



Monitoring report form (Version 03.1)

Monitoring report

Title of the project activity	VGL – Waste Heat based 4 MW Captive Power Project at Raipur
Reference number of the project activity	0432
Version number of the monitoring report	01
Completion date of the monitoring report	06/08/2013
Registration date of the project activity	17/07/2006
Monitoring period number and duration of this monitoring period	Monitoring Period -03 15/08/2007 to 30/11/2011
Project participant(s)	Vandana Global Limited
Host Party(ies)	India
Sectoral scope(s) and applied methodology(ies)	01
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	18965 tCO ₂ /Year
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	95453 tCO ₂

SECTION A. Description of project activity**A.1. Purpose and general description of project activity**

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The project activity aims to utilize the heat content of the flue gas released during sponge iron manufacturing process, for generating clean power. Prior to the project activity, power was imported from grid to meet the entire electricity demand of the sponge iron plant while the hot waste flue gas from the Direct Reduction Iron (DRI) kiln of the plant was released to the atmosphere after treatment.

By implementing the project activity, the project proponent intends to reduce import of power from grid and hence indirectly reduce greenhouse gas (GHG) emissions that would have occurred, in its absence, at the thermal power plants connected to the grid.

Salient features of the project:

The project proponent Vandana Global Limited (VGL) is a sponge iron and steel manufacturing industry that belongs to the 'Vandana Group of Industries' of Chhattisgarh State, India. The other companies belonging to the Group are Vandana Rolling Mills Limited, Vandana Udyog Limited, Vandana Ispat Limited, Vandana Industries Limited and Vandana Vidyut Limited. VGL produces around 220000 TPA of Sponge Iron, Ferro Alloys 36000 TPA, 122400 TPA of Steel ingots, 150000 TPA Rerolled product with 41 MW (14 MW WHRB + 27 MW AFBC) . The plant is connected to Chhattisgarh State Power Distribution Company Ltd. (CSPDCL) which is formerly a part of Chhattisgarh State Electricity Board (CSEB).

The power generated due to project activity is used to meet the captive power requirement of VGL plant. The net result is a reduction in electricity demand from the grid supply.

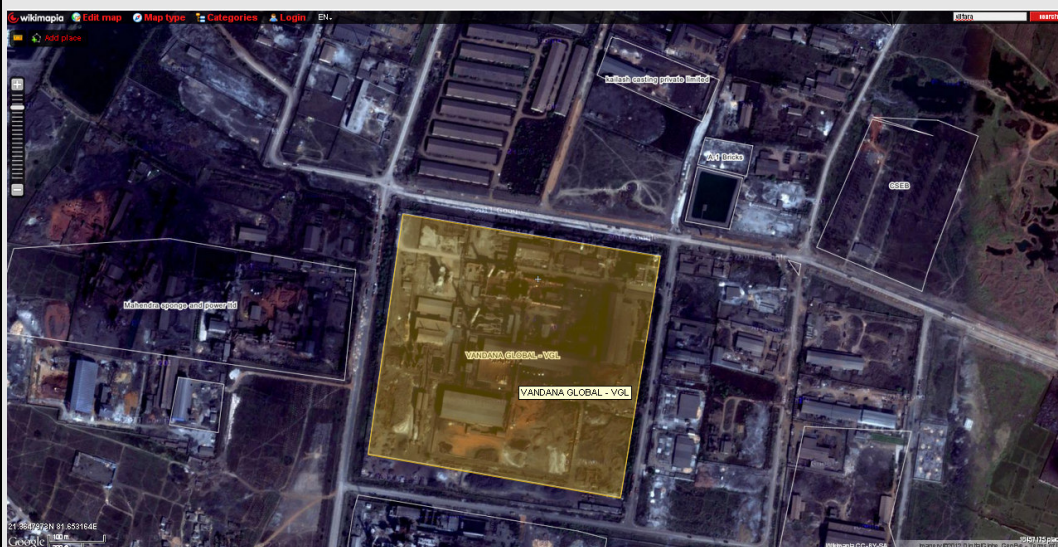
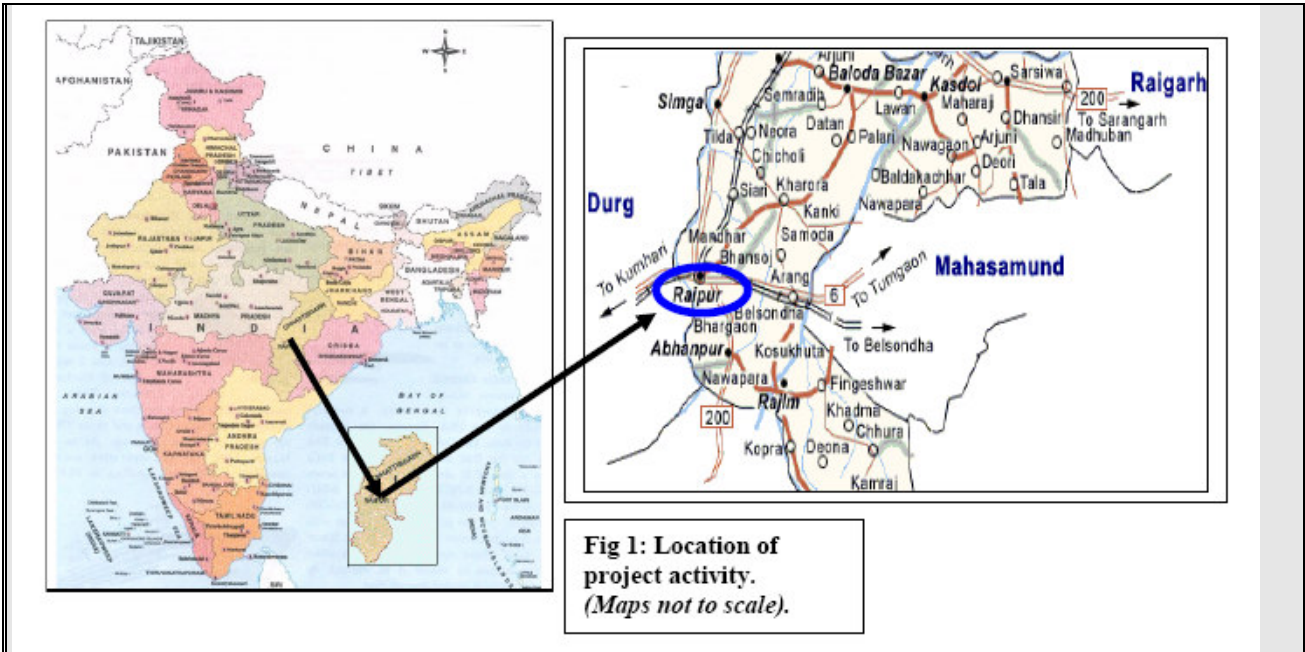
Technology Employed:

The project activity involves the electricity generation from electricity through recovery of heat from waste flue gases generated in sponge iron manufacturing process (which is otherwise would have been wasted) to produce steam in Boiler, and fed in to STG for generation of electricity.

A.2. Location of project activity

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The project activity has been implemented in the VGL Sponge Iron Manufacturing plant premises located in Siltara Industrial area in Raipur district of Chhattisgarh state of India. Raipur is well connected with road, rail and airport infrastructure. The closest airport is Swami Vivekanand Air Port Mana Raipur and the closest railway station is Mandher Railway Station about 6 KM . The Sponge iron manufacturing facility premises located in Siltara Industrial Belt has latitude of 21.3647973 N and longitude of 81. 653164 E.



A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India	Vandana Global Limited (Private Entity)	No

A.4. Reference of applied methodology

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Title : Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation

Reference: Approved consolidated baseline methodology ACM0004/ Version 02, Sectoral Scope:01,
03 March 2006

A.5. Crediting period of project activity

>> 01/04/2005 – 31/03/2015

SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

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Description of project activity is implemented :

S. No.	Equipment	Specification	Commissioning date
1	WHRB#1	Steam Capacity : 30 tph Steam Temperature: 510 ⁰ C Steam pressure: 67 kg/cm ²	05/03/2005
2	Steam Turbo Generator #1 (STG#1)	Generation Capacity : 8 MW Steam Requirement : 4.0 t/MW Steam Temperature: 485 ⁰ C Steam pressure: 65 kg/cm ²	05/03/2005
3	WHRB#2	Steam Capacity : 55 tph Steam Temperature: 500 ⁰ C Steam pressure: 66 kg/cm ² ¹	15/08/2007
4	AFBC#1	Steam Capacity : 90 tph Steam Temperature: 500 ⁰ C Steam pressure: 68 kg/cm ²	15/08/2007
5	AFBC#2	Steam Capacity : 90 tph Steam Temperature: 500 ⁰ C Steam pressure: 68 kg/cm ²	18/01/2007
6	Steam Turbo Generator #2 (STG#2)	Generation Capacity : 33 MW Steam Requirement : 3.89 t/MW Steam Temperature: 485 ⁰ C Steam pressure: 64 kg/cm ²	15/08/2007

B.2. Post registration changes**B.2.1. Temporary deviations from registered monitoring plan or applied methodology**

>> Not applicable.

B.2.2. Corrections

>> Not applicable.

B.2.3. Permanent changes from registered monitoring plan or applied methodology

>> A WHRB, 2 Nos. of AFBC and 1 additional STG is installed at project location. The steam from these new Boilers and existing project activity boilers is fed in to a single common header which is connected to both the STG (project activity STG and new STG) to produce electricity. Therefore, to estimate emission reduction due to registered project activity it is required to monitor all the steam and electrical parameters for these additionally installed facilities. Thereafter by calculating f_{WCM} , the actual emission reduction due to project activity will be calculated.

B.2.4. Changes to project design of registered project activity

>> Not applicable.

B.2.5. Changes to start date of crediting period

>> Not applicable.

B.2.6. Types of changes specific to afforestation or reforestation project activity

>> Not applicable.

SECTION C. Description of monitoring system

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(A) Purpose

To define the procedures and responsibilities for GHG Performance, monitoring, measurement, reporting of data, dealing with uncertainties, and covers the responsibilities regarding plant operation and maintenance. To arrive at the proportionate power generation by WHRB steam in CPP.

(B) Scope

This procedure is applicable to waste heat based WHRB power project of RIPL CPP.

(C) Operation and Management Structure

The Power plant and the project activity will be operated and maintained by qualified and trained manpower, which will comprise of team of engineers from mechanical, electrical engineering department and personals from administration. The data and parameters related to power generation, auxiliary consumption, steam generation and steam consumption will be monitored with the duly calibrated equipments and the measurement will be recorded as per the monitoring plan.

The plant and machinery of power plant will be maintained by the trained and qualified staff who will also be responsible for maintaining all the metering and monitoring equipments.

The recorded data will be reviewed on monthly basis by the head of the power plant division and management will review the data on quarterly basis.

(D) Monitoring Procedure & responsibility

CDM Officer: He will be responsible for preparing required documentation and reviewing

the accuracy of various reports with counter checks along with project developer. He will be responsible for internal audit regarding CDM project matters.

Steam parameters like pressure, temperature and flow are recorded from DCS, and Electricity generation and auxiliary consumption will be recorded through the Energy meters which will also be recorded manually by the shift incharge in generation logbook. The daily DCS records shall be treated as monitoring data.

Responsibilities for monitoring different parameters are elaborately mentioned in the table given below.

The CDM officer will be responsible for preservation and preparation of all the records.

(F) Training and maintenance

Management had employed adequate technical trained and experience manpower, new employees were given “on-job training” for operation of power plant.

For maintenance of power plant operation and maintenance manual provided by manufacturer will be used. For this also a “on-job training” is provided to employees.

(G) Emergency Preparedness

Management had prepared On-site and Off-site emergency plan, which will be followed for project activity.

(H) Data Uncertainty and Adjustment

In case of any uncertainty in the recorded data the adjustment will be made with a conservative approach so as to reflect the lowest component of emission reduction.

TABLE-XVI

As per the methodology it is required to monitor the following parameters:

S.No .	Parameters to be monitored	Monitoring sources and procedure
1	Energy generation in CPP	Energy Meter provided at TG sets, the daily data will be recorded in log book.
2	Steam flow from WHRB, AFBC and at Turbine Inlet	Steam flow indicator will be attached to DCS to record the steam flow and on the basis of which log book will be maintained.
3	Steam Pressure from WHRB, AFBC and at Turbine Inlet	Steam Pressure indicator will be attached to DCS to record the steam pressure and on the basis of which log book will be maintained.
4	Sponge Iron Production	Company is required to submit production figures of Sponge Iron to Government Departments, this submitted figures will be used.

Institutional arrangement for Operation and Management

Management



GM Power Plant / CDM

Shift Incharge

Shift Operator

Monitoring Protocol**Objective**

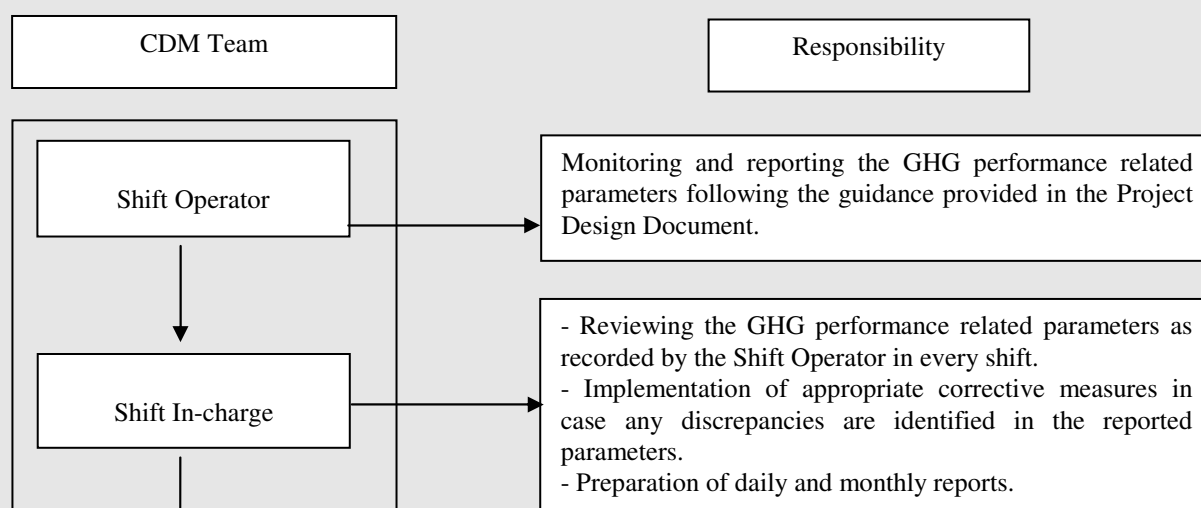
- To ensure proper monitoring and recording of all the parameters required for the computation of emission reductions from the project activity (as mentioned in Section B.7.1 of the PDD)
- To ensure proper evaluation of the project activity performance at regular intervals
- To identify the discrepancies in the data monitoring, recording and archiving system and to open up the opportunities for future improvement

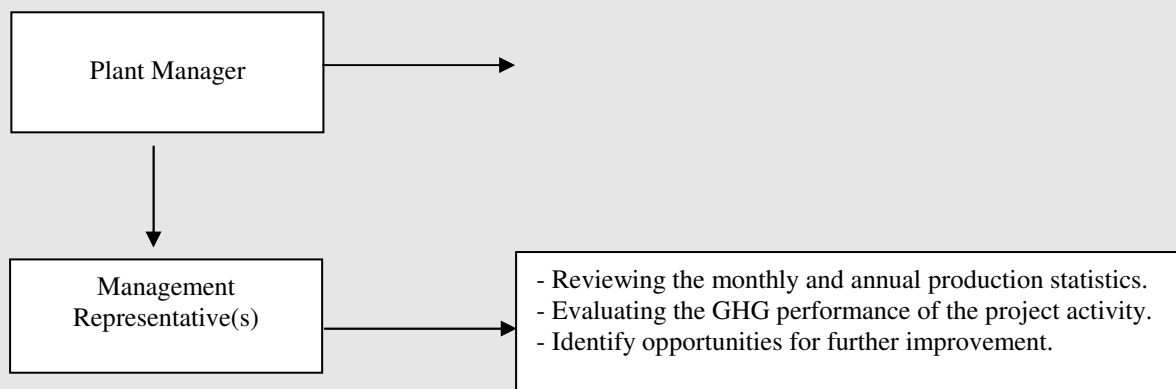
Instrumentation and Control System

The instrumentation and control system is the key aspect for proper functioning of any monitoring and verification system of a project activity. The project activity has employed the state of art monitoring and control equipment that will measure, record, report, monitor and control various key parameters like total power generated, power used for auxiliary consumption, flow rate, temperature and pressure parameters of the waste gas, steam generated and steam sent to turbine to generate power. The instrumentation and control system for the power plant is designed with microprocessor-based instruments having adequate provisions to control and monitor the various operating parameters for safe and efficient operation of the equipments installed under the project activity.

3.0 Roles and Responsibilities

The project proponent has developed a 'CDM Team' who will be involved in monitoring, reporting and verification of all the GHG performance related parameters. The following schematic diagram will explain the individual roles and responsibilities of all the members of the 'CDM Team':





4.0 Internal Audit

Internal Audit will be conducted once in a year in order to assess the GHG performance of the project activity. Auditors will consist of people from different departments of Vandana Global Limited. The audit findings and the necessary corrective actions will be documented and reported to the Management Representative(s) for their immediate actions. The Plant Management will also be informed on the same. Compliance with the audit findings and evaluation of implementation of the corrective actions will be a part of the subsequent audit.

5.0 Experience and Training

The Plant Manager will be qualified engineer/ diploma holder with prior work experience. The Shift In-charge will be diploma holder. All the Shift Operators will be provided with extensive on-the-job trainings under the guidance of the Shift In-charge which will include training on plant operations, data monitoring and report generation.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

(Copy this table for each piece of data and parameter.)

Data / Parameter:	EF_y
Unit:	tCO ₂ /MWh
Description:	Emission factor for grid
Source of data:	CENTRAL ELECTRICITY AUTHORITY
Value(s) applied:	0.75861
Purpose of data:	Baseline emission
Additional comment:	Ex-ante fixed value

Data / Parameter:	$EF_{BM,y}$
Unit:	tCO _{2e} /MWh
Description:	Buld Margin emission factor for grid
Source of data:	Value for base year 2004-2005
Value(s) applied:	0.65306
Purpose of data:	Baseline emission
Additional comment:	Ex-ante fixed value

Data / Parameter:	EF _{OM, y}
Unit:	tCO ₂ e/MWh
Description:	Operating Margin emission factor for grid
Source of data:	Averaged value most recent 3-year (2002-2003, 2003-2004 and 2004-2005) values
Value(s) applied:	0.86416
Purpose of data:	Baseline emission
Additional comment:	Ex-ante fixed value

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter.)

Data / Parameter:	EG _{i,j,y} TG#1														
Unit:	MWh														
Description:	Gross electricity generated by TG#1 of 8 MW														
Measured/ Calculated / Default:	Measured														
Source of data:	The daily power generation data will be recorded in the 1 accuracy class energy meter and in the daily log book to be maintained by shift engineer, approved by shift in charge as the daily report. The energy meters will be annually calibrated by approved agencies.														
Value(s) of monitored parameter:	143844.63														
Monitoring equipment:	<div>Electronic energy meter.</div> <table><tr><td>Sr.No.</td><td>Make</td><td>Accuracy class</td><td>Calibration date</td><td>Calibration valid up to</td></tr><tr><td>031643 073</td><td>SOCOM AKE</td><td>1.0</td><td>06/04/2012</td><td>05/04/2013</td></tr></table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	031643 073	SOCOM AKE	1.0	06/04/2012	05/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
031643 073	SOCOM AKE	1.0	06/04/2012	05/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Measurement interval – daily Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	Log book signed by plant manager daily. Meters calibrated annually (once in year). The meters are regularly under QC/QA procedure for any variation. If variation is noticed recalibration will be done immediately.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	EG _{i,j,y} TG#2				
Unit:	MWh				
Description:	Gross electricity generated by TG#2 of 33 MW				
Measured/ Calculated / Default:	Measured				

Source of data:	The daily power generation data will be recorded in the 1 accuracy class energy meter and in the daily log book to be maintained by shift engineer, approved by shift in charge as the daily report. The energy meters will be annually calibrated by approved agencies.														
Value(s) of monitored parameter:	965179.45														
Monitoring equipment:	Electronic energy meter. <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>050331 217</td> <td>SOCOM AKE</td> <td>1.0</td> <td>07/04/2012</td> <td>06/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	050331 217	SOCOM AKE	1.0	07/04/2012	06/04/2013
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Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Measurement interval – daily Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	Log book signed by plant manager daily. Meters calibrated annually (once in year). The meters are regularly under QC/QA procedure for any variation. If variation is noticed recalibration will be done immediately.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	EG _{i,j,y}
Unit:	MWh
Description:	Gross electricity generated by both the TGs in the CPP
Measured/ Calculated / Default:	Calculated
Source of data:	Calculated based on monitored parameter for both the TGs
Value(s) of monitored parameter:	1109024.088
Monitoring equipment:	Calculated
Measuring/ Reading/ Recording frequency:	Calculated Responsible person/entity – Representative of PP
Calculation method (if applicable):	-
QA/QC procedures:	Calculated
Purpose of data:	Baseline emission
Additional comment:	Data will be kept for crediting period + 2 years

Data / Parameter:	EG _{PJ,CP,y}
Unit:	MWh

Description:	Auxiliary power consumption recorded for project activity during the monitoring period "y"																																		
Measured/ Calculated / Default:	Measured																																		
Source of data:	Continuously Measured through Electronic Energy Meters installed at various auxiliary consuming equipments and then summing up the total auxiliary consumption of the power plant.																																		
Value(s) of monitored parameter:	115228.32																																		
Monitoring equipment:	Electronic energy meter. <table border="1"> <thead> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> </thead> <tbody> <tr> <td>137717 /12578 4-5007</td> <td>Consever</td> <td>1.</td> <td>06/04/2012</td> <td>05/04/2013</td> </tr> <tr> <td>Consever</td> <td>106439/ 2285-4106</td> <td>0.5</td> <td>07/04/2012</td> <td>06/04/2013</td> </tr> <tr> <td>Consever</td> <td>106439/ 2280-4106</td> <td>0.5</td> <td>07/04/2012</td> <td>06/04/2013</td> </tr> <tr> <td>Consever</td> <td>106439/ 2278-4106</td> <td>0.5</td> <td>07/04/2012</td> <td>06/04/2013</td> </tr> <tr> <td>Consever</td> <td>106439/ 2281-4106</td> <td>0.5</td> <td>07/04/2012</td> <td>06/04/2013</td> </tr> </tbody> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	137717 /12578 4-5007	Consever	1.	06/04/2012	05/04/2013	Consever	106439/ 2285-4106	0.5	07/04/2012	06/04/2013	Consever	106439/ 2280-4106	0.5	07/04/2012	06/04/2013	Consever	106439/ 2278-4106	0.5	07/04/2012	06/04/2013	Consever	106439/ 2281-4106	0.5	07/04/2012	06/04/2013
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Consever	106439/ 2281-4106	0.5	07/04/2012	06/04/2013																															
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – daily Responsible person/entity – Representative of PP																																		
Calculation method (if applicable):	-																																		
QA/QC procedures:	Meters shall be calibrated regularly (once in three year). The meters are regularly under QC/QA procedure for any variation. If variation is noted recalibration will be done immediately. A suitable calibration agency duly accredited and competent for certification and calibration will be assigned the task to calibrate/test the meters to the applicable national Standards at the suitable time to satisfy the requirements of Para 17(c) of EB 61, Annex 21.																																		
Purpose of data:	Project emission																																		
Additional comment:	Data will be kept for crediting period + 2 years																																		

Data / Parameter:	EG _{PJ, y}
Unit:	MWh
Description:	Total quantity of electricity generated from identified WECM stream(s) during year "y"
Measured/ Calculated / Default:	Calculated
Source of data:	Calculated from the generation data measured by project participant

Value(s) of monitored parameter:	142821.26				
Monitoring equipment:	Calculated				
Measuring/ Reading/ Recording frequency:	Recording frequency – Calculated once for period “y” Responsible person/entity – Representative of PP				
Calculation method (if applicable):	Calculated based on generation data measured				
QA/QC procedures:	Calculation				
Purpose of data:	Baseline				
Additional comment:	Data will be kept for crediting period + 2 years				

Data / Parameter:	SF _{WHRB#1}																			
Unit:	tph																			
Description:	Quantity of steam at outlet of WHRB#1																			
Measured/ Calculated / Default:	Measured																			
Source of data:	Measured through flow measured instrument installed at outlet of boiler																			
Value(s) of monitored parameter:	530971.55																			
Monitoring equipment:	<table border="1"> <tr> <td colspan="5">Steam Flow transmitter</td> </tr> <tr> <td>Sr.No.</td> <td>Make</td> <td>Accuracy class</td> <td>Calibration date</td> <td>Calibration valid up to</td> </tr> <tr> <td>03D0034</td> <td>ABB</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2012</td> </tr> </table>					Steam Flow transmitter					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	03D0034	ABB	0.1%	05/04/2012	04/04/2012
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03D0034	ABB	0.1%	05/04/2012	04/04/2012																
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP																			
Calculation method (if applicable):	-																			
QA/QC procedures:	The instrument is duly calibrated.																			
Purpose of data:	Baseline emission																			
Additional comment:	Data will be kept for crediting period + 2 years																			

Data / Parameter:	SF _{WHRB#2}				
Unit:	Tph				
Description:	Quantity of steam at outlet of WHRB#2				
Measured/ Calculated / Default:	Measured				
Source of data:	Measured through flow measured instrument installed at outlet of boiler				

Value(s) of monitored parameter:	1157782.51														
Monitoring equipment:	Steam Flow transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>91F126271</td> <td>Yokogawa</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2012</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	91F126271	Yokogawa	0.1%	05/04/2012	04/04/2012
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91F126271	Yokogawa	0.1%	05/04/2012	04/04/2012											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	SF _{FBC#1}														
Unit:	Tph														
Description:	Quantity of steam at outlet of FBC#1														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through flow measured instrument installed at outlet of boiler														
Value(s) of monitored parameter:	1792694.79														
Monitoring equipment:	Steam Flow transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>91F126261</td> <td>Yokogawa</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2012</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	91F126261	Yokogawa	0.1%	05/04/2012	04/04/2012
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91F126261	Yokogawa	0.1%	05/04/2012	04/04/2012											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	SF _{FBC#2}				
Unit:	Tph				
Description:	Quantity of steam at outlet of FBC#2				

Measured/ Calculated / Default:	Measured														
Source of data:	Measured through flow measured instrument installed at outlet of boiler														
Value(s) of monitored parameter:	1172579.92														
Monitoring equipment:	Steam Flow transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>91F126 266</td> <td>Yokolga wa</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	91F126 266	Yokolga wa	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
91F126 266	Yokolga wa	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	SF _{TG#1}														
Unit:	Tph														
Description:	Quantity of steam at inlet of TG#1														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through flow measured instrument installed at inlet of TG.														
Value(s) of monitored parameter:	650012.52														
Monitoring equipment:	Steam Flow transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>03D00 36</td> <td>ABB</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	03D00 36	ABB	0.1%	05/04/2012	04/04/2013
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03D00 36	ABB	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	SF _{TG#2}				
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Unit:	tph														
Description:	Quantity of steam at inlet of TG#2														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through flow measured instrument installed at inlet of TG.														
Value(s) of monitored parameter:	3913535.64														
Monitoring equipment:	Steam Flow transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>91F126 243</td> <td>Yokoga wa</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	91F126 243	Yokoga wa	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
91F126 243	Yokoga wa	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	T _{WHR#1}														
Unit:	°C														
Description:	Temperature of steam at outlet of WHRB#1														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through temperature transmitter installed at outlet of Boiler.														
Value(s) of monitored parameter:	510														
Monitoring equipment:	Temperature transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>226478</td> <td>Rosemo unt</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	226478	Rosemo unt	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
226478	Rosemo unt	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	T _{WHR#2}																			
Unit:	°C																			
Description:	Temperature of steam at outlet of WHRB#2																			
Measured/ Calculated / Default:	Measured																			
Source of data:	Measured through temperature transmitter installed at outlet of Boiler.																			
Value(s) of monitored parameter:	500																			
Monitoring equipment:	<table><tr><td colspan="5">Temperature transmitter</td></tr><tr><td>Sr.No.</td><td>Make</td><td>Accuracy class</td><td>Calibration date</td><td>Calibration valid up to</td></tr><tr><td>226473</td><td>Rosemo unt</td><td>0.1%</td><td>05/04/2012</td><td>04/04/2013</td></tr></table>					Temperature transmitter					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	226473	Rosemo unt	0.1%	05/04/2012	04/04/2013
Temperature transmitter																				
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to																
226473	Rosemo unt	0.1%	05/04/2012	04/04/2013																
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP																			
Calculation method (if applicable):	-																			
QA/QC procedures:	The instrument is duly calibrated.																			
Purpose of data:	Baseline emission																			
Additional comment:	Data will be kept for crediting period + 2 years																			

Data / Parameter:	T _{FBC#1}																			
Unit:	°C																			
Description:	Temperature of steam at outlet of FBC#1																			
Measured/ Calculated / Default:	Measured																			
Source of data:	Measured through temperature transmitter installed at outlet of Boiler.																			
Value(s) of monitored parameter:	500																			
Monitoring equipment:	<table><tr><td colspan="5">Temperature transmitter</td></tr><tr><td>Sr.No.</td><td>Make</td><td>Accuracy class</td><td>Calibration date</td><td>Calibration valid up to</td></tr><tr><td>350939</td><td>Rosemo unt</td><td>0.1%</td><td>05/04/2012</td><td>04/04/2013</td></tr></table>					Temperature transmitter					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	350939	Rosemo unt	0.1%	05/04/2012	04/04/2013
Temperature transmitter																				
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to																
350939	Rosemo unt	0.1%	05/04/2012	04/04/2013																
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP																			
Calculation method (if applicable):	-																			
QA/QC procedures:	The instrument is duly calibrated.																			
Purpose of data:	Baseline emission																			

Additional comment:	Data will be kept for crediting period + 2 years				
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Data / Parameter:	$T_{FBC\#2}$														
Unit:	$^{\circ}\text{C}$														
Description:	Temperature of steam at outlet of FBC#2														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through temperature transmitter installed at outlet of Boiler.														
Value(s) of monitored parameter:	500														
Monitoring equipment:	Temperature transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>288070</td> <td>Rosemo unt</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	288070	Rosemo unt	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
288070	Rosemo unt	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	$T_{TG\#1}$														
Unit:	$^{\circ}\text{C}$														
Description:	Temperature of steam at inlet of TG#1														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through temperature transmitter installed at inlet of TG.														
Value(s) of monitored parameter:	485														
Monitoring equipment:	Temperature transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>226472</td> <td>Rosemo unt</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	226472	Rosemo unt	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
226472	Rosemo unt	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														

QA/QC procedures:	The instrument is duly calibrated.
Purpose of data:	Baseline emission
Additional comment:	Data will be kept for crediting period + 2 years

Data / Parameter:	$T_{TG\#2}$				
Unit:	$^{\circ}\text{C}$				
Description:	Temperature of steam at inlet of TG#2				
Measured/ Calculated / Default:	Measured				
Source of data:	Measured through temperature transmitter installed at inlet of TG.				
Value(s) of monitored parameter:	485				
Monitoring equipment:	Temperature transmitter				
	Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to
	004567 99	Rosemo unt	0.1%	05/04/2012	04/04/2013
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP				
Calculation method (if applicable):	-				
QA/QC procedures:	The instrument is duly calibrated.				
Purpose of data:	Baseline emission				
Additional comment:	Data will be kept for crediting period + 2 years				

Data / Parameter:	$T_{FW\ WHRB\#1}$				
Unit:	$^{\circ}\text{C}$				
Description:	Temperature of feed water at inlet of WHRB#1				
Measured/ Calculated / Default:	Measured				
Source of data:	Measured through temperature transmitter installed at inlet of WHRB#1.				
Value(s) of monitored parameter:	105				
Monitoring equipment:	Feed water temperature transmitter:				
	Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to
	54A9C 001398 97	Wika	0.1%	05/04/2012	04/04/2013

Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP			
Calculation method (if applicable):	-			
QA/QC procedures:	The instrument is duly calibrated.			
Purpose of data:	Baseline emission			
Additional comment:	Data will be kept for crediting period + 2 years			

Data / Parameter:	T _{FW WHRB#2}													
Unit:	°C													
Description:	Temperature of feed water at inlet of WHRB#2													
Measured/ Calculated / Default:	Measured													
Source of data:	Measured through temperature transmitter installed at inlet of WHRB#2													
Value(s) of monitored parameter:	120													
Monitoring equipment:	Feed water temperature Trasmitter: <table border="1" style="width: 100%;"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>226470</td> <td>Wika</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>				Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	226470	Wika	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to										
226470	Wika	0.1%	05/04/2012	04/04/2013										
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP													
Calculation method (if applicable):	-													
QA/QC procedures:	The instrument is duly calibrated.													
Purpose of data:	Baseline emission													
Additional comment:	Data will be kept for crediting period + 2 years													

Data / Parameter:	T _{FW FBC#1}			
Unit:	°C			
Description:	Temperature of feed water at inlet of FBC#1			
Measured/ Calculated / Default:	Measured			
Source of data:	Measured through temperature transmitter installed at inlet of FBC#1.			
Value(s) of monitored parameter:	180			

Monitoring equipment:	Feed water temperature Transmitter:				
	Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to
	288028	Yokogw a	0.1%	05/04/2012	04/04/2013
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP				
Calculation method (if applicable):	-				
QA/QC procedures:	The instrument is duly calibrated.				
Purpose of data:	Baseline emission				
Additional comment:	Data will be kept for crediting period + 2 years				

Data / Parameter:	T _{FW FBC#2}				
Unit:	°C				
Description:	Temperature of feed water at inlet of FBC#2				
Measured/ Calculated / Default:	Measured				
Source of data:	Measured through temperature transmitter installed at inlet of FBC#2.				
Value(s) of monitored parameter:	180				
Monitoring equipment:	Temperature transmitter				
	Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to
	288071	Rosemo unt	0.1%	05/04/2012	04/04/2013
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP				
Calculation method (if applicable):	-				
QA/QC procedures:	The instrument is duly calibrated.				
Purpose of data:	Baseline emission				
Additional comment:	Data will be kept for crediting period + 2 years				

Data / Parameter:	Pr _{WHR#1}				
Unit:	°C				
Description:	Pressure of steam at outlet of WHR#1				
Measured/ Calculated / Default:	Measured				
Source of data:	Measured through pressure gauge transmitter installed at outlet of WHR#1.				

Value(s) of monitored parameter:	67														
Monitoring equipment:	Pressure transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>03D0030</td> <td>ABB</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	03D0030	ABB	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
03D0030	ABB	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	Pr _{WHR#2}														
Unit:	°C														
Description:	Pressure of steam at outlet of WHR#2														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through pressure gauge transmitter installed at outlet of WHR#2.														
Value(s) of monitored parameter:	66														
Monitoring equipment:	Pressure transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>91F126058</td> <td>Yokogawa</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	91F126058	Yokogawa	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
91F126058	Yokogawa	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	Pr _{FBC#1}				
Unit:	°C				
Description:	Pressure of steam at outlet of FBC#1				

Measured/ Calculated / Default:	Measured														
Source of data:	Measured through pressure gauge transmitter installed at outlet of FBC#1.														
Value(s) of monitored parameter:	68														
Monitoring equipment:	Pressure transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>91F126 048</td> <td>Yokoga wa</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	91F126 048	Yokoga wa	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
91F126 048	Yokoga wa	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	Pr _{FBC#2}														
Unit:	°C														
Description:	Pressure of steam at outlet of FBC#2														
Measured/ Calculated / Default:	Measured														
Source of data:	Measured through pressure gauge transmitter installed at outlet of FBC#2.														
Value(s) of monitored parameter:	68														
Monitoring equipment:	Pressure transmitter <table border="1"> <tr> <th>Sr.No.</th> <th>Make</th> <th>Accuracy class</th> <th>Calibration date</th> <th>Calibration valid up to</th> </tr> <tr> <td>91F126 052</td> <td>Yokoga wa</td> <td>0.1%</td> <td>05/04/2012</td> <td>04/04/2013</td> </tr> </table>					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	91F126 052	Yokoga wa	0.1%	05/04/2012	04/04/2013
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to											
91F126 052	Yokoga wa	0.1%	05/04/2012	04/04/2013											
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP														
Calculation method (if applicable):	-														
QA/QC procedures:	The instrument is duly calibrated.														
Purpose of data:	Baseline emission														
Additional comment:	Data will be kept for crediting period + 2 years														

Data / Parameter:	Pr _{TG#1}																			
Unit:	°C																			
Description:	Pressure of steam at inlet of TG#1																			
Measured/ Calculated / Default:	Measured																			
Source of data:	Measured through pressure gauge transmitter installed at inlet of TG#1.																			
Value(s) of monitored parameter:	65																			
Monitoring equipment:	<table><tr><td colspan="5">Pressure transmitter</td></tr><tr><td>Sr.No.</td><td>Make</td><td>Accuracy class</td><td>Calibration date</td><td>Calibration valid up to</td></tr><tr><td>04B01 95</td><td>ABB</td><td>0.1%</td><td>05/04/2012</td><td>04/04/2013</td></tr></table>					Pressure transmitter					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	04B01 95	ABB	0.1%	05/04/2012	04/04/2013
Pressure transmitter																				
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to																
04B01 95	ABB	0.1%	05/04/2012	04/04/2013																
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP																			
Calculation method (if applicable):	-																			
QA/QC procedures:	The instrument is duly calibrated.																			
Purpose of data:	Baseline emission																			
Additional comment:	Data will be kept for crediting period + 2 years																			

Data / Parameter:	Pr _{TG#2}																			
Unit:	°C																			
Description:	Pressure of steam at inlet of TG#2																			
Measured/ Calculated / Default:	Measured																			
Source of data:	Measured through pressure gauge transmitter installed at inlet of TG#2.																			
Value(s) of monitored parameter:	65																			
Monitoring equipment:	<table><tr><td colspan="5">Pressure transmitter</td></tr><tr><td>Sr.No.</td><td>Make</td><td>Accuracy class</td><td>Calibration date</td><td>Calibration valid up to</td></tr><tr><td>07C03 61</td><td>ABB</td><td>0.1%</td><td>05/04/2012</td><td>04/04/2013</td></tr></table>					Pressure transmitter					Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to	07C03 61	ABB	0.1%	05/04/2012	04/04/2013
Pressure transmitter																				
Sr.No.	Make	Accuracy class	Calibration date	Calibration valid up to																
07C03 61	ABB	0.1%	05/04/2012	04/04/2013																
Measuring/ Reading/ Recording frequency:	Monitoring frequency - Continuous monitoring Recording frequency – hourly Responsible person/entity – Representative of PP																			
Calculation method (if applicable):	-																			
QA/QC procedures:	The instrument is duly calibrated.																			
Purpose of data:	Baseline emission																			

Additional comment:	Data will be kept for crediting period + 2 years
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Data / Parameter:	ST _{whr,y}
Unit:	TJ
Description:	Energy content of the steam generated in the project activity boiler fed to the turbine via a common steam header
Measured/ Calculated / Default:	Calculated
Source of data:	Plant records and steam tables
Value(s) of monitored parameter:	530971.55
Monitoring equipment:	Calculated
Measuring/ Reading/ Recording frequency:	Calculated once for period "y" Responsible person/entity – Representative of PP
Calculation method (if applicable):	-
QA/QC procedures:	Calculated
Purpose of data:	Baseline emission
Additional comment:	Data will be kept for crediting period + 2 years

Data / Parameter:	ST _{other,y}
Unit:	TJ
Description:	Energy content of the steam generated in other boiler fed to the turbine via a common steam header
Measured/ Calculated / Default:	Calculated
Source of data:	Plant records and steam tables
Value(s) of monitored parameter:	4123057
Monitoring equipment:	Calculated
Measuring/ Reading/ Recording frequency:	Calculated once for period "y" Responsible person/entity – Representative of PP
Calculation method (if applicable):	-
QA/QC procedures:	Calculated
Purpose of data:	Baseline emission
Additional comment:	Data will be kept for crediting period + 2 years

D.3. Implementation of sampling plan

>> Not required

SECTION E. Calculation of emission reductions or GHG removals by sinks**E.1. Calculation of baseline emissions or baseline net GHG removals by sinks**

>>

Demonstration calculation of Electricity generation and Auxiliary power consumed due to Project Activity:**Step- 1: Calculation of fraction of fraction of energy provided by WECM (f_{wcm}):**

$$f_{WCM} = SF_{WHR,y} / (SF_{WHR,y} + SF_{other,y})$$

$$SF_{WHR,y} = 530971.55 \text{ MT}$$

$$SF_{other,y} = 4123057 \text{ MT}$$

Thus ,

$$F_{WCM} = 0.128781029$$

Step-2: Calculation of electricity generated due to project activity ($EG_{j,y}$):

S.No.	Description	Calculation measurement method	Notation	Value	Unit
1	Gross electricity generated by TG#1 of 8 MW	Measured Continuously and logged in daily basis	$EG_{i,j,y} \text{ TG\#1}$	143844.63	MWh
2	Gross electricity generated by TG#2 of 33 MW	Measured Continuously and logged in daily basis	$EG_{i,j,y} \text{ TG\#2}$	965179.45	MWh
3	Total Electricity Generated due to both the TG sets in CPP.	Calculated once for the period "y"	$EG_{i,j,y}$	1109024.00	MWh
4	Fraction of steam energy provided by project activity boiler i.e. WHRB#1	Calculated based on measured parameters of steam as given in step-1	f_{wcm}	0.128781029	Ratio
5	Electricity supplied to recipient facility j by the project activity during the year y	Calculation, once for the period "y" Calculated based on formulae: $EG_{i,y} = EG_{i,j,y} \times f_{wcm}$	$EG_{j,y}$	142821.26	MWh

Step-3: Calculation of electricity consumed due to implementation of project activity ($EG_{PJ,y}$) :

S.No.	Description	Calculation measurement method	Notation	Value	Unit
1	Auxiliary consumption of Electricity due project activity	Measured Continuously and logged in daily basis	$EC_{PJ,y}$	16994.61	MWh

Calculation of emission reduction:

$$\begin{aligned}
 \text{Net generation due to project activity} &= EG_{i,j} - EC_{PJ,Y} \\
 &= 142821.26 - 16994.61 \\
 &= 125826.64
 \end{aligned}$$

$$EFCO_2 = 0.75861$$

$$BL_y = 95453.35 \text{ or Say } 95453 \text{ tCO}_2\text{e}$$

E.2. Calculation of project emissions or actual net GHG removals by sinks

>> Not applicable.

E.3. Calculation of leakage

>> Not applicable

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
Total	95453	0	0	95453

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO₂e)	18965 tCO ₂ /Annum	95453 tCO ₂ (for current monitoring period of 15/08/2007 to 30/11/2011)

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

>> no difference.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO₂e)	Not assessed	Not assessed

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: issuance Keywords: monitoring report, performance monitoring		