MONITORING REPORT
Version: 05
Date 27/01/2011

POWER CAPACITY EXPANSION PROJECT AT DWARIKESH PURAM
PROJECT NUMBER 1257
3rd Monitoring period (08/03/2009 - 19/04/2010)

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

As anticipated in the registered PDD Dwarikesh Sugar Industries Limited (DSIL) has increased the power generation capacity at its existing sugar manufacturing facility at Dwarikesh Puram by installation of a new Bi-drum, natural circulation, balanced draft top supported water tube bagasse fired travelling grate, spreader stoker boiler suitable for steam output capacity of 120 tons per hour (tph) at 86 kg/cm2 pressure and steam temperature of 515 +/- 5^{o} C and a 24 MW double extraction cum condensing turbine for generating power along with all other accessories and equipments.

The electricity generated from the project activity is sold to the state grid and balance is used for captive consumption

The objective of the project activity is to maximize the utilization of available resources and to conserve the environment by generating power through bagasse coming from the sugar mill.

The technical specification of the equipments deployed in the project activity is as listed below:

Boiler specifications

Description	Bi-drum, natural circulation, balanced draft, top supported water tube, bagasse fired, traveling grate, spreader stoker
Steam generating capacity (tons per hour)	120
Steam pressure (kg/cm^2)	86
Steam temperature (^{0}C)	515 ± 5
No.	1

Turbine specifications

Description	Double extraction cum condensing turbine
Capacity (MW)	24
Steam pressure (kg/cm^2)	86
Steam temperature (^{0}C)	515 ± 5
No.	1

Electrical Generator

Description	Four pole, 3 phase Air cooled, Brushless excitation with digital automatic voltage type regulation system
Speed (RPM)	1500
Frequency (Hz)	50
Power factor (lagging)	0.8
Voltage (kV)	11
No.	1

The technology for the boilers and turbines is well established and the project activity does not involve any transfer of technology. The technology being used is environmentally safe and sound.

The project activity got fully commissioned on 04th February 2008. The power generated is being supplied to the Northern Grid.

This is the third monitoring report associated with Dwarikesh Puram project activity. The period covered in this monitoring report is from 08th March 2009 to 19th April 2010 (Both days included). This monitoring report does not cover any period of time which was part of the previous monitoring report.

The crushing season of sugar mills depends on the availability of sugarcane which is a seasonal crop. Due to less availability of sugarcane in the current monitoring period the project plant at Dwarikesh Puram was operational only for 144 days from 27th November 2009 to 19th April 2010. The CERs generated in the monitoring period are 28,746 tCO_2e.

The first monitoring report covered the period from 30th November 2007 to 2nd April 2008 (both days included).

The second monitoring report covered the period from 3nd April 2008 to 7th March 2009 (both days included).

A.2. Project Participants

Dwarikesh Sugar Industries Limited (DSIL) and;

EDF Trading Limited

A.3. Location of the project activity:

The project is located in the existing sugar manufacturing unit of DSIL – Dwarikesh Puram at Village Bahadurpar, Tehsil Dhampur, District Bijnor, Uttar Pradesh State in Northern India. The project site is well connected by road to NH 74 and the nearest railway station is at Dhampur. The coordinates of Dhampur are: Latitude: 29^0 19'N, Longitude: 78^0 31'E


UTTAR PRADESH
2001
AN - Ambedkar Nagar
GBN - Gautam Buddha Naga
JPN - Jyotiba Phule Nagar
KN - Kanpur Nagar
SRN - Sant Ravidas Nagar
SKN - Sant Kabir Nagar
BIJNOR
(Uttar Pradesh)
To Haridwar
To Kotdwara
To Roorkee
N
UTTARANCHAL
Najibabad
Nagal
Chandok
Kiratpur
Bundki
Barhapura
Mandawar
Nagina
MUZAFFARNAGAR
BIJNOR
Jhal
Nantaur
Sherkot
Afzalgarh
Rehar
Dhampur
Daranagar
Chakrajpur
Seohara
74
To Rudrapur
MEERUT
Tajpur
Nurpur
Chandpur
Sahaspur
Bashta
Pheona
MORADABAD
To Bilari
JHOYTIBA PHULE NAGAR
Map not to Scale
National Highway
District Boundary
River
State Highway
Road
Railway Track
District Headquarter
Taluk Headquarter
Town
BIJNOR Distance from Delhi 150 Kms.

A.4. Technical description of the project

The technical specifications of the project activity is provided in the section A.1, the cogeneration project activity based on Rankine cycle consists of the following main units:

- 1 number of bagasse fired boiler
- 1 number of steam turbine
- Electrical generator
- Appropriate power evacuation system and the related instrumentation and controls

The high pressure boiler and the EC turbine would ensure that maximum power output is obtained from the bagasse fired. The power getting generated in the power plant at 11 kV would be stepped up to 132 kV and supplied to the grid. The high voltage transmission would ensure that the transmission and distribution losses are minimal.

Project activity diagram (Flow chart) is as illustrated below:

A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

Title: Consolidated baseline methodology for electricity generation from biomass residues

Reference – Approved consolidated baseline methodology ACM0006, Version 05, Sectoral Scope: 01.

The following approved methodology is referred for grid emission factor calculation:

Title: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

Reference: UNFCCC Approved baseline methodology ACM0002 / Version 06, Sectoral Scope: 01, 19th May 2006

A.6. Registration date of the project activity:

30th November 2007

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

Crediting Period: 30 Nov 07 - 29 Nov 17

Choice of Crediting Period: Fixed (10 years)

The start date of crediting period is 30th November 2007

A.8. Name of responsible person(s)/entity(ies):

Dwarikesh Sugar Industries Limited

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

The project got fully operational on 4th Feb 2008. The power generated is being supplied to the Northern Grid. It is mentioned in the PDD that the plant will be operational for a period of 200 days in a particular year. However, the plant was operational for 144 days in the current monitoring period.

Please note that there has been no change of equipments in the current monitoring period for the project activity.

B.2. Revision of the monitoring plan

Revision was sought in the monitoring plan and the same was approved by UNFCCC on 4th June 2009.

B.3. Request for deviation applied to this monitoring period

No request for deviation has be applied for this monitoring period

B.4. Notification or request of approval of changes

No notification or request of approval of change has been made

SECTION C. Description of the monitoring system

Measures to ensure the Results / uncertainty analysis

The project-monitoring plan consists of metering the electricity generated by the project activity, total electricity generated by all the units at site, quantity of bagasse fired in project activity, calorific value of bagasse, net quantity of heat generated by project plant and average net energy efficiency of heat generation in the boilers operated next to the project plant.

Energy meters are being used for monitoring the energy generated by all the units. All energy meters used are electronic tri-vector meters of accuracy class 0.5 %. The energy meters are maintained in accordance with electricity standards in India. Each meter is inspected and sealed ensuring no interference by anyone. All the energy meters are tested for accuracy annually by an independent agency, which is accredited with National Accreditation Board for Testing & Calibration Laboratories (NABL), Department of Science & Technology, Government of India. If during the yearly test check, any meter is found to be beyond permissible limits of error, it would be calibrated immediately. Net Calorific Value of bagasse is established every six months based on the test conducted by an independent agency taking at least three samples for each measurement.

Total quantity of bagasse fired in the project plant is measured as per the procedure documented in the PDD and the related equipments such as the weigh bridge and rotary feeder are calibrated annually by an independent agency.

Any observations (like inconsistencies in reported parameters) and/or discrepancies in the operation of the power plant observed by any of the team member are informed to the concerned personnel for necessary action. These measures are undertaken in order to detect and minimize the uncertainty levels in data monitoring. Furthermore, as a safety measure, the total power generating system is equipped with an 'Automatic Alarming System' which gives a prior indication of any fluctuations in the operating parameters of the power plant thereby enabling the operators to take necessary preventive measures.

Emergency Procedure

Though, all the measures are taken to avoid erroneous recording of the monitoring parameters, there might be certain situations which may include failure of various metering devices. To minimize the risk of data discrepancy a set of spare for energy meters, steam monitoring devices and speed transmitters (for bagasse quantity) are maintained at the plant site. Further, regular checking and maintenance of all metering devices is carried out by plant personals at Dwarikesh Puram to maintain highest level of accuracy.

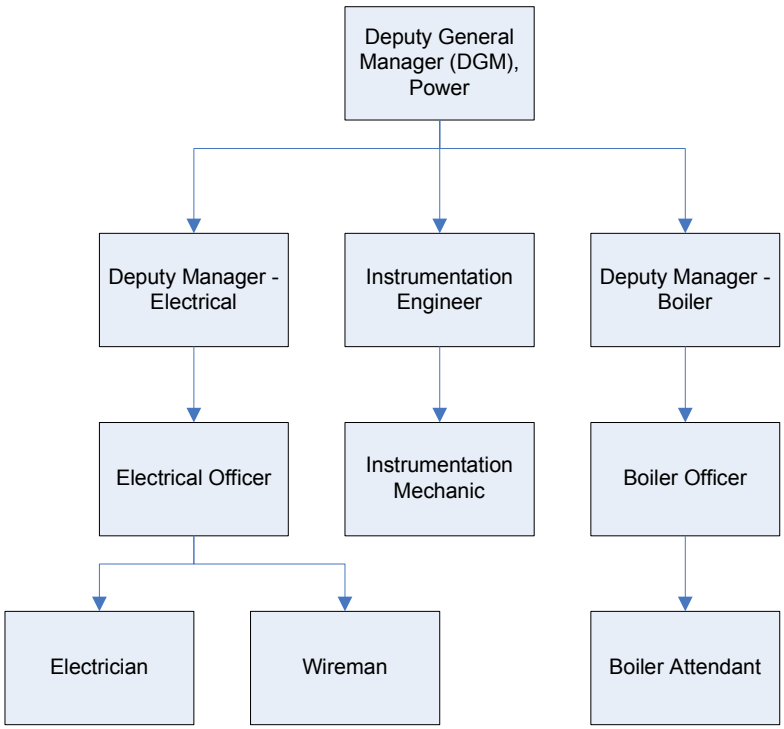
The data collection and reporting procedures are mentioned in section D.2 of the monitoring report for each parameter. The line diagrams showing all relevant monitoring points are included at the end of the report.

Roles and responsibilities

In accordance with the monitoring plan of the PDD, The following operational and management structure has been implemented for the project activity:

- The shift in-charge is assigned with the responsibility of monitoring and recording of parameters as per the monitoring plan.
- On a monthly basis, the monitoring records are checked and discussed with project manager.
- In case of any irregularity observed, necessary action is taken immediately.
- On monthly basis, the reports are prepared and forwarded to the management.

The following organisation structure is present to operate the project activity:



SECTION D. Data and parameters

MONITORED DATA

PARAMETERS RELATED TO POWER GENERATION

Month	Total quantity of electricity generated in the project plant (24 MW)	Auxiliary electricity consumption by the project plant (24 MW)	Total quantity of electricity generated in all the power units at the project site	Total quantity of auxiliary electricity consumption in all the power units at the project site	Net quantity of electricity generated in the project plant	Net quantity of electricity generated in all power units at the project site
08/03/2009 to 31/10/2009	0	0	0	0	0	0
01/11/2009 to 30/11/2009	1659.1	149.88	2362.96	280.86	1509.22	2082.10
01/12/2009 to 31/12/2009	17685.1	1446	22032.72	2089.05	16239.1	19943.67
01/01/2010 to 31/01/2010	9938.1	1039.19	12481.66	1513.19	8898.91	10968.47
01/02/2010 to 28/02/2010	14647.30	1295.90	18403.36	1848.23	13351.4	16555.13
01/03/2010 to 21/03/2010	16766.1	1476.21	20949.45	2077.67	15289.89	18871.78
01/04/2010 to 19/04/2010	10187.90	913.53	10686.9	998.63	9274.37	9688.27
TOTAL	**70883.6**	**6320.71**	**86917.05**	**8807.63**	**64562.89**	**78109.42**

** All figures are in MWh*

PARAMETERS RELATED TO BAGASSE AND STEAM

Month	Quantity of wet bagasse combusted in project plant (tonnes)	Moisture Content (%)	Quantity of dry bagasse combusted in project boiler (tonnes)
08/03/2009 to 31/10/2009	0	0	0
01/11/2009 to 30/11/2009	3446.20	49.91	1726.20
01/12/2009 to 31/12/2009	34190.88	49.81	17160.40
01/01/2010 to 31/01/2010	19200.85	49.56	9684.91
01/02/2010 to 28/02/2010	28600.98	49.33	14492.12
01/03/2010 to 21/03/2010	32519.50	49.56	16402.84
01/04/2010 to 19/04/2010	18351.01	49.60	9248.91
	136309.43		**69067.99**

***** The moisture content is to be monitored on a monthly basis as per the monitoring plan but since on site it was measured on a daily basis, the lowest value of moisture content in a month has been used in the calculations taking a conservative approach.

ENERGY CONTENT OF FUEL (BAGASSE)

NET CALORIFIC VALUE[1] (GJ/TONNE, ON DRY BASIS) OF BAGASSE

UNITS	Cal/gm*	Cal/gm**	Average	GJ/ton	MWh/ton
SAMPLE 1	3730	3850	= 3733+3810 = 3771.5	15.791	4.39
SAMPLE 2	3710	3780			
SAMPLE 3	3760	3800			
AVERAGE	3733	3810			

* Test conducted on 26th Feb, 2010
** Test conducted on 2nd Jan 2010

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Data / Parameter:	$EF_{historic}$
Data unit:	GWh
Description:	Average of net quantity of electricity generated during the most recent years in all power plants at the project site, generated from firing the same type(s) of biomass residues as in the project plant
Source of data used:	Plant records
Value(s) :	22.2
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline
Additional comment:	The data for generation has been historically measured by energy meters situated on the site along with the power plant auxiliaries. The net generation has been determined by subtracting auxiliary consumption from total generation. Historically this data has been collected daily and has been held at the plant.

Data / Parameter:	$EF_{grid,y}$
Data unit:	tCO2/MWh
Description:	CO2 emission factor for grid electricity during the year y
Source of data used:	Baseline Carbon Dioxide Emission Database Version 2.0 (www.cea.nic.in)
Value(s) :	0.80
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline
Additional comment:	The combined margin emission factor of the grid has been calculated

[1] The average value of the determined NCV_k (3771.5 Cal/gm)has been used in the calculation of emission reductions

	as per the guidance provided in approved methodology ACM0002. Operating margin, OM = 0.99 tCO2/MWh Build margin, BM = 0.60 tCO2/MWh

Data / Parameter:	$\varepsilon_{el,\ reference\ plant,\ y}$
Data unit:	-
Description:	Average net energy efficiency of power generation in the reference power plant that would use the biomass residues fired in the project plant in the absence of the project activity
Source of data used:	Calculated from consumption of biomass and power generation in the reference plant (45 kg/cm2).
Value(s) :	0.0945
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline
Additional comment:	Based on the total quantity of biomass consumed and the power generated. The reference plant has been taken as the project participants own plant at Dwarikesh Nagar which has low configuration boilers. The common practice in Indian Sugar Industry is operation of low pressure boilers upto 35 kg/cm2. Dwarikesh is operating a 45 kg/cm2 pressure cogeneration system at the sugar mill, which has been taken as the baseline scenario. This approach is deemed conservative. Check consistency with manufacturer's information or the efficiency of comparable plants.

D.2. Data and parameters monitored

Data / Parameter:	**$EG_{project\ plant,\ y}$**
Data unit:	MWh/yr
Description:	Net quantity of electricity generated in the project plant during the year y
Measured /Calculated /Default:	Calculated
Source of data:	The corresponding values are calculated (from gross and auxiliary)and totalized and recorded hourly in log books.
Value(s) of monitored parameter:	**64562.89** (For monitoring period)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions
Monitoring equipment (type,	The details of the monitoring equipments (meters for gross generation

accuracy class, serial number, calibration frequency, date of last calibration, validity)	and auxiliary consumption)are mentioned in parameters $EG_{Gross,project\ plant,y}$ and $EG_{Aux,project\ plant,y}$
Measuring/ Reading/ Recording frequency:	Measuring Frequency:- Continuous Recording Frequency:- Gross generation and auxiliary consumption are recorded on hourly basis from respective energy meters and logged in the daily log book Reporting frequency:- On daily basis in the ER spread sheet
Calculation method (if applicable):	Net quantity of electricity in the project plant generated is calculated by subtracting auxiliary consumption from gross generation of the project plant. Separate energy meters are used for continuous measurement of gross electricity generation and auxiliary consumption.
QA/QC procedures applied:	The consistency of net electricity generation is cross checked with receipt of sales and the quantity of biomass fired. The power exported to UPPCL for the month of November 2009, December 2009, January 2010, February 2010, March 2010 and April 2010 is 1616.16 MWh, 15892.56 MWh, 8723.28 MWh, 13428.72 MWh, 14754.96 MWh and 8849 MWh respectively. The net electricity generation from the project plant is compared with power exported and was found comparable. The ratio of net electricity generation divided by the quantity of fuels fired (on energy basis) is in the range 19.93 – 22.81 (The details have been provided in the ER spread sheet)

Data / Parameter:	**$EG_{total,\ y}$**
Data unit:	MWh/yr
Description:	Net quantity of electricity generated in all power units at the project site, generated from firing the same type(s) of biomass residues as in the project plant, including the new power unit installed as part of the project activity and any previously existing units, during the year *y*
Measured /Calculated /Default:	Calculated (The data for gross generation and auxiliary consumption is recorded on hourly basis and the same is collated to obtain net quantity of electricity generated. The data is mentioned month wise in the emission reduction sheet)
Source of data:	Log Books
Value(s) of monitored parameter:	**78109.42** (For monitoring period)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions

Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)

1. Gross Generation Turbine No.01-03 MW-(M12)

Description	
S. No.	ELI11869
Make	Secure Meters Ltd.
Model	SWIFT ELITE
Type	LT, 5A
Voltage	240 V
Current	5 A
Current Ratio	5200/5A
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	21/09/2009
Next Date of Calibration	20/09/2010

2. Gross Generation Turbine No.02-03 MW-(M13)

Description	
S. No.	ELI10857
Make	Secure Meters Ltd.
Model	SWIFT ELITE
Type	HT4, 5A
Voltage	240 V
Current	5 A
Current Ratio	5200/5
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	21/09/2009
Next Date of Calibration	20/09/2010

3. Gross Generation Turbine No.03-03 MW-(M14)

Description	
S. No.	ELI10856

Make	Secure Meters Ltd
Model	SWIFT ELITE
Type	LT
Voltage	240 V
Current	5 A
Current Ratio	5200/5A
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	21/09/2009
Next Date of Calibration	20/09/2010

4. Bolier No. 01 MCC – Auxiliary of 09 MW-(M10)

Description	
S. No.	ELI11872
Make	Secure Meters Ltd
Model	SWIFT ELITE
Type	LT, 5 A
Voltage	240 V
Current	5 A
Current Ratio	1600/5
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	21/09/2009
Next Date of Calibration	20/09/2010

5. Bolier No. 02 MCC – Auxiliary of 09 MW-(M11)

Description	
S. No.	ELI10858
Make	Secure Meters Ltd.
Model	SWIFT ELITE
Type	LT, 5A
Voltage	240 V
Current	5 A

Current Ratio	1600/5 A
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	21/09/2009
Next Date of Calibration	20/09/2010

6. MCC for Feed Pump 1&2 – Auxiliary of 09 MW-(M8)

Description	
S. No.	ELI11868
Make	Secure Meters Ltd.
Model	SWIFT ELITE
Type	LT, 5A
Voltage	240 V
Current	5 A
Current Ratio	2500/5A
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	21/09/2009
Next Date of Calibration	20/09/2010

7. MCC for Feed Pump No.03- Auxiliary of 09 MW-(M09)

Description	
S. No.	ELI11870
Make	Secure Meters Ltd.
Model	SWIFT ELITE
Type	LT, 5 A
Voltage	240 V
Current	5 A
Current Ratio	1600/ 5A
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	21/09/2009
Next Date of Calibration	20/09/2010

	8. Bagasse Handling MCC-Auxiliary of 09 MW-(M07) **Description** | **S. No.** | ELI11871 **Make** | Secure Meters Ltd. **Model** | SWIFT ELITE **Type** | LT **Voltage** | 240 V **Current** | 5 A **Current Ratio** | 1600/5 **Class** | 0.5s **Previous Date of Calibration** | 10/11/2008 **Date of Calibration** | 21/09/2009 **Next Date of Calibration** | 20/09/2010
Measuring/ Reading/ Recording frequency:	Measuring Frequency:- Continuous Recording Frequency:- The data is recorded on hourly basis for gross generation and auxiliary consumption from all the energy meters and logged in the daily log books Reporting Frequency:- The calculated data is reported on monthly basis in the ER spread sheet
Calculation method (if applicable):	Net quantity of electricity in all the power units at the project site generated is calculated by subtracting aggregated auxiliary consumption from the aggregated gross generation of all the power units at the plant site. Separate energy meters are used for measurement of gross electricity generations and auxiliary consumptions of all units at the project site and thus subsequently aggregated respectively.
QA/QC procedures applied:	The consistency of net electricity generation should be cross-checked with receipts from electricity sales (if available) and the quantity of fuels fired (e.g. check whether the electricity generation divided by the quantity of fuels fired results in a reasonable efficiency that is comparable to previous years). The power exported to UPPCL for the month of November 2009, December 2009, January 2010, February 2010, March 2010 and April 2010 is 1616.16 MWh, 15892.56 MWh, 8723.28 MWh, 13428.72 MWh, 14754.96 MWh and 8849 MWh respectively. The power exported when compared with net electricity generated from all power units was found lower due to the fact that sugar industry use significant portion of the generated power to meet its

	captive requirement, only the incremental power is exported to the grid. The ratio of net electricity generation from all power units when divided by the quantity of fuels fired (on energy basis) is in the range 14.02 – 21.72 (The details have been provided in the ER spread sheet).

Data / Parameter:	**$EG_{Gross,project\ plant,y}$**
Data unit:	MWh/yr
Description:	Total quantity of electricity generated in the project plant during the year y
Measured /Calculated /Default:	Measured
Source of data:	Plant log books
Value(s) of monitored parameter:	**70883.6** (For monitoring period)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	. Gross Generation – 24 MW.-(M1)
Measuring/ Reading/ Recording frequency:	Measuring Frequency:- Continuous Recording Frequency:- On hourly basis Reporting Frequency:- The hourly data is collated and the same is reported on daily basis in the ER sheet
Calculation method (if applicable):	Electronic tri-vector meters/power monitoring system of accuracy class 0.5 has been installed to permit continuous monitoring and

Description	
S. No.	ELI 10810
Make	Secure Meters Ltd.
Model	SWIFT ELITE
Type	HT4,1A
Voltage	3X63.5 Vp-n (3 Phase 4 Wire)
Current	1 A
Voltage Ratio	11000/rt3/110/rt3
Current Ratio	2000/1A
Class	0.5s
Previous Date of Calibration	10/11/2008
Date of Calibration	22/09/2009
Next Date of Calibration	21/09/2010

	measurement. Hourly recordings of data are taken from energy meters and logged in the daily log books by the Switch Board attendant. The shift in-charge signs off in the logbook at the end of every shift and the daily power generation are signed by the power plant manager.
QA/QC procedures applied:	The consistency of gross electricity generation has been cross checked with receipt of sales and the quantity of biomass fired. The meters are calibrated annually by an independent third party. The data will be archived on paper and electronically for 2 years beyond the crediting period. The power exported to UPPCL for the month of November 2009, December 2009, January 2010, February 2010, March 2010 and April 2010 is 1616.16 MWh, 15892.56 MWh, 8723.28 MWh, 13428.72 MWh, 14754.96 MWh and 8849 MWh respectively. The ratio of gross electricity generation when divided by the quantity of fuels fired (on energy basis) is in the range 21.91- 25.06 (The details have been provided in the CER spread sheet).

Data / Parameter:	**$EG_{Aux,project\ plant,\ y}$**
Data unit:	MWh/yr
Description:	Auxiliary electricity consumption by the project plant.
Measured /Calculated /Default:	Measured
Source of data:	Metering records
Value(s) of monitored parameter:	**6320.71** (For monitoring period)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Cogen Convertor Transformer (Auxiliary Consumption-24 MW)-(M3)

Description	
S. No.	ELI09053
Make	Secure Meters Ltd.
Model	SWIFT ELITE
Type	HT4, 1A
Voltage	3 X 63.5 V p-n (3 Phase 4 wire)
Current	1A
Voltage Ratio	11000/rt3/110/rt3
Current Ratio	200/1A

	<table><tr><td>**Class**</td><td>0.5s</td></tr><tr><td>**Previous Date of Calibration**</td><td>10/11/2008</td></tr><tr><td>**Date of Calibration**</td><td>21/09/2009</td></tr><tr><td>**Next Date of Calibration**</td><td>20/09/2010</td></tr></table> Cogen Distribution Transformer Auxiliary Consumption-24 MW)-(M4) <table><tr><td>**Description**</td><td></td></tr><tr><td>**S. No.**</td><td>ELI10812</td></tr><tr><td>**Make**</td><td>Secure Meters Ltd.</td></tr><tr><td>**Model**</td><td>SWIFT ELITE</td></tr><tr><td>**Type**</td><td>HT4, 1A</td></tr><tr><td>**Voltage**</td><td>63.5 V</td></tr><tr><td>**Current**</td><td>1A</td></tr><tr><td>**Voltage Ratio**</td><td>11000/rt3/110/rt3</td></tr><tr><td>**Current Ratio**</td><td>200/1A</td></tr><tr><td>**Class**</td><td>0.5s</td></tr><tr><td>**Previous Date of Calibration**</td><td>11/11/2008</td></tr><tr><td>**Date of Calibration**</td><td>21/09/2009</td></tr><tr><td>**Next Date of Calibration**</td><td>20/09/2010</td></tr></table>
Measuring/ Reading/ Recording frequency:	Measuring Frequency:- Continuous Recording Frequency:- On hourly basis Reporting Frequency:- The hourly data is collated and the same is reported on daily basis in the ER sheet
Calculation method (if applicable):	Electronic tri-vector meters/power monitoring system of accuracy class 0.5 is installed to permit continuous monitoring and measurement. Hourly recordings of data are taken from energy meters and logged in the daily log books by the Switch Board attendant. The shift in-charge will sign off in the logbook at the end of every shift, and the daily auxiliary consumption is also signed by the power plant manager
QA/QC procedures applied:	The meter is being calibrated annually by an independent third party. The data will be archived on paper and electronically for 2 years beyond the crediting period.

Data / Parameter:	**$EG_{Total\ Gross,\ y}$**
Data unit:	MWh/yr

Description:	Total quantity of electricity generated in all the power units , generated from firing the same type(s) of biomass residues as in the project plant, including the new power unit installed as part of the project activity and any previously existing units, during the year *y*
Measured /Calculated /Default:	Calculated Measured value of gross generation(from metering records) for each power unit is added to come out with the total quantity of electricity generated
Source of data:	Metering records
Value(s) of monitored parameter:	**86917.05** (For monitoring period)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Please refer monitoring equipments as mentioned above for the parameter $\mathbf{EG_{Gross,project\ plant,y}}$
Measuring/ Reading/ Recording frequency:	Measuring Frequency:- Continuous Recording Frequency:- On hourly basis Reporting Frequency:- The hourly data is collated and the same is reported on daily basis in the ER sheet
Calculation method (if applicable):	Electronic tri-vector meters/power monitoring systems of accuracy class 0.5 are installed to permit continuous monitoring and measurement for each individual power generating unit. The total is then calculated by adding the gross generation of all power generating units and recorded hourly. Hourly recordings of data will be taken from energy meters and logged in the daily log books by the Switch Board attendant. The shift in-charge signs off in the logbook at the end of every shift, and the daily power generation is signed by the power plant manager.
QA/QC procedures applied:	The consistency of gross electricity generation is cross checked with receipt of sales and the quantity of biomass fired. The power exported to UPPCL for the month of November 2009, December 2009, January 2010, February 2010, March 2010 and April 2010 is 1616.16 MWh, 15892.56 MWh, 8723.28 MWh, 13428.72 MWh, 14754.96 MWh and 8849 MWh respectively. The power exported when compared with gross electricity generated from all power units was found lower due to the fact that sugar industry use significant portion of the generated power to meet its captive requirement, only the incremental power is exported to the grid. The ratio of gross electricity generation from all power units is in the range of 15.91 – 23.96 (The details have been provided in the ER

	spread sheet). The meters will be calibrated annually by an independent third party. The data will be archived on paper and electronically for 2 years beyond the crediting period

Data / Parameter:	**$EG_{Total\ Aux\ y}$**
Data unit:	MWh/yr
Description:	Total quantity of auxiliary electricity consumption in all the power units at the project site, generated from firing the same type(s) of biomass residues as in the project plant, including the new power unit installed as part of the project activity and any previously existing units, during the year y
Measured /Calculated /Default:	Calculated The measured value of auxiliary consumption(from metering records) for each power unit is added to come out with the total auxiliary consumption)
Source of data:	Metering records
Value(s) of monitored parameter:	**8807.63** (For monitoring period)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Please refer monitoring equipments as mentioned above for the parameter **$EG_{Aux,project\ plant,y}$**
Measuring/ Reading/ Recording frequency:	Measuring Frequency:- Continuous Recording Frequency:- On hourly basis Reporting Frequency:- The hourly data is collated and the same is reported on daily basis in the ER sheet
Calculation method (if applicable):	Electronic tri-vector meters/power monitoring systems of accuracy class 0.5 are installed to permit continuous monitoring and measurement for auxiliary consumption at each individual power generating unit. The total then is calculated by adding the auxiliary consumption of all power generating units and recorded hourly. Hourly recordings of data is taken from energy meters and logged in the daily log books by the Switch Board attendant. The shift in-charge signs off in the logbook at the end of every shift and the daily auxiliary consumption are then signed by the power plant manager.
QA/QC procedures applied:	The meter is being calibrated annually by an independent third party. The data will be archived on paper and electronically for 2 years beyond the crediting period.

Data / Parameter:	**$BF_{k, y}$**
Data unit:	Tonnes
Description:	Quantity of bagasse combusted in the project plant during the year y
Measured /Calculated /Default:	Measured
Source of data:	On-site measurements
Value(s) of monitored parameter:	**69067.99** (For monitoring period)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	1. Bagasse Rotary Feeder No.5 Speed.

Name	Speed Transmitter
Make	P & F
Sr. No.	10569
Model No.	KFU8-FSSP-1D
Range	0-3 RPM
Previous Date of Calibration	01-10-2008
Date of Calibration	28-09-2009
Next Date of Calibration	27-09-2010
Location	Bagasse Rotary Feeder No.5

2. Bagasse Rotary Feeder No.4 Speed.

Name	Speed Transmitter
Make	P & F
Sr. No.	10568
Model No.	KFU8-FSSP-1D
Range	0-3 RPM
Previous Date of	01-10-2008

Calibration	
Date of Calibration	28-09-2009
Next Date of Calibration	27-09-2010
Location	Bagasse Rotary Feeder No.4

3. Bagasse Rotary Feeder No3 Speed.

Name	Speed Transmitter
Make	P & F
Sr. No.	10567
Model No.	KFU8-FSSP-1D
Range	0-3 RPM
Previous Date of Calibration	01-10-2008
Date of Calibration	28-09-2009
Next Date of Calibration	27-09-2010
Location	Bagasse Rotary Feeder No.3

4. Bagasse Rotary Feeder No. 2 Speed.

Name	Speed Transmitter
Make	P & F
Sr. No.	10566
Model No.	KFU8-FSSP-1D
Range	0-3 RPM
Previous Date of Calibration	01-10-2008

Date of Calibration	28-09-2009
Next Date of Calibration	27-09-2010
Location	Bagasse Rotary Feeder No.2.

5. Bagasse Rotary Feeder No.1 Speed.

Name	Speed Transmitter
Make	P & F
Sr. No.	10565
Model No.	KFU8-FSSP-1D
Range	0-3 RPM
Previous Date of Calibration	01-10-2008
Date of Calibration	28-09-2009
Next Date of Calibration	27-09-2010
Location	Bagasse Rotary Feeder No1

6. Weigh Bridge Calibration details

Serial No.	Capacity of Weigh bridge	Number of the Weigh Bridge	Previous Date Of Calibration	Date of Calibration	Next Date of Calibration
1	10000 kg	600	10/10/08	05/11/2009	04/11/2010
2	10000 kg	601	05/10/08	05/11/2009	04/11/2010
3	10000 kg	1742	10/10/08	05/11/2009	04/11/2010
4	10000 kg	599	10/10/08	05/11/2009	04/11/2010
5	50000 kg	603	10/10/08	04/11/2009	03/11/2010

	6 | 50000 kg | 608 | 10/10/08 | 04/11/2009 | 03/11/2010 7 | 50000 kg | 1046 | 10/10/08 | 04/11/2009 | 03/11/2010 8 | 50000 kg | 602 | 10/10/08 | 04/11/2009 | 03/11/2010
Measuring/ Reading/ Recording frequency:	Measuring Frequency:- Continuous (as and when the bagasse arrives within the premises) Recording Frequency:- On daily basis Reporting Frequency:- The same is reported on daily basis in the ER sheet
Calculation method (if applicable):	Weight or volume meters are used and adjustment for the moisture content is carried out in order to determine the quantity of dry biomass. The quantity shall be cross-checked with the quantity of electricity (and heat) generated and any fuel purchase receipts (if available). The direct measurement of bagasse would be monitored by monitoring the speed of the rotary feeder. This monitoring instrument would be calibrated to give the amount of bagasse being combusted in the project activity. Also annual mass and energy balance would be carried out to cross check the biomass quantity used in the project activity. The mass balance would be on the basis of the measured quantity of sugarcane crushed, water added, mixed juice and excess bagasse and the energy balance would on the basis of steam quality and quantity generated.
QA/QC procedures applied:	The direct measurement of bagasse is monitored by monitoring the speed of the rotary feeder. The feeders are calibrated annually to maintain the accuracy of the entire bagasse monitoring system. The actual bagasse consumption (dry basis) in the project activity is 69067.99 MT(calculated through actual wet bagasse consumption and the moisture content). The ratio of net electricity generation divided by the quantity of fuels fired (on energy basis) is in the range 19.93 – 22.81 (The details have been provided in the ER spread sheet). The entire bagasse (fuel) consumed in the project activity is generated from the cane crushed in the sugar manufacturing facility at Dwarikesh Puram same can be verified from RT 8C and there is no bagasse purchased from outside. The bagasse is not stored in the sugar manufacturing facility for more than 6-7 months i.e the time period in between the two sugar seasons. | | | | **Reference** | | Steam Flow at MS line at MCR | 120000 | Kg/hr | As per the boilers manufacturers specification |

Fuel Flow rate	47940	Kg/hr	As per the boilers manufacturers specification. (On wet bagasse basis)
Steam -Fuel Ratio	=120000/47940 = 2.50		
Steam Produced in the season by the project boiler	315664340	Kg	
Approximate wet bagasse consumption	=315664340/2.5 =126265736	kg	On wet basis
Approximate dry bagasse consumption	62286887.57	kg	On dry basis considering 49.33 % of moisture content of bagasse
	62286.88	tonnes	

The mass balance (on the basis of the measured quantity of sugarcane crushed, water added, mixed juice and excess bagasse) is conducted for the entire cane crushed in the sugar manufacturing facility. Monthly figures of the same are as given below:

Month	Cane Crushed	Added Water	Sum	Gross Mixed	Bagasse	Sum
	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes
Nov-09	28090	11727.837	39817.84	30993.275	8824.562	39817.837
Dec-09	177960	73958.955	251919	194838.08	57080.88	251918.96
Jan-10	93370	39987.045	133357.1	104970.58	28386.46	133357.05
Feb-10	159390	64588.83	223978.8	176270.5	47708.28	223978.8
Mar-10	173310	76188.77	249498.8	194879.8	54618.96	249498.8
Apr-10	16181.14	7526.68	23707.82	18246.05	5461.77	23707.82

The mass balance confirms that the sum of cane crushed and the added water is equal to the sum of the quantity of gross mixed and the bagasse produced.

Further, the bagasse combusted in all the boilers in the monitoring period as is approximately (dry basis) 101986.78 MT and the consumption in the project boiler is 69067.99 MT on dry basis (calculated through actual wet bagasse consumption and the moisture

content).The energy balance is conducted for project boiler for the entire monitoring period taking into account the steam fuel ratio provided by the boiler manufacturer

The energy balance as shown below establishes that 62286.88 MT of bagasse could be consumed; however the boiler efficiency may vary in actual project scenario. The bagasse consumption thus calculated is comparable to the actual consumption

As per the revised monitoring plan approved by CDM EB the parameter **$BF_{k,y}$-Quantity of bagasse combusted in the project plant during the year y** should be cross checked with the energy balance on the basis of steam quality and quantity generated.

The energy balance for cross checking the bagasse quantity is now established based on the quality (considering the average pressure and average temperature at which the steam is generated) and quantity of steam generated during the monitoing period.

Energy balance for cross checking the bagasse quantity is based on the boiler efficiency as provided by the third party during the Montoring peiod (08th March 2009 to 14th April 2010).

The boiler efficiency test was carried by chartered enginner on 28th Feb 2010 the achieved boiler efficiency was 70.03 %. The energy balance for cross checking the bagasse quantity is carried out using the above boiler as shown below:

Energy Balance based on boiler efficiency as provided by third party for the season 09-10			
Parameters	**Value**	**Units**	**Remarks**
Enthalpy of steam	812.98	Kcal/kg	
Enthalpy of feed water	160.51	Kcal/kg	
Total steam flow	315655080.00	kg	
Boiler efficiency provided by certified auditor	70.03	**%**	
GCV (Dry basis)	4150	Kcal/kg	Third party certificates
Total output energy	205955470047.60	Kcal	
Estimated total Bagasse consumed as per energy balance	70863484.51	kg	
	70863.48451	Tons	
Amount of dry bagasse consumed in project boiler	69067.99	tons	Actual consumption of dry bagasse

				in the project boiler
Variation	**-2.60**	%		

It is demonstrated through the calculations that the variance in the actual consumption of bagasse for project boiler and the quantity of bagasse consumption obtained through energy balance is (-)2.60% which is below 5% and can be accounted and neglected for small variance in boiler efficiency at few instances.

Data / Parameter:	**NCV_k**
Data unit:	GJ/ton
Description:	Net Calorific value of bagasse
Measured /Calculated /Default:	Calculated
Source of data:	Calculations and laboratory reports
Value(s) of monitored parameter:	15.791

UNITS	Cal/gm*	Cal/gm**	Average	GJ/ton	MWh/ton
SAMPLE1	3730	3850	= 3733+ 3810 = 3771.5	15.791	4.39
SAMPLE 2	3710	3780			
SAMPLE 3	3760	3800			
AVERAGE	3733	3810			

Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation boiler efficiency
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Third party monitoring
Measuring/ Reading/ Recording frequency:	Measuring Frequency- Twice in a season Reporting Frequency- Twice in a season
Calculation method (if applicable):	The net calorific value of bagasse is fairly constant. Every six months external laboratory tests for NCV at reputed laboratories and according to relevant international standards is carried out taking at least three samples for each measurement The NCV is determined based on dry biomass.
QA/QC procedures applied:	IPCC Default value for other primary solid biomass is 11.6 GJ/tonne. The range defined for other primary solid biomass in the IPCC is from 5.90 to 23 GJ/tonne. The NCVk obtained for the

	bagasse in the present monitoring period is 15.791 GJ/tonne is well with the range. Moreover NCV test is conducted every six months by external reputed laboratories and was found consistent.

Data / Parameter:	Moisture content of bagasse
Data unit:	% Water content
Description:	Moisture content of bagasse
Measured /Calculated /Default:	Measured
Source of data:	On-site laboratory measurements
Value(s) of monitored parameter:	
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	For calculation of Baseline emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	The moisture content of bagasse is measured using an electric oven and a weigh balance for which the details area given below: Electric Oven Make: Ambassador Wattage: 2 KW Sr. No: 10719EAI Power Supply Laboratory Weigh balance Previous Date of Calibration: 01/10/2008 Calibration date: 01/10/09 Next date of calibration: 30/09/10
Measuring/ Reading/ Recording frequency:	Measuring Frequency- Hourly basis Recording Frequency- Hourly in log books Reporting Frequency- The data is collated to address the average of a particular day which is then averaged out for a month and reported in ER spreadsheet The daily readings are consolidated for the month to obtain the monthly average and the same is reported in the ER sheet

Sr. No	Month	Moisture content of Baggase
1	08 March 09-31Oct 09	0.00
2	01 Nov 09 - 30 Nov 09	49.91
3	1 Dec 09-31 Dec 09	49.81
4	1 Jan 10- 31 Jan 10	49.56
5	1 Feb 10-28 Feb 10	49.33
6	1 Mar 10-31 Mar 10	49.56
7	1April 10-19APril 10	49.60

Calculation method (if applicable):	Measured in laboratories on a monthly basis by drying a measured sample of bagasse in an oven and then measuring the dried sample. The same procedure is repeated till consecutive readings are obtained.
QA/QC procedures applied:	Procedure for monitoring is repeated with multiples samples till consecutive readings are obtained.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

Estimation of emission reductions:

$$ER_y = ER_{heat,y} + ER_{electricity,y} + BE_{biomass,y} - PE_y - L_y$$

Where:

ER_y are the emissions reductions of the project activity during the year *y* in tons CO_2,

$ER_{electricity,y}$ are emission reductions due to displacement of electricity during year *y* in tons CO_2,

$ER_{heat,y}$ are the emission reductions due to displacement of heat during year *y* in tons CO_2,

$BE_{biomass,y}$ are the baseline emissions due to natural decay or burning of anthropogenic sources of biomass during the year *y* in tons of CO_2 equivalents,

PE_y are the project emissions during the year *y* in tons of CO_2, and

L_y are the leakage emissions during the year *y* in tons of CO_2.

Emission reductions due to the displacement of electricity ($ER_{electricity,y}$)

$$ER_{electricity,y} = EG_y \times EF_{electricity}$$

$ER_{electricity, y}$ are emission reductions due to displacement of electricity during the year *y* in tons of CO_2,

EG_y is the net quantity of increased electricity generation as a result of the project activity (incremental to baseline generation) during the year *y* in MWh,

$EF_{electricity}$ is the CO_2 emission factor for the electricity displaced due to the project activity in tons CO_2/MWh

The emission factor for the displacement of electricity corresponds to the grid emission factor ($EF_{electricity} = EF_{grid}$).

Emission Factor of the Grid (EF_{Grid})

The emission factor of Northern grid ($EF_{electricity}$) as fixed ex-ante in the registered PDD is 0.80 tCO_2/MWh.

Determination of electricity generation (EGy):

$$EG_y = MIN\left\{\begin{array}{l} EG_{project\ plant,y} - \varepsilon_{el,other\ plant(s)} \cdot \frac{1}{3.6} \cdot \sum_k BF_{k,y} \cdot NCV_k \\ \\ EG_{total,y} - \frac{EG_{historic,3yr}}{3} \end{array}\right\}$$

where:

EG_y Net quantity of increased electricity generation as a result of the project activity (incremental to baseline generation) during the year *y* (MWh)

$EG_{project\ plant,y}$ Net quantity of electricity generated in the project plant during the year *y* (MWh)

$\varepsilon_{el,other\ plant(s)}$ Average net energy efficiency of electricity generation in (the) other power plant(s) that would use the biomass residues fired in the project plant in the absence of the project activity ($MWh_{el}/MWh_{biomass}$)

$EG_{total,y}$ Net quantity of electricity generated in all power plants at the project site, generated from firing the same type(s) of biomass residues as in the project plant, including the new power plant installed as part of the project activity and any previously existing plants, during the year *y* (MWh/yr)

EGhistoric,3yr Net quantity of electricity generated during the most recent three years in all power plants at the project site, generated from firing the same type(s) of biomass residues as in the project plant14 (MWh)

BFk,y Quantity of biomass residue type *k* combusted in the project plant during the year *y* (tons of dry matter or liter)

NCVk Net calorific value of the biomass residue type *k* (GJ/ton of dry matter or GJ/litre)

With respect to Scenario 13, *εel,other plant(s)* corresponds to the average net efficiency of electricity generation in the "reference plant" (*εel,reference plant*) that would be installed in the absence of the CDM project activity.

Calculation of EGy for the current monitoring period

$EG_{project\ plant,y}$ = 64562.89 MWh
$\varepsilon_{el,other\ plant(s)}$ = 9.450% [2]
$EG_{total,y}$ = 78109.42 MWh
$EG_{historic,}$ = (22200[3] X 408[4])/365 = 24815.34 MWh
$BF_{k,y}$ = 69067.99 Tonnes
NCV_k = 15.79 GJ/tonne

[2] As fixed in the registered PDD

[3] $EG_{historic}$ as fixed in the registerd PDD

[4] Number of days in the monitoring periiod

EG_y is minimum among the following options

1. $EG_{total,y} - EG_{historic} = 53294.08 MWh$

2. $EG_{project\ plant,y} - \varepsilon_{el,\ other\ plant\ (s)} \cdot \frac{1}{3.6} \cdot \sum_k BF_{k,y} \cdot NCV_k = 35932.77$ MWh

Therefore $EG_y = 35932.77$ MWh

$ER_{electricity,y} = EG_y \times EF_{electricity}$
$= 35601.21$ MWh X 0.8 tCO_2 /MWh
$= 28746\ tCO_2$

Emission reductions or increases due to displacement of heat ($ER_{heat,\ y}$)
As demonstrated in the PDD, $ER_{heat,\ y} = 0$.

Baseline emissions due to natural decay or uncontrolled burning of anthropogenic sources of biomass
As per ACM0006 (version 05), for scenario 13, baseline emissions due to uncontrolled burning or decay of the biomass residues are zero i.e $BE_{Biomass} = 0$

E.2. Project emissions calculation

Project emissions (PE_y)
According to the methodology, Project emissions include CO2 emissions from transportation of biomass to the project site (*PETy*), CO2 emissions from on-site consumption of fossil fuels due to the project activity (*PEFFy*) and CH_4 emissions from the storage of biomass.

In the project scenario, since the project activity uses bagasse as the fuel, the project leads to no GHG on-site emissions. The GHG emission of the combustion process, mainly CO_2, is sequestered during the growth of sugarcane.

[a] Project Emissions associated with fossil fuel combustion
As there is no fossil fuel combustion associated with the project activity, hence there are no project emissions associated to fossil fuel combustion due to project activity implementation.

[b] Project Emissions associated with transport of bagasse fuel
The bagasse to be used as the feedstock for project activity is supplied by the sugar mill itself; no transportation of bagasse is involved. Hence there are no emissions due to transportation of bagasse.

[c] Project Emissions associated with the storage of bagasse fuel

The net increase of methane emissions associated with the storage of bagasse fuel is regarded as negligible if the bagasse is not stored for more than one year. The bagasse utilized for the project activity is stored in open piles for not more than one year. Therefore there would be no project emissions associated with the storage of bagasse fuel.

Thus $PE_y = 0$.

E.3. Leakage calculation

Leakage (L_y)
In case of scenario 4, according to ACM0006 (Version 05), the diversion of biomass residues to the project activity is already considered in the calculation of baseline reductions. Thus, the leakage effects do not need to be addressed i.e. $L_y = 0$.

E.4. Emission reductions calculation / table

Emission reductions

$ER_{heat,y}$	$ER_{electricity,y}$	$BE_{biomass,y}$	PE_y	L_y	ER_y
0	28746	0	0	0	**28746**

Thus net emission reductions by the project activity during the current monitoring period are:
$ER_y = 28746\ tCO_2e$

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

Emission reductions as estimated in the validation opinion(Page 10) of the revised monitoring plan	41207 tCO_2
Number of operational days as per the PDD	200
Number of operational days in the present monitoring period	144
Estimated emission reduction (adjusted for reduced number of operational days)for the present monitoring period	= (41207*144)/200 = 29,669 tCO_2

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO_2e)	29,669[5] tCO_2	28,746 tCO_2

E.6. Remarks on difference from estimated value in the PDD

The estimated ER's for the present Monitoring period i.e. 23.11.2009 to 19.04.2010, based on the PDD assumptions, are as given in section E.5 based on the PDD assumptions and the actual operational days (144 days in present monitoring period)

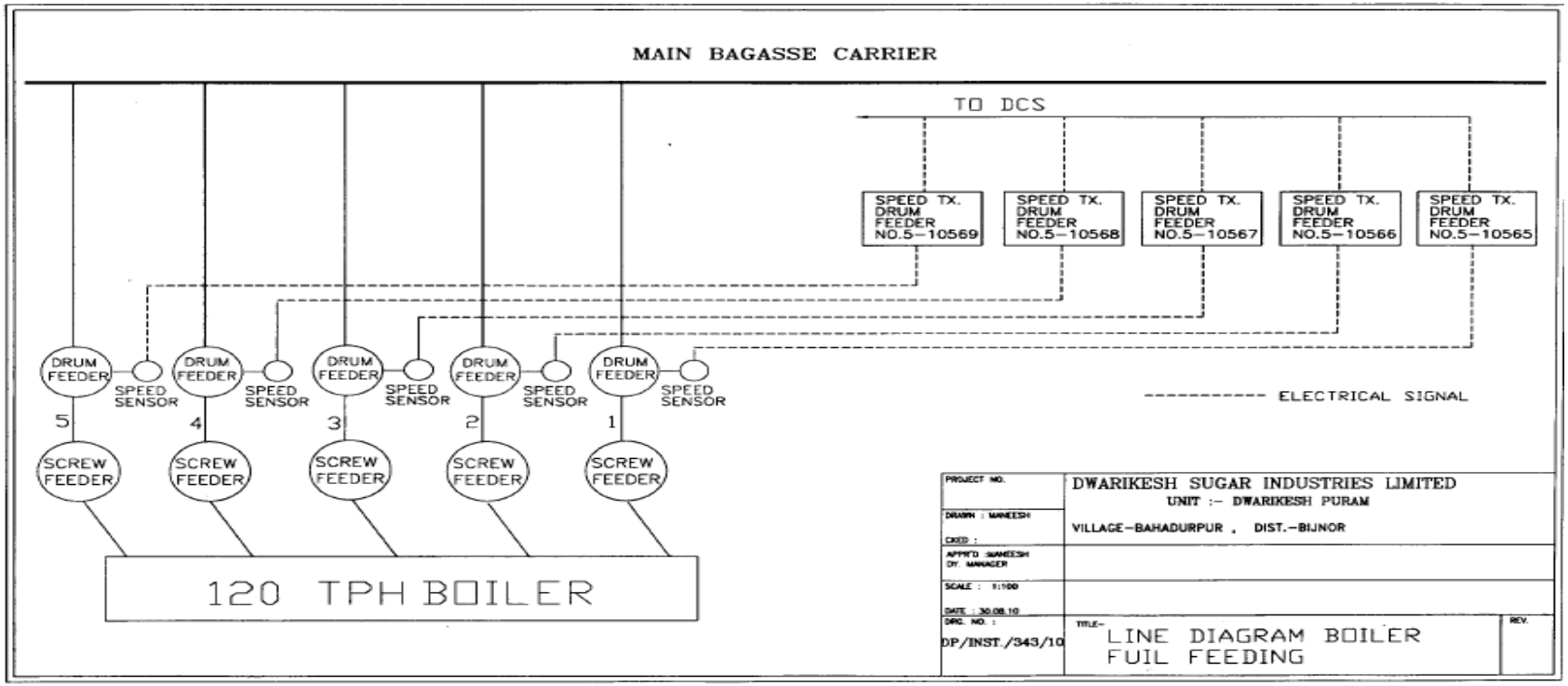
With regard to comparison of CER claimed in the monitoring period and that estimated for the present monitoring period it has been found that actual CERs claimed are lower than the estimated figures in the registered PDD due to following reason.
The crushing season of sugar mills depends on the availability of sugarcane which is a seasonal crop. Due to less availability of sugarcane in the year of the monitoring period under consideration the plant at Dwarikesh Puram was operational only for 144 days, in contrast to the quantum claimed in the validation opinion of revised monitoring plan, which is representative of 200 operational days.

[5] Emission reductions as estimated in the validation opinion(Page 10) of the revised monitoring plan

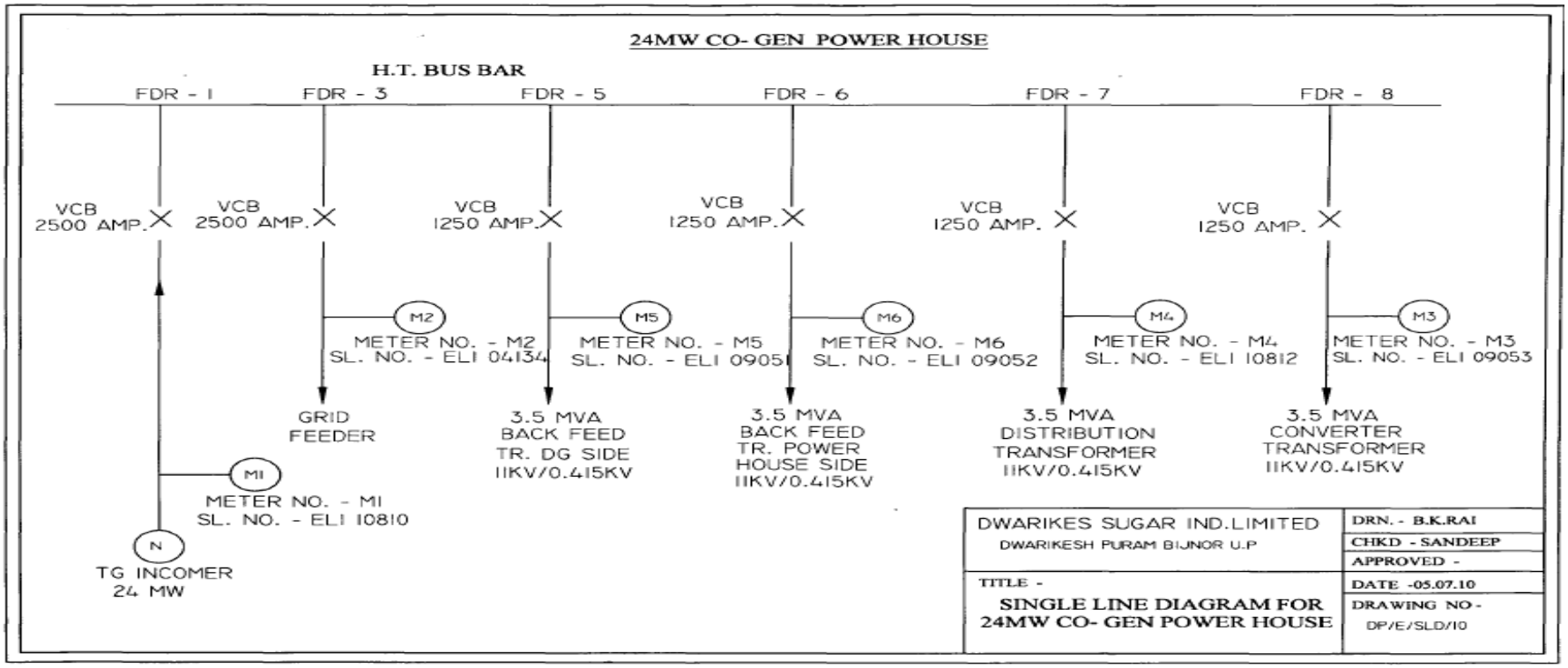
ANNEXURE - 1

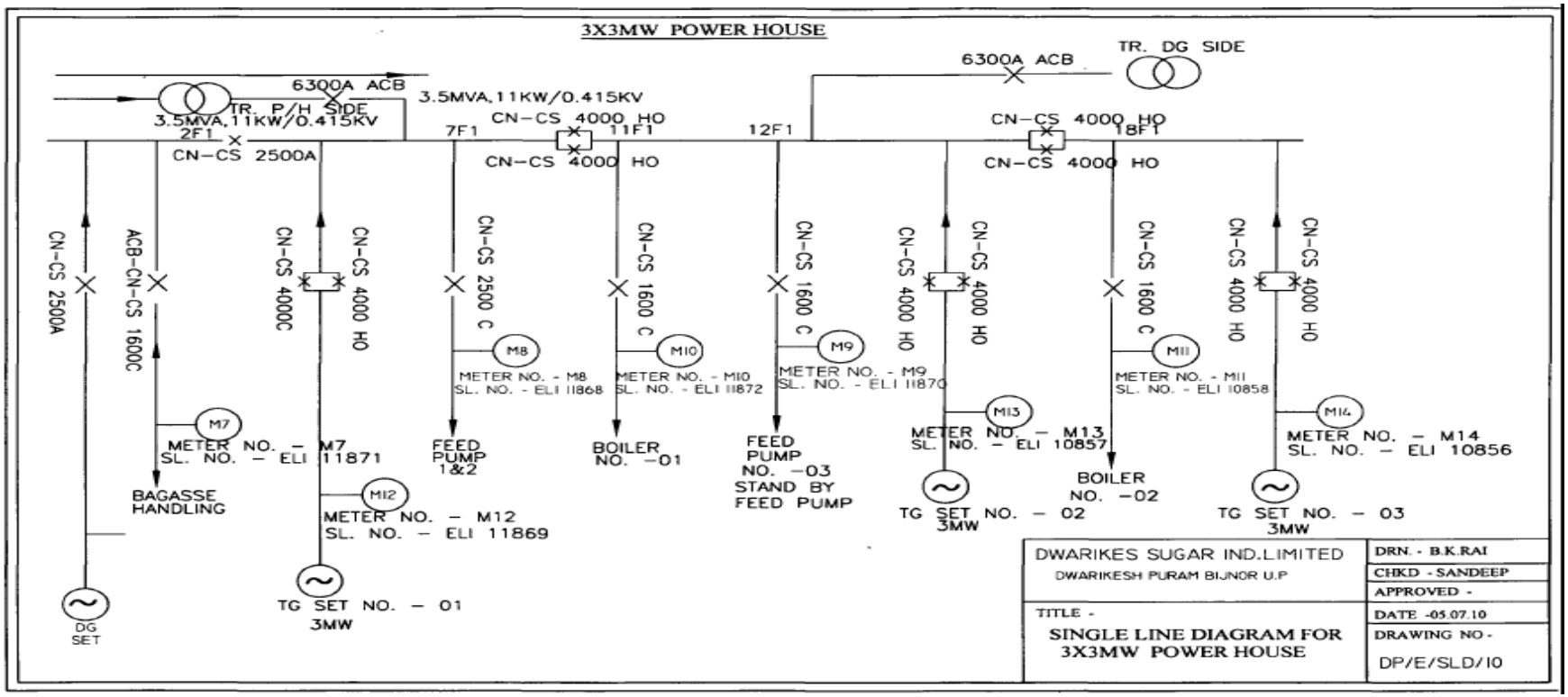
SINGLE LINE DIAGRAMS FOR THE PROJECT ACTIVITY

Line Diagram for Fuel feeing



Line Diagram for Power distribution




3X3MW POWER HOUSE
TR. DG SIDE
6300A ACB
3.5MVA,11KW/0.415KV
6300A ACB
TR. P/H SIDE
3.5MVA,11KW/0.415KV
2F1
CN-CS 2500A
7F1
CN-CS 4000 HO
11F1
CN-CS 4000 HO
12F1
CN-CS 4000 HO
18F1
CN-CS 4000 HO
CN-CS 2500A
ACB-CN-CS 1600C
CN-CS 4000C
CN-CS 4000 HO
CN-CS 2500 C
CN-CS 1600 C
CN-CS 1600 C
CN-CS 4000 HO
CN-CS 4000 HO
CN-CS 1600 C
CN-CS 4000 HO
CN-CS 4000 HO
M7
METER NO. – M7
SL. NO. – ELI 11871
M8
METER NO. - M8
SL. NO. - ELI 11868
M10
METER NO. - M10
SL. NO. - ELI 11872
M9
METER NO. - M9
SL. NO. - ELI 11870
M13
METER NO. – M13
SL. NO. – ELI 10857
M11
METER NO. - M11
SL. NO. - ELI 10858
M14
METER NO. – M14
SL. NO. – ELI 10856
BAGASSE HANDLING
M12
METER NO. – M12
SL. NO. – ELI 11869
FEED PUMP 1&2
BOILER NO. –01
FEED PUMP NO. –03 STAND BY FEED PUMP
TG SET NO. – 02 3MW
BOILER NO. –02
TG SET NO. – 03 3MW
DG SET
TG SET NO. – 01 3MW
DWARIKES SUGAR IND.LIMITED
DWARIKESH PURAM BIJNOR U.P
DRN. - B.K.RAI
CHKD - SANDEEP
APPROVED -
DATE -05.07.10
TITLE -
SINGLE LINE DIAGRAM FOR 3X3MW POWER HOUSE
DRAWING NO -
DP/E/SLD/10

Line diagram of steam and feed water