CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 02 - in effect as of: 1 July 2004)

CONTENTS

Annexes

SECTION A. General description of project activity

A.1 Title of the project activity:

"Demand side electricity management program at Companhia Brasileira de Distribuição"

Document version: 1
Document date: May 30rd, 2005

A.2. Description of the project activity:

Companhia Brasileira de Distribuição – Pão de Açúcar Group (CBD) is the largest food retailer in Brazil, stating in 2004, R$ 15.3 billion in gross revenues and around 15% market share. In December 2004, CBD had 551 stores, distributed into 12 states, totaling sales area of 1,144,749 square meters and 63.4 thousand employees. CBD actuates in the market with 5 brands: Pão de Açúcar, Extra, ExtraEletro, CompreBem Barateiro and Sendas-Sé. Stores are distributed in these 12 states but are concentrated mainly in the state of São Paulo, in the Southeast region of the country.

Founded in 1948, CBD has consolidated its operation through the multi-format structure with a balanced participation of supermarket and hypermarket formats. Its performance is based on three formats: supermarkets (Pão de Açúcar, CompreBem Barateiro and Sendas-Sé), hypermarkets (Extra) and electronic/home appliance stores (Extra-Eletro), which have specific sales strategies and performance focus, channeled to consumers with different profiles.

The Company's shares are listed, since 1995, at BOVESPA – the São Paulo Stock Exchange – and, since 1997, at NYSE – the New York Stock Exchange (Level III ADR). In 1999, CBD made an agreement with the Casino Group, the second largest retail company in France and, in 2003, its shares started being part of the Bovespa's Corporate Governance – Level 1. By the end of 2003, CBD started a partnership with Sendas, a retail industry leader in the State of Rio de Janeiro, aiming to strengthen its participation in the region and consolidate its leadership in the Brazilian retail market.

The evolution of number and types of stores is very dynamic, changing from year to year, as showed in Table 1, depending on changes in cosumer profiles and needs.

Table 1 – Evolution of number, types and sales areas*.

	Pão de Açúcar		Extra		Extra-Eletro		CompreBem Barateiro		Sendas-Sé		Total CBD	
	#	m^2	#	m^2	#	m^2	#	m^2	#	m^2	#	m^2
31/12/2000	186	228,873	53	415,142	66	40,964	111	-	-	-	416	-
31/12/2001	176	219,559	55	427,418	62	41,229	150	-	-	-	443	659,898
31/12/2002	188	-	60	-	54	-	148	-	50	-	500	674,556
31/12/2003	208	273,016	62	462,195	55	35,973	172	-	-	-	497	878,698
31/12/2004	196	-	72	-	55	-	165	-	63	-	551	1,081,356

(*) Data presented in Table 1 are for methodology approval purposes and need to be revised in the case a final PDD is submited.

CBD purchases electrical energy from 19 different public concesionaries, located in 12 states. It manages 574 supply contracts totalling 200 MW of contracted capacity. In Table 2 the electricity demand of CBD stores is presented.

Table 2 – Evolution of electricity demand*.

	Consumo (GWh)	Área (m^2)	Número de lojas
2000	-	-	416
2001	780	659,898	443
2002	684	674,556	500
2003	891	878,698	497
2004	957	1,081,356	551

(*) Data presented in Table 2 are for methodology approval purposes and need to be revised in the case a final PDD is submited.

In the years 2001 and 2002, Brazil faced a severe crisis in the electricity sector. Electricity supply and demand had a serious unbalance and the Federal Government had to launch an emergency plan to deal with electricity shortage. Among other measures, a compulsory consumption reduction of 20% in relation to the average electricity consumption in the period of May to July 2000 was imposed to consumers from June 1, 2001 to February 28, 2002.

Considering that between January and May 2001, period immediately preceding the shortage, the average demand was around 6% higher than that of the same period of the previous year, the actual rationing was much greater than the 20% announced. In other words, during the second half of 2001 and the beginning of 2002 there was a cut of about 24.5% compared to a "business-as-usual" scenario. The electricity consumption in the country is showed in Figure 1. The rationing plan lasted for ten months and caused a GDP growth reduction of 1.0 to 1.5% (Pinto Júnior, 2003)[1].

Three major factors contributed to the electricity rationing:

- Absence of investments in electricity generation capacity in the years previous to 2001.
- Unexpected electricty demand increase, due to economic growth.
- Severe dry season, with reservoirs of hydro power plants falling down under historical levels.

[1] **Pinto Júnior, H. (2003)**. *Les problèmes des réformes structurelles et institutionnelles inachevées: le cas de l'industrie éléctrique au Brésil.* Révue de l'Energie **544**, 103-111.

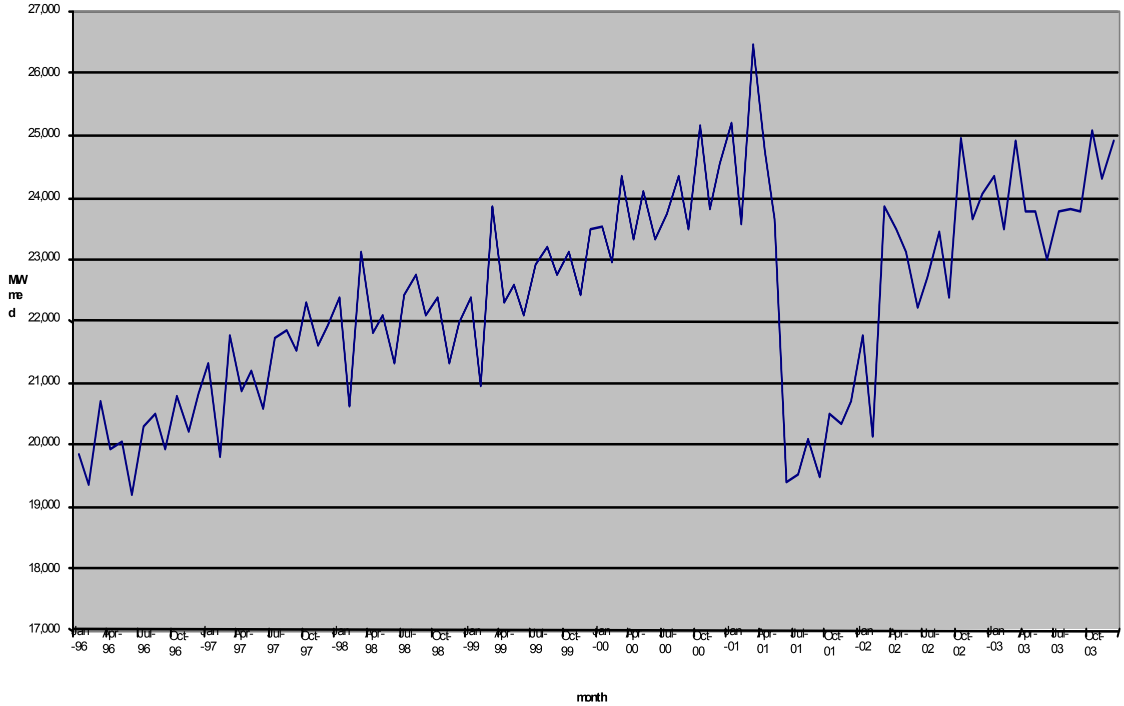

Figure 1 – Monthly load average in the Brazilian S-SE-CO interconnected electricity system from 1996 to 2003 (ONS, 2004)

The rationing demanded major changes in the behavior of electricity consumers from all sectors and regions of the country. CBD also had to implement an electricity consumption reduction program to meet consumption restrictions. The actions developed by CBD were:

- Contracting of an ESCO to develop a management system in order to monitor and control electricity consumption.

- Revision of operational procedures aiming at creating a more efficient standard of operation of the stores with the establishment of daily electricity consumption targets focusing special care with peak hour demands.

- Identification of energy demands benchmarks from the comparison of several stores of the group, taking into consideration the specificities of each one of the brands, that have different consumption patterns.

- Special care was dedicated to the operation and maintenace of air conditioning and refrigerating systems. This type of load represents the major consumption element within stores electricity consumption patterns. Therefore, very stringent operational and maintenance procedures and investments to improve installations performance were implemented in order to reduce electricity demand.

- Substitution of light bulbs for more efficient devices and changes in the operational procedures, operating at more suitable and efficient illumination levels according to each area.

- In order to reduce peak electricity demand, diesel generators were installed, totalling 62 MW of installed capacity.

- Another adopted measure was the substitution of electrical ovens by LPG (Liquified Petroleum Gas) ovens.

At that moment, CBD was advised by the consultants that were developing and implementing the energy managemnet program about the incentives of the CDM, as one of the possible benefits that CBD could take advantage of, with the situation that they were experiencing.

In spite of the rationing being a severe negative event that impacted the country economy, it showed everyone that there are very good oportunities to implement efficiency programsd all over the economic activities. After the rationing period the consumption restrictions were eliminated and electricity supply moved quickly to the situation of surplus supply. Electricity prices fell down in consequence of high availability caused by reduction of consumption, situation that remains untill today. CBD learned from this fact and, even after the rationing, it strengthened the efforts towards electricity demand consumption reduction. The purpose of this project activity, hence, is the maintenance and improvement of the electricity efficiency program that started during the rationing.

CBD believes that, as in other energy management progams, improving electricity efficiency is the surest and most direct way of increasing the sustainability of the energy system. Energy efficiency accentuates the positive attributes of energy (the services it provides) and diminishes the negative aspects (the pollution and financial costs) associated with producing and delivering energy.

Improving energy efficiency offers a powerful tool for achieving sustainable development by reducing the need for investment in new infrastructure, by cutting fuel costs, and by increasing competitiveness for businesses and welfare for consumers. It creates environmental benefits through reduced emissions of greenhouse gases and local air pollutants. It can offer social benefits in the form of increased energy security (through reduced reliance on fossil fuels, particularly when imported) and better energy services.

A.3. Project participants:

Please, refer to Table 3.

Table 3 – Project participants.

Name of party involved	Private and/or public entities project participants	Does Party involved wish to be considered as project

		participant?
Party/country: Brazil	Public entity: Interministerial Commission on Global Climate Change, which is the Designated National Authority. Brazil ratified the Kyoto Protocol on 23rd August 2002.	NO
Party/country: Brazil	Private entity: Companhia Brasileira de Distribuição – Pão de Açúcar Group (CBD)	NO
Party/country: Brazil	Private entity: Ecoinvest Carbon	NO

Credit Owner, Project Operator, and official contact for the CDM project activity: Companhia Brasileira de Distribuição – Pão de Açúcar Group (CBD). CBD was founded in 1948 and is the largest food retailer in Brazil, stating in 2004, R$ 15.3 billion in gross revenues and around 15% market share. In December 2004, CBD had 551 stores, distributed into 12 states, totaling sales area of 1,144,749 square meters and 63.4 thousand employees. CBD actuates in the market with 5 brands: Pão de Açúcar, Extra, ExtraEletro, CompreBem Barateiro and Sendas-Sé. Stores are distributed in these 12 states but are concentrated mainly in the state of São Paulo, in the Southeast region of the country.

Carbon advisory, PDD and methodolgy development: Ecoinvest Carbon. Ecoinvest was founded in 2000 with the objective of developing renewable energy projects and CDM projects.

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

A.4.1.1. Host Party(ies):

Brazil

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

CBD headquarters is located in the State of São Paulo.

The project activity is being developed at all the stores of the group located in 12 states: São Paulo, Rio de Janeiro, Ceará, Paraná, Distrito Federal, Pernambuco, Paraíba, Piauí, Bahia, Minas Gerais, Mato Grosso do Sul e Goiás.

A.4.1.3. City/Town/Community etc:

CBD headquarters is located in the city of São Paulo, in the state of São Paulo, Brazil.

The 551 stores are distributed in several cities in the 12 states.

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page):

CBD headquarters address is:

Av. Brigadeiro Luís Antônio, 3172.
Jardim Paulista – ZIP 01402-901
São Paulo – SP – Brasil

Tel.: 55 11 3886-0421
Fax: 55 11 3884-2677

www.grupopaodeacucar.com.br

A.4.2. Category(ies) of project activity:

The sectoral scope for this project is number 3, energy demand, and the category is energy efficiency.

A.4.3. Technology to be employed by the project activity:

Different technologies were employed in the project activity depending on the action analysed. Most of the actions involved changes in operational and maintenace procedures and the implementation of energy management system. In the cases in which investments in equipment were made they involved light bulbs substitution, air conditioning retrofitting, refrigerators and freezers substitution and insulation improvements.

A.4.4. Brief explanation of how the anthropogenic emissions of anthropogenic greenhouse gas (GHGs) by sources are to be reduced by the proposed CDM project activity, including why the emission reductions would not occur in the absence of the proposed project activity, taking into account national and/or sectoral policies and circumstances:

Project activity reduces emissions of greenhouse gases by reducing the consumption of grid electricity, when compared to the baseline scenario. Electricity generation is renowned as an important greenhouse gas emissions source. In Brazil, despite the large participation of hydro based electricity generation, a zero emission source, fossil generation represents a significant portion of the generation, especially in the system margin.

According to Approved Consolidated Methodology 0002, the emissions from grid electricity must be calculated considering two effects, the influence of the project activity in the operation of existing power plants (Operating Margin) and in the construction of new power plants (Build Margin). The weighted average of operating and build margin generates the combined margin, that characterizes grid emissions.

Since the influence of fossil based thermo power plants is higher in the margin of the system, then emissions tend to be greater than the average emissions fo the grid, considering all the generation.

Another source of emissions reductions from the project is the avoidance of additional electricity generation that would be lost due to transmissions and distribution losses. Transmission and distribution losses are very important in electricty systems and the reduction of consumption causes the additional benefit of reducing the amount of this kind of losses.

Project activity generates greenhouse gases because of diesel and LPG burning in diesel generators and gas ovens, respectively. The diesel generators were installed to reduce electricity demand in peak hours of the day. The gas ovens were installed also to reduce electricity consumption. Both, generators and ovens, generate greenhouse gases emissions that are ccounted in the project emissions calculations.

In the absence of the CDM incentives the project activity would not happen and the emissions would be greater than that of the project scenario, because the electricity consumption trend would increase for each unit of sales area, from year to year, going back to the original levels, before the rationing. The additionality assessment conducted in Section B.3 states with further detailes the additionality of the project.

Brazil does not have energy efficiency programs dedicated to foster the reduction of consumption by individual consumers. The most important and comprehensive program developed with regard to energy efficiency is the PROCEL – National Program for Electrical Energy Conservation. PROCEL aims at promoting the conservation and efficiency in electricity production and consumption. It was launched in 1985 by the Ministry of Mines and Energy and encompasses several actions involving different sectors of the country. The program, however, does not consider any obligation on electricity consumption nor tax or financial incentives for electricity efficiency. The legislation also does not impose restrictions in electricity consumption.

A.4.4.1. Estimated amount of emission reductions over the chosen crediting period:

Table 4 accounts for the estimated amount of emissions reduction based on the forecasted energy consumption, for a crediting period of 10 years, starting in 2004. It must be pointed out that the effective accomplishment of the emissions reduction will depend on project performance.

Table 4 – Estimated emission reductions.

Years	Annual estimation of emission reductions (tCO_2eq)
2004	66,295
2005	66,295
2006	66,295
2007	66,295
2008	66,295
2009	66,295
2010	66,295

2011	66,295
2012	66,295
2013	66,295
Total estimated reductions (tCO_2eq)	662,295
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tCO_2eq)	66,295

A.4.5. Public funding of the project activity:

The project is being developed on equity basis. CBD has implemented the project without public funding or other source of debt.

SECTION B. Application of a baseline methodology

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

Proposed NMB - "Demand-side electricity management for food retailers, supermarkets, hypermarkets, shopping centers and other similar commercial activities"

B.1.1. Justification of the choice of the methodology and why it is applicable to the project activity:

Methodology was chosen because the project activity meets all the conditions under which methodology is applicable:

1. Project activity is developed in food retailers, supermarkets, hypermarkets, shopping centers and other similar commercial activities – CBD the the largest food retailer in Brazil and perfectly fits into the category of acitivities defined for the methodology.

2. Electricity management program results in the reduction of electricity consumption at one site or a group of different sites where the project activity is developed – CBD implemented, and is still improving, an energy management system in order to reduce electricity consumption, control costs and obtain the benefits of the CDM.

3. Electricity consumption is directly related to the sales area of the set of project sites. The quotient between electricity consumption and sales area is used to characterize the electricity intensity of the project activity – The major electrical loads of CBD stores are lighting, air conditioning, ventilation and food refrigeration, which are directly related to sales area.

B.2. Description of how the methodology is applied in the context of the project activity:

After the verification of methodology applicability conditions, as in Section B.1.1, and the assessment and demonstration of project additionality, as in Section B.3, the methodology is applicable in the following manner:

(1) The sales area (*SA*) is monitored for each one of the stores of the group.
(2) The sources of electricity during the baseline period are grid electricity, obtained from the national grid, and internal generation with diesel generators. The electricity intensity in the baseline is calculated for both cases by the quotient of monitored electricity consumption and monitored sales area, for the three years in the beginning of project implementation.
(3) Transmission and distribution losses (*TDL*) is obtained from the ONS (National Dispatch Center) in the case of grid electricity. For the diesel generation *TDL* is zero.
(4) The emission factor (*EF*) of the grid was calculated by the application of ACM0002. The emission factor for diesel generation was calculated with IPCC carbon emission factors and fuel oxidization, and monitored diesel consumption.
(5) Electricity consumption (*EC*) is monitored during the crediting period through the invoices with the electricity companies, in the case of grid electricity, and internally, in the case of diesel generation electricity.
(6) The other source of greenhouse gases emissions (*OS*) is LPG consumption in ovens.

Key parameters and variables are presented in Table 5.

Table 5 – List of data and parameters used and references

Variable or parameter	Description	Unit	Reference
SA	Sales area, monitored in each year of the project activity	m^2	Monitored in the project
EI_n	Electricity intensity in the baseline, for each source *n* of electricity within the project boundary, calculated with basis on the average electricity intensity of the three years previous to project activity	MWh/m^2	Calculated from monitored variables, in the project
TDL_n	Factor that characterizes transmission and distribution losses associated with each specific source *n* of electricity within the	%	Obtained from the national authority that operates the electricity system or another reliable source

	project boundary		
EF_n	Emission factor of electricity, for each source *n* of electricity within the project boundary	tCO_2/MWh	Calculated from the technical literature and monitored variables in the project
$(EC_n)_i$	Electricity consumption of the project in year *i* of the baseline period, for each source *n* of electricity within the project boundary.	MWh	Monitored in the project
SA_i	Sales area of the project in year *i* of the baseline	m^2	Monitored in the project
EF_C	Emission factor for a specific fuel, obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"	tC/TJ	Obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"
EF	Emission factor for a specific fuel, calculated from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"	tC/mass or volume units of the fuel	Calculated from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories" and lower heating value of the fuel
OXID	Oxidization factor for specific fuel, obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"	%	Obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"
44/12	Carbon conversion factor	tCO_2/tC	Obtained from the technical literature
0.0036	Energy units conversion factor	TJ/MWh	Obtained from the technical literature
η	Thermal efficiency of the plant	non dimensional	Obtained from the technical literature

OM	Operating margin of the grid, calculated in accordance with ACM0002	tCO_2/MWh	Calculated
BM	Build margin of the grid, calculated in accordance with ACM0002	tCO_2/MWh	Calculated
w_1	Weight for the operating margin, calculated in accordance with ACM0002	non dimensional	Calculated
w_2	Weight for the build margin, calculated in accordance with ACM0002	non dimensional	Calculated
EC_n	Electricity consumption in the project activity, for each source *n* of electricity within the project boundary, monitored in each year of the crediting period	MWh	Monitored in the project
OS_n	Emissions from other sources inside project activity, related to project activity	tCO_2	Calculated from the technical literature and monitored variables in the project
FC_n	Fuel consumption in each one of other sources *n*, monitored in each year of the crediting period	volume or mass units of fuel	Monitored in the project

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 CDM project activity:

In accordance with the selected baseline methodology, the explanation of how and why this project is additional must be conducted through the application of the approved "Tool for the demonstration and assessment of additionality". The assessment performed below is in a preliminary basis for methodology approval purposes only. Information need to be revised in a final version of the PDD.

Step 0. Preliminary screening based on the starting date of the project activity

CBD has started the demand side electricity management program in 01/01/2001, during the power shortage that happened in Brazil between 2001 and 2002. In that period, the government imposed severe restrictions to electricity consumption due to the shortage of electrical energy in the country.

Despite the obligations imposed by the government being removed in 2002, CBD decided to keep the actions developed during the rationing in order to maintain the new electricity consumption trend considering the incentives of the CDM.

The electricity management program was developed by a consultant which knew that efficiency programs could benefit from the CDM. The efficiency program was developed taking into consideration the benefits from the CDM so that the program could continue after the power rationing, when the government removed the consumption restrictions. Hence, the incentive from the CDM was seriously considered in the decision to proceed with the project activity.

Step 1. Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step 1a. Define alternatives to the project activity:

Alternatives to the project activity would be the:

- Continuation of the situation previous to project starting, with the same electrical consumption patterns
- Implementation of the efficiency program during the rationing only
- Project activity, i.e., the strengthening of the efficiency program after the rationing.

Sub-step 1b. Enforcement of applicable laws and regulations:

Alternatives are in compliance with all applicable and regulatory requirements.

Step 2 – Investment Analysis

Not conducted.

Step 3. Barrier analysis

Sub-step 3a. Identify barriers that would prevent the implementation of type of the proposed project activity:

The development of the project activity faced the following barriers to happen:

(1) Uncertain economic scenario, in a country with little incentive for energy efficiency programs and with capital restrictions.

(2) Installation of new equipment on equity basis, without any public or private funding. The risk perception involved in the development of the efficiency program and installation of equipment was high, incurring in very unfavorable interest rates and funding conditions for the project activity.

(3) Capital markets are very attractive in Brazil, especially considering the high interest rates in the country, what makes the investment in the capital markets much more attractive than funding efficiency programs, specially considering the risks in the return of an efficiency program. Real interest rates have been extraordinarily high since the Real plan stabilized inflation in 1994. As a consequence of the long period of inflation, the Brazilian currency experienced a strong devaluation, effectively precluding commercial banks from providing any long-term debt financing. The lack of a long-term debt market has had a severely negative direct impact on the financing of projects in Brazil.

Sub-step 3 b. Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity):

The project activity faced many barriers to happen, while the alternative to the project activity was not prevented by the set of barriers. In fact, the project alternatives would take advantage of the existence of all the barriers listed above, because the project proponent could simply invest in the capital market, or meet the obligations during the rationing period and abandon the efficiency program after that.

Step 4. Common practice analysis

Sub-step 4a. Analyze other activities similar to the proposed project activity:

Efficiency programs are not a common practice in the sector.

Sub-step 4b. Discuss any similar options that are occurring:

No other similar options are occurring.

Step 5. Impact of CDM registration

Since the beginning of the project implementation, CDM incentives have been considered because they will alleviate the identified barriers, in the following manner:

- The certification of the anthropogenic greenhouse gas emission reductions will add value to corporate image, resulting in intangible benefits in favour of project activity.
- The financial benefit of the revenue obtained with the CERs will alleviate the total costs of project activity.

Project activity is additional and the baseline scenario is the continuation of the situation previous to the project activity, with electricity consumption levels going back the period before the rationing.

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

The project boundary includes all the facilities where the project is being developed, the electricity grid and the power plants from which facilities obtain electricity. Please, refer to Figure 2.

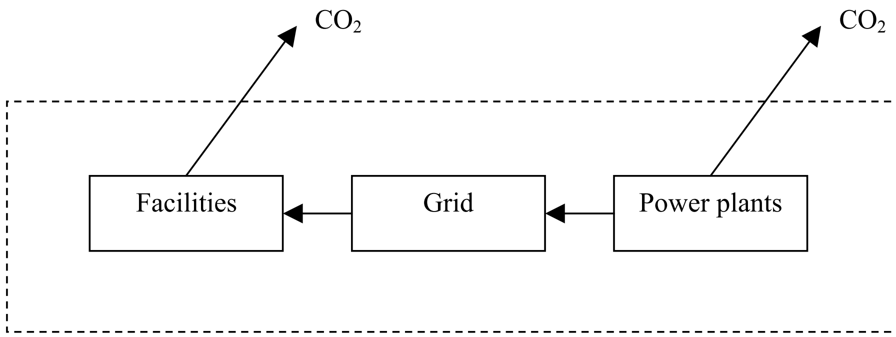

Figure 2 – Project boundary.

B.5. Details of baseline information, including the date of completion of the baseline study and the name of person (s)/entity (ies) determining the baseline:

Date of completion of the baseline study: 31/05/2005.
Contact information: Ecoinvest (carbon advisory), please refer to Annex 1.

SECTION C. Duration of the project activity / Crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

01/01/2001.

C.1.2. Expected operational lifetime of the project activity:

20 years.

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

C.2.1. Renewable crediting period

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

Not applicable.

C.2.1.2. Length of the first crediting period:

Not applicable.

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

01/01/2004

C.2.2.2. Length:

10 years, 0 months.

SECTION D. Application of a monitoring methodology and plan

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

Proposed NMM - "Demand-side electricity management for food retailers, supermarkets, hypermarkets, shopping centers and other similar commercial activities"

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

Project meets the conditions:

4. Project activity is developed in food retailers, supermarkets, hypermarkets, shopping centers and other similar commercial activities.

5. Electricity management program results in the reduction of electricity consumption at one site or a group of different sites where the project activity is developed.

6. Electricity consumption is directly related to the sales area of the set of project sites. The quotient between electricity consumption and sales area is used to characterize the electricity intensity of the project activity.

D.2. 1. Option 1: Monitoring of the emissions in the project scenario and the baseline scenario

D.2.1.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:								
ID number *(Please use numbers to ease cross-referencing to D.3)*	Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment
1. TDL_n	*Transmission and distribution losses*	*Obtained from the national authority that operates the electricity system or another reliable source*	*%*	*e*	*Annualy*	*100%*	*Electronic and paper*	-
2. EF_n	*Emission factor of electricity*	*Calculated from the technical literature and monitored variables in*	*tCO_2/MWh*	*c*	*Once, at the validatio n*	*100%*	*Electronic and paper*	-

		the project						
3. EF	*Emission factor for a specific fuel*	*Calculated from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories" and lower heating value of the fuel*	*tC/mass or volume units of the fuel*	*c*	*Once, at the validation*	*100%*	*Electronic and paper*	-
4. EC_n	*Electricity consumption in the project activity, for each source n of electricity within the project boundary, monitored in each year of the crediting*	*Monitored in the project*	*MWh*	*m*	*Annualy*	*100%*	*Electronic and paper*	-

	period							
5. OS_n	*Emissions from other sources inside project activity, related to project activity*	*Calculated from the technical literature and monitored variables in the project*	tCO_2	*c*	*Annualy*	*100%*	*Electronic and paper*	-
6. FC_n	*Fuel consumption in each one of other sources n, monitored in each year of the crediting period*	*Monitored in the project*	*volume or mass units of fuel*	*m*	*Annualy*	*100%*	*Electronic and paper*	-

D.2.1.2. Description of formulae used to estimate project emissions (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

Project activity emissions, *PE*, are calculated as:

$$PE = \sum_n \left[EC_n \cdot \left(1 + \frac{TDL_n}{100} \right) \cdot EF_n \right] + \sum_n OS_n \quad [tCO_2]$$

- EC_n is the electricity consumption in the project activity, for each source *n* of electricity within the project boundary, monitored in each year of the crediting period, in [MWh].

- EF_n is the emission factor of electricity, for each source *n* of electricity, within the project boundary, in [tCO_2/MWh].

- OS_n are the emissions from other sources inside project activity, related to project activity, in [tCO2]. For instance, LPG gas ovens.

- TDL_n is the factor that characterizes transmission and distribution losses associated with each specific source of electricity within the project boundary, in [%].

Other Sources

Generally, other sources of greenhouse gases emissions due to project activity are fossil fuel related emissions induced by the reduction of electricity consumption, for instance, electrical ovens are substituted by gas ovens. In these cases, emissions are calculated as:

$$OS = FC \cdot \frac{44}{12} \cdot EF \quad [tCO_2]$$

- *FC* is the fuel consumption, monitored in each year of the crediting period, in [volume or mass units of fuel].

- *EF* is the emission factor of the fuel, in [tC/volume or mass units of fuel].

D.2.1.3. Relevant data necessary for determining the baseline of anthropogenic emissions by sources of GHGs within the project boundary and how such data will be collected and archived :								
ID number *(Please use numbers to ease cross-referencing to table D.3)*	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

7. SA	*Sales area, monitored in each year of the project activity*	*Monitored in the project*	*m^2*	*m*	*Annualy*	*100%*	*Electronic and paper*	-
8. EI_n	*Electricity intensity in the baseline, for each source n of electricity*	*Calculated from monitored variables, in the project*	*MWh/m^2*	*c*	*Once, at the validation*	*100%*	*Electronic and paper*	-
9. TDL_n	*Transmission and distribution losses*	*Obtained from the national authority that operates the electricity system or another reliable source*	*%*	*e*	*Annualy*	*100%*	*Electronic and paper*	-

10. EF_n	*Emission factor of electricity*	*Calculated from the technical literature and monitored variables in the project*	*tCO_2/MWh*	*c*	*Once, at the validation*	*100%*	*Electronic and paper*	-
11. EF_C	*Emission factor for a specific fuel*	*Obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"*	*tC/TJ*	*e*	*Once, at the validation*	*100%*	*Electronic and paper*	-
12. OXID	*Oxidization factor for specific fuel*	*Obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"*	*%*	*e*	*Once, at the validation*	*100%*	*Electronic and paper*	-

13. 44/12	*Carbon conversion factor*	*Obtained from the technical literature*	*tCO_2/tC*	*e*	*Once, at the validation*	*100%*	*Electronic and paper*	-
14. 0.0036	*Energy units conversion factor*	*Obtained from the technical literature*	*TJ/MWh*	*e*	*Once, at the validation*	*100%*	*Electronic and paper*	-
15. η	*Thermal efficiency of the plant*	*Obtained from the technical literature*	*non dimensional*	*e*				
16. OM	*Operating margin of the grid, calculated in accordance with ACM0002*	*Calculated*	*tCO_2/MWh*	*c*	*Once, at the validation*	*100%*	*Electronic and paper*	-
17. BM	*Build margin of the grid, calculated in accordance with ACM0002*	*Calculated*	*tCO_2/MWh*	*c*	*Once, at the validation*	*100%*	*Electronic and paper*	-

18. w_1	*Weight for the operating margin, calculated in accordance with ACM0002*	*Calculated*	*non dimensional*	*C*	*Once, at the validation*	*100%*	*Electronic and paper*	-
19. w_2	*Weight for the build margin, calculated in accordance with ACM0002*	*Calculated*	*non dimensional*	*C*	*Once, at the validation*	*100%*	*Electronic and paper*	-
20. EC_n	*Electricity consumption in the project activity, for each source n of electricity within the project boundary, monitored in each year of the crediting period*	*Monitored in the project*	*MWh*	*m*	*Annualy*	*100%*	*Electronic and paper*	-

D.2.1.4. Description of formulae used to estimate baseline emissions (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

Baseline emissions, *BE*, are calculated as:

$$BE = SA \cdot \sum_n \left[EI_n \cdot \left(1 + \frac{TDL_n}{100}\right) \cdot EF_n \right] \quad [tCO_2]$$

- *SA* is the sales area, monitored in each year of the project activity, in [m^2].

- EI_n is the electrical intensity in the baseline scenario, for each source *n* of electricity within the project boundary, calculated with basis on the average electricity intensity of, at least, three years previous to project activity, in [MWh/m^2].

- TDL_n is the factor that characterizes transmission and distribution losses associated with each specific source of electricity within the project boundary, in [%].

- EF_n is the greenhouse gases emission factor of each source *n* of electricity, within the project boundary, in [tCO_2/MWh].

(1) EI_n

EI_n is electrical intensity in the baseline scenario, for each source *n* of electricity within the project boundary, calculated as the average from the monitored electricity consumption related to the sales area, at least, for three years during project implementation:

$$EI_n = \frac{\sum_{i=1}^{3} (EI_n)_i}{3} \quad [MWh/reference\ units]$$

$(EI_n)_i$ is the electrical intensity of the stores within project boundary, for each source *n* of electricity, in each one of the three baseline years *i*, in [MWh/m^2], calculated as:

1. $$\left(EI_n\right)_i = \frac{\left(EC_n\right)_i}{SA_i} \quad [\text{MWh/m}^2]$$

2.
3. - $(EC_n)_i$ is the electricity consumption of the facilities within the project boundary in year *i* of the baseline period, for each source *n* of electricity, in [MWh].
4.
5. - SA_i is the sales area of the project in year *i* of the baseline, in [m^2].
6.
7.
8. **(2) TDL_n**

TDL_n is the factor that characterizes transmission and distribution losses associated with each specific source of electricity within the project boundary, in [%].

Losses in electricity supply systems depend on several factors: distances involved, quality of the equipment, operation and maintenance procedures and voltage levels. Despite high average efficiencies in most electricity grids, significant losses can take place in transmissions lines, distribution transformers, distribution lines, etc.

In a conservative approach, the losses monitored and recognized preferably by the oficial authority operating the electricity system must be used. Other reliable sources may be considered.

9. **(3) EF_n**
10.

The electricity emission factor is calculated in one of the following manners:

Electricity from a specific power plant

If electricity is generated from a specific power plant, for instance, a cogeneration plant, emissions must be calculated using specific fuel consumption and fuel emission factor. The general equation would be:

$$EF_n = \frac{f \cdot COEF}{e} \quad [\text{tCO}_2\text{/MWh}]$$

In the equation, *f* is the amount of fuel, in mass or volume units, that would be consumed by the power plant to generate *e* [MWh] of electricity, and *COEF* is the CO_2 coefficient of fuel, in [tCO_2/mass or volume unit of the fuel].

Since this is the baseline scenario, no actual consumption of fuel takes place. For this reason, the product (*f* . *COEF*) must be estimated from the following formulae:

$$f = \frac{e \cdot 0.0036}{\eta \cdot NCV} \quad \text{[fuel mass or volume]}$$

$$COEF = NCV \cdot EF_C \cdot 44/12 \cdot OXID \quad [tCO_2\text{/fuel mass or volume}]$$

$$\left(f \cdot COEF\right) = \frac{e \cdot EF_C \cdot OXID \cdot 44/12 \cdot 0.0036}{\eta} \quad [tCO_2]$$

Variables and parameters are:

- *e* is the electricity actually consumed by the project activity, in [MWh].
- EF_C is the emission factor, obtained from the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, in [tC/TJ].
- *OXID* is the oxidization factor, obtained from the Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, in [%].
- 44/12 is the carbon conversion factor, in [tCO_2/tC].
- 0.0036 is the energy units conversion factor, in [TJ/MWh].
- η is the thermal efficiency of the plant, [non dimensional].
- *NCV* is the net calorific value of fuel *i* and is not used.

Hence,

$$EF_n = 0.0036 \cdot \frac{44}{12} \cdot \frac{EF_C \cdot OXID}{\eta} \quad [tCO_2/MWh]$$

<u>Electricity from the grid</u>

In the case of electricity being purchased from the grid, formulae to determine the emission factor of the baseline are the same as that of the Approved Consolidated Methodology 0002, section **Baseline emission due to displacement of electricity**. In this case, the influence of the project activity is the avoidance of electricity in the combined margin of the grid, for the same reasons as that of grid connected generation of renewable electricity. ACM0002 calculates the emission factor of the grid, EF_n in [$kgCO_2$/MWh], based on the concepts of operating and build margins:

$$EF_n = w_1 \cdot OM + w_2 \cdot BM \quad [tCO_2/MWh]$$

Variables and parameters are:

- *OM* is the operating margin of the grid, calculated as indicated in ACM0002, in [tCO_2/MWh].
- *BM* is the build margin of the grid, calculated as indicated in ACM0002, in [tCO_2/MWh].
- w_1 is the weight for the operating margin, calculated as indicated in ACM0002, [non dimensional].
- w_2 is the weight for the build margin, calculated as indicated in ACM0002, [non dimensional].

D. 2.2. Option 2: Direct monitoring of emission reductions from the project activity (values should be consistent with those in section E).

D.2.2.1. Data to be collected in order to monitor emissions from the project activity, and how this data will be archived:								
ID number *(Please use numbers to ease cross-referencing to table D.3)*	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
NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

D.2.2.2. Description of formulae used to calculate project emissions (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.):

Not applicable.

D.2.3. Treatment of leakage in the monitoring plan

D.2.3.1. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project activity								
ID number *(Please use numbers to ease cross-referencing to table D.3)*	Data variable	Source of data	Data unit	Measured (m), calculated (c) or estimated (e)	Recording frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	Comment
NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

NA	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

D.2.3.2. Description of formulae used to estimate leakage (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

Not applicable

D.2.4. Description of formulae used to estimate emission reductions for the project activity (for each gas, source, formulae/algorithm, emissions units of CO_2 equ.)

Project emissions reductions are calculated as:

$$ER = BE - PE - L$$

[tCO_2]

$$ER = SA \cdot \sum_n \left[EI_n \cdot \left(1 + \frac{TDL_n}{100}\right) \cdot EF_n \right] - \sum_n \left[EC_n \cdot \left(1 + \frac{TDL_n}{100}\right) \cdot EF_n \right] - \sum_n OS_n - L$$

D.3. Quality control (QC) and quality assurance (QA) procedures are being undertaken for data monitored

Data *(Indicate table and ID number e.g. 3.-1.; 3.2.)*	Uncertainty level of data (High/Medium/Low)	Explain QA/QC procedures planned for these data, or why such procedures are not necessary.
NA	*NA*	*NA*
NA	*NA*	*NA*

D.4 Please describe the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects, generated by the project activity

Project has a management software that controls energy consumption.

D.5 Name of person/entity determining the monitoring methodology:

Date of completion of the baseline study: 31/05/2005.
Contact information: Ecoinvest (carbon advisory), please refer to Annex 1.

SECTION E. Estimation of GHG emissions by sources

The following calculations are just an example of the application of the methodology. For a final version of the PDD, numbers must be revised.

The monitoring series presented in Table 6, will be considered in this section.

Table 6 – Monitored variables.

Year	EC_1 [MWh]	SA [m^2]	EC_2 [MWh]	FC [kg]
2001	780,000	659,898	67,890	3,851,229
2002	684,000	674,556	67,890	3,851,229
2003	891,000	878,698	67,890	3,851,229
2004	957,000	1,081,356	67,890	3,851,229
2005	957,000	1,081,356	67,890	3,851,229
2006	957,000	1,081,356	67,890	3,851,229
2007	957,000	1,081,356	67,890	3,851,229
2008	957,000	1,081,356	67,890	3,851,229
2009	957,000	1,081,356	67,890	3,851,229
2010	957,000	1,081,356	67,890	3,851,229
2011	957,000	1,081,356	67,890	3,851,229
2012	957,000	1,081,356	67,890	3,851,229
2013	957,000	1,081,356	67,890	3,851,229

EC_1 is the electricity consumption of the grid.
EC_2 is the electricity consumption from diesel generators.
SA is the sales area.
FC is the consumption of LPG (liquified petroleum gas).

E.1. Estimate of GHG emissions by sources:

Project emissions are:

$$PE = \sum_n \left[EC_n \cdot \left(1 + \frac{TDL_n}{100}\right) \cdot EF_n \right] + \sum_n OS_n$$

In the of CBD project, there are two sources of electricity:

- EC_1 is the electricity consumption of the grid
- EC_2 is the electricity consumption from diesel generators.

And, just one other source of greenhouse gases emissions:

- OS is the use of LPG in ovens.

Then, project emissions become:

$$PE = EC_1 \cdot \left(1 + \frac{TDL_1}{100}\right) \cdot EF_1 + EC_2 \cdot \left(1 + \frac{TDL_2}{100}\right) \cdot EF_2 + OS$$

- EC_1 is monitored in the crediting period. Please, refer to Table 6
- TDL_1 is obtained from the ONS (National Dispatch Center), TDL_1 = 7%
- EF_1 is calculated with the application of methodology ACM0002, i.e.:
  $$EF_1 = w_1 \cdot OM + w_2 \cdot BM$$
  Since the purpose here is not evaluating methodology ACM0002, only the final results will be presented: $w_1 = 0.5$; $w_2 = 0.5$; OM = 0.452 tCO_2/MWh; BM = 0 tCO_2/MWh. And the result is: EF_1 = 0.226 tCO_2/MWh.

- EC_2 is monitored in the crediting period. Please, refer to Table 6
- TDL_2 is zero, since generation is inside the facility
- EF_2 is calculated with the application of the equation:
  $$EF_2 = 0.0036 \cdot \frac{44}{12} \cdot \frac{EF_C \cdot OXID}{\eta}$$
  EF_C is the emission factor for diesel obtained from the IPCC: EF_C = 20.2 tC/TJ. $OXID$ is the oxidization factor from the IPCC, $OXID$ = 99%. And η is the thermal efficiency of the plant calculated from the consumption of diesel and electricity generation. A theoretic value will be considered for estimation purposes: η = 30%. The result for EF_2 is: EF_2 = 0.880 tCO_2/MWh.

- OS are the emissions due to the consumption of LPG in ovens. It is calculated as
  $$OS = FC \cdot \frac{44}{12} \cdot EF_C$$
  FC is the fuel consumption monitored during the crediting period, please refer to Table 6. EF_C is the emission factor for the GLP obtained from the IPCC: EF_C = 17.2 tC/TJ.

From Table 6 and formulae above, emissions from grid electricity are presented in Table 7, emissions from diesel electricity, in Table 8, and emissions from LPG, in Table 9.

Table 7 – Emissions from grid electricity.

Year	EC_1 [MWh]	TDL_1 [%]	EF_1 [tCO_2/MWh]	Emissions [tCO_2]
2004	957,000	7	0.226	231,422
2005	957,000	7	0.226	231,422
2006	957,000	7	0.226	231,422
2007	957,000	7	0.226	231,422
2008	957,000	7	0.226	231,422
2009	957,000	7	0.226	231,422
2010	957,000	7	0.226	231,422
2011	957,000	7	0.226	231,422
2012	957,000	7	0.226	231,422
2013	957,000	7	0.226	231,422

Table 8 – Emissions from diesel electricity.

Year	EC_2 [MWh]	TDL_2 [%]	EF_2 [tCO_2/MWh]	Emissions [tCO_2]
2004	67,890	0	0.880	59,737
2005	67,890	0	0.880	59,737
2006	67,890	0	0.880	59,737
2007	67,890	0	0.880	59,737
2008	67,890	0	0.880	59,737
2009	67,890	0	0.880	59,737
2010	67,890	0	0.880	59,737
2011	67,890	0	0.880	59,737
2012	67,890	0	0.880	59,737
2013	67,890	0	0.880	59,737

Table 9 – Emissions from LPG consumption.

Year	*FC* [kg]	EF_C [tC/kg]	*OS* [tCO_2]
2004	3,851,229	0.0008	11,288
2005	3,851,229	0.0008	11,288
2006	3,851,229	0.0008	11,288
2007	3,851,229	0.0008	11,288
2008	3,851,229	0.0008	11,288
2009	3,851,229	0.0008	11,288
2010	3,851,229	0.0008	11,288
2011	3,851,229	0.0008	11,288
2012	3,851,229	0.0008	11,288
2013	3,851,229	0.0008	11,288

From summing results of Tables 7, 8 and 9, project emissions is presented in Table 10:

Table 10 – Project emissions.

Year	*PE* [tCO_2]
2004	302,447
2005	302,447
2006	302,447
2007	302,447
2008	302,447
2009	302,447
2010	302,447
2011	302,447
2012	302,447
2013	302,447

E.2. Estimated leakage:

No leakage is considered.

E.3. The sum of E.1 and E.2 representing the project activity emissions:

Since no leakage is considered, project emissions are in Table 10.

E.4. Estimated anthropogenic emissions by sources of greenhouse gases of the baseline:

Baseline emissions are:

$$BE = SA \cdot \sum_n \left[EI_n \cdot \left(1 + \frac{TDL_n}{100}\right) \cdot EF_n \right]$$

In the of CBD project, there are two electricity intensities in the baseline:

- EI_1 is the electricity intensity of grid electricity
- EI_2 is the electricity intensity of diesel electricity.

Then, baseline emissions become:

$$BE = SA \cdot \left[EI_1 \cdot \left(1 + \frac{TDL_1}{100}\right) \cdot EF_1 + EI_2 \cdot \left(1 + \frac{TDL_2}{100}\right) \cdot EF_2 \right]$$

- SA is the monitored sales area. Please, refer to Table 6

- EI_1 is calculated as:

$$EI_1 = \frac{\sum_{i=2001}^{2003} (EI_1)_i}{3}$$

Table 6 provides for the values of:

$(EI_1)_{2001} = (EC_1)_{2001}/SA_{2001} = 1.18$ MWh/m²
$(EI_1)_{2002} = (EC_1)_{2002}/SA_{2002} = 1.01$ MWh/m²
$(EI_1)_{2003} = (EC_1)_{2003}/SA_{2003} = 1.01$ MWh/m²

The result for EI_1 is: $EI_1 = 1.07$ MWh/m^2.

- TDL_1 is obtained from the ONS (National Dispatch Center), $TDL_1 = 7\%$

- EF_1 is calculated with the application of methodology ACM0002, i.e.:

$$EF_1 = w_1 \cdot OM + w_2 \cdot BM$$

Since the purpose here is not evaluating methodology ACM0002, only the final results will be presented: $w_1 = 0.5$; $w_2 = 0.5$; $OM = 0.452$ tCO_2/MWh; $BM = 0$ tCO_2/MWh. And the result is: $EF_1 = 0.226$ tCO_2/MWh.

- EI_2 is calculated as:

$$EI_2 = \frac{\sum_{i=2001}^{2003} (EI_2)_i}{3}$$

Table 6 provides for the values of:

$(EI_2)_{2001} = (EC_2)_{2001}/SA_{2001} = 0.10$ MWh/m^2
$(EI_2)_{2002} = (EC_2)_{2002}/SA_{2002} = 0.10$ MWh/m^2
$(EI_2)_{2003} = (EC_2)_{2003}/SA_{2003} = 0.07$ MWh/m^2

The result for EI_2 is: $EI_2 = 0.09$ MWh/m^2.

- TDL_2 is zero, since generation is inside the facility

- EF_2 is calculated with the application of the equation:

$$EF_2 = 0.0036 \cdot \frac{44}{12} \cdot \frac{EF_C \cdot OXID}{\eta}$$

EF_C is the emission factor for diesel obtained from the IPCC: $EF_C = 20.2$ tC/TJ. $OXID$ is the oxidization factor from the IPCC, $OXID = 99\%$. And η is the thermal efficiency of the plant calculated from the consumption of diesel and electricity generation. A theoretic value will be considered for estimation purposes: $\eta = 30\%$. The result for EF_2 is: $EF_2 = 0.880$ tCO_2/MWh.

From Table 6 and formulae above, emissions in the baseline for grid electricity are presented in Table 11, and for diesel electricity, in Table 12.

Table 11 – Emissions from grid electricity, in the baseline.

Year	EI_1 [MWh]	TDL_1 [%]	EF_1 [tCO_2/MWh]	Emissions [tCO_2]
2004	1.07	7	0.226	280,071
2005	1.07	7	0.226	280,071
2006	1.07	7	0.226	280,071
2007	1.07	7	0.226	280,071
2008	1.07	7	0.226	280,071
2009	1.07	7	0.226	280,071
2010	1.07	7	0.226	280,071
2011	1.07	7	0.226	280,071
2012	1.07	7	0.226	280,071
2013	1.07	7	0.226	280,071

Table 12 – Emissions from diesel electricity, in the baseline.

Year	*EI_2* [MWh]	*TDL_2* [%]	*EF_2* [tCO_2/MWh]	Emissions [tCO_2]
2004	0.09	0	0.880	88,671
2005	0.09	0	0.880	88,671
2006	0.09	0	0.880	88,671
2007	0.09	0	0.880	88,671
2008	0.09	0	0.880	88,671
2009	0.09	0	0.880	88,671
2010	0.09	0	0.880	88,671
2011	0.09	0	0.880	88,671
2012	0.09	0	0.880	88,671
2013	0.09	0	0.880	88,671

From summing results of Tables 11 and 12, baseline emissions is presented in Table 13:

Table 13 – Baseline emissions.

Year	*PE* [tCO_2]
2004	368,742
2005	368,742
2006	368,742
2007	368,742
2008	368,742
2009	368,742
2010	368,742
2011	368,742
2012	368,742
2013	368,742

E.5. Difference between E.4 and E.3 representing the emission reductions of the project activity:

Emissions reductions are:

Table 14 – Emissions reductions.

Year	*PE* [tCO_2]
2004	66,295
2005	66,295
2006	66,295
2007	66,295
2008	66,295
2009	66,295
2010	66,295
2011	66,295
2012	66,295
2013	66,295

E.6. Table providing values obtained when applying formulae above:

Table 15 – Emissions reductions.

Year	Estimated project emissions [tCO_2]	Estimated baseline emissions [tCO_2]	Estimated leakage [tCO_2]	Estimated emissions reductions [tCO_2]
2004	302,447	368,742	0	66,295
2005	302,447	368,742	0	66,295
2006	302,447	368,742	0	66,295
2007	302,447	368,742	0	66,295
2008	302,447	368,742	0	66,295
2009	302,447	368,742	0	66,295
2010	302,447	368,742	0	66,295
2011	302,447	368,742	0	66,295
2012	302,447	368,742	0	66,295
2013	302,447	368,742	0	66,295
TOTAL	3,024,470	3,687,420	0	662,295

SECTION F. Environmental impacts

F.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

This section is intentionally left blank.

F.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

This section is intentionally left blank.

SECTION G. Stakeholders' comments

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

This section is intentionally left blank.

G.2. Summary of the comments received:

This section is intentionally left blank.

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

This section is intentionally left blank.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Companhia Brasileira de Distribuição – Pão de Açúcar Group
Street/P.O.Box:	Av. Brigadeiro Luís Antonio, 3172
Building:	
City:	São Paulo
State/Region:	SP
Postfix/ZIP:	01402-901
Country:	Brazil
Telephone:	55 11 3886-0421
FAX:	55 11 3884 2677
E-Mail:	
URL:	www.paodeacucar.com.br
Represented by:	Ecoinvest Carbon
Title:	Mr.
Salutation:	
Last Name:	Leme
Middle Name:	Marcelo
First Name:	Rodrigo
Department:	
Mobile:	
Direct FAX:	
Direct tel:	55 11 3063 9068
Personal E-Mail:	rodrigo.leme@ecoinv.com

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

The project is being developed on equity basis. CBD has implemented the project without public funding or other source of debt.

Annex 3

BASELINE INFORMATION

Variable or parameter	Description	Unit	Reference
SA	Sales area, monitored in each year of the project activity	m^2	Monitored in the project
EI_n	Electricity intensity in the baseline, for each source *n* of electricity within the project boundary, calculated with basis on the average electricity intensity of the three years previous to project activity	MWh/m^2	Calculated from monitored variables, in the project
TDL_n	Factor that characterizes transmission and distribution losses associated with each specific source *n* of electricity within the project boundary	%	Obtained from the national authority that operates the electricity system or another reliable source
EF_n	Emission factor of electricity, for each source *n* of electricity within the project boundary	tCO_2/MWh	Calculated from the technical literature and monitored variables in the project
$(EC_n)_i$	Electricity consumption of the project in year *i* of the baseline period,	MWh	Monitored in the project

	for each source *n* of electricity within the project boundary.		
SA_i	Sales area of the project in year *i* of the baseline	m^2	Monitored in the project
EF_C	Emission factor for a specific fuel, obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"	tC/TJ	Obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"
EF	Emission factor for a specific fuel, calculated from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"	tC/mass or volume units of the fuel	Calculated from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories" and lower heating value of the fuel
OXID	Oxidization factor for specific fuel, obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"	%	Obtained from the "Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories"
44/12	Carbon conversion factor	tCO_2/tC	Obtained from the technical literature
0.0036	Energy units conversion factor	TJ/MWh	Obtained from the technical literature
η	Thermal efficiency of the plant	non dimensional	Obtained from the technical literature
OM	Operating margin of the grid, calculated in accordance with ACM0002	tCO_2/MWh	Calculated
BM	Build margin of the grid, calculated in accordance with ACM0002	tCO_2/MWh	Calculated

w_1	Weight for the operating margin, calculated in accordance with ACM0002	non dimensional	Calculated
w_2	Weight for the build margin, calculated in accordance with ACM0002	non dimensional	Calculated
EC_n	Electricity consumption in the project activity, for each source *n* of electricity within the project boundary, monitored in each year of the crediting period	MWh	Monitored in the project
OS_n	Emissions from other sources inside project activity, related to project activity	tCO_2	Calculated from the technical literature and monitored variables in the project
FC_n	Fuel consumption in each one of other sources *n*, monitored in each year of the crediting period	volume or mass units of fuel	Monitored in the project

Annex 4

MONITORING PLAN

This section is intentionally left blank (see section D for monitoring information).

- - - - -