CLEAN DEVELOPMENT MECHANISM
SIMPLIFIED PROJECT DESIGN DOCUMENT
FOR SMALL-SCALE PROJECT ACTIVITIES (SSC-CDM-PDD)
Version 02

Prepared by
EcoSecurities Ltd

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Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	• The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. • As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.

SECTION A. General description of the small-scale project activity

A.1. Title of the small-scale project activity:

Nobrecel fuel switch in black liquor boiler Project
Version 03
29/08/2006

A.2. Description of the small-scale project activity:

The Nobrecel fuel switch in black liquor boiler Project (hereafter, the Project) developed by Nobrecel Celulose e Papel (hereafter referred to as the Project Developer) and EcoSecurities consists of improvements to a Black-liquor recovery boiler (CRQ – from Portuguese – “Caldeira de Recuperação Química”) resulting in a decrease in fuel oil consumption. The project is located in a cellulose and paper mill, situated in Pindamonhangaba, São Paulo, Brazil.

The Project consists of improvements in the structure and operation of the CRQ. The boiler has an installed capacity of 45 tonnes of steam per hour, consuming fuel oil and black-liquor from the process as fuel. The improvements will allow the boiler to almost exclusively use black-liquor as fuel. Black liquor is an organic by-product of pulp and paper production, therefore a renewable fuel.

The project is helping the Host Country fulfill its goals of promoting sustainable development. Specifically, the project:

- Increases employment opportunities in the area where the project is located;
- Uses clean and efficient technologies, and conserves natural resources, thus the project will be meeting the Agenda 21 and Sustainable Development Criteria of Brazil.
- Contributes to local environmental sustainability since it will decrease the use of fossil fuels, and replace them with an alternative renewable source. Therefore, the project contributes to the better use of natural local resources.
- Contributes towards better revenue distribution since the use of a renewable fuel decreases dependence on fossil fuels, and decreases pollution and therefore the social costs related to this. In addition the project diversifies sources of steam generation.
- Contributes to technological and capacity development – all technology, labour and technical maintenance will be provided inside Brazil.

- Contributes to regional integration and connection with other sectors – the project may encourage other similar companies that want to replicate the Project experience.

A.3. Project participants:

Nobrecel Project Participants:

Name of Party involved	**Private and/or public entity (ies) project participants**	**Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)**
Brazil (Host Country)	Nobrecel S/A Celulose e Papel	No
United Kingdom	EcoSecurities Ltd	No

A.4. Technical description of the small-scale project activity:

A.4.1. Location of the small-scale project activity:

A.4.1.1. Host Party(ies):

Brazil

A.4.1.2. Region/State/Province etc.:

Southeast region, São Paulo State.

A.4.1.3. City/Town/Community etc:

Pindamonhangaba City

A.4.1.4. Detail of physical location, including information allowing the unique identification of this small-scale project activity(ies):

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: S 22^o 54' 07.7 " W 45^o 23'35.3 "

A.4.2. Type and category(ies) and technology of the small-scale project activity:

The Project applies to the sectoral scope number 1 – Energy Industry (Renewable energy projects). According to the Small Scale simplified procedures the project fits in Type I category I.C.

The Project applies to category I.C because the project activity is a renewable technology (uses only Black liquor) and has an installed capacity smaller than 45MW thermal.

The Project Activity consists of the installation of new equipments that will enable an increase in the black-liquor solid mass concentration and the use of this new fuel in the boiler. This procedure will elevate the specific calorific value of the black liquor, allowing it to be burned reducing the fuel oil amount. The total installed capacity after all these improvements will be 45 tonnes of steam per hour, with steam enthalpy of 0.93 MW per tonne of steam, representing less than 45MWthermal.

Black liquor is a byproduct formed during the Kraft process, the sulfate method of chemical pulping of wood in the papermaking industry. In this process, lignin is separated from cellulose, with the latter forming the paper fibers. Black liquor is the combination of the lignin residue with water and the chemicals used for the extraction. Given the amount of water, the calorific value is very low. To increase the concentration of solid mass, and consequently increase the calorific value, it is required to remove the moisture content.

In the Baseline scenario, steam was used to increase the concentration of solid mass in the black liquor up to 40%. Compared to the baseline process, The project activity will improve the use of steam, allowing an increase in the concentration of solid mass up to 70% (the remaining 30% are water), and make modifications in the boiler to allow the burning of concentrated black liquor. To reach this result, the process is divided in three phases:

Phase 1: Improvement on three evaporation reservoirs. The evaporation reservoirs are composed of black liquor and steam pipelines. Under vacuum conditions, the heat from steam boils the water from black liquor, increasing the solid mass concentration. These improvements are related to changes on the pipelines and new design on pipes. It will not lead to an increase in steam consumption, but more efficient use (please note that no carbon credits are requested through this isolated improvement).

Phase 2: Installation of new equipment called “Cristalizador”. The Cristalizador even further improves the utilization of steam for drying the black liquor. The “Cristalizador” is heat exchanger equipment. Together with the actions from Phase 1, this equipment will lead to an increase in the efficiency of steam use, from 2 tonnes of water removed/ ton of steam, to 6 tonnes of water removed/ton of steam. This new process includes an increase in the electricity consumption as a result of the installation of 2 pumps of 250 HP (0.186 MW) for black liquor recirculation (please note that no carbon credits are requested through this isolated improvement).

Phase 3: Retrofit in the CRQ boiler. This action allows the consumption of concentrated black liquor as fuel, instead of a mix of fuels (black liquor and fuel oil). The retrofit includes modifications on the air feeding system, fuel feeding system and water feeding system. All these modifications do not increase the lifetime from equipments (boiler installed in 1999).

All these three phases will be implemented by the end of 2006. The technology and know-how being promoted by this project is environmentally safe and sound, and will further promote such activities in the future.

A.4.3. Brief explanation of how the anthropogenic emissions of anthropogenic greenhouse gas (GHGs) by sources are to be reduced by the proposed small-scale project activity, including why the emission reductions would not occur in the absence of the proposed small-scale project activity, taking into account national and/or sectoral policies and circumstances:

The emission reduction source is the reduction of fossil fuel consumption that would be burned in the black-liquor recovery boiler before the improvements. The fossil fuel used in the baseline is the average fuel oil consumption per MWh of steam generated based on the previous years: 41.9 kg of fuel oil / MWh steam. In the project scenario the fuel oil consumption per MWh of steam is expected to be around 3 kg of fuel oil / MWh steam.

The investments necessary to implement the project activities are very high. Due to capital access constraints, and technological innovations required, the project activity faces a barrier to its implementation. The detailed barrier analysis is presented in section B.3.

A.4.3.1 Estimated amount of emission reductions over the chosen crediting period:

Annual estimation of emission reductions over the chosen crediting period

Years	Annual estimation of emission reductions over the chosen crediting period
2007	38 540
2008	38 540
2009	38 540
2010	38 540
2011	38 540

2012	38 540
2013	38 540
Total estimated reductions (tonnes of CO_2)	269 781*
Total number of crediting years	7
Annual average over the crediting period of estimated reductions (tonnes of CO_2)	38 540

* Inconsistency due to rounding.

A.4.4. Public funding of the small-scale project activity:

The project will not receive any public funding from Parties included in Annex I.

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a larger project activity:

The Project Developer is developing another large-scale CDM project: “NOBRECEL Biomass Project”, using methodology to ACM0006. However, this other project is significantly different and could not be considered as part of the same project as the one being considered here. The other PDD involves different equipments and technologies.

According to Appendix C of the Simplified Modalities and Procedures for Small-Scale CDM project, the project is not a debundling. The reduction of fossil fuel usage presents the same sectoral scope but is not the same technology since this project activity consists of technical improvements on black-liquor recovery boiler while the other project is a wood residue co-generation plant.

SECTION B. Application of a baseline methodology:

B.1. Title and reference of the approved baseline methodology applied to the small-scale project activity:

Project Activity "I.C. - Thermal energy for the user"
Version 08 / 03 March 2006

B.2 Project category applicable to the small-scale project activity:

According to the sectoral scope list presented by the UNFCCC (http://cdm.unfccc.int/), the project is related with the sectoral scope 1 Energy industries (renewable - / non-renewable sources).

The CRQ boiler will present an installed capacity less than 45MWthermal and will use the renewable black-liquor (organic by-product from pulp production), thus the project is applicable to methodology I.C.

B.3. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:

According to Attachment A to Appendix B of the simplified modalities and procedures for CDM small-scale project activities, evidence as to why the proposed project is additional can be produced by conducting an analysis of the following: (a) investment barriers, (b) technological barriers, and (c) prevailing practice. The result is a matrix that summarizes the analysis, providing an indication of the barriers faced by each scenario. The most plausible scenario will be the one with the fewest barriers.

The first step in the process is to list the likely future scenarios. Two scenarios were considered:

- Scenario 1 - The continuation of current activities – This scenario represents the continuation of current practices, which is continuation of current fuel oil consumption in the black-liquor recovery boiler.
- Scenario 2 - The improvements in the CRQ – In this scenario, improvement will be done in the boiler allowing consumption of black-liquor only.

The barriers are as follows:

- Financial/economic – This barrier evaluates the viability, attractiveness and financial and economic risks associated with each scenario, considering the overall economics of the project and/or economic conditions in the country.

- Technical/technological – This barrier evaluates whether the technology is currently available, if there are indigenous skills to operate it, if the application of the technology is a regional, national or global standard, and generally if there are technological risks associated with the particular project outcome being evaluated.

- Prevailing business practice – This barrier evaluates whether the project activity represents prevailing business practice in the industry. In other words, this barrier assesses whether in the absence of regulations it is a standard practice in the industry, if there is experience to apply the technology and if there tends to be high-level management priority for such activities.

With respect to **financial/economic** barriers:

- The continuation of current practices (Scenario 1) does not pose any financial/economic barrier to the project developer, and requires no further financing.

- The improvements in CRQ (Scenario 2) faces specific financial/economic barriers.
  As a consequence of a long period of inflation, the Brazilian currency experienced high volatility coupled with strong devaluation, effectively precluding commercial banks from providing any long-term debt financing to local companies. The lack of a long-term debt market caused a severe negative impact on the financing of energy projects in Brazil. Real interest rates have been extraordinarily high since the Real plan stabilized inflation in 1994.

  Interest rates for local currency financing are significantly higher than US Dollar rates. The National Development Bank – BNDES is the only supplier of long-term loans. Debt financing from BNDES are made primarily through commercial banks. The credit market is dominated by shorter maturities (90-days to 1-year) and long-term credit lines are available only to the strongest corporate borrowers and for special government initiatives. Credit is restricted to the short-term in Brazil or the long-term in dollars offshore.

  Financial domestic markets with maturity of one year or greater practically do not exist in Brazil. Experience has shown that in moments of financial stress the duration of savings instruments contracted drops to levels close to one day with a massive concentration in overnight banking deposits. Savers do not hold long-term financial contracts due to the inability to price-in the uncertainty involved in the preservation of purchasing power value (Arida et al., 2004).

The lack of local long-term financing resulted from the reluctance of creditors and savers to lengthen the term of their investments. It has made savers opt for the most liquid investments and to place their money in short-term government bonds instead of investing in long-term opportunities that could finance infrastructure projects.

The most liquid government bond is the LFT (floating rate bonds based on the daily Central Bank reference rate). As of January 2004, 51.1% of the domestic federal debt was in LFTs that has duration of one day. This bond rate is almost the same as the CDI - Interbank Deposit Certificate rate that is influenced by the SELIC rate, defined by the Monetary Policy Committee COPOM.

The SELIC Rate has been very volatile ranging in 2003 from a maximum of 26,35% p.a. in February 2003 to a minimum of 16,3% p.a. in December 2003. The average SELIC rate in 2003 was 23,29% p.a.(http://www.bacen.gov.br/?SELICDIA)

The average SELIC rate in 2003 (year when decision for the project activity has been taken) has been chosen to the financial analysis. The project's IRR is also lower than SELIC rate even though it corresponds to a riskier investment compared to a Brazilian government bonds.

The capital costs involved in the project pose a barrier (investments of R$ 18.26 million), especially considering the above mentioned. It is worth noting that there are no direct subsidies or promotional support for the implementation of independent renewable energy plants. The financial barrier is demonstrated through a financial analysis, the results of which are presented in table below. The financial analysis is considering the investments related to the project activity, and revenues related to non purchase of fuel oil. As it can be seen, the costs of implementing the project without carbon are greater than the costs of maintaining current practices (business as usual) i.e. the baseline scenario. The carbon revenues increase the returns of the project to an acceptable level compared to the baseline.

Table: Financial Analysis Results

Carbon Credits Impacts	
	R$
NPV without credits	**(3.539.105)**
Carbon NPV	**3.570.664**
NPV considering Carbon Credits	**31.559**

Table: Sensitive Analysis Results

Sensitive Analysis	Modification	NPV without CERs (R$)	NPV with Carbon (R$)
Decrease on investments	10%	(1.030.382)	2.540.282
Increase on fuel price	10%	(1.384.293)	2.186.371
Decrease on Discount Rate	20%	(1.270.698)	2.863.306

With respect to the **technical/technological** barrier:

- In the case of Scenario 1 (continuation), there are no technical/technological issues as this simply represents a continuation of current practices and does not involve any new technology or innovation.

- In the case of Scenario 2, there is a small, but for conservativeness, not significant, technical/technological barriers. All the technologies involved in this scenario are available in the market, and have been used effectively in the Host Country. The only concern regarding it is the fact that it is largely applicable in big company papers (with production of more than 1500 tons of paper per day). Nobrecel is a small producer (250 tons per day), and therefore has restricted access to these technologies that require high operation and maintenance costs, because of a lack of the scales of economies available in larger companies.

With respect to the analysis of **prevailing business practice**:

- The continuation of current practices (Scenario 1) presents no particular obstacles. This practice has been used effectively in the past with good results, and the continued operation of existing facilities and actual practices presents no real barriers.

- The improvement in the CRQ plant (Scenario 2) represents a deviation from the prevailing business practices.

The Black liquor is a by-product that must be recovered after the pulp preparation. There are three different technologies to recover the black liquor: (1) combustion chamber, (2) boiler (generating low pressure steam) and (3) cogeneration plant (generating high pressure steam). The first technology is the cheapest one, requiring low investments compared to construction of a simple boiler. The cogeneration plant is the most expensive option.

In countries such as Brazil, where the capital costs are very high (loan rates up to 10% above the inflation rate), usually industry prefers less capital intensive options. The is especially true for smaller companies, which have more difficult access to capital. It is corroborated by the fact that according to BRACELPA (Brazilian association of pulp and paper producers), there are 44 associated producers in Brazil (some of them with more than one plant), and according to ANEEL (National Agency for electric sector) only 12 plants producing electricity (cogeneration plants, producing steam and electricity at once).

The recovery of black liquor in these three technologies can be done with the help of fossil fuels (i.e. mixing fuel oil), or treating it to improve the solid mass, allowing the use of black liquor as the only fuel. The second option requires high investments and high operational costs, representing the state of art of technology.

It is clearly demonstrated that a Black liquor cogeneration plant is not the business as usual practice in Brazil, especially for small producers. According to ANEEL, from the 12 Black Liquor cogeneration plants operating in Brazil, Nobrecel is the only small scale plant (smaller than 10 MW). Nine from the twelve plants are bigger than 30 MW.

Installed Capacity (kW)	Number of plants	Names
0 – 10 000	**1**	**Nobrecel**
10 000 – 20 000	1	Bacell
20 000 – 30 000	1	Lençois Paulista
30 000 – 50 000	4	Igaras; Celucat; Riocell; Klabin
50 000 – 100 000	3	Jari Celulose; Bahia Sul; Cenibra
100 000 – 200 000	1	Veracel
200 000 – 500 000	1	Aracruz

Source: www.aneel.gov.br

The process of use (in boiler or cogeneration plants) and improvements of black liquor (increase the solid mass) aiming to use it as only fuel is very expensive, requiring scale to dilute the high costs and complex operational structure, thus it clearly faces a barrier for small producers.

The table below summarizes the results of the analysis regarding the barriers faced by each of the plausible scenarios. As the table indicates, Scenario 1 faces no barriers, whereas Scenario 2 faces two important barriers – the financial/economic and the prevailing business practice barriers.

Table: Summary of Barriers Analysis

Barrier Evaluated		Scenario 1 Continuation of current activities	Scenario 2 The improvement in CRQ
1.	Financial / Economical	No	**Yes**
2.	Technical / Technological	No	No
3.	Prevailing Business Practice	No	**Yes**

To conclude, the barrier analysis above has clearly shown that the most plausible scenario is the continuation of current practices. Therefore, the scenario 2 is not the same as the baseline scenario, and these are defined as follows:

- The **Baseline Scenario** consists of the continuation of fossil fuel consumption in the black-liquor recovery boiler. This boiler currently consumes 41.9 kg of fuel oil / MWh of steam.

- The **Project Scenario** is represented by improvements that will reduce fuel oil consumption in CRQ to almost zero.

The Project Scenario is additional in comparison to the baseline scenario, and helps promote sustainability, and therefore is eligible to receive Certified Emissions Reductions (CERs) under the CDM. This is based on full consideration of CDM from an early stage in project planning and development.

B.4. Description of how the definition of the project boundary related to the baseline methodology selected is applied to the small-scale project activity:

For thermal energy, the physical, geographical site of the renewable energy generation delineates the project boundary. It means that the project boundary is restricted to the CRQ boiler, and equipments to improve the black liquor calorific value. For conservativeness, emissions associated with fuel oil transportation will be excluded. The only emission source considered for the emission reduction calculation is the CO2 from fossil fuel burning and additional electricity consumption.

B.5. Details of the baseline and its development:

This section was concluded on 28 August 2006. The entity determining the baseline study and participating in the project as the Carbon Advisor is EcoSecurities Brasil. For further details, contact:

Pablo Fernandez **Luis Filipe Kopp**

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SECTION C. Duration of the project activity / Crediting period:

C.1. Duration of the small-scale project activity:

C.1.1. Starting date of the small-scale project activity:

30 June 2004

C.1.2. Expected operational lifetime of the small-scale project activity:

30 years.

C.2. Choice of crediting period and related information:

C.2.1. Renewable crediting period:

C.2.1.1. Starting date of the first crediting period:

1st January 2007

C.2.1.2. Length of the first crediting period:

7y – 0m.

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

Not applicable.

C.2.2.2. Length:

Not applicable.

SECTION D. Application of a monitoring methodology and plan:

D.1. Name and reference of approved monitoring methodology applied to the small-scale project activity:

Project Activity “I.C. - Thermal energy for the user”
Version 08 / 03 March 2006

D.2. Justification of the choice of the methodology and why it is applicable to the small-scale project activity:

As the project is eligible for using the methodologies listed in Appendix B of the Simplified Modalities and Procedures for Small Scale CDM project activities, it was felt that it should use the monitoring methodologies proposed for this project type. Regarding applicability conditions, see details in section B.2.

D.3 Data to be monitored:

Table: Data to be monitored to calculate emission reduction

ID number	Data variable	Source of data	Data unit	Measured (m), calculated (c), estimated (e),	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment
1	steam produced by CRQ boiler	Project Developer	tonnes	M	monthly	100%	Electronic and paper	Measured in tones, and if required, converted to MWh based on the enthalpy
2	fuel oil consumed by CRQ boiler	Project Developer	Tonnes	M	monthly	100%	Electronic and paper	
3	Steam enthalpy	Project Developer	MWh/ tonnes of steam	C	annually	100%	Electronic and paper	This value will be calculated based on temperature and pressure from the input and output steam.
4	Electricity consumed in the project activity	Project Developer	MWh	M or C	monthly	100%	Electronic and paper	Electricity produced on-site.

D.4. Qualitative explanation of how quality control (QC) and quality assurance (QA) procedures are undertaken:

Table: Quality control (QC) and quality assurance (QA) procedures are being undertaken for data monitored

Data	Uncertainty level of data (High/Medium/Low)	Explain QA/QC procedures planned for these data, or why such procedures are not necessary.
1	*low*	*Steam production data used from process control. All the measuring equipments will be well maintained.*
2	*low*	*Fuel oil data used from stock control. For consistency assurance it will be double checked by crosschecking with receipts.*
3	*low*	*Calculated based on international technical material.*
4	*low*	*Electricity data used from process control. All the measuring equipments will be well maintained.*

D.5. Please describe briefly the operational and management structure that the project participant(s) will implement in order to monitor emission reductions and any leakage effects generated by the project activity:

All data to be monitored were collected in baseline scenario. The data will be collected and centralized by the Quality Assurance management division, known as “Ecoeficiência” sector.

D.6. Name of person/entity determining the monitoring methodology:

The monitoring plan was concluded on 21 august 2006. The entity determining the monitoring methodology and participating in the project as the Carbon Advisor is EcoSecurities Brasil. For further details, contact:

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SECTION E.: Estimation of GHG emissions by sources:

E.1. Formulae used:

E.1.1 Selected formulae as provided in appendix B:

According to the simplified methodologies for types I.C, small-scale emission reduction projects, the baseline emissions are calculated using the following formulae:

Emissions Reduction in year *y*: **ER***y* = **BE***y* – **PE***y*

E.1.2 Description of formulae when not provided in appendix B:

E.1.2.1 Describe the formulae used to estimate anthropogenic emissions by sources of GHGs due to the project activity within the project boundary:

PE(boiler)y = Qy,fuel * EFy,fuel+ Qy,electricity * EFy,
Qy,fuel Quantity of fuel used in the year "y" (tonnes) **EFy,fuel** CO_2 emission factor for the combustion of the fuel (tonnes CO_2 per tonne fuel) **Qy,electricity** Quantity of electricity used in the year "y" (MWh) **EFy,** CO_2 emission factor from electricity generation source. Since the electricity will come from internal sources (The Biomass plant or CRQ) it will be assumed as zero. (tonnes CO_2 per MWh)

The $EF_{y,fuel}$ was calculated based on National specific data (From Brazilian Energy Balance, 2003) and IPCC values.

If at any moment, the electricity consumed in the project activity comes from the grid, the emission factor shall be calculated according the methodology AMS 1.D applicable at the moment of registration.

E.1.2.2 Describe the formulae used to estimate leakage due to the project activity, where required, for the applicable project category in appendix B of the simplified modalities and procedures for small-scale CDM project activities

Leakage(boiler)y = 0
The energy generating equipment is not transferred from another activity nor transferred to another activity, thus leakage for fuel switch in the boiler component is not considered.

E.1.2.3 The sum of E.1.2.1 and E.1.2.2 represents the small-scale project activity emissions:

The average project emissions are:

3075 Tonnes of CO2e per year

E.1.2.4 Describe the formulae used to estimate the anthropogenic emissions by sources of GHGs in the baseline using the baseline methodology for the applicable project category in appendix B of the simplified modalities and procedures for small-scale CDM project activities:

BE(boiler)y = Sy * Qy,historic * EFy,fuel

Sy Steam production in year "y" (tonnes of steam or MWh steam)

Q,historic Quantity of fuel that would be used to generate one ton of steam based on the years previous to project starting date. The value used for calculations was 0.0419 tonne of fuel / MWh steam (in ton of fuel/ton of steam or MWh steam)

EFy,fuel CO_2 emission factor for the combustion of the fuel (tonnes CO_2 per tonne fuel)

The average baseline emissions are:

41 615 Tonnes of CO2e per year

E.1.2.5 Difference between E.1.2.4 and E.1.2.3 represents the emission reductions due to the project activity during a given period:

The average emission reduction is:

38 540 Tonnes of CO2e per year

E.2 Table providing values obtained when applying formulae above:

Table: Total estimation of project activity, baseline emissions, leakage and emissions reductions

Years	Estimation of baseline emissions (tonnes of CO2 e)	Estimation of project activity emissions (tonnes of CO2e)	Estimation of leakage (tonnes of CO2e)	Estimation of emission reductions (tonnes of CO2e)
2007	41 615	3 075	0	38 540
2008	41 615	3 075	0	38 540
2009	41 615	3 075	0	38 540
2010	41 615	3 075	0	38 540
2011	41 615	3 075	0	38 540
2012	41 615	3 075	0	38 540

2013	41 615	3 075	0	38 540
Total (tonnes of CO_2)	291 308	21 527	0	269 781*

* Inconsistency due to rounding.

SECTION F.: Environmental impacts:

F.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:

The environmental authority responsible for licensing did not request any environmental study for the fuel switch. Environmental impacts studies are requested only when the activity represents a significant impacts, thus there are no significant negative impacts related to project activity.

Given that the project activity will not induce significant impacts, no impact assessment was undertaken.

SECTION G. Stakeholders' comments:

G.1. Brief description of how comments by local stakeholders have been invited and compiled:

According to the Resolution #1 dated on December 2nd, 2003, from the Brazilian Inter-Ministerial Commission of Climate Change (Comissão Interministerial de Mudança Global do Clima -CIMGC), decreed on July 7th, 1999[1], any CDM projects must send a letter with description of the project and an invitation for comments by local stakeholders. In this case, letters were sent to the following local stakeholders:

- City Hall of Pindamonhangaba, SP
- Chamber of Pindamonhangaba, SP
- Environment agencies from the State and Local Authority;
- Brazilian Forum of NGOs;
- District Attorney (known in Portuguese as Ministério Público, i.e. the permanent institution essential for legal functions responsible for defending the legal order, democracy and social/individual interests) and;
- Local communities associations.

Local stakeholders were invited to raise their concerns and provide comments on the project activity for a period of 30 days after receiving the letter of invitation. EcoSecurities Ltd. and the Nobrecel addressed questions raised by stakeholders during this period.

G.2. Summary of the comments received:

To date no comment was received.

G.3. Report on how due account was taken of any comments received:

To date no comment was received.

1 Source: http://www.mct.gov.br/clima/comunic/pdf/Resolução01p.pdf

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Project sponsor contact information:

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

The project will not receive any public funding from Parties included in Annex I.

Annex 3

BASELINE INFORMATION

Data for emission reduction calculation

Data used for calculations	unit	value
Steam production	tonne	323 000
Baseline fuel oil consumption	kg/ MWh steam	42
Project fuel oil consumption	kg/ MWh steam	3
Fuel oil emission factor	ton CO2/ton	3
Electricity consumed	MWh	3 259
Electricity emission factor	ton CO2/MWh	0

Data used in the financial analysis is confidential.