

# **SECOND MONITORING REPORT**

**VERSION 1 DATED 21<sup>ST</sup> January 2007**

**FOR THE PERIOD  
01<sup>ST</sup> APRIL 2006 TO 31<sup>ST</sup> December 2006**

**"Biomass based independent power project at Malwa Power  
Private Limited, Mukatsar, Punjab"  
Reference no. UNFCCC00000331CDMP**

**Project Location:**  
Village Gulabewalla, Tehsil Mukatsar, District Mukatsar  
Punjab, India

**Malwa Power Pvt. Limited  
43 Sector 27-C, Faridabad-121003  
Haryana, India**

## Current Status of the Project

The biomass based power plant had been successfully commissioned by Malwa Power Pvt. Ltd. (MPPL). The project was completed with major equipment supplied as follows:

<u>S. No.</u>	<u>Equipment</u>	<u>Supplier</u>
1.	Boiler	Thermax Limited, Pune
2.	T.G. Set	M/s Triveni Engineering & Industries Ltd 12A, Peenya Industrial Area Bangalore, India
3.	Balance of Plant	Various suppliers like Kirloskar Electricals Bangalore for Transformers/Switch Yard and other major electrical equipments: Hyper filtration New Delhi for RO/Water softening plant; Paltech Sahibabad for Cooling Tower etc
4.	Fuel Handling System	Kwality Engineering New Delhi

The entire equity was provided by the Company (MPPL) and loan was taken from IREDA.

During the present monitoring period i.e., 01<sup>st</sup> April 2006 to 31<sup>st</sup> December 2006. Plant exported 38.11 Million kWh to PSEB grid and consumed 51,209 MT of biomass fuel.

## **Statement to What Extent the Project has been Implemented as Planned**

This project was completed as planned and described in the Project Design Document (PDD)

The plant is in operation continuously (with outages – forced & planned) since commissioning. Commercial operation was declared on April 27, 2005.

The plant is mostly using crop residues available in the area such as paddy straw, cotton stalk, mustard stalk, lops and tops of eucalyptus and popular trees, Julia Flora and use some quantity of agro-industry waste such as rice husk and saw dust.

## **Monitoring Period**

This is the second monitoring report associated with the MPPL project activity. The previous monitoring report covered the period from 01/05/2005 to 31/03/2006. (Both days included) and the CERs for the same have already been issued.

The period covered in this monitoring report is from 01/04/2006 to 31/12/2006 (Both days included). This monitoring report does not cover any period of time covered by the previous monitoring report.

## **Sustainability – Economic and Social Well-being**

The project activity has resulted in sustainable development in the region as follows:

1. Helped to create employment in the area for skilled and unskilled labour during operation and maintenance of the power plant.
2. Employment opportunities have been generated for uneducated people having meager resources like bullock cart only, to collect the agro waste material and supply the same. The biomass collection activity has benefited approximately 1400 families from villages in and around the plant by way of revenue from selling the surplus biomass residues to the project plant.
3. MPPL has motivated the unemployed, educated youth to arrange tractors, trollies, chippers etc to transport the biomass to project site.
4. MPPL has motivated the farmers in the regions to adopt mechanized farming methods by way of demonstration plantations on the MPPL land and hence contributing to technical know how of the farmers thereby increasing yield and providing an additional source of income to the farmers by selling the surplus biomass residues to the company.
5. By generating clean power, project activity has helped to eliminate an equivalent carbon dioxide, sulphur dioxide, nitrogen oxides, SPM *etc.* which would have been otherwise generated to produce electricity at grid.
6. Helped to reduce transmission losses due to generation of decentralised power close to load points.

## Obtained Parameters According to Monitoring Plan

For the project, following parameters were monitored on a continuous basis.

1. **Energy:** electronic energy meters to monitor the export and import of power have been installed at the grid interconnection point. Monthly joint meter readings have been taken at interconnection point by representatives of MPPL and Punjab State Electricity Board (PSEB) and signed. MPPL has used these joint meter readings to raise the invoices to PSEB against the net energy exported to grid (net saleable energy). MPPL has preserved records of joint meter reading at interconnection point and all the monthly invoices raised against net saleable energy to PSEB.
2. **Fuel (Biomass):** biomass fuel used in the power plant is weighed by electronic weigh bridge installed at project site. Also the quantity of biomass is based on invoices of fuel contractors. Biomass fuel consumption is recorded on daily as well as monthly basis.
3. **Fossil fuel:** No fossil fuel has been used during the current monitoring period.
4. **Energy Content of Fuel:** The calorific value of the Biomass fuel being used is measured in the inhouse laboratory on daily basis as per the arrivals and average value is considered on monthly basis.

## Power Generation, Export & Import, Fuel Consumption and Fuel Analysis

Month-wise data on Power Generation, export, import, fuel consumption, fuel analysis and Net Emission Reductions is given below for the monitoring period:

### Fuel consumption and analysis

Billing month	Year	Mustard Husk /waste straw (MT)	Rice husk / Paddy waste (MT)	Firewood (Julieflora) (MT)	Cotton stick (MT)	Total quantity of biomass consumed (MT)	Average GCV of biomass fuels (kcal/kg)
April	2006	2300	25	275	2751	5351	3637
May	2006	4982	150	600	300	6032	3584
June	2006	4500	50	625	524	5699	3830
July	2006	4800	25	1433	0	6258	3516
August	2006	4600	120	1466	0	6186	3304
September	2006	3595	933	1810	0	6338	3200
October	2006	1067	3800	1089	0	5956	3233
November	2006	1010	1450	1316	2000	5776	3159
December	2006	150	450	363	2650	3613	3000
		<b>27004</b>	<b>7003</b>	<b>8977</b>	<b>8225</b>	<b>51209</b>	

### Electricity Generation, Export, Import and emission reductions

The emission reductions for the monitoring period are as given below:

As mentioned in the Project Design Document, Emission reductions are calculated based on the power exported to the grid, powers imported from the grid during shut down and start up by the power plant.

Billing month	Year	Electricity Generated (kWh)	Electricity Exported (kWh)	Electricity Imported (kWh)	Net Saleable Energy (kWh)	Baseline Emission Factor (tCO <sub>2</sub> /MWh)	Baseline Emissions (tCO <sub>2</sub> )
Apr	2006	4455500	3915000	19500	3895500	0.942	3670
May	2006	5027200	4431000	10000	4421000	0.942	4165
Jun	2006	4749500	4205000	11500	4193500	0.942	3950
Jul	2006	4966900	4377000	15000	4362000	0.942	4109
Aug	2006	4828800	4253500	24000	4229500	0.942	3984
Sep	2006	4850400	4265000	23000	4242000	0.942	3996
Oct	2006	4725500	4189500	13000	4176500	0.942	3934
Nov	2006	4730600	4155000	17000	4138000	0.942	3898
Dec	2006	5049000	4454000	7500	4446500	0.942	4189
		<b>43383400</b>	<b>38245000</b>	<b>140500</b>	<b>38104500</b>		<b>35894</b>



## **Emission Reductions**

### **Baseline Emissions:**

Carbon Emission Factor as per the baseline adopted (kg CO<sub>2</sub>/kWh) – 0.942

Net energy exported (kWh) – 38104500

Baseline emissions (ton CO<sub>2</sub>) – 35894

**Project Emissions:** NIL

### **Emission Reductions:**

Baseline emissions – Project emissions

= 35894.44 – NIL

**= 35894 tCO<sub>2</sub>**

*Note: A detailed excel sheet showing step by step calculations for arriving Net emission reductions is given as Annexure - I.*

## Measures to Ensure the Results/Uncertainty Analysis

As per the Power Purchase Agreement (PPA), the energy exported to the PSEB is recorded from two independent set of meters - Main Meters & Check Meters. Reading of main meter is used for billing. In the event of main meter not in operation, the reading of the backup meter is to be used for billing. Till date the main meter only has been used for billing purposes.

The calibration of monitoring equipment is being maintained as per the requirement of PSEB and the same is being done regularly. Power Generation, Export & Auxiliary Consumption, fuel consumption are being recorded daily and the same is being verified by Plant Manager and approved by Director.

The following table indicates the date of calibration of various instruments required to be calibrated:

Calibration details	
Instrument	Date of calibration
Main meter	05/04/2206 and 11/01/2007
Check meter	05/04/2206 and 11/01/2007
weighbridge	28/11/2006

## **Roles and Responsibilities**

MPPL was the sole agency responsible for implementation and monitoring plan given above.

**Annexure 1**  
**Malwa Power Private Limited**  
**Emission Reduction Calculations: 01<sup>st</sup> April 2006 to 31<sup>st</sup> December 2006**

Billing month	Year	Electricity generated (kWh)	Electricity exported (kWh)	Electricity imported (kWh)	Net Saleable energy (kWh)	Auxiliary consumption (kWh)	Biomass Used (MT)				Total quantity of biomass consumed (MT)	Average GCV of biomass fuels	Baseline emission factor (kgCO <sub>2</sub> /kWh)	Baseline emissions (kgCO <sub>2</sub> )	Emission reductions (tCO <sub>2</sub> )
							Mustard Husk /waste straw	Rice husk / Paddy waste	Firewood (Julieflora)	Cotton stick					
April	2006	4455500	3915000	19500	3895500	540500	2300	25	275	2751	5351	3636.75	0.942	3669561	3670
May	2006	5027200	4431000	10000	4421000	596200	4982	150	600	300	6032	3584	0.942	4164582	4165
June	2006	4749500	4205000	11500	4193500	544500	4500	50	625	524	5699	3829.5	0.942	3950277	3950
July	2006	4966900	4377000	15000	4362000	589900	4800	25	1433	0	6258	3516.25	0.942	4109004	4109
August	2006	4828800	4253500	24000	4229500	575300	4600	120	1466	0	6186	3304.25	0.942	3984189	3984
September	2006	4850400	4265000	23000	4242000	585400	3595	933	1810	0	6338	3200.25	0.942	3995964	3996
October	2006	4725500	4189500	13000	4176500	536000	1067	3800	1089	0	5956	3232.75	0.942	3934263	3934
November	2006	4730600	4155000	17000	4138000	575600	1010	1450	1316	2000	5776	3158.5	0.942	3897996	3898
December	2006	5049000	4454000	7500	4446500	595000	150	450	363	2650	3613	2999.75	0.942	4188603	4189
<b>Total</b>		43383400	38245000	140500	38104500	5138400	27004	7003	8977	8225	51209			35894439	<b>35894</b>