CDM Monitoring Report

Braço Norte III Small Hydro Plant

Project CDM ID: 0667

Project registration date: November, 25th 2006

Monitoring period: 01/12/2008 – 30/04/2009

May, 14th 2009

Version: 01

1. Project background

"Braço Norte III Small Hydro Plant" has been registered as CDM project by the UNFCCC on November 25th, 2006 under reference number 0667.

Further background on this project can be found in the PDD and associated documents, which are available on the UNFCCC website:

http://cdm.unfccc.int/Projects/DB/SGS-UKL1158861297.48/view.html

Parties involved are Brazil (Host Country) and Netherlands and Switzerland (Annex 1 Parties). The Project Participants are Guarantã Energética Ltda. (Project Developer and Operator), C-Trade Comercializadora de Carbono Ltda, Lumina Engenharia e Consultoria Ltda and EcoSecurities Internacionall Ltd (CO_2 Advisor).

2. Project implementation in relation to registered PDD

2.1. Implementation status

The Braço Norte III Plant is a small run of river hydro plant (14.16 MW), with a small reservoir, that generates almost no environmental impact. It is located in a remote region in the northern portion of the State of Mato Grosso. The Braço Norte III Project improves the supply of electricity with clean, renewable hydroelectric power while contributing to the regional/local economic development. Small scale hydropower run-of-river plants provide local distributed generation, in contrast with the business as usual large hydropower and natural gas fired plants built in the last 5 years. The project started operation on October, 2003.

2.2. Operation of the project

The project was fully operational per October, 2003. The project has been operating since this date. "Operational" in this context includes downtime due to maintenance or technical issues.

2.3. Forecasted emission reductions versus actual emission reductions

The forecasted emission reduction in the PDD is 40,230 tCO_2/year. The actual power output over this monitoring period (151 days) was 22,686 tCO_2eq. The emission reductions in this monitoring period are not significantly higher than forecasted in the PDD.

3. Compliance of the monitoring plan with the monitoring methodology

This project has been registered under the methodology AMS-I.D (version.8 of March 3rd, 2006.) The project has not sought revision or deviation to the monitoring plan in the previous monitoring period. The validated monitoring plan is therefore in accordance with the approved methodology applied to the CDM project activity.

4. Compliance of monitoring with the monitoring plan

Monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD.

The monitoring period covers 01/12/2008 00:00 to 30/04/2009 24:00. The starting date [03/09/2003] is before the registration date [25/11/2006] and the last day of the last monitoring period [30/11/2008]. The monitoring period ending date is before the end of the crediting period [24/11/2013].

4.1. Monitoring parameters

Data/parameter:	EG_y
Data unit:	MWh
Description:	Net electricity delivered to the grid
Source of data used:	Project developer and Energy buyer (CEMAT) monitoring system
Value for this monitoring period:	42,293
Description of measurement methods and procedures applied:	The electricity delivered to the grid is monitored by the project (seller) as well as by the energy buyer (CEMAT).
QA/QC procedures applied:	According to national standards, equipment will be subject to a regular maintenance, calibration and testing regime to ensure accuracy. Collected data has low uncertainty levels and to guarantee its accuracy it will be cross checked with the electricity sales receipts obtained from the grid operator (CEMAT).
Comments:	Data will be archived at least for two years after the crediting period.

4.2. Project emissions

The project emission are considered zero since it is a renewable energy project.

4.3. Baseline emissions

4.3.1 Baseline emission (energy component)

Baseline emissions are calculated as BE = EG_y * EF_{grid}, in which [i] BE = baseline emissions [tCO2eq]; [ii] EG_y = annual net electricity generated from the Project and delivered to the grid [MWh]; [iii] EF_{grid} = Emission Factor [tCO2e/MWh].

EG_y = 42,293 MWh for this monitoring period [see section 4.1];

EF_{grid} = 0.5364 tCO2e/MWh [see validated PDD]

BE = 42,293 MWh * 0.5364 tCO2e/MWh = 22,686 tCO2eq [see methodology AMS-I.D ver.8].

4.4. Leakage emissions

For the electricity component, calculation of leakage is not applicable as the renewable energy technology used is not equipment transferred from another activity. Therefore, as per the Simplified Procedures for SSC Project Activities no leakage calculation is required.

4.5. Management and operational system

The responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan on page 19 (PDD).

4.6. Accuracy of monitoring equipment

The accuracy of the monitoring results are in conformity with calibration requirements, recording frequency and quality assurance and quality control procedures stated in the monitoring plan.

4.6.1. Calibration of monitoring equipment

The site uses power meters for the measurement of exported electricity to the grid. All meters used for the calculation of emission reductions were duly calibrated by accredited agencies, using applicable national standards.

Meter	Nr	Calibration standard	Calibrated by	Certificate Number	Certificate Date
Electricity meter – SL 7000	37103198	NBR14521	CEMAT	MTBN03USINA01	25/11/2008
Electricity meter – SL 7000	37103196	NBR14521	CEMAT	MTBN03USINA01	25/11/2008

4.6.2. Monitoring frequency

The parameters to be monitored were read with the frequency indicated in section 4.1 of this document. This corresponds with the requirements from methodology AMS-I.D. ver.8 and the validated monitoring plan.

4.6.3. Quality Assurance and Quality Control

Monitoring organisation

A monitoring organization has been set up. This involved setting up an organization and the development of procedures for

a) CDM staff training;

b) CDM data and record keeping arrangements;

c) Data collection;

d) CDM data quality control and quality assurance;

e) Equipment maintenance;

f) Equipment calibration;

g) Equipment failure;

CDM staff training has taken place and this can be proven by training records which are available on site. Procedures for data collection, archiving and data quality assurance and quality control were described in a monitoring manual. The monitoring manual has been signed off by the project developer and is available on site. Procedures for equipment maintenance, failure and calibration have been included in this monitoring manual.

Monitoring equipment and installation

The meters were installed by qualified technicians and the proper functioning there of has been proven during calibration [see section 4.6.1 above].

During the monitoring period no failure of meters occurred. Failure is proven when zero readings occur when project activities take place or when cross checks show deviations from expected values. Meter failures and replacements are registered in the log book and the procedure for this has been described in the monitoring manual.

Data records and management

Data records are filed electronically each month and kept for 2 years after the end of the crediting period. The procedures for data management are described in the monitoring manual.

Internal audits

The implementation of the monitoring manual is checked regularly by EcoSecurities during field visits and/or the consistency and plausibility of the data which are processed each month.

4.6.4. Forward Action Requests

No forward action requests remain from previous verifications.

5. Calculation of emission reductions

Calculation of emission reductions took place on the basis of a complete set of cross checked data, applying the approved methodology. No assumptions, IPCC default data or other reference values were required for this calculation. Calculations are summarized in Annex A.

5.1. Data completeness

All data were monitored according to the frequency indicated in the validated monitoring plan. A complete set of data was used in the calculation of emission reductions. There was therefore no reason to apply a conservative scenario in view of partial data availability.

5.2. Cross checks of monitoring data

Events like meter failure or shut down of the project activity are registered in the log book. All procedures are documented in the monitoring manual referred to in section 4.6.3. Implementation of the monitoring manual is regularly checked by EcoSecurities. Where cross checks between measured power output and invoiced power output occurred, an explanation has been sought and the most conservative number applied. Cross checks applied during this period showed that the data used in the calculation of emission reductions are reliable.

5.3. Calculation of emission reductions

Emission reductions have been calculated on the basis of the formulas provided by the validated PDD and the approved methodology. The calculations are shown in Annex A of this document.

5.4. Assumptions in emission calculations

No assumptions were required when calculating the emission reductions over the monitoring period.

5.5. Application of emission factors, IPCC default values and other reference values

The emission factor used in the calculation of the emission reductions is the combined margin grid emission factor. This has been calculated in the PDD and validated. The value is shown in Annex A and it is valid throughout the crediting period. No IPCC default values or other reference values were required in the calculation of emission reductions of this project.

6. Summary

The CDM project activity Braço Norte III Project, CDM reference 0667 has reduced 22,686 tCO2eq in the period 01/12/2008 00:00 to 30/04/2009 24:00. The emission reduction has been calculated as set out in the validated PDD and the approved

methodology. The project activity is implemented as set out in the validated PDD. The validated monitoring plan is in accordance with the approved methodology. Monitoring has been carried out as per validated monitoring plan.

Annex I

Table : Monitored Data

Monitored Data

Data	*Units*	Dec/2008	Jan/2009	Feb/2009	Mar/2009	Apr/2009
Net Electricity generated	MWh	9,575	6,179	7,545	10,117	8,877
Emission Reduction	ER	5,136	3,314	4,047	5,427	4,762

Summary of each year

Data	*Units*	2008 (Dec)	2009	Total
Net electricity	MWh	9,575	32,719	42,293
Grid emission factor	tCO2e/MWh	0.5364	0.5364	
Emission reduction	tCO_2e	5,136	17,550	22,686

Table – Raw data – Sales Invoices

Year	*Month*	*MWh*	*Invoice*	*Client / consumer*
ANO	**MÊS**	**MWh**	**N.F.**	**CLIENTE / CONSUMIDOR**
DEZEMBRO / December				
2,008	Dezembro	1,349.91	42	Autometal S/A
2,008	Dezembro	494.83	43	Autometal SBC
2,008	Dezembro	1,942	44	Sadia S/A
2,008	Dezembro	607.54	45	Deca
2,008	Dezembro	274.98	46	Administração em Complexos Imobiliários Ltda
2,008	Dezembro	281.23	47	Plastpel Embalagens S.A
2,008	Dezembro	659.60	48	Induscar
2,008	Dezembro	803.52	49	Araputanga Centrais Elétricas S.A
2,008	Dezembro	3,007.04	51	Centrais Elétricas Matogossenses S/A
2,008	Dezembro	144.04	52	Jardim Sistemas S/A
2,008	Dezembro	10.00	53	Induscar
TOTAL		**9,575**		
JANEIRO / January				
2,009	Janeiro	623.73	55	Induscar
2,009	Janeiro	281.23	56	Plastpel
2,009	Janeiro	1,941.84	57	Sadia S.A
2,009	Janeiro	1,076.34	58	Autometal S.A
2,009	Janeiro	494.83	59	Autometal SBC
2,009	Janeiro	557.32	60	Deca LTDA
2,009	Janeiro	274.98	61	P2 Admin
2,009	Janeiro	144.04	62	Jardim Sistemas S.A
2,009	Janeiro	784.56	63	Araputanga Centrais Elétricas
TOTAL		**6,179**		

FEVEREIRO / February				
2009	Fevereiro	1,756.53	69	Sadia S/A
2009	Fevereiro	531.25	70	Deca LTDA
2009	Fevereiro	254.39	71	Plastpel
2009	Fevereiro	569.18	72	Induscar
2009	Fevereiro	726.84	73	Araputanga
2009	Fevereiro	1,051.50	74	Autometal S/A
2009	Fevereiro	517.27	75	Autometal SBC
2009	Fevereiro	248.74	76	P2Admin
2009	Fevereiro	130.29	77	Jardim Sistemas S.A
2009	Fevereiro	1,759.29	78	CEMAT
TOTAL		**7,545**		

MARÇO / March				
2009	Março	1,941.84	79	Sadia S/A
2009	Março	469.34	80	Deca LTDA
2009	Março	281.23	81	Plastpel
2009	Março	584.34	82	Induscar
2009	Março	98.00	83	Ecom Energia LTDA
2009	Março	3,684.03	84	CEMAT
2009	Março	803.52	85	Araputanga
2009	Março	489.60	86	Autometal LTDA
2009	Março	274.98	88	P2Admin
2009	Março	1,236.71	90	Autometa S/A
2009	Março	253.70	91	Jardim Sistemas S/A
TOTAL		**10,117**		

ABRIL / April				
2009	Abril	585.74	92	Induscar
2009	Abril	75.00	93	Ecom Energia LTDA
2009	Abril	172.02	94	Deca LTDA
2009	Abril	272.16	95	Plastpel
2009	Abril	1,879.20	96	Sadia S/A
2009	Abril	777.60	98	Araputanga
2009	Abril	503.71	100	Autometal LTDA
2009	Abril	1,416.51	101	Autometal S/A
2009	Abril	266.11	102	P2 Admin
2009	Abril	249.48	103	Jardim Sistemas S/A
20209	Abril	2,663.48	104	CEMAT
2009	Abril	14.23	105	Autometal LTDA
2009	Abril	1.85	106	P2Admin
TOTAL		**8,877**		