Validation report form for renewal of crediting period for CDM project activities

(Version 01.0)

Complete this form in accordance with the "Attachment: Instructions for filling out the validation report form for renewal of crediting period for CDM project activities" at the end of this form.

VALIDATION REPORT FOR RENEWAL OF CREDITING PERIOD (RCP)	
Title of the project activity	Ningxia Shapotou Hydropower Project of Yellow River
Reference number of the project activity	1284
Number and duration of the next crediting period	2nd crediting period from 04/11/2014 to 03/11/2021
Version number of the validation report for RCP	version 02
Completion date of the validation report for RCP	28/04/2016
Version number of PDD to which this report applies	version 04
Project participant(s)	Ningxia Shapotou Water Control Co., Ltd. (P.R.China) Carbon Asset Management Sweden AB (Sweden) Carbon Asset Management Sweden AB (Netherlands) Carbon Asset Management Sweden AB (Switzerland)
Host Party	People's Republic of China
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral Scope 1: Energy industries (renewable/non-renewable sources); Methodology ACM0002 "Grid-connected electricity generation from renewable sources (Version 16.0)"
Estimated annual average GHG emission reductions or net anthropogenic GHG removals in the next crediting period	334,010 t CO_2e
Name of DOE	China Environmental United Certification Center Co., Ltd. (CEC)
Name, position and signature of the approver of the validation report for RCP	ZHANG Xiaodan, General Manager 

SECTION A. Executive summary

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Ningxia Shapotou Water Control Co., Ltd. (the project owner) has commissioned China Environmental United Certification Center Co., Ltd. (CEC) to validate the renewal of the crediting period of the CDM Project "Ningxia Shapotou Hydropower Project of Yellow River" (Hereafter called "the project"). CEC has performed the validation of the project on the basis of all applicable CDM requirements. The CDM requirements include the CDM modalities and procedures and subsequent decisions by the CMP and documents released by the CDM Executive Board and available on the UNFCCC CDM website.

The proposed project Ningxia Shapotou Hydropower Project of Yellow River was registered as a CDM project (UNFCCC Reg. No. 1284) on 04/11/2007.

As per the registered PDD, the project is a newly-built hydropower plant. It is located on Yellow River, Zhongwei City, Ningxia Hui Autonomous Region, People's Republic of China with the flooded area of 4,081,000 m^2, which results in the power density of 29.48 W/m^2.[1] The geographical coordinate of the project is east longitude of 104°17′ - 105°37′ and north latitude of 36°59′-37°43′. The project involves the installation and operation of 4 hydro turbine and associated generator sets of 29 MW each, one 3.1 MW hydro turbine and one 1.2 MW hydro turbine and their associated generators, aggregating to a total of 120.3 MW installed capacity which is in line with nameplate of generator and turbine /16/. According to the Feasibility Study Report and nameplate of generator and turbine, the capacity of the project is not changed. The project is implemented and operated normally as per the registered PDD and no equipments replacement or significant malfunction occurred in the first crediting period, which was confirmed with the project owner Ningxia Shapotou Water Control Co., Ltd.

The exported electricity from the project displaces the power generated by the existing power plants in the Northwest China Power Grid (hereinafter referred to as NWPG) with an annual average output of 578,022 MWh, thereby resulting in the yearly emission reduction of 334,010 tCO_2e and total emission reduction of 2,338,070 tCO_2e in the second renewable 7-year crediting period.

The first 7-year renewable crediting period is from 04/11/2007 – 03/11/2014, the PP is applying for a second period started from 04/11/2014 to 03/11/2021.

Validation of the renewal of the crediting period of the project was performed in accordance with the Clean development mechanism validation and verification standard (version 09.0) and included an assessment of:

(a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant guidance from the Board with regard to renewal of the crediting period at the time of requesting renewal of crediting period;

(b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

The validation scope is defined as an independent and objective review of the Project Design Document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the Project design and the baseline and monitoring plan; ii) follow-up actions; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from contract review to validation report & opinion, was conducted using CEC internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CLs and CARs), presented in Appendix 4. Taking into account this output, the project participant took corrections and revised its Project Design Document, all CARs and CLs are successfully closed.

[1] The power density of the project is calculated as 120,300,000W/4,081,000m^2 = 29.48W/m^2

In summary, it is CEC's opinion that the "Ningxia Shapotou Hydropower Project of Yellow River", as described in the PDD Version 04 dated 21/04/2016, meets all relevant UNFCCC requirements for the CDM and all relevant Host Parties criteria and correctly applied the baseline and monitoring methodology ACM0002 Version 16.0. CEC thus requests the renewal of the crediting period of the project.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	CUI	Xiaodong	Central office of CEC	√	X	√	√
2.	Validator	IR	ZHANG	Huan	Central office of CEC	√	X	√	√
3.	Validator	IR	MENG	Lingbo	Central office of CEC	√	X	√	√

B.2. Technical reviewer and approver of the validation report for RCP

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer team leader	IR	LIU	Qingzhi	Central office of CEC
2.	Technical reviewer	IR	DU	Wei	Central office of CEC
3.	Approver	IR	ZHANG	Xiaodan	Central office of CEC

SECTION C. Means of validation

C.1. Desk review

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1) The Project Design Document (PDD) Version 02 dated 20/04/2007/1/, Version 03 dated 26/01/2016/1/ and additional background documents related to the project design and baseline were submitted by Ningxia Shapotou Water Control Co., Ltd.
2) The desk review involves:
   - A review of data and information
   - Cross checks between information provided in the PDD and information from sources other than those used, if available, CEC's sectoral and local expertise and if necessary, independent background investigations.

To address the validation team's corrective action and clarification requests, the PP revised and resubmitted the PDD Version 04 dated 21/04/2016/1/ in which the validation findings presented in this report related to the project were described.

C.2. On-site inspection

Duration of on-site inspection:				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	N/A			

C.3. Interviews[2]

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	LI	Yongxue	Assistant of General Manager of Ningxia Shapotou Water Control Co., Ltd.	08/04/2016	Status of the project and any modifications with respect to the registered PDD and approved revised PDD. Applicability of selected methodology. National policies and changes. Baseline of the project and its updates. Emission factors and their updates. Monitoring plan	CUI Xiaodog, ZHANG Huan, MENG Lingbo
2	HE	Bin	Manager of Ningxia Shapotou Water Control Co., Ltd.			
3	DING	Yaole	Specialist of Ningxia Shapotou Water Control Co., Ltd.			

C.4. Clarification requests, corrective action requests and forward action requests raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	0	0	0
Application of baseline and monitoring methodology and standardized baseline	0	0	0
Validity of original baseline or its update	0	0	0
Estimated GHG emission reductions or net anthropogenic GHG removals	0	0	0
Validity of monitoring plan	1	0	0
Crediting period	0	0	0
Project participants	0	0	0
Others (please specify)	0	0	0
Total	1	0	0

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	As per "Clean Development Mechanism Validation and Verification Standard" version 09.0 /14/, CEC reviewed the revised PDD for the 2nd crediting period, to determine whether it has been prepared in accordance with the latest PDD form (Project design document template, version 06.0 /10/).
Findings	The valid version of the PDD form was used, and the revised PDD is compliant with relevant form and guidance as provided by UNFCCC. The project participants provide a revised CDM-PDD for the second crediting period updating those sections relating to:

[2] Telephone interview

	1) Applicable updated methodology and justification 2) Baseline 3) Estimated emission reductions 4）The monitoring plan
Conclusion	The validation team considers that the latest guidelines for completion of the PDD form in their most recent version have been followed. Information transferred to the later version of the PDD form is materially the same as that in the registered PDD.

D.2. Application of baseline and monitoring methodology and standardized baseline

Means of validation	As per "Clean Development Mechanism Validation and Verification Standard" version 09.0 /14/, CEC evaluated whether the selected baseline and monitoring methodology applied is applicable to the project activity. This evaluation was based on a review of the provide PDD for the 2nd crediting period, associated documentation, previous validation/verifications and telephone reviewing.
Findings	At the time of registration, the PP has used the approved consolidated baseline and monitoring methodology ACM0002 version 06 "Consolidated baseline methodology for grid connected electricity generation from renewable source". The revised PDD for the 2nd crediting period applies the latest available version of the same methodology, that is ACM0002. version 16.0 "Grid-connected electricity generation from renewable sources" The assessment of the relevant information contained in the revised PDD against each applicability condition is described below: • The project is a newly built 120.3 MW hydro energy power generation plant, where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant). • The electricity generated by the project would be supplied to the NWPG, and • The project does not involve capacity additions, retrofits or replacements, which is confirmed by means of documentation review /2/ and The project activity is the installation of new hydropower station with the power density of 29.48 W/m^2, which is greater than 4W/m^2.
Conclusion	The project activity meets each of the applicability conditions of the methodology. It also meets all the other stipulations and limitations mentioned in the other sections of the methodology. The validation team hereby confirms that the chosen baseline and monitoring methodology is correctly applied to the proposed project. As per the requirements of ACM0002 Version 16.0, the continued validity of the baseline is assessed and the emissions which would result from the baseline scenario are updated at the start of the second and third crediting period.

D.3. Validity of original baseline or its update

Means of validation	As per "Clean Development Mechanism Validation and Verification Standard" version 09.0 /14/ and "Assessment of the validity of the original/current baseline and update the baseline at the renewal of the crediting period" (version 03.0.1)/15/, CEC reviewed the revised PDD to assess the validity of the original/current baseline for the proposed CDM project activity, defined as the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed CDM project activity.
Findings	The validity of the baseline has been assessed as per the methodological tool" Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (version 03.0.1)/15/. The assessment is performed as follows:

	Step 1: Assess the validity of the current baseline for the next crediting period Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies. The current baseline remains the same as it was in the registered PDD. There has been no significant change in the relevant national and/or sectoral policies since the date of registered PDD till now, although national policies favour the development of renewable energy, the low-cost/must run resources in NWPG constitute less than 50% of the total grid generation in the average of the five most recent years (21.82% in 2008, 24.40% in 2009, 23.99% in 2010, 21.66% in 2011 and 24.31% in 2012) /6/, and electricity generated by fossil fuel based plants dominated the electricity supply. Hence, in absence of the project activity, similar amount of electricity would have been generated by the NWPG. Thus, the validation team concludes that the baseline for the project activity remains same and is in line with the relevant mandatory national and/or sectoral policies. Step 1.2: Assess the impact of circumstances The validation team has assessed that there are no impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline scenarios. Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested. This sub-step is not applicable since the identified baseline scenario at the validation of the project activity did not correspond to the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) (the lifetime for the proposed project is 30 years) before the end of the crediting period or the availability of a new technology. Step1.4 Assessment of the validity of the data and parameters The emission factor that was determined only at the start of the first crediting period is no more valid because of the changes in the grid composition. As per the requirement of ACM0002 version 16.0, new data available should be used to revise the baseline scenario and emissions for updating the baseline at the start of the second and third crediting period. The validation team has verified the validity of default values and parameters used. The relevant update in the data and the source used has been elaborated under step 2.2 of this report. The validation team has assessed the application of step 1.1, 1.2, 1.3 and 1.4 and could confirm that the current baseline is still valid for the subsequent crediting period. The data and parameters have been updated based on the “Tool to calculate the emission factor for an electricity system” (Version 05.0)/13/. The relevant update in the date and the source used has been elaborated under step 2.2 of this report. Step 2: Update the current baseline and the data and parameters Step 2.1: Update the current baseline As the applied methodology ACM0002 version 16.0, the baseline for the Project remains the same as that in the registered PDD as “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “Tool to calculate the emission factor for an electricity system”.” Step 2.2: Update the data and parameters The baseline emission from the Project has been calculated as per the “Tool to calculate the emission factor for an electricity system” (version 05.0) /13/ with six separated steps listed in the section D.4 below. In addition, the calculation has

	been cross-checked via "2014 Baseline Emission Factors for Regional Power Grids in China" published by China's DNA on 11/05/2015/5/, which is the latest valid available date at the time of the validation for the renewal of the crediting period.
Conclusion	According to the registered PDD, the baseline scenario for the Project is continuation for the current practice, namely provision of equivalent amount of annual power output by the grid where the Project is connected into. And according to the methodology ACM0002 version 16.0, the baseline for the Project is "Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system"". Hence, the baseline for the Project remains the same as that in the registered PDD.

D.4. Estimated GHG emission reductions or net anthropogenic GHG removals

Means of validation	As per "Clean Development Mechanism Validation and Verification Standard" version 09.0 /14/, "Tool to calculate the emission factor for an electricity system" (version 05.0)/13/ and the public "2014 Baseline Emission Factors for Regional Power Grids in China" published by China's DNA on 11/05/2015 /5/, CEC has evaluated whether the steps taken and equations applied to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected baseline and monitoring methodology. CEC conducted validation activities to determine whether the equations and parameters in the revised PDD have been correctly applied by comparing them to those in the selected approved methodology. CEC verified the justification given in the revised PDD for the choice of data and parameters used in the equations. Where data and parameters will not be monitored throughout the crediting period of the proposed CDM project activity but have already been determined and will remain fixed throughout the crediting period (ex-ante parameters), CEC assessed that all data sources and assumptions to confirm whether it will result in a conservative estimate of the emission reductions.
Findings	**<u>Baseline emission:</u>** According to the methodology ACM0002 version 16.0 "Grid-connected electricity generation from renewable sources", the baseline emissions are to be calculated as follows: $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$ Where: BE_y = Baseline emissions in year *y* (tCO_2/yr) $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr) $EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh) The baseline emission factor from the Project has been calculated as per the "Tool to calculate the emission factor for an electricity system" (version 05.0) /13/with six separated steps listed below. In addition, the calculation has been cross-checked via the "2014 Baseline Emission Factors for Regional Power Grids in China" published by China's DNA on 11/05/2015 /5/, which is the latest valid available date at the time of the validation for the renewal of the crediting period. (1) Identify the relevant electricity systems; Northwest China Power Grid (NWPG) is selected as the electric power system of the Project. The validation team has verified the data sources of "2014 Baseline Emission Factors for Regional Power Grids in China" and confirmed that the identified electric power systems are appropriate.

(2) Choose whether to include off-grid power plants in the project electricity system (optional).

Option 1: only grid power plants are included in the calculation is chosen.

(3) Select an operating margin (OM) method.

For the calculation of the OM emission factor, the simple OM emission factor calculation method is selected because low-cost/must-run projects constitute less than 50% of the total grid generation during the last 5 years.

The validation team has checked the calculation for low-cost/must-run constitution of the total grid generation and confirmed the calculation is correct. Therefore, simple OM emission factor calculation method is selected reasonable. The data from China Electric Power Yearbook has been applied correctly/6/.

(4) Calculate the operating margin emission factor according to the selected method

The data on electricity generation and auxiliary electricity consumption are obtained from the China Electric Power Yearbook from 2011 to 2013 (published annually).The data on different fuel consumptions for power generation and the net caloric values of the fuels are obtained from the China Energy Statistical Yearbook from 2011 to 2013.The emission factors of the fuels adopted are obtained from Table 1-2 and Table 1-4 of the "2006 IPCC Guidelines for National Greenhouse Gas Inventories: Workbook"/8/. Based on the data sources above, the OM is calculated to be 0.9578tCO_2/MWh.

The renewable crediting period is adopted for the Project and the OM will be fixed for the second crediting period.

The data sources are deemed reasonable and the validation team confirms that the calculation is able to be replicated using the data and parameter provided in the PDD.

(5) Calculate the build margin (BM) emission factor

The set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently (Option B) is adopted properly for the project.

The BM emission factor of the power grid is calculated by multiplying the emission factor of the thermal power with the share of the thermal power in the most recently added approach to 20% of total installed capacity. The emission factor for thermal power is determined based on the most advanced and commercially available technology endorsed by China's DNA. The BM is calculated to be 0.4512tCO_2/MWh.

The validation team confirms that the data sources are deemed reliable and calculation is appropriate.

(6) Calculate the combined margin emissions factor

According to the "Tool to calculate the emission factor for an electricity system"(version 05.0)/13/, the default weights: ω_{OM}=0.25 for Operating Margin and ω_{BM}=0.75 for build Margin in the second crediting period of hydro power projects are adopted.

The combined margin emissions factor is calculated as 0.25* $EF_{grid,OM,y}$ + 0.75* $EF_{grid,BM,y}$ = 0.25* 0.9578 + 0.75* 0.4512= 0.57785 tCO_2/MWh.

Since the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, $EG_{PJ,y}$ = $EG_{facility,y}$ ($EG_{facility,y}$ is the quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr))

Therefore baseline emissions are calculated as: $BE_y = EG_{facility,y} * EF_{grid,CM,y}$ = 578,022 (MWh) ×0.57785 tCO_2/MWh = 334,010 tCO_2e per annum.

Project emission:

The calculation for project emission is as following:

$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$

	Where: PE_y = Project emissions in year *y* (tCO_2/yr) $PE_{FF,y}$ = Project emissions from fossil fuel consumption in year *y* (tCO_2/yr) $PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year *y* (tCO_2e/yr) $PE_{HP,y}$ = Project emissions from water reservoirs (t CO_2e/yr) The proposed project is a newly built run-of-river hydropower project, does not use fossil fuels to generate electricity, thus $PE_{FF,y}$ is zero. The project is not geothermal project, thus $PE_{GP,y}$ is zero. The project is a newly built hydropower plant with a new reservoir. The reservoir area with full water level is 4,081,000m^2. The power density of the project is calculated as 120,300,000W/4,081,000m^2 = 29.48 W/m^2, which is greater than 10W/m^2. Therefore, the project emission is zero according to "Tool to calculate the emission factor for an electricity system" (version 05.0)/13/ and ACM0002 version 16.0 "Grid-connected electricity generation from renewable sources"/11/. **Leakage：** According to ACM0002 version 16.0, no leakage needs to be considered for the proposed project. **Emission reduction:** As per baseline methodology ACM0002 version 16.0 and "Tool to calculate the emission factor for an electricity system"(version 05.0), the emission reduction ER_y during the crediting period is: $ER_y=BE_y- PE_y - LE_y$ = 334,010 tCO_2e - 0 - 0=334,010 tCO_2e
Conclusion	Based on the information reviewed and calculations reproduced by the validation team, CEC confirms the following: (1) All assumptions and data used by the PPs are listed in the PDD, including their references and sources; (2) All documentation used by PPs as the basis for assumptions and the sources of data are correctly quoted and interpreted in the PDD; (3) All values used in the PDD are considered reasonable in the context of the proposed CDM project activity; (4) The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions; (5) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD. The estimated amount of GHG emission reductions of the project is 2,338,070 tCO_2e during the second crediting period (7 years) from 04/11/2014 to 03/11/2021, resulting in estimated average annual emission reduction of 334,010 tCO_2e. In summary, the calculation of the baseline emissions can be considered to be correctly done and in line with the applied methodology ACM0002 version 16.0.

D.5. Validity of monitoring plan

Means of validation	Based on review of the documented procedures, interviews with relevant personnel, CEC evaluated the monitoring plan for the proposed project to ensure that it is based on the approved monitoring methodology that has been applied, and assessed: ➢ Whether the monitoring plan contains all necessary parameters;

	➢ Whether the parameters are clearly described; ➢ Whether the means of monitoring described in the plan complies with the requirements of the methodology. ➢ Whether the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions can be reported ex post and verified.
Findings	The project uses the approved methodology ACM0002. version 16.0 "Grid-connected electricity generation from renewable sources"/11/ **Parameters determined ex-ante** The baseline emission factor of 0.57785 tCO_2/MWh is determined ex-ante based on the most recent information available at the time of requesting for the renewal of the crediting period, which is calculated as a combined margin(CM) consisting of the combination of OM and BM emission coefficient. The parameters applied in the calculation are validated by the validation team to be credible. **Parameters monitored ex-post** Based on the document review and follow-up actions, the validation team confirms that the parameters required to be monitored for the project would be: ➢ Quantity of net electricity generation supplied by the project plant/unit to the grid in year y ($EG_{facility,y}$); The monitoring plan proposed follows the same monitoring approach that in the first crediting period. The parameter has been described in the monitoring plan. The parameter of $EG_{facility,y}$ will be calculated via two monitored parameters, the quantity of electricity supplied by the project plant/unit to the grid ($EG_{out,y}$) and the quantity of electricity delivered to the project plant/unit from the grid ($EG_{im,y}$). The two parameters will be continuously measured and monthly recorded, and double checked by receipts. The validation team thus confirms that the monitoring plan in the PDD contains all necessary parameters and their monitoring methods are in compliance with the requirement in the selected methodology. **Management system and quality assurance** According to the PDD, the project's monitoring plan outlines the following: • Data to be monitored; • The organizational structure, roles and responsibilities of personnel; • Monitoring system; • Data collection procedures; • Emergency procedures for the monitoring system; • Quality assurance and quality control; The meter will be properly calibrated and check periodically for accuracy by the third party designated based on the relative standards, such as Technical Administrative Code of Electric Energy Metering (DL/T448-2000)/12/ Sufficient procedures have been identified in the revised PDD and the implementation of those procedures will enable that the emission reductions of the project can be reported and verified ex-post. The management and operation team for the monitoring activity of the project is described in the revised PDD. Thus, the validation team's opinion is that the project owner is able to implement the monitoring plan as described in the PDD. **CL 01**: The monitoring equipments and their locations are not addressed in the section A3 of the PDD version 03, which is not in line with project design document template version 06.0. The section A3 of the PDD was updated to include the monitoring system. Therefore, CL 01 is closed.

Conclusion	The validation team hereby confirms that the monitoring plan is in compliance with the requirements of the methodology and the monitoring arrangements described in the monitoring plan are feasible within the project design and the project participants have ability to implement the monitoring plan.

D.6. Crediting period

Means of validation	CEC reviewed the provided PDD, and registration information in the UNFCCC website to confirm the validity of the second crediting period.
Findings	The first 7-year renewable crediting period is from 04 November 2007 to 03 November 2014. The PP is applying for a second period started from 04 November 2014 to 03 November 2021.
Conclusion	The validation team hereby confirms that the second period started from 04 November 2014 to 03 November 2021 is correct, the 2nd crediting period of the project commences on the day immediately after the expiration of the current(1st) crediting period.

D.7. Project participants

Means of validation	CEC reviewed the provided PDD, and registration information in the UNFCCC website to confirm the project participants.
Findings	Based on the PDD, project participants are Ningxia Shapotou Water Control Co., Ltd. (China), and the buyer, Carbon Asset Management Sweden AB (Sweden, Netherlands, Switzerland). CEC check the website of UNFCCC (http://cdm.unfccc.int/Projects/DB/DNV-CUK1186555872.8/view), it is consistent.
Conclusion	The validation team hereby confirms that project participants are correct.

D.8. Post-registration changes

Type of post-registration changes (PRCs)	**Confirmation** (Y/N)	**Validation report for PRCs**	
		Version	**Completion date**
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	N	N/A	N/A
Corrections	N	N/A	N/A
Inclusion of a monitoring plan to a registered project activity	N	N/A	N/A
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	N	N/A	N/A
Changes to the project design of a registered project activity	N	N/A	N/A
Types of changes specific to afforestation and reforestation project activities	N	N/A	N/A

SECTION E. Internal quality control

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This final validation report including the initial findings underwent a technical review before being submitted to PP and requesting registration of the project activity according to CEC internal procedure. The technical reviewers were not part of the validation team, and the technical review was independently of the validation team. The complete QA/QC procedure applied to this validation report was as follows:

The draft final validation report was issued by CEC on 15/04/2016. After all CARs and CLs were closed, a draft FVR was sent to technical review performed by two (2) technical reviewers according to CEC internal procedure. After reviewing and confirming by TRers, the draft FVR was then finalized and then sent for completeness check carried out by Quality Assurance Management Division (QAD). After correction and confirmed by QAD, the report was verified by the director, and then the report was approved by General Manager.

After confirmation of the PP, the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.

SECTION F. Validation opinion

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China Environmental United Certification Center Co., Ltd (CEC) has performed an assessment of the request for renewal of the crediting period of CDM project activity “Ningxia Shapotou Hydropower Project of Yellow River (UNFCCC Reg.No.1284)”. The assessment was performed in accordance with the “Clean Development Mechanism Validation and Verification Standard (version 09.0) and included an assessment of:

(a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant EB guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period;

(b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

The review of the project design documentation and the subsequent follow-up interviews have been taken by CEC with sufficient evidences to determine the validity of the original baseline and/or its update through an assessment. The project correctly applies the baseline and monitoring methodologies ACM0002 “Grid-connected electricity generation from renewable sources” version 16.0.

The annual emission reductions from the project are estimated to be on the average 334,010 tCO_2e over the selected 7-year renewable crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project’s emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CEC’s opinion that the project participant is able to implement the monitoring plan.

During the validation, there are no any proposed post-registration changes for the next crediting period is found and submitted together with request for renewal of crediting period of the project.

In summary, it is CEC’s opinion that the CDM project activity (UNFCCC No.1284) “Ningxia Shapotou Hydropower Project of Yellow River” as describe in the PDD Version 04 dated 21/04/2016, meets all relevant UNFCCC requirements for the renewal of the crediting period. Hence CEC requests the renewal of the crediting period of the project.

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEC	China Environmental United Certification Center Co., Ltd.
CER	Certified Emission Reductions
CL	Clarification Request
CM	Combined Margin
$CO_{2\ eq}$	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EIA	Environmental Impact Assessment
EF	Emission Factor
PDR	Feasibility Study Report
GHG	Green House Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
LoA	Letter of Approval
MP	Monitoring Plan
N/A	Not Applicable
NDRC	China National Development and Reform Commission(DNA)
NWPG	Northwest China Power Grid
PDD	Project Design Document
OM	Operational Margin
PP	Project Participant
PPA	Power Purchase Agreement
UNFCCC	United Nations Framework Convention for Climate Change
VVS	Validation & Verification Standard

Appendix 2. Competence of team members and technical reviewers

CUI Xiaodong

Qualification in accordance with CEC-4001C-C/1.2 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area (s): 1.1, 1.2

Beijing, 25 Sep 2015

LIU Qingzhi
CDM Supervisor, Technical Director

XUE Jinghua
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ZHANG Huan

Qualification in accordance with CEC-4001C-C/1.2 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area (s): 1.2

Beijing, 25 Sep 2015

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XUE Jinghua
Quality Assurance Management Division

MENG Lingbo

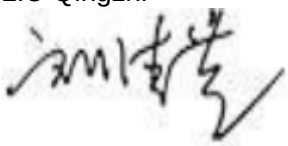
Qualification in accordance with CEC-4001C-C/1.2 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area (s): 1.2

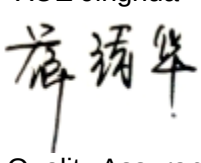
Beijing, 11 Nov 2015

LIU Qingzhi



CDM Supervisor, Technical Director

XUE Jinghua



Quality Assurance Management Division

LIU Qingzhi

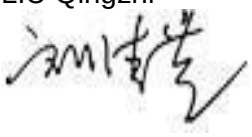
Qualification in accordance with CEC-4001C-C/1.2 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area(s): 1.2, 5.1, 5.2, 11.1, 12.1

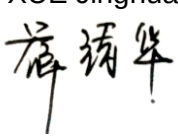
Beijing, 25 Sep 2015

LIU Qingzhi



CDM Supervisor, Technical Director

XUE Jinghua



Quality Assurance Management Division

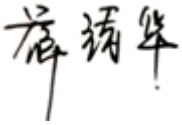
DU Wei

Qualification in accordance with CEC-4001C-C/1 *Operation Instruction for Personal Competence Assessment* for CDM

CDM Auditor: Yes

Industry Sector Expert for Technical Area(s): 1.2

Beijing, 01 Apr 2015

ZHANG Xiaodan	XUE Jinghua
	
CDM Supervisor, Technical Director	Quality Assurance Management Division

Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	PP	Project design document	version 02, dated 20/04/2007 version 03, dated 26/01/2016 version 04, dated 21/04/2016	PP
2	National Developing and Reform Committee	Approval for Feasibility Study Report of Ningxia Shapotou Hydropower Project of Yellow River	dated on 17/03/2001	PP
3	State Environmental Protection Bureau	Approval for Environmental impact assessment of Ningxia Shapotou Hydropower Project of Yellow River	dated on 31/05/2001	PP
4	PP	CER calculation spreadsheet	version 01, dated 21/04/2016	PP
5	China DNA	2014 Baseline Emission Factors for Regional Power Grids in China	dated 11/05/2015	China DNA
6	China Electric Power Yearbook Committee	China Electric Power Yearbook	2009-2014	PP
7	National Bureau of Statistics of China	China Energy Statistical Yearbook	2011-2013	PP
8	IPCC	IPCC Guidelines for National Greenhouse Gas Inventories	2006	IPCC
9	DET NORSKE VERITAS	Registered Validation Report for Ningxia Shapotou Hydropower Project of Yellow River	Report No: 2007-0514	EB
10	EB	Project design document template	version 06.0	EB
11	EB	ACM0002 “Grid-connected electricity generation from renewable sources”	version 16.0	EB
12	National economic and Trade Commission	Technical Administrative Code of Electric Energy Metering	DL/T448-2000	PP
13	EB	Tool to calculate the emission factor for an electricity system	version 05.0	EB
14	EB	Clean Development Mechanism Validation and Verification Standard (VVS)	version 09.0	EB
15	EB	Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”	version 03.0.1	EB
16	PP	The nameplate of generator and turbine of the project	12 April 2016	PP

Appendix 3. Clarification requests, corrective action requests and forward action requests

Table 1. CL from this validation

CL ID	1	**Section no.**	D.5	**Date:** 15/04/2016
Description of CL				
The monitoring equipments and their locations are not addressed in the section A3 of the PDD version 04, which is not in line with project design document template version 06.0.				
Project participant response				**Date:** 20/04/2016
The monitoring equipments and their locations have been addressed in the section A3 of the PDD version 04.				
Documentation provided by project participant				
Revised PDD of Version 04.				
DOE assessment				**Date:** 21/04/2016
The section A3 of the PDD was updated to include the monitoring system. Therefore, CL 01 is closed.				

Table 2. CAR from this validation

CAR ID	N/A	**Section no.**		**Date:**
Description of CAR				
N/A				
Project participant response				**Date:**
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				**Date:**
N/A				

Table 3. FAR from this validation

FAR ID	N/A	**Section no.**		**Date:** DD/MM/YYYY
Description of FAR				
N/A				
Project participant response				**Date:** DD/MM/YYYY
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				**Date:** DD/MM/YYYY
N/A				

Document information

Version	*Date*	*Description*
01.0	23 March 2015	Initial publication.

Version	*Date*	*Description*

Decision Class: Regulatory
Document Type: Form
Business Function: Renewal of crediting period
Keywords: crediting period, project activities, validation report