



VERIFICATION REPORT

EcoSecurities Group Plc NOBRECEL Biomass energy project

SGS Climate Change Programme

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NOBRECCEL Biomass energy project	SGS United Kingdom Limited
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1	EcoSecurities Group Plc

Summary:

SGS United Kingdom Limited has performed the Voluntary Emission Reduction verification of the NOBRECCEL Biomass energy project. A site visit was conducted to verify the data submitted in the monitoring report.

NOBRECCEL Biomass energy project is located at the Brazilian cellulose and paper company NOBRECCEL, in Pindamonhangaba city, São Paulo state. The project activity consists of renewable energy generation by installing a new biomass boiler and a new turbine. This new cogeneration plant replaces fuel-oil-fired boilers and reduces the electricity consumption from the grid. In the baseline scenario, NOBRECCEL would continue using electricity generated from the grid, burning fossil fuel oil to produce steam and dumping or leaving to decay the biomass residues.

SGS confirms that the project is implemented in accordance with the Project Document. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 388,452 tCO₂e during period 01/01/2002 to 31/12/2007.

Subject:	Indexing Terms	
VCS 1 Verification		
Team Members:		
Fabian Gonçalves – Lead Assessor Alex Pegoretti – Local Assessor		
Technical Review:	☒ No Distribution (without permission from the Client or responsible organisational unit)	
12 th March 2008 and 25 th March 2008		
Authorized Signatory:		
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Abbreviations

ANEEL	Electrical Energy National Agency
CAR	Corrective Action Request
CO ₂	Carbon Dioxide
CO ₂ eq	Carbon Dioxide Equivalent
CRQ	Chemical Recovery Boiler
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
FAR	Forward Action Request
GHG	Green House Gas(es)
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
NCV	Net Calorific Value
NIR	New Information Request
NPV	Net Present Value
ONS	System National Operator
PD	Project Description
SELIC	Special System of Liquidation and Custody
VCS	Voluntary Carbon Standard
VER	Voluntary Emission Reduction

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1. Introduction

1.1 Objective

NOBRECCEL S.A. has commissioned an independent verification by SGS United Kingdom Ltd. of its reported greenhouse gas emission reductions from the NOBRECCEL Biomass energy project. The verifiers have reviewed the GHG data collected to date for the period between 01/01/2002 and 31/12/2007.

The purposes of this verification exercise are, by review of objective evidence, to independently review:

- Whether the project has resulted in emission reductions as declared by the organisation or GHG project's GHG assertion
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

1.2 Scope and Criteria

This engagement covers verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the NOBRECCEL Biomass energy project.

Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the defined reporting period.

1.3 VCS project Description

The project activity is constituted by the replacement of four small boilers (two oil boilers and two biomass boilers) for a new biomass boiler and a new turbine. The new cogeneration plant reduces the electricity consumption from the grid, avoids the firing of fossil fuel (7A oil) and avoids methane emissions from dumping or leaving to decay the biomass residues.

The biomass residues used to produce high-pressure steam will be both by-products from NOBRECCEL core business (cellulose and paper production) and biomass purchased from third parties (located near the project developer). Also, a turbine and a generator were installed to produce electricity (reducing the consumption from the grid).

Technical specifications of the new equipments:

- Biomass boiler with capacity of 60 tonnes of steam/hour at 450°C and 45bar; manufactured by Equipalcool, model 60-v-2-s;
- Turbine manufactured by TGM;
- Generator WEG with an installed capacity of 8 MW;
- Meters: a MFR-3 Woodward Multifunction Relay (electricity meter), a YOKOGAWA steam flow meter controlled by a supervisory system and a Toledo weight bridge.

The project follows the "Tool" version 4 to demonstrate additionality.

Step 0: This project started in year 2000, before COP 7 and Marrakech Accords, as a prompt start project. It was pre-validated by SGS (contract signed on 28th September 2000) and received a preliminary approval letter from the Brazilian government on 6th September, 2001. Both documents were checked as evidence prior to the start of the project activity.

Step 1: The project developer must define one more alternative to the project activity (Scenario 3) in the step 1 of the assessment and demonstration of additionality (see page 19 of PD), as defined in the Tool for demonstration and assessment of additionality (version 04). CAR 11 was raised. The project developer has

included scenario 3 (consider the use of natural gas as energy source) in “sub-step 1a” of the assessment and demonstration of additionality. CAR 11 was closed out.

Scenario 1 was selected. As verified during assessment the continuation of current practice and the project not undertaken as a CDM project are consistent with laws and regulations. The steam could continue to be generated by existing boilers, electricity imported from the grid and biomass being left to decay.

Step 2: the project developer selected the investment comparison analysis. The NPV was used as a financial indicator for comparison. The discount rate used is the SELIC. The SELIC rate is defined by Central Bank of Brazil. The average SELIC value in the years 1998-2001 is 20%. The assessment team verified the worksheet with financial analysis. The following data presented were checked during assessment:

- Investments – the verification team verified all documents related to the project implementation (invoices of the boiler and equipments, financial report). Interviews and documented evidence have shown that the final project costs were higher than planned;
- Costs – confirmed by internal reports (Operating and maintenance costs reports);
- The indirect revenues are related to not buying fuel oil and the electricity from the grid;
- The NPV presented is negative and represents a financial barrier for the project activity. The NPV without carbon credit is R\$ (9,877,000) and considering carbon credits is R\$ (5,702,000). It was concluded that the project is not attractive for investors;
- A sensitivity analysis was conducted altering some parameters. The NPV is still negative and not financially attractive.

The assessment team repeated the financial analysis using the verified data collected during site visit (investments, costs, etc). Sensitivity analysis was also repeated considering the main parameters that affect directly the NPV; reducing investment and operation/maintenances costs, and increasing fuel oil saving and discount tax. The NPV calculated is still negative confirming the financial analysis presented in the PD.

Step 3: barrier analysis was conducted to support the financial analysis presented. Economical barrier presents the financial condition of NOBRECCEL when the decision to implement the project activity. Project developer presented a graphic with the indebtedness degree of NOBRECCEL S/A Celulose e Papel compared to the net worth, from 1997 to 2006. Till 2007 the net worth is lower than the indebtedness. After problems occurred since 2002 the project is waiting for the VER revenue to reduce the risks and financial problems.

Step 4: common practice analysis is based on the project sector. Source of data presented were checked.

According to the list of thermoelectric plants registered in ANEEL (National Electricity Agency) in the NOBRECCEL region the common practice is the use of fossil fuel. The use of natural gas was considered as a possible scenario but not feasible since it is more expensive than fuel oil (based on the quantity of natural gas consumed by NOBRECCEL). NOBRECCEL is the first plant in the region to use biomass as fuel.

The applicable steps of the “Tool” were assessed correctly and it was concluded that the project is additional due to the financial analysis presented.

1.4 Level of Assurance

The parameters and values presented in the monitoring report were assessed through review of detailed project documentation and production records, interviews with personnel at NOBRECCEL and EcoSecurities, observation of established monitoring and reporting practices and assessment of the reliability of measuring equipment.

Information which was not available during site visit was reported as New Information Request (NIR), following submission of additional information, monitoring and operational records, and the reconsolidation of all reported data was assessed again.

1.5 Project Activity and Period Covered

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.



Title of Project Activity:	NOBRECEL Biomass energy project
UNFCCC Registration Number:	N/A
Monitoring Period Covered in this Report	01/01/2002 and 31/12/2007
Project Participants	NOBRECEL S/A Celulose e Papel (Private Entity – Project Developer) EcoSecurities Group Plc (Private Entity – Carbon Advisor)
Location of the Project Activity:	Rodovia Vereador Abel Fabrício Dias, s/nº, Km 155, Distrito de Moreira César, Caixa Postal 1, Zipcode 2400-970, in the municipality of Pindamonhangaba, São Paulo State. GPS location: 22° 54' 07.7" S, 45° 23'35.3" W

2. Methodology

2.1 General Approach

SGS's approach to the verification is a two-stage process.

In the first stage, SGS completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;

- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

At the end of this stage, SGS produced a Periodic Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

Using the Periodic Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved a site visit and a desk review of the monitoring report. This verification report describes the findings of this assessment.

2.2 Verification Team for this Assessment

Name	Role	SGS Office
Fabian Gonçalves	Lead Assessor	SGS Brazil
Alex Pegoretti	Local Assessor (trainee)	SGS Brazil

2.3 Means of Verification

2.3.1 Review of Project Documentation

The Project Document, the monitoring report submitted by the client and additional background documents related to the project performance were reviewed. A complete list of all documents reviewed is attached in section 5 of this report.

2.3.2 Onsite Inspections

As part of the verification, the following on-site inspections have been performed

Location: Pindamonhangaba/SP	Date: 10-11 January 2008
Coverage	Source of Information / Persons Interviewed
Management Approach to GHG commitment	Bruna da Silva Rossi – Ecoefficiency analyst
Assessment of Project Boundary Quality Assurance – Management and operating system Emergency procedures	Francisco Paulo dos Santos – Coordinator
CDM monitoring & reporting documentation	Luis Felipe Kopp – Monitoring Manager
Monitoring Plan and QA/QC Procedures	Thiago Viana – Project Manager

2.3.3 Review of Monitoring Results and Verification of the Correct Application of Monitoring Methodology

Parameter	Monitoring
BF_k - Quantity of biomass residue combusted in the project plant, on a wet basis	The weight bridge operator manually writes the truck load by subtracting the gross weight from the dry weight.
EG_{project plant} - Net quantity of electricity generated in the project power plant	Data are obtained automatically using calibrated meter, but they're manually transferred to the monitoring spreadsheet.
EG_{total} - Net quantity of electricity generated in all power units at the project site, including the new power unit installed as part of the project activity and any previously existing units.	Data are obtained automatically using calibrated meter, but they are manually transferred to the monitoring spreadsheet.
Q_{project plant} - Net quantity of heat generated from firing biomass in the project plant	Data are obtained automatically using calibrated meter, but they're manually transferred to the monitoring spreadsheet and a unit conversion is required (from tons to MWh).
Q_{total} - Net quantity of heat generated in all cogeneration units at the project site, including the cogeneration unit installed as part of the project activity and any previously existing units	Data are obtained automatically using calibrated meter, but they're manually transferred to the monitoring spreadsheet and a unit conversion is required (from tons to MWh).
W - Total amount of organic waste prevented from disposal (tonnes)	The weight bridge operator manually writes the truck load by subtracting the gross weight from the dry weight.
AVD - Average round trip distance (from and to) between biomass fuel supply sites and the project site	It was verified that the standard value used (150km) is conservative.
TL - Average truck load of the trucks used for transportation of biomass	It was verified that the standard value used is conservative.
F - Fraction of methane captured at the SWDS and flared, combusted or used in another manner	The project developer has researched all local landfills and it was confirmed that they didn't capture or flare any methane.
GWP_{CH4} - Global warming potential for CH ₄	The global warming potential for methane is defined ex-ante and will be annually checked.
EF_{CO2,BL,heat,i} - CO ₂ emission factor of	The emission factor is defined ex-ante and should be re-

the fossil fuel type <i>i</i> used for heat generation in the absence of the project activity	calculated in the next crediting period.
EC_{shredder/chopper} - Electricity consumed by shredder/chopper of the project activity	NOBRECEL monitors the shredder stop hours (with manual data transfer) and then multiplies them by the installed capacity of the chopper.
EF_{CO2,FF,j} - CO ₂ emission factor for fossil fuel type <i>i</i>	The emission factor is defined ex-ante and should be re-calculated in the next crediting period.
FF_{project plant,i} - Quantity of fuel oil combusted in the biomass residue fired power plant	As verified in the manufacturer's manual, the project boiler can only fire biomass residues (wood chips).
FF_{project site,i} - Quantity of diesel oil combusted at the project site for other purposes that are attributable to the project activity	It was verified that the standard value used (59ton) is conservative for the tractor consumption.

2.3.4 Determinations of the Reductions in GHG Emissions

Parameter	Reported Value	Verified Value
BFk - Quantity of biomass residue combusted in the project plant, on a wet basis	721,626 ton	721,626 ton
EG _{project plant} - Net quantity of electricity generated in the project power plant	105,274 MWh	111,275 MWh
EG _{total} - Net quantity of electricity generated in all power units at the project site, including the new power unit installed as part of the project activity and any previously existing units.	116,892 MWh	123,404 MWh
Q _{project plant} - Net quantity of heat generated from firing biomass in the project plant	1,985,890 MWh	2,099,959 MWh
Q _{total} - Net quantity of heat generated in all cogeneration units at the project site, including the cogeneration unit installed as part of the project activity and any previously existing units	3,571,977 MWh	3,700,800 MWh
W - Total amount of organic waste prevented from disposal (tonnes)	721,626 ton	721,626 ton
AVD - Average round trip distance (from and to) between biomass fuel supply sites and the project site	150 Km	150 Km
TL - Average truck load of the trucks used for transportation of biomass	10 ton	10 ton
F - Fraction of methane captured at the SWDS and flared, combusted or used in another manner	0	0
GW _{PCH4} - Global warming potential for CH ₄	21	21
EF _{CO2,BL,heat,i} - CO ₂ emission factor of the fossil fuel type <i>i</i> used for heat generation in the absence of the project	3.1064 tCO ₂ /ton fuel	3.1064 tCO ₂ /ton fuel

activity		
ECshredder/chopper - Electricity consumed by shredder/chopper of the project activity	3,899 MWh	4,081 MWh
EFCO ₂ ,FF,j - CO ₂ emission factor for fossil fuel type i	0.0774 tCO ₂ /GJ	0.0774 tCO ₂ /GJ
FFproject plant,i - Quantity of fuel oil combusted in the biomass residue fired power plant	0	0
FFproject site,i - Quantity of diesel oil combusted at the project site for other purposes that are attributable to the project activity	355 ton	355 ton

2.3.5 Review of Additional Data from other Sources if appropriate

Additional data used:

- Emission factor 0.2823 tCO₂/MWh calculated using data information from ONS, the Brazilian electricity system manager, and was provided in the “NOBRECCEL biomass workbook”.
- CO₂ emission factor for the trucks 0.00077 tCO₂/Km.
- Average calorific value of the fuel oil co-fired 40.1514 GJ/ton applied.

2.4 Reporting of Findings

As an outcome of the verification process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the team shall raise a New Information Request (NIR) specifying what additional information is required.

Where a non-conformance arises the team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- the verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;
- the verification has identified misstatements in the reported emission reductions. Emission reductions with misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions

The verification process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification actors. These have no impact upon the completion of the verification activity.

Corrective Action Requests and New Information Requests are detailed in Periodic Verification Checklist. The Project Developer is given the opportunity to “close” outstanding CARs and respond to NIRs and Observations.

2.5 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment Team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

3. Verification Findings

3.1 *Remaining Issues, including any material discrepancy, FAR's from Previous Validation*

There are no issues pending..

3.2 *Project Implementation*

The physical components, project boundaries are in conformity with description in the PD and monitoring report. No additional emission sources used for project activity.

Additional documents were checked in order to assure project additionality.

No evidence to support the value of 5% (of investment) applied to contingency was provided during the financial analysis (see Financial Analysis NOBRECCEL Biomass spreadsheet). NIR 4 was raised. There is no evidence and this value is not applicable in the financial analysis. The project developer has removed the contingency costs from the financial analysis spreadsheet. NIR 4 was closed out.

No evidence to support the value of 2% (of investment) applied to insurance was provided during the financial analysis (see Financial Analysis NOBRECCEL Biomass spreadsheet). NIR 5 was raised. There is no evidence and this value is not applicable in the financial analysis. The project developer has removed the insurance costs from the financial analysis spreadsheet. NIR 5 was closed out.

It was not specified what is included in the tax rate (30% of investment) used in the financial analysis (see Financial Analysis NOBRECCEL Biomass spreadsheet). NIR 6 was raised. As there is no evidence of the 30% tax rate, the analysis was done without tax. When including the tax in the financial analysis the NPV will be lower than the presented in the PD. The project developer has removed the tax fee costs from the financial analysis spreadsheet. NIR 6 was closed out.

The project developer has applied a large value and a large period on the depreciation rate during the financial analysis. The depreciation value cannot exceed the investment and can only be applied on equipment (not on all investment costs, such as labour and external services costs spent during the boiler construction). CAR 14 was raised. The project developer has removed depreciation from the NPV calculation. The "other costs" were included as operating and maintenance costs. SGS has verified that the "other costs" are indeed operating and maintenance costs (see ref. 26). CAR 14 was closed out.

3.3 *Completeness of Monitoring*

No calibration certificates were presented for the following equipment:

1. Toledo weight bridge – Model 8530 Cougar (60t capacity), Serial Number: 51625991-5HB;
2. PT0266 YOKOGAWA steam flow meter – Model EJA 110A;
3. MFR-3 Woodward Multifunction Relay (electricity meter).

CAR 1 was raised. NOBRECCEL sent calibration certificate of weight bridge and steam flow meter accordingly. Based on evidences provided by the project developer (Ref.39 and Ref.40), it has been accepted that no periodic calibration is necessary for the Multifunction Relay. CAR 1 was closed out.

No default value from references that supports the value of 85% applied to average net energy efficiency of heat generation in the boilers that would generate heat in the absence of the project activity were presented in section B.6.2 of PD (page 29). During site visit only internal documents were verified. NIR 2 was raised. NOBRECCEL considered historical data for calculating the heat efficiency. The fuel NCV and steam production has been monitored for years and the factor 85% was representative for comparison the net energy input and net energy output. Thus, this source of information was used and can be considered more representative than the manufacturer default value. NIR 2 was closed out.

The net quantity of electricity generated in the project power plant (8 MWh turbine) presented in the NOBRECCEL biomass workbook (in years 2004 and 2005), slightly diverges from data collected locally (by an

electricity meter), as shown below. CAR 8 was raised. All electricity data in the workbook were revised and the data collected by the electricity meter was used. The emission reduction calculation was updated. CAR 8 was closed out.

The quantity of steam produced from both biomass boiler and black liquor recovery boiler (CRQ) presented in the NOBRECCEL biomass workbook (2003, 2005 and 2006), slightly diverges from data collected locally (by steam flow meters). CAR 9 was raised. The project developer has revised the quantity of steam in the NOBRECCEL biomass workbook accordingly. CAR 9 was closed out.

No references (including the hyperlink) tot supports the value of 0,00077 tCO₂/km applied to average CO₂ emission factor for trucks ($EF_{km, CO_2, y}$) and the value of 40,1514 GJ/ton applied to average calorific value of the fuel oil co-fired ($NCV_{Fuel\ oil}$) were presented in section B.6.2 of PD (page 28). NIR 12 was raised. The project developer has included the source of CO₂ emission factor for the trucks ($EF_{km, CO_2, y}$) and the source of average calorific value of the fuel oil co-fired ($NCV_{Fuel\ oil}$). Both values are correct, as verified in the "1996 IPCC Guidelines for National Greenhouse Gas Inventories" and in the "2005 Brazilian Energetic Balance, respectively. NIR 12 was closed out.

The project developer does not include the shredder operational hours in 2005 in the VER calculations spreadsheet (see NOBRECCEL biomass workbook). NIR 13 was raised. The project developer has included the shredder operational hours in 2005 in the VER calculations spreadsheet. NIR 13 was closed out.

3.4 Accuracy of Emission Reduction Calculations

The project developer has used an old grid emission factor (2002-2004) for the South/Southeast/Midwest Interconnected System ($EF_{grid, y} = 0,2611 \text{ t CO}_2\text{e/MWh}$). It is necessary to use the current South/Southeast/Midwest Interconnected System grid emission factor (2004-2006 period). CAR 10 was raised. The project developer has revised the grid emission factor in the NOBRECCEL biomass workbook accordingly. The correct EF_{grid} is 0.2823 tCO₂/MWh. CAR 10 was closed out.

3.5 Quality of Evidence to Determine Emission Reductions

Critical parameters used for the determination of the Emission Reductions are discussed in section 2.3.3 above.

No evidences regarding the net quantity of heat generated during the most three years in all boilers at the project site, generated from firing the same type(s) of biomass residues as in the project plant ($Q_{biomass, historic, 3yr}$), were presented (see section B.6.2 of PD, page 25). CAR 7 was raised. The project developer has revised the PD and the workbook with the correct values. CAR 7 was closed out.

3.6 Management and Operational System

NOBRECCEL system does not provide routines (and also documented procedures) for the archiving and control of all data required for verifying the project's performance in the context of consecutive verifications. CAR 3 was raised. The project developer will develop a Monitoring Manual with all information updated about maintenance and calibration schedules and monitoring responsible for the next monitoring period. CAR 3 was closed out. FAR 1 was raised.

FAR 1: The project developer needs to develop a documented procedure for the archiving and control of all data required for verifying the project's performance in the next monitoring period. NOBRECCEL should issue a Monitoring Manual with all information updated about maintenance and calibration schedules and monitoring responsibilities for each step, as described in the PD, page 52.

The company has made a Green House Gas Emission Manual which states management system and monitoring and reporting procedures. The monitoring team at the shop floor level (comprising of Boiler Operator, Instrumentation Supervisor, Turbine Operator, and Electrician) records the daily observations and report the same in the plant log books. The competency of the operators was checked by interviewing them about their understanding for green house gases and found satisfactory. The daily report generated by the floor level team is then sent to the Shift In charge. The shift in charge reviews the daily report, transforms it into the soft format and forwards the same to the general manager (cogeneration plant). The reports were checked for the signatures of the general manager and precision in the values and all was found in compliance.



In order to avoid any kind of discrepancy in the monitoring process, regular internal audits are planned. The audit team comprise of the in house technical experts and the senior officials from the corporate office.

4. Verification Conclusion

SGS United Kingdom Ltd. has been engaged by EcoSecurities Group Plc to examine the greenhouse gas (GHG) emission reductions reported from the NOBRECCEL Biomass energy project, resulting to 388,452 tonnes of CO₂ equivalents. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported for the period 01/01/2002 to 31/12/2007 and the PD of NOBRECCEL Biomass energy project.

The management of NOBRECCEL and EcoSecurities are responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project Monitoring and Verification Plan. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project is the responsibility of the management of NOBRECCEL and EcoSecurities.

It is our responsibility to express an independent GHG validation and verification opinion on the GHG emissions from the project for the period 01/01/2002 to 31/12/2007 and on the calculation of GHG emission reductions from the project.

The verification approach was based on the requirements as defined in Voluntary Carbon Standard VCS 1. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the period 01/01/2002 to 31/12/2007. We planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that the amount of GHG emission reductions for the period 01/01/2002 to 31/12/2007, prepared on the basis of the Monitoring Report dated 12/02/2008, are fairly stated. We conducted our verification with regard to the client's GHG projects PD and monitoring report which included NOBRECCEL Biomass energy project, baseline applied and baseline GHG emissions or removals, Monitoring and Verification Plan, GHG Emission reductions. This assessment included collection of evidence supporting the reported data checking whether the provisions of the Monitoring and Verification Plan in the PD were consistently and appropriately applied

We have verified whether the information included in the monitoring report representing the project baseline is current and has been extracted from the project site and the emission reduction achieved has been determined by correctly subtracting emissions for the monitoring period 01/01/2002 to 31/12/2007 from the baseline figures for the comparable

Reporting Period: From 01-01-2002 to 31-12-2007

Verified emission in the above reporting period:

Project Emissions:	4,862	tCO ₂ equivalents
Baseline Emissions:	393,314	tCO ₂ equivalents
Emission Reductions:	388,452	tCO ₂ equivalents

Based on process and procedures conducted, in our opinion, NOBRECCEL and EcoSecurities assertion on GHG emission reductions for the NOBRECCEL Biomass energy project during the reporting period 01/01/2002 to 31/12/2007 is materially correct and is a fair representation of the GHG data and information and the emission reductions are fairly stated. The GHG emission reductions were calculated correctly on the basis of approved monitoring methodology ACM0006 version 06.



SGS confirms that the project is implemented as described in the Project Document. Based on the information we have seen and evaluated, we confirm the following:

Name and Reference	NOBRECEL Biomass energy project
Approved Methodology used for Verification	Methodology ACM0006 version 06
Applicable Period	01/01/2002 to 31/12/2007
Total GHG Emission Reductions Verified	388,452 t CO ₂

Signed on behalf of the Verification Body by Authorized Signatory

Signature:

Name: Irma Lubrecht

Date: 28th March 2008

Signature:

Name: Fabian Goncalves

Date: 28th March 2008

5. Document References

1	NOBRECCEL PD (Project Description)	NOBRECCEL Biomass energy project PD, version 01, 19 November 2007.
2	Methodology ACM0006	Methodology ACM0006, version 06, valid from 10 Aug 07 onwards.
3	Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site	Methodological tool, version 02.
4	Tool for the demonstration and assessment of additionality	Methodological tool, version 04.
5	NOBRECCEL biomass Monitoring Report	NOBRECCEL Monitoring Report version 03, 16 January 2008. Document ID: VER0163-M1.
6	NOBRECCEL biomass workbook	NOBRECCEL biomass workbook version 03. Contains VER calculations, reference data, grid data and monitored data.
7	NOBRECCEL Monitoring spreadsheet	NOBRECCEL Monitoring spreadsheet, version 03.
8	NOBRECCEL Financial Analysis spreadsheet	NOBRECCEL Financial Analysis spreadsheet, version 03.
9	Procedure for fulfilling the monitoring spreadsheet.	This procedure provides instructions about how to get and how to fulfil the data required by the monitoring spreadsheet.
10	Calibration Certificate of the Multifunction Relay	Calibration Certificate of the MFR-3 Woodward Multifunction Relay issued on 24-06-03.
11	Calibration Certificates of the Toledo Weight Bridge	Calibration Certificate of the Toledo Weight Bridge, number 219709 (valid for 2008).
12	Calibration Certificates of the steam flow meter	Calibration Certificate of the PT0266 YOKOGAWA steam flow meter – Model EJA 110A issued on 28-05-2007.
13	Monthly biomass consumption reports	Monthly biomass consumption reports (own biomass and biomass obtained from third-parties).
14	Manufacturer's Manual (Data book) of the Biomass boiler.	Manufacturer's Manual of the new biomass boiler with capacity of 60 tonnes of steam/hour at 450°C and 45bar; manufactured by Equipalcool, model 60-v-2-s.
15	Training Records	Attendance list of EcoSecurities Monitoring Training provided to NOBRECCEL.
16	EcoSecurities Training Presentation	Presentation in Power Point file by EcoSecurities to NOBRECCEL
17	Electricity Invoices	Invoices submitted by the concessionary (Bandeirantes) to NOBRECCEL.
18	Environmental Licenses	NOBRECCEL environmental License valid until 30/11/2009.
19	Monthly shredder stop reports	Report of all stops of the shredder on a month.
20	Local landfills list	List of all local landfills and information regarding their contact, phone and address.
21	Distance list of all biomass suppliers	List of all NOBRECCEL's biomass suppliers and their respective distance from NOBRECCEL.
22	Steam production reports (new and old boilers)	Steam production report of the biomass boilers, black liquor recovery boiler and old oil boilers.
23	Electricity generation reports (WEG and ABB generators)	Electricity generation report of the 3,2MW (ABB) and the 8MW (WEG) generators on a month.
24	Calculation of the net calorific value of all fuels used in the boilers	Spreadsheet calculation of the net calorific value of all fuels used in the boilers (eucalyptus logs, dry and crude

		wood chips, industrial wood residues, black liquor and forest wood residues).
25	Oil invoices	Invoices of oil used in the old boilers.
26	Operating and maintenance costs reports	Reporting of operating and maintenance costs of the new biomass boiler.
27	Quality reports of biomass obtained from third-parties	Determination of dry content, density and water content of the biomass obtained from third-parties.
28	Oil consumption reports	Report of the amount quantity of oil consumed by old oil boilers.
29	Electricity reports	Report of the amount quantity of electricity purchased from the grid.
30	Paper and cellulose production reports	Report of the amount quantity of paper and cellulose produced.
31	Old boilers Inspection Reports	This report was used for estimation of the old boilers lifetime, according to the Brazilian Regulatory Norm number 13 (NR-13).
32	Biomass invoices	Invoices of biomass bought from third-parties.
33	Biomass boiler invoices	Biomass boiler invoice and invoices of all equipments needed for its construction.
34	Letters with description of the project and an invitation for comments sent to local stakeholders	Letters sent to these stakeholders: City Hall of Pindamonhangaba, City Council of Pindamonhangaba, State and Municipal Environmental Agencies, Brazilian Forum of NGOs, Public Prosecution Office and Local communities associations.
35	Delivered receipts	These receipts confirm that the local stakeholders have received the letters mentioned above.
36	Pre-validation Report of NOBRECCEL biomass energy project issued by SGS on 18 October 2000	This document is an evidence needed for step 0 (preliminary screening based on the starting date of the project activity) of the assessment and demonstration of additionality.
37	List of all operational cogeneration plants in Brazil	List of all operational cogeneration plants in Brazil sorted by name, installed capacity, energy destiny, owner, city and fuel.
38	Biomass supply-demand study	Biomass supply-demand study prepared by the Project Developer.
39	Woodward Statement	Statement from the MFR-3 Multifunction Relay Manufacturer (Woodward) that no periodic calibration is necessary.
40	Multi Function Relay Manual	Woodward MFR-3 Multi Function Relay Manual (nº 37107C).
41	S-SE-CO Grid Emission factor 2004 – 2006 spreadsheet	2004 – 2006 Emission factor calculations for the Brazilian South-Southeast-Midwest interconnected grid.

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