project description in accordance with Section 3.6.1(1) of the *VCS Standard, v3.5* or provide a full description of the deviation in Section 2.2.2 of the Monitoring Report (including whether they impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario), and (3) update the verification report as needed to reflect these clarifications.

**VVB Response:**

As Project Participant described in the Monitoring report version 3, there are some difference between the PD monitoring plan and the monitoring plan applied on-site:

**1.- Monitoring period starting date:** As was described in Request 1, monitoring period starting plan was delayed due to logistic and administrative issues. In that context Project Participant present the emission reduction calculation only for the second half of the first monitoring period, and the Viñales project start date was delayed by 6 months from 01/01/2014 to 01/07/2014.

**2.- Changes in QA/QC procedures for parameters  $EL_{PJ,gross,y}$ ,  $EL_{PJ,imp,y}$  and  $EL_{PJ,aux,y}$ :**

The current PD QA\_QC for parameters  $EL_{PJ,gross,y}$ ,  $EL_{PJ,imp,y}$  and  $EL_{PJ,aux,y}$  that required the electricity sales receipts, only could support the electricity export from power plant to the grid, but could not support the gross electricity or the import electricity to plant by itself. To assure and control the quality of the parameters below Project Participant propose new key performance as is described in the next table:

Parameter	Proposed QA_QC procedure Viñales biomass power plant PD (version 03)
EL <sub>PJ,gross,y</sub>	<ul style="list-style-type: none"> <li>- Percentage difference between the export surplus energy to the grid with receipts from electricity sales (if available) are comparable to transmission losses.</li> <li>- Indicator between the electricity generation divided by the quantity of combusted biomass in Power boiler (e.g. check whether results in a reasonable efficiency that is comparable to previous years).</li> <li>- Measured energy displacement using dedicated equipment must be comparable to calculated energy displacement according methodology.</li> </ul>
EL <sub>PJ,imp,y</sub>	<ul style="list-style-type: none"> <li>- Percentage difference between Total power import and receipts from electricity purchases (if available).</li> <li>- Indicator between the electricity generation divided by the quantity of combusted biomass in Power boiler (e.g. check whether results in a reasonable efficiency that is comparable to previous years).</li> </ul>
EL <sub>PJ,aux,y</sub>	<ul style="list-style-type: none"> <li>- Percentage difference between the export surplus electricity to the grid plus sawmill consumption electricity with receipts from electricity sales (if available) are comparable to transmission losses.</li> <li>- Indicator between the electricity generation divided by the quantity of combusted biomass in Power boiler (e.g. check whether results in a reasonable efficiency that is comparable to previous years).</li> <li>- Measured energy displacement using dedicated equipment must be comparable to calculated energy displacement according methodology.</li> </ul>

**3.- Changes in critical equipment define in current PD:**

As was exposed in section 2.1, there are some differences between the equipment described in current PD and the installed monitoring equipment during the present monitoring period that could be describe as follows:

- 2 transmitter (pressure and temperature) whose TAG's were corrected (typo mistake)
- 3 pressure transmitters, 4 temperature transmitter, 2 fossil fuel transmitter and 2 energy meters that were included in a new PD version. Pressure and temperature transmitter replaced instruments that in current PD where mistakenly defined.

A table in section 2.1 and 2.2.2 described in detail the difference between the equipment described in current PD and the monitoring period critical equipment.

None of the three deviations above affect monitoring plan continuity and, therefore, the emission reduction calculation was not affected either. Applicability of the methodology,

additionality or the appropriateness of the baseline scenario, were not affected too. As there are no impacts in the applicability of the methodology, additionality or baseline scenario, Project Participant includes the deviations in a new version of the monitoring report.

**VCS Response:**

The VVB response is sufficient to close this finding. No further action is required.

**Finding 3**

The estimated annual emission reductions listed in the project description are 258,093 tCO<sub>2</sub>e, while the emission reductions monitored for this period were 66,099 tCO<sub>2</sub>e. Even taking into account that this monitoring report does not cover a full year, the monitored emission reductions represent a significant reduction compared to the estimated annual emission reductions. Please explain this discrepancy in monitored emission reductions as compared to the estimated annual emission reductions.

**VVB Response:**

In order to raise the difference in the calculation of the emission reduction presented during validation process and current monitoring period, Project Participant compared the parameters used for baseline and project emissions calculation in the following tables:

*1.-Combined margin used in the monitoring period emissions reduction calculation:*

		PDD Values		Monitored Values
		2014	Jul-Dec 2014	MR ver3 Jul-Dec 2014
Combined Margin for the CDM activity	(tCO <sub>2</sub> /GWh)	687.84	687.84	694.68
		Percentual difference		1.0%

In current Monitoring period Combined margin (CM) differs from the one used in the PD's estimation by 1.00%. While CM in PD was calculated with public data reported during 2011, CM used in last MR was calculated using 2014 public data, according to monitoring plan requirements.

2.-Biomass and fossil fuels data:

	PD Values		MR ver3	MR ver6
	2014	Jul-Dec 2014	Jul-Dec 2014	Jul-Dec 2014
(TJ / 000 ton)	18.50	18.50	18.89	18.89
(% wet basis)	50.0%	50.0%	40.9%	40.9%
(TJ / 000 ton)	18.50	18.50	18.85	18.85
(% wet basis)	50.0%	50.0%	56.0%	56.0%
(TJ / 000 ton)	18.50	18.50		
(% wet basis)	50.0%	50.0%		
(number)	1.3	1.3	1.3	1.3
(number)	21.0	21.0	25.0	21.0
(Kg/TJ)	30.00	30.00	30.00	30.00
(number)	1.37	1.37	1.37	1.37
(Kg/TJ)	41.10	41.10	41.10	41.10
(tCO <sub>2</sub> eq/ 000 ton)	15.97	15.97	19.41	16.30
(tCO <sub>2</sub> eq/ 000 ton)	15.97	15.97	19.37	16.27
(tCO <sub>2</sub> eq/ 000 ton)	15.97	15.97		

For combustible biomass residues the measured NCV's and Moisture content differ from the values used in PD's estimation. This variability is a proper condition of both parameters, considering that the variation is in order an empirical tolerance range (parameters variation in similar projects in the zone). In MR version 3 it was changed the methane global warming potential from 21 tCO<sub>2</sub>/tCH<sub>4</sub> to 25 tCO<sub>2</sub>/tCH<sub>4</sub>. The reason was the new instruction of COP/MOP formalized in EB 69 Annex 3 that applied from 1 January 2013. Notwithstanding it was clarified that VCS project shall use GWP default value declared in IPCC last version. PP correct GWP value and used 21 tCO<sub>2</sub>/tCH<sub>4</sub> in MR last version.

	PD Values		MR ver3	MR ver6
<b>Methane emission factors for uncontrolled biomass burning</b>				
<u>Third party biomass from industrial operations</u>				
CH <sub>4</sub> factor for biomass uncontrolled burning (2)	(Kg/TJ)	930.0	930.0	874.2
Conservativeness factor (4)	(%)	0.94	0.94	0.94
Adjusted CH <sub>4</sub> default factor	(Kg/TJ)	874.2	874.2	821.7
<b>Uncontrolled burning factor, biomass from internal industrial operations</b>	(tCO <sub>2</sub> eq/ 000 ton)	339.6	339.6	388.1
<b>Uncontrolled burning factor, biomass from external industrial operations</b>	(tCO <sub>2</sub> eq/ 000 ton)	339.6	339.6	387.2
<u>Third party biomass from forestry operations</u>				
CH <sub>4</sub> factor for biomass uncontrolled burning (2)	(Kg/TJ)	114.0	114.0	
Conservativeness factor (4)	(%)	0.89	0.89	
Adjusted CH <sub>4</sub> default factor	(Kg/TJ)	101.5	101.5	
<b>Uncontrolled burning factor, biomass from forestry operations</b>	(tCO <sub>2</sub> eq/ 000 ton)	39.4	39.4	

(1) Default factor from Table 4 of the ACM0006 (Version 12.1.1).  
 (2) Direct measurement available at the start of the project activity.  
 (3) Conservativeness factors from Table 5 of the ACM0006 (Version 12.1.1).  
 (4) Conservativeness factors from Table 3 of the ACM0006 (Version 12.1.1).

In the MR ver3, for calculation of the uncontrolled burning factor, was used twice the conservativeness factor to obtain an adjusted CH<sub>4</sub> default factor. This calculation was not according to methodology and PD's monitoring plan. It was corrected in a new version of the MR (ver6) to obtain a final result accordingly.

Fossil fuel data		PD Values		MR ver3	MR ver6
		2014	Jul-Dec 2014	Jul-Dec 2014	Jul-Dec 2014
<b>Diesel</b>					
Net calorific value	(GJ / ton)	43.30	43.30	42.89	42.89
Emission factor	(tCO <sub>2</sub> / GJ)	0.07480	0.07480	0.07480	0.07480
Fuel density	(Kg/lt)	0.97	0.97	0.84	0.84
<b>CO2 Conversion factor</b>	<b>(tCO<sub>2</sub>eq/ 000 ton)</b>	<b>3,239</b>	<b>3,239</b>	<b>3,208</b>	<b>3,208</b>
<b>Fuel oil</b>					
Net calorific value	(GJ / ton)	41.70	41.70		
Emission factor	(tCO <sub>2</sub> / GJ)	0.07880	0.07880		
Fuel density	(Kg/lt)	0.93	0.93		
<b>CO2 Conversion factor</b>	<b>(tCO<sub>2</sub>eq/ 000 ton)</b>	<b>3,286</b>	<b>3,286</b>		
<b>LPG</b>					
Net calorific value	(GJ / ton)			46.33	46.33
Emission factor	(tCO <sub>2</sub> / GJ)			0.06563	0.06563
Fuel density	(Kg/lt)			0.51	0.51
<b>CO2 Conversion factor</b>	<b>(tCO<sub>2</sub>eq/ 000 ton)</b>			<b>3,041</b>	<b>3,041</b>
<b>Notes:</b>					
Net calorific values: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Table 1.2. Default value at the upper limit of the uncertainty at a 95% confidence interval.					
Emission factor values: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Table 1.4. Default value at the upper limit of the uncertainty at a 95% confidence interval.					
<p>During monitoring period 2014 the fossil fuel used to start the ignition in the power boiler was LPG, not Fuel oil, which was the option during validation process.</p> <p><b>3.-Baseline operational parameters:</b></p>					
<b>POWER PLANT OPERATIONAL PARAMETERS</b>					
Biomass consumption data		PD Values		MR ver3	MR ver6
		2014	Jul-Dec 2014	Jul-Dec 2014	Jul-Dec 2014
Power boiler efficiency (*)	(%)	85.0%	85.0%	85.0%	85.0%
<b>Total biomass consumption in the cogeneration plant</b>	<b>(BDt/yr)</b>	<b>312,755</b>	<b>156,378</b>	<b>119,421</b>	<b>119,421</b>
Own biomass from industrial operations	(BDt/yr)	149,203	74,601	52,740	52,740
Third party biomass from industrial operations	(BDt/yr)	128,052	64,026	66,681	66,681
Biomass from forestry operations	(BDt/yr)	35,500	17,750	0	0
<b>Biomass attributable to the baseline scenario (heat generation)</b>	<b>(BDt/yr)</b>	<b>65,417</b>	<b>32,708</b>	<b>108,685</b>	<b>22,863</b>
		Percentual difference		232%	-30%
<b>Biomass attributable to the CDM project activity (electricity generation)</b>	<b>(BDt/yr)</b>	<b>247,338</b>	<b>123,669</b>	<b>10,736</b>	<b>96,558</b>
Own biomass from industrial operations	(BDt/yr)	83,786	41,893	0	29,877
Third party biomass from industrial operations	(BDt/yr)	128,052	64,026	10,736	66,681
Biomass from forestry operations	(BDt/yr)	35,500	17,750	0	0
<b>Total biomass consumption in the cogeneration plant</b>	<b>(BDt/yr)</b>	<b>312,755</b>	<b>156,378</b>	<b>119,421</b>	<b>119,421</b>
		Percentual difference		-24%	-24%
<p>During monitoring period 2014 it wasn't used biomass residues from forestry operations. This type of biomass is the last option to use in the power boiler due to its cost (gathering, transportation and conditioning). Additionally, during 2014 and 2015 Viñales power plant restricted the electricity generation due to constraint in the transmission line. The energy generated in the power boiler for heat and electricity was obtained from internal and external biomass from industrial operations.</p> <p>Comparing MR ver3 with PD's calculation was possible to note the following inconsistency: To obtain the biomass attributable to baseline scenario (heat generation) in MR ver3 it was considered the addition of steam flows from high pressure, medium pressure and low pressure line. Nevertheless, that consideration is not according the estimation presented during the validation process. According to methodology ACM0006Ver12.1.1, the biomass related to baseline scenario is only the biomass related to heat process generation, this mean the addition of the steam flows of medium pressure and low pressure lines. To obtain a result according current methodology and PD, it was applied a correction in a new MR version.</p>					

Fossil fuel consumption data	PD Values		MR ver3	MR ver6
	2014	Jul-Dec 2014	Jul-Dec 2014	Jul-Dec 2014
<b>Off-site fossil fuel consumption:</b>				
Off-site biomass transportation				
Average distance between supplying mills and Power Plant (km)	120	120	120	120
Specific CO2 emission factor of freight (heavy trucks default factor) (gCO <sub>2</sub> /t km)	129	129	129	129
<b>On-site fossil fuel consumption:</b>				
Fossil fuel consumption in the project plant:				
Total diesel due to operational reasons (ton/yr)	50	25	36.44	36.44
Total LPG due to operational reasons (ton/yr)			0.04	0.04
Total diesel used to increase power output (ton/yr)	0	0	0	0
Fossil fuel consumption for aux. equipment and systems related to gen of H&P				
Diesel consumption for on-site biomass transportation (t/yr)	85,198	42,599	43,716	43,716
		Percentual difference	3%	3%

The difference between the estimated quantity of on-site fossil-fuel consumption and the actually consumed during the monitoring period is not significant in the final result.

**BASELINE EMISSIONS**

Grid emission savings	PDD Values		Monitored Values
	2014	Jul-Dec 2014	MR ver3 Jul-Dec 2014
Baseline electricity generation (MWh/y)	291,180	145,590	94,661
Baseline emissions due to minimum grid electricity displacement (tCO <sub>2</sub> /yr)	200,285	100,143	65,759
Baseline emissions due to fossil fuel demand for process heat generation in year y (tCO <sub>2</sub> /yr)	0	0	0
Baseline emissions due to uncertain electricity generation in the grid in year y (tCO <sub>2</sub> /yr)	0	0	0
<b>Total emissions (tCO<sub>2</sub>/yr)</b>	<b>200,285</b>	<b>100,143</b>	<b>65,759</b>
		Percentual difference	-34%

As was mentioned before the electricity generation during the monitoring period was restricted due to constraint in the transmission line. That condition result in a difference of 34% below the estimated baseline emissions due to the electricity displacement from the grid.

**Emissions from biomass uncontrolled burning**

	2014	Jul-Dec 2014	MR ver3	MR ver6
			Jul-Dec 2014	Jul-Dec 2014
Own biomass from industrial operations (BDt/yr)	83,786	41,893	0	29,877
Third party biomass from industrial operations (BDt/yr)	128,052	64,026	10,736	66,681
Biomass from forestry operations (BDt/yr)	35,500	17,750	0	0
<b>Total emissions (tCO<sub>2</sub>eq/yr)</b>	<b>73,345</b>	<b>36,673</b>	<b>4,157</b>	<b>33,434</b>
		Percentual difference	-89%	-9%

The meaningful difference between the estimated emissions from biomass uncontrolled burning and the calculated in the MR ver3 for the monitoring period was due to the inconsistency in calculation of the biomass attributable to heat generation. As was explained before, that consideration is not according to PD and have to be corrected in a new version of the MR.

**4.-Project operational parameters:**

**PROJECT EMISSIONS**

Emissions from fossil fuel consumption at the project site	PDD Values		Monitored Values	
	2014	Jul-Dec 2014	MR ver3 Jul-Dec 2014	
Diesel consumption (ton/yr)	133	66	73.16	
LPG consumption (ton/yr)			0.04	
<b>Total emissions (tCO<sub>2</sub>/yr)</b>	<b>430</b>	<b>215</b>	<b>235</b>	
		Percentual difference	9%	
Emissions due to grid electricity imports to the project site				MR ver3
		2014	Jul-Dec 2014	Jul-Dec 2014
Grid electricity import to the Viñales site (GWh/yr)		1.5	0.8	1.4
<b>Total emissions (tCO<sub>2</sub>/yr)</b>		<b>1,032</b>	<b>516</b>	<b>965</b>
		Percentual difference		87%

Note: This estimate is consistent with 4% of downtime of the biomass power plant.

During the monitoring period, a bigger grid electricity import was measured and registered due to a prolong maintenance stoppage between second week of November and second week of December.

Usually, maintenance stoppage are not longer than 10 days.

<b>Emissions from biomass transportation to the Power Plant</b>				MR ver3	
		2014	Jul-Dec 2014	Jul-Dec 2014	
Third party biomass from industrial operations	(BDt/yr)	128,052	64,026		
Biomass from forestry operations	(BDt/yr)	35,500	17,750		
<b>Total biomass transported to the power plant</b>	<b>(BDt/yr)</b>	<b>163,552</b>	<b>81,776</b>	<b>110,228</b>	
Biomass attributable to the project activity	(BDt/yr)	247,338	123,669		10,736
Biomass transported to the plant and attributed to the project activity	(BDt/yr)	163,552	81,776		
Average return trip distance from origin to destination	(km)	240	240		21
Biomass supply from 3rd parties (wet)	(t/yr)	327,104	163,552		
<b>Total emissions</b>	<b>(tCO<sub>2</sub>/yr)</b>	<b>10,127</b>	<b>5,064</b>	<b>301</b>	

Percentual difference -94%

For calculation of the emissions due to biomass transportation to the power plant in the monitoring period, was used Tool 12 “Methodological tool: Project and leakage emissions from transportation of freight” against an estimation using an average suppliers distance and an average quantity of the wet biomass supply from 3<sup>rd</sup> parties. Comparing the result between them, is important to note that estimation in PD considered an average distance of 240 km from suppliers to plant. The measured weight average distance during the monitoring period was 21 km and implicate less emissions than the estimated.

<b>Emissions from the combustion of biomass residues</b>				PD Values		MR ver3	MR ver6
		2014	Jul-Dec 2014	Jul-Dec 2014		Jul-Dec 2014	Jul-Dec 2014
Own biomass from industrial operations	(BDt/yr)	83,786	41,893			52,740	29,877
Third party biomass from industrial operations	(BDt/yr)	128,052	64,026			66,681	66,681
Biomass from forestry operations	(BDt/yr)	35,500	17,750			0	0
<b>Total emissions</b>	<b>(tCO<sub>2</sub>eq/yr)</b>	<b>3,949</b>	<b>1,975</b>	<b>2,315</b>		<b>1,572</b>	

Note: According to the ACM0006 (Version 12.1.1) project emissions are calculated only for the biomass residue types attributable to the project activity (i.e. related to electricity generation).

Percentual difference 17% -20%

As it is possible to observe in the table above, emissions from the combustion of biomass residues in MR ver3 were calculated using all the biomass burned in the power boiler. This is not according to methodology or PD. A correction have to be applied and used only the biomass attributable to project activity burned in the power boiler, as was calculated in a new version of the MR.

**5.-Net emissions of the project activity:**

<b>BASELINE EMISSIONS</b>				PD Values		MR ver3	MR ver6
		2014	Jul-Dec 2014	Jul-Dec 2014		Jul-Dec 2014	Jul-Dec 2014
Grid emission savings	(tCO <sub>2</sub> /yr)	200,285	100,143			65,759	65,759
CH <sub>4</sub> emissions savings	(tCO <sub>2</sub> eq/yr)	73,345	36,673			4,157	33,434
<b>TOTAL BASELINE EMISSIONS</b>	<b>(tCO<sub>2</sub>eq/yr)</b>	<b>273,631</b>	<b>136,815</b>	<b>69,916</b>		<b>99,193</b>	

Percentual difference -49% -27%

<b>PROJECT EMISSIONS</b>				PD Values		MR ver3	MR ver6
		2014	Jul-Dec 2014	Jul-Dec 2014		Jul-Dec 2014	Jul-Dec 2014
Emissions from fossil fuel consumption at the project site	(tCO <sub>2</sub> /yr)	430	215			235	235
Emission due to grid electricity imports to the project site	(tCO <sub>2</sub> /yr)	1,032	516			965	965
Emissions from biomass transportation to the Power Plant	(tCO <sub>2</sub> /yr)	10,127	5,064			301	301
Emissions from the combustion of biomass residues	(tCO <sub>2</sub> eq/yr)	3,949	1,975			2,315	1,572
<b>TOTAL PROJECT EMISSIONS</b>	<b>(tCO<sub>2</sub>eq/yr)</b>	<b>15,538</b>	<b>7,769</b>	<b>3,816</b>		<b>3,073</b>	

Percentual difference -51% -60%

<b>NET EMISSIONS OF THE PROJECT ACTIVITY</b>				PD Values		MR ver3	MR ver6
		2014	Jul-Dec 2014	Jul-Dec 2014		Jul-Dec 2014	Jul-Dec 2014
Total baseline emissions	(tCO <sub>2</sub> eq/yr)	273,631	136,815			69,916	99,193
Total project emissions	(tCO <sub>2</sub> eq/yr)	15,538	7,769			3,817	3,074
<b>NET EMISSION SAVINGS</b>	<b>(tCO<sub>2</sub>eq/yr)</b>	<b>258,093</b>	<b>129,046</b>	<b>66,099</b>		<b>96,119</b>	

Percentual difference -49% -26%

Every point explained in this finding has analysed the differences in the calculations between the estimated emissions reduction in current PD and the claimed quantity in the current verification process. Some differences were due to operational reasons and others, due to inconsistencies among the methodology and the applied calculation.

Summarizing, meaningful difference between the estimated baseline emissions reduction and the baseline emissions calculated in MR ver3 was originated by the inconsistency in the calculation of the biomass attributable to heat generation. After applied the corresponding correction, is possible to observe that the difference between the estimated baseline emissions reduction and the calculated in MR ver6 is the lower baseline electricity generation during the current monitoring period.

The difference between the estimated quantity of project emissions in PD and the calculated project emission for the monitoring period is due to the lower emissions from biomass transportation to the power plant.

The final result maintains under the expected emissions reduction in a 26%.

**VCS Response:**

The VVB response is sufficient to close this finding. No further action is required.

**2 MINOR FINDINGS**

No minor findings were raised.

**3 ASSESSMENT CONCLUSION**

The VVB has provided sufficient responses to close all findings from this review. No further action is required.