

MONITORING REPORT FORM (CDM-MR) *
Version 01 - in effect as of: 28/09/2010

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* as contained within the document entitled "Guidelines for completing the monitoring report form (CDM-MR)" (EB 54 meeting report, annex 34).

MONITORING REPORT

Version 01, 23/04/2012

13 MW Grid Connected Dandela Mini Hydel Scheme, Karnataka State, India.

UNFCCC Reference No: 3568

First Monitoring Report: 04/09/2010 to 31/01/2012 (first and last days included)

SECTION A. General description of the project activity

A.1. Brief description of the project activity: >>

>>

The project activity is a hydro project of capacity 13.05 MW constructed on Netravathi river at Dandela falls in Dakshina Kannada District of Karnataka, India. The main purpose of the project activity is generation of electricity using hydro potential available in the river and exporting the generated power to Karnataka Power Transmission Corporation Limited (KPTCL) a state owned power utility company.

The essential components of this power project consist of a Power House with an installed capacity of 13.05 MW, Diversion structure across the river, , Forebay, Penstock connected with forebay and power house, Intake structure with gates and trash rack, Tail Race Pool and Tail Channel. The power from the project activity will be evacuated through 11/33 kV Beltangady Sub-station. In this process there are no greenhouse gas emissions or burning of any fossil fuels. Thus electricity is generated through sustainable means without causing any negative effect on the environment.

The project activity has been commissioned on 19/07/2009 and registered with CDM-EB on 04/09/2010.

The present monitoring period is chosen from 04/09/2010 to 31/01/2012. The net electricity supplied to the State grid by the project activity is 27.69691 GWh and the net emission reductions are 23,672 tCO₂e for the present monitoring period.

A.2. Project Participants

>>

Name of the party involved(*) (host) indicates a host party)	Private and/or public entity (ies) project participants	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (Host)	Private Entity: Sagar Power (Dandela) Private Limited.	No.

A.3. Location of the project activity:

>>

The location of project activity is:

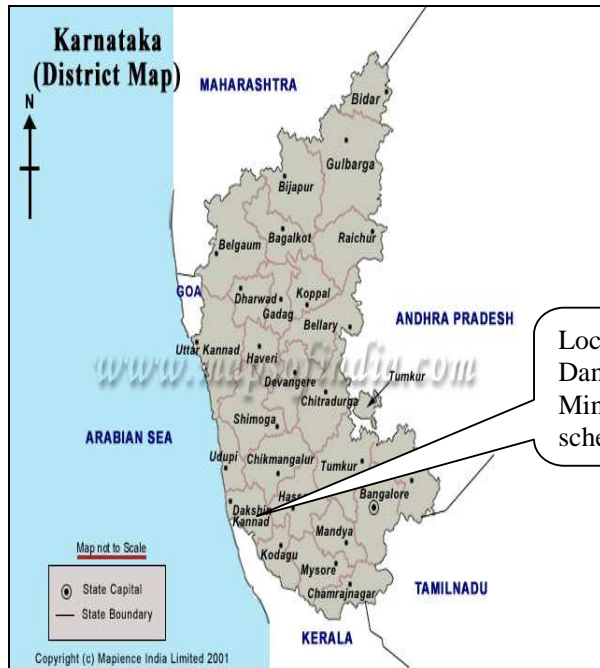
Village : Dandela
Taluk : Beltangady
District : Dakshina Kannada
State : Karnataka
Country : India.

The geographical co-ordinates of the location are 75° 21' 44" (longitude) and 12° 57' 17" (latitude).

Physical location of the project is marked in the maps below:



Map 1: Location of Karnataka in India



Map 2: Location of Dakshina kannada district in Karnataka

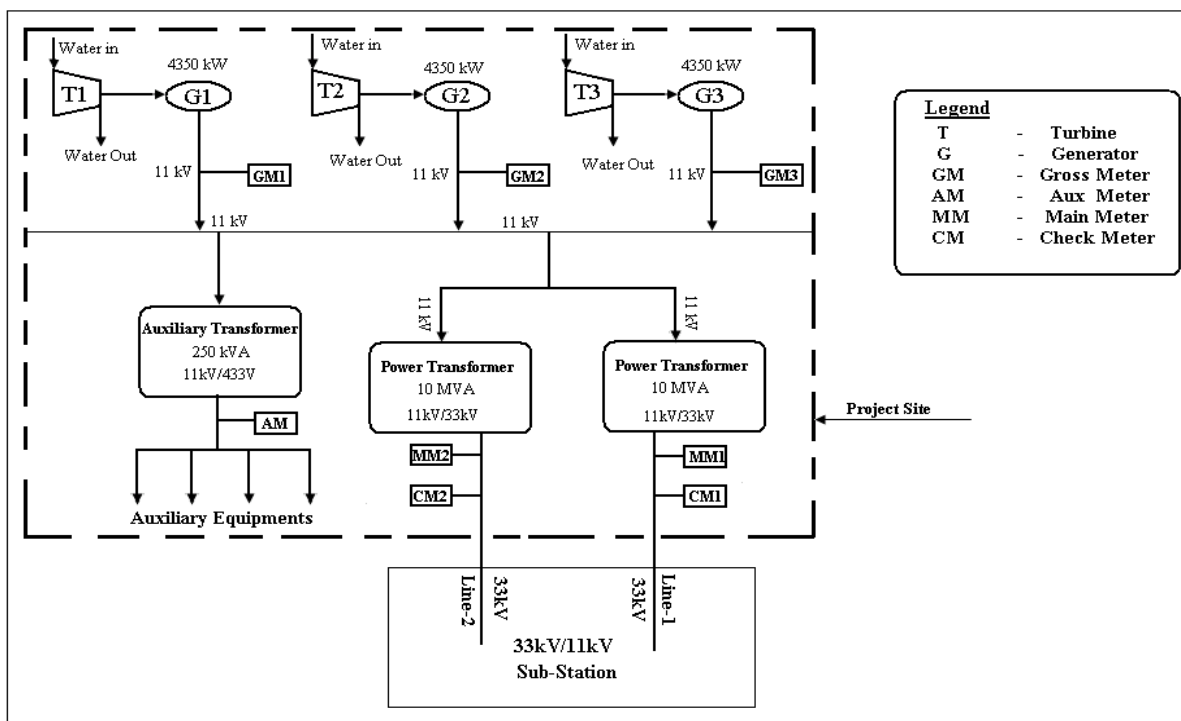
A.4. Technical description of the project

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The project activity would utilise potential energy available in flowing water for power generation. The process would involve converting the kinetic energy available in the water flow into mechanical energy using hydro turbines and then to electrical energy using alternators. The generated power will be transformed to match the nearest grid substation for proper interconnection and smooth evacuation of power.

The details of major equipment of the project activity are furnished below:

Equipment Specifications	
<u>Turbine:</u>	<u>Generator:</u>
Make : Boving Fouress Ltd	Make : Toyo Denki Power systems
Type : Horizontal Full Kaplan	Capacity : 4.35 MW
Rated discharge : 34.365 Cumecs	Power factor : 0.8
Speed : 255 RPM	Voltage : 11 kV
Quantity : 3	Rated speed : 750 RPM
	Frequency : 50 Hz
	Quantity : 3



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

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Title : **Type I**, Renewable Energy Project
 Reference : **AMS-I.D.** Grid connected renewable electricity generation
 Version : **Version 13**, AMS-I.D, EB 36

A.6. Registration date of the project activity:

>>

04/09/2010

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

>>

04 Sep 2010 - 03 Sep 2020 (Fixed)

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

>>

Name/Entity	Project Participant (Yes/No)
Mr. S. Chandrasekhar Managing Director Sagar Power (Dandela) Private Limited Telephone: +91-8022273285 E-Mail : sekhar@bhorukapower.com	Yes

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

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The project activity has been commissioned on 19/07/2009 and registered with CDM EB on 04/09/2010. The project promoter has installed all monitoring equipment's to monitor the parameters, which were described in the registered CDM-PDD.

The details of the project operations during this monitoring period are presented below:

HH:MM

Period	From 04/09/2010 to 31/01/2012		
	Unit-1	Unit-2	Unit-3
Total no. of hours	12360:00	12360:00	12360:00
Non-running hours	8356:57	8351:44	9578:49
Running hours	4003:03	4008:16	2781:11

For major plant outages and reasons for the reported period is furnished in Annex - 3.

No significant events occurred during this monitoring period, which may impact the applicability of the methodology.

B.2. Revision of the monitoring plan

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The monitoring plan of the project activity has been revised and the same has been approved by Executive Board on 24/01/2012. The details are available at the UNFCCC web site.

<http://cdm.unfccc.int/Projects/DB/DNV-CUK1269843478.58/view>

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

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Not applicable

B.4. Notification or request of approval of changes

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The following changes are observed in the project design as against the values mentioned in the registered CDM-PDD

Parameter	As per Reg CDM-PDD	Actual
Plant Capacity	13 MW	13.05 MW (3 x 4.35)
Design Flow	105 m ³ /sec	104.55 m ³ /sec

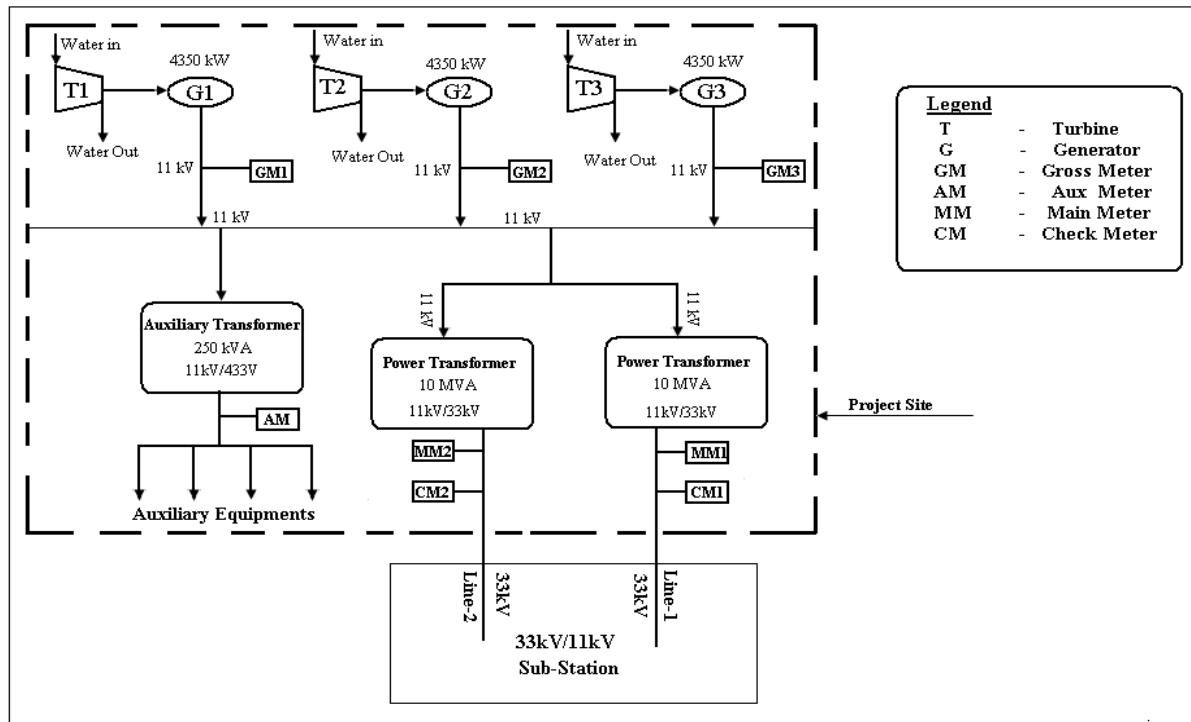
These changes were notified to CDM Executive board and the same is approved by Executive Board on 24/01/2012. The details are available at the UNFCCC web site.

<http://cdm.unfccc.int/Projects/DB/DNV-CUK1269843478.58/view>

SECTION C. Description of the monitoring system

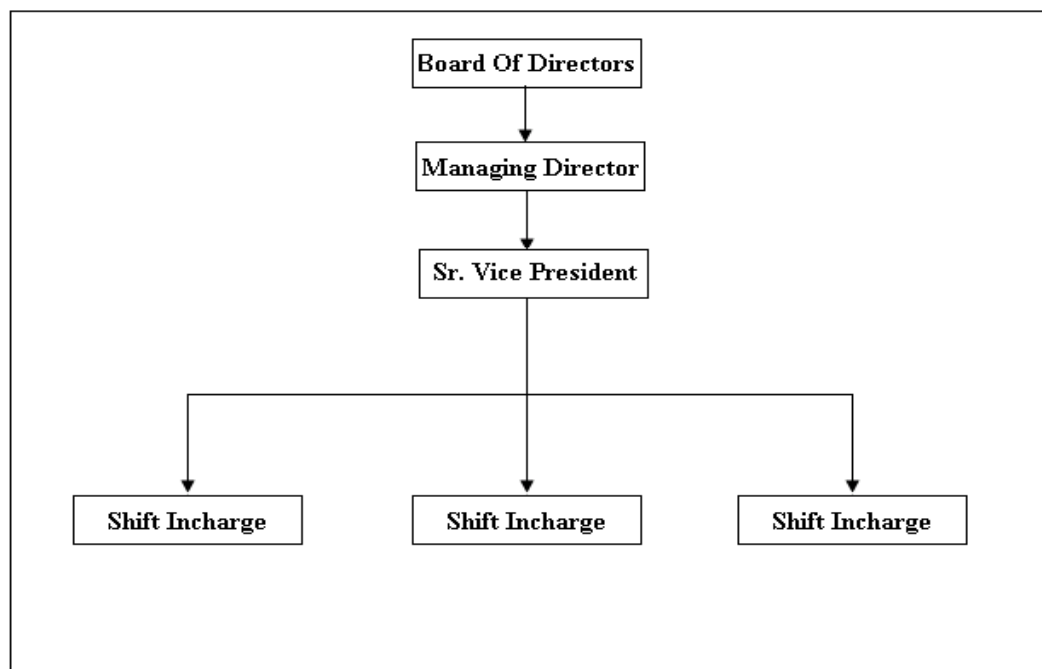
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The project had been provided the monitoring equipment's which were described in the registered CDM-PDD and the line diagram for the monitoring parameters are furnished below:



CDM Monitoring Team

A CDM team has been formed in Sagar Power (Dandela) Private Limited (SPPL) for monitoring and verification of all the monitoring parameters as per the guidelines formulated by the management of SPPL. Qualified and trained people monitor the parameters and emission reduction calculations. SPPL is the sole agency responsible for implementation and monitoring of the project activity. The monitoring organisation structure is shown below:



Roles and Responsibilities

Board of Directors

The authority and responsibility for monitoring, measuring, reporting and reviewing of the data rests with the Board of Directors. The Board have delegated the same to Managing Director.

Managing Director

Managing Director is responsible for the total monitoring plan. MD will examine the GHG monitoring activities and reports generated by Sr.Vice President w.r.t the monthly electricity generated, exported and annual emission reductions as per the monitoring plan. He also examines the internal audit reports prepared by Sr.Vice President and will in particular take note of any deviations in data over the norms and monitor that the corrective actions have resulted in adherence to standards

Sr.Vice President

The Sr.Vice President is the person who is responsible for GHG monitoring activities in the project activity. He has appointed experienced persons (mechanical and electrical) in various disciplines to assist him. He is responsible for review the monthly reports submitted by Shift Incharge and prepare a report on operational conditions of plant and also compiling the data on electricity export to the grid system for submission to the Managing Director.

The responsibility of storage and archiving of information in good condition also lies with the Sr.Vice President. He will undertake periodic verifications and onsite inspections to ensure the quality of the data collected by the team and initiate steps in case of any abnormal conditions. The Sr. Vice President will review the data collected by the team and suggest corrective actions wherever required. An internal audit report will be prepared for review by the Managing Director and Board of Directors which will be later submitted for verification by an independent entity (DOE).

Shift Incharge

Shift Incharge is responsible for recording the total electricity generation, auxiliary consumption, electricity export, import, plant shut down times, etc. The monthly reports will be generated and submitted to the Sr.Vice President for verification and emission reduction calculations.

QA & QC Procedures

The project activity will install good quality, high accuracy monitoring and control equipments that will measure, record and control of various key parameters of the plants. These monitoring and controls will be the part of the Control Systems of hydroelectric plant. The Gross and Auxiliary meters installed at project site will be accuracy of 0.5 class and these meters are calibrated as per industry standards but at least once in three years.

The main and check meters will be electronic tri-vector of accuracy class 0.2% and tested for accuracy every calendar quarter. The main and check meters will be deemed to be working satisfactorily if the errors are within specifications for meters of 0.2% accuracy class.

If during the quarterly tests, the main meter is found to be within the permissible limit of error and the corresponding check meter is beyond the permissible limits, then billing will be as per the main meter as usual. The check meter however, will be calibrated immediately.

If the main meter is found to be beyond permissible limits of error, but the corresponding check meter is found to be within permissible limits of error, then the billing for the month upto the date and time of

such test will be as per the check meter. The main meter will be calibrated immediately and billing for the period thereafter till the next monthly meter reading will be as per the calibrated main meter.

If during any of the monthly meter readings, the variation between the main meter and the check meter is more than that permissible for meters of 0.2% accuracy class, all the meters will be re-tested and calibrated immediately.

Records of calibration certificates will be maintained for verification. Hence, high quality is ensured with the above parameters. Sales records will be used and kept for checking the consistency of the recorded data.

Methods of data transfer and archiving policy

The data will be recorded by plant personnel at the project site and also the monthly export & import readings will be recoded & certified by Govt. officials. The electricity generation and distribution structure will be measured using calibrated meters. Records of measurements will be used for verification of emissions reductions. Sales bills / receipts may be compared as an alternative proof of the electricity exported to the grid.

SECTION D. Data and parameters

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

Data / Parameter:	EF_v
Data unit:	tCO ₂ /GWh
Description:	CO ₂ emission factor for the regional grid system
Source of data used:	CEA Published grid emission factor
Value(s) :	854.7 (2006-07)-Ex ante approach
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculations
Additional comment:	--

Data / Parameter:	COEF_i
Data unit:	kgCO ₂ /mass
Description:	CO ₂ emission coefficient of fuel type i
Source of data used:	IPCC 2006 default values
Value(s) :	Diesel: 3.1863
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculations
Additional comment:	The project activity may combust only one type of fossil fuel, i.e., diesel during the project operation to meet the emergency power requirement of the project. Hence only emission factor of diesel is provided in the parameter.

D.2. Data and parameters monitored

Data / Parameter:	EG _{Gross,y}
Data unit:	GWh
Description:	Total electricity generated by the project activity during the year y.
Measured /Calculated /Default:	Measured
Source of data:	Daily generation log book maintained at project site.
Value(s) of monitored parameter:	28.4675 (The month wise generation details are provided in Annex – 1)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	----
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Serial No. : 07036064(Unit-I), 07036086(Unit-II), 07036062(Unit-III) Type/ Model No. : ER300P Accuracy class : 0.5s Calibration Frequency : Once in three years Date of Calibrations : 15/06/2010 Validity : 14/06/2013
Measuring/ Reading/ Recording frequency:	Continuously measured by calibrated meters, recorded daily.
Calculation method (if applicable):	-----
QA/QC procedures applied:	The Meters used for measuring the Gross electricity generation will be calibrated by third party as per national standards but at least once in three years as per SSC-CDM guidelines, Version 17. The installed meters will have accuracy of 0.5 class.

Data / Parameter:	EG _{Aux,y}
Data unit:	GWh
Description:	Auxiliary electricity consumption of the project
Measured /Calculated /Default:	Measured
Source of data:	Daily generation log book maintained at project site.
Value(s) of monitored parameter:	0.336621 (The month wise Auxiliary consumption details are provided in Annex -1)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	----
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Serial No. : 07036068 Type/ Model No. : ER300P Accuracy class : 0.5s Calibration Frequency : Once in three years Date of Calibrations : 15/06/2010 Validity : 14/06/2013
Measuring/ Reading/ Recording frequency:	Continuously measured by calibrated meters, recorded daily.
Calculation method (if applicable):	-----
QA/QC procedures applied:	Meters are recalibrated periodically at reputed third party lab.

Data / Parameter:	EG _{export, y}
Data unit:	GWh

Description:	Net electricity supplied to the grid by the project
Measured /Calculated /Default:	Measured.
Source of data:	Monthly Joint Meter Reading Reports certified jointly by representative of KPTCL, MESCOM and SPPL
Value(s) of monitored parameter:	27.8673 (The month wise electricity Export details are provided in Annex – 1)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Serial No. : Please Refer Table-1 Type/ Model No : ER300P Make : L&T Accuracy class : 0.2S Calibration Frequency : 3 Months Date of Calibrations : Please Refer Table-1 Validity : Please Refer Table-1
Measuring/ Reading/ Recording frequency:	Measured continuously using calibrated meters and aggregated monthly.
Calculation method (if applicable):	-----
QA/QC procedures applied:	Meters will be calibrated as per valid PPA. Sales records to the grid and other records are used to ensure consistency.

Data / Parameter:	$EG_{import,y}$
Data unit:	GWh
Description:	Grid electricity import to the project activity during the year y
Measured /Calculated /Default:	Measured.
Source of data:	Monthly Joint Meter Readings Reports certified by KPTCL officials
Value(s) of monitored parameter:	0.17039 (The month wise electricity import details are provided in Annex – 1)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculations
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Serial No. : Please Refer Table-1 Type/ Model No : ER300P Make : L&T Accuracy class : 0.2S Calibration Frequency : 3 Months Date of Calibrations : Please Refer Table-1 Validity : Please Refer Table-1
Measuring/ Reading/ Recording frequency:	Measured continuously using calibrated meters and aggregated monthly.
Calculation method (if applicable):	-----
QA/QC procedures applied:	Meters will be calibrated as per valid PPA. Sales records to the grid and other records are used to ensure consistency.

Data / Parameter:	$F_{i,y}$
Data unit:	Tonnes/ kilo litres
Description:	Quantity of fossil fuel type <i>i</i> combusted in the project plant during year y
Measured /Calculated /Default:	Measured at project site.

Source of data:	Log books of DG set maintained at project site.
Value(s) of monitored parameter:	0 (The month wise diesel consumption details are provided in Annex – 2)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	---
Measuring/ Reading/ Recording frequency:	Recorded daily and aggregated monthly.
Calculation method (if applicable):	---
QA/QC procedures applied:	The data recorded can be cross checked against the fuel purchase receipts.

Line	Meter	Serial No.	Period of usage	Date of calibration
Line-1	Main Meter	07361043	04/09/2010 to 25/05/2011	30/08/2010, 27/09/2010, 05/03/2011
	Check Meter	07361035		27/09/2010, 05/03/2011
	Main Meter	11069591	25/05/2011 to 31/01/2012	16/05/2011,25/05/2011,25/08/2011,30/01/2012
	Check Meter	11069286		16/05/2011,25/05/2011,25/08/2011,30/01/2012
Line-2	Main Meter	07361058	04/09/2010 to 25/05/2011	09/12/2010
	Check Meter	07361417		09/12/2010,09/03/2011
	Main Meter	11069593	25/05/2011 to 31/01/2012	16/05/2011,25/05/2011,25/08/2011,30/01/2012
	Check Meter	11069594		16/05/2011,25/05/2011,25/08/2011,30/01/2012

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

>>

The baseline emissions are calculated as follows:

$$BE_y = EG_y \cdot EF_y$$

Where EG_y is the net electricity exported to the grid system during the year y

EF_y is the emission factor of the grid to which the project exports electricity

As mentioned under sec.B.6.2 of registered CDM-PDD, the project has taken the baseline emission factor 854.70 tCO₂/GWh (ex-ante) for estimation of baseline emissions.

E.2. Project emissions calculation

>>

No diesel was used during the reported period, so project emissions are considered for this period

PE_y: 0 tCO₂e

E.3. Leakage calculation

>>

Since, the project activity is a run-of-river hydro power projects, the leakage (L_y) are considered zero.

E.4. Emission reductions calculation / table

>>

Since the project emissions (PE_y) as well as the leakage (L_y) are zero, the emission reductions are equal to the baseline emissions. These are calculated based on the monitored net amount of electricity supplied to the grid, and the baseline emission factor. The latter is monitored and hence determined ex post.

$$ER_y = BE_y - PE_y - L_y$$

Where,

- ER_y - Emission reductions in the yth year
- BE_y - Baseline emissions in the yth year
- PE_y - Project emissions in the yth year.
- L_y - Leakage in the yth year.

Total baseline emissions	: 23,672 tCO ₂ e
Total project emissions (DG set)	: 0 tCO ₂ e
Leakage	: 0 tCO ₂ e
Total emission reductions	: 23,672 tCO ₂ e

The month wise baseline emissions, project emissions and emission reductions are provided in excel sheet and also in Annex – 2.

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

>>

Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions (tCO ₂ e)	45,379*	23,672

* The values are accounted for 515 days as the current monitoring period (04/09/2010-31/01/2012) is for 515 days.

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

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During the present reported period the project activity has achieved 47.8% less emissions as compared with emissions indicated in Registered CDM- PDD. The main reason for less emissions during the current monitored period was non availability of water in the river.

History of the document

Version	Date	Nature of revision
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory Document Type: Guideline, Form Business Function: Issuance		

Annex -1**Consolidated Report for Monitored Parameters during the Monitored Period**

S.No.	Monitored Period	Year	Gross Electricity Generation, GWh				Auxiliary consumption	Electricity Exported to Grid	Electricity Imported from Grid	Net Electricity Displaced
			Unit - 1	Unit - 2	Unit - 3	Total	GWh	GWh	GWh	GWh
1	04.09.2010 to 30.09.2010	2010	2.0916	1.3515	0.5619	4.0050	0.028575	3.92390	0.00030	3.92360
2	October	2010	1.6018	0.8896	0.4486	2.9400	0.019896	2.87940	0.00030	2.87910
3	November	2010	0.8095	1.1562	0.0000	1.9657	0.015333	1.92090	0.00050	1.92040
4	December	2010	0.5707	0.0000	0.0000	0.5707	0.008756	0.55250	0.00640	0.54610
5	January	2011	0.0000	0.0000	0.0000	0.0000	0.015563	0.00000	0.01580	-0.01580
6	February	2011	0.0000	0.0000	0.0000	0.0000	0.015382	0.00000	0.01560	-0.01560
7	March	2011	0.0000	0.0000	0.0000	0.0000	0.016942	0.00020	0.01720	-0.01700
8	April	2011	0.0000	0.0000	0.0000	0.0000	0.018358	0.00000	0.01860	-0.01860
9	May	2011	0.0000	0.0000	0.0000	0.0000	0.015957	0.00000	0.01620	-0.01620
10	June	2011	0.7469	0.9796	0.0000	1.7265	0.029161	1.68720	0.01140	1.67580
11	July	2011	2.3774	1.5172	0.2847	4.1793	0.022742	4.09620	0.00060	4.09560
12	August	2011	1.9109	1.6175	1.8704	5.3988	0.030186	5.29800	0.00000	5.29800
13	September	2011	1.3385	1.3843	1.8958	4.6186	0.031958	4.52820	0.00000	4.52820
14	October	2011	0.0176	0.8190	1.0508	1.8874	0.019051	1.83600	0.00000	1.83600
15	November	2011	0.0356	0.7539	0.3860	1.1755	0.016454	1.14480	0.01380	1.13100
16	December	2011	0.0000	0.0000	0.0000	0.0000	0.016744	0.00000	0.03060	-0.03060
17	January	2012	0.0000	0.0000	0.0000	0.0000	0.015563	0.00000	0.02309	-0.02309
	Sub Total		11.5005	10.4688	6.4982	28.4675	0.336621	27.86730	0.17039	27.69691

Consolidated Report for Emission reductions during the Monitored Period

S.No.	Monitored Period	Year	Net Electricity Displaced	Diesel consumption	Baseline Emission Factor	Baseline Emissions	Project Emission	Leakage	Emission Reduction
			GWh	litres	tCO ₂ / GWh	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
1	04.09.2010 to 30.09.2010	2010	3.92360	0.0	854.7	3,353.50	0.00	0.00	3,353.50
2	October	2010	2.87910	0.0	854.7	2,460.77	0.00	0.00	2,460.77
3	November	2010	1.92040	0.0	854.7	1,641.37	0.00	0.00	1,641.37
4	December	2010	0.54610	0.0	854.7	466.75	0.00	0.00	466.75
5	January	2011	-0.01580	0.0	854.7	-13.50	0.00	0.00	-13.50
6	February	2011	-0.01560	0.0	854.7	-13.33	0.00	0.00	-13.33
7	March	2011	-0.01700	0.0	854.7	-14.53	0.00	0.00	-14.53
8	April	2011	-0.01860	0.0	854.7	-15.90	0.00	0.00	-15.90
9	May	2011	-0.01620	0.0	854.7	-13.85	0.00	0.00	-13.85
10	June	2011	1.67580	0.0	854.7	1,432.31	0.00	0.00	1,432.31
11	July	2011	4.09560	0.0	854.7	3,500.51	0.00	0.00	3,500.51
12	August	2011	5.29800	0.0	854.7	4,528.20	0.00	0.00	4,528.20
13	September	2011	4.52820	0.0	854.7	3,870.25	0.00	0.00	3,870.25
14	October	2011	1.83600	0.0	854.7	1,569.23	0.00	0.00	1,569.23
15	November	2011	1.13100	0.0	854.7	966.67	0.00	0.00	966.67
16	December	2011	-0.03060	0.0	854.7	-26.15	0.00	0.00	-26.15
17	January	2012	-0.02309	0.0	854.7	-19.73	0.00	0.00	-19.73
	Sub Total		27.69691	0.0	854.7	23,672.55	0.00	0.00	23,672.55
Actual Emissions Considered						23,672	0	0	23,672

Annex - 3

Details of major shut downs and reasons during the monitored period

Shut down details for Unit - 1

Period	Shut down in HH:MM			Reasons
	Planned	Forced	Non - Availability of water	
Sep-10	0:00:00			--
		12:50:00		33kv supply failure & M/C stopped for trash cleaning.
			31:25:00	
Oct-10	0:00:00			--
		4:35:00		33kv supply failure & M/C tripped on R.T.D.(Gen D.E brg Temp high)
			177:35:00	
Nov-10	0:00:00			---
		18:30:00		33kv supply failure & M/C tripped on Gear box temp high.
			382:40:00	
Dec-10	0:00:00			--
		2:50:00		33kv supply failure, M/C tripped on R.T.D.(Gen D.E brg Temp high) & M/C tripped on over current.
			307:40:00	
Jan-11	0:00:00			--
		0:00:00		--
			744:00:00	
Feb-11	0:00:00			--
		0:00:00		--
			672:00:00	
Mar-11	0:00:00			--
		0:00:00		--
			744:00:00	
Apr-11	0:00:00			--
		0:00:00		--
			720:00:00	

May-11	0:00:00			--
		0:00:00		--
			744:00:00	
Jun-11	0:00:00			--
		48:35:00		33kv supply failure, Runner blade not opening above 27.3% & TOPU oil Temp high.
			381:23:00	
Jul-11	2:26:00			For 11 kV L.V breaker operation checking
		19:44:00		33 kV supply failure, trash cleaning at coarse & fine trash racks, Over frequency trip & Gen breaker not closed.
			1:18:00	
Aug-11	2:28:00			Abnormal sound observed at DE side bearing, Gear box vibration checking by M.M.D & Rubber cord struck b/n shaft & stuffing box work taken by M.M.D.
		6:44:00		33 kV supply failure, Reduced the load due to instructions from KPTCL (Rr ph bolt melted) & trash cleaning.
			140:38:00	
Sep-11	0:15:00			Machine stopped due to gear box oil pressure low.
		16:18:00		33kv supply failure, G.kere S/S Pillikala line#1 C.T flash overed & Machine stopped for trash cleaning.
			252:55:00	
Oct-11	0:00:00			--
		0:00:00		--
			733:50:00	
Nov-11	0:00:00			--
		25:28:00		Machine stopped for trash cleaning.
			674:50:00	
Dec-11	0:00:00			--
		0:00:00		--
			744:00:00	
Jan-12	0:00:00			--
		0:00:00		--
			744:00:00	
Total	5:09:00	155:34:00	8196:14:00	

Shut down details for Unit - 2

Period	Shut down in HH:MM			Reasons
	Planned	Forced	Non - Availability of water	
Sep-10	0:00:00			--
		14:50:00		Runner blade has not opening, Excitation problem, 33kV supply failure & M/C stopped for trash cleaning.
			116:30:00	
Oct-10	0:00:00			--
		13:25:00		33kV supply failure.
			359:20:00	
Nov-10	0:00:00			---
		5:25:00		33kV supply failure.
			222:25:00	
Dec-10	0:00:00			--
		0:00:00		--
			744:00:00	
Jan-11	0:00:00			--
		0:00:00		--
			744:00:00	
Feb-11	0:00:00			--
		0:00:00		--
			672:00:00	
Mar-11	0:00:00			--
		0:00:00		--
			744:00:00	
Apr-11	0:00:00			--
		0:00:00		--
			720:00:00	
May-11	0:00:00			--
		0:00:00		--
			744:00:00	
Jun-11	1:45:00			Unit spinning & synchronizing (dead bus charge)

		31:26:00		33 kV supply failure, Runner blade continuously opened, Mechanical pump pressure not build & Tree branch fallen on transmission line.
			355:13:00	
Jul-11	2:16:00			Unit spinning & synchronizing (dead bus charge)
		25:14:00		33kV supply failure, due to trash cleaning at coarse & fine trash racks, manually tripped due to gear box LOS by-pass oil pipe broken.
			191:54:00	
Aug-11	0:00:00			Abnormal sound observed at DE side bearing, Gear box vibration checking by M.M.D & Rubber cord struck b/n shaft & stuffing box work taken by M.M.D.
		3:49:00		33kv supply failure, Cooling water pipe line blocked, Trash cleaning & Temp scanner 11th channel got shorted.
			177:00:00	
Sep-11	0:00:00			Machine stopped due to gear box oil pressure low.
		8:38:00		33kv supply failure, G.kere S/S Pilikala line#1 C.T flash overed & trash cleaning.
			177:19:00	
Oct-11	0:00:00			--
		12:09:00		33kV supply failure.
			401:16:00	
Nov-11	0:00:00			--
		18:57:00		33kV supply failure & trash cleaning at coarse & fine trash racks.
			356:53:00	
Dec-11	0:00:00			--
		0:00:00		--
			744:00:00	
Jan-12	0:00:00			--
		0:00:00		--
			744:00:00	
Total	4:01:00	133:53:00	8213:50:00	

Shut down details for Unit - 3

Period	Shut down in HH:MM			Reasons
	Planned	Forced	Non - Availability of water	
Sep-10	0:00:00			--
		14:10:00		33kv supply failure, M/C stopped due to trash cleaning & cooling water pipe line blocked.
			375:30:00	
Oct-10	0:00:00			--
		9:40:00		33kv supply failure, Machine tripped on Gen LOS oil temp high due to oil level low in GEN LOS.
			487:55:00	
Nov-10	0:00:00			---
		0:00:00		--
			720:00:00	
Dec-10	0:00:00			--
		0:00:00		--
			744:00:00	
Jan-11	0:00:00			--
		0:00:00		--
			744:00:00	
Feb-11	0:00:00			--
		0:00:00		--
			672:00:00	
Mar-11	0:00:00			--
		0:00:00		--
			744:00:00	
Apr-11	0:00:00			--
		0:00:00		--
			720:00:00	
May-11	0:00:00			--
		0:00:00		--
			744:00:00	

Jun-11	318:15:00			Generator winding repair work.
		0:00:00		
			401:45:00	
Jul-11	541:51:00			Generator winding repair work.
		3:43:00		33 kV supply failure, Excitation not build up & Excitation fault trip.
			0:00:00	
Aug-11	0:00:00			
		6:29:00		33kV supply failure, Trash cleaning & Topu oil pr low pressure switch problem.
			0:00:00	
Sep-11	0:29:00			Machine stopped due to abnormal sound in stuffing box.
		14:55:00		33kV supply failure, Trash cleaning, Machine tripped on excitation fault (gen over voltage i.e 11.5 kV).
			0:00:00	
Oct-11	0:00:00			--
		24:04:00		33kV supply failure, Runner blade not closing & M/C tripped on over voltage.
			266:40:00	
Nov-11	0:00:00			--
		7:45:00		33kV supply failure & Trash cleaning.
			529:38:00	
Dec-11	0:00:00			--
		0:00:00		--
			744:00:00	
Jan-12	0:00:00			--
		0:00:00		--
			744:00:00	
Total	860:35:00	80:46:00	8637:28:00	