



Monitoring report form (Version 03.0)

Monitoring report

Title of the project activity	Abohar Branch Canal Based Small Hydro Power Project in Punjab, India
Reference number of the project activity	4856
Version number of the monitoring report	01
Completion date of the monitoring report	06/12/2012
Registration date of the project activity	28/12/2011
Monitoring period number and duration of this monitoring period	Monitoring period : First (1 st) Duration of monitoring period: 28/12/2011 to 30/11/2012
Project participant(s)	Abohar Power Generation Private Limited
Host Party(ies)	India
Sectoral scope(s) and applied methodology(ies)	Sectoral scope : 01 Methodology : AMS I.D Version 16
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	21,851 tCO ₂
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	22,366 tCO ₂

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

>>

Five Mini Hydroelectric Projects (MHP) aggregating to 5.3 MW at Khanpur, Sudhar, Akhara, Gholian and Channowal, villages on the Abohar Branch Canal in the state of Punjab (India) have been setup. Mini hydro electric projects at Khanpur (1.1 MW) was commissioned in April 2010, Sudhar (1.4 MW) was commissioned in May 2010, Akhara (1.1 MW) was commissioned in March 2010, Gholian (0.8MW) was commissioned in October 2009 and Channowal (0.9 MW) was commissioned in September 2009. The plants are operating successfully since then.

The purpose of the project activity is to generate electricity by utilizing water flowing through the existing canal system as a renewable energy resource to meet the ever-increasing demand of energy in the region. The development of the project activity contemplates the production of clean hydroelectric power that will contribute to reduce CO₂ emissions, which would have occurred otherwise, in absence of these projects.

1.1 MW hydroelectric project at Khanpur, 1.4 MW hydroelectric project at Sudhar, 1.1 MW hydroelectric project at Akhara, 0.8MW hydroelectric project at Gholian and 0.9 MW hydroelectric project at Channowal of this project activity generate power and sell it to state utility i.e. Punjab State Electricity Board.

These five plants are of low head, canal drop based mini hydroelectric projects. The projects are canal based renewable hydroelectric generating plants, which includes forebay, intake, power house, draft tube, turbine, and tailrace. The component plants do not involve any type of displacement, rehabilitation or relocation.

The projects are generating electricity successfully by converting the potential of kinetic energy of the canal water and the renewable electricity produced is fed into the Punjab State Electricity Board Grid thereby replacing the equivalent amount of electricity produced from thermal stations and thus reducing green house gas emission.

A.2. Location of project activity

>>

MHP Khanpur : The project is located at Abohar Branch Canal

Latitude	: 30° 78 ' 59 N,	Longitude	: 75° 90 ' 73 E
Town	: Khanpur		
District	: Ludhiana		
State	: Punjab		
Country	: India		

MHP Sudhar : The project is located at Abohar Branch Canal

Latitude	: 30° 76 ' 75 N,	Longitude	: 75° 64 ' 69 E
Town	: Sudhar		
District	: Ludhiana		
State	: Punjab		
Country	: India		

MHP Akhara : The project is located at Abohar Branch Canal

Latitude	: 30° 76 ' 12 N,	Longitude	: 75° 49 ' 31 E
Town	: Akhara		
District	: Ludhiana		
State	: Punjab		
Country	: India		

MHP Gholian : The project is located at Abohar Branch Canal

Latitude : 30° 66 ' 08 N, Longitude : 75° 21 ' 47 E
 Town : Gholian
 District : Moga
 State : Punjab
 Country : India

MHP Channowal : The project is located at Abohar Branch Canal

Latitude : 30° 64 ' 39 N, Longitude : 75° 10 ' 55 E
 Town : Channowal
 District : Moga
 State : Punjab
 Country : India

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)
Party A (host)	Private entity: Abohar Power Generation Private Limited	No

A.4. Reference of applied methodology

>>

Type I : Renewal Energy Projects
 Category : I.D. Grid Connected Renewable Electricity Generation
 Version : 16

A.5. Crediting period of project activity

>>

Crediting period for this project activity is 28/12/2011 to 27/12/2021 (Fixed).

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

>>

The projects activities were commissioned on dates as mentioned below while it was registered with CDM EB on 28/12/2011.

SN	Name of the Project	Date of Commissioning
1	Khanpur	April 2010
2	Sudhar	May 2010
3	Akhara	March 2010
4	Gholian	October 2009
5	Channowal	September 2009

The project proponent has installed all monitoring equipment to monitor the parameters which were described in the registered CDM PDD.

The project activity is in continuous operation since the date of commissioning. No special events or change of equipments have taken place during the current monitoring period.

No events occurred during the current monitoring period which may have affected the applicability of the methodology.

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

>>
Not Applicable

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

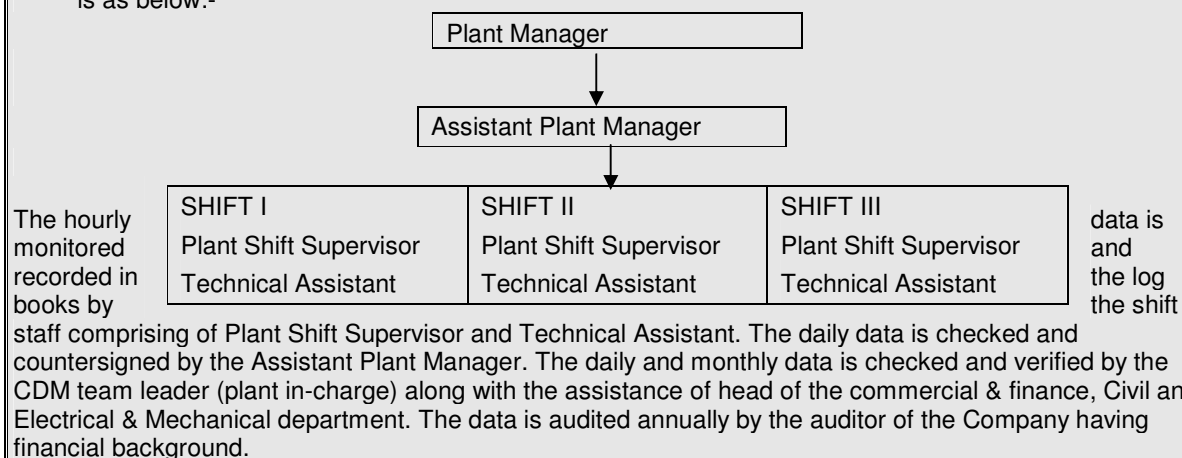
SECTION C. Description of monitoring system

>>
For this project activity, the monitoring systems and procedures are followed as described below:

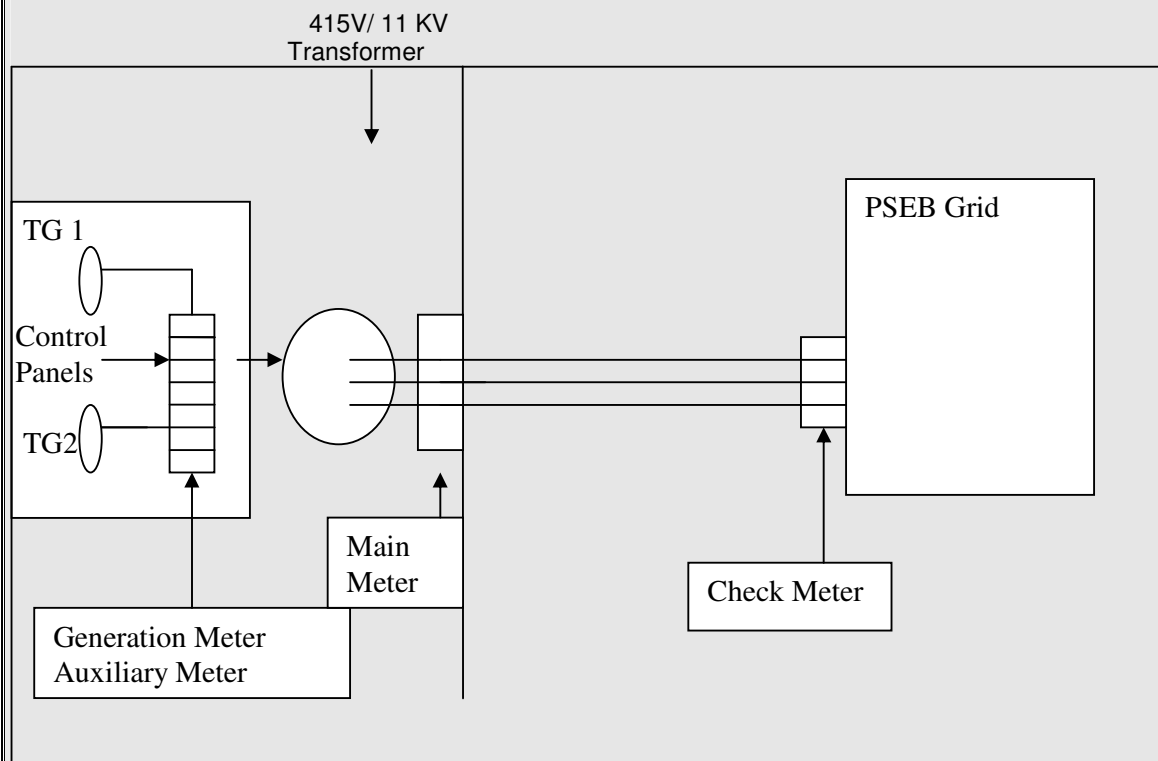
Energy:

1. The Energy exported (MWh) and Energy imported (MWh) at the interconnection points have been measured by the bidirectional meters (i.e. Trivector Meters) installed at the interconnection points at all the 5 (five) project sites.
2. The Net Saleable Energy (Net electricity exported to grid) has been calculated as a difference between energy exported and energy imported. It is based on monthly joint meter readings.
3. Monthly joint meter readings were taken at interconnection points and certified by representatives of Abohar Power Generation Private Limited (APGPL) and the Grid / Licensee / purchaser i.e. Punjab State Electricity Board (PSEB).
4. The joint meter readings were used to raise invoice for sale of net energy to PSEB.
5. The energy generated has been measured by the energy meters installed at the generation points on an hourly basis.
6. The auxiliary energy consumption has been measured by the auxiliary energy consumption meters installed at each of the plant sites on an hourly basis.

7. The data of the aforesaid parameters are recorded on hourly basis which are summed into a daily reading.
8. The hourly reading of electricity generation and auxiliary consumption were aggregated to daily & monthly electricity figure.
9. Monthly reports stating the energy exported, energy imported, energy generated and auxiliary energy consumption were prepared by shift-in-charge and verified by plant managers.
10. The finance department cross checked the data provided by plant managers.
11. The Organizational structure responsible for monitoring the various parameters as per Monitoring Plan is as below:-



The Diagram showing all relevant monitoring points has been displayed as below:



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_{grid}/EF_{CM}
Unit:	tCO ₂ / MWh
Description:	The Grid Emission Factor has been calculated as the weighted average of the operating Margin Emission Factor (EF_{OM}) and the Build Margin Emission Factor (EF_{BM}).
Source of data:	NEWNE regional grid – baseline carbon dioxide emission data base, Version 4.0 given by Central Electricity Authority, CEA.
Value(s) applied:	0.8031
Purpose of data:	Baseline emission calculations
Additional comment:	This parameter is fixed ex-ante for the full crediting period

D.2. Data and parameters monitored

Data / Parameter:	$EG_{export, y}$
Unit:	MWh
Description:	Electricity exported by the project activity in year y
Measured/ Calculated / Default:	Measured
Source of data:	Main / Trivector Meter

Value(s) of monitored parameter:	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total
	6,328	6,189	5,777	4,724	4,879	27,897
Monitoring equipment:	Particulars	Khanpur	Sudhar	Akhara	Gholian	Channowal
	Type	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter
	Accuracy class	± 0.50%	± 0.50%	± 0.50%	± 0.50%	± 0.50%
	Serial number	11069548*	11071246*	11071253*	11071244*	11071251*
	Calibration frequency	2 year	2 year	2 year	2 year	2 year
	Calibrations during monitoring period	18/10/2011 to 17/10/2013 23/12/2011 to 22/12/2013 27/06/2012 to 26/06/2014	01/08/2011 to 31/07/2013 19/12/2011 to 18/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014	29/07/2011 to 28/07/2013 23/12/2011 to 22/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014	07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014	07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014
Measuring/ Reading/ Recording frequency:	Continuous monitoring and Monthly recording					

Calculation method (if applicable):	Not Applicable			
QA/QC procedures:	<p>The electricity exported by APGPL is monitored through monthly joint meter readings of energy meters installed at grid interconnection point.</p> <p>The principles of Frequency, Data recording and Reliability as mentioned in the PDD are strictly adhered to.</p> <p>The energy meters are test checked for accuracy and calibrated once in two years.</p>			
Purpose of data:	To calculate baseline emission			
Additional comment:	The data will be kept for 2 years after the end of crediting period or the last issuance of CERs for this project activity, whichever occurs later.			

*

Site	Meter Type	Old Meter No.	New Meter No.	Date of Change
Khanpur	L&T bidirectional trivector Meter	07348791	11069548	28/02/2012
Sudhar	L&T bidirectional trivector Meter	07348774	11071246	25/02/2012
Akhara	L&T bidirectional trivector Meter	07348776	11071253	25/01/2012
Gholian	L&T bidirectional trivector Meter	3174965	11071244	21/02/2012
Channowal	L&T bidirectional trivector Meter	5293343	11071251	01/03/2012

Data / Parameter:	EG _{Import, y}
Unit:	MWh
Description:	Energy imported by the project activity in year y
Measured/ Calculated / Default:	Measured
Source of data:	Main / Trivector Meter

Value(s) of monitored parameter:	<table><tr><td>Khanpur</td><td>Sudhar</td><td>Akhara</td><td>Gholian</td><td>Channowal</td><td>Total</td></tr><tr><td>9</td><td>10</td><td>12</td><td>8</td><td>9</td><td>48</td></tr></table>						Khanpur	Sudhar	Akhara	Gholian	Channowal	Total	9	10	12	8	9	48																								
Khanpur	Sudhar	Akhara	Gholian	Channowal	Total																																					
9	10	12	8	9	48																																					
Monitoring equipment:	<table><tr><td>Particulars</td><td>Khanpur</td><td>Sudhar</td><td>Akhara</td><td>Gholian</td><td>Channowal</td></tr><tr><td>Type</td><td>bidirectional trivector meter</td><td>bidirectional trivector meter</td><td>bidirectional trivector meter</td><td>bidirectional trivector meter</td><td>bidirectional trivector meter</td></tr><tr><td>Accuracy class</td><td>± 0.50%</td><td>± 0.50%</td><td>± 0.50%</td><td>± 0.50%</td><td>± 0.50%</td></tr><tr><td>Serial number</td><td>11069548*</td><td>11071246*</td><td>11071253*</td><td>11071244*</td><td>11071251*</td></tr><tr><td>Calibration frequency</td><td>2 year</td><td>2 year</td><td>2 year</td><td>2 year</td><td>2 year</td></tr><tr><td>Calibrations during monitoring period</td><td>18/10/2011 to 17/10/2013 23/12/2011 to 22/12/2013 27/06/2012 to 26/06/2014</td><td>01/08/2011 to 31/07/2013 19/12/2011 to 18/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014</td><td>29/07/2011 to 28/07/2013 23/12/2011 to 22/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014</td><td>07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014</td><td>07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014</td></tr></table>						Particulars	Khanpur	Sudhar	Akhara	Gholian	Channowal	Type	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter	Accuracy class	± 0.50%	± 0.50%	± 0.50%	± 0.50%	± 0.50%	Serial number	11069548*	11071246*	11071253*	11071244*	11071251*	Calibration frequency	2 year	2 year	2 year	2 year	2 year	Calibrations during monitoring period	18/10/2011 to 17/10/2013 23/12/2011 to 22/12/2013 27/06/2012 to 26/06/2014	01/08/2011 to 31/07/2013 19/12/2011 to 18/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014	29/07/2011 to 28/07/2013 23/12/2011 to 22/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014	07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014	07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014
Particulars	Khanpur	Sudhar	Akhara	Gholian	Channowal																																					
Type	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter	bidirectional trivector meter																																					
Accuracy class	± 0.50%	± 0.50%	± 0.50%	± 0.50%	± 0.50%																																					
Serial number	11069548*	11071246*	11071253*	11071244*	11071251*																																					
Calibration frequency	2 year	2 year	2 year	2 year	2 year																																					
Calibrations during monitoring period	18/10/2011 to 17/10/2013 23/12/2011 to 22/12/2013 27/06/2012 to 26/06/2014	01/08/2011 to 31/07/2013 19/12/2011 to 18/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014	29/07/2011 to 28/07/2013 23/12/2011 to 22/12/2013 18/01/2012 to 17/01/2014 22/06/2012 to 21/06/2014	07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014	07/09/2011 to 06/09/2013 19/12/2011 to 18/12/2013 19/06/2012 to 18/06/2014																																					
Measuring/ Reading/ Recording frequency:	Continuous monitoring and Monthly recording																																									

Calculation method (if applicable):	Not Applicable				
QA/QC procedures:	<p>The electricity exported by APGPL is monitored through monthly joint meter readings of energy meters installed at grid interconnection point.</p> <p>The principles of Frequency, Data recording and Reliability as mentioned in the PDD are strictly adhered to.</p> <p>The energy meters are test checked for accuracy and calibrated once in two years.</p>				
Purpose of data:	To calculate baseline emission				
Additional comment:	The data will be kept for 2 years after the end of crediting period or the last issuance of CERs for this project activity, whichever occurs later.				

*

Site	Meter Type	Old Meter No.	New Meter No.	Date of Change
Khanpur	L&T bidirectional trivector Meter	07348791	11069548	28/02/2012
Sudhar	L&T bidirectional trivector Meter	07348774	11071246	25/02/2012
Akhara	L&T bidirectional trivector Meter	07348776	11071253	25/01/2012
Gholian	L&T bidirectional trivector Meter	3174965	11071244	21/02/2012

Data / Parameter:	EG _{Net, y}																	
Unit:	MWh																	
Description:	Net electricity exported to the Grid/Licensee in year y																	
Measured/ Calculated / Default:	Calculated																	
Source of data:	Main Meter / PSEB Monthly Bills																	
Value(s) of monitored parameter:	<table border="1"> <thead> <tr> <th>Khanpur</th> <th>Sudhar</th> <th>Akhara</th> <th>Gholian</th> <th>Channowal</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>6,319</td> <td>6,179</td> <td>5,765</td> <td>4,716</td> <td>4,870</td> <td>27,849</td> </tr> </tbody> </table>						Khanpur	Sudhar	Akhara	Gholian	Channowal	Total	6,319	6,179	5,765	4,716	4,870	27,849
Khanpur	Sudhar	Akhara	Gholian	Channowal	Total													
6,319	6,179	5,765	4,716	4,870	27,849													

Monitoring equipment:	As this is calculated, this section is not applicable for this monitoring parameter.					
Measuring/ Reading/ Recording frequency:	Monthly					
Calculation method (if applicable):	Net Saleable energy = Energy exported – Energy imported					
QA/QC procedures:	<p>Net Saleable energy is calculated as the difference between energy exported and energy imported.</p> <p>Joint Meters reading are taken from the meters installed at grid interconnection point.</p> <p>Net saleable generation is calculated from main meter.</p> <p>The energy meters are test checked for accuracy and calibrated once in two years.</p>					
Purpose of data:	To calculate baseline emission					
Additional comment:	The data will be kept for 2 years after the end of crediting period or the last issuance of CERs for this project activity, whichever occurs later.					
Data / Parameter:	EG _{Gross, y}					
Unit:	MWh					
Description:	Gross electricity generation by the project activity in year y					
Measured/ Calculated / Default:	Measured					
Source of data:	Generation Meters					
Value(s) of monitored parameter:	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total
	6,555	6,508	5,961	5,030	5,077	29,131

Monitoring equipment:	<table><tr><th>Particulars</th><th>Khanpur</th><th>Sudhar</th><th>Akhara</th><th>Gholian</th><th>Channowal</th></tr><tr><td>Type</td><td>Unit 1: Elecon Unit 2: Elecon</td><td>Unit 1: Elecon Unit 2: Elecon</td><td>Unit 1: Elecon Unit 2 : Elecon</td><td>Elecon</td><td>Elecon</td></tr><tr><td>Accuracy class</td><td>±0.50%</td><td>±0.50%</td><td>±0.50%</td><td>±0.50%</td><td>±0.50%</td></tr><tr><td>Serial number</td><td>10440TM0309 1204TM0309</td><td>34122TM0309 1214TM0309</td><td>8221TM0309 34125TM0309</td><td>1210TM0309</td><td>1215TM0309</td></tr><tr><td>Calibration frequency</td><td>Annually</td><td>Annually</td><td>Annually</td><td>Annually</td><td>Annually</td></tr><tr><td>Calibrations during monitoring period</td><td>09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013</td><td>09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013</td><td>09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013</td><td>09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013</td><td>09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013</td></tr></table>	Particulars	Khanpur	Sudhar	Akhara	Gholian	Channowal	Type	Unit 1: Elecon Unit 2: Elecon	Unit 1: Elecon Unit 2: Elecon	Unit 1: Elecon Unit 2 : Elecon	Elecon	Elecon	Accuracy class	±0.50%	±0.50%	±0.50%	±0.50%	±0.50%	Serial number	10440TM0309 1204TM0309	34122TM0309 1214TM0309	8221TM0309 34125TM0309	1210TM0309	1215TM0309	Calibration frequency	Annually	Annually	Annually	Annually	Annually	Calibrations during monitoring period	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013
	Particulars	Khanpur	Sudhar	Akhara	Gholian	Channowal																															
	Type	Unit 1: Elecon Unit 2: Elecon	Unit 1: Elecon Unit 2: Elecon	Unit 1: Elecon Unit 2 : Elecon	Elecon	Elecon																															
	Accuracy class	±0.50%	±0.50%	±0.50%	±0.50%	±0.50%																															
	Serial number	10440TM0309 1204TM0309	34122TM0309 1214TM0309	8221TM0309 34125TM0309	1210TM0309	1215TM0309																															
	Calibration frequency	Annually	Annually	Annually	Annually	Annually																															
Calibrations during monitoring period	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013																																
Measuring/ Reading/ Recording frequency:	Continuous monitoring and Hourly recording																																				
Calculation method (if applicable):	Not Applicable																																				
QA/QC procedures:	The energy generated by the project activity is monitored through the meters installed at generation point. These energy generation meters are subject to calibration annually.																																				
Purpose of data:	This data is not used for emission reduction calculation																																				

Additional comment:	The data will be kept for 2 years after the end of crediting period or the last issuance of CERs for this project activity, whichever occurs later.																	
Data / Parameter:	EG _{Aux, y}																	
Unit:	MWh																	
Description:	Auxiliary electricity consumption in year y																	
Measured/ Calculated / Default:	Measured																	
Source of data:	Auxiliary Meters																	
Value(s) of monitored parameter:	<table><tr><td>Khanpur</td><td>Sudhar</td><td>Akhara</td><td>Gholian</td><td>Channowal</td><td>Total</td></tr><tr><td>61</td><td>63</td><td>65</td><td>47</td><td>48</td><td>284</td></tr></table>	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total	61	63	65	47	48	284					
Khanpur	Sudhar	Akhara	Gholian	Channowal	Total													
61	63	65	47	48	284													
Monitoring equipment:																		
	Particulars	Khanpur	Sudhar	Akhara	Gholian	Channowal												
	Type	Rishabh	Rishabh	Rishabh	Rishabh	Rishabh												
	Accuracy class	±1.00%	±1.00%	±1.00%	±1.00%	±1.00%												
	Serial number	8/12/6441	8/12/6440	8/12/6433	8/12/6439	8/12/6442												
	Calibration frequency	Annually	Annually	Annually	Annually	Annually												
Calibrations during monitoring period	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 03/09/2012 to 02/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013	09/09/2011 to 08/09/2012 07/03/2012 to 06/03/2013 04/09/2012 to 03/09/2013												

Measuring/ Reading/ Recording frequency:	Continuous monitoring and Hourly recording
Calculation method (if applicable):	Not Applicable
QA/QC procedures:	Auxiliary energy consumption by APGPL is recorded through auxiliary meters installed in the panel. These auxiliary consumption meters are subject to calibration annually.
Purpose of data:	This data is not used for emission reduction calculation
Additional comment:	The data will be kept for 2 years after the end of crediting period or the last issuance of CERs for this project activity, whichever occurs later.
D.3. Implementation of sampling plan >>100 percent data is monitored, no data or parameters have been determined by sampling approach, hence not applicable.	

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

>>

SN	Description	Formula	Unit	Value
A	Energy Exported		MWh	27,897
B	Energy Imported		MWh	48
C	Net Saleable Energy	$C = A - B$	MWh	27,849
D	Carbon Emission Factor as per the baseline adopted		tCO ₂ /MWh	0.8031
E	Baseline Emissions	$E = (C * D)$	tCO ₂	22,366

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

>>

No project emissions are associated with the project activity during this monitoring period. This is also in line with the PDD and methodology.

E.3. Calculation of leakage

>>

As the energy generating equipment is not transferred from another activity or the existing equipment is also not transferred to another activity, leakage is not considered. The same is in line with the methodology and the registered PDD.

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	22,366	NIL	NA	22,366

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	Item	Values estimated in ex-ante calculation of registered PDD
------	---	--	------	---



Emission reductions or GHG removals by sinks (t CO₂e)	21,851	22,366	-	-
---	--------	--------	---	---

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

>>

The actual emission reductions during the monitoring period are more than the estimated value in the registered PDD by 515 CERs (by 2%) for the equivalent time period because of better availability of water & head which is beyond the control of the PP.

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)	22,366	NA

**Annexure – I**

The month wise data on energy generated is given hereunder. The monthly data is based on the hourly reading taken at the meters installed at the generation end

Energy Generated (kWh)

Billing Month	Year	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total
Dec	2011	86,570	96,286	79,622	65,605	54,981	383,064
Jan	2012	524,389	529,899	488,618	400,960	412,406	2,356,272
Feb	2012	600,141	693,509	572,485	522,750	534,180	2,923,065
Mar	2012	795,777	713,582	650,399	596,950	600,034	3,356,742
Apr	2012	246,735	235,526	207,090	145,800	136,641	971,792
May	2012	593,830	592,529	551,196	467,080	445,631	2,650,266
Jun	2012	703,490	622,956	641,562	512,780	525,501	3,006,289
Jul	2012	689,460	667,485	642,717	587,500	611,633	3,198,795
Aug	2012	765,960	774,073	743,660	613,583	635,242	3,532,518
Sep	2012	769,028	797,398	711,782	556,000	560,970	3,395,178
Oct	2012	319,224	339,527	301,357	260,449	253,445	1,474,002
Nov	2012	460,496	445,581	370,039	300,516	306,525	1,883,157
Total Energy Generated in (kWh)		6,555,100	6,508,351	5,960,527	5,029,973	5,077,189	29,131,140
Total Energy Generated in (MWh)		6,555	6,508	5,961	5,030	5,077	29,131

**Annexure – II**

The month-wise data on auxiliary energy consumption is given hereunder. The monthly data is based on hourly reading taken at the auxiliary meters installed at the panel:

Auxiliary Energy Consumption (kWh)

Billing Month	Year	Khanpur	Sudhar	Akhara	Gholian	Channowal	Total
Dec	2011	790	902	918	850	691	4,151
Jan	2012	3,967	4,474	4,633	3,675	3,596	20,345
Feb	2012	2,478	3,469	3,709	2,822	2,374	14,852
Mar	2012	3,080	3,288	4,160	3,640	2,042	16,210
Apr	2012	3,025	4,332	4,652	2,755	1,566	16,330
May	2012	6,131	8,064	7,685	5,339	5,411	32,630
Jun	2012	8,504	8,424	8,608	6,196	6,980	38,712
Jul	2012	8,090	7,968	8,222	5,839	7,548	37,667
Aug	2012	8,905	8,439	9,129	5,574	6,997	39,044
Sep	2012	8,874	6,913	7,075	4,716	5,676	33,254
Oct	2012	3,970	3,814	3,674	2,788	3,326	17,572
Nov	2012	3,085	2,616	2,456	2,358	1,692	12,207
Total Auxiliary Energy Consumption (kWh)		60,899	62,703	64,921	46,552	47,899	282,974
Total Auxiliary Energy Consumption (MWh)		61	63	65	47	48	284

The energy generated data and auxiliary energy consumption data is not used for calculation of emission reductions as the calculation of emission reductions is based on Net Saleable energy i.e. the difference of energy exported and energy imported.

**Annexure - III**

Month-wise data on Net Saleable Energy for the monitoring period is given as under: As per the Project Design Document, Emission reductions are to be calculated based on the energy exported minus energy imported during shut-down and start-ups by the power plant.

Net Saleable Energy (kWh)

Billing Month	Year	Energy Exported						Energy Imported						Net Saleable Energy
		Khanpur	Sudhar	Akhara	Gholia n	Channowal	Total	Khanpur	Sudhar	Akhara	Gholia n	Channowal	Total	
Dec	2011	84,110	91,750	77,470	61,373	53,280	367,983	10	20	10	33	167	240	367,743
Jan	2012	508,210	504,520	474,782	376,787	400,540	2,264,839	40	40	1810	87	260	2,237	2,262,602
Feb	2012	581,450	663,862	559,493	496,176	520,020	2,821,001	90	1,791	174	1,809	133	3,997	2,817,004
Mar	2012	772,021	681,153	632,449	567,885	578,841	3,232,349	1,748	115	215	103	1,765	3,946	3,228,403
Apr	2012	238,153	223,807	200,912	137,125	130,783	930,780	2,225	2,961	4,198	1,857	2,517	13,758	917,022
May	2012	572,165	561,184	533,070	438,638	427,702	2,532,759	124	261	394	238	500	1,517	2,531,242
Jun	2012	676,433	589,972	619,288	480,456	503,207	2,869,356	264	349	551	413	330	1,907	2,867,449
Jul	2012	662,315	633,058	620,421	550,657	585,934	3,052,385	696	465	545	314	273	2,293	3,050,092
Aug	2012	735,074	734,677	718,157	570,873	604,769	3,363,550	497	434	521	304	260	2,016	3,361,534
Sep	2012	746,774	757,201	688,436	516,723	534,515	3,243,649	230	141	172	100	114	757	3,242,892
Oct	2012	306,393	322,960	291,981	243,145	242,711	1,407,190	1,922	2,228	2,452	1,494	2,105	10,201	1,396,989
Nov	2012	445,061	424,867	360,654	283,863	296,457	1,810,902	872	845	1,212	753	982	4,664	1,806,238
Total in (kWh)		6,328,159	6,189,011	5,777,113	4,723,701	4,878,759	27,896,743	8,718	9,650	12,254	7,505	9,406	47,533	27,849,210
Total in (MWh)		6,328	6,189	5,777	4,724	4,879	27,897	9	10	12	8	9	48	27,849



Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
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		