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# VERIFICATION / CERTIFICATION REPORT

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## “LAGES METHANE AVOIDANCE PROJECT” IN BRAZIL

UNFCCC REGISTRATION REF. No. 0268

VERIFICATION PERIOD:  
1 JUNE 2007 TO 31 MAY 2008

REPORT N°.2008-1182

REVISION No. 01

DET NORSKE VERITAS



## VERIFICATION / CERTIFICATION REPORT

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Approved by: Hendrik W. Brinks Technical Director for CDM	Organisational unit: Climate Change Services
Client: Lages Bioenergética Ltda	Client ref.: Gabriel Mann dos Santos

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### Summary:

Det Norske Veritas Certification AS (DNV) has performed the verification of the emission reductions reported for the "Lages Methane Avoidance Project" in Brazil (UNFCCC Registration Ref. No. 0268) for the period 1 June 2007 to 31 May 2008.

In our opinion, the GHG emission reductions reported for the project in the monitoring report of 23 July 2008 are fairly stated.

The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology AMS-III.E, version 07 and the monitoring plan and formulae given in the Project Design Document of 21 September 2005.

Hence DNV is able to certify that the emission reductions from the "Lages Methane Avoidance Project" in Brazil during the period from 1 June 2007 to 31 May 2008 amount to 247 668 tonnes of CO<sub>2</sub> equivalent.

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Report title: “Lages Methane Avoidance Project” in Brazil			
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<i><b>Table of Content</b></i>	<i><b>Page</b></i>
1 INTRODUCTION .....	1
1.1 Objective	1
1.2 Scope	1
1.3 Description of the Project Activity	1
2 METHODOLOGY .....	3
2.1 Review of Documentation	4
2.2 Site Visit	4
2.3 Assessment	4
2.4 Reporting of Findings	5
3 VERIFICATION FINDING .....	5
3.1 Remaining Issues, FARs from Previous Validation or Verification	5
3.2 Project Implementation	5
3.3 Completeness of Monitoring	6
3.4 Accuracy of Emission Reduction Calculations	16
3.5 Quality of Evidence to Determine Emission Reductions	16
3.6 Management System and Quality Assurance	16
4 PROJECT SCORECARD .....	18
5 CERTIFICATION STATEMENT .....	19
6 REFERENCES .....	20
Appendix A Verification Checklist	
Appendix B Corrective Action Requests and Forward Action Requests	

***Abbreviations***

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
ERU	Emission Reduction Units(s)
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
INMETRO	Instituto Nacional de Metrologia, Normalização e Qualidade Industrial (Metrology National Institute)
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
N <sub>2</sub> O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change



## 1 INTRODUCTION

Lages Bioenergética Ltda has commissioned Det Norske Veritas Certification AS (DNV) to carry out the verification and certification of emission reductions reported for the “Lages Methane Avoidance Project” for the period 1 June 2007 to 31 May 2008. This report contains the findings from the verification and a certification statement for the certified emission reductions.

### 1.1 Objective

Verification is the periodic independent review and *ex post* determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined verification period.

Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Lages Methane Avoidance Project” for the period 1 June 2007 to 31 May 2008.

### 1.2 Scope

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that the reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified.

The verification team has, based on the recommendations in the Validation and Verification Manual /12/, and employed a risk-based approach, focusing on the identification of significant reporting risks and verifying the mitigation measures for these.

### 1.3 Description of the Project Activity

Project Parties:	Brazil, Japan and Switzerland.
Title of project activity:	“Lages Methane Avoidance Project”
UNFCCC registration No:	0268
Project participants:	Lages Bioenergética Ltda from Host Party Brazil, Bunge Emission Fund Ltd from Switzerland and Chuguko Electric Power Co. Inc from Japan.
Period verified in this verification:	1 June 2007 to 31 May 2008



Location of the project activity: The project activity is located in the Lages municipality, Brazilian South region, State of Santa Catarina in Brazil.

The Project is in operation since 23 December 2003 by Lages Bioenergética Ltda., a Special Purpose Company fully owned by Tractebel Energia S.A., specially constituted to build, operate and maintain the “Lages Methane Avoidance Project”. The project activity avoids methane emissions from anaerobic digestion in stockpiles (biomass decay) through controlled combustion in a cogeneration process, which simultaneously generates electricity and thermal energy (steam). The project activity claims emission reductions from the methane avoidance and not for the electricity or heat generated.

The electricity generated is supplied to the local distribution company and some individual industrial customers, and the thermal energy is supplied to industrial clients in the vicinity of the projects.

The project was implemented as planned and this verification is the third verification and covers the monitoring period from 1 June 2007 to 31 May 2008.

The project during the conceptualisation stages envisaged the main suppliers of the wood waste to be the neighbouring wood industries of Battistella (38%) and Sofia (16%), and others distant suppliers on spot market (46%). However, due to changes to the local economy, the wood waste sourced from Battistella and Sofia has reduced and the supply of wood waste from the spot market has increased to maintain the demand for electricity.

Battistella and Sofia used the wood waste to generate thermal energy in the baseline and this quantity of thermal energy is now being supplied by the project plant. Hence, the baseline emissions consider that 32 640 ton/year of wood waste from Battistella and 14 400 ton/year of wood waste from Sofia would be combusted also in absence of the project activity. The baseline also considers the spontaneous burning of wood waste in piles on the premises of Battistella, (pile has a depth of more than 5 meters) due to internal oxidation reaction., Hence, 1% of the wood waste supplied by Battistella is considered to be burnt also in absence of the project and discounted from the wood waste consumed in the year. These assumptions were validated and are conservative.

Battistella has a large old landfill of wood waste biomass, which reaches more than 5 meters depth, and according to table 6.2 of the Reference Manual of the 1996 IPCC Revised Guidelines, the MCF was selected as 0.8. For the wood waste biomass for Sofia and spot market, the MCF considered is the default value of 0.4, in line with the methodology.

The amount of wood waste biomass received is measured through the purchase receipts and checked with a calibrated truck scale at the entrance of Tractebel-Lages facilities. The carbon emission reductions are calculated using the amount of biomass measured by the dynamic scale at the entrance of boiler of Tractebel-Lages. Because the condition of different MCF for Battistella wood waste biomass, the amount of carbon emission reduction due Battistella is calculated proportional, considering the percentage of wood waste biomass Battistella receipts.



## 2 METHODOLOGY

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These reductions were assessed for the methane avoidance of wood waste biomass, and included:

- i) Lages Monitoring Plan Workbook of 2007 and 2008 with the amount of wood waste biomass purchased and consumed by the boiler, including the distance average of wood waste biomass transport, distance of ash transport to the disposal site and the consumption of diesel oil on internal transport of wood waste biomass;
- ii) Relation of biomass receipts bought by Lages Bioenergética Ltda from Battistella, Sofia and third suppliers on spot market from June 2007 to May 2008;
- iii) Monthly report of wood waste biomass consumed as fuel on boiler/turbo generator set from June 2007 to May 2008;
- iv) Calibration certificates of scales /9//10//11/;

### *Verification team*

The validation team consisted of the following personnel:

<i><b>Role/Qualification</b></i>	<i><b>Last Name</b></i>	<i><b>First Name</b></i>	<i><b>Country</b></i>	<i><b>Type of involvement</b></i>					
				Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Expert input
CDM verifier / Sector Expert / Team leader	Tavares	Luis Filipe	Brazil	x	x	x	x		
Technical reviewers (applicant)	Kakaraparthi	Venkata Raman	India					x	
Technical reviewer	Lehmann	Michael	Norway					x	

### *Duration of verification*

Preparations: 12 August 2008  
 On-site verification: 13 – 14 August 2008  
 Reporting/QA: 15 August – 10 February 2009

The verification process was guided by a verification checklist developed for this project, which ensures a transparent verification process, and at the same time documents how emission reductions have been verified and how the verification findings have been reached. The verification checklist is included in Appendix A.



## 2.1 Review of Documentation

The monitoring report of 23 July 2008 /1/ for the period 1 June 2007 to 31 May 2008 was assessed with the following support documentation: a) Lages Monitoring Plan Workbook of 2007 and 2008 /6/, b) Relation of biomass receipts bought by Lages Bioenergética Ltda from Battistella, Sofia and suppliers on spot market from June 2007 to May 2008 /7/, c) Monthly report of diesel consumption as fuel on boiler/turbo generator set from June 2007 to May 2008 /8/.

In addition, the project's Project Design Document (PDD) /2/, in particular the monitoring plan contained in the PDD, the validation report (DNV Report No. 2005-0935, Rev 3 of 14 February 2006 /3/ the previous verification report 2006-1233 Rev 1 of 25 August 2006 /4/ were assessed.

The monitoring report of 23 July 2008 /1/ has been made publicly available on the CDM website on 05 August 2008.

A list of key documents is given in the reference section of this report.

## 2.2 Site Visit

On 13-14 August 2008, DNV carried out site visit at Lages Bioenergética Ltda in Lages municipality, Santa Catarina State. During the visit, DNV verified that the actual implementation of the project was as described in the PDD. This included in particular the verification of the effectiveness of the biomass consumption to feed the turbo generation facility.

On-site inspection included review of performance records, interviews with assistant plant manager, operations and maintenance personnel, confirming all data sources and constants used in the Monitoring Report.

## 2.3 Assessment

The verification of reported data was carried out by means of reviewing the project documentation specifically the Monitoring Report for the period 1 June 2007 to 31 May 2008 and the registered PDD dated 21 September 2005 and was carried out by means of.

- Verification of compliance of actual monitoring with the registered monitoring plan.
- Checking report of Lages Monitoring Plan Workbook of 2007 and 2008 with the amount of wood waste biomass purchased and consumed on the boiler, including the average distance of wood waste biomass transport, and the consumption of diesel oil on internal transport of wood waste biomass, and transport of ash to landfill of Jorge Lacerda Thermoelectric Power Plant in Capivari de Baixo municipality.
- Checking the relation of biomass receipts bought by Lages Bioenergética Ltda from Battistella, Sofia and suppliers of biomass from the spot market from June 2007 to May 2008. Samples were taken to verify the compliance of the biomass supplies with the commercial legislation. The scale used to weigh the trucks and biomass from third mills is calibrated by INMETRO.
- Checking the monthly report of wood waste biomass consumed as fuel on boiler/turbo generator set from June 2007 to May 2008;
- Determination of the accuracy of the GHG emissions reduction calculations and effectiveness of data quality assurance and control.





Details of all findings are recorded in the verification protocol in Appendix A to this report.

## 2.4 Reporting of Findings

The verification was able to verify that the GHG emission reductions reported for the project in the monitoring report of 23 July 2008 are fairly stated.

## 3 VERIFICATION FINDING

This section summarises the findings from the verification of the emission reductions reported for the “Lages Methane Avoidance Project” in Brazil for the period 1 June 2007 to 31 May 2008. The findings of the verification are documented in more detail in the initial verification checklist given in Appendix A.

### 3.1 Remaining Issues, FARs from Previous Validation or Verification

No previous FAR were identified with regards to remaining issues from the second verification report.

### 3.2 Project Implementation

The project was implemented as described in the PDD and consists of a boiler AZ 200 MAX manufactured by Dedini with capacity of 120 ton/h steam, feed with wood waste biomass, and a generator manufactured by Alston Power Brasil Ltda, Model SGHW 1250 C4 BA with capacity of 28 MW, at 13.8 kV. The boiler has installed a scrubber system in the stack to remove suspended particulate matter. The ash sludge from the scrubber is sent to landfill of Jorge Lacerda Thermoelectric Power Plant on Capivari de Baixo municipality, 680 km way (round trip). The leakage of ash transportation is discounted as per the monitoring plan.

During the present monitoring period, the supply of wood waste for the project suffered changes due to the influence of US dollars currency and the operation of the Battistella and Sofia wood mill operations. The wood waste supply from these mills got reduced to 27% and 0% respectively (after reduction of baseline quantities) and hence a larger quantity of wood waste was sourced from the spot market (73%).

During the monitoring period the amount of wood waste supplied by Sofia reach only 417 ton, and hence no biomass supplied from Sofia was considered for emission reductions, but considered for estimating project emissions calculations. Also, the baseline consider the spontaneous burn of wood waste biomass on the Battistella pile, due oxidation internal reaction, the amount of 1% is discounted from the amount of waste biomass available to use as fuel on boiler.

In addition to the normal wood waste, the project also sourced and used tree branches (torete). However, as the “torete” biomass is not disposed to decay in the baseline and hence the monitoring report excluded this quantity for baseline emission and included for the leakage and emissions project calculation. DNV considers this to be a conservative approach.

The boilers and turbo generator control system is automated and assure continuous operation.

The bulk of the biomass (73%) was sourced from the spot market and needs to be transported over large distances by trucks. The truck transportation represents the leakage of the project and



was considered at 0.002454 and 0.002758 ton CO<sub>2</sub>/ton biomass transported in 2007 and 2008 respectively, considering the weight average round trip distance to biomass supply sites of 30.2 km in 2007 and 35,9 km in 2008, weight average truck capacities of 13.6 ton in 2007 and 14.4 in 2008 and wood sourced based on the supply receipts.

### 3.3 Completeness of Monitoring

All parameters as stated in the validated monitoring plan and the monitoring methodology AMS-III.E, version 07 "Avoidance of methane production from biomass decay through controlled combustion" are properly monitored and reported. Monitoring parameters include the amount of wood waste purchased, consumed and the proportion that would be left for decay. In addition, the leakage of wood waste transport was monitored considering the weighted average distance and truck capacities. The project emission is monitored considering the total of wood waste burned. The monitoring plan requires the monitoring of the following data:

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#1 Fuel – Amount of wood waste combusted
Measuring frequency:	Continuously
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	The wood waste feed into the boiler is measured through dynamic scale at entrance and automatically register in the Lages/Tractebel Electronic Planning Production Control System
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. The scale has accuracy of kg
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Boiler feeding scale Toledo mod 9270 # 3092000123 calibration certificate 080677 issued 06/05/08
Company performing the calibration:	Toledo
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	The reported amounts was cross checked with the amounts reported in earlier monitoring periods



## VERIFICATION / CERTIFICATION REPORT

How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and was cross checked with purchase receipts
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#2 – Amount of wood waste obtained from Battistella
Measuring frequency:	Each truck
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. Entrance truck scale records and relation of biomass official receipts (4379) bought by Lages Bioenergética Ltda from Battistella. It was sampled to verify the compliance with the commercial legislation
Type of monitoring equipment:	Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. the accuracy is proper for truck and validated by INMETRO
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	calibration certificates INMETRO # 578127 issued on 22/06/07 and #6340217 issued on 02/10/2008 for 03077001101 calibration certificates INMETRO # 578128 issued on 22/06/07 and #6340216 issued on 02/10/2008 for 03077001100
Company performing the calibration:	INMETRO
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	The reported amounts were cross checked with the amounts reported in earlier monitoring periods.
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning



## VERIFICATION / CERTIFICATION REPORT

	Production Control System and cross checked with purchase receipts
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6

	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#3 – Amount of wood waste obtained from Sofia
Measuring frequency:	Each truck
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Each truck
Type of monitoring equipment:	Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Relation of biomass receipts bought by Lages Bioenergética Ltda from Sofia (96).
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	calibration certificates INMETRO # 578127 issued on 22/06/07 and #6340217 issued on 02/10/2008 for 03077001101 calibration certificates INMETRO # 578128 issued on 22/06/07 and #6340216 issued on 02/10/2008 for 03077001100
Company performing the calibration:	INMETRO
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	The reported amounts were cross checked with the amounts reported in earlier monitoring periods.
If applicable, has the reported data been cross-checked with other available data?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and cross checked with purchase receipts
How were the values in the monitoring report verified?	Please see 3.5 and 3.6



Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6
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	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#4 – Amount of wood waste obtained from spot market
Measuring frequency:	Each truck
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Each truck
Type of monitoring equipment:	Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. Entrance truck scale records and relation of biomass official receipts (12891) bought by Lages Bioenergética Ltda from spot market. It was sampled to verify the compliance with the commercial legislation
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	calibration certificates INMETRO # 578127 issued on 22/06/07 and #6340217 issued on 02/10/2008 for 03077001101 calibration certificates INMETRO # 578128 issued on 22/06/07 and #6340216 issued on 02/10/2008 for 03077001100
Company performing the calibration:	INMETRO
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	The reported amounts were cross checked with the amounts reported in earlier monitoring periods.
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and cross checked with purchase receipts
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission	Please see 3.5 and 3.6



reductions and are necessary QA/QC processes in place?	
	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#6 – Diesel oil purchase
Measuring frequency:	Daily
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Diesel feed pump at internal gas station
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	It is registered daily for each equipment and accounted into the Lages/Tractebel Electronic Planning Production Control System. The last record was checked with actual figure on the diesel feed pump.
Calibration frequency /interval:	According commercial regulation
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Yes
Company performing the calibration:	Internal maintenance
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	yes
Is(are) calibration(s) valid for the whole reporting period?	yes
If applicable, has the reported data been cross-checked with other available data?	The reported amounts were cross checked with the amounts reported in earlier monitoring periods.
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and cross checked with purchase receipts
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6



	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#7 – Location of wood waste suppliers compared to Lages site
Measuring frequency:	Each purchase receipt , address on purchase receipts
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	yes
Type of monitoring equipment:	
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Not applicable
Calibration frequency /interval:	Not applicable
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not applicable
Company performing the calibration:	Not applicable
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Not applicable
Is(are) calibration(s) valid for the whole reporting period?	Not applicable
If applicable, has the reported data been cross-checked with other available data?	The reported amounts were cross checked with the amounts reported in earlier monitoring periods.
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and cross checked with purchase receipts
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6





	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#8 Wood waste transportation – Truck capacity
Measuring frequency:	Each transportation receipt
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	The wood waste truck is specific.
Type of monitoring equipment:	Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	The receipts of wood waste are registered at entrance of Lages, including the actual weigh of each truck. The information from the Lages/Tractebel Electronic Planning Production Control System was used to calculate the average.
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	calibration certificates INMETRO # 578127 issued on 22/06/07 and #6340217 issued on 02/10/2008 for 03077001101 calibration certificates INMETRO # 578128 issued on 22/06/07 and #6340216 issued on 02/10/2008 for 03077001100
Company performing the calibration:	INMETRO
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yearly
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	The report was cross checked with second verification report
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6





	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#9 Ash transportation – Location of ash disposal site
Measuring frequency:	Each transport
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. All trucks transportation are registered into the Lages/Tractebel Electronic Planning Production Control System
Type of monitoring equipment:	Not applicable
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Not applicable
Calibration frequency /interval:	Not applicable
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not applicable
Company performing the calibration:	Not applicable
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Not applicable
Is(are) calibration(s) valid for the whole reporting period?	Not applicable
If applicable, has the reported data been cross-checked with other available data?	Not applicable
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6



	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#10 Ash transportation – truck capacity
Measuring frequency:	Each transportation receipt
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	The ash truck is specific.
Type of monitoring equipment:	Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	The ash transportation receipts are registered at exit of Lages facilities, including the actual weigh of each truck. The information from the Lages/Tractebel Electronic Planning Production Control System was used to calculate the average.
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Calibration certificates INMETRO # 578127 issued on 22/06/07 and #6340217 issued on 02/10/2008 for 03077001101 calibration certificates INMETRO # 578128 issued on 22/06/07 and #6340216 issued on 02/10/2008 for 03077001100
Company performing the calibration:	INMETRO
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yearly
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	The reported amounts were cross checked with the amounts reported in earlier monitoring periods.
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6



	Assessment/ Observation
Data / Parameter: (as in monitoring plan of PDD):	#11 Ash production – amount of ash produced
Measuring frequency:	Each weight of transported ash
Reporting frequency:	Monthly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	All ash trucks are weighed and the weight is registered into the Lages/Tractebel Electronic Planning Production Control System
Type of monitoring equipment:	Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Yes. the accuracy is proper for truck and validated by INMETRO
Calibration frequency /interval:	Yearly
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Calibration certificates INMETRO # 578127 issued on 22/06/07 and #6340217 issued on 02/10/2008 for 03077001101 calibration certificates INMETRO # 578128 issued on 22/06/07 and #6340216 issued on 02/10/2008 for 03077001100
Company performing the calibration:	INMETRO
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yearly
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been cross-checked with other available data?	The reported amounts were cross checked with the amounts reported in earlier monitoring periods.
How were the values in the monitoring report verified?	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Please see 3.5 and 3.6

This was found to be done accordingly and detailed in item B.1 of the verification checklist in appendix A to this report.



### 3.4 Accuracy of Emission Reduction Calculations

CO<sub>2</sub> emissions reductions for the project and the baseline scenario were correctly calculated using the amount of methane avoided by wood waste biomass available for controlled burning. The emission factor of 0.1147 tCH<sub>4</sub>/tonne biomass sourced from Battistella and 0.0573 tCH<sub>4</sub>/tonne biomass sourced from Sofia and spot market are calculated considering the default IPCC factors and as per the registered PDD. Since the wood waste amount consumed from Sofia was lower than the wood waste amount previously consumed in the Sofia old boilers (baseline), the wood waste amount combusted from Sofia during the monitoring period was considered as zero which is conservative.

The project emissions from the project activity include the methane and N<sub>2</sub>O emissions from wood waste biomass burning, calculated using formulae provided in the AMS-III.E, version 07 and default IPCC factors, emissions due to diesel consumption in the boiler and internal transportation of wood waste biomass. The emissions due to the transportation of wood biomass from spot market to the project plant and ash transportation have been considered as leakages.

The total project emission was 3 399 tCO<sub>2</sub> and 2 135 tCO<sub>2</sub> for the years of 2007 (7 months) and 2008 (5 months) respectively, evidencing the compliance with the requirement of small scale criteria.

The emission reduction being claimed during the period 1 June 2007 to 31 May 2008 are 12% higher than the estimated emission reductions in the registered PDD, as given in the table below.

Period	As per PDD	Monitoring report
Emission Reductions	220439	247668
% Deviation (+/-)	0	(+) 12%

The reason for the higher emission reduction is the higher load factor of the cogeneration unit.

### 3.5 Quality of Evidence to Determine Emission Reductions

Lages Bioenergética Ltda has an automated control system where the operation including the wood waste biomass consumed on monitoring system. At 00:00 hrs every day the Tractebel-Lages turbo generator operator manually reads the record of the totalized accumulated wood waste biomass and include on management report to be analysed by Operation Manager.

These figures are inserted in a daily report, and consolidated on monthly report. As the feed scale record is cumulative, the sum of all waste biomass since start up is the same of actual reading.

The accounting methane avoidance from biomass is constituted by the receipts of wood waste bought from third mills, registered on Electronic Planning Production Control program.

### 3.6 Management System and Quality Assurance

Data is collected according to well defined data collection procedures:

- The biomass bought from third suppliers is registered on Electronic Planning Production Control System, and has good traceability and consistency.



- ii) The biomass consumed on boiler is recorded on dynamic scale on feeding system of the boiler and record cumulatively Electronic Planning Production Control System.
- iii) Data is processed by the electronic datasheet to calculate emission reductions and to produce the monitoring report.
- iv) Lages Bioenergética Ltda has a Quality Management System Certified as ISO 9001:2000 and a Environmental Management System Certified as ISO 14001:2004;
- v) The monitoring report is carried out by CDM Support Engineer based on reviewed records from the Electronic Planning Production Control System

## VERIFICATION / CERTIFICATION REPORT

**4 PROJECT SCORECARD**

Risk Areas		Conclusions			Summary of findings and comments	Error/Discounted Uncertainty Tonnes
		Baseline Emissions	Project Emissions	Calculated Emission Reductions		
<b>Completeness</b>	<ul style="list-style-type: none"> <li>Source coverage/ boundary definition</li> </ul>	Good	Good	Good	The source coverage was complete as per the registered PDD and validation report.	No error was found
<b>Accuracy</b>	<ul style="list-style-type: none"> <li>Physical Measurement and Analysis</li> </ul>	Good	Good	Good	The physical measurement / recording of data were found to be accurate.	No error was found
	<ul style="list-style-type: none"> <li>Data calculations</li> </ul>	Good	Good	Good	Formulae and calculation of CERs and relevant data were found to be accurate.	No error was found
	<ul style="list-style-type: none"> <li>Data management &amp; reporting</li> </ul>	Good	Good	Good	The relevant GHG data was achieved and readily retrievable.	No error was found
<b>Consistency</b>	<ul style="list-style-type: none"> <li>Changes in the project</li> </ul>	Good	Good	Good	No changes in the project.	No error was found



## 5 CERTIFICATION STATEMENT

*Det Norske Veritas Certification AS (DNV) has performed the verification of the emission reductions of the “Lages Methane Avoidance Project” (UNFCCC Registration Ref. No. 0268) reported for the period 1 June 2007 to 31 May 2008.*

*Lages Bioenergética Ltda is responsible for the collection of data in accordance with the validated monitoring plan and the reporting of GHG emissions reductions from the project.*

*It is DNV’s responsibility to express an independent verification statement on the reported GHG emission reductions from the project. DNV does not express any opinion on the selected baseline scenario or on the validated and registered PDD.*

*DNV conducted the verification on the basis of the monitoring methodology AMS-III.E, version 07, the monitoring plan included in the PDD of the project and the monitoring report of 23 July 2008. The verification included i) checking whether the provisions of the monitoring methodology AMS-III.E, version 07 and the monitoring plan in the PDD were consistently and appropriately applied and ii) the collection of evidence supporting the reported data.*

*DNV’s verification approach draws on an understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. DNV planned and performed the verification by obtaining evidence and other information and explanations that DNV considers necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.*

*In DNV’s opinion, the GHG emissions reduction for the “Lages Methane Avoidance Project” as reported in the Monitoring Report issued on 23 July 2008 are fairly stated.*

*The GHG emission reductions were correctly calculated on the basis of the approved monitoring methodology of AMS-III.E, version 07 and the monitoring plan contained in the validated Project Design Document for the project ( 21 September 2005).*

*Det Norske Veritas Certification AS is able to certify that the emission reductions from the “Lages Methane Avoidance Project” during the period 1 June 2007 to 31 May 2008 amount to 247 668 tonnes of CO<sub>2</sub> equivalent.*

Rio de Janeiro, 2009-02-10

Luis Filipe Tavares

CDM Verifier

DNV Rio de Janeiro, Brazil

Oslo, 2009-03-11

Michael Lehmann

Technical Director

Climate Change Services

Det Norske Veritas Certification AS



## 6 REFERENCES

- /1/ Lages Bioenergética Ltda: *Monitoring Report* – “*Lages Methane Avoidance Project*”: 1 June 2007 to 31 May 2008, version of 23 July 2008.
- /2/ Lages Bioenergética Ltda: *Project Design Document of the “Lages Methane Avoidance Project”*, version 2 of 21 September 2005.
- /3/ Det Norske Veritas Certification Ltd. – DNV: *Validation Report* – “*Lages Methane Avoidance Project*”. Report 2005-0935 Rev 3 of 14 February 2006
- /4/ Det Norske Veritas Certification Ltd. – DNV: *Verification Report* – “*Lages Methane Avoidance Project*”. Report 2006-1233 Rev 1 of 25 August 2006
- /5/ Det Norske Veritas Certification Ltd. – DNV: *Verification Report* – “*Lages Methane Avoidance Project*”. Report 2007-1084 Rev 1 of 17 September 2007
- /6/ Lages Monitoring Plan Workbook of 2007 and 2008 with the amount of waste biomass purchased and consumed on the boiler, including the distance average of wood waste biomass transport, and the consumption of diesel oil on internal transport of wood waste biomass and transport of ash to the disposal site in Capivari de Baixo municipality.
- /7/ Relation of biomass receipts bought by Lages Bioenergética Ltda from Battistella, Sofia and third suppliers on spot market from June 2007 to May 2008
- /8/ Monthly report of wood waste biomass consumed as fuel on boiler/turbo generator set from June 2007 to May 2007;
- /9/ Reception scale Toledo mod 820-J # 03077001101 calibration certificates INMETRO # 578127 issued on 22/06/07 and 6340217 issued on 02/10/2008
- /10/ Reception scale Toledo mod 820-J # 03077001100 calibration certificate INMETRO # 578128 issued on 22/06/07 and 6340216 issued on 02/10/2008
- /11/ Boiler feeding scale Toledo mod 9270 # 3092000123 calibration certificate Toledo 080677 issued 06/05/08
- /12/ International Emission Trading Association (IETA) & World Bank’s Prototype Carbon Fund (PCF): *Validation and Verification Manual*. <http://www.vvmanual.info>
- /13/ Appendix B of the simplified modalities and procedures for small-scale CDM project activities, *Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories AMS III.E Version 07 “Avoidance of methane production from biomass decay through controlled combustion”*.

*Persons interviewed during the initial verification, or persons contributed with other information that are not included in the documents listed above.*

- /14/ Gabriel Mann dos Santos – CDM Support Engineer – Tractebel Energia
- /15/ Marcio Daian Neves – Lages Operation Manager – Tractebel Energia





## **APPENDIX A**

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### **VERIFICATION CHECKLIST**

**Table 1: Data Management System/Controls**

The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table. A score is assigned as follows:

- Full – all best-practice expectations are implemented.
- Partial – a proportion of the best practice expectations is implemented
- Limited – this should be given if little or none of the system component is in place.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> )
<b>A. Defined organisational structure, responsibilities and competencies</b>		
<b>A.1. Position and roles</b> <i>Position and role of each person in the GHG data management process is clearly defined and implemented, from raw data generation to submission of the final data. Accountability of senior management must also be demonstrated.</i>	Full	Organization charts of <i>Lages Bioenergética Ltda</i> were made available. Job Description for personnel demonstrated that key personnel have been assigned clear responsibility in operation, maintenance and supervisor
<b>A.2. Responsibilities</b> <i>Specific monitoring and reporting tasks and responsibilities are included in job descriptions or special instructions for employees.</i>	Full	The <i>Lages Bioenergética Ltda</i> has incorporated the job description for standard as well as GHG related roles and responsibilities.  The responsibilities with CDM are distributed through the Boiler Operator/Supervisor, Lages Operation Manager, Plant Manager and CDM Support Engineer.
<b>A.3. Competencies needed</b> <i>Competencies needed for each aspect of the GHG determination process are analysed. Personnel competencies are assessed and training programme implemented as required.</i>	Full	The operators of the boiler have an obliged boiler operator course (NR13 Work Legislation) and have being trained to operate the system control by the manufacturer. The readings of the electricity generation are included on the daily report.  The operators of Planning Production Control System have being trained to produce monthly reports for the biomass process.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> )
<b>B. Conformance with monitoring plan</b>		
<b>B.1. Reporting procedures</b> <i>Reporting procedures should reflect the monitoring plan content. Where deviations from the monitoring plan occur, the impact of this on the data is estimated and the reasons justified.</i>	Full	Data is collected according to well defined data collection procedures: <ul style="list-style-type: none"> <li>i) The biomass bought from third suppliers is registered on Electronic Planning Production Control System, and has good traceability and consistency.</li> <li>ii) The biomass consumed on boiler is recorded on dynamic scale on feeding system of the boiler and record cumulatively Electronic Planning Production Control System.</li> <li>iii) Data is processed by the electronic datasheet to calculate emission reductions and to produce the monitoring report.</li> <li>iv) Lages Bioenergética Ltda has a Quality Management System Certified as ISO 9001:2000 and a Environmental Management System Certified as ISO 14001:2004;</li> <li>v) The monitoring report is carried out by CDM Support Engineer based on reviewed records from the Electronic Planning Production Control System</li> </ul>
<b>B.2. Necessary Changes</b> <i>Necessary changes to the monitoring plan are identified and changes are integrated in local procedures as necessary.</i>	Full	See B.1
<b>C. Application of GHG determination methods</b>		
<b>C.1. Methods used</b> <i>There are documented description of the methods used to determine GHG emissions and justification for the chosen methods. If applicable, procedures for capturing emissions from non-routine or exceptional events are in place and implemented.</i>		According the Baseline of “Lages Methane Avoidance Project” the main supplier of wood waste biomass is the neighbour wood industries Battistella and Sofia, and others distant suppliers on spot market.  However, the supplying of wood waste to feeding the project suffer some changes due the influence of US dollars currency, what reduce the amount of exported wood products of Battistella and Sofia neighbours and

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> )
	Full	<p>Lages Bioenergética Ltda needs bought complementary wood waste from thirds suppliers, more distant than the mentioned neighbours. In addition, the project needed use tree branches (torete) to complement the amount of wood waste, however, as this biomass is not on common practice be disposed to decay, the monitoring report exclude correctly this amount of wood waste on emission reduction calculations but still the total for leakage and emissions project calculation</p> <p>Some particularity was assumed and validated on PDD. The Battistella has a large passive of wood waste biomass, which reach more than 5 meter deep, and according Table 6.2 Reference Manual of 1996 IPCC Revised Guidelines the MCF was consider with value of 0.8 and will likely continue with this practice. For the wood waste biomass for Sofia and spot market, the MCF was considered the default value of 0.4.</p> <p>The amount of wood waste biomass received is measured through the bought receipts and checked with calibrated truck scale on entrance of Tractebel-Lages facilities. The carbon emission reductions are calculated through the dynamic scale on entrance of boiler of Tractebel-Lages. Because the condition of different MCF for Battistella wood waste biomass, the amount of carbon emission reduction due Battistella is calculated proportional, considering the percentage of wood waste biomass Battistella receipts.</p> <p>Another particularity was that Battistella and Sofia used on own process steam generators using wood waste biomass, without electricity generation before the implementation of the “Lages Methane Avoidance Project”. Due this, the baseline consider discount 32 640 ton CO<sub>2</sub>/year for Battistella and 14 400 ton CO<sub>2</sub>/year for Sofia. Also, the baseline consider the spontaneous burn of wood waste biomass on the Battistella pile, due oxidation internal reaction, the amount of 1% is discounted from the amount of wood waste biomass available to use as fuel on boiler. All this consideration evidences the conservativeness of the project and adequately considered on monitoring plan and report.</p>

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> )
		<p>Lages Monitoring Plan Workbook of 2007 and 2008 with the amount of wood waste biomass purchased and consumed on the boiler, including the distance average of wood waste biomass transport, distance of ash transport to the disposal site and the consumption of diesel oil on internal transport of wood waste biomass:</p> <p>Relation of biomass receipts bought by Lages Bioenergética Ltda from Battistella, Sofia and third suppliers on spot market from June 2007 to May 2008;</p> <p>Monthly report of wood waste biomass consumed as fuel on boiler/turbo generator set from June 2007 to May 2008;</p>
<b>C.2. Information/process flow</b> <i>An information/process flow diagram, describing the entire process from raw data to reported totals is developed.</i>	Full	See C.1
<b>C.3. Data transfer</b> <i>Where data is transferred between or within systems/spreadsheets, the method of transfer (automatic/manual) is highlighted – automatic links/updates are implemented where possible. All assumptions and the references to original data sources are documented.</i>	Full	<p>Lages Bioenergética Ltda has an automated control system where the operation including the wood waste biomass consumed on monitoring system. At 00:00 hrs every day the Tractebel-Lages turbo generator operator manually reads the record of the totalized accumulated wood waste biomass and include on management report to be analysed by Operation Manager.</p> <p>These figures are inserted in a daily report, and consolidated on monthly report. As the feed scale record is cumulative, the sum of all waste biomass since start up is the same of actual reading.</p> <p>The accounting methane avoidance from biomass is constituted by the receipts of waste bought from third mills, registered on Electronic Planning Production Control program.</p>
<b>C.4. Data trails</b> <i>Requirements for documented data trails are defined and implemented and all documentation are physically available.</i>	Full	<p>Yes, the organization has clearly demonstrated that documentation have been clearly defined, tabulated and were available during verification. The excel spreadsheet for emission reduction calculation ensures tracking of formulae used as well as crosschecks Calibration record of scales has been inspected.</p>

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> )
<b>D. Identification and maintenance of key process parameters</b>		
<b>D.1. Identification of key parameters</b> <i>The key physical process parameters that are critical for the determination of GHG emissions (e.g. meters, sampling methods) are identified.</i>	Full	All key parameters are controlled, crosschecked and stored on double back up.
<b>D.2. Calibration/maintenance</b> <i>Appropriate calibration/maintenance requirements are determined.</i>	Full	Calibration certificates: Reception scale Toledo mod 820-J # 03077001101 calibration certificate INMETRO # 578127 issued on 22/06/07; Reception scale Toledo mod 820-J # 03077001100 calibration certificate INMETRO # 578128 issued on 22/06/07; Boiler feeding scale Toledo mod 9270 # 3092000123 calibration certificate 080677 issued 06/05/08.
<b>E. GHG Calculations</b>		
<b>E.1. Use of estimates and default data</b> <i>Where estimates or default data are used, these are validated and periodically evaluated to ensure their ongoing appropriateness and accuracy, particularly following changes to circumstances, equipment etc. The validation and periodic evaluation of this is documented.</i>	Full	All default values were from IPCC 2006 except the VEF_CO2 and not available in IPCC 2006 Guidelines, and the parameter VEF_CH4 and VEF_N2O is more conservative in IPCC 1996 Guidelines than in IPCC 2006 Guidelines.

Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> )
<b>E.2. Guidance on checks and reviews</b> <i>Guidance is provided on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented. This includes spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.</i>	Full	<p>CO<sub>2</sub> emissions reductions in the project and the baseline scenario were correctly calculated using the amount of methane avoidance promoted by wood waste biomass available (considering the reduction mentioned on section 1.3) to controlled burning, for which an emission factor of 0.1147 ton CH<sub>4</sub>/ton biomass for Battistella and 0.0573 ton CH<sub>4</sub>/ton biomass for Sofia and spot market was calculated considering the default IPCC factors.</p> <p>All wood waste biomass received is weighted with calibrated scales, according commercial law.</p> <p>The project emission, considering the residual of Methane and N<sub>2</sub>O from wood waste biomass burning also calculated through the default IPCC factors according the AMS III.E Version 7 and including the internal transportation of wood waste biomass and the total of leakage consisting on external wood waste biomass transportation and ash transportation. The total project emission was 3 399 ton CO<sub>2</sub> and 2 135 ton CO<sub>2</sub> for the years of 2007 (7 months) and 2008 (5 months) respectively, evidencing the compliance with the requirement of small scale criteria.</p>
<b>E.3. Internal verification</b> <i>Internal verifications include the GHG data management systems, to ensure consistent application of calculation methods.</i>	Full	The monitoring report is carried out by CDM Support Engineer based on reviewed records from the Electronic Planning Production Control System
<b>E.4. Internal validation</b> <i>Data reported from internal departments should be validated visibly (by signature or electronically) by an employee who is able to assess the accuracy and completeness of the data. Supporting information on the data limitations, problems should also be included in the data trail.</i>	Full	See E.3
<b>E.5. Data protection measures</b> <i>Data protection measures for databases/spreadsheets should be in place (access restrictions and editor rights).</i>	Full	<i>Lages Bioenergética Ltda has a Quality Management System Certified as ISO 9001:00 with respective procedures for acquire storage and recovery the records of wood waste biomass and other. The records are stored of mainframe of Tractebel at Florianópolis.</i>



Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i> )
<b>E.6. IT systems</b> <i>IT systems used for GHG monitoring and reporting should be tested and documented.</i>	Full	All parties had TI support.

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## **APPENDIX B**

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### **CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS**

<b>CAR ID</b>	<b>Corrective action request</b>	<b>Response by Project Participants</b>	<b>DNV's assessment of response by Project Participants</b>
<b>CAR 1</b>	<i>No CAR was issued</i>		

### Forward action requests from previous verification

<b>FAR ID</b>	<b>Forward action request</b>	<b>Response by Project Participants</b>	<b>DNV's assessment of response by Project Participants</b>
<b>FAR 1</b>	<i>No FAR was issued</i>		

### Forward action requests from this verification

<b>FAR ID</b>	<b>Forward action request</b>	<b>Summary of how FAR has been addressed in this reporting period</b>	<b>Assessment of how FAR has been addressed</b>
	<i>No FAR was issued</i>		