

**DCM SHRIRAM CONSOLIDATED LTD**

**MONITORING REPORT**

**Ajbapur Sugar Complex Cogeneration Project**

CDM REGISTRATION REFERENCE NO: 0332

Monitoring period: 1<sup>st</sup> October 2005 to 31<sup>st</sup> December 2006

Prepared by: DSCL, Agrinergy

Date: 18<sup>th</sup> January , 2007, Version 1

## Introduction

The data presented in this verification report has been collected in line with the PDD for the registered CDM project, Ajbapur Sugar Complex Cogeneration Project, reference number 0332. The starting date of the period under verification is the 1<sup>st</sup> October 2005 and the ending date is 31<sup>st</sup> December 2006.

The project involves the generation of electricity in the Ajbapur sugar factory located at Ajbapur village, Lakhimpur Kheri district, in the state of Uttar Pradesh, India. The fuel used in the power plant is bagasse, a fibrous material derived from the crushing of sugar cane. The combustion of this biomass residue therefore results in the generation of renewable electricity. The power plant is grid connected and the emission reductions are calculated from the product of the carbon dioxide grid emissions factor and the electricity supplied to the grid.

The carbon dioxide grid emissions factor was calculated on an *ex-ante* basis in the PDD and will therefore be held constant over the life of the project. This data is therefore not part of the monitoring plan.

The project activity was commissioned in line with the PDD and after a period of testing the project activity started to continuously export to the UPPCL in October 2005. The starting date of the crediting period, as outlined in the PDD, is 1<sup>st</sup> October 2005.

The CDM project was registered on 1<sup>st</sup> May 2006 under methodology AMS I.D version 7.

## Technology employed

The technology employed in the new cogeneration plant was an upgrade of an existing boiler and the installation of a 7.5MW turbine generator. Whilst the adjacent sugar factory is operating some steam is extracted for use in the sugar plant whilst during the off-season the steam generated from the combustion of bagasse passes to the condenser.

The power generation of the turbine generator is at the 11kV level and the turbine operates in parallel with the UPPCL grid. The exportable power is stepped up to 132kV at a step up station within the plant and is connected to the Mohammadi sub-station.

## Emission reductions generated

In line with the PDD for the project activity the total number of CERs (tCO<sub>2</sub>e) is calculated from the following equation:

$$CERs = P_e \cdot C$$

Where:

CERs = Emission reduction, tCO<sub>2</sub>e

P<sub>e</sub> = Exports of electricity to the grid, MWh

C = Grid emission factor, tCO<sub>2</sub>e/MWh

The grid emission factor has been calculated *ex-ante* in the PDD and fixed for the crediting period at 0.918 tCO<sub>2</sub>e/MWh.

**Monitored data**

**a) Fossil fuel consumption**

In line with the PDD confirmation that no fossil fuels have been combusted in the boiler will be provided at the time of verification site visit.

**b) Monitored energy data**

The following data has been monitored for the project. Electricity export data has been taken from the invoices raised by the factory on UPPCL, the purchaser of electricity.

	Exports, MWh	CEF, tCO <sub>2</sub> e/MWh	CERs, tCO <sub>2</sub> e
Oct-05	0.0	0.918	0.0
Nov-05	0.0	0.918	0.0
Dec-05	252.1	0.918	231.4
Jan-06	4,229.0	0.918	3,882.3
Feb-06	4,274.2	0.918	3,923.7
Mar-06	4,336.8	0.918	3,981.2
Apr-06	2,244.0	0.918	2,060.0
May-06	3,078.7	0.918	2,826.3
Jun-06	2,263.9	0.918	2,078.3
Jul-06	0.0	0.918	0.0
Aug-06	0.0	0.918	0.0
Sep-06	401.0	0.918	368.2
Oct-06	628.8	0.918	577.2
Nov-06	3,543.8	0.918	3,253.2
Dec-06	2,257.6	0.918	2,072.4
	27,510.0		25,254.2

**c) Monitoring procedures**

The responsibility and reporting of the monitoring parameters follows the procedures set out in the monitoring plan. During each shift the electrical operator records the main energy meter reading at the site. This is then checked and signed off by the shift in charge. Daily reports and a monthly report of electricity exports are prepared and these reports are incorporated into the overall factory monitoring systems.

UPPCL takes readings from the main energy meter at the sub-station jointly with the plant at the end of each month. On the basis of these reading the accounts department prepares monthly invoices with are signed and issued to UPPCL.

These monthly electricity export readings are sent to Agrinergy who prepare a CER generation report. This CER generation report forms the basis of the annual monitoring report.

**d) Environmental monitoring**

The plant operated under a valid consent from the Uttar Pradesh Pollution Control Board (UPPCB) and a copy of this consent will be provided to the DOE responsible for verification. The following data demonstrates the compliance on air and water through the audits conducted by the UPPCB.

UPPCB Effluent water audit, dated 13<sup>th</sup> December 2006

Parameter	Values	Limit
Colour	Colourless	Absent
Smell	Sweet	Absent
Total suspended solids	27	100mg
Total dissolved solids	262	N/A
Total solids	289	N/A
PH	7.46	5.5 to 9.0
BOD	25	30 mg/L
COD	104	250 mg/L

UPPCB Air audit, dated 16<sup>th</sup> December 2006

Parameter	Stack 1	Stack 2	Limit
Stack height	55.0	65.0	N/A
Ambient temperature, °C	20.0	23.0	N/A
Stack gas temperature, °C	85.0	105.0	N/A
Stack gas velocity, M/sec	12.35	12.43	N/A
SPM, mg/Nm <sup>3</sup>	134.07	106.51	150

**e) Recalibration of meters**

The meters for the recording of exports are situated at the UPPCL sub-station and re-calibrated independently by them. The meters at the plant were re-calibrated on 24<sup>th</sup> April 2006 by Secure.

**Emergencies**

No emergencies occurred during the period under verification which could have given rise to emissions.

**Calculation of emission reductions**

The calculation of the emission reductions from the project activity requires us to consider the electricity exported from the project activity, this is shown through the following equation and the resultant CERs are determined.

$$CERs = P_e \cdot C$$

$$CERs = P_e \cdot 0.918$$

$$CERs = 25,254 \text{ tCO}_2\text{e}$$