

**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****01/08/2011****Qi'nan Hydropower Project****Reference Number: 2120****Monitoring Period Number and dates: 2<sup>nd</sup> ( 01/08/2010-31/07/2011)****SECTION A. General description of the project activity****A.1. Brief description of the project activity: >>**

&gt;&gt;

Qi'nan Hydropower Project is constructed and operated by Yuzaikou Hydropower Co. Ltd. It utilizes the water resources of Qijiang River to generate electricity and supply to China Southern Power Grid (CSPG) which is fossil fuel-fired generation dominated. It generates greenhouse gas emissions by replacing power generation from grid connected fossil fuel power plants.

The Qi'nan project with installed capacity of 18MW, consisting of 2 units of 9 MW turbine. But another small hydropower project named as Mazitan which is 4km in the downstream of Qi'nan is influenced, as the water flow will be smaller during dry season after the construction of Qi'nan. The installed capacity of Mazitan is 4.8MW, which was commissioned in 1999 and expected to continue operation till 2034. The average annual electricity generation of Mazitan(from 2003-2007) was 18,000Mwh.. After the commission of Qi'nan, the Mazitan will connect to Qi'nan to deliver electricity to grid.

The 1# unit of Qi'nan is connected to grid on 29/10/2008 and the 2# unit is connected to grid on 10/11/2008.

The total achieved emission reductions in this monitoring period is 21,491<sup>1</sup>tCO<sub>2e</sub>.

**A.2. Project Participants**

&gt;&gt;

<b>Name of Party involved(*) ((host) indicates a host Party)</b>	<b>Private and/or public entity(ies) Project participants (as applicable)</b>	<b>Kindly indicate if the Party involved wishes to be considered as project participants (Yes/No)</b>
People's Republic of China (host)	Yuzaikou Hydropower Co., Ltd	No
Sweden	Carbon Asset management Sweden AB	No

**A.3. Location of the project activity:**

&gt;&gt;

The project is located in Nandong Town, Rucheng County, Chenzhou City, Hu'nan Province.  
Coordinates: Longitude 133°25'12"; latitude 25°27'36".

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<sup>1</sup> The emission reduction calculation period is from 01/08/2010 to 31/07/2011.

#### A.4. Technical description of the project

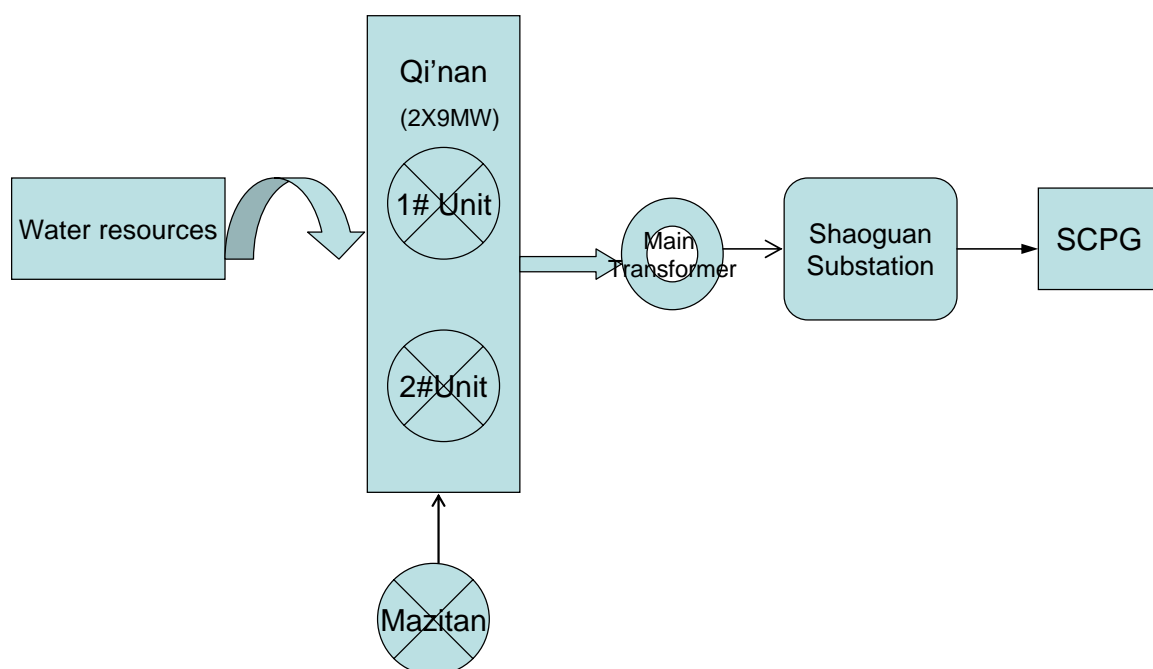
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The project is a newly built hydropower plant, the total installed capacity of the project is 18 MW. The project makes use of water resources for electricity generation. The project is connected to Shaoguan Renhua Substation through the 110 kV transmission line. The generated electricity will be delivered to SCPG. Table below shows the characteristics of the equipments employed.

##### Main parameters of the equipment

Item	parameter
Number of Units	2
Turbine Model	HLA551-LJ-145
Generator Model	SF9000-14/3250

The diagram of the technical process is as follows:



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

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The baseline and monitoring methodology applied to the project includes:

“Consolidated baseline methodology for grid-connected electricity generation from renewable sources”

Version 06, 19 May, 2006;

“Consolidated monitoring methodology for zero-emission grid connected electricity generation from renewable sources” Version 06, 19 May, 2006;

Tool for the demonstration and assessment of additionality, version 04, 30 Nov, 2007.

#### A.6. Registration date of the project activity:

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The project is registered on 30<sup>th</sup> Jan., 2009.

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

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The project adopts renewable crediting period 7 \*3=21 years.

The start date of the first crediting period is: 30/01/2009

The first crediting period is: 30/01/2009~29/01/2016

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

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The monitoring report is completed by:

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**SECTION B. Implementation of the project activity**

**B.1. Implementation status of the project activity**

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The implementation status of the project is described as follows:

Item	Time
Project start date	01/04/2006
Registered Date	30/01/2009
Crediting Period	1 <sup>st</sup> crediting period
Operation Date	29/10/2008
2 <sup>nd</sup> Monitoring period	01/08/2010~31/07/2011

During this monitoring period, all hydro turbines, generators and monitoring equipments have operated appropriately. However, due to technical failure, the revenue meter M4(DSSD536-5054-80800020) was replaced by a new meter with serial No. DSSD536-5054-90300379 on 7<sup>th</sup> March, 2011<sup>2</sup>. And M3(DTSD341-0141030305) for Mazitan project was replaced by another meter (DTSD341-0141030300) on 14<sup>th</sup> Sep.2010.<sup>3</sup>

Mazitan project was connected to Qi'nan. The output of Mazitan project during this monitoring period is 870.08Mwh.

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<sup>2</sup> See event log by PP.

<sup>3</sup> See calibration statement by Hu'nan Chenzhou Metrological Testing Institute.

#### **B.2. Revision of the monitoring plan**

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Not applicable.

#### **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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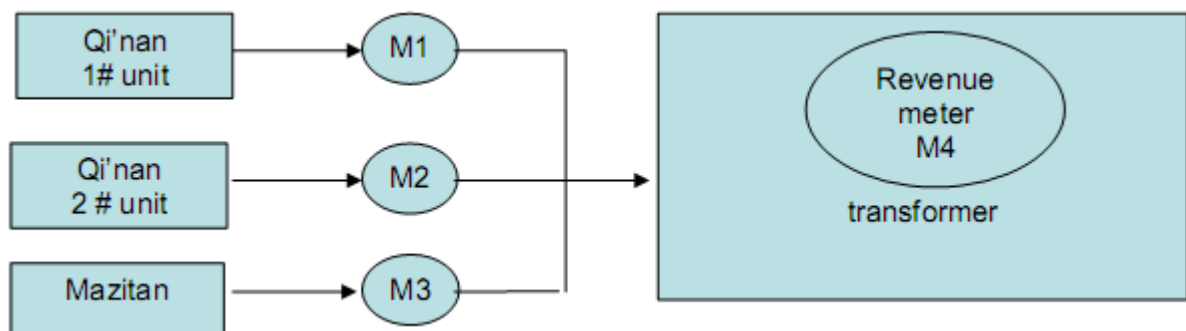
Not applicable.

### **SECTION C. Description of the monitoring system**

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M1&M2 are installed to measure the electricity generated by Qi'nan. M3 is installed to measure the electricity generated by the original project-Mazitan.

M4 is the revenue meter of the project and is installed at the transformer site to measure the total electricity supplied to SCPG. See below Chart.



M1&M2 records the electricity generated by Qi'nan and M3 records the electricity generated by Mazitan. The accuracy of meter is 0.5S. The meters are measured continuously and recorded monthly.

The revenue meter M4 is used for cross-check, which records the total electricity delivered to grid. It is a 2-way recording meter and its accuracy is 0.5S. The meters are measured continuously and recorded monthly. M4 could be used to check the reasonability of (M1+M2+M3).

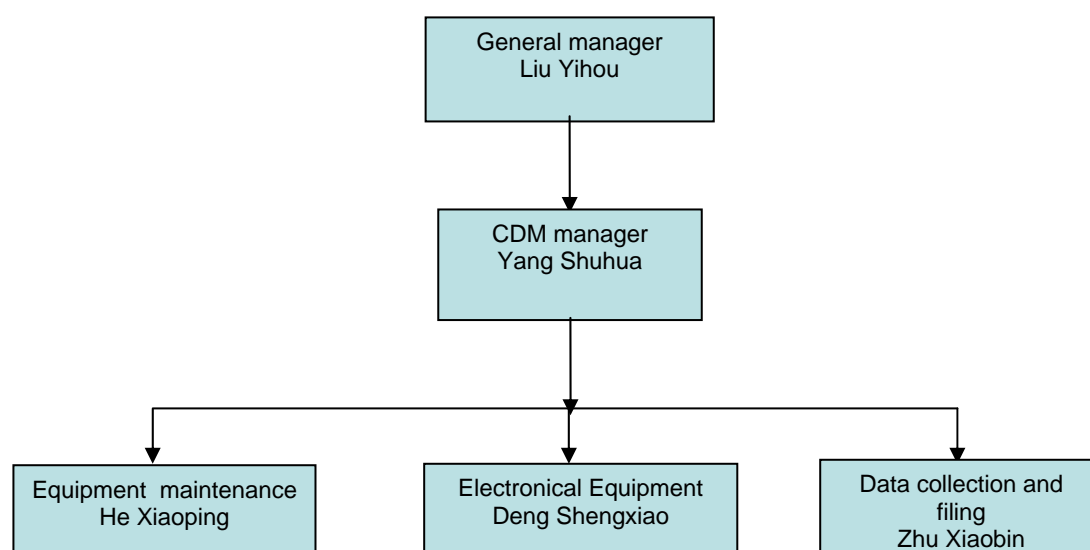
Electricity sales receipts would also be used for cross-check. Conservative value among meters and receipts would be adopted for emission reduction calculation.

#### **Data Collection Procedures:**

All the data monitored was achieved in electronic documents as well as manual recording, and will be kept for 2 years till the end of the crediting period. Sales invoices and receipts will also be kept as required.

#### **Organization Structure:**

A monitoring organization has been set up and roles and responsibilities of personnel are shown in the Figure below.



The general manager of the proposed project Mr. Liu Yihou will responsible for the whole monitoring plan and checkup the data filed and the monitoring report. Mr. Yang Shuhua is designated as CDM manager to take charge of supervising and demonstrating all the measuring and recording tasks, such as collecting data( ammeter reading, sale receipts), calculating emission reduction and preparing monitoring report etc; he will also be responsible for training the relative staffs, such as CDM knowledge, the operational regulations, the data recording requirements and the management rules etc. Engineer He Xiaoping will be responsible for the hydraulic equipment (including turbine, generator etc) maintenance; Deng Shengxiao will be responsible for the electronic equipment (including meters, control room etc). Zhu Xiaobin will be responsible for data reading and recording.

CDM staff training was carried out and can be proved by training records available. Procedures for data reading, recording, collection, and quality assurance and quality control, as well as procedures for equipment maintenance, failure and calibration, emergency dealing have been included in the operation manual and monitoring manual.

## 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

<b>Data / Parameter:</b>	EG <sub>historical</sub>
<b>Data unit:</b>	Mwh
<b>Description:</b>	Historical generation of the original influenced project Mazitan 5 recent year's annual power generation (2003-2007)
<b>Measured /Calculated /Default:</b>	
<b>Source of data:</b>	Logbook/registered PDD
<b>Value(s) of monitored parameter:</b>	18,000
<b>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</b>	Baseline calculation
<b>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</b>	

Measuring/ Reading/ Recording frequency:	
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Kept 2 years after the crediting period

<b>Data / Parameter:</b>	EF <sub>y</sub>
Data unit:	tCO <sub>2e</sub> /Mwh
Description:	Baseline emission factor fixed for the first crediting period
Source of data used:	
Value(s) :	0.84335
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Additional comment:	n/a

## D.2. Data and parameters monitored

Data / Parameter:	EG <sub>y.pa</sub>				
Data unit:	Mwh				
Description:	Electricity supply to grid by project activity				
Measured /Calculated /Default:	Measured				
Source of data:	Meters				
Value(s) of monitored parameter:	43,483				
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data is used for baseline emission calculations.				
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	The data were measured continuously by 3 Meters and were recorded monthly. The information of the meters are as follows:				
	Item	Meter 1	Meter 2	Meter 4	
	Type & Serial Number	DTSD341-2007-0141030302	DTSD341-2007-0141030303	DSSD536-5054-80800020	DSSD536-5054-90300379
	Accuracy	0.5s	0.5s	0.5s	0.5s
	Calibration information:				
	Meter	3 <sup>rd</sup> Calibration date		Valid until	
	M1	19/10/2010		18/10/2011	
	M2	19/10/2010		18/10/2011	
	M4 DSSD536-5054-80800020 DSSD536-5054-90300379	01/08/2010 07/03/2011		31/07/2011 06/03/2012	
	Calibration Frequency	Yearly			
Calibration Entity	Hu’nan Chenzhou Metrological Testing Institute				
Measuring/	Hourly measurement and monthly recording				

Reading/Recording frequency:	
Calculation method (if applicable):	Calculated with M1&M2 records.
QA/QC procedures applied:	Double checked with M3, M4 and sales receipts

Data / Parameter:	EG <sub>y,m</sub>		
Data unit:	Mwh		
Description:	Electricity supply to grid by original influenced project Mazitan		
Measured /Calculated /Default:	Measured		
Source of data:	Monthly records		
Value(s) of monitored parameter:	870.08		
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline calculation		
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	M3 records the electricity generated by Mazitan.		
	Item	Meter 3	
	Type & Serial Number	DTSD341-2007-0141030305 DTSD341-2007-0141030300	
	Accuracy	0.5s	
	Calibration Information		
	Meter	3 <sup>nd</sup> Calibration date	Valid until
	DTSD341-2007-0141030305 DTSD341-2007-0141030300	20/10/2009 14/09/2010	19/10/2010 13/09/2011
Measuring/ Reading/ Recording frequency:	Monthly records		
Calculation method (if applicable):	N/A		
QA/QC procedures applied:	Double check with M1, M2, M4 and sales receipts		

<b>Data / Parameter:</b>	A <sub>PJ</sub>		
Data unit:	m <sup>2</sup>		
Description:	Surface area at full reservoir		
Measured /Calculated /Default:	Measured		
Source of data:	Topographical survey		
Value(s) of monitored parameter:	49000		
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The data is used for power density calculation. The power density is calculated as 367.3W/m <sup>2</sup> , thus the project emissions are not needed to be considered.		
Monitoring equipment (type, accuracy class, serial number, calibration	The data was measured by the Hunan Provincial Hydropower Design& Research Institute through topographical surveys (full reservoir and reservoir storage) and maps on 18 <sup>th</sup> November 2008, which is after the		



frequency, date of last calibration, validity)	full operation of the project.
Measuring/ Reading/ Recording frequency:	Once at the beginning of crediting period
Calculation method (if applicable):	N/A
QA/QC procedures applied:	Kept 2 years after the crediting period

## SECTION E. Emission reductions calculation

### E.1. Baseline emissions calculation

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The baseline emissions ( $BE_y$ ) for this monitoring period can be calculated by:

$$BE_y = (EG_y - EG_{\text{historical}}) * EF_y = (EG_{y,pa} + EG_{y,m} - EG_{\text{historical}}) * EF_y$$

Where:

$BE_y$  is the baseline emissions in a given year  $y$ . in  $tCO_{2e}$ ;

$EG_y$  is the electricity supplied by the project activity to the power grid in year  $y$ , in Mwh;

$EG_{y,pa}$  is the electricity supplied by the Qi'nan Hydro Project to the power grid in year  $y$ , in Mwh;

$EG_{y,m}$  is the electricity supplied by the Qi'nan Hydro Project to the power grid in year  $y$ , in Mwh;

$EG_{\text{historical}}$  is the historical Electricity Production of Mazitan project;

$EF_y$  is the baseline emissions factor in year  $y$ , in  $tCO_{2e}/Mwh$ .

The baseline emission factor ( $EF_y$ ) is  $0.84335 tCO_{2e}/Mwh$ , which is the fixed for this crediting period according to the registered PDD

Table 1. Electricity Supplied to Grid and Electricity imported from Grid

Period*	$EG_{y,m}$ (Mwh) M1	$EG_{y,m}$ (Mwh) M2	$EG_{y,pa}$ (Mwh) M3	$EG_y$ (Mwh) M4 Electricity to Grid	$EG_y$ (Mwh) M4 Electricity from Grid	$EG_y$ (Mwh) M4 Net Electricity	Invoiced $EG_y$ (MWh) Invoice	$EG_y$ (Mwh) Min (M1+M2+M3,M4 Net Electricity, Invoice)
01/08/2010 ~ 31/08/2010	28.161	2123.8	0	2148.96	10.12	2138.84	2138.84	2138.84
01/09/2010 ~ 30/09/2010	2254.58	1995.1	48.08	4273.72	3.52	4270.2	4270.2	4270.2
01/10/2010 ~ 31/10/2010	901.341	733.51	74.56	1687.84	7.04	1680.8	1680.8	1680.8
01/11/2010 ~ 30/11/2010	724.248	989.98	52.04	1745.92	15.4	1730.52	1730.52	1730.52
01/12/2010 ~ 31/12/2010	788.319	1019.3	47.52	1818.52	17.6	1800.92	1800.92	1800.92
01/01/2011 ~ 31/01/2011	380.268	545.27	36.08	943.8	22.88	920.92	920.92	920.92
01/02/2011 ~ 28/02/2011	695.52	1959.9	57.36	2669.48	14.52	2654.96	2654.96	2654.96
01/03/2011 ~ 31/03/2011	2965.79	1126.8	86.32	4125.44	8.8	4116.64	4116.64	4116.64
01/04/2011 ~ 30/04/2011	659.988	885.84	55.44	1570.8	16.72	1554.08	1554.08	1554.08
01/05/2011 ~ 31/05/2011	3512.75	3297.1	180.08	6914.6	3.08	6911.52	6911.52	6911.52

01/06/2011 ~ 30/06/2011	3840.86	3623.5	123.48	7505.52	0.88	7504.64	7504.64	7504.64
01/07/2011 ~ 31/07/2011	4941.41	3218.7	109.12	8200.72	1.76	8198.96	8198.96	8198.96
Total	21693.2	21519	870.08	43605.32	122.32	43483	43483	43483

\* Meters were read at 12:00 am on the last day of each month.

The average annual generation of Mazitan (during the recent 5 years: 2003~2007) is 18,000Mwh/year.

So the  $EG_{\text{historical}}$  from 01/08/2010 to 31/07/2011 (365days) should be:

$(18,000\text{Mwh}/365 \text{ days}) * 365\text{days} = 18,000\text{Mwh}$ .

Therefore, the Baseline emission for this monitoring period is:

$BE_y = (EG_y - EG_{\text{historical}}) * EF_y = (43,483 \text{ Mwh} - 18,000\text{Mwh}) * 0.84335 \text{ tCO}_2\text{e}/\text{Mwh}$   
 $= 25483\text{Mwh} * 0.84335 \text{ tCO}_2\text{e}/\text{Mwh} = 21,491\text{tCO}_2\text{e}$ .

## E.2. Project emissions calculation

>>

According to ACM0002,  $A_{PJ}$  has been measured at the start of the crediting period. The surface area at full reservoir level is 49,000  $\text{m}^2$ , and the power density is 367.3W/ $\text{m}^2$ , which is greater than 10 W/ $\text{m}^2$ .

So the project emission ( $PE_y$ ) is 0.

## E.3. Leakage calculation

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According to ACM0002, Leakage ( $L_y$ ) of the project activity is 0.

## E.4. Emission reductions calculation / table

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Total baseline emissions: 21,491  $\text{tCO}_2\text{e}$ .

Total project emissions: 0  $\text{tCO}_2\text{e}$ .

Total leakage: 0  $\text{tCO}_2\text{e}$ .

Total emission reduction of the project for this monitoring period ( $ER_y$ ) is:

$ER_y = BE_y - PE_y - L_y = 21,491 - 0 - 0 = 21,491 \text{ tCO}_2\text{e}$ .

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

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Item	Values applied in ex-ante calculation of the registered CDM-PDD	Actual values reached during the monitoring period
Emission reductions ( $\text{tCO}_2\text{e}$ )	41,020 $\text{tCO}_2\text{e}$	21,491 $\text{tCO}_2\text{e}$

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

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The actual value of emission reductions of the project **21491  $\text{tCO}_2\text{e}$**  is less than the ex-ante calculation in the PDD, i.e. **41,020  $\text{tCO}_2\text{e}$**  from 01/02/2009-31/07/2010. **There is no increase in electricity generation.**