MONITORING REPORT FORM (CDM-MR)
Version 01 - in effect as of: DD/MM/YYYY

CONTENTS

MONITORING REPORT
Version 02, 04/08/2010

INSERT title project activity: Datong River Zhuchaxia Hydropower Station
INSERT reference number: 2845
INSERT monitoring period number and dates: 1 (18/12/2009 -29/05/2010)

SECTION A. General description of the project activity

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

>>
The Datong River Zhuchaxia Hydropower Station (hereafter, the project) developed by GEPIC Darong Electric Power Company Ltd. (hereafter, the project owner) is a run-of-river hydropower project in Gansu Province, the People's Republic of China. Total installed capacity of the project is 34MW, consisting of two 13.5MW and one 7 MW turbines.

The purpose of the project is to utilize the hydrological resources of the Datong River through construction of a run-of-river hydro project to generate zero emissions electricity for the Gansu Power Grid, which is a part of the Northwest China Power Grid (hereafter, the NWCPG). The electricity currently generated by the NWCPG is relatively carbon intensive. The project is therefore expected to reduce emissions of greenhouse gases by reducing the need of thermally generated power and reducing needed capacity expansion of fossil fuel-based generation of the NWCPG.

The project started construction on 13 Apr. 2006 and commissioned on 24 Mar. 2008. The operation time of the project will be 25 years. The project registered CDM on 18 Dec. 2009, and the emission reduction achieved during this first monitoring period (18/12/2009-29/05/2010) is 24,715tCO_2.

A.2. Project Participants

>>

Name of Party involved (host) indicates a host Party)	Private and/or public entity(-ies) project participants
The People's Republic of China (host)	GEPIC Darong Electric Power Company Ltd
The Netherlands	N.V. Nuon Energy Trade & Wholesale

A.3. Location of the project activity:

>>
Tibetan Autonomous County of Tianzhu, Gansu Province, the People's Republic of China. The geographical coordinates of the dam are 102º35'32" E and 36º52'19" N, and the geographical coordinates of the powerhouse are 102º38'14" E and 36º51'12" N.

A.4. Technical description of the project

The project is a run-of-river hydropower plant, which is composed of a concrete gravity dam, release sluice, channels, powerhouse, and switch station. The annual power generation is expected to be approximately 143,400MWh over an expected operational lifetime of 25 years. The power is delivered to the Gansu Power Grid (which is a part of the NWCPG) through two110 kV transmission lines to a designated transformer station.

The electricity for the project is generated by two units of HLA551C-LJ-230 turbines and two units of SF13.5-28/4870 generators and one unit of HLA551C-LJ-165 turbine and one unit of SF7000-20/3250 generator.

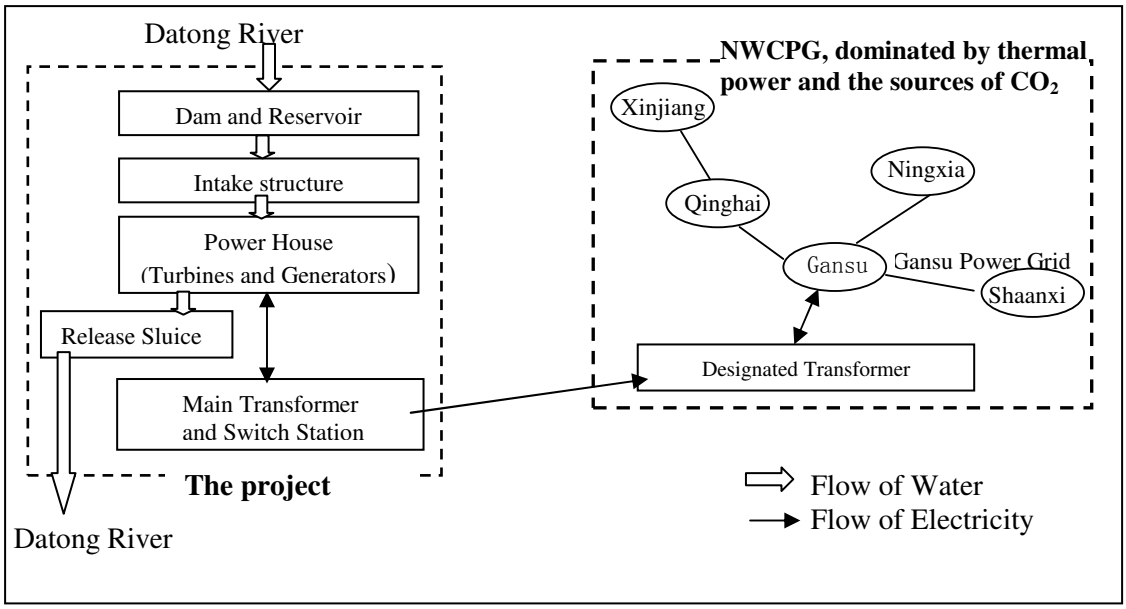

Figure A.4 The diagram of technology of the project

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

1. "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version 07;
2. "Tool to calculate the emission factor for an electricity system" version 01.1.
3. "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion", version 2;
4. "Tool for demonstration and assessment of additionality", Version 05.2.

A.6. Registration date of the project activity:

18/12/2009

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

The crediting period is fixed crediting period (10 years) from 18/12/2009 to 17/12/2019.

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

Ms. Jennifer Wang of DHV BEEC Co., Ltd. is responsible for completing the monitoring report.
Address: West third floor, Building 8, Wanguocheng, No.1 Xiangheyuan Road, Dongcheng District. Beijing. 100028, PRC
Tel: +86 10 84408442 ext. 167
Fax: +86 10 84407989
E-mail: jennifer.wang@dhv.com
www.dhv.cn

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

The project is a run-of-river hydropower station, and developed and operated by GEPIC Darong Electric Power Company Ltd.. The implementation of the project is listed in Table B.1.

Table B.1 The implementation of the project

Key events	Date
Construction started, which is also the starting date of the project	13/04/2006
The generator #1 started operation	24/03/2008
The generator #2 started operation	28/04/2008
The generator #3 started operation	02/06/2008
Registration date(Start of crediting period)	18/12/2009
1st verification period	18/12/2009-29/05/2010

The project installs two 13.5MW and one 7 MW turbines providing a total installed capacity of 34MW, with average annual operating hours of 4,218h, and the average annual generation of 143,400MWh, the power supplied is estimated to be 143,113MWh.

From 18/12/2009 to 29/05/2010 (total 163 days), the project has a total actual net electricity exported to the grid of 29,083.398MWh, corresponds to the emission reductions of 24,715 tCO2e.

The project implemented several conventional overhauls during this monitoring period, and no big repair happened during this monitoring period.

No events or situations occurred during the monitoring period, which may impact the applicability of the methodology.

B.2. Revision of the monitoring plan

The monitoring plan has not been revised.

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

No deviation applied to this monitoring period.

B.4. Notification or request of approval of changes

No notification or request of approval of changes from the project activity as described in the registered CDM-PDD.

SECTION C. Description of the monitoring system

Data collection procedures:

As the Figure C-1 indicated, monitoring data are monitored at these points.

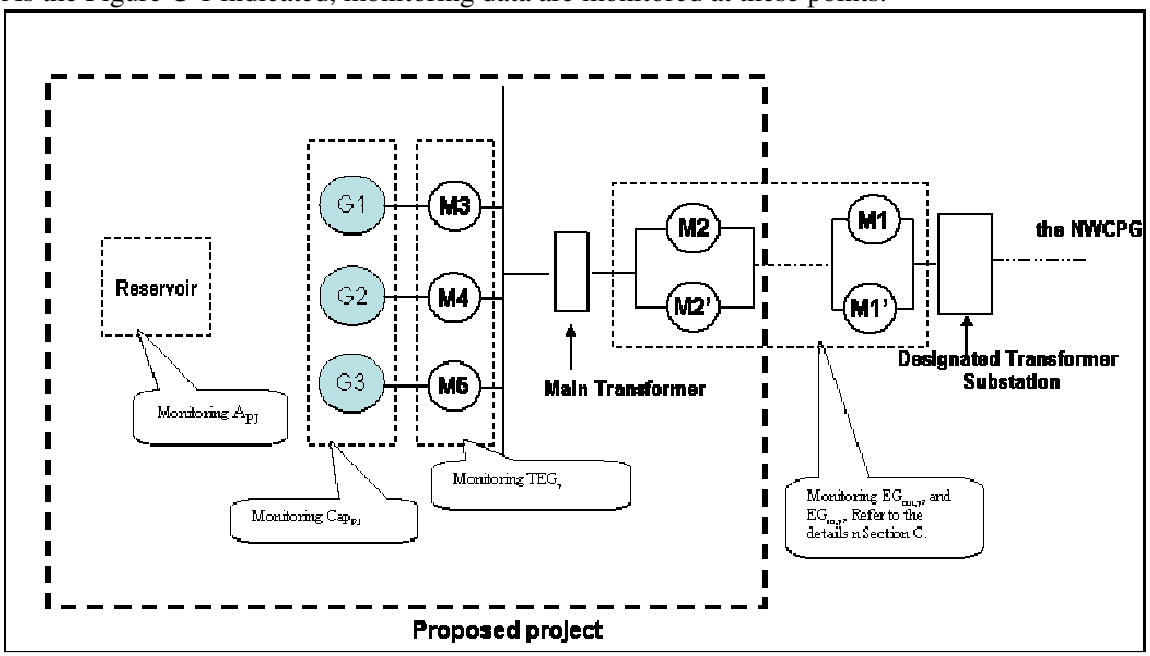

Figure C-1 Diagram of monitoring points

As per the registered PDD, net electric power exported to the grid (EG_y) is calculated as the difference of the electricity supplied by the project to NWCPG ($EG_{out,y}$) and the electricity imported from the NWCPG to the project ($EG_{in,y}$).

$EG_{out,y}$, the electricity supplied by the project to NWCPG, is measured by two metering systems, a main metering system(M1 and M1') and a check metering system (M2 and M2') to backup. The main metering system which measured the electricity supplied by the project to NWCPG is installed at Dachaigou Transformer Substation. The check metering system is installed at the project site as a reference and backup to the main metering system. The meters are monitored continuously. The operator of Grid Company reads and records the meters of the main metering system once every month. The plant operation staff reads and records the meters of the check metering system once every day. The grid

company provides the monthly reading records to the project owner in the form of Power Settlement. The project owner confirms the Power Settlement and issues invoices to the grid company. The invoices copying book or Power Settlement, serving as sales receipts, can be used for double check.

$EG_{in,y}$, the electricity imported from the NWCPG, is measured by the same systems as the systems to monitor $EG_{out,y}$, as the meters are bidirectional. The meters are monitored continuously. The operator of Grid Company reads and records the meters of the main metering system once every month. The plant operation staff reads and records the meters of the check metering system once every month. The grid company provides monthly records and invoices for the electricity imported from the NWCPG to the project owner. The invoices, serving as sales receipts, can be used for double check.

$TEG_{y,}$ total electricity produced by the project activity, is measured by the sum of the three meters (M3, M4, M5) at the outlet of generators. The data of each meter will be automatically measured continuously and be read and recorded daily by the plant operation staff on the Operation Log. The sum of the three meters is also recorded on the Operation Log. The monthly data will be recorded electronically.

Cap_{PJ}, installed capacity of the hydro power plant after the implementation of the project activity, is checked and recorded from nameplate of the equipment on the site yearly.

A_{PJ} , the surface area of full reservoir level, is measured by the Northwest Hydro Consulting Engineers, CHECC yearly.

Monitoring Organization and Responsibility

The project owner designated a monitoring team responsible for the monitoring plan. The structure of the monitoring team is outlined in Figure C-2.

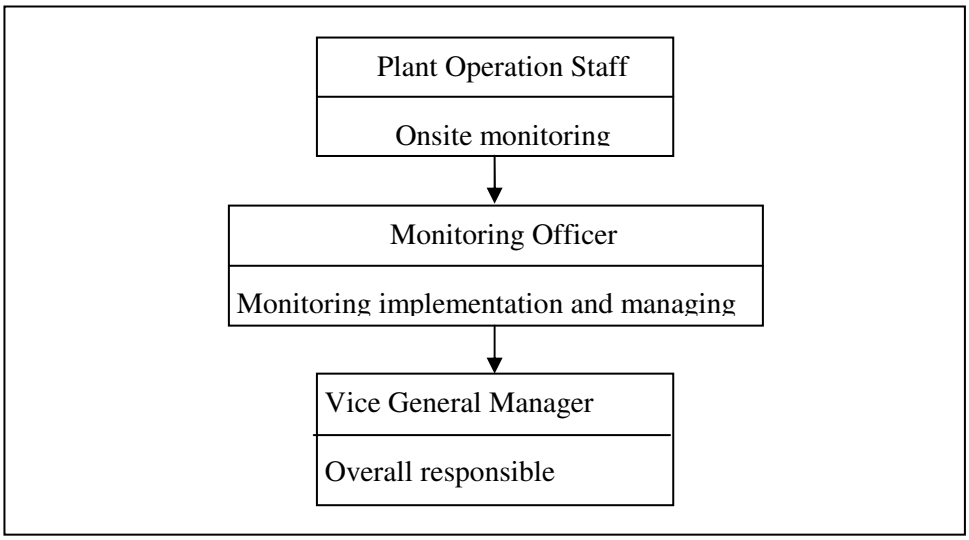

Figure C-2 Structure of the monitoring team

The responsibilities of the team are briefly described as following:

Vice General Manager: hold the overall responsibility for the monitoring process and approval of the monitoring report.
Monitoring Officer: charge of all relevant matters with the monitoring activity, including but not limited to supervision and verification of metering and recording; collection of additional data, sales / billing receipts; Calibration; Calculation of emission reductions; Preparation of monitoring report.
Plant Operation Staff: is responsible for the measurement of the monitored data, and assisted the monitoring officer on the plant site.

Training

The project owner with the help from DHV BEEC Co., Ltd. has compiled the CDM Monitoring Manual on monitoring work. The Monitoring Officer has organized training for staffs in relation with monitoring team on CDM knowledge; monitoring methodology and CDM monitoring Manual; data recording and archiving; relevant laws and regulations.

Emergency procedures for the monitoring system

In case metering equipment is damaged and no reliable readings can be recorded the project owner will use the following procedure:

• In case two meters (i.e. M1 and M1') recorded by the grid company are in malfunction only:
If only M1 exceeds the allowable tolerance or otherwise the meter mal functioned, M1' will be used to monitor the data. If both M1 and M1' are in malfunction, the monitoring data logged by the project owner, will be used to calculate the data for the sales receipts/billing invoices.

• In case meters recorded by project owner are in malfunction only:
If only M2 exceeds the allowable tolerance or otherwise the meter malfunctioned, M2' will be used to play the check role. If both M2 and M2' are in malfunction, the monitoring data by the M3, M4 and M5 will be used to play the check role.

• In case all meters are in malfunction:
The project owner and the grid company will jointly calculate a conservative estimate of all the data. If the project owner and the Grid Company fail to reach an agreement concerning the correct reading, then the matter will be submitted for arbitration according to agreed procedures.

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:	**A_{BL}**
Data unit:	**m^2**
Description:	Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero.
Source of data used:	The status of the project.
Value(s) :	0

Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	This value is zero, since there will be a new reservoir for this project.
Additional comment:	

Data / Parameter:	**$EF_{grid,CM,y}$**
Data unit:	**tCO_2/MWh**
Description:	Combined margin CO_2 emission factor for grid connected power generation in year y
Source of data used:	Official data from Chinese DNA: http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1364.pdf
Value(s) :	0.8498. See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics by Chinese DNA.
Additional comment:	

Data / Parameter:	**$EF_{grid,OM,y}$**
Data unit:	**tCO_2/MWh**
Description:	Simple operating margin CO_2 emission factor in year y
Source of data used:	Official data from Chinese DNA: http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1364.pdf
Value(s) :	1.1257. See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics by Chinese DNA.
Additional comment:	

Data / Parameter:	**$EF_{grid,BM,y}$**
Data unit:	**tCO_2/MWh**
Description:	Build margin CO_2 emission factor in year y
Source of data used:	Official data from Chinese DNA: http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1364.pdf
Value(s) :	0.5739. See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics by Chinese DNA
Additional comment:	

Data / Parameter:	**$FC_{i,y}$**

Data unit:	**10^4 t,10^8m^3**
Description:	Amount of fossil fuel type i consumed in the project electricity system NWCPG in years y (2003-2005, including Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang)
Source of data used:	China Energy Statistical Yearbook (editions 2004, 2005 and 2006).
Value(s) :	See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics.
Additional comment:	

Data / Parameter:	**$NCV_{i,y}$**
Data unit:	MJ/t or MJ/km^3
Description:	Net calorific value (energy content) of fossil fuel type i in year y
Source of data used:	Page 287, China Energy Statistical Yearbook (editions 2006).
Value(s) :	See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics.
Additional comment:	

Data / Parameter:	**$EF_{CO2,i,y}$**
Data unit:	**tCO_2/TJ**
Description:	CO_2 emission factor per energy unit of fuel i in year y
Source of data used:	The values of coke, coke oven gas, other gas and refinery gas are taken from "2006 IPCC Guidelines for National Greenhouse Gas Inventories" Volume 2 Energy, Chapter 1, 1.21-1.24.
Value(s) :	See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The national value is unavailable, adopt IPCC default value
Additional comment:	

Data / Parameter:	**$EG_{m,y}$, EG_y, $EG_{j,y}$, $EG_{k,y}$**
Data unit:	**MWh**
Description:	Net electricity generated and delivered to the grid by power plant / unit m,j,k or n (or in the project electricity system in case of EGy) in year y
Source of data used:	China Electric Power Yearbook (editions 2002, 2003, 2004, 2005 and 2006).
Value(s) :	See Annex 3 of its PDD for details
Indicate what the data are	Published official statistics.

used for (Baseline/ Project/ Leakage emission calculations)	
Additional comment:	To calculate the electricity output (MWh) supplied to the grid by unit m of the NWCPG in year y.

Data / Parameter:	**Auxiliary Power Ratio**
Data unit:	%
Description:	The ratio between electricity used by the power plant and the electricity generation by the plant.
Source of data used:	China Electric Power Yearbook (editions 2002, 2003, 2004, 2005 and 2006).
Value(s) :	See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics.
Additional comment:	To calculate the electricity output (MWh) supplied to the grid by unit m of the NWCPG in year y.

Data / Parameter:	**$CAP_{j,y}$**
Data unit:	MW
Description:	Power generated in year y
Source of data used:	China Electric Power Yearbook (editions 2004, 2005 and 2006).
Value(s) :	See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics.
Additional comment:	

Data / Parameter:	**$\eta_{j,adv}$**
Data unit:	%
Description:	Average net energy conversion efficiency of the best technology for coal, oil, gas fired power plants commercially available in China
Source of data used:	Official data from Chinese DNA: http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1365.pdf
Value(s) :	See Annex 3 of its PDD for details
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Published official statistics by Chinese DNA.
Additional comment:	

<table>
<tr><th colspan="2">D.2. Data and parameters monitored</th></tr>
<tr><td>Data / Parameter:</td><td>$EG_{out,y}$</td></tr>
<tr><td>Data unit:</td><td>MWh</td></tr>
<tr><td>Description:</td><td>Annual on-grid electricity supplied to NWCPG by the project.</td></tr>
<tr><td>Measured /Calculated /Default:</td><td>Measured. Measured continuously by M1 and M1’, and checked by M2 and M2’.</td></tr>
<tr><td>Source of data:</td><td>Power Settlement, Operation Log</td></tr>
<tr><td>Value(s) of monitored parameter:</td><td>29,174.280MWh from 18/12/2009 to 29/05/2010, see Table E.1 for details.</td></tr>
<tr><td>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</td><td>Baseline emission calculations</td></tr>
<tr><td>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</td><td>The meters are bi-direction. M1, main meter to monitor. M1’, auxiliary meter for the M1, which could check the data and will replace the M1 in case of the failure of M1. M2, main check meter M2’, auxiliary check meter for the M2, which could check the data and will replace the M2 in case of the failure of M2. Locations of these meters are indicated in Figure C-1.
<table>
<tr><th>Meter No.</th><th>Type</th><th>Accuracy</th><th>Serial Number</th><th>Calibration Frequency</th><th>Date of calibration</th></tr>
<tr><td>M1</td><td>SL7000</td><td>0.2S</td><td>36145166</td><td>1 year</td><td>20/11/2009
30/03/2010
17/06/2010</td></tr>
<tr><td>M1’</td><td>SL7000</td><td>0.2S</td><td>36145167</td><td>1 year</td><td>20/11/2009
30/03/2010
17/06/2010</td></tr>
<tr><td>M2</td><td>SL7000</td><td>0.2S</td><td>36145165</td><td>3 year</td><td>26/03/2009</td></tr>
<tr><td>M2’</td><td>SL7000</td><td>0.2S</td><td>36145164</td><td>3 year</td><td>26/03/2009</td></tr>
</table></td></tr>
<tr><td>Measuring/ Reading/ Recording frequency:</td><td>Measured continuously, read and recorded monthly.</td></tr>
<tr><td>Calculation method (if applicable):</td><td>N.A.</td></tr>
<tr><td>QA/QC procedures applied:</td><td>– M1 and M1’ are calibrated every year.
– M2 and M2’ are calibrated once three years.
– Power is double checked with sales invoices.
– Data record and relevant documents will be archived for a period of 2 years after the crediting period.
– Special CDM project team has been set up.
– A detailed rule on monitoring management has been made.</td></tr>
</table>

Data / Parameter:	**$EG_{in,y}$**
Data unit:	**MWh**
Description:	Annual on-grid electricity purchased from NWCPG by the project for the plant operation.
Measured /Calculated /Default:	Measured. Measured continuously by M1 and M1’, and checked by

	M2 and M2'.
Source of data:	Records from Grid company, Operation Log
Value(s) of monitored parameter:	90.882 MWh from 18/12/2009 to 29/05/2010, see Table E.1 for details.
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)	Same as the part of $\mathbf{EG_{out,y}}$.
Measuring/ Reading/ Recording frequency:	Measured continuously, read and recorded monthly.
Calculation method (if applicable):	N.A.
QA/QC procedures applied:	– M1 and M1' are calibrated every year. – M2 and M2' are calibrated once three years. – Power is double checked with sales invoices. – Data record and relevant documents will be archived for a period of 2 years after the crediting period. – Special CDM project team has been set up. – A detailed rule on monitoring management has been made.

Data / Parameter:	**EG_y**
Data unit:	**MWh**
Description:	Net electricity exported to the NWCPG by the project
Measured /Calculated /Default:	Calculated
Source of data:	Calculate by $EG_y=EG_{out,y}-EG_{in,y}$
Value(s) of monitored parameter:	29,083.398MWh from 18/12/2009 to 29/05/2010, see Table E.1 for details.
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)	No.
Measuring/ Reading/ Recording frequency:	Recorded according to monitoring period.
Calculation method (if applicable):	$EG_y=EG_{out,y}-EG_{in,y}$
QA/QC procedures applied:	– Data record and relevant documents will be archived for a period of 2 years after the crediting period. – Special CDM project team has been set up. – A detailed rule on monitoring management has been made.

<table>
<tr><td>Data / Parameter:</td><td>TEG_y</td></tr>
<tr><td>Data unit:</td><td>MWh</td></tr>
<tr><td>Description:</td><td>Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y.</td></tr>
<tr><td>Measured /Calculated /Default:</td><td>Calculated. Calculated as the sum of M3, M4 and M5.</td></tr>
<tr><td>Source of data:</td><td>Operation Log</td></tr>
<tr><td>Value(s) of monitored parameter:</td><td>30,075.720MWh from 18/12/2009 to 29/05/2010.
<table>
<tr><th>Period</th><th>Electricity produced by G1, MWh</th><th>Electricity produced by G2, MWh</th><th>Electricity produced by G3, MWh</th><th>Total electricity produced by the project activity(TEGy), MWh</th></tr>
<tr><td>18/12/2009-31/12/2009</td><td>396.240</td><td>1446.960</td><td>782.280</td><td>2625.480</td></tr>
<tr><td>1/01/2010-31/1/2010</td><td>3482.640</td><td>261.600</td><td>1700.280</td><td>5444.520</td></tr>
<tr><td>1/2/2010-28/2/2010</td><td>925.920</td><td>1174.800</td><td>931.800</td><td>3032.520</td></tr>
<tr><td>1/3/2010-31/3/2010</td><td>1085.280</td><td>1136.880</td><td>621.960</td><td>2844.120</td></tr>
<tr><td>1/4/2010-30/4/2010</td><td>1728.720</td><td>1038.000</td><td>1058.160</td><td>3824.880</td></tr>
<tr><td>1/5/2010-29/5/2010</td><td>6183.360</td><td>3413.280</td><td>2707.560</td><td>12304.200</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>13,802.160</td><td>8,471.520</td><td>7,802.040</td><td>30,075.720</td></tr>
</table></td></tr>
<tr><td>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</td><td>Project emissions calculation</td></tr>
<tr><td>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</td><td>M3, M4, M5 are used to monitor the electricity produced by the each generator. Locations of these meters are indicated in Figure C-1.
<table>
<tr><th>Meter No.</th><th>Type</th><th>Accuracy</th><th>Serial number</th><th>Frequency of calibration</th><th>Date of calibration</th></tr>
<tr><td>M3</td><td>DTSD341</td><td>0.5S</td><td>20070701070015</td><td>3 year</td><td>26/03/2009</td></tr>
<tr><td>M4</td><td>DSSD331</td><td>0.5S</td><td>20070724040044</td><td>3 year</td><td>26/03/2009</td></tr>
<tr><td>M5</td><td>DSSD331</td><td>0.5S</td><td>20070724040070</td><td>3 year</td><td>26/03/2009</td></tr>
</table></td></tr>
<tr><td>Measuring/</td><td>Measured continuously, read and recorded monthly.</td></tr>
</table>

Reading/ Recording frequency:	
Calculation method (if applicable):	Calculated as the sum of M3, M4 and M5.
QA/QC procedures applied:	– M3, M4 and M5 are calibrated once three years. – Data record and relevant documents will be archived for a period of 2 years after the crediting period. – Special CDM project team has been set up. – A detailed rule on monitoring management has been made.

Data / Parameter:	**Cap_{PJ}**
Data unit:	**MW**
Description:	Installed capacity of the hydro power plant after the implementation of the project activity.
Measured /Calculated /Default:	Default.
Source of data:	Check the nameplate of the equipment on the site.
Value(s) of monitored parameter:	34
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculations
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	No.
Measuring/ Reading/ Recording frequency:	Check the nameplate of the equipment on the site, yearly.
Calculation method (if applicable):	N.A.
QA/QC procedures applied:	– Data record and relevant documents will be archived for a period of 2 years after the crediting period. – Special CDM project team has been set up. – A detailed rule on monitoring management has been made.

Data / Parameter:	**A_{PJ}**
Data unit:	**m^2**
Description:	Area of the reservoir measured at the surface of the water, after the implementation of the project activity, when the reservoir is full.
Measured /Calculated /Default:	Measured.
Source of data:	Survey Report on Surface Area of the Reservoir, by Northwest Hydro Consulting Engineers, CHECC.
Value(s) of monitored parameter:	60,900
Indicate what the data are used	Project emission calculations.

for (Baseline/ Project/ Leakage emission calculations)	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Equipments of Northwest Hydro Consulting Engineers, CHECC.
Measuring/ Reading/ Recording frequency:	Measured and recorded yearly.
Calculation method (if applicable):	N. A.
QA/QC procedures applied:	Data record and relevant documents will be archived for a period of 2 years after the crediting period.

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity, calculated as follows:

$$BE_y = (EG_y - EG_{baseline}) \bullet EF_{grid,CM,y} \quad (E.1)$$

Where:

BE_y = Baseline emissions in year y (tCO_2/yr).

EG_y = Net electricity exported to the grid by the project activity (MWh), as indicated in the Table E.1.

$EG_{baseline}$ = Baseline electricity supplied to the grid in the case of modified or retrofit facilities (MWh). For new power plants this value is taken as zero, for this project is zero, i.e. $EG_{baseline}$ =0.

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system". The value has been calculated ex ante as $0.8498tCO_2/MWh$ and there is no need for monitor and recalculation.

Baseline emissions during this monitoring period is shown in the Table E.1.

Table E.1 Baseline emission reduction calculation

No	Period	Electricity supplied by the project activity to the grid ($EG_{out,y}$), MWh		Electricity imported from the grid ($EG_{in,y}$), MWh		Net electricity exported to the grid(EG_y), MWh	$EF_{grid,CM,y}$,tCO2e/MWh	BEy (tCO2e)
		Only for reference	A	Only for reference	B	C=A-B	D	E=C*D
		Data of M2 and M2'	Data of M1 and M1'	Data of M2 and M2'	Data of M1 and M1'			
1	18/12/2009-29/12/2009	2,238.852	1,934.958	0.000	1.386	1,933.572	0.8498	1,643
2	30/12/2009-29/01/2010	5,268.252	5,265.480	0.132	0.132	5,265.348	0.8498	4,474
3	30/01/2010-26/02/2010	3,124.374	3,115.200	18.150	20.790	3,094.410	0.8498	2,630
4	27/02/2010-29/03/2010	2,742.102	2,733.984	31.218	37.356	2,696.628	0.8498	2,292
5	30/03/2010-28/04/2010	3,618.186	3,638.844	22.572	29.304	3,609.540	0.8498	3,067
6	29/04/2010-29/05/2010	12,424.962	12,485.814	1.782	1.914	12,483.900	0.8498	10,609
Total	18/12/2009-29/05/2010	29,416.728	29,174.280	73.854	90.882	29,083.398	-	24,715

E.2. Project emissions calculation

According to the ACM0002, if the power density (PD) of the power plant is greater than 10 W/m^2:
$PE_y = 0$

The power density of the project activity is calculated as follows:

$$PD = \frac{Cap_{PJ} - Cap_{BL}}{A_{PJ} - A_{BL}} \quad \text{(E.2)}$$

Where:
PD = Power density of the project activity (W/m^2).
Cap_{PJ} = Installed capacity of the hydro power plant after the implementation of the project activity (W).
Cap_{BL} = Installed capacity of the hydro power plant before the implementation of the project activity (W). For new hydro power plants, this value is zero.
A_{PJ} = Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (m^2).
A_{BL} = Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m^2). For new reservoirs, this value is zero.
For this project: PD=34,000,000W÷60,900m^2=558W/m^2， is greater than 10 W/m^2. So the Project emission is zero. i.e. PE_y=0.

E.3. Leakage calculation

According to the ACM0002 methodology, the leakage in the project is neglected, i.e. LEy=0.

E.4. Emission reductions calculation / table

The emission reductions ER, during a given year y is the difference of baseline emission BE_y, deduce the project emission PE_y, and the leakage LE_y, calculated as

$$ER_y = BE_y - PE_y - LE_y \quad \text{(E.4-1)}$$

Where:
ER_y = Emission reductions in year y (t CO_2e/yr).
BE_y = Baseline emissions in year y (t CO_2e/yr).
PE_y = Project emissions in year y (t CO_2e/yr).
LE_y = Leakage emissions in year y (t CO_2e/yr).

Emission reduction during this monitoring period is shown in the Table E.4.

Period	EGy MWh	$EF_{grid,CM,y}$ tCO_2e/MWh	BEy tCO2e	PEy tCO2e	Ly tCO2e	ERy tCO2e
18/12/2009-29/12/2009	1,933.572	0.8498	1,643	0	0	1,643
30/12/2009-29/01/2010	5,265.348	0.8498	4,474	0	0	4,474
30/01/2010-26/02/2010	3,094.410	0.8498	2,630	0	0	2,630
27/02/2010-29/03/2010	2,696.628	0.8498	2,292	0	0	2,292

30/03/2010-28/04/2010	3,609.540	0.8498	3,067	0	0	3,067
29/04/2010-29/05/2010	12,483.900	0.8498	10,609	0	0	10,609
Total(18/12/2009-29/05/2010)	29,083.398		24,715	0	0	24,715

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_2e)	**54,311**[1]	**24,715**

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

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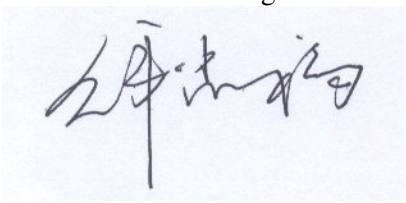
From 18/12/2009 to 29/05/2010 (total 163 days), the project has a total actual net electricity exported to the grid of 29,083.398MWh, corresponds to the emission reductions of 24,715 tCO2e, which is about 54.49% lower than the designed value of 54,311tCO2e[1], and this lower rate is because the area of the project is in drought. It also because this monitoring period is during the dry season in which the water is few comparing with other months.

The monitoring report has been approved by Vice General Manager of GEPIC Darong Electric Power Co.Ltd.

Full name of Vice General Manager of GEPIC Darong Electric Power Co.Ltd.: Kaifu Xian
Signature:



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The total is 163 days in the monitoring period and the emission reduction is 121,617tCO2e in the registered PDD annually, therefore, the estimated emission reduction of 54,311tCO2e in the monitoring period is calculated as: 121,617tCO2e/365days*163days=54,311tCO2e.

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		