



Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	LAGES METHANE AVOIDANCE PROJECT
Reference number of the project activity	0268
Version number of the monitoring report	03
Completion date of the monitoring report	03 Jul 2013
Registration date of the project activity	23 Apr 2006
Monitoring period number and duration of this monitoring period	6 th Verification – 01 jun 2011 – 31 Dec 2012
Project participant(s)	<ul style="list-style-type: none"> • Lages Bioenergética Ltda. • Tractebel Energia S.A. • Bunge Emission Fund Limited • Fortum Corporation • Government of Finland – Ministry for Foreign Affairs of Finland • GDF Suez • RWE Power AG • Chubu Electric Power Co., Inc. • Japan International Cooperation Agency (JICA) • Kyushu Electric Power Co., Inc. • Mitsubishi Corporation • Shikoku Electric Power Co., Inc. • Tohoku Electric Power Co., Inc. • The Tokyo Electric Power Co., Inc. • The Chugoku Electric Power Co., Inc. • Mitsui & Co., Ltd • Electrabel N.V. • Netherlands' Ministry of Infrastructure and the Environment (IenM); • Netherlands' Ministry of Economic Affairs, Agriculture and Innovation (EL&I) • Norsk Hydro ASA • Government of Norway – Ministry of Foreign Affairs • Statoil ASA • Government of Sweden – Swedish Energy Agency • BP Alternative Energy International Ltd. • Deutsche Bank AG • International Bank for Reconstruction and Development (IBRD)
Host Party(ies)	Brazil
Sectoral scope(s) and applied methodology(ies)	Sectorial Scope: 13. Baseline and monitoring methodology AMS-III.E. (Version 7)
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	312,546 tonnes of CO ₂ e.
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	392,174 tonnes of CO ₂ e.

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

>> Lages Project's cogeneration facility is located in Lages, State of Santa Catarina, Brazil, whose economy is based on the wood industry using timber from planted forests. The Project is under 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 Project. Detailed information about the Project is provided in the Project Design Document (PDD) Version 03, dated of February 2011, and other documents, which are available and can be downloaded from the UNFCCC website: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1140180495.84/view>.

The Project is designed to avoid methane emissions from anaerobic digestion in stockpiles (biomass decay) through controlled combustion in a cogeneration process, which simultaneously generates electricity and thermal energy (steam) from the wood waste produced by several timber industries that would otherwise be disposed inadequately. The major project activity milestones are presented below.

23 Dec 2003: Starting date of the Project;

01 Nov 2004: Starting date of the crediting period;

26 Jul 2005 to 24 Aug 2005: Period for public comments to the PDD in the UNFCCC website;

25 Nov 2005: Brazilian Designated National Authority (DNA) issued the Letter of Approval (LoA) to the Project;

14 Feb 2006: Project is validated by Det Norske Veritas (DNV);

24 Mar 2006 – 22 Apr 2006: Period for Executive Board comments;

23 Apr 2006: Project is registered;

20 Sep 2006: First CER issuance (277,768 CERs);

09 Oct 2007: Second CER issuance (274,958 CERs);

31 Aug 2009: Third CER issuance (247,668 CERs);

30 Mar 2011: PDD (Version 03) approved by CDM EB;

26 Sep 2011: Fourth CER issuance (157,914 CERs);

17 Ago 2012: Fifth CER issuance (443,651 CERs).

The objective of the Lages Project's cogeneration facility is to, simultaneously, provide electric and thermal energy (process steam) from the same primary energy source: biomass from the wasted wood not used by local timber industries before the project implementation. Since the Lages Project operation start in December 2003, these residues have been processed and used to produce steam and power avoiding methane emissions and soil and water pollution due to wood waste decomposition.

Figure 1 shows the cogeneration facility consisting of a boiler with a steam turbine, producing electricity and supplying steam to local wood industries and using the wood waste from local industries as a fuel.

The emission reductions achieved over the designated monitoring period are 392,174 tonnes of CO₂e.

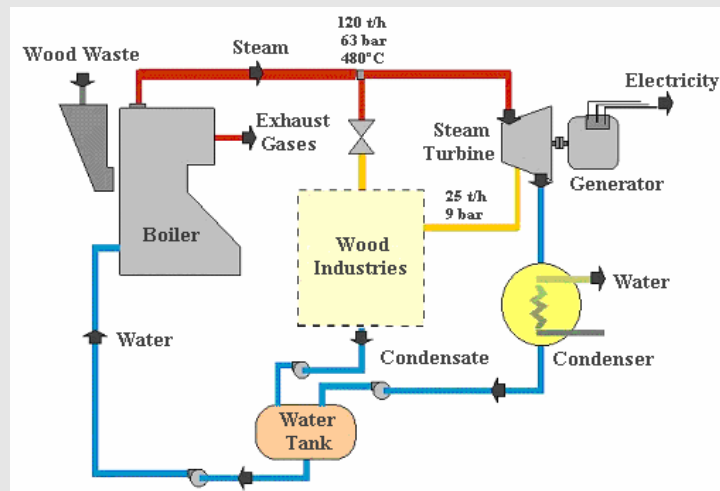


Figure 1 – Lages Project Schematics

The project was implemented as described in the PDD and consists of, a 120 ton/h steam flat pinhole grate boiler (AZ 200 MAX) with an efficiency output of up to 85%, manufactured by Dedini and fed with wood waste biomass. In the boiler, the biomass is controlled burnt generating thermal energy which is transferred to the water inlet for producing steam. The boiler also has a scrubber system installed in the stack to remove suspended particle matter. The steam produced has two purposes: powering a Siemens – Alstom 28 MW at 13.8 kV electric energy turbo-generator and supplying energy to industries for their production processes. The electrical energy produced is delivered to the plant substation and consequently to the transmission line to be distributed by the local distribution company.

The ash sludge from the scrubber was sent, until July 2008, to the landfill of the Jorge Lacerda Thermoelectric Power Plant in Capivari de Baixo municipality, 680 km way (round trip), and since August 2008 onwards, to other locations within the Lages Region, nearer to the project site.

The main features of the major plant equipments are presented below:

Equipment: Boiler

Manufacturer: Dedini Industrias de Base

Type: Single pass, water tube, natural circulation, flat pinhole grate

Boiler Steam Production: 120 ton/h

Water Inlet: 110 °C

Operating Pressure: 65 bar abs

Equipment: Turbine

Manufacturer: Siemens DDIT

Type: Condensation turbine, Controlled Extraction

Nominal Power: 28 MW

Rotation: 6,800 rpm

Inlet Steam Flow: 120 ton/h

Inlet Steam Pressure: 63 bar abs

Inlet Steam Temperature: 480 °C

Extraction Pressure: 9 bar abs

Extraction Temperature: 237 °C

Outlet Steam Pressure: 0.12 bar abs

Equipment: Generator

Manufacturer: Alstom Power

Type: (IEC) IM 7315

Nominal Power: 35,000 kVA

Nominal Voltage: 13,800 V, three-phase

Nominal Frequency: 60 Hz

A.2. Location of project activity

>> Lages Project's cogeneration facility is located in Lages, State of Santa Catarina, Brazil under the following coordinates:

Latitude: 27°48'58" S

Longitude: 50°19'30" W

A.3. Parties and project participant(s)

Party involved (host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Brazil (host country)	<ul style="list-style-type: none"> Lages Bioenergética Ltda. Tractebel Energia S.A. 	No
Switzerland	<ul style="list-style-type: none"> Bunge Emission Fund Limited 	No
Finland	<ul style="list-style-type: none"> Fortum Corporation Government of Finland – Ministry for Foreign Affairs of Finland, 	Yes
France	<ul style="list-style-type: none"> GDF Suez 	No
Germany	<ul style="list-style-type: none"> RWE Power AG 	No
Japan	<ul style="list-style-type: none"> Chubu Electric Power Co., Inc. Japan International Cooperation Agency (JICA) Kyushu Electric Power Co., Inc. Mitsubishi Corporation Shikoku Electric Power Co., Inc. Tohoku Electric Power Co., Inc. The Tokyo Electric Power Co., Inc. The Chugoku Electric Power Co., Inc. Mitsui & Co., Ltd 	No
Netherlands	<ul style="list-style-type: none"> Electrabel N.V. Netherlands' Ministry of Infrastructure and the Environment (IenM); Netherlands' Ministry of Economic Affairs, Agriculture and Innovation (EL&I) 	No
Norway	<ul style="list-style-type: none"> Norsk Hydro ASA Government of Norway – Ministry of Foreign Affairs Statoil ASA 	Yes
Sweden	<ul style="list-style-type: none"> Government of Sweden – Swedish Energy Agency 	Yes
United Kingdom of Great	<ul style="list-style-type: none"> BP Alternative Energy International Ltd. 	No

Britain and Northern Ireland	<ul style="list-style-type: none"> • Deutsche Bank AG 	
*	<ul style="list-style-type: none"> • International Bank for Reconstruction and Development (IBRD) 	

*refers to bilateral and multilateral funds

A.4. Reference of applied methodology

>> Title of project activity: "Lages Methane Avoidance Project"

UNFCCC reference number: 0268

Baseline and monitoring methodology: AMS-III.E. (Version 07)

A.4.1. Baseline methodology applied during the monitoring period:

The Project uses the Small-Scale Baseline Methodology AMS-III.E. (Version 07) entitled "Avoidance of methane production from biomass decay through controlled combustion".

AMS-III.E. (Version 07) is applicable for Lages Project as it states that "The baseline scenario is the situation where, in the absence of the project activity, biomass or other organic matter is left to decay". This accurately represents the baseline scenario in the case of Lages Project, as presented in the PDD. Furthermore, Lages Project directly emits less than 15 kilotonnes of carbon dioxide equivalent annually, as presented in the Section E.4

A.4.2. Monitoring methodology applied during the monitoring period:

The Project uses Small-Scale Monitoring Methodology AMS-III.E. (Version 07) entitled "Avoidance of methane production from biomass decay through controlled combustion".

The AMS-III.E. (Version 07) is applicable to project activities which avoid the production of methane from biomass or other organic matter that would have otherwise been left to decay as a result of anthropogenic activity, which is the Lages Project case.

A.5. Crediting period of project activity

>> The crediting period for this project activity is from 1 Nov 2004 to 31 Oct 2014 (fixed crediting period of 10 years).

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

>> The project has been in operation since 23 December 2003. During the conceptualization stages it was envisaged that the main suppliers of the wood waste would be the neighbouring wood industries of Battistella (38%) and Sofia (16%), and other distant suppliers on the open market (46%).

Since 2006 however, many wood industries in the Lages region that export their production have faced an economic crisis due to the devaluation of US dollars currency, resulting in the reduction or even interruption of their activities. This was the specific case for Sofia and Battistella wood industries, two of the main wood residues suppliers of the Lages Methane Avoidance Project. As a consequence, the wood waste supply from these two mills got reduced during the following years and during this monitoring period no biomass was supplied by Sofia or Battistella since both companies closed down its activities respectively in September 2007 and October 2008.

This situation has triggered, from 2008 onwards, an increasing demand of wood residues from the spot market in order to replace the biomass reduction from Battistella and Sofia and secure the project activity with the necessary amount of fuel to produce and deliver energy to the grid and therefore honour the PPAs signed with regional distribution companies.

In addition to that, the reduction in the available wood waste volumes caused by the USD devaluation, kept the Spot Market wood waste prices high and obliged the project developer to seek for other biomass residues suppliers. The result was the purchase of biomass residues from some more distant suppliers (since the lower wood waste prices from these suppliers compensates the higher transportation costs) and the

acquisition of "toretes" (fine branches lower than 15cm diameter from pine reforested plantation) during the monitoring period.

Due to the aforementioned changes in market conditions and, therefore, the type of wood waste used by Lages, a Notification of Change in the PDD was sent to the Executive Board and approved on 30 March 2011. The revised PDD reported the additional use of fine branches smaller than 15 cm diameter (called "toretes") as wood waste to generate the electricity to be delivered to the Brazilian grid and the steam to be supplied to local industries. Since the registered PDD did not envisage the use of this kind of wood waste, no methane avoidance has ever been claimed from the anaerobic digestion of this wood waste variety.

The revised PDD also recalculated the baseline emission reduction proportionally to the average use of the fine branches ("toretes") and although, the fine branches were not considered in the determination of the baseline (MCF=0), the use of this biomass residues have been conservatively included in the calculation of project emissions without changing the estimations in the original PDD. The fraction of fine branches is not fixed for the crediting period and varies in accordance with market conditions (i.e.; availability of normal residues and price of the fine branches), however, an average of 10% of total waste consumption has been observed and used for recalculating the baseline emission reductions forecasted in the original PDD.

For instance, in the case that Sofia and Batistella recover their operations, as originally foreseen in the PDD, the fine branches might not to be used and the baseline emissions estimated in the registered PDD might be achieved again. In the meantime, the revised PDD also clarified that when both industries are not operating, the steam is used to produce electricity, which is sold to the local distribution company and/or to industrial clients.

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan or applied methodology

>> Not applicable.

B.2.2. Corrections

>> Not applicable to this monitoring period.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

>> Not applicable to this monitoring period.

B.2.4. Changes to project design of registered project activity

>> Not applicable to this monitoring period.

B.2.5. Changes to start date of crediting period

>> Not applicable.

B.2.6. Types of changes specific to afforestation or reforestation project activity

>> Not applicable.

SECTION C. Description of monitoring system

>> **C.1. Monitoring report:**

C.1.1. Monitoring reports associated with this project activity:

This is the sixth monitoring report associated with this project activity.

Report **01**, monitored from 1 Nov 2004 to 31 May 2006, resulting in 277,768 tonnes of CO₂e;
 Report **02**, monitored from 1 Jun 2006 to 31 May 2007, resulting in 274,958 tonnes of CO₂e;
 Report **03**, monitored from 1 Jun 2007 to 31 May 2008, resulting in 247,668 tonnes of CO₂e;
 Report **04**, monitored from 1 Jun 2008 to 31 May 2009, resulting in 157,914 tonnes of CO₂e;
 Report **05**, monitored from 1 Jun 2009 to 31 May 2011, resulting in 443,651 tonnes of CO₂e;
 Report **06**, monitored from 1 Jun 2011 to 31 Dec 2012, resulting in 392,174 tonnes of CO₂e.
 Verifying **DOE**: all reports were verified by DNV.

C.1.2. Monitoring report period:

The period covered in this monitoring report is from 1 June 2011 to 31 Dec 2012. The monitoring report period is within the bounds of the crediting period noted in Section A.7. This monitoring report does not cover any period of time covered by a previous monitoring report.

C.2. Monitoring plan:

C.2.1. Development and appropriateness of the monitoring plan:

The "Lages Methane Avoidance Project Monitoring Plan – Version 02" from September 2005 was developed based on the approved monitoring methodology AMS-III.E. (Version 07).

C.2.2. Implementation of the monitoring plan:

During the monitoring period identified in the Section C.1.2, the Project Entity implemented the validated Monitoring Plan that was part of the project documents audited by the Designated Operational Entity (DOE) during the validation process.

C.3. Data Collection Procedure

The key data monitored at the project activity is listed in Section D.3 of the PDD and in the Monitoring Plan. The project activity data was collected in accordance with the registered PDD and is shown in the following items. All necessary evidences to verify these data have been presented to the DOE for verification.

C.3.1. Fuel – Amounts of wood waste (ID1, ID2, ID3 and ID4 of the PDD Section D.3):

To accurately calculate the emission reductions (ERs) from avoided methane emissions during the operation of the Lages Project, the amounts of wood waste consumed (QC_{biomass}) and purchased are monitored continuously and totalized on an annual basis. Each source of wood waste (Battistella, Sofia and Spot Market) is treated separately and the methane emissions avoided from each source are calculated using the small-scale methodology AMS-III.E. (Version 07) at the end of each calendar year and each monitoring period based on the characteristics of the wood waste supplier and the wood waste piles avoided through the use by Lages Project.

The amount of wood waste purchased from each supplier is measured¹ by two electronic scales that are installed in the power plant entrance. The amount of wood waste consumed by the Project is measured throughout a dynamic scale installed in the entrance of the combustion chamber of the boiler. These weighting devices are calibrated periodically by appropriate institutions.

In order to calculate the annual wood waste amount consumed (QC_{biomass}) from each source (Battistella, Sofia and Spot Market), the percentages of wood waste purchased from each source in a given month are applied to the total amount consumed in the respective month (which is measured accurately by the dynamic balance mentioned above) and the obtained values are totalized annually.

¹ The weighting procedure is to weigh the truck on its way in, i.e. the truck with wood waste, and to weight the truck on its way out, i.e. the truck without wood waste. The difference between the weight values is the amount of wood waste delivered by a given supplier.

The wood waste amounts effectively treated under the Project (QT_{biomass}), which is used to calculate the baseline methane emissions, is calculated discounting the wood waste amounts previously consumed in the Battistella and Sofia old boilers, applying the discount factor of 1% due to spontaneous combustion in the Battistella pile. These values were validated by DNV and used in the registered PDD. Additionally, due to the "torete" consumption and considering that the degradation and methane generation from this wood waste when it is piled and left to decay occurs at a much lower rate than other wood waste, by conservativeness, the percentage of this wood waste purchased from each source (Battistella, Sofia and Spot Market) was applied as a discount factor over the wood waste amount treated under the Project.

C.3.2. Default values (ID5 of the PDD Section D.3):

All the parameters and emission factors used to calculate the emission reductions are available in the PDD and were previously validated by DNV during the validation process of the project activity. The values of these parameters and emission factors are annually verified to identify any changes.

C.3.3. On-site transportation (ID6 of the PDD Section D.3):

The volume of diesel oil used inside the Lages Project is monthly monitored through the invoices emitted by the supplier and stored (initial and final inventory) on site.

C.3.4. Off-site transportation (ID7 and ID8 of the PDD Section D.3):

The data about the round trip distance between the wood waste suppliers and the Lages Project site as well as the truck capacity of all active wood waste suppliers, required to calculate the emissions from the off-site transportation, are monitored throughout the supplier inventory and the wood waste supplying invoices.

The round trip distance is measured once when the supplier is contracted and only monitored monthly to verify any change in the location of the wood waste supply site. If a change is verified then a new measurement is carried out.

The truck capacity is always measured because the wood waste supplied by every truck is weighed on the two electronic scales located at the Project entrance and the weighting ticket is annexed to the supplier invoice.

C.3.5. Ash transportation (ID9 and ID10 of the PDD Section D.3):

The data about the round trip distance between the Lages Project site and the ash disposal site as well as the capacity of the truck used for ash transportation were monitored throughout the ash beneficiary inventory and the ash delivering invoices.

This data is measured once at the time when ash is disposed and only monitored monthly to verify any change in the location of the disposal site. If a change is verified then a new measurement is carried out.

The truck capacity is always measured because the ash transported in every truck is weighed on the two electronic balances at the Project entrance and on the weighting ticket annexed to the delivering invoice.

C.3.6. Ash production (ID11 of the PDD Section D.3):

The amount of ash produced and transported by Lages Project, necessary to calculate the emission from ash transportation were monitored throughout the ash delivering invoices. All ash delivered is previously weighed on the two electronic balances at the Project entrance and on the weighting ticket annexed to the invoice.

SECTION D. Data and parameters**D.1. Data and parameters fixed ex ante or at renewal of crediting period**

Data / Parameter:	MCF [N]
Unit:	(fraction)
Description:	Methane correction factor
Source of data:	IPCC ² , Volume 5, Chapter 3, Table 3.1, Page 3.14
Value(s) applied:	0.8 (Battistella) 0.4 (Sofia) 0 or 0.4 (Spot Market)
Purpose of data:	Baseline emission calculation
Additional comment:	Default value of 0.4 is applied to wood waste supplied by Sofia and Spot Market. MCF = 0 could be also considered when some varieties of wood waste (for instance (residues composed of fine branches lower than 15cm diameter obtained from the regular thinning of planted <i>pinus</i> in the region, also called “torete”), is bought in the Spot Market to be used as a backup fuel. IPCC default value of 0.8 for unmanaged deep waste site (≥ 5 meters of depth) is applied to wood waste supplied by Battistella.

Data / Parameter:	DOC [O]
Unit:	(fraction)
Description:	Degradable organic carbon
Source of data:	IPCC ⁴ , Volume 5, Chapter 2, Table 2.5, Page 2.16
Value(s) applied:	0.43
Purpose of data:	Baseline emission calculation
Additional comment:	Waste is 100% compounded by wood. IPCC default value is applied.

Data / Parameter:	DOC_F [P]
Unit:	(fraction)
Description:	Fraction DOC dissimilated to landfill gas
Source of data:	IPCC ⁴ , Volume 5, Chapter 3, Page 3.13
Value(s) applied:	0.5
Purpose of data:	Baseline emission calculation
Additional comment:	IPCC default value is applied.

Data / Parameter:	F [Q]
Unit:	(fraction)
Description:	Fraction of CH ₄ in landfill gas
Source of data:	IPCC ⁴ , Volume 5, Chapter 3, Page 3.15
Value(s) applied:	0.5

² 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Purpose of data:	Baseline emission calculation
Additional comment:	IPCC default value is applied.

Data / Parameter:	Wood waste burned for own consumption
Unit:	t/year
Description:	Wood waste amounts were consumed in the Battistella and Sofia old boilers before the Lages Project implementation.
Source of data:	Suppliers
Value(s) applied:	32,640 (Battistella) 14,400 (Sofia)
Purpose of data:	Baseline emission calculation
Additional comment:	Wood waste burned for own consumption

Data / Parameter:	Discount factor due to spontaneous combustion in the pile [R]
Unit:	(fraction)
Description:	Discount factor due to spontaneous combustion in the Battistella wood waste pile
Source of data:	Estimation presented in the PDD
Value(s) applied:	0.01 (Battistella)
Purpose of data:	Baseline emission calculation
Additional comment:	This discount factor was assumed to be 1% of the wood waste amount that otherwise would be dumped and left to decay in the baseline scenario for Battistella, that is, the 1% of the difference between the consumed amount supplied by Battistella and what was previously burned in its old boilers to produce steam.

Data / Parameter:	E_{biomass} [S]
Unit:	TJ/t
Description:	Energy content of biomass
Source of data:	UNIPLAC
Value(s) applied:	7.746E-3
Purpose of data:	Project activity emission calculation
Additional comment:	Considered 1,850 kcal/kg (7,746 kJ/kg), which is default value to wood waste in the Lages region, according to values reported in the UNIPLAC study, and was the value validated in the PDD. This value is more conservative than that obtained from samples analyzed periodically in laboratory.

Data / Parameter:	CH₄bio_comb [T]
Unit:	kgCH ₄ /TJ
Description:	CH ₄ emission factor for biomass and waste (which includes dung and agricultural, municipal and industrial wastes) combustion
Source of data:	IPCC ⁴ , Volume 2, Chapter 2, Table 2.6, Page 2.25

Value(s) applied):	11
Purpose of data:	Project activity emission calculation
Additional comment:	Default value according to AMS-III.E. Version 07 is 300 kgCH ₄ /TJ, which was based on general IPCC default value. However, 11 kgCH ₄ /TJ is used since this is the specific IPCC default value to wood waste boilers.

Data / Parameter:	N₂O_{bio}_comb [U]
Unit:	kgN ₂ O/TJ
Description:	N ₂ O emission factor for biomass and waste (which includes dung and agricultural, municipal and industrial wastes) combustion
Source of data:	IPCC ⁴ , Volume 2, Chapter 2, Table 2.6, Page 2.25
Value(s) applied):	7
Purpose of data:	Project activity emission calculation
Additional comment:	Default value according to AMS-III.E. Version 07 is 4 kgN ₂ O/TJ, which was based on IPCC default value. However, 7 kgN ₂ O/TJ is used since this is the specific IPCC default value to wood waste boilers.

Data / Parameter:	CH₄_GWP [V]
Unit:	tCO ₂ e/tCH ₄
Description:	Global Warming Potential for CH ₄
Source of data:	UNFCCC ³
Value(s) applied):	21
Purpose of data:	Baseline, Project activity and Leakage emission calculations
Additional comment:	Official value.

Data / Parameter:	N₂O_GWP [W]
Unit:	tCO ₂ e/tN ₂ O
Description:	Global Warming Potential for N ₂ O
Source of data:	UNFCCC ⁵
Value(s) applied):	310
Purpose of data:	Project activity and Leakage emission calculations
Additional comment:	Official value.

Data / Parameter:	D_{diesel} [X]
Unit:	t/l
Description:	Diesel oil density
Source of data:	ANP
Value(s) applied):	8.8E-4

³ Climate Change 1995, The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I Report, pg. 22.

Purpose of data:	Project activity emission calculation
Additional comment:	According to Portaria nº 15 of Jul 17 th , 2006 of the Brazilian Petroleum Agency (ANP) the value ranges 820–880 kg/m ³ . The value used is more conservative.

Data / Parameter:	VEF_CO₂ [Y]
Unit:	a) kgCO ₂ /km b) kgCO ₂ /t
Description:	CO ₂ emission factor for trucks
Source of data:	IPCC ⁴ , Table 1-32, Page 1.75
Value(s) applied):	a) 1.097 b) 3,172.31
Purpose of data:	Project activity and Leakage emission calculations
Additional comment:	Default values for US heavy duty diesel vehicles, uncontrolled. These values are not presented in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Data / Parameter:	VEF_CH₄ [Z]
Unit:	a) kgCH ₄ /km b) kgCH ₄ /t
Description:	CH ₄ emission factor for trucks
Source of data:	IPCC ⁴ , Table 1-32, pg. 1.75
Value(s) applied):	a) 6.0E-5 b) 0.18
Purpose of data:	Project activity and Leakage emission calculations
Additional comment:	Default values for US heavy duty diesel vehicles, uncontrolled. These values are more conservative than that presented in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

Data / Parameter:	VEF_N₂O [AA]
Unit:	a) kgN ₂ O/km b) kgN ₂ O/t
Description:	N ₂ O emission factor for trucks
Source of data:	IPCC ⁴ , Table 1-32, pg. 1.75
Value(s) applied):	a) 3.1E-5 b) 0.09
Purpose of data:	Project activity and Leakage emission calculations
Additional comment:	Default values for US heavy duty diesel vehicles, uncontrolled. These values are more conservative than that presented in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

⁴ Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual.

D.2. Data and parameters monitored*(Copy this table for each piece of data and parameter.)*

Data / Parameter:	Fuel – Amount of wood waste combusted (ID 1)																																																			
Unit:	tonnes																																																			
Description:	Amount of wood waste fed into the boiler and consumed by the Project																																																			
Measured/ Calculated / Default:	Measured																																																			
Source of data:	Dynamic scale																																																			
Value(s) of monitored parameter:	Fuel – Amounts of Fuel Waste <table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th>ID1</th></tr><tr><th>QC_{biomass}</th></tr><tr><th>(tonnes) [A]</th></tr><tr><td rowspan="8">2011</td><td>6</td><td>17,048.00</td></tr><tr><td>7</td><td>18,703.00</td></tr><tr><td>8</td><td>3,740.00</td></tr><tr><td>9</td><td>16,283.00</td></tr><tr><td>10</td><td>15,445.00</td></tr><tr><td>11</td><td>14,783.00</td></tr><tr><td>12</td><td>5,580.00</td></tr><tr><td>Total</td><td>91,582.00</td></tr><tr><td rowspan="13">2012</td><td>1</td><td>14,544.00</td></tr><tr><td>2</td><td>13,501.00</td></tr><tr><td>3</td><td>20,308.00</td></tr><tr><td>4</td><td>26,655.00</td></tr><tr><td>5</td><td>25,734.00</td></tr><tr><td>6</td><td>16,973.00</td></tr><tr><td>7</td><td>17,880.00</td></tr><tr><td>8</td><td>19,825.00</td></tr><tr><td>9</td><td>20,192.00</td></tr><tr><td>10</td><td>23,255.00</td></tr><tr><td>11</td><td>25,521.00</td></tr><tr><td>12</td><td>23,936.00</td></tr><tr><td>Total</td><td>248,324.00</td></tr></table>			Year	Month	ID1	QC _{biomass}	(tonnes) [A]	2011	6	17,048.00	7	18,703.00	8	3,740.00	9	16,283.00	10	15,445.00	11	14,783.00	12	5,580.00	Total	91,582.00	2012	1	14,544.00	2	13,501.00	3	20,308.00	4	26,655.00	5	25,734.00	6	16,973.00	7	17,880.00	8	19,825.00	9	20,192.00	10	23,255.00	11	25,521.00	12	23,936.00	Total	248,324.00
Year	Month	ID1																																																		
		QC _{biomass}																																																		
		(tonnes) [A]																																																		
2011	6	17,048.00																																																		
	7	18,703.00																																																		
	8	3,740.00																																																		
	9	16,283.00																																																		
	10	15,445.00																																																		
	11	14,783.00																																																		
	12	5,580.00																																																		
	Total	91,582.00																																																		
2012	1	14,544.00																																																		
	2	13,501.00																																																		
	3	20,308.00																																																		
	4	26,655.00																																																		
	5	25,734.00																																																		
	6	16,973.00																																																		
	7	17,880.00																																																		
	8	19,825.00																																																		
	9	20,192.00																																																		
	10	23,255.00																																																		
	11	25,521.00																																																		
	12	23,936.00																																																		
	Total	248,324.00																																																		

Monitoring equipment:	<p>Type: The wood waste fed into the boiler is measured through dynamic scale at entrance and automatically register in the Lages/Tractebel Electronic Planning Production Control System. Accuracy class: The scale has accuracy of 99%, which complies with the maximum uncertainty of $\pm 1\%$ defined by INMETRO. Calibration frequency: Calibration has been carried out within 18 months. The INMETRO, Regulatory Agency of National Metrology, through its visits, along with Toledo, manufacturer accredited by INMETRO, ensures the functionality of the electronic scales.</p> <p>Other information about the calibration of the dynamic scale installed in the entrance of the combustion chamber of the boiler and used to measure the amount of wood waste consumed by the Project is presented below:</p> <p>Scale Type: Dynamic; Scale Number: 3092000123; Certifier: Toledo. Certificates:</p> <table border="1"> <thead> <tr> <th>Calibration Certificate Number</th><th>Date</th></tr> </thead> <tbody> <tr> <td>0081007</td><td>30 May 2011</td></tr> <tr> <td>0066377</td><td>08 Nov 2012</td></tr> </tbody> </table>	Calibration Certificate Number	Date	0081007	30 May 2011	0066377	08 Nov 2012
Calibration Certificate Number	Date						
0081007	30 May 2011						
0066377	08 Nov 2012						
Measuring/ Reading/ Recording frequency:	<p>Measuring frequency: Continuously Reporting frequency: Monthly</p>						
Calculation method (if applicable):	Not applicable.						
QA/QC procedures:	The reported data are compared with the data in the Lages/Tractebel Electronic Planning Production Control System and are cross checked with purchase receipts.						
Purpose of data:	Baseline, Project activity and Leakage emission calculations.						
Additional comment:	To accurately calculate the emission reductions (ERs) from avoided methane emissions during the operation of the Lages Project, the amounts of wood waste consumed ($QC_{biomass}$) are monitored continuously and totalized on an annual basis.						
Data / Parameter:	Fuel – Amount of wood waste obtained from Battistella (ID 2)						
Unit:	tonnes						
Description:	Amount of wood waste purchased from Battistella by the Project						
Measured/ Calculated / Default:	Measured						
Source of data:	Electronic scale (way in – way out)						

Value(s) of monitored parameter:	Fuel – Amounts of Fuel Waste			
	Year	Month	ID2	
			Purchased from Battistella	
			(tonnes)	(%) [B]
	2011	6	0.00	0.00%
		7	0.00	0.00%
		8	0.00	0.00%
		9	0.00	0.00%
		10	0.00	0.00%
		11	0.00	0.00%
		12	0.00	0.00%
		Total	0.00	0.00%
	2012	1	0.00	0.00%
		2	0.00	0.00%
		3	0.00	0.00%
		4	0.00	0.00%
		5	0.00	0.00%
		6	0.00	0.00%
		7	0.00	0.00%
		8	0.00	0.00%
		9	0.00	0.00%
		10	0.00	0.00%
		11	0.00	0.00%
		12	0.00	0.00%
		Total	0.00	0.00%

Monitoring equipment:	<p>Type: Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100.</p> <p>Accuracy class: The accuracy is proper for truck and validated by INMETRO.</p> <p>Calibration frequency: calibration is carried out within 18 months.</p> <p>Other information about the calibration of the electronic scales installed in the power plant entrance to measure the amount of wood waste purchased from each supplier are presented below. These equipments are used to monitor parameters ID2, ID3, ID4, ID8, ID10 an ID11 also.</p> <p style="text-align: center;">Scale type: Electronic (way in)</p> <p style="text-align: center;">Scale number: 3077001100</p> <table border="1" data-bbox="651 638 1179 840"> <thead> <tr> <th>Calibration Certificate Number</th><th>Certifier</th><th>Date</th></tr> </thead> <tbody> <tr> <td>1152670-1</td><td>INMETRO</td><td>15 Jul 2010</td></tr> <tr> <td>1959471-9</td><td>INMETRO</td><td>27 Oct 2011</td></tr> <tr> <td>0988138</td><td>Toledo</td><td>23 Aug 2012</td></tr> </tbody> </table> <p style="text-align: center;">Scale type: Electronic (way out)</p> <p style="text-align: center;">Scale number: 3077001101</p> <table border="1" data-bbox="651 980 1179 1182"> <thead> <tr> <th>Calibration Certificate Number</th><th>Certifier</th><th>Date</th></tr> </thead> <tbody> <tr> <td>1152669-5</td><td>INMETRO</td><td>15 Jul 2010</td></tr> <tr> <td>1959470-7</td><td>INMETRO</td><td>27 Oct 2011</td></tr> <tr> <td>0988137</td><td>Toledo</td><td>23 Aug 2012</td></tr> </tbody> </table>	Calibration Certificate Number	Certifier	Date	1152670-1	INMETRO	15 Jul 2010	1959471-9	INMETRO	27 Oct 2011	0988138	Toledo	23 Aug 2012	Calibration Certificate Number	Certifier	Date	1152669-5	INMETRO	15 Jul 2010	1959470-7	INMETRO	27 Oct 2011	0988137	Toledo	23 Aug 2012	
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Measuring/ Reading/ Recording frequency:	<p>Measuring frequency: Each truck</p> <p>Reporting frequency: Monthly</p>																									

Calculation method (if applicable):	<p>In order to calculate the annual wood waste amount consumed ($QC_{biomass}$) from each source (Battistella, Sofia and Spot Market) as presented in the table below, the percentages of wood waste purchased from each source in a given month are applied to the total amount consumed in the respective month (which is measured accurately by a dynamic balance installed in the entrance of the combustion chamber of the boiler) and the obtained values are totaled annually.</p> <table><tr><th colspan="5">Fuel – Amounts of wood waste</th></tr><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th>Battistella</th><th>Sofia</th><th>Spot Market</th></tr><tr><th>$QC_{biomass}$ [E=A*B]</th><th>$QC_{biomass}$ [F=A*C]</th><th>$QC_{biomass}$ [G=A*D]</th></tr><tr><th>(ton)</th><th>(ton)</th><th>(ton)</th></tr><tr><td>2011</td><td>6 to 12</td><td>0.00</td><td>0.00</td><td>91,582.00</td></tr><tr><td>2012</td><td>1 to 12</td><td>0.00</td><td>0.00</td><td>248,324.00</td></tr></table> <p>The wood waste amounts effectively treated under the Project ($QT_{biomass}$), which is used to calculate the baseline methane emissions, is calculated discounting the wood waste amounts were previously consumed in the Battistella and Sofia old boilers and applying the discount factor of 1% due to spontaneous combustion in the Battistella pile. These values were validated by DNV and used in the registered PDD. Additionally, due to the “torete” consumption and considering the degradation and methane generation from this wood waste when it is piled and left to decay occurs at a much lower rate than other wood waste, by conservativeness, the percentage of this wood waste purchased from each source (Battistella, Sofia and Spot Market) were applied as a discount factor over the wood waste amount treated under the Project, resulting in the values presented in the table below.</p> <table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th colspan="3">Battistella</th></tr><tr><th>$QT_{biomass}$ [H=(E-I-J)*(1-α)]⁵</th><th>Wood waste burned for own consumption [I]</th><th>Wood waste burned spontaneously in the pile [J=R*(E-I)]</th></tr><tr><th>(tonnes)</th><th>(tonnes)</th><th>(tonnes)</th></tr><tr><td>2011</td><td>6 to 12</td><td>0.00</td><td>19,040.00</td><td>0.00</td></tr><tr><td>2012</td><td>1 to 12</td><td>0.00</td><td>32,640.00</td><td>0.00</td></tr></table> <table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th colspan="2">Sofia</th></tr><tr><th>$QT_{biomass}$ [K=(F-L)*(1-β)]⁶</th><th>Wood waste burned for own consumption [L]</th></tr><tr><th>(tonnes)</th><th>(tonnes)</th></tr><tr><td>2011</td><td>6 to 12</td><td>0.00</td><td>8,400.00</td></tr><tr><td>2012</td><td>1 to 12</td><td>0.00</td><td>14,400.00</td></tr></table> <table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th>Spot Market</th></tr><tr><th>$QT_{biomass}$ [M=G*(1-γ)]</th></tr><tr><th>(tonnes)</th></tr><tr><td>2011</td><td>6 to 12</td><td>86,749.83</td></tr><tr><td>2012</td><td>1 to 12</td><td>245,099.97</td></tr></table>	Fuel – Amounts of wood waste					Year	Month	Battistella	Sofia	Spot Market	$QC_{biomass}$ [E=A*B]	$QC_{biomass}$ [F=A*C]	$QC_{biomass}$ [G=A*D]	(ton)	(ton)	(ton)	2011	6 to 12	0.00	0.00	91,582.00	2012	1 to 12	0.00	0.00	248,324.00	Year	Month	Battistella			$QT_{biomass}$ [H=(E-I-J)*(1-α)] ⁵	Wood waste burned for own consumption [I]	Wood waste burned spontaneously in the pile [J=R*(E-I)]	(tonnes)	(tonnes)	(tonnes)	2011	6 to 12	0.00	19,040.00	0.00	2012	1 to 12	0.00	32,640.00	0.00	Year	Month	Sofia		$QT_{biomass}$ [K=(F-L)*(1-β)] ⁶	Wood waste burned for own consumption [L]	(tonnes)	(tonnes)	2011	6 to 12	0.00	8,400.00	2012	1 to 12	0.00	14,400.00	Year	Month	Spot Market	$QT_{biomass}$ [M=G*(1-γ)]	(tonnes)	2011	6 to 12	86,749.83	2012	1 to 12	245,099.97
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⁵ The wood waste amount consumed ($QC_{biomass}$) from Battistella in 2011 (from June to December) and 2012 (from January to December) was zero due to its close down.

⁶ The wood waste amount consumed ($QC_{biomass}$) from Sofia in 2011 (from June to December) and 2012 (from January to December) was zero due to its close down.

Purpose of data:	Baseline, Project activity and Leakage emission calculations																																																															
Additional comment:	<p>To accurately calculate the emission reductions (ERs) from avoided methane emissions during the operation of the Lages Project, the amounts of wood waste consumed (QC_{biomass}) and purchased are monitored continuously and totalized on an annual basis. Each source of wood waste (Battistella, Sofia and Spot Market) is treated separately and the methane emissions avoided from each source are calculated using the small-scale methodology AMS-III.E. (Version 07) at the end of each calendar year and each monitoring period based on the characteristics of the wood waste supplier and the wood waste piles avoided through the use by Lages Project. Additionally, the Annex 1 present the wood waste amounts consumed and purchased from each supplier during the monitoring period.</p> <p>As explained before at Session B1 Sofia and Battistella closed down at September 2007 and October 2008 respectively, what justifies the non-existence of wood waste supply from these sources. As consequence, to substitute the biomass reduction from Battistella and Sofia, it was required a wood waste supply increasing from the many other Spot Market suppliers. In addition to that, as also explained at B1 the PDD was revised considering the additional use of “torettes”, in this sense the tables below presents the amount of biomass from this biomass variety purchased from each source (Battistella, Sofia and Spot Market).</p> <table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th colspan="3">Purchased from Battistella</th></tr><tr><th>Total Wood Waste Amount</th><th colspan="2">“Torete” Amount</th></tr><tr><th>(tonnes)</th><th>(tonnes)</th><th>(%) [α]</th></tr><tr><td>2011</td><td>6 to 12</td><td>0.00</td><td>0.00</td><td>0.00%</td></tr><tr><td>2012</td><td>1 to 12</td><td>0.00</td><td>0.00</td><td>0.00%</td></tr></table> <table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th colspan="3">Purchased from Sofia</th></tr><tr><th>Total Wood Waste Amount</th><th colspan="2">“Torete” Amount</th></tr><tr><th>(tonnes)</th><th>(tonnes)</th><th>(%) [β]</th></tr><tr><td>2011</td><td>6 to 12</td><td>0,00</td><td>0.00</td><td>0.00%</td></tr><tr><td>2012</td><td>1 to 12</td><td>0.00</td><td>0.00</td><td>0.00%</td></tr></table> <table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th colspan="3">Purchased from Spot Market</th></tr><tr><th>Total Wood Waste Amount</th><th colspan="2">“Torete” Amount</th></tr><tr><th>(tonnes)</th><th>(tonnes)</th><th>(%) [γ]</th></tr><tr><td>2011</td><td>6 to 12</td><td>104.195,20</td><td>5,497.68</td><td>5.28%</td></tr><tr><td>2012</td><td>1 to 12</td><td>214.261,34</td><td>2,781.79</td><td>1.30%</td></tr></table>	Year	Month	Purchased from Battistella			Total Wood Waste Amount	“Torete” Amount		(tonnes)	(tonnes)	(%) [α]	2011	6 to 12	0.00	0.00	0.00%	2012	1 to 12	0.00	0.00	0.00%	Year	Month	Purchased from Sofia			Total Wood Waste Amount	“Torete” Amount		(tonnes)	(tonnes)	(%) [β]	2011	6 to 12	0,00	0.00	0.00%	2012	1 to 12	0.00	0.00	0.00%	Year	Month	Purchased from Spot Market			Total Wood Waste Amount	“Torete” Amount		(tonnes)	(tonnes)	(%) [γ]	2011	6 to 12	104.195,20	5,497.68	5.28%	2012	1 to 12	214.261,34	2,781.79	1.30%
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Data / Parameter:	Fuel – Amount of wood waste obtained from Sofia (ID 3)																																																																									
Unit:	tonnes																																																																									
Description:	Amount of wood waste purchased from Sofia by the Project																																																																									
Measured/ Calculated / Default:	Measured																																																																									
Source of data:	Electronic scale (way in – way out)																																																																									
Value(s) of monitored parameter:	<table><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th colspan="2">ID3</th></tr><tr><th colspan="2">Purchased from Sofia</th></tr><tr><th>(tonnes)</th><th>(%) [C]</th></tr><tr><td rowspan="8">2011</td><td>6</td><td>0.00</td><td>0.00%</td></tr><tr><td>7</td><td>0.00</td><td>0.00%</td></tr><tr><td>8</td><td>0.00</td><td>0.00%</td></tr><tr><td>9</td><td>0.00</td><td>0.00%</td></tr><tr><td>10</td><td>0.00</td><td>0.00%</td></tr><tr><td>11</td><td>0.00</td><td>0.00%</td></tr><tr><td>12</td><td>0.00</td><td>0.00%</td></tr><tr><td>Total</td><td>0.00</td><td>0.00%</td></tr><tr><td rowspan="13">2012</td><td>1</td><td>0.00</td><td>0.00%</td></tr><tr><td>2</td><td>0.00</td><td>0.00%</td></tr><tr><td>3</td><td>0.00</td><td>0.00%</td></tr><tr><td>4</td><td>0.00</td><td>0.00%</td></tr><tr><td>5</td><td>0.00</td><td>0.00%</td></tr><tr><td>6</td><td>0.00</td><td>0.00%</td></tr><tr><td>7</td><td>0.00</td><td>0.00%</td></tr><tr><td>8</td><td>0.00</td><td>0.00%</td></tr><tr><td>9</td><td>0.00</td><td>0.00%</td></tr><tr><td>10</td><td>0.00</td><td>0.00%</td></tr><tr><td>11</td><td>0.00</td><td>0.00%</td></tr><tr><td>12</td><td>0.00</td><td>0.00%</td></tr><tr><td>Total</td><td>0.00</td><td>0.00%</td></tr></table>	Year	Month	ID3		Purchased from Sofia		(tonnes)	(%) [C]	2011	6	0.00	0.00%	7	0.00	0.00%	8	0.00	0.00%	9	0.00	0.00%	10	0.00	0.00%	11	0.00	0.00%	12	0.00	0.00%	Total	0.00	0.00%	2012	1	0.00	0.00%	2	0.00	0.00%	3	0.00	0.00%	4	0.00	0.00%	5	0.00	0.00%	6	0.00	0.00%	7	0.00	0.00%	8	0.00	0.00%	9	0.00	0.00%	10	0.00	0.00%	11	0.00	0.00%	12	0.00	0.00%	Total	0.00	0.00%
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Monitoring equipment:	See same item in the parameter ID 2.																																																																									
Measuring/ Reading/ Recording frequency:	Measuring frequency: Each truck Reporting frequency: Monthly																																																																									
Calculation method (if applicable):	See same item in the parameter ID 2.																																																																									
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Purpose of data:	Baseline, Project activity and Leakage emission calculations																																																																									
Additional comment:	See same item in the parameter ID 2.																																																																									

Data / Parameter:	Fuel – Amount of wood waste obtained from Spot Market (ID 4)
Unit:	tonnes
Description:	Amount of wood waste purchased from Spot Market by the Project

Measured/ Calculated / Default:	Measured
Source of data:	Electronic scale (way in – way out)
Value(s) of monitored parameter:	See same item in the parameter ID 1.
Monitoring equipment:	See same item in the parameter ID 2.
Measuring/ Reading/ Recording frequency:	Measuring frequency: Each truck Reporting frequency: Monthly
Calculation method (if applicable):	See same item in the parameter ID 1.
QA/QC procedures:	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and cross checked with purchase receipts
Purpose of data:	See same item in the parameter ID 2
Additional comment:	
Data / Parameter:	On-site transportation – Diesel oil purchase (ID 6)
Unit:	litres
Description:	Amount of Diesel oil purchased by the Project and used on the on-site transportation
Measured/ Calculated / Default:	Measured
Source of data:	Invoices and Diesel feed pump at internal gas station.

Value(s) of monitored parameter:	<p>The amount of diesel oil used inside the Lages Project was monthly monitored through the invoices emitted by the proper supplier and amounts already stored (initial and final inventory) and is presented in the table below.</p> <table><tr><th colspan="3">On-site transportation</th></tr><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th>ID6</th></tr><tr><th>Q_{diesel} [AB]</th></tr><tr><th>(litres)</th></tr><tr><td rowspan="8">2011</td><td>6</td><td>4,707.40</td></tr><tr><td>7</td><td>4,827.20</td></tr><tr><td>8</td><td>3,315.60</td></tr><tr><td>9</td><td>4,184.70</td></tr><tr><td>10</td><td>4,439.30</td></tr><tr><td>11</td><td>3,580.00</td></tr><tr><td>12</td><td>3,675.70</td></tr><tr><td>Total</td><td>28,729.90</td></tr><tr><td rowspan="13">2012</td><td>1</td><td>3,734.00</td></tr><tr><td>2</td><td>2,648.10</td></tr><tr><td>3</td><td>4,379.90</td></tr><tr><td>4</td><td>6,814.80</td></tr><tr><td>5</td><td>6,774.00</td></tr><tr><td>6</td><td>5,434.90</td></tr><tr><td>7</td><td>4,151.50</td></tr><tr><td>8</td><td>5,528.40</td></tr><tr><td>9</td><td>6,399.30</td></tr><tr><td>10</td><td>6,018.70</td></tr><tr><td>11</td><td>6,137.00</td></tr><tr><td>12</td><td>6,155.30</td></tr><tr><td>Total</td><td>64,175.90</td></tr></table>	On-site transportation			Year	Month	ID6	Q _{diesel} [AB]	(litres)	2011	6	4,707.40	7	4,827.20	8	3,315.60	9	4,184.70	10	4,439.30	11	3,580.00	12	3,675.70	Total	28,729.90	2012	1	3,734.00	2	2,648.10	3	4,379.90	4	6,814.80	5	6,774.00	6	5,434.90	7	4,151.50	8	5,528.40	9	6,399.30	10	6,018.70	11	6,137.00	12	6,155.30	Total	64,175.90
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Monitoring equipment:	<p>Type: Diesel feed pump at internal gas station. Calibration frequency: Resolution ANP n° 12, March 3rd, 2007 does not refer to a specific period for calibration. Calibration has been carried out within 18 months. The INMETRO, Regulatory Agency of National Metrology, through its visits, ensures the functionality of the device and its compliance. Other information about the calibration of the internal diesel feed pump are presented in the table below</p> <table><tr><th>Pump Number</th><th>Calibration Certificate Number</th><th>Certifier</th><th>Date</th></tr><tr><td>540670</td><td>2219728-0</td><td>INMETRO</td><td>08 Dec 2011</td></tr><tr><td>540670</td><td>835573-3</td><td>INMETRO</td><td>20 Abr 2012</td></tr></table>	Pump Number	Calibration Certificate Number	Certifier	Date	540670	2219728-0	INMETRO	08 Dec 2011	540670	835573-3	INMETRO	20 Abr 2012																																								
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Measuring/ Reading/ Recording frequency:	Measuring frequency: Daily Reporting frequency: Monthly																																																				
Calculation method (if applicable):	Not applicable.																																																				
QA/QC procedures:	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and cross checked with purchase receipts.																																																				

Purpose of data:	Project activity emission calculation		
Additional comment:			

Data / Parameter:	Off-site transportation – Location of wood waste suppliers compared to Lages site (ID 7)																						
Unit:	km																						
Description:	Weighted average round trip distance between the sites of the wood waste suppliers and Lages site.																						
Measured/ Calculated / Default:	Measured																						
Source of data:	Wood waste invoices/receipts.																						
Value(s) of monitored parameter:	<p>The data about the round trip distance between the wood waste suppliers and the Lages Project site and the truck capacity were monitored and are presented in the tables of the Annex 1. The weighted average round trip distance and truck capacity of all active wood waste suppliers to Lages Project site which are necessary to calculate the emissions from the off-site transportation are presented below.</p> <table border="1" data-bbox="667 877 1198 1115"> <thead> <tr> <th colspan="4">Off-site transportation</th> </tr> <tr> <th rowspan="3">Year</th> <th rowspan="3">Month</th> <th>ID7</th> <th>ID8</th> </tr> <tr> <th>AVD_{biomass} [AC]</th> <th>TC_{biomass} [AD]</th> </tr> <tr> <th>(km)</th> <th>(tonnes)</th> </tr> </thead> <tbody> <tr> <td>2011</td> <td>6 to 12</td> <td>20.5</td> <td>15.9</td> </tr> <tr> <td>2012</td> <td>1 to 12</td> <td>32.1</td> <td>17.0</td> </tr> </tbody> </table>			Off-site transportation				Year	Month	ID7	ID8	AVD _{biomass} [AC]	TC _{biomass} [AD]	(km)	(tonnes)	2011	6 to 12	20.5	15.9	2012	1 to 12	32.1	17.0
Off-site transportation																							
Year	Month	ID7	ID8																				
		AVD _{biomass} [AC]	TC _{biomass} [AD]																				
		(km)	(tonnes)																				
2011	6 to 12	20.5	15.9																				
2012	1 to 12	32.1	17.0																				
Monitoring equipment:	Not applicable.																						
Measuring/ Reading/ Recording frequency:	Measuring frequency: Each purchase receipt, address on purchase receipts Reporting frequency: Monthly																						
Calculation method (if applicable):	Calculated the weighted average round trip distance of all active wood waste suppliers of Lages Project.																						
QA/QC procedures:	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System and cross checked with purchase receipts.																						
Purpose of data:	Leakage emission calculation																						
Additional comment:																							

Data / Parameter:	Off-site transportation – Truck capacity (ID 8)		
Unit:	tonnes		
Description:	Truck capacity of all active wood waste suppliers to Lages Project site.		
Measured/ Calculated / Default:	Measured		
Source of data:	Electronic scale (way in – way out)		

Value(s) of monitored parameter:	<p>The data about the round trip distance between the wood waste suppliers and the Lages Project site and the truck capacity were monitored and are presented in the tables of the Annex 1. The weighted average round trip distance and truck capacity of all active wood waste suppliers to Lages Project site which are necessary to calculate the emissions from the off-site transportation are presented below.</p> <table><tr><th colspan="4">Off-site transportation</th></tr><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th>ID7</th><th>ID8</th></tr><tr><th>AVD_{biomass} [AC]</th><th>TC_{biomass} [AD]</th></tr><tr><th>(km)</th><th>(tonnes)</th></tr><tr><td>2011</td><td>6 to 12</td><td>20.5</td><td>15.9</td></tr><tr><td>2012</td><td>1 to 12</td><td>32.1</td><td>17.0</td></tr></table>	Off-site transportation				Year	Month	ID7	ID8	AVD _{biomass} [AC]	TC _{biomass} [AD]	(km)	(tonnes)	2011	6 to 12	20.5	15.9	2012	1 to 12	32.1	17.0				
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		(km)	(tonnes)																						
2011	6 to 12	20.5	15.9																						
2012	1 to 12	32.1	17.0																						
Monitoring equipment:	<p>Type: Entrance truck scales Toledo mod 820-J # 03077001101 and # 03077001100.</p> <p>Accuracy class: The accuracy is proper for truck and validated by INMETRO.</p> <p>Calibration frequency: calibration is carried out within 18 months.</p> <p>Other information about the calibration of the electronic scales installed in the power plant entrance is presented in the table below. These equipments are used to monitor parameters ID2, ID3, ID4, ID10 an ID11 also.</p> <p>Scale type: Electronic (way in)</p> <p>Scale number: 3077001100</p> <table><tr><th>Calibration Certificate Number</th><th>Certifier</th><th>Date</th></tr><tr><td>1152670-1</td><td>INMETRO</td><td>15 Jul 2010</td></tr><tr><td>1959471-9</td><td>INMETRO</td><td>27 Oct 2011</td></tr><tr><td>0988138</td><td>Toledo</td><td>23 Aug 2012</td></tr></table> <p>Scale type: Electronic (way out)</p> <p>Scale number: 3077001101</p> <table><tr><th>Calibration Certificate Number</th><th>Certifier</th><th>Date</th></tr><tr><td>1152669-5</td><td>INMETRO</td><td>15 Jul 2010</td></tr><tr><td>1959470-7</td><td>INMETRO</td><td>27 Oct 2011</td></tr><tr><td>0988137</td><td>Toledo</td><td>23 Aug 2012</td></tr></table>	Calibration Certificate Number	Certifier	Date	1152670-1	INMETRO	15 Jul 2010	1959471-9	INMETRO	27 Oct 2011	0988138	Toledo	23 Aug 2012	Calibration Certificate Number	Certifier	Date	1152669-5	INMETRO	15 Jul 2010	1959470-7	INMETRO	27 Oct 2011	0988137	Toledo	23 Aug 2012
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0988137	Toledo	23 Aug 2012																							
Measuring/ Reading/ Recording frequency:	<p>Measuring frequency: Each transportation receipt.</p> <p>Reporting frequency: Monthly</p>																								
Calculation method (if applicable):	<p>The receipts of wood waste are registered at entrance of Lages, including the actual weight of each truck. The information from the Lages/Tractebel Electronic Planning Production Control System was used to calculate the weighted average truck capacity of all active wood waste suppliers of Lages Project.</p>																								

QA/QC procedures:	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System.
Purpose of data:	Leakage emission calculation
Additional comment:	

Data / Parameter:	Ash transportation – Location of ash disposal site (ID 9)																				
Unit:	km																				
Description:	Weighted average round trip distance between the ash disposal sites and Lages site.																				
Measured/ Calculated / Default:	Measured																				
Source of data:	Ash invoices/receipts.																				
Value(s) of monitored parameter:	<p>The data about the round trip distance between the Lages Project site and ash disposal sites and the truck capacity were monitored and are presented in the table below. During the monitoring period, the ash produced by the project activity was disposed at Lages Region aligned with the Environmental Agency approval, reducing the round trip distance and consequently greenhouse gas emissions from ash transportation in comparison with the previous monitoring reports. Until July 2008 the ash produced had been transported to Jorge Lacerda Thermoelectric Power Plant, in Capivari de Baixo municipality, State of Santa Catarina, to be disposed in an appropriate manner.</p> <table border="1"> <tr> <th colspan="4">Ash transportation</th></tr> <tr> <th rowspan="3">Year</th><th rowspan="3">Month</th><th>ID9</th><th>ID10</th></tr> <tr> <th>AVD_{ash} [AE]</th><th>TC_{ash} [AF]</th></tr> <tr> <th>(km)</th><th>(tonnes)</th></tr> <tr> <td>2011</td><td>6 to 12</td><td>79.6</td><td>15.2</td></tr> <tr> <td>2012</td><td>1 to 12</td><td>71.1</td><td>15.2</td></tr> </table>	Ash transportation				Year	Month	ID9	ID10	AVD _{ash} [AE]	TC _{ash} [AF]	(km)	(tonnes)	2011	6 to 12	79.6	15.2	2012	1 to 12	71.1	15.2
Ash transportation																					
Year	Month	ID9	ID10																		
		AVD _{ash} [AE]	TC _{ash} [AF]																		
		(km)	(tonnes)																		
2011	6 to 12	79.6	15.2																		
2012	1 to 12	71.1	15.2																		
Monitoring equipment:	Not applicable.																				
Measuring/ Reading/ Recording frequency:	Measuring frequency: Each transport Reporting frequency: Monthly																				
Calculation method (if applicable):	Calculated the weighted average round trip distance between the ash disposal sites and Lages Project site.																				
QA/QC procedures:	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System																				
Purpose of data:	Leakage emission calculation																				
Additional comment:																					

Data / Parameter:	Ash transportation – Truck capacity (ID 10)																				
Unit:	tonnes																				
Description:	Capacity of the trucks transporting the ash produced in Lages Project site to the disposal sites.																				
Measured/ Calculated / Default:	Measured																				
Source of data:	Electronic scale (way in – way out)																				
Value(s) of monitored parameter:	<p>The data about the round trip distance between the Lages Project site and ash disposal sites and the truck capacity were monitored and are presented in the table below. During the monitoring period, the ash produced by the project activity was disposed at Lages Region aligned with the Environmental Agency approval, reducing the round trip distance and consequently greenhouse gas emissions from ash transportation in comparison with the previous monitoring reports. Until July 2008 the ash produced had been transported to Jorge Lacerda Thermoelectric Power Plant, in Capivari de Baixo municipality, State of Santa Catarina, to be disposed in an appropriate manner.</p> <table><tr><th colspan="4">Ash transportation</th></tr><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th>ID9</th><th>ID10</th></tr><tr><th>AVD_{ash} [AE]</th><th>TC_{ash} [AF]</th></tr><tr><th>(km)</th><th>(tonnes)</th></tr><tr><td>2011</td><td>6 to 12</td><td>79.6</td><td>15.2</td></tr><tr><td>2012</td><td>1 to 12</td><td>71.1</td><td>15.2</td></tr></table>	Ash transportation				Year	Month	ID9	ID10	AVD _{ash} [AE]	TC _{ash} [AF]	(km)	(tonnes)	2011	6 to 12	79.6	15.2	2012	1 to 12	71.1	15.2
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		AVD _{ash} [AE]	TC _{ash} [AF]																		
		(km)	(tonnes)																		
2011	6 to 12	79.6	15.2																		
2012	1 to 12	71.1	15.2																		
Monitoring equipment:	See same item in the parameter ID 8																				
Measuring/ Reading/ Recording frequency:	Measuring frequency: Each transportation receipt. Reporting frequency: Monthly																				
Calculation method (if applicable):	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 weighted average truck capacity transporting ashes from Lages Project to the disposal sites.																				
QA/QC procedures:	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System.																				
Purpose of data:	Leakage emission calculation																				
Additional comment:																					

Data / Parameter:	Ash production – Amount of ash produced (ID 11)
Unit:	tonnes
Description:	Amount of ash produced in the Lages Project.

Measured/ Calculated / Default:	Measured																																																				
Source of data:	Electronic scale (way in – way out)																																																				
Value(s) of monitored parameter:	<div>The amount of ash produced and transported by Lages Project was monthly monitored and is presented in the table below.</div> <table><tr><th colspan="3">Ash production</th></tr><tr><th rowspan="3">Year</th><th rowspan="3">Month</th><th>ID11</th></tr><tr><th>Q_{ash} [AG]</th></tr><tr><th>(tonnes)</th></tr><tr><td rowspan="8">2011</td><td>6</td><td>1,301.06</td></tr><tr><td>7</td><td>1,692.54</td></tr><tr><td>8</td><td>801.37</td></tr><tr><td>9</td><td>1,331.65</td></tr><tr><td>10</td><td>1,403.84</td></tr><tr><td>11</td><td>1,222.57</td></tr><tr><td>12</td><td>438.67</td></tr><tr><td>Total</td><td>8,191.70</td></tr><tr><td rowspan="13">2012</td><td>1</td><td>1,035.15</td></tr><tr><td>2</td><td>683.16</td></tr><tr><td>3</td><td>1,317.51</td></tr><tr><td>4</td><td>2,031.96</td></tr><tr><td>5</td><td>2,174.81</td></tr><tr><td>6</td><td>1,564.89</td></tr><tr><td>7</td><td>900.51</td></tr><tr><td>8</td><td>1,244.68</td></tr><tr><td>9</td><td>1,514.40</td></tr><tr><td>10</td><td>2,078.26</td></tr><tr><td>11</td><td>1,527.86</td></tr><tr><td>12</td><td>1,749.06</td></tr><tr><td>Total</td><td>17,822.25</td></tr></table>	Ash production			Year	Month	ID11	Q _{ash} [AG]	(tonnes)	2011	6	1,301.06	7	1,692.54	8	801.37	9	1,331.65	10	1,403.84	11	1,222.57	12	438.67	Total	8,191.70	2012	1	1,035.15	2	683.16	3	1,317.51	4	2,031.96	5	2,174.81	6	1,564.89	7	900.51	8	1,244.68	9	1,514.40	10	2,078.26	11	1,527.86	12	1,749.06	Total	17,822.25
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Monitoring equipment:	See same item in the parameter ID 8																																																				
Measuring/ Reading/ Recording frequency:	Measuring frequency: Each transport. All ash trucks are weighed and the weight is registered into the Lages/Tractebel Electronic Planning Production Control System Reporting frequency: Monthly																																																				
Calculation method (if applicable):	Not applicable.																																																				
QA/QC procedures:	The reported data was compared with the data in the Lages/Tractebel Electronic Planning Production Control System.																																																				
Purpose of data:	Leakage emission calculation																																																				
Additional comment:																																																					

D.3. Implementation of sampling plan

>> Not applicable.

SECTION E. Calculation of emission reductions or GHG removals by sinks**E.1. Calculation of baseline emissions or baseline net GHG removals by sinks**

>> The methane emission factor is calculated as follows:

$$CH_4_IPCC_{decay} = (MCF * DOC * DOC_F * F * 16/12)$$

where,

- $CH_4_IPCC_{decay}$: IPCC CH_4 emission factor for decaying biomass in the region of the project activity (t CH_4 /t);
- MCF: Methane correction factor (fraction);
- DOC: Degradable organic carbon (fraction);
- DOC_F : Fraction DOC dissimilated to landfill gas (fraction);
- F: Fraction of CH_4 in landfill gas (fraction).

The baseline methane emissions from biomass decay are calculated using the formulae below:

$$BE_v = QT_{biomass} * CH_4_IPCC_{decay} * CH_4_GWP$$

where,

- BE_v : Baseline methane emissions from biomass decay (t CO_2e);
- $QT_{biomass}$: Quantity of biomass treated under the project activity (t);
- CH_4_GWP : Global Warming Potential for CH_4 (t CO_2e /t CH_4).

The baseline emissions presented in the tables below were obtained when applying the monitored data to the equations presented above.

IPCC CH ₄ emission factor for decaying biomass (CH ₄ _IPCC _{decay})						
Wood waste suppliers	IPCC CH ₄ emission factor for decaying biomass (CH ₄ _IPCC _{decay}) [AH=N*O*P*Q*AI] (tCH ₄ /t)	Methane correction factor (MCF) [N] (fraction)	Degradable organic carbon (DOC) [O] (fraction)	Fraction DOC dissimilated to landfill gas (DOC _F) [P] (fraction)	Fraction of CH ₄ in landfill gas (F) [Q] (fraction)	16/12 [AI] (fraction)
Battistella	0.1147	0.8	0.43	0.5	0.5	1.33
Sofia	0.0573	0.4	0.43	0.5	0.5	1.33
Spot Market	0.0573	0.4	0.43	0.5	0.5	1.33

BATTISTELLA SUPPLY				
Baseline methane emissions from biomass decay (BE _v)				
Year	Baseline methane emissions from biomass decay (BE _v) [AJ=H*AH*V] (tCO ₂ e/year)	Quantity of biomass treated under the project activity* (QT _{biomass}) [H] (t/year)	IPCC CH ₄ emission factor for decaying biomass (CH ₄ _IPCC _{decay}) [AH] (tCH ₄ /t)	GWP for CH ₄ (CH ₄ _GWP) [V] (tCO ₂ e/tCH ₄)
Jun - Dec 2011	0	0.00	0.1147	21
Jan - Dec 2012	0	0.00	0.1147	21
Total	0	0.00	-	-

SOFIA SUPPLY				
Baseline methane emissions from biomass decay (BE _y)				
Year	Baseline methane emissions from biomass decay (BE _y) [AK=M*AH*V] (tCO ₂ e/year)	Quantity of biomass treated under the project activity* (QT _{biomass}) [K] (t/year)	IPCC CH ₄ emission factor for decaying biomass (CH ₄ IPCC _{decay}) [AH] (tCH ₄ /t)	GWP for CH ₄ (CH ₄ GWP) [V] (tCO ₂ e/tCH ₄)
Jun - Dec 2011	0	0.00	0.0573	21
Jan - Dec 2012	0	0.00	0.0573	21
Total	0	0.00	-	-

SPOT MARKET SUPPLY				
Baseline methane emissions from biomass decay (BE _y)				
Year	Baseline methane emissions from biomass decay (BE _y) [AL=M*AH*V] (tCO ₂ e/year)	Quantity of biomass treated under the project activity* (QT _{biomass}) [M] (t/year)	IPCC CH ₄ emission factor for decaying biomass (CH ₄ IPCC _{decay}) [AH] (tCH ₄ /t)	GWP for CH ₄ (CH ₄ GWP) [V] (tCO ₂ e/tCH ₄)
Jun - Dec 2011	104,447	86,749.83	0.0573	21
Jan - Dec 2012	295,100	245,099.97	0.0573	21
Total	399,547	331,849.80	-	-

Baseline methane emissions from biomass decay (BE _y)				
Year	Baseline methane emissions from biomass decay (BE _y) [AM=AJ+AK+AL] (tCO ₂ e/year)	Battistella Supply [AJ] (tCO ₂ e/year)	Sofia Supply [AK] (tCO ₂ e/year)	Spot Market Supply [AL] (tCO ₂ e/year)
Jun - Dec 2011	104,447	0	0	104,447
Jan - Dec 2012	295,100	0	0	295,100
Total	399,547	0	0	399,547

E.2. Calculation of project emissions or actual net GHG removals by sinks

>> The emissions due to the project activity within the project boundary comprise:

- CH₄ emissions and N₂O emissions due to combustion of the wood waste (PE_y);
- CO₂, CH₄ and N₂O emissions due to on-site wood waste transportation.

The formulae presented in the AMS-III.E. (Version 07) to calculate the emissions of CH₄ and N₂O of the project activity considers only the emissions from the wood waste combustion as presented below:

$$PE_y = QC_{biomass} * E_{biomass} (CH_4_{bio_comb} * CH_4_GWP + N_2O_{bio_comb} * N_2O_GWP) / 10^6$$

where,

- PE_y: Project activity emissions (ktCO₂e);
- QC_{biomass}: Quantity of biomass consumed by the project activity (t);
- E_{biomass}: Energy content of biomass (TJ/t);
- CH₄bio_comb: CH₄ emission factor for biomass and waste (which includes dung and agricultural, municipal and industrial wastes) combustion (kgCH₄/TJ);
- CH₄_GWP: Global Warming Potential for CH₄ (tCO₂e/tCH₄);
- N₂O_{bio}_comb: N₂O emission factor for biomass and waste (which includes dung and agricultural, municipal and industrial wastes) combustion (kgN₂O/TJ);
- N₂O_GWP: Global Warming Potential for N₂O (tCO₂e/tN₂O).

Emissions from on-site transportation (OT_GHG_y) are calculated using the following equation:

$$OT_GHG_y = Q_{diesel} * D_{diesel} * (VEF_CO_2 + VEF_CH_4 * CH_4_GWP + VEF_N_2O * N_2O_GWP) / 10^6$$

where,

- OT_GHG_y : Emissions from on-site transportation (ktCO₂e);
- Q_{diesel} : Diesel oil consumption (l);
- D_{diesel} : Diesel oil density (t/l);
- VEF_CO_2 : CO₂ emission factor for trucks (kgCO₂/t);
- VEF_CH_4 : CH₄ emission factor for trucks (kgCH₄/t);
- CH_4_GWP : Global Warming Potential for CH₄ (tCO₂e/tCH₄);
- VEF_N_2O : N₂O emission factor for trucks (kgN₂O/t);
- N_2O_GWP : Global Warming Potential for N₂O (tCO₂e/tN₂O).

The project activity emissions presented in the tables below were obtained when applying the monitored data to the equations presented above.

Project activity emissions (PE _y)							
Year	Project activity emissions (PE _y) [AN=A*S*(T*V+U*W)/10 ⁶] (ktCO ₂ e/year)	Quantity of biomass consumed by project activity (QC _{biomass}) [A] (t/year)	Energy content of biomass (E _{biomass}) [S] (TJ/t)	CH ₄ emission factor for biomass and waste combustion (CH ₄ bio_comb) [T] (kgCH ₄ /TJ)	GWP for CH ₄ (CH ₄ _GWP) [V] (tCO ₂ e/tCH ₄)	N ₂ O emission factor for biomass and waste combustion (N ₂ Obio_comb) [U] (kgN ₂ O/TJ)	GWP for N ₂ O (N ₂ O_GWP) [W] (tCO ₂ e/tN ₂ O)
Jun - Dec 2011	1.703	91,581.99	7.7460E-03	11	21	7	310
Jan - Dec 2012	4.618	248,324.00	7.746E-03	11	21	7	310
Total	6.322	339,905.99	-	-	-	-	-

Emissions from on-site transportation (OT_GHG _y)								
Year	Emissions from on-site transportation (OT_GHG _y) [AO=AB*X*(Y+Z*V+AA*W)/10 ⁶] (ktCO ₂ e/year)	Diesel oil consumption (Q _{diesel}) [AB] (L/year)	Diesel oil density (D _{diesel}) [X] (t/l)	CO ₂ emission factor for trucks (VEF_CO ₂) [Y] (kgCO ₂ /t)	CH ₄ emission factor for trucks (VEF_CH ₄) [Z] (kgCH ₄ /t)	GWP for CH ₄ (CH ₄ _GWP) [V] (tCO ₂ e/tCH ₄)	N ₂ O emission factor for trucks (VEF_N ₂ O) [AA] (kgN ₂ O/t)	GWP for N ₂ O (N ₂ O_GWP) [W] (tCO ₂ e/tN ₂ O)
Jun - Dec 2011	0.081	28,729.90	8.800E-04	3,172.31	0.18	21	0.09	310
Jan - Dec 2012	0.181	64,175.90	8.80E-04	3,172.31	0.18	21	0.09	310
Total	0.262	92,905.80	-	-	-	-	-	-

E.3. Calculation of leakage

>> The two sources of leakage are related to the off-site wood waste transportation and ash transportation that is produced in the wood waste combustion process.

Emissions from off-site wood waste transportation are calculated using the following equation:

$$BT_GHG_y = QC_{biomass} / TC_{biomass} * AVD_{biomass} * (VEF_CO_2 + VEF_CH_4 * CH_4_GWP + VEF_N_2O * N_2O_GWP) / 10^6$$

where,

- BT_GHG_y : Emission from off-site transportation (ktCO₂e);
- $QC_{biomass}$: Quantity of biomass consumed by project activity (t);
- $TC_{biomass}$: Truck average capacity for biomass transportation (t);
- $AVD_{biomass}$: Average round trip distance to biomass supply sites (km);
- VEF_CO_2 : CO₂ emission factor for trucks (kgCO₂/km);

- VEF_CH₄: CH₄ emission factor for trucks (kgCH₄/km);
- CH₄_GWP: Global Warming Potential for CH₄ (tCO₂e/tCH₄);
- VEF_N₂O: N₂O emission factor for trucks (kgN₂O/km);
- N₂O_GWP: Global Warming Potential for N₂O (tCO₂e/tN₂O).

Emissions from ash transportation are calculated using the following equation:

$$AT_GHG_v = Q_{ash}/TC_{ash} * AVD_{ash} * (VEF_CO_2 + VEF_CH_4 * CH_4_GWP + VEF_N_2O * N_2O_GWP) / 10^6$$

where,

- AT_GHG_v: Emission from ash transportation (ktCO₂e);
- Q_{ash}: Quantity of ash produced by the project activity (t);
- TC_{ash}: Truck average capacity for ash transportation (t);
- AVD_{ash}: Round trip distance to disposal site (km);
- VEF_CO₂: CO₂ emission factor for trucks (kgCO₂/km);
- VEF_CH₄: CH₄ emission factor for trucks (kgCH₄/km);
- CH₄_GWP: Global Warming Potential for CH₄ (tCO₂e/tCH₄);
- VEF_N₂O: N₂O emission factor for trucks (kgN₂O/km);
- N₂O_GWP: Global Warming Potential for N₂O (tCO₂e/tN₂O).

Therefore, the leakage emissions (LE_v) are the sum of the emissions from off-site transportation (BT_GHG_v) and from ash transportation (AT_GHG_v):

$$LE_v = BT_GHG_v + AT_GHG_v$$

The leakage emissions presented in the tables below were obtained when applying the monitored data to the equations presented above.

Emissions from off-site transportation (BT_GHG _v)									
Year	Emissions from off-site transportation (BT_GHG _v) [AP=A/AD*AC*(Y-1)/Z+V-AA*W]/10 (ktCO ₂ e/year)	Quantity of biomass consumed by project activity (QC _{biomass}) [AG] (t/year)	Truck average capacity for biomass transportation* (TC _{biomass}) [AF] (t)	Average round trip distance to biomass supply sites* (AVD _{biomass}) [AE] (km)	CO ₂ emission factor for trucks (VEF_CO ₂) [Y] (kgCO ₂ /km)	CH ₄ emission factor for trucks (VEF_CH ₄) [Z] (kgCH ₄ /km)	GWP for CH ₄ (CH ₄ _GWP) [V] (tCO ₂ e/tCH ₄)	N ₂ O emission factor for trucks (VEF_N ₂ O) [AA] (kgN ₂ O/km)	GWP for N ₂ O (N ₂ O_GWP) [W] (tCO ₂ e/tN ₂ O)
2011	0.131	91,581.99	15.9	20.5	1.097	6.0E-05	21	3.1E-05	310
2012	0.520	248,324.00	17.0	32.1	1.097	6.0E-05	21	3.1E-05	310
Total	0.650	339,905.99	-	-	-	-	-	-	-

Emissions from ash transportation (AT_GHG _v)									
Year	Emissions from ash transportation (AT_GHG _v) [AQ=AG/AF*AE*(Y-1)/Z+V-AA*W]/10 (ktCO ₂ e/year)	Quantity of ash produced by the project activity (Q _{ash}) [AG] (t/year)	Truck average capacity for ash transportation (TC _{ash}) [AF] (t)	Round trip distance to disposal site (AVD _{ash}) [AE] (km)	CO ₂ emission factor for trucks (VEF_CO ₂) [Y] (kgCO ₂ /km)	CH ₄ emission factor for trucks (VEF_CH ₄) [Z] (kgCH ₄ /km)	GWP for CH ₄ (CH ₄ _GWP) [V] (tCO ₂ e/tCH ₄)	N ₂ O emission factor for trucks (VEF_N ₂ O) [AA] (kgN ₂ O/km)	GWP for N ₂ O (N ₂ O_GWP) [W] (tCO ₂ e/tN ₂ O)
2011	0.047	8,191.70	15.2	79.6	1.097	6.0E-05	21	3.1E-05	310
2012	0.092	17,822.25	15.2	71.1	1.097	6.0E-05	21	3.1E-05	310
Total	0.140	26,013.95	-	-	-	-	-	-	-

Leakage emissions (LE_v)			
Year	Leakage emissions (LE_v) [AR=AP+AQ]	Emissions from off-site transportation (BT_GHG _v)	Emissions from ash transportation (AT_GHG _v)
	(ktCO ₂ e/year)	(ktCO ₂ e/year)	(ktCO ₂ e/year)
2011	0.178	0.131	0.047
2012	0.612	0.520	0.092
Total	0.790	0.650	0.140

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

E.4.1 Total project activity emissions equation:

As a small-scale project activity, Lages Project shall directly emit less than 15 ktonnes CO₂e/year, according AMS-III.E. (Version 07). The total project activity emissions ($PE_{v \text{ total}}$) are obtained by sum of PE_v (from Section E.2) with OT_GHG_v and with LE_v (from Section E.3):

$$PE_{v \text{ total}} = PE_v + OT_GHG_v + LE_v$$

The total project activity emissions presented in the table below were obtained when applying the values calculated in the Sections E.2 e E.3 to the equation presented above:

Total project activity emissions ($PE_{v \text{ total}}$) [sum of E.2 and E.3]				
Year	Total project activity emissions ($PE_{v \text{ total}}$) [AS=AN+AO+AR]	Project activity emissions (PE_v) [AN]	Emissions from on-site transportation (OT_GHG _v) [AO]	Leakage emissions (LE_v) [AR]
	(ktCO ₂ e/year)	(ktCO ₂ e/year)	(ktCO ₂ e/year)	(ktCO ₂ e/year)
2011	1.962	1.703	0.081	0.178
2012	5.411	4.618	0.181	0.612
Total	7.374	6.322	0.262	0.790

E.4.2. Emission reductions equations and calculation methods:

The emission reductions due to the project activity (ER_v) are obtained by the difference between BE_v (from Section E.1) and $PE_{v \text{ total}}$ in tCO₂ (From Section E.4.1):

$$ER_v = BE_v - PE_{v \text{ total}}$$

The project activity emission reductions presented in the table below were obtained when applying the values calculated in the Sections E.1 and E.4.1 to the equation presented above.

Emission reductions due to the project activity (ER_v) [difference between E.1 and D.4.1]			
Year	Emission reduction due to the project activity (ER_v) [AT=AM-AS]	Baseline methane emissions from biomass decay (BE_v) [AM]	Total project activity emissions ($PE_{v \text{ total}}$) [AS]
	(tCO ₂ e/year)	(tCO ₂ e/year)	(tCO ₂ e/year)
2011	102,484	104,447	1,962
2012	289,689	295,100	5,411
Total	392,174	399,547	7,374

The results for emission reductions are presented in the table below:

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
Total	399,547	6,584	0,790	392,174

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

This section includes a comparison of actual values of the emission reductions achieved during the monitoring period with the estimations in the registered PDD.

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO₂e)	312,546	392,174

E.6. Remarks on difference from estimated value in registered PDD

>> The emission reductions achieved over the designated monitoring period are 392,174 tonnes of CO₂e.

This amount is around 26% higher than the 312,546 tonnes of CO₂e which were estimated to be reduced according to the PDD in the same period due to the higher load factor of the cogeneration plant during this period and to a lower “torete” consumption, consequently treating a wood waste amount higher than that estimated in the PDD even with a lower emission factor due to reduced degradable organic carbon fraction dissimilated into landfill gas and higher degradable organic carbon in wood and wood production in IPCC2006 compared to IPCC1996.

The higher load factor was consequence of a drier season on the second semester of 2012, demanding additional thermal generation, besides the hydroelectric power generation, to supply the required power from Brazilian grid.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO₂e)	392,174	0

The table above takes, also, into consideration for “Actual values achieved up to 31 December 2012” the period of jun 2011 – dec 2011 and jan 2012 – dec 2012 resulting the value of 1,794,133 t CO₂e.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
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CDM PROJECT ACTIVITY MONITORING REPORT

Annex 1 – Wood waste by supplier

CONSUMED AMOUNTS IN 2011

Wood waste suppliers	Status (Active/Non-active)	Round trip distance to Lages Project (km) [AW]	Truck Capacity (tonnes) [AX]	Consumed wood waste amount (tonnes/month)												Total consumed amount (tonnes/year) [A]	Travels (un./year) [AY=A/AX]	Total travelled distance (km/year) [AZ=AW*AY]	
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec				
Lages region																			
Battistella	Inactive	2.0	14.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Sofia	Inactive	4.0	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Adelia Tealdi	Inactive	90.0	13.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Adelina Vieira dos Santos	Inactive	12.0	11.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Adilson Tadeu Coelho	Inactive	60.0	6.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Adriano Schweitzer da Silveira	Inactive	24.0	18.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Agro Comercial Zandonadi Ltda.	Inactive	200.0	16.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Agro Florestal Paequerê	Inactive	80.0	16.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Agroflorestal Serrana	Inactive	146.0	18.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Alceir de Jesus	Inactive	27.0	18.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Alcides Inaldo Ramos Rosa	Inactive	27.0	9.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Aldo Silveira flores	Inactive	22.0	16.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Alexandre Coelho de Oliveira	Active	14.0	9.5	0.00	0.00	0.00	0.00	0.00	0.00	374.92	385.17	74.72	351.44	240.43	234.32	46.44	1,707.44	180	2,516
Altair Benicio Luz	Inactive	120.0	10.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Anderson Chaves Pucci	Inactive	38.0	10.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Antonio Amarante	Inactive	70.0	17.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Antonio Carlos de Liz Stefen	Inactive	30.0	14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Antonio Emar Garcia e/ou Maria Ilza G. Garcia	Inactive	80.0	14.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Apretec Madeiras	Inactive	4.0	7.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Arapuel	Inactive	160.0	30.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Anistides Araujo	Inactive	10.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Arno Tillmann	Inactive	52.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Arno Volni Arruda	Inactive	52.0	16.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Benjamin Luiz Valentini	Inactive	80.0	15.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Biopine Madeiras Ltda - ME	Inactive	160.0	25.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Blue Forest Comercial Importadora LTDA	Active	5.0	15.3	0.00	0.00	0.00	0.00	0.00	0.00	1,149.81	1,275.83	310.02	1,169.56	1,162.68	1,055.03	540.55	6,663.48	436	2,178
Boa Esperança Matriz	Active	50.0	14.7	0.00	0.00	0.00	0.00	0.00	0.00	1,542.83	1,644.35	387.77	1,448.17	1,436.17	1,311.05	264.57	8,034.90	547	27,330
Boa Esperança Paiquerê	Inactive	146.0	14.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Bonete Madeiras	Inactive	160.0	36.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Brazilian Pine	Inactive	2.0	12.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Brazimoveis	Inactive	160.0	13.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Carauino Madeiras Ltda.	Inactive	420.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Celso Pedro Paese	Inactive	30.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Claudio Paes	Inactive	30.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Clesio Kauling	Inactive	70.0	15.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Clóvis Arruda Vieira	Inactive	50.0	16.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Coesa Agroflorestal	Inactive	68.0	13.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Comboni	Inactive	160.0	10.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Comércio de Madeira Beija Flor Ltda	Inactive	5.0	14.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Cooperativa Agropecuária de Tubarão	Inactive	460.0	24.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Darley Pedro Marini	Inactive	80.0	14.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Delcize Maria Zanotto Della Giustina	Inactive	160.0	14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Diogo Jaques Ventorini	Inactive	120.0	6.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Dinda Ind. e Com. de Madeiras Ltda	Active	5.0	7.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.29	136.52	13.09	0.00	213.90	27	135
Dirlete Terezina Pereira	Inactive	52.0	16.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Domingos da Silva Martins	Inactive	30.0	21.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0

F-CDM-MR

Edemar Antonio Rosseto	Inactive	60.0	13.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Eder Roberto Monn	Inactive	70.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Edeschons	Inactive	5.0	4.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Extrapac	Inactive	10.0	5.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
F. Klann	Inactive	60.0	8.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Finance Comercial	Inactive	72.0	14.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Floko	Inactive	100.0	16.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Flora Pinus	Inactive	6.0	3.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Genilda Correa	Inactive	90.0	10.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Gemino Vargas	Inactive	10.0	6.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Gerson Coimbra de Figueiredo Filho	Inactive	60.0	17.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Getulio Alves de Oliveira	Active	85.0	12.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.13	77.59	87.71	0.00	182.43	15	1,261	
Gilberto Muniz Lima	Active	35.0	15.2	0.00	0.00	0.00	0.00	0.00	382.31	374.49	15.89	377.06	379.35	350.85	0.00	1,879.97	124	4,329	
Gilmar Guanabara	Inactive	112.0	14.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Gilmar Sasso Correia	Inactive	100.0	16.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
GR Biomassa Ltda	Active	1.0	18.2	0.00	0.00	0.00	0.00	0.00	7,281.34	8,311.05	1,637.22	6,277.74	5,487.76	4,912.35	2,295.60	36,203.05	1,989	1,989	
Incohaut Madeiras Ltda	Inactive	240.0	23.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Indupinho	Inactive	100.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Indusflora	Inactive	30.0	17.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Istelio José Souto-Maior Camargo	Inactive	8.0	14.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Ivo Agostinetto	Active	3.0	18.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	63.77	37.84	73.62	0.00	175.24	10	29	
J.A. Maines	Inactive	170.0	16.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Jacyr Jose tomazi	Active	140.0	16.3	0.00	0.00	0.00	0.00	0.00	18.68	44.29	0.00	35.00	226.49	254.41	0.00	578.88	36	4,972	
Jair Philippi	Active	170.0	30.4	0.00	0.00	0.00	0.00	0.00	1,055.33	904.39	205.06	646.77	514.69	610.08	297.82	4,234.14	139	23,678	
Jair Philippi Filho	Inactive	220.0	24.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Janderson	Inactive	16.0	12.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Jaquirana	Inactive	220.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
JJ Thomazi	Inactive	25.0	29.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
João Lima de Andrade	Inactive	90.0	14.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
João Luis Ronsoni	Inactive	80.0	16.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
João Raimundo colombo	Inactive	10.0	11.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Joaquim da Silva Pacheco	Inactive	80.0	14.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Jose Albanir Ferreira da Silva	Inactive	40.0	8.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
José Alexandre Coelho	Inactive	100.0	17.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Jose Altenir	Inactive	30.0	17.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Jose Canozio Alves Pereira	Active	150.0	15.8	0.00	0.00	0.00	0.00	0.00	0.00	22.11	0.00	0.00	30.36	66.46	0.00	118.93	8	1,129	
José de Souza	Inactive	60.0	8.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
José Mariano da Silva	Inactive	50.0	15.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Juliano Sérgio Lopes	Inactive	170.0	18.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Klabin	Inactive	84.0	28.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Laminadora Catarinense	Inactive	4.0	11.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Lopes	Inactive	100.0	14.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Lucemar Schmitz	Inactive	80.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Luiz Antonio Stimamiglio	Inactive	30.0	17.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Luiz Fernando Figueiredo	Inactive	3.0	13.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Mad. Nossa Senhora de Lourdes Ltda	Inactive	300.0	16.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madbras	Inactive	40.0	6.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madebampi	Inactive	10.0	13.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madebins	Inactive	220.0	20.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madeira Boa Parada Ltda	Inactive	70.0	13.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madeira JTT Ltda	Active	60.0	24.3	0.00	0.00	0.00	0.00	0.00	590.58	655.98	143.13	539.13	453.16	426.40	114.99	2,923.37	120	7,218	
Madeira Lajes	Inactive	3.0	14.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madeira Norte Pontaltense	Inactive	160.0	17.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madeira Santa Paulina	Inactive	14.0	11.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madeira Santa Rita	Inactive	14.0	11.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Madeira Trevo Ltda	Active	16.0	11.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.58	48.92	43.12	8.60	159.22	14	225	
Madepar	Active	4.0	13.2	0.00	0.00	0.00	0.00	0.00	1,040.92	1,027.21	209.72	1,410.11	1,361.73	1,190.94	373.51	6,614.16	501	2,004	

F-CDM-MR

Magdalena Presser Einsfeld	Inactive	60.0	17.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Malke	Inactive	10.0	10.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Marcos Narciso Agostini	Inactive	110.0	17.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Marcus Aristoteles Zilli	Inactive	170.0	10.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Martins	Inactive	16.0	8.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Mengatto	Inactive	5.0	15.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Mercedes Webber dos Santos	Inactive	60.0	12.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
MJ Madeiras	Inactive	5.0	11.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
MS Madeiras Ltda	Active	160.0	24.7	0.00	0.00	0.00	0.00	0.00	608.92	592.43	132.18	478.65	406.29	434.67	204.89	2,858.02	116	18,514	
Multiform	Inactive	2.0	18.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Muniz & Padilha	Active	5.0	13.4	0.00	0.00	0.00	0.00	0.00	324.99	183.61	69.84	303.77	286.51	619.75	214.05	2,002.52	149	747	
Nelson Moraes de Camargo	Inactive	30.0	9.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Neri Antonio Chiodelli Junior	Inactive	160.0	12.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Nery Nunes de Carvalho	Inactive	100.0	13.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Neuri A. Chiodelli	Inactive	160.0	16.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Neuri Carlos Telles	Inactive	88.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Neuza Bianchini Arruda	Inactive	90.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Nilton Sabatini	Inactive	20.0	8.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Nilvo Santo Crestani	Active	3.0	4.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.70	0.00	3.70	1	3	
NP Madeiras	Active	180.0	19.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.96	0.00	0.00	53.96	3	496	
Olimpio Antonio Candiago	Active	40.0	7.6	0.00	0.00	0.00	0.00	0.00	17.61	0.00	0.00	26.45	15.34	4.94	0.00	64.35	8	339	
Olimpyo	Inactive	24.0	13.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Orestes Macedo da Luz	Inactive	55.0	12.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
P & P Móveis de Confecções Ltda	Active	5.0	14.8	0.00	0.00	0.00	0.00	0.00	1,070.51	1,493.40	305.88	1,377.28	1,035.43	1,259.73	558.11	7,100.34	480	2,399	
Pandolfo Madeiras Ltda	Active	3.0	9.5	0.00	0.00	0.00	0.00	0.00	881.27	1,164.11	103.60	649.27	947.35	884.04	183.62	4,813.26	507	1,520	
Paulino Granzotto	Inactive	16.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Paulo Afonso Leal Narciso	Inactive	80.0	17.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Paulo Cesar da Costa	Inactive	40.0	15.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Pedro de Quadra da Cruz	Active	150.0	12.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	1.19	0	14	
Pinus Bom Jesus	Inactive	360.0	25.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Pinus Forte	Inactive	3.0	9.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Pinusbras	Inactive	5.0	9.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Pisani	Active	18.0	15.0	0.00	0.00	0.00	0.00	0.00	95.14	64.93	0.00	0.00	90.91	93.55	100.01	444.55	30	533	
Polese	Inactive	26.0	7.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Prefeitura Municipal de Lages	Inactive	14.0	14.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Prime Timber	Inactive	220.0	17.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Raul Antonio Favero	Active	150.0	16.9	0.00	0.00	0.00	0.00	0.00	178.42	161.16	51.96	185.69	239.46	164.26	98.30	1,079.25	64	9,579	
Ravazin	Inactive	20.0	24.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Resíduos Bioenergia	Inactive	400.0	18.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Righez	Inactive	50.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
RF Serrania Ltda Epp	Active	4.0	13.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	408.96	426.74	426.56	149.03	1,411.29	107	428	
RP Madeiras Ind. e Com. Ltda	Active	30.0	14.4	0.00	0.00	0.00	0.00	0.00	434.41	398.48	93.00	394.16	349.32	249.03	128.73	2,047.13	142	4,265	
Sart	Inactive	78.0	10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Sérgio Bochart	Inactive	58.0	15.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Sérgio Luiz Bogorni	Inactive	50.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Serrania Campos de Palmas S.A	Inactive	70.0	4.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Silvio Muinz Matos	Inactive	80.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Tributto	Inactive	30.0	12.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Turbina	Inactive	130.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
União Fosforeira	Inactive	150.0	13.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Valdeci Nunes de Carvalho	Inactive	60.0	14.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Victorio Genuino Agostini	Inactive	30.0	14.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Vilmar Laudelino Ferreira	Inactive	66.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Vilso Isidoro	Inactive	40.0	15.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Wilson de souza Machado	Inactive	110.0	15.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Zilda Eliza Letti Pelizzaro	Active	120.0	15.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.32	0.00	13.32	1	104	
Total				0.00	0.00	0.00	0.00	0.00	17,048.00	18,703.00	3,740.00	16,283.00	15,445.00	14,783.00	5,580.00	91,582	5,751	117,932	

Weighted average round trip distance to Lages Project [AC=AZ/AY]

=

20.5 km

Weighted average truck capacity [AD=A/AY]

=

15.9 tonnes

PURCHASED AMOUNTS IN 2011

Wood waste suppliers	Purchased wood waste amount (tonnes/month)												Total purchased amount (tonnes/year)	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Lages region														
Battistella	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Sofia	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Adelia Tealdi	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Adelina Vieira dos Santos	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Adilson Tadeu Coelho	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Adriano Schweitzer da Silveira	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Agro Comercial Zandonadi Ltda.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Agro Florestal Paquerê	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Agroflorestal Serrana	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Alcides de Jesus	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Alcides Inaldo Ramos Rosa	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Aldo Silveira Flores	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Alexandre Coelho de Oliveira	0.00%	0.00%	0.00%	0.00%	0.00%	316.94	278.73	267.41	319.79	262.64	271.34	116.88	1,833.930	1.76%
Altair Benicio Luz	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Anderson Chaves Pucci	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Antonio Amarante	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Antonio Carlos de Liz Stefan	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Antonio Emar Garcia e/ou Maria Ilza G. Garcia	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Apretec Madeiras	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Araupel	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Anstides Araujo	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Arno Tilmann	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Arno Voini Arruda	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Benjamin Luiz Valentin	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Biopine Madeiras Ltda - ME	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Blue Forest Comercial Importadora LTDA	0.00%	0.00%	0.00%	0.00%	0.00%	972.00	6.74%	923.25	6.82%	1,109.49	8.39%	1,064.22	7.14%	1,360.56
Boa Esperança Matriz	0.00%	0.00%	0.00%	0.00%	0.00%	1,304.24	9.05%	1,189.93	8.79%	1,387.73	10.37%	1,317.74	8.89%	1,568.83
Boa Esperança Paquerê	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Bonete Madeiras	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Brazilian Pine	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Brazimoveis	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Caratuno Madeiras Ltda.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Celso Pedro Paese	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Claudio Paes	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Cleio Kauling	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Clovis Arruda Vieira	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Cossa Agroflorestal	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Comboni	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Comércio de Madeira Beija Flor Ltda	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Cooperativa Agropecuária de Tubarão	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Darley Pedro Martins	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Delcize Maria Zanotto Della Gustina	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Diogo Jacques Ventorini	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Dinda Ind. e Com. de Madeiras Ltda	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	58.50	0.39%	149.13	0.88%	15.17	0.09%
Difete Terezina Pereira	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%
Domingos da Silva Martins	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00	0.00%

[illegible]

[illegible]

"Torete" amount purchased from Battistella	=	0.00 tonnes/year	Percentage of "Torete" in the wood waste purchased from Battistella	=	0.00%
"Torete" amount purchased from Sofa	=	0.00 tonnes/year	Percentage of "Torete" in the wood waste purchased from Sofa	=	0.00%
"Torete" amount purchased from Spot Market	=	3,497.63 tonnes/year	Percentage of "Torete" in the wood waste purchased from Spot Market	=	5.28%

CONSUMED AMOUNTS IN 2012

Wood waste suppliers	Status (Active/Non-active)	Round trip distance to Lages Project (km) [AW]	Truck Capacity (tonnes) [AX]	Consumed wood waste amount (tonnes/month)												Total consumed amount (tonnes/year) [A]	Travels (un./year) [AY=A/AX]	Total travelled distance (km/year) [AZ=AW*AY]
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Lages region																		
Battistella	Inactive	2.0	14.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Sofia	Inactive	4.0	4.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Adelia Tealdi	Inactive	90.0	13.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Adelina Vieira dos Santos	Inactive	12.0	11.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Adilson Tadeu Coelho	Inactive	60.0	6.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Adriano Schweitzer da Silveira	Inactive	24.0	18.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Agro Comercial Zandonadi Ltda.	Inactive	200.0	16.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Agro Florestal Paequerê	Inactive	80.0	16.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Agroflorestal Serrana	Inactive	146.0	18.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Alceir de Jesus	Inactive	27.0	18.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Alcides Inaldo Ramos Rosa	Inactive	27.0	9.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Aldo Silveira flores	Inactive	22.0	16.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Alexandre Coelho de Oliveira	Active	14.0	9.5	71.27	9.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.983	9	119
Altair Benicio Luz	Inactive	120.0	10.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Anderson Chaves Pucci	Inactive	38.0	10.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Antonio Amarante	Inactive	70.0	17.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Antonio Carlos de Liz Stefen	Inactive	30.0	14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Antonio Ermar Garcia e/ou Maria Ilza G. Garcia	Inactive	80.0	14.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Apretec Madeiras	Inactive	4.0	7.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Araupel	Inactive	160.0	30.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Anistides Araujo	Inactive	10.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Arno Tillmann	Inactive	52.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Arno Volni Arruda	Inactive	52.0	16.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Benjamin Luiz Valentini	Inactive	80.0	15.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Biopine Madeiras Ltda - ME	Inactive	160.0	25.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Blue Forest Comercial Importadora LTDA	Active	5.0	15.3	1099.34	1369.27	1724.92	2435.53	2279.92	2391.01	2808.21	3245.14	3007.80	2923.33	2217.89	2219.13	27721.498	1,812	9,059
Boa Esperança Matriz	Active	50.0	14.7	1432.30	1453.65	1911.73	2073.48	2281.17	1442.87	1819.63	1979.41	1683.76	1513.13	1246.84	1161.22	19999.177	1,360	68,024
Boa Esperança Paiquerê	Inactive	146.0	14.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Bonete Madeiras	Inactive	160.0	36.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Brazilian Pine	Inactive	2.0	12.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Brazimoveis	Inactive	160.0	13.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Caraúno Madeiras Ltda.	Inactive	420.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Celso Pedro Paese	Inactive	30.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Claudio Paes	Inactive	30.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Clesio Kauling	Inactive	70.0	15.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Clóvis Arruda Vieira	Inactive	50.0	16.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Coesa Agroflorestal	Inactive	68.0	13.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Comboni	Inactive	160.0	10.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Comércio de Madeira Beija Flor Ltda	Inactive	5.0	14.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Cooperativa Agropecuária de Tubarão	Inactive	460.0	24.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Darley Pedro Martini	Inactive	80.0	14.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Delcize Maria Zanotto Della Giustina	Inactive	160.0	14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Diogo Jaques Ventorini	Inactive	120.0	6.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Dinda Ind. e Com. de Madeiras Ltda	Active	5.0	9.2	0.00	0.00	0.00	0.00	0.00	0.00	10.74	0.00	0.00	0.00	0.00	0.00	10.735	1	6
Diflete Terezina Pereira	Inactive	52.0	16.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0
Domingos da Silva Martins	Inactive	30.0	21.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	0

[illegible]

F-CDM-MR

		Inactive	60.0	17.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Magdalena Presser Einsfeld		Inactive	10.0	10.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Malke		Inactive	110.0	17.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Marcos Narciso Agostini		Inactive	170.0	10.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Marcus Aristoteles Zilli		Inactive	16.0	8.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Martins		Inactive	5.0	15.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Mengatto		Inactive	60.0	12.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Mercedes Webber dos Santos		Inactive	5.0	11.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
MJ Madeiras		Inactive	160.0	24.7	519.18	569.94	786.24	1115.01	951.56	916.75	976.23	961.95	873.55	814.75	885.52	706.42	10077.100	408	65,277
MS Madeiras Ltda		Active	2.0	18.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	
Multifom		Inactive	5.0	13.4	468.73	330.28	1000.29	666.35	380.20	44.40	0.00	0.00	0.00	48.77	130.90	105.21	3175.132	237	1,185
Muniz & Padilha		Active	30.0	9.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Nelson Moraes de Camargo		Inactive	160.0	12.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Neri Antonio Chiodelli Junior		Inactive	100.0	13.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Nery Nunes de Carvalho		Inactive	160.0	16.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Neuri A. Chiodelli		Inactive	88.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Neuri Carlos Telles		Inactive	90.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Neuza Bianchini Arruda		Inactive	20.0	8.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Nilton Sabatini		Inactive	3.0	13.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Nilvo Santo Crestani		Inactive	180.0	22.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4328.27	5659.68	2776.49	12764.445	565	101,664
NP Madeiras		Active	40.0	9.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Olimpio Antonio Candiago		Inactive	24.0	13.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Olimpyo		Inactive	14.0	12.6	0.00	0.00	0.00	0.00	224.56	295.23	236.44	483.87	456.63	401.12	336.66	227.20	2661.715	211	2,957
Oliver Comercio Atacadista de Madeiras Ltda		Active	55.0	12.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Orestes Macedo da Luz		Inactive	5.0	14.8	1350.40	1376.74	2062.93	2800.37	2197.33	1600.65	1741.21	1958.69	1675.07	1426.66	1516.17	1246.08	20952.298	1,416	7,078
P & P Móveis de Confeções Ltda		Active	3.0	9.5	555.95	637.77	747.33	1032.50	727.21	639.72	593.55	634.27	445.67	606.07	512.03	634.71	7766.782	818	2,453
Pandolfo Madeiras Ltda		Active	16.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Paulino Granzotto		Inactive	80.0	17.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Paulo Afonso Leal Narciso		Inactive	40.0	15.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Paulo Cesar da Costa		Inactive	150.0	14.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Pedro de Quadra da Cruz		Inactive	360.0	25.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Pinus Bom Jesus		Inactive	3.0	9.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Pinus Forte		Inactive	5.0	9.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Pinusbras		Inactive	18.0	15.0	111.22	32.55	0.00	244.40	0.00	0.00	0.00	0.00	0.00	306.20	428.99	554.15	1677.497	112	2,013
Pisani		Active	26.0	7.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Polese		Inactive	14.0	14.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Prefeitura Municipal de Lages		Inactive	220.0	17.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Prime Timber		Inactive	150.0	16.9	208.63	413.98	524.87	295.07	272.36	259.60	248.62	341.39	399.44	368.73	349.34	256.39	3938.428	233	34,956
Raul Antonio Favero		Active	20.0	24.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Ravazin		Inactive	400.0	18.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Resíduos Bioenergia		Inactive	50.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Righez		Inactive	4.0	13.2	464.76	391.18	671.55	893.50	917.44	581.20	528.71	552.87	645.95	612.82	588.80	501.20	7349.978	557	2,227
RF Serrania Ltda Epp		Active	110.0	15.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	256.20	0.00	638.42	2091.55	2986.172	198	21,754
Ric Cavacos de Madeira Ltda		Active	30.0	14.4	334.64	407.36	513.84	755.83	641.53	461.36	490.64	487.73	457.96	375.32	358.56	338.20	5622.969	390	11,715
RP Madeiras Ind. e Com. Ltda		Active	78.0	10.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Sart		Inactive	58.0	15.4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Sérgio Bochert		Inactive	50.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Sérgio Luiz Bogomi		Inactive	70.0	4.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Serrania Campos de Palmas S.A		Inactive	80.0	15.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Silvio Muinz Matos		Inactive	30.0	12.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Tnbutto		Inactive	130.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Turbina		Inactive	150.0	13.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
União Fosforeira		Inactive	60.0	14.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Valdeci Nunes de Carvalho		Inactive	30.0	14.6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Victorio Genuino Agostini		Inactive	66.0	16.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Vilmar Laudelino Ferreira		Inactive	40.0	15.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Vilso Isidoro		Inactive	110.0	15.8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Wilson de souza Machado		Inactive	120.0	14.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0	
Zilda Eliza Letti Pelizzaro		Inactive																	
Total					14544.00	13501.00	20308.00	26655.00	25734.00	16973.00	17880.00	19825.00	20192.00	23255.00	25521.00	23936.00	248.324	14.596	469,010

Weighted average round trip distance to Lages Project [AC=AZ/AY]

$$= 32.1 \text{ km}$$

Weighted average truck capacity [$AD=A/Y$]

= 17.0 tonnes

PURCHASED AMOUNTS IN 2012

Wood waste suppliers	Purchased wood waste amount (tonnes/month)																				Total purchased amount (tonnes/year)	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec										
Lages region																						
Battistella		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Sofia		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Adelia Tealdi		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Adelina Vieira dos Santos		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Adilson Tadeu Coelho		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Adriano Schweitzer da Silveira		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Agro Comercial Zandonadi Ltda.		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Agro Florestal Paquerê		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Agroflorestal Serrana		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Alceir de Jesus		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Alcides Inaldo Ramos Rosa		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Aldo Silveira flores		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Alexandre Coelho de Oliveira	76.400	0.49%	9.310	0.07%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Altair Benicio Luz		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Anderson Chaves Pucci		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Antonio Amaranete		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Antonio Carlos de Liz Stefan		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Antonio Emar Garcia e ou Maria Ilza G. Garcia		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Apretec Madeiras		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Araupel		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Anistides Araujo		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Arno Tillmann		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Arno Volni Arruda		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Benjamin Luiz Valentini		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Biopine Madeiras Ltda		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Blue Forest Comercial Importadora LTDA	1178.540	7.56%	1311.800	10.14%	1340.450	8.49%	1345.740	9.14%	1642.220	8.86%	2044.610	14.09%	2548.970	15.71%	2615.170	16.37%	2434.540	14.90%	3077.560	12.57%		
Boa Esperança Matriz	1535.490	9.85%	1392.640	10.77%	1485.620	9.41%	1145.690	7.78%	1643.120	8.86%	1233.830	8.50%	1651.650	10.18%	1595.150	9.98%	1362.850	8.34%	1592.960	6.51%		
Boa Esperança Paiquerê						0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Bonete Madeiras		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Brazilian Pine		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Brazimoveis		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Carauino Madeiras Ltda.		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Celso Pedro Paese		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Claudio Paes		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Clesio Kauling		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Clóvis Arruda Vieira		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Coesa Agroflorestal		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Comboni		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Comércio de Madeira Beija Flor Ltda		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Cooperativa Agropecuária de Tubarão		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Darley Pedro Martins		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Delcize Maria Zanotto Della Giustina		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Diego Jaques Ventozini		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Dinda Ind. e Com. de Madeiras Ltda		0.00%		0.00%		0.00%		0.00%		0.00%	9.180	0.06%	0.00%		0.00%		0.00%		0.00%	9.180		
Dirlete Terezina Pereira		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		
Domingos da Silva Martins		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%		

[illegible]

[illegible]

"Torete" amount purchased from Battistella	=	0.00 tonnes/year	Percentage of "Torete" in the wood waste purchased from Battistella	=	0.00%
"Torete" amount purchased from Sofia	=	0.00 tonnes/year	Percentage of "Torete" in the wood waste purchased from Sofia	=	0.00%
"Torete" amount purchased from Spot Market	=	2,781.79 tonnes/year	Percentage of "Torete" in the wood waste purchased from Spot Market	=	1.30%