

MONITORING REPORT

ALTA MOGIANA BAGASSE COGENERATION PROJECT (AMBCP)

(CDM Registration Reference Number 0181)

Monitoring Periods:

From 6 May, 2002 to 31 December, 2005

Prepared by Econergy Brasil Ltda

09 May, 2006

1. Introduction

This document reports the Emission Reductions (ERs) generated by the Alta Mogiana Bagasse Cogeneration Project (hereinafter AMBCP), CDM Registration Reference Number 0181, from 06/05/02 to 31/12/05.

This project activity consists of increasing the efficiency in the bagasse (a renewable fuel source, residue from sugarcane processing) cogeneration facility at **Usina Alta Mogiana S/A - Açúcar e Álcool**, a Brazilian sugar mill. With the implementation of this project, the mill is able to sell electricity to the national grid, avoiding the dispatch of same amount of energy produced by fossil-fuelled thermal plants to that grid. By that, the initiative avoids CO₂ emissions and contributes to the regional and national sustainable development.

Using steam-Rankine cycle as the basic technology of its cogeneration system, for achieving an increasing amount of surplus electricity to be generated, Alta Mogiana began its efforts in two phases, which are:

	Active/Activating			Stand-by
Phase 1 (2002)	Two refurbished 42 bar boilers			Two backpressure turbo-generators one of 5 and one 7,5 MW
	One 25 MW backpressure turbo-generator			
Phase 2 (2003)	One 42 bar boiler	Two refurbished 42 bar boilers		Two backpressure turbo-generators one of 5 and one 7,5 MW
		One 25 MW backpressure turbo-generator		

The AMBCP operation has been monitored in accordance with the requirements of the applicable Monitoring Methodology AM0015: “Bagasse-based cogeneration connected to an electricity grid” as described in its Project Design Document. Quality assurance and Quality control mechanisms stipulated in the Monitoring Methodology have been applied.

2. Emission Reductions Calculation Formula

ERs generated by the AMBCP are calculated as follows:

Net generation from project during the monitoring period times baseline emission factor =
 (MWh) * (tCO₂e /MWh) = Net CO₂ emissions avoided at grid (tCO₂e)

Where the ex-ante baseline emission factor is 0.2677 tCO₂e/MWh.

The project activity follows the steps provided by the methodology taking into account the (b) Simple Adjusted OM calculation for the STEP 1, since there would be no available data for applying to the preferred option – (c) *Dispatch Data Analysis OM*. For STEP 2, the option 1 was chosen. The following table presents the key information and data used to determine the baseline scenario.

Variable	Data type	Value	Unit	Data Source
EG _y	Electricity supplied to the grid by the Project.	Obtained throughout project activity lifetime.	MWh	Alta Mogiana
EF _y	CO ₂ emission factor of the Grid.	0.2677	tCO ₂ e/MWh	Calculated
EF _{OM,y}	CO ₂ Operating Margin emission factor of the grid.	0.4310	tCO ₂ e/MWh	This value was calculated using data from ONS (National System Operator).
EF _{BM,y}	CO ₂ Build Margin emission factor of the grid.	0.1045	tCO ₂ e/MWh	This value was calculated using data from ONS
λ _y	Fraction of time during which low-cost/ must-run sources are on the margin.	λ ₂₀₀₂ = 0.5053 λ ₂₀₀₃ = 0.5312 λ ₂₀₀₄ = 0.5041	-	This value was calculated using data from ONS.

3. Dispatched energy to the grid in the Monitoring Periods

Date (DD/MM/AA)		Amount of energy sold to the grid (MWh)	Invoice number	Invoice date
From	To			
06/05/02	31/05/02	2 160.000	107253	18/06/02
01/06/02	31/06/02	4 212.000	109099	12/07/02
01/07/02	31/07/02	4 352.000	111160	12/08/02
01/08/02	31/08/02	4 352.000	113300	13/09/02
01/09/02	31/09/02	3 667.649	115283	15/10/02
01/10/02	31/10/02	4 340.090	116656	13/11/02
01/10/02	31/10/02	3 722.009	117088	21/11/02
01/11/02	31/11/02	2 106.514	118079	16/12/02
01/12/02	31/12/02	0.000	-	-
01/01/03	31/01/03	0.000	-	-
01/02/03	31/02/03	0.000	-	-
01/03/03	31/03/03	0.000	-	-
01/04/03	31/04/03	1 428.420	125599	19/05/03
01/05/03	31/05/03	5 638.298	127826	16/06/03
01/05/03	31/05/03	561.702	127925	17/06/03
01/06/03	31/06/03	6 800.000	129596	16/07/03
01/06/03	31/06/03	200.000	129597	16/07/03
01/07/03	31/07/03	7 200.000	130943	18/08/03
01/07/03	31/07/03	200.000	130944	18/08/03
01/08/03	31/08/03	6 924.194	132596	18/09/03
01/08/03	31/08/03	275.806	132597	18/09/03
01/09/03	31/09/03	6 360.564	133808	16/10/03
01/09/03	31/09/03	439.436	133809	16/10/03
01/10/03	31/10/03	6 298.342	135124	18/11/03
01/11/03	31/11/03	44.995	136300	12/12/03
01/12/03	31/12/03	0.000	-	-
01/01/04	31/01/04	0.000	-	-
01/02/04	31/02/04	0.000	-	-
01/03/04	31/03/04	0.000	-	-

01/04/04	31/04/04	986.453	142964	18/05/04
01/05/04	31/05/04	4 027.973	144543	15/06/04
01/06/04	31/06/04	5 936.834	146568	15/07/04
01/07/04	31/07/04	7 499.369	148310	16/08/04
01/08/04	31/08/04	6 744.386	150444	14/09/04
01/09/04	31/09/04	6 454.500	152514	15/10/04
01/10/04	31/10/04	4 865.347	153995	12/11/04
01/11/04	31/11/04	1 400.000	155557	10/12/04
01/11/04	31/11/04	250.000	155556	10/12/04
01/11/04	31/11/04	2 742.314	155825	16/12/04
01/12/04	31/12/04	763.363	157253	13/01/05
01/12/04	31/12/04	2 742.314	157252	13/01/05
01/01/05	31/01/05	0.000	-	-
01/02/05	31/02/05	0.000	-	-
01/03/05	31/03/05	0.000	-	-
01/04/05	31/04/05	250.000	166813	16/05/05
01/04/05	31/04/05	2 971.399	166814	16/05/05
01/04/05	31/04/05	1 400.000	166812	16/05/05
01/05/05	31/05/05	6 600.000	168999	17/06/05
01/05/05	31/05/05	2 422.460	169001	17/06/05
01/05/05	31/05/05	250.000	169000	17/06/05
01/06/05	31/06/05	7 600.000	170555	15/07/05
01/06/05	31/06/05	2 269.086	170558	15/07/05
01/06/05	31/06/05	250.000	170556	15/07/05
01/07/05	31/07/05	4 926.365	172849	12/08/05
01/08/05	31/08/05	8 000.000	175230	14/09/05
01/08/05	31/08/05	2 697.768	175231	14/09/05
01/08/05	31/08/05	250.000	175232	14/09/05
01/09/05	31/09/05	8 000.000	177441	19/10/05
01/09/05	31/09/05	250.000	177442	19/10/05
01/09/05	31/09/05	1 500.000	177443	19/10/05
01/09/05	31/09/05	376.171	177444	19/10/05
01/10/05	31/10/05	7 000.000	000891	16/11/05

01/10/05	31/10/05	250.000	000892	16/11/05
01/10/05	31/10/05	1 500.000	000893	16/11/05
01/10/05	31/10/05	1 441.478	000894	16/11/05
01/11/05	31/11/05	1 400.000	002872	13/12/05
01/11/05	31/11/05	250.000	002873	13/12/05
01/11/05	31/11/05	2 000.000	002874	13/12/05
01/11/05	31/11/05	4 910.992	002875	13/12/05
01/12/05	31/12/05	2 437.270	004811	16/01/06

Invoices are available with the project participants.

4. ERs Generated in the Monitoring Periods

Calculation of ERs						
Description	Unit	From 06/05/02 to 31/12/02	From 01/01/03 to 31/12/03	From 01/01/04 to 31/12/04	From 01/01/05 to 31/12/05	Total
Metered Electricity Supply	MWh	28 912.262	42 371.757	44 412.853	71 202.989	186 899.861
Baseline Emission Factor	tCO ₂ e/MWh	0.2677	0.2677	0.2677	0.2677	0.2677
Emission Reductions (ERs)	tCO ₂ e	7 739.812	11 342.919	11 889.320	19 061.040	50 033.092

In accordance with the formula in section 2, the AMBCP has in the monitoring periods generated **50 033 tCO₂e**.