



Monitoring Report

3rd Periodic Verification

1st June 2008 – 30th June 2009 (both days included)

Ajbapur Sugar Complex Cogeneration Project

CDM Registration Reference No: 0332

DCM Shriram Consolidated Ltd
18, Barakhamba Road
5th Floor, Kanchenjunga Building
New Delhi - 110001

Date: 14th July 2009

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1.0 Introduction

The project activity, involving biomass-based power generation, is located at DSCL Sugar in Ajbapur village in Lakhimpur Kheri District, Uttar Pradesh, India. The period under verification is from 1st June 2008 to 30th June 2009 and both the above days are included in this period.

The start date of the project activity is 10th August 2003. The project was registered on 1st May 2006 under the small-scale methodology AMS I.D, version 7.

2.0 Technology

The project activity involves the capacity up-gradation of a 50 TPH boiler to 65 TPH (generating steam at 45 kg/cm² pressure) and installation of a 7.5 MW extraction-cum-condensing turbine generator along with 132 kV step-up station and connection to the Uttar Pradesh grid via Mohammadi sub-station to allow export of electricity to the grid. The fuel used is bagasse, a renewable biomass and a co-product of sugar production. There has been no change in the project technology employed.

3.0 CO₂ emission factor

The carbon dioxide grid emission factor was calculated on an *ex-ante* basis as per the registered PDD and fixed for the crediting period at 0.918 tCO₂e/MWh.

4.0 Crediting period

A 10-year fixed crediting period is chosen in the registered PDD. The project was registered as a CDM project activity on 1st May 2006.

5.0 Last verification details

The last verification of the project activity was undertaken for the period 1st Jan 2007 to 31st May 2008 and the project was issued 53,887 CERs.

FAR	Actions taken
The project owner needs to have a detailed training procedures for all team members related to error free data collection, transfer and analysis.	Quarterly training was given to the team members related to the CDM aspects of the project i.e. error free data collection, transfer and analysis.
For future verifications, time of reading must be recorded for the meters at the plant end and UPPCL end. This should be done to ensure the accuracy in emission reduction calculations.	The time of reading for the meter at the plant end and UPPCL end was recorded to ensure the accuracy in emission reduction calculations.

6.0 Monitoring parameters and procedures

Data variable	Data unit	Measured (m), calculated (c) or estimated	Recording frequency	Proportion of data to be monitored	Comment
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(e)					
G_e	MWh	m	Monthly	100%	Gross electrical energy generated by project activity
A_e	MWh	m	Monthly	100%	Auxiliary consumption of project activity
$E_{e, gross}$	MWh	m	Monthly	100%	Gross export to UPPCL sub-station (meter reference APM 4092)
$E_{e, net}$	MWh	m	Monthly	100%	Net export to UPPCL sub-station (meter reference APM04047)
Q_y	tonnes	m	Annually	100%	Fossil fuel consumption (if any)

The responsibility of recording and reporting the project activity data is in line with the procedures outlined in the monitoring plan of the registered PDD. The DGM (Engg.) is responsible for the overall project management of the CDM project activity. The gross electricity generation and auxiliary consumption is monitored in three 8-hourly shifts. The hourly readings are signed by the respective shift operator at the end of each shift. This data is then collated into daily reports, which is further collated into a monthly generation report.

The generation report is then sent to Agrinergy on a monthly basis; the same is also stored in the MIS (Management Information System). Agrinergy sends the monthly CER summary, which forms the basis of the ongoing CDM monitoring and reporting of the project activity.

A system has been developed to monitor the amount of fossil fuel used in the project activity. However, no fossil fuel has been combusted in the monitoring period under consideration.

Internal audits are undertaken by the plant every year. Data recording/monitoring procedures are checked internally to comply with the CDM requirements. The last audit was undertaken on 30th March 2009 and the necessary corrective actions were taken. The report of the same will be furnished to the DOE at the time of verification.

6.1 Environmental monitoring

The plant has obtained valid consents from the Uttar Pradesh Pollution Control Board (UPPCB) and a copy of the consents will be provided to the DOE at the verification site visit.

Consent name	Consent Number	Validity period
Air	123	1 January 2007 – 31 December 2008
Water	133	1 January 2007 – 31 December 2008
Air	F48753	1 January 2009 – 31 December 2009
Water	F48752	1 January 2009 – 31 December 2009

6.2 Recalibration of meters

Meter	Make of meter	Meter number	Accuracy level	Frequency	Calibration agency	Calibration date	Calibration due date
Energy meter	Secure meter Ltd	TNB01177	0.2	Annually	Secure meters Ltd	05/04/2008	04/04/2009
					BELZ Calibration Lab	03/04/2009	02/04/2010
Auxiliary meter	L&T	3701203	0.2	Annually	Secure meters Ltd	05/04/2008	04/04/2009
					BELZ Calibration Lab	03/04/2009	02/04/2010
Export meter (plant end)	Secure apex	APM 4092	0.2	Annually	Secure meters Ltd	05/04/2008	04/04/2009
					BELZ Calibration Lab	03/04/2009	02/04/2010
Spare meter	L&T	0717 0283	0.55	Annually	Secure meters Ltd	30/01/2008	29/01/2009
					BELZ Calibration Lab	28/01/2009	27/01/2010

6.3 Emergency procedures

The plant maintains the data in both hard and soft copy formats; the same is also stored in the MIS. Agrinergy also receives the monthly data from the plant and if any discrepancies are observed, questions are raised and corrections made accordingly.

However, no emergencies occurred during the period under verification which could have given rise to emissions.

7.0 Formulae and CER calculation

In line with the PDD for the project activity the total number of CERs (tCO₂e) is calculated from the following equation:

$$\begin{aligned}
 \text{CERs} &= P_e \cdot C \\
 &= 10486.41 * 0.918 \\
 &= 9626.53 \text{ tCO}_2\text{e}
 \end{aligned}$$

Where:

- CERs = Emission reduction, tCO₂e
- P_e = Net electricity generated by the 7.5 MW turbine, MWh
- C = Grid emission factor, tCO₂e/MWh

The grid emission factor has been calculated *ex-ante* in the PDD and fixed for the crediting period at 0.918 tCO₂e/MWh.

The net electricity generated by the 7.5 MW turbine is calculated as follows:

$$P_e = G_e - A_e - T_e$$

$$P_e = 11050.6 - 537.68 - 26.51$$

$$= 10486.41 \text{ MWh}$$

Where:

- P_e = Net electricity generation by 7.5 MW turbine, MWh
- G_e = Gross electricity generation by 7.5 MW turbine, MWh
- A_e = Auxiliary consumption for 7.5 MW turbine, MWh
- T_e = Transmission Losses

The transmission losses are calculated as follows:

$$T_e = \left(\frac{E_{e,gross} - E_{e,net}}{E_{e,gross}} \right) \times (G_e - A_e)$$

$$= 26.51$$

Where

- E_{e,gross} = This parameter will be based on the energy supplied from factory to UPPCL (meter reference no. APM 4092)
- E_{e,net} = This parameter will be based on energy received at UPPCL and monthly invoice raised by the factory to UPPCL (meter reference no. APM04047)

8.0 Annexes

Generation Data

Month	Gross Electricity generated from new Turbine	Auxiliary consumption	Gross export to UPPCL sub-stn (Mohammadi)	Net export to UPPCL sub-stn (Mohammadi)	Transmission Losses	Net electricity generated
	G _e KWh	A _e KWh	E _{e,gross} KWh	E _{e,net} KWh	T _e	P _e KWh
Energy Meter	Energy Meter	Export Meter APEX APM04092	UPPCL Meter APEX APM 04047	Calculated	Calculated	
Jun-08	0	0	0	0	0	0
Jul-08	0	0	0	0	0	0
Aug-08	0	0	0	0	0	0
Sep-08	0	0	0	0	0	0
Oct-08	0	0	0	0	0	0
Nov-08	1345500	65440	880020	907920	0	1280060

Dec-08	5355500	256760	10745100	11262720	0	5098740
Jan-09	4349600	214720	13281300	13196160	26506.719	4108373.281
Feb-09	0	0	8067060	7510560	0	0
Mar-09	0	0	0	0	0	0
Apr-09	0	0	0	0	0	0
May-09	0	0	0	0	0	0
Jun-09	0	0	0	0	0	0
Total	11050600	536920	32973480	32877360	26506.719	10487173.28

CER Calculation

BE _y , tCO ₂	PE _y , tCO ₂	CERs
0.00	0	0.00
0.00	0	0.00
0.00	0	0.00
0.00	0	0.00
0.00	0	0.00
1175.10	0	1175.10
4680.39	0	4680.39
3771.49	0	3771.49
0.00	0	0.00
0.00	0	0
0.00	0	0
0.00	0	0
0.00	0	0
0.00	0	0
		9,627