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Validation Report

N.V. Nuon Energy Trade & Wholesale

VALIDATION OF THE CDM-PROJECT:

DATONG RIVER TIANWANGGOU HYDROPOWER STATION

REPORT NO. 1196430

2009, December 04

TÜV SÜD Industrie Service GmbH

Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

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Subject: Validation of a CDM Project

Accredited TÜV SÜD Unit:	**TÜV SÜD Contract Partner:**
TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany	TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 80686 Munich Germany
Project Participant:	**Project Site(s):**
N.V. Nuon Energy Trade & Wholesale Spaklerweg 20 P.O. Box 41920 Amsterdam The Netherlands	Datong River, Yongdeng County, Gansu Province, China. GPS (dam): 102°44'57"E; 36°42'49"N GPS (powerhouse): 102°46'20"E; 36°39'58"N

Project Title: Datong River Tianwanggou Hydropower Station

Applied Methodology / Version: ACM0002 / Version 07	**Scope(s):** 1 **Technical Area(s):** 1.1

First PDD Version:		**Final PDD version:**	
Date of issuance:	01-05-2008	Date of issuance:	09-07-2009
Version No.:	01	Version No.:	03
Starting Date of GSP	27-05-2008		

Estimated Annual Emission Reduction: 179,797 tCO_2e

Assessment Team Leader:	**Further Assessment Team Members:**
Dr. Sven Kolmetz	Charles Huang Carl Zhou Karin Wagner

Summary of the Validation Opinion:

☒ The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board in case letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.

☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision.

Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small scale
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CR / CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	GreenHouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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INTRODUCTION

1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed project activity against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and will finally result in a conclusion by the executing DOE whether a project activity is valid and should be submitted for registration to the CDM Executive Board (CDM-EB). The ultimate decision on the registration of a proposed project activity rests at the CDM-EB and the Parties involved.

The project activity discussed by this validation report has been submitted under the project title:

Datong River Tianwanggou Hydropower Station

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities the scope is set by:

- The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Decisions and specific guidance by the EB published under http://cdm.unfccc.int
- Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Baselines and monitoring methodologies (including GHG inventories)
- Management systems and auditing methods
- Environmental issues relevant to the sectoral scope applied for
- Applicable environmental and social impacts and aspects of CDM project activity
- Sector specific technologies and their applications
- Current technical and operational knowledge of the specific sectoral scope and information on best practice

The validation is not meant to provide any consulting towards the project participant (PP). However, stated requests for clarifications, corrective actions and/or forwards actions may provide input for improvement of the project design.

Once TÜV SÜD receives a first PDD version, it is made publicly available at the UNFCCC webpage and at TÜV SÜD's webpage for starting a 30 day global stakeholder consultation process (GSP). In case of any request a PDD might be revised (under certain conditions the GSP could be repeated) and the final PDD will form the basis for the final evaluation as presented in this report. Information on the first and the final PDD version is presented in page 1.

The only purpose of a validation is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD cannot be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

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2 METHODOLOGY

The project assessment applies standard auditing techniques to assess the correctness of the information provided by the project participants. The assessment is based on the "Clean Development Mechanism Validation and Verification Manual" version 01. The work starts with appointment of team covering the technical scope(s), sectoral scope(s), technical area(s) and relevant host country experience for evaluating the CDM project activity. Once the project is made available for the stakeholder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified and finally preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before submission to the CDM-EB.

In order to ensure transparency, assumptions are clear and explicitly stated; the background material is clearly referenced. . TÜV SÜD developed methodology-specific checklists and protocol customised for the project. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team and the results from validating the identified criteria. The validation protocol serves the following purposes:

It organises, details and clarifies the requirements a CDM project is expected to meet;

It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation and any adjustment made to the project design.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below.

The completed validation protocol is enclosed in Annex 1 to this report.

Validation Protocol Table 1: Conformity of Project activity and PDD				
Checklist Topic / Question	**Reference**	**Comments**	**PDD in GSP**	**Final PDD**
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further sub-divided. The lowest level constitutes a checklist question / criterion.	*Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any **Request** has to be substantiated within this column*	*Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (☑), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below). **Clarification Request (CR)** is used when the validation team has identified a need for further clarification. **Forward action request** to highlight issues related to project implementation that require review during the first verification.*	*Conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the documentation.*

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests			
Clarifications and corrective action requests	**Ref. to table 1**	**Summary of project owner response**	**Validation team conclusion**
If the conclusions from table 1 are either a Corrective Action, a Clarification or a Forward action Request, these should be listed in this section.	*Reference to the checklist question number in Table 1 where the issue is explained.*	*The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the discussion on and revision to project documentation together with the validation team's responses and final conclusions. The conclusions should be reflected in Table 1, under "Final PDD".*

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	**Id. of CAR/CR 1**	**Explanation of the Conclusion for Denial**
If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.	*Identifier of the Request.*	*This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion with a clear reference to the requirement which is not complied with.*

2.1 Appointment of the Assessment Team

According to the technical scopes /areas and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body (CB) ensuring that the required skills are covered by the team. The CB TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)
- Greenhouse Gas Auditor (GHG-A)
- Greenhouse Gas Auditor Trainee (T)
- Experts (E)

It is required that the sectoral scope/technical area linked to the methodology has to be covered by the assessment team.

Name	Qualification	Coverage of technical scope	Coverage of technical area	Host country experience
Dr. Sven Kolmetz	**ATL**	☑	☑	☑
Charles Huang	GHG-A	☑		☑
Carl Zhou	GHG-A	☑		☑

Name	Qualification	Coverage of technical scope	Coverage of technical area	Host country experience
Karin Wagner	GHG-A	☑	☑	

Dr. Sven Kolmetz is physicist and head of the department "TÜV Carbon Management Service" located in the head office of TÜV SÜD Industrie Service GmbH in Munich, Germany. Furthermore he is officially authorized expert in the verification of GHG emissions in the framework of the European Emission Trading Scheme. Before entering TÜV SÜD he worked as energy consultant for industrial companies and as consultant for the German Federal Government on instruments for the reduction of GHG emissions.

Minglong (Charles) Huang is a lead auditor for both quality management system (ISO9001) and environmental management systems (ISO 14001) in TÜV SÜD China. He is based in Shenzhen. After receiving GHG auditor training course in Germany, he has already involved in several CDM validation and cases.

Carl Zhou was an auditor for environmental management systems (according to ISO 14001) at Jiangsu TUV Product Service Ltd. He was based in Shenzhen. In his position he was responsible for the implementation of validation, verification and certifications audits for management systems. He has received training in the CDM validation process and participated already in several CDM project assessments.

Karin Wagner is an auditor in the "Carbon Management Service" department of TÜV SÜD Industrie Service GmbH in Munich, Germany. She holds a M.Sc. in geological sciences and has gathered experience in environmental consulting before joining TÜV SÜD. Karin Wagner specializes in the assessment of CDM / JI projects in the sector of mining/mineral production, waste handling and disposal as well as renewable energies.

2.2 Review of Documents

A first version of the PDD was submitted to the DOE in May 2008. The first PDD version submitted by the PP and additional background documents related to the project design and baseline were reviewed to verify the correctness, credibility and interpretation of the presented information, furthermore a cross check between information provided and information from other sources (if available) have been done as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

On June 24, 2008 TÜV SÜD performed interviews, telephone conferences and physical site inspection with project stakeholders to confirm relevant information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in this context.

Name	Organisation
Mr. Liu Yong	Vice manager, GEPIC Darong Electric Power Company Ltd.
Mr. Liu Feng	Officer, GEPIC Darong Electric Power Company Ltd.
Mr. Li Jun	Safety leader, GEPIC Darong Electric Power Company Ltd.
Ms. Yang Niu	Engineering leader, GEPIC Darong Electric Power Company Ltd.
Mr. Li Changfu	CDM coordinator, GEPIC Darong Electric Power Company Ltd.

Name	Organisation
Mr. Yang Wenli	Administrator, GEPIC Darong Electric Power Company Ltd.
Ms. Wang Huan	Project manager, DHV
Mr. Bao Sunfu	Local villager
Mr. Qian Caihong	Local villager

2.4 Further cross-check

During the validation process, the team makes reference to available information related to similar projects or technologies as the CDM project activity. The documentation has also been reviewed against the approved methodology/ies applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD`s conclusion on the project design. The CARs and CRs raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in the validation protocol in annex 1.

The final PDD version that was submitted in July 2009 serves as the basis for the final assessment presented herewith. Changes are not considered to be significant with respect to the qualification of the project as a CDM project based on the two main objectives of the CDM, i.e. to achieve a reduction of anthropogenic GHG emissions and to contribute to a sustainable development.

2.6 Internal Quality Control

As final step of a validation the final documentation including the validation report and the protocol have to undergo an internal quality control by the CB “climate and energy”, i.e. each report has to be finally approved either by the head of the CB or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

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

3 SUMMARY

The assessment work and the main results are described below in accordance with the VVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2.

3.1 Approval

The project participants are GEPIC Darong Electric Power Company Ltd. of People's Republic of China and N.V. Nuon Energy Trade & Wholesale of the Netherlands. The host Party China and the participating Annex I Party, i.e. the Netherlands meet the requirements to participate in the CDM.

The DNA of China has issued a LoA (IRL 27) in June 2008 authorizing GEPIC Darong Electric Power Company Ltd. as a project participant. The DNA of the Netherlands has also issued a LoA (IRL 28) on 25 June 2008 authorizing N.V. Nuon Energy Trade & Wholesale as a project participant. TÜV SÜD received these letters from the project participants directly and considers the provided letters as authentic.

The China LoA has further been double-checked with the CDM project webpage sponsored by the Department of Climate Change, NDRC (http://cdm.ccchina.gov.cn), which further confirming the approval of this CDM project.

Furthermore, after checking the provided LoAs, TÜV SÜD confirms that both letters refer to the precise proposed CDM project activity title in line with the title in the PDD "Datong River Tianwanggou Hydropower Station".

Both letters also indicate that each participating Party is a Party to the Kyoto Protocol, and that the participation in the Datong River Tianwanggou Hydropower Station is voluntary. The Chinese LoA also confirms that the proposed CDM project activity contributes to the sustainable development of China (host country). Based on the information given in these letters, TÜV SÜD considers the approval as unconditional with respect to these items.

Both LoAs have been issued by the respective Party's DNA, National Development and Reform Commission of the People's Republic of China and Ministry of Housing, Spatial Planning and the Environment (Netherlands), respectively.

TÜV SÜD considers the requirements of the VVM (§§ 45-48) to be complied with.

The LoA does not specify a version number of the PDD or validation report. The corresponding references included to LoA, PDD and validation report are consistent.

3.2 Participation

The participants of the project activity have been approved by the corresponding Parties, which is confirmed by the issued LoAs.

The means of validation were equivalent to those described in section 3.1 in regard to the approval process of the project activity.

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by UNFCCC.

The most recent version of the PDD form was used.

TÜV SÜD considers that the most recent version of the guidelines for the completion of the PDD was followed. Relevant information was provided by the participants in the PDD sections. Completeness was assessed through the checklist included as Annex 1 of this report.

3.4 Project description

The following description of the project as per PDD could be verified during the on-site audit:

The project activity is a 51 MW hydro power project located in the central part of Gansu Province, with the water intake system located at the Datong River. The project activity is a run-of-river hydro power station, that consists of three HLA551-LJ-215 turbines and three SF-J17-22/4250 generators, of 17 MW each, thereby aggregating to the installed capacity of 51 MW. The generated electricity will be exported to the North-West China Power Grid (NWCPG), through the local grid.

The project activity is expected to have an annual power output of 211,576 MWh with a load factor of 47%. The exported electricity from the project displaces the power generated by the existing power plants and likely capacity additions in the NWCPG, thereby resulting in an estimated emission reduction of 179,797 tCO_2e annually in the fixed 10-year crediting period.

The information presented in the PDD on the technical design is consistent with the actual planing and implementation of the project activity as confirmed by:

- Review of data and information (see annex 2), cross check the same with other sources.
- An on-site visit has been performed and relevant stakeholder and personnel with knowledge of the project were interviewed, in case of doubt further cross checks through additional interviews have been done.
- Finally information related to similar projects or technologies as the CDM project activity have been used to confirm the accuracy and completeness of the project description.

In light of the above, TÜV SÜD confirms that the project description as included to the PDD is sufficiently accurate and complete in order to comply with the requirements of the CDM.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology ACM0002 (Version 07) has been demonstrated.

The assessment was carried out for each applicability criteria and included among others the compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures. This assessment also included the review of secondary sources which sustain that applicability conditions are complied with.

The Methodology specific protocol included to the Annex 1 documents the assessment process, including the steps taken. The results on the compliance check as well as the relevant evidence are explicitly presented in annex 1.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

Emission sources which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reduction have not been identified.

3.5.2 Project boundary

The project boundary was assessed in the context of physical site inspection, interviews and based on the secondary evidence received on the design of the project.

As indicated in the methodology ACM0002 (Version 07), the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to, which was correctly identified as the North-West China Power Grid. The only GHG and emission source included in the project boundary are the CO_2 emissions from the electricity generation in fossil fuel fired power plants that is displaced due to the project activity.

The most relevant documentation assessed in order to confirm the project boundary are following:

- Feasibility Study Report (FSR) (IRL 7), and
- Power Purchase Agreement (IRL 15).

The same have been validated during the validation process using standard audit techniques, further details of any observation are transparently presented in the annex 1.

Hence, TÜV SÜD confirms that the identified boundary and the selected sources and gases as documented in the PDD are justified for the project activity.

3.5.3 Baseline identification

In the PDD the following basline scenario has been defined:

As per the ACM0002 (Version 07) methodology, the baseline is clearly defined for this type of project activity (i.e. installation of a new grid-connected renewable hydro power plant) which is as following.

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.

The information presented in the PDD has been validated by a first document review of all the data, further confirmation based on the on-site visit and a final step by cross checking the information with similar relevant projects and/or technologies. The sources referenced in the PDD have been quoted correctly. The information was cross-checked based on verfiable and credible sources, such as:

- Feasibility Study Report (FSR) (IRL 7), and
- Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135 MW or below (IRL 22), and
- ACM0002 (Version 07).

TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions on calculations TÜV SÜD considers that the identified baseline scenario is reasonable.

TÜV SÜD confirms that all relevant CDM requirements, including relevant and / or sectoral policies and circumstances, have been identified correctly taken into account in the definition of the baseline scenario.

A verfiable description of the baseline scenario has been included to the PDD.

In regard to item 86 of VVM, TÜV SÜD confirms that:

1. All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
2. All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;

3. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
4. Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
5. The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.5.4 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions and leakage and emission reductions. Corresponding calculations were carried out based on calculation spreadsheets. The parameters and equations presented in the PDD and further documentation have been compared with the information and requirements presented in the methodology and respective tools. The equation comparison has been made explicitly following all the formulae presented in the calculation files.

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked and confirmed.

Based on the information reviewed it can be confirmed that the sources used are correctly cuoted and interpreted in the PDD.

The values presented in the PDD are considered reasonable based on the documentation reviewed, further references and the result of the interviews.

The baseline methodology has been correctly applied following the requirements.

The estimated of the baseline emissions can be confirmed as the same have been replicated by the audit team using the information provided.

Detailed information on the verification of the parameters used in the equations can be found in the annex 1. The algorithms for the determination of the baseline, project and leakage are discussed in the following sections.

3.5.4.1 Baseline Emissions

The calculation of the baseline emissions followed the procedures described in the methodology ACM0002 (Version 07).

The operating margin emission factor (EF_{OM}) was determined based on the simple OM method. The ex-ante option was chosen for this calculation. The calculation of the build margin emission factor (EF_{BM}) was based on modified methods agreed by the EB, because plant specific data are not available for China. The emission factor of the thermal power plants was calculated by the proportion of the emissions of coal, gas and oil times the emission factor of the best available coal, gas and oil power plant as defined and published by the Chinese DNA. The new thermal capacity installation that exceeded 20% in the last years, for which data was available, was finally assessed with this factor.

The baseline calculation was based on the published OM/BM calculation process recently issued by the NDRC (China DNA). The values for the EF_{OM} and EF_{BM} were equal compared to the most recent values published by the Chinese DNA at the time of commencement of the validation of this project and are therefore accepted for the calculation of the baseline emissions and the emission reductions.

The value for the combined margin emission factor (EF_{CM}) was determined using the weighted average of the EF_{BM} and EF_{OM} using the default values for the factors as described in the methodology (i.e. 0.5 for hydro plants).

3.5.5 Project emissions

As indicated by the applied methodology, this type of project does not consider project emissions, since the minimum required power density is above the threshold.

3.5.6 Leakage

Not applicable as indicated by the applied methodology.

3.5.7 Emission Reductions

In summary, the calculation of the baseline emissions and the resulting overall emission reductions can be considered as correct.

3.6 Additionality

The additionality of the project has been presented in the PDD by applying the first, second and fourth step as indicated in the "Tool for the demonstration and assessment of additionality" (Version 5).

The approach used in the PDD was assessed first based on a document review, where following relevant documents have been reviewed:

- Feasibility Study Report (FSR) (IRL 7), and
- Investment analysis calculations (IRL 23)

On site, the additionality has been discussed principally with Mr. Liu Yong (Vice manager, GEPIC Darong Electric Power Company Ltd). Furthermore some documents have been reviewed on-site (for details see annex 2).

Finally the data, rationales, assumptions, justifications and documentation provided have been check using local knowledge and sectoral and financial expertise, the same has been cross checked by:

- MoU of CDM development cooperation with DHV (IRL 38), and
- Application and approval of CDM development by Gansu DRC (IRL 11 and 12), and
- Loan approval depends on CDM development (IRL 8).

Based on these validation steps, TÜV SÜD can confirm that the documentation assessed is appropriate for this project.

3.6.1 Prior consideration of the clean development mechanism

The starting date of the project activity is determined by signing the contract for the construction works in October 2005. This was the first real action, when the project owner committed to any expenditure.

In order to confirm the same the assessment team has reviewed the following documents:

- Construction contract (IRL 39), and
- Construction start (IRL 19), and
- Equipment purchase contract (IRL 20), which was signed at a later date than the construction contract, hence, the project starting date which equals the date when the construction contract was signed, is fully in line with recent EB requirements regarding this date.

In addition, the assessment team cross checked this information with Mr. Liu Yong (GEPIC Darong Electric Power Company Ltd) during various discussions on site.

The starting date of the project activity is determined to be 19 October 2005 which is before 02 August 2008 and also before the GSP. The PPs have presented to the assessment team the following documentation:

- The construction contract (IRL 39), newspaper announcement confirming construction start (IRL 19), and the equipment purchase contract (IRL 20) to clearly define the construction contract as the first real action, and
- Application and approval of CDM development from Gansu DRC (IRL 11, 12) as well as CDM development negotiations with DHV (IRL 38), which clearly shows the early CDM consideration.

The original of the documentation presented has been reviewed and cross checked based on interviews with Mr. Liu Yong (GEPIC Datong Electric Power Company Ltd), hence the documents can be considered appropriate to confirm the prior consideration. Additionally, in order to confirm that the PPs have taken real actions to continue the activity as CDM, the following timeline has been reviewed against the respective documents presented in the table below:

Activity	Document	Auditor conclusion
June 2006 CDM Development contract	Copy of signed contract (IRL 41)	This contract clearly indicates that CDM actions were on-going.
July 2006 Proposal from buyer	Copy of proposal (IRL 42)	Negotiations with Nuon as potential buyer clearly indicates on-going CDM actions.
July 2007 MoU	Copy of MoU (IRL 43)	Negotiations between PO and Nuon as the buyer clearly indicates on-going CDM –actions.
January 2008 ERPA	Copy of ERPA (IRL 45)	Signing of ERPA clearly indicates on-going CDM actions.
May 2008 Start of validation	Order to TÜV SÜD, GSP Start (UNFCCC Webpage)	Start of validation work by TÜV SÜD also clearly indicates that CDM actions were still on-going.

Hence the project complies with the requirements to demonstrate the prior consideration of the CDM.

3.6.2 Identifications of alternatives

The output of the project is electricity that is exported to the North-West China Power Grid.

The list of alternatives to supply the outputs mentioned above, which is presented in the PDD includes the project activity undertaken without being registered as CDM project. The rest of the alternatives presented do include all plausible scenarios taking into account the local and sectoral situations for the outputs mentioned. Hence the list of alternatives is considered to be complete.

3.6.3 Investment analysis

The PP uses the investment analysis to demonstrate the additionality. The financial returns of the proposed project are insufficient to justify the investment.

The parameters used in the financial calculations have been validated based on a review of the sources presented in the PDD, inter alia the Feasibility Study Report (FSR) (IRL 7) (investment costs, the O&M costs, annual power generation and supply, etc.). Since the tariff indicated in the FSR was simply calculated back in order to get a reasonable IRR, the tariff for the investment analysis in the PDD was derived from a public notice on the tariff (IRL 46).

These values were confirmed verbally during the site visit. Furthermore, the period of time between the finalization of the FSR and the investment decision is only two months therefore it can be confirmed that it is unlikely that the input values have materially changed. Furthermore based on a cross check with the following documents mentioned below, it can be seen that the parameters are plausible and can be considered acceptable under the project situation.

- Investment Plan (IRL 47), equipment invoices (IRL 49), and construction progress plans (IRL 50), confirming that the actual investment costs were slightly higher than those estimated in the FSR and the investment analysis, and
- Public power price notices (IRL 16 and 46), as well as an electricity invoice from January 2009 (IRL 52), confirming that the applied tariff is plausible, and
- Power generation sheets (IRL 51), indicating that during the first 10 months of operation, less power has been generated than estimated in the FSR.

O&M costs and the plant load factor are well within the typical range and were therefore also deemed to be appropriate by TÜV SÜD.

The annual power production is going down after 15 years of operation by approximately 14% due to some water diversion issues. However, even with no power decrease, the project is still additional with an IRR of 6.51% and therefore still lacking financial attractiveness.

The benchmark used for the financial comparison has been obtained from “Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects” published by the Chinese State Power Corporation (IRL 25). This value has been checked against the source and the suitability for this project can be confirmed as conservative based on TÜV SÜD’s local and sectoral expertise.

Further assumptions presented in the financial analysis, inter alia lifetime and taxes have also been reviewed and were find appropriate based on the FSR and its approval (IRL 7, 8) as well as based on TÜV SÜD’s local and sectoral expertise. Hence it can be confirmed that the underlying assumptions are appropriate for this project.

TÜV SÜD would also like to point out, that even with the total amount of power generated (i.e. 212,000 MWh) being applied for the investment analysis, the IRR remains below the benchmark and the project is still additional.

The sensitivity analysis was analyzed in detail and we herewith confirm that the underlying assumptions, parameters and chosen values are appropriate and that the calculations have been performed correctly.

The financial calculation has been completely checked, all the calculation files were checked and no mistakes have been found. Hence it can be confirmed that the calculations are correct.

3.6.4 Barrier analysis

Barrier analysis was not applied for this project.

3.6.5 Common practice analysis

The region for the common practice analysis has been defined as Gansu Province in Central China: The project activity´s technology can be found in different country regions, where different situations can appear. Hence, the region has been defined taken into account the kind of technology and the

industry type. The assessment team reviewed the approach presented in the PDD and can confirm that the relevant parameters as location, infrastructure, economical situation and development were taken into account in order to define the region to be used for the common practice based on TÜV SÜD's local and sectoral expertise. In summary, the presented region can be considered appropriate for the common practice analysis.

Further on, similar projects were considered as hydropower projects with a capacity between 25 MW and 77 MW and that were installed after 2002, i.e. after the Chinese Power Reform. TÜV SÜD considered the applied capacity range as reasonable, since it is well within the required range (i.e. 51 MW +/- 50%) as indicated in recent request for reviews. The consideration of hydropower projects after 2002 is also deemed appropriate since the investment conditions significantly changed after this reform (IRL 30, 31, 32). In summary, TÜV SÜD considers the defined criteria for similar projects as plausible and appropriate.

The assessment team reviewed official sources such as the China Water Resources/Hydraulics Yearbooks (IRL 26, 48). This information confirms that the list of similar projects presented in the PDD is complete. In addition, the team made a further cross-check of the information based on the interviews.

All similar projects are also applying for CDM or are already registered as CDM projects. This could be confirmed by cross-checking with the UNFCCC webpage.

Hence it can be confirmed that the proposed CDM activity is not a common practice in the defined region.

3.7 Monitoring plan

The monitoring plan presented in the PDD complies with the requirement of the methodology. The assessment team has checked all the parameters presented in the monitoring plan against the requirements of the methodology; no deviations relevant for the project activity have been found in the plan.
The procedures were assessed by the assessment team through document review and interviews with the relevant personnel; this information together with the on-site inspection allows the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The major parameters to be monitored have been discussed with the PPs especially regarding the location of the meters, the data management and in general the quality assurance and quality control procedures to be implemented in the context of the project.

The net power supplied to the NWCPG is measured by national standard electricity metering instruments that are calibrated periodically. The meter is installed at the transformer sub-station. Cross-check meters are also in place at the outlet of the project site (one at each generator outlet, and one to measure the total electricity generated). All meters will have an accuracy of 0.2S. Cross-check measures include the comparison with the actual power sales receipts.

In summary, it is expected that the PPs will be able to implement the monitoring plan and the emission reductions achieved can be reported ex-post and verified.

3.8 Sustainable development

The LoA of the host country clearly presents a statement that the project contributes to the sustainable development of the host Party, i.e. People's Republic of China.

3.9 Local stakeholder consultation

The relevant local stakeholders have been invited via a newspaper announcement in the Gansu Daily, as well as online on the DHV webpage. The evidence of these invitations is IRL 33 and 34. The assessment team reviewed the documentation in order to validate the inclusion of relevant stakeholders and using the local expertise, it can be confirmed that the communication method used to invite the stakeholders can be considered appropriate. The summary of comments presented in the PDD has been cross checked with the documentation of the stakeholders' consultation and is found to be complete.

The relevant comments presented by the local stakeholders have been taken due account by the PP, the same has been cross-checked with the information obtained during the interviews.

In summary, the local stakeholder consultation was adequately performed according to the CDM requirements.

3.10 Environmental impacts

The project participants ordered the Environmental Assessment Research Center of Lanzhou University to prepare an environmental impact assessment (EIA) for this project activity (IRL 13). The assessment team made a document review of the information presented. The IRL 14 (EIA approval by the local Environment Protection Bureau) confirms the correctness of the approach used by the PPs. Hence the PPs followed the requirements of the host country regarding the environmental impacts.

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4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website by installing a link to TÜV SÜD's own website and invited comments by Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

<table>
<tr><td colspan="2">webpage:
http://www.netinform.net/KE/Wegweiser/Guide2_1.aspx?ID=5186&Ebene1_ID=26&Ebene2_ID=1526&mode=1
http://cdm.unfccc.int/Projects/Validation/DB/I42LE06MY0LPYFAFB6044WP34TOGXF/view.html</td></tr>
<tr><td colspan="2">Starting date of the global stakeholder consultation process:
2008-05-27</td></tr>
<tr><td>Comment submitted by:
-</td><td>Issues raised:
none</td></tr>
<tr><td colspan="2">Response by TÜV SÜD:
-</td></tr>
</table>

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5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

Datong River Tianwanggou Hydropower Station

Standard auditing techniques have been used for the validation of the project. Methodology-specific checklists and protocol customised for the project have been prepared to carry out the audit and present the outcome in a transparent and comprehensive manner.

The review of the project design documentation, the subsequent follow-up interviews and the further cross check of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board.

An analysis as provided by the applied methodology demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed following the VVM requirements. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 04-12-2009

Thomas Kleiser
Certification Body “climate and energy”
TÜV SÜD Industrie Service GmbH

Munich, 04-12-2009

Dr. Sven Kolmetz
Assessment Team Leader

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Annex 1: Validation Protocol

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Table 1 Conformity of Project Activity and PDD

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of project activity					
A.1. Title of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	1, 2	The project is titled with the name of the project location and the energy source of the project. Hence, it can be clearly identified. The proposed project's title is Datong River Tianwanggou Hydro-power Station	☑	☑
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	1, 2	The available PDD is indicated as version 01 dated on May 1, 2008.	☑	☑
A.1.3.	Is this consistent with the time line of the project's history?	1, 2	Yes. The same version was published for the GSP at the DOE's website www.netinform.net before the on-site audit. The period for comments is 27 May 08 - 25 Jun 08.	☑	☑
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	1, 2	The proposed project activity is developed by GEPIC Darong Electric Power Company Ltd. And it is a run-of-river hydropower project in Gansu Province, in China. The total installed capacity of the Project will be 51 MW, consisting of three 17MW turbines. The project will annually generate 212,000 MWh and supply electricity to the Gansu Power Grid, finally to the Northwest China Power Grid. **Corrective Action Request1:** 1. Please indicate in A.2. the amount of electricity supplied to the grid and mention the reason(s) for the difference between annual generation and supply to the grid. 2. Please include the following items in the description according to the new CDM-PDD guidelines (EB 41):	CAR1	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			a) The scenario existing prior to the start of the implementation of the project activity should be described (in the project case it should be the same as the baseline scenario). Please state that the scenario existing prior to the start of the implementation of the project activity is the same as the baseline scenario. b) Please make reference to the scenario, emission sources and gases described in A.4.3. and B.3. of the PDD. This should include amongst others information about the run-of-river reservoir.		
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	1, 2, 9, 10, 11, 12, 13, 14, 19, 30,	The following data deliver evidences for the project activity: - Purchasing contracts of turbines and generators (No. 19 of IRL) - Feasibility Study Report and its approval(No. 9, 10, 11 of IRL) - Environmental Impact Assessment (approved by the EPB) (No. 12, 13 of IRL) - Approval of the project confirmation (No. 33 of IRL) - Approval of connection to grid with Gansu province power company (No. 14 of IRL)	☑	☑
A.2.3.	Is the information provided by these proofs consistent with the information provided by the PDD?	1, 2, 19	During the on site audit, the audit team reviewed these proofs provided by the project owner. **Corrective Action Request2:** According to the purchasing contract, the type of the generation units devices is inconsistent with the description in the PDD. Please revise this issue.	CAR 2	☑
A.2.4.	Is all information presented consistent with details provided by further chapters of the PDD?	1, 2	**Corrective Action Request3:** The first crediting period is presented in the section A.2, obviously that is in contradiction with section C.2.2 where the fixed crediting period of max.10 years is chosen as crediting period, please resolve this contradiction.	CAR 3	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A.3. Project participants					
A.3.1.	Is the form required for the indication of project participants correctly applied?	1, 2	The form is correctly applied. In Table A.3-1 and Annex 1 of the PDD the two parties which are involved in the project activity, are indicated. **Corrective Action Request4:** Please still add the following paragraph below Table A.3.1.: (*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.	CAR 4	☑
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	1, 2	The PPs include GEPIC Darong Electric Power Company Ltd (the project owner) and N.v. Nuon Energy Trade & Wholesale(the buyer) **Open Issue:** Pls. deliver the LoA issued by China and the DNA of the investment party, as well as the MoC countersigned by both parties to the DOE before submitting the request for registration.	**Open Issue**	☑
A.3.3.	Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	1, 2	Yes. The main information provided here is consistent with details provided in annex 1. **Corrective Action Request5:** 1. Regarding the Chinese PP: A.3. mentions “Company Ltd.”, whereas Annex 1 states “Limited Company”. Please be consistent. 2. Regarding the PP (buyer): A.3. mentions “v”, whereas Annex 1 states “V”. Please revise.	CAR5	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A.4. Technical description of the project activity					
A.4.1.	*Location of the project activity*				
A.4.1.1.	Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1,2	The proposed project activity is located in the Yongdeng county, Lanzhou city, Gansu Province, People's Republic of China at the lower reaches of the Datong River. **Corrective Action Request6:** The information provided on the location of the project activity doesn't allow for a clear identification of the site, please submit the GPS coordinates of the power house and dam with degree, minute and second format.	CAR 6	☑
A.4.1.2.	How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	1,2, 13, 30	The project was approved by the local Development and Reform Commission and the EIA of the proposed project was approved by the local Environmental Protection Bureau.	☑	☑
A.4.2.	*Category(ies) of project activity*				
A.4.2.1.	To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated?	1,2	Yes, the project falls into scope 1, Energy industries (renewable/ non- renewable sources) as it deals with energy generation.	☑	☑
A.4.3.	*Technology to be employed by the project activity*				
A.4.3.1.	Does the technical design of the project activity reflect current good practices?	1,2	Yes, the project design reflects the current good practices based on the description in the feasibility study report and the investigation on site.	☑	☑
A.4.3.2.	Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	1,2, 19	Yes, the project activity comprises the use of water power for the substitution of grid supplied electricity mainly from coal fired plants. The total 51 MW is installed with 3 generation units There is no doubt that this technology will reduce the GHG emissions significantly.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.3. Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	1,2	No, it doesn't. There is no technology transfer from annex-I countries to China by the proposed project.	☑	☑
A.4.3.4. Is the technology implemented by the project activity environmentally safe?	1,2	Yes. As the project uses similar hydropower technology as already successfully applied in other hydro power projects, it is clear that the technology implemented by the project activity is environmentally safe.	☑	☑
A.4.3.5. Is the information provided in compliance with actual situation or planning?	1,2	The difference between annual power generation and electricity supplied to the grid should be explained. See A.2.1. **Corrective Action Request7:** Please provide the following information in A.4.3. according to the revised CDM-PDD guidelines (EB 41): 1. The scenario existing prior to the start of the implementation of the project activity should be in detail described (in the proposed project case it should be the same as the baseline scenario). Please state that the scenario existing prior to the start of the implementation of the project activity is the same as the baseline scenario. 2. Please include in the equipment description information about: a) average lifetime of the equipment (turbines, generators, meters) based on manufacturer´s specifications and industry standards b) load factor and efficiencies c) information about meters and their location in the system 3. Please include emissions sources and greenhouse gases involved in the project activity, according to the methodology. 4. Please provide information how the electricity would have been supplied to the grid in the absence of the proposed project activity.	See CAR1 CAR7	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.6. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?	1,2	Because the technology of installing a new hydropower plant has been fully developed and successfully implemented over China for decades, the technology applied in the proposed project is not different compared to that of other similar hydropower plants.	☑	☑
A.4.3.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,2	It is not expected that there will be a substitution because the project will be operational in 2009. The life time of the project is under normal circumstances longer than the crediting period	☑	☑
A.4.3.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	1,2	With relevance to the CDM monitoring, a monitoring officer will receive training on the monitoring methodologies, procedures and archiving. Then, the monitoring officer will train the project staff in charge for CDM monitoring.	☑	☑
A.4.3.9. Is information available on the demand and requirements for training and maintenance?	1,2	The effort to train the employees initially and during the operation phase was described by the project owner during the on-site audit and the demand and requirements were defined in written form.	☑	☑
A.4.3.10. Is a schedule available for the implementation of the project and are there any risks for delays?	1,2	The planning schedule in the past and for the future was clearly described by the project owner during the on-site audit, and there are no any risks for delays based on the description of project owner and onsite investigation.	☑	☑
A.4.4. Estimated amount of emission reductions over the chosen crediting period				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?	1,2	Yes. the form required for the indication of projected emission reductions is correctly applied.	☑	☑
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	1,2	Yes, they are. The yearly emission reduction is estimated to amount 179,797 tCO2e. The same figure is quoted throughout the PDD.	☑	☑
A.4.5. Public funding of the project activity				

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.5.1.	Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	1,2	According to the statement in A.4.5. of the PDD there is no public funding for the project activity. By reviewing the financial documents on-site this statement could be verified.	☑	☑
A.4.5.2.	Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	1,2	Yes, it is consistent with the information provided in Annex 2.	☑	☑
B. Application of a baseline and monitoring methodology					
B.1. Title and reference of the approved baseline and monitoring methodology					
B.1.1.	Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1,2,3	Yes, it is ACM0002/Version 07 along with the Tool for the Demonstration and Assessment of Additionality (version 4) and Tool to Calculate the Emission Factor for an Electricity System(version 1). The "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" is not mentioned in B.1. of the PDD, even though ACM0002/version 07 refers to that tool. **Corrective Action Request8:** 1. Please mention the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 2" in B.1. of the PDD. 2. Please update the Tool to calculate the emission factor for an electricity system to version 01.1.	CAR8	☑
B.1.2.	Is the applied version the most recent one and / or is this version still applicable?	1,2,3	Version 7 of ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable source" , and version 1 of Tool to Calculate the Emission Factor for an Electricity System are applied, and they are the most recent ones at the time of uploading for GSP. Version 4 of "the Tool for the Demonstration and Assessment of Additionality" is applied. Even though	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		it is not the most recent version anymore, it is still applicable.		
B.1.3. Does the methodology refer to the following tools with its latest approved versions: - Tool to calculate the emission factor for an electricity system - Tool for the demonstration and assessment of additionality - Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion	1, 2	See B.1.1.	See CAR8	☑
B.2. Justification of the choice of the methodology and why it is applicable to the project activity				
B.2.1. Is the applied methodology considered the most appropriate one?	1,2	Yes, the baseline and monitoring methodology ACM0002 version 7 is applicable to the proposed project, because the project meets all the applicability criteria stated in the methodology.	☑	☑
Fill in the required amount of sub checklists for applicability criteria as given by the methodology applied and comment at least every line answered with "No"				
B.2.2. Criterion 1: Type of electricity capacity addition by grid-connected renewable power generation The following types are possible: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.	1,2	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes	☑	☑
B.2.3. Criterion 2 (in the case of hydro plants): -The project activity is implemented in an	1,2	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes	CAR9	☑

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	existing reservoir, with no change in the volume of reservoir or -The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity is greater than 4 W/m2 or -The project activity results in new reservoirs and the power density of the power plant is greater than 4 W/m2.		Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes The proposed project activity results in new reservoirs and power density is greater than 4W/m2. **Corrective Action Request9:** Please mention in B.2. that the proposed project activity results in a *new run-of-river reservoir.*		
B.2.4.	Criterion 3 (in the case of modification/retrofit in existing power plants): 5 years of historical data (or 3 years in the case of non hydro project activities) are available	1,2	Applicability checklist — Yes / No Criterion discussed in the PDD? N/A Compliance provable? N/A Evidences provided in the PDD? N/A Compliance verified? N/A	☑	☑
B.2.5.	Criterion 4: Defined electricity grid boundaries	1,2	Applicability checklist — Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes	☑	☑
B.2.6.	Criterion 5: Approved inclusion in other methodologies (if applied only)	1,2	Not applicable.	☑	☑
B.2.7.	Criterion 6:	1,2		☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Exclusion of fuel switching activities		Applicability checklist: Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes		
B.2.8. Criterion 7: Exclusion of biomass fired power plants	1,2	Applicability checklist: Yes / No Criterion discussed in the PDD? No Compliance provable? No Evidences provided in the PDD? No Compliance verified? No **Corrective Action Request10:** The exclusion of biomass fired power plants should be discussed in the PDD according to the methodology.	CAR10	☑
B.2.9. Criterion 8: Exclusion of hydro power plants that result in new reservoirs or in the increase in existing reservoirs where the power density of the power plant is less than 4 W/m2.	1,2	Applicability checklist: Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Evidences provided in the PDD? Yes Compliance verified? Yes However, see B.2.3.	See CAR 9	☑
B.3. Description of the sources and gases included in the project boundary				
Integrate the required amount of sub-checklists for sources and gases as given by the methodology applied and comment on at least every line answered with "No"				
B.3.1. Source: Fugitive Emissions from non-condensable gases contained in geothermal steam	1,2	Boundary checklist: Yes / No Source and gas(es) discussed by the PDD? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
(geothermal power plants only) Gas(es): CO_2, CH_4 Type: Project Emissions		Inclusion / exclusion justified? N/A Explanation / Justification sufficient? N/A Consistency with monitoring plan? N/A The project consists of a grid-connected electricity generation from a hydropower station. Thus, B.3.1. is not applicable.		
B.3.2. Source: Emissions from combustion of fossil fuels required to operate the geothermal power plant (geothermal power plants only) Gas(es): CO_2 Type: Project Emissions	1,2	Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? N/A Inclusion / exclusion justified? N/A Explanation / Justification sufficient? N/A Consistency with monitoring plan? N/A The project consists of a grid-connected electricity generation from a hydropower station. Thus, B.3.2. is not applicable.	☑	☑
B.3.3. Source: Emissions from the reservoir (hydro power plants only) Gas(es): , CH_4 Type: Project Emissions	1,2	Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes The power density of proposed project is greater than 10W/m2, thus emissions from the reservoir may be excluded.	☑	☑
B.3.4. Source: Emissions from electricity generation in fossil fuel fired power plants that is displaced due to the project activity Gas(es): CO_2 Type: Baseline Emissions	1,2	Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.3.5. Source: Emissions from electricity generation in fossil fuel fired power plants of any connected electricity system Gas(es): CO_2 Type: Baseline Emissions	1,2	Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? Yes Inclusion / exclusion justified? Yes Explanation / Justification sufficient? Yes Consistency with monitoring plan? Yes	☑	☑
B.3.6. Source: Emissions from electricity generation in fossil fuel fired power plants of imported electricity (project electricity consumption) Gas(es): CO_2	1,2	Boundary checklist / Yes / No Source and gas(es) discussed by the PDD? No Inclusion / exclusion justified? No Explanation / Justification sufficient? No Consistency with monitoring plan? No There are no imports from other power grids. Thus B.3.6 is not applicable.	☑	☑
B.3.7. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by the PDD?	1,2	Yes. The project boundary for the proposed project is represented by the Northwest China Power Grid. The Northwest China Grid is a larger regional grid, which consists of five sub-grids: Shaanxi Province, Gansu Province, Qinghai Province, Ningxia Autonomous Region and Xinjiang Autonomous Region. Furthermore the project boundary includes the project site. However, the requirements according to the new CDM-PDD guidelines (EB 41) are not considered yet. **Corrective Action Request 11:** Please present a flow diagram of the project boundary, physically delineating the project activity, including all the equipments, systems and flows of energy. Please include in the diagram the emis-	CAR11	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
			sion sources and gases included in the project boundary and the monitoring variables.		
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario					
B.4.1.	Is it clearly described that the baseline is represented by the combined margin of the grid the activity will be connected to?	1,2	Yes, the baseline is represented by the combined margin of the grid the activity will be connected to. It is the equivalent annually generated electricity supplied by the Northwest China Power Grid. **Corrective Action Request12:** ● The project's IRR without CDM revenues in the section B.4 is 4.84%, but it is 6.20% in the section B.5 of the GSP-PDD, please resolve the inconsistency. ● Some words in the footnote 1 are wrongly spelled, please correct it.	CAR12	☑
B.4.2.	In case of any modification or retrofit of existing facilities: Is data available to determine the historic production level?	1,2	N/A	☑	☑
B.4.3.	In case of any modification or retrofit of existing facilities: Have conservative assumptions been applied in order to estimate the point in time when the existing equipment needs to be replaced?	1,2	N/A	☑	☑
Changes required for methodology implementation in 2nd and 3rd crediting periods					
B.4.4.	Has the continued validity of the baseline been correctly assessed?	1,2	Not applicable.	☑	☑
B.4.5.	Has the baseline been updated with new data?	1,2	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):				
B.5.1. In case the project activity started before the validation activity, how is demonstrated that the CDM was seriously taken into account for the decision to start the project?	1,2	The project already started before the validation activity based on onsite investigation. **Corrective Action Request13:** The time schedule of the project implementation should be included in the B.5.1 of the PDD. This time schedule should include, where applicable, the date when the investment decision was made, the date when construction works started, the date when commissioning started and events and actions that evidence how CDM was considered in the decision to proceed with the proposed project activity. **Clarification Requests 1.** Please deliver the evidences that demonstrate that the CDM was seriously taken into account for the decision to start the project to the DOE.	CAR13 CR 1	☑
Step 1				
B.5.2. Are alternative scenarios defined that provide outputs or services comparable with the proposed CDM project activity?	1,2	Yes, the defined alternative scenarios provide outputs that are comparable with this project activity.	☑	☑
B.5.3. Can be the list of alternatives considered to be complete, why? Is the scenario project activity without being registered as CDM project included?	1,2	The list can be considered complete, and the proposed project scenario without CDM is included as an alternative.	☑	☑
B.5.4. In case several different facilities, technologies, outputs or services are present in the project, are separately alternative scenarios for each of them	1,2	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	included? Have realistic combinations been considered as project scenario?				
B.5.5.	Describe why the alternative scenarios are credible and realistic?	1,2	All alternatives are common in China. Therefore, they can be considered as plausible and realistic	☑	☑
B.5.6.	Do the alternative scenarios comply with mandatory laws and regulations?	1,2	Only alternative scenario i, iii and iv do comply with the laws and regulations of China	☑	☑
B.5.7.	If an scenario does not comply with the mandatory laws and regulations, it is clearly demonstrate that the law and/or regulation is systematically not enforced in the country?	1,2	All the laws quoted in the PDD are enforced in this project; hence, this section is not applicable.	☑	☑
Step 2 (could be optional if step 3 is used)					
B.5.8.	Is the analysis method identified appropriately?	1,2	3 analysis methods are provided according to the additionality tool. Because the proposed project generates economic benefits through the sales of electricity other than CDM revenue, therefore, the Option I (simple cost analysis) can't be taken. Moreover, the Option II (investment comparison analysis) only applies to projects where alternatives should be similar investment projects, how ever, in this case, the baseline scenario is the Northwest China Grid; hence, Option II can't be adopted either. It deems that Option III (benchmark analysis) is the only applicable one.	☑	☑
B.5.9.	In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income?	1,2	The simple cost analysis is not applicable for the proposed project because the project activity will produce economic benefit (from electricity sale) other than CERs income.	☑	☑
B.5.10.	In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2	Option III (benchmark analysis) is chosen for the investment analysis. So this section is not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.5.11.	In case of use of IRR, it is clearly demonstrated why is equity of project IRR used?	1,2	The project IRR was used in the FSR and PDD.	☑	☑
B.5.12.	In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	1,2,	Yes, the project IRR is selected as the most suitable financial indicator.	☑	☑
B.5.13.	How is demonstrated that the benchmark represents standard returns in the market, considering the specific risk of the project type, but not linked to the subjective profitability The benchmark is to represent standard returns in the market, considering the specific risk of the project type, but not linked to the subjective profitability expectation or risk profile of a particular project developer?	1,2, 24	The benchmark IRR used in the PDD is 8%, and its source is Interim Rules on Economic Assessment of Electrical Engineering Retrofit issued by China Electric Power Press in 2003. **Clarification Requests 2.** 1) Please make explanation in the PDD why this benchmark IRR document and benchmark IRR of 8% can be applied for the proposed project. 2) Please deliver this benchmark IRR document with translation to the DOE.	CR 2	☑
B.5.14.	In case of company internal benchmark, is it clearly demonstrate that there is only one potential project developer and that the benchmark has been consistently used in the past?	1,2	The company internal benchmark is not applied, thus the section B.5.14 is not applicable.	☑	☑
B.5.15.	In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	1,2	**Corrective Action Request15:** 1) The IRR presented in the feasibility study report is 8.0%, but it is 6.20 % in the GSP-PDD, the difference to the FSR IRR should be justified in the PDD. 2) Please justify why the expected CERs price is 8 EUR/tCO2e. 3) Some extra costs mentioned under Unforeseen Cost Increase were occurred after investment decision, but according to the EB 39, these costs can not be taken into account, please de-	CAR15 CR3	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		lete it. **Clarification Requests 3.** 1) The economic assessment presented in the feasibility study report should be provided in English and delivered to the DOE. 2) IRR calculation spreadsheet should be delivered to the DOE, and all data quoted in the sheet should be carefully checked with the data source. 3) The tariff document mentioned in the Table B.5-1 should be delivered to the DOE. 4) The PPA has not been provided to DOE. 5) As the project has been started to operate, the evidence of the real electricity tariff should be delivered to the DOE.		
B.5.16. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	1,2	Please see CAR 9 and CR 3	see CAR 9 and CR 3	☑
B.5.17. Are all assumptions and input data clearly presented, documented, evidenced and consistent with the rest of the PDD?	1,2	Please see CAR 9 and CR 3	see CAR 9 and CR 3	☑
B.5.18. Does the sensitivity analysis shows that the conclusion is robust to reasonable variations in the critical assumptions?	1,2	**Corrective Action Request16:** Please include variation of electricity generation as parameter into sensitivity analysis.	CAR 16	☑
B.5.19. How is demonstrate that this variations have been adequately taken (range is adequate)?	1,2	**Clarification Requests 4.** Justification for the chosen range of the sensitivity analysis should be explained in the PDD.	CR 4	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
Step 3 (is mandatory if step 2 is not used or does not shows additionality)					
B.5.20.	Is a complete list of barriers developed that prevent the different alternatives to occur?	1,2	Not applicable.	☑	☑
B.5.21.	Is transparent and documented evidence provided on the existence and significance of these barriers?	1,2	Not applicable.	☑	☑
B.5.22.	Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	1,2	Not applicable.	☑	☑
B.5.23.	How is confirmed that the CDM does alleviate the barriers presented?	1,2	Not applicable.	☑	☑
Step 4					
B.5.24.	Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD?	1,2	**Corrective Action Request17:** Please include variation of electricity generation as parameter into sensitivity analysis. 1) The justification for selected geographical boundary and capacity boundary should be provided in the PDD. 2) The latest version of Yearbook of China Water Resources should be applied. **Clarification Requests 5.** Reference documents and data sources for the common practice analysis should be delivered to the DOE.	CAR 17 CR 5	☑
B.5.25.	If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component	1,2	See B.5.24, CAR 11 **Clarification Request 6.** It should be clarified why sub-step 4b) mentions "**most** of medium	See CAR 11 CR 6	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	(step 4b)?		scale hydropower projects of Gansu Province…". **All** similar project activities mentioned in Table B.5.5. (beginning construction in 2002 or after) apply for CDM. Please clarify.		
B.6. Emissions reductions					
B.6.1. Explanation of methodological choices					
B.6.1.1.	Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1, 2, 3	The following steps are described in a transparent manner: -Step 1: calculation of emission reduction -Step 2: calculation of baseline emissions -Step 3: calculation of project emissions -Step 4: calculation of leakage emissions.	☑	☑
B.6.1.2.	Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	1, 2, 3	Yes, every selection of options offered by the methodology is correctly justified and this justification is in line with the situation verified on-site.	☑	☑
B.6.1.3.	Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1, 2, 3	Not applicable The project activity is a hydropower project. Therefore, according to the ACM0002 methodology, greenhouse gas emissions from the project activity are zero, i.e. $PE_y = 0$.	☑	☑
B.6.1.4.	Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1, 2, 3	Yes, see Equation in section B.6.1 of the PDD. $BE_y = EG_y \times EF_y$ Yes, the formulae are correctly presented.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.1.5. Is the choice of options to determine the emissions factor (OM, BM) justified in a suitable and transparent manner?	1, 2, 3	Yes, the choice of options to determine the Emission Factor is fully justified in the PDD.	☑	☑
B.6.1.6. Are the six steps as defined per the "Tool for calculation of emission factor for electrical systems" correctly applied by the project participants?	1, 2, 3	Yes, the six steps are correctly applied.	☑	☑
B.6.1.7. In case of alternative weighing factors for the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner?	1, 2, 3	Not applicable. The default weights for hydro power projects in the 7th version of ACM0002 (OM 0.5 and BM 0.5 respectively) are used.	☑	☑
B.6.1.8. In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion?	1, 2, 3	Not applicable. See B.6.1.7.	☑	☑
B.6.1.9. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	1, 2, 3	No leakage emission was determined according to ACM0002, it means: Ly=0.	☑	☑
Tool to calculate project or leakage CO2 emissions from fossil fuel combustion				
B.6.1.10. Is the formula required for the determination of CO2 project emissions from fossil fuel combustion correctly presented, enabling a complete identification of parameter to be used and / or monitored	1,2	Not applicable.	☑	☑
B.6.1.11. Is option A (preferred approach) or option B chosen for the determination of the CO2 emission coefficient COEFi,y and is COE-	1,2	Not applicable.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Fi,y correctly determined?				
B.6.1.12. Are formulae required for the determination of emission reductions correctly presented?	1,2	Yes, see Equation in the section B.6.1 of the PDD. $ER_y = BE_y - PE_y - L_y$	☑	☑
B.6.2. Data and parameters that are available at validation				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	1,2	Yes. A list of parameters is presented according to ACM0002.	☑	☑
B.6.2.2. Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?	1,2	For the calculation of OM and BM factors, the ex-ante approach has been used.	☑	☑
Fill in the required amount of sub checklists for monitoring parameter and comment any line answered with "No"				
B.6.2.3. Parameter Title: GWP_{CH4} Global warming potential of methane valid for the relevant commitment period (tCO2/tCH4)	1,2	Data Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A	☑	☑

<table>
<tr><th colspan="2">CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.6.2.4.</td><td>Parameter Title: $EG_{historical}$ (only applicable to modification/retrofit of an existing grid-connected renewable power plant/unit)
Average of historical electricity delivered by the existing facility to the grid (MWh)</td><td>1,2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Choice of data correctly justified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr></table>The project is a new hydropower plant, hence, this parameter is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.5.</td><td>Parameter Title: $DATE_{BaselineRetrofit}$ (only applicable to modification/retrofit of an existing grid-connected renewable power plant/unit)
Point in time when the existing equipment would need to be replaced in the absence of the project activity</td><td>1,2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Choice of data correctly justified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr></table>The project is a new hydropower plant, hence, this parameter is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.6.</td><td>Parameter Title: EF_{Res} (only applicable to hydro-power plants with reservoir)
Default emission factor for emissions from reservoirs (kgCO2e/MWh)</td><td>1,2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description of parameter?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A The project is a new hydropower plant , and its power density is-greater than 10W/m2, hence, no project emission is considered according to the applied methodology, thus, this parameter is not applicable.		
B.6.2.7. Parameter Title: CAP_{BL} (W) (only applicable to modification/retrofit of an existing grid-connected renewable power plant/unit) Installed capacity of the hydro power plant before the implementation of the project activity. For new hydro power plants, this value is zero.	1,2	Data Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A The project is a new hydropower plant, hence, this parameter is not applicable.	☑	☑

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<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.6.2.8. Parameter Title: A_{BL} (only applicable to hydropower plant projects with reservoir)
Area of the reservoir measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m2). For new reservoirs, this value is zero (m^2).</td><td>1,2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description of parameter?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Choice of data correctly justified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr></table>The project is a new hydropower plant with a new reservoir, hence, this parameter is not applicable.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.9. Parameter Title:
Emission factor of the grid (EF_{CM} in tCO_2/MWh)</td><td>1,2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Choice of data correctly justified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr></table>Corrective Action Request18:
This emissions factor should be included in the table in section B.6.2 of the PDD.</td><td>CAR 18</td><td>☑</td></tr>
<tr><td>B.6.2.10. Parameter Title:
Operating margin (EF_{OM} in tCO_2/MWh) emission factor of the grid</td><td>1,2</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr></table></td><td>CAR 19</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Appropriate description? No Source clearly referenced? No Correct value provided? No Has this value been verified? No Choice of data correctly justified? No Measurement method correctly described? No The simple OM method was chosen to calculate the OM. **Corrective Action Request19:** The OM factor should be included in the table in section B.6.2 of the PDD.		
B.6.2.11. Parameter Title: Build margin (EF_{BM}intCO2/MWh) emission factor of the grid	1,2	Data Checklist / Yes / No Title in line with methodology? No Data unit correctly expressed? No Appropriate description of parameter? No Source clearly referenced? No Correct value provided? No Has this value been verified? No Choice of data correctly justified? No Measurement method correctly described? No $EF_{BM,y}$ is calculated as the generation weighted average emission factor (measured in tCO2e/MWh) of a sample of m power plants. **Corrective Action Request20:** The BM factor should be included in the table in section B.6.2 of the PDD.	CAR 20	☑
B.6.2.12. Parameter Title: $FC_{i,m,y,}$ $FC_{i,y}$, $FC_{i,j,y}$, $FC_{i,k,y}$,	1,2		☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
$FC_{i,n,y}$ and $FC_{i,n,h}$ Amount of fossil fuel type i consumed by power plant / unit m,j,k or n (or in the project electricity system in case of $FC_{i,y}$) in year y or hour h (mass or volume unit)		Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes		
B.6.2.13. Parameter Title: $NCV_{i,y}$ Net calorific value (energy content) of fossil fuel type i in year y (GJ / mass or volume unit)	1,2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes This parameter was correctly described in PDD.	☑	☑
B.6.2.14. Parameter Title: $EF_{CO2,i,y}$ and $EF_{CO2,m,i,y}$ CO2 emission factor of fossil fuel type i in year y (tCO2/GJ)	1,2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Choice of data correctly justified? — Yes Measurement method correctly described? — Yes		
B.6.2.15. Parameter Title: $EG_{m,y}$, EG_y, $EG_{j,y}$, $EG_{k,y}$ and $EG_{n,h}$ 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 or hour h (MWh)	1,2	Data Checklist — Yes / No Title in line with methodology? — Yes Data unit correctly expressed? — Yes Appropriate description of parameter? — Yes Source clearly referenced? — Yes Correct value provided? — Yes Has this value been verified? — Yes Choice of data correctly justified? — Yes Measurement method correctly described? — Yes	☑	☑
B.6.2.16. Parameter Title: $EG_{PJ,h}$ Electricity displaced by the project activity in hour h of year y (in MWh) (only applicabe for the dispatch data OM)	1,2	Data Checklist — Yes / No Title in line with methodology? — N/A Data unit correctly expressed? — N/A Appropriate description of parameter? — N/A Source clearly referenced? — N/A Correct value provided? — N/A Has this value been verified? — N/A Choice of data correctly justified? — N/A Measurement method correctly described? — N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
B.6.2.17. Parameter Title: $\eta_{m,y}$ Average net energy conversion efficiency of power unit m in year y	1,2	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes	☑	☑
B.6.2.18. Parameter Title: fraction of time with low costs /must run plant at the margin (for simple adjusted OM only)	1,2	Data Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided? N/A Has this value been verified? N/A Choice of data correctly justified? N/A Measurement method correctly described? N/A	☑	☑
B.6.3. Ex-ante calculation of emission reductions				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	1,2	Yes, it is.	☑	☑
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	1,2	Yes, they are	☑	☑
B.6.3.3. Is the calculation of the operating margin and build margin emission factors documented electronically in a spreadsheet with the relevant information as defined per the “Tool for calculation of	1,2	Yes, it is documented electronically, but the spreadsheet has not been submitted to the validation team. **Clarification Request 7** Please deliver the spreadsheet of the emissions factor calculation	CR 7	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	emission factor for electrical systems"? Has this spreadsheet been submitted to the validation team?		(operating margin, build margin and combined margin) to the DOE.		
B.6.3.4.	Is the data provided in this section consistent with data as presented in other chapters of the PDD?	1,2	Yes, it is.	☑	☑
B.6.4.	*Summary of the ex-ante estimation of emission reductions*				
B.6.4.1.	Will the project result in fewer GHG emissions than the baseline scenario?	1,2	Yes, the project will result in fewer GHG emissions than the base-line scenario.	☑	☑
B.6.4.2.	Is the form/table required for the indication of projected emission reductions correctly applied?	1,2	Yes, the form is correctly applied.	☑	☑
B.6.4.3.	Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	1,2	The life time of the project is expected to be 25 years and fixed crediting period of 10 is chosen. The yearly emission reduction and total emission reductions are indicated in B.6.4. of the PDD.	☑	☑
B.6.4.4.	Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	1,2	Yes. It is consistent, except the figure of estimation of overall emission reductions for the first year. **Corrective Action Request 21:** Please revise the figure for the first year of estimation of overall emission reductions.	CAR 21	☑
B.7.	**Application of the monitoring methodology and description of the monitoring plan**				
B.7.1.	*Data and parameters monitored*				
B.7.1.1.	Is the list of parameters presented by chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	1,2	Because the ex-ante approach for the calculation of the emissions factor is adopted, the parameters "net electricity fed to the grid", "surface area at full reservoir level", installed capacity" and "total electricity produced by the project activity, including the electricity	See CAR23	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>supplied to the grid and the electricity supplied to internal loads”, are required to be monitored. The latter parameter is not mentioned in B.7.1. of the PDD yet.

See B.7.1.3.</td><td></td><td></td></tr>
<tr><td colspan="5">Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with “No”</td></tr>
<tr><td>B.7.1.2. Parameter Title: EGy
Electricity supplied by the project activity to the grid (in MWh)</td><td>1,2</td><td>The parameter “Electricity supplied by the project activity to the grid, EGy” is indicated in B.7.1. of the PDD through the parameters EGouty (electricity supplied to Northwest China Power Grid) and EGin,y (electricity purchased from Northwest China Power Grid), thus the denomination of the two parameters is more accurate and is accepted. EGy is the difference between EGouty and EGin,y.
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
<tr><td>Correct reference to standards?</td><td>No</td></tr>
<tr><td>Indication of accuracy provided?</td><td>No</td></tr>
<tr><td>QA/QC procedures described?</td><td>Yes</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr>
</table>

Corrective Action Request22:
1) The indication of accuracy, reference to a standard and calibration frequency should be provided.
2) EGout and EGin presented in the column of comments</td><td>CAR 22
CR 8</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>should be EGout, y and EGin,y respectively, and the same mistake is shown up in the section B.7.2, please correct it.
3) The data should be kept for at least 2 years after the end of the fixed crediting period, but not 2 years after the last issuance of CERs for the proposed project activity, please correct it.

Clarificaiton Request 8:
It is not clear to the validation team why the electricity imported from the grid would be considered as project emissions when these emissions are equal to or more than 1% of baseline emissions, please clarify it. Please correct as well in B.7.2.</td><td></td><td></td></tr>
<tr><td>B.7.1.3. Parameter Title: TEGy
Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (in MWh).</td><td>1,2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>No</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided for estimation?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>No</td></tr><tr><td>Indication of accuracy provided?</td><td>No</td></tr><tr><td>QA/QC procedures described?</td><td>No</td></tr><tr><td>QA/QC procedures appropriate?</td><td>No</td></tr></table>
Corrective Action Request23:
The parameter should be added to the table in section B.7.1 of the PDD.</td><td>CAR 23</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.7.1.4. Parameter Title: $EF_{grid,CM,y}$
Combined margin CO2 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” (tCO2/MWh)</td><td>1,2</td><td>Not applicable, as this protocol refers to the ex-ante determination of CM.
<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description of parameter?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.5. Parameter Title: PEFC,j,y
CO2 emissions from fossil fuel combustion in process j during the year y (tCO2/yr). Calculated as per the latest version of the “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion”</td><td>1,2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>N/A</td></tr><tr><td>Data unit correctly expressed?</td><td>N/A</td></tr><tr><td>Appropriate description of parameter?</td><td>N/A</td></tr><tr><td>Source clearly referenced?</td><td>N/A</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

Industrie Service

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.7.1.6. Parameter Title: Cap_{PJ} (only applicable to hydropower plant projects)
Installed capacity of the hydro power plant after the implementation of the project activity (W).</td><td>1,2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.7. Parameter Title: A_{PJ} (only applicable to hydropower plant projects with reservoir)
Area of the reservoir measured in the surface of the water, after the implemenation of the project activity, when the reservoir is full (m^2).</td><td>1,2</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.8. Parameter Title: $w_{Main,CO2}$</td><td>1,2</td><td></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
Average mass fraction of CO_2 in the produced steam tCO2/t steam (for geothermal projects only)		Monitoring Checklist: Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.9. Parameter Title: $w_{Main,CH4}$ Average mass fraction of CH_4 in the produced steam (tCH4/t steam). for geothermal projects only)	1,2	Monitoring Checklist: Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.10. Parameter Title: $M_{S,y}$ Quantity of steam produced during the	1,2	Monitoring Checklist: Yes / No	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
year y. (for geothermal projects only)		Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
Parameters related to the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion"				
B.7.1.11. Parameter Title: Quantity of fuel type i combusted in process j during the year y FCi,j,y	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.12. Parameter title: Weighted average mass fraction of carbon in fuel type i in year y	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
$W_{C,I,y}$		Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.13. Parameter title: Weighted average density of fuel type i in year y $\rho_{i,y}$	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.1.14. Parameter title: Weighted average net calorific value of fuel type i in year y NCVi,y	1,2	Monitoring Checklist — Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A		
B.7.1.15. Parameter title: Weighted average CO2 emission factor of fuel type i in year y $EF_{CO2,i,y}$	1,2	Monitoring Checklist / Yes / No Title in line with methodology? N/A Data unit correctly expressed? N/A Appropriate description of parameter? N/A Source clearly referenced? N/A Correct value provided for estimation? N/A Has this value been verified? N/A Measurement method correctly described? N/A Correct reference to standards? N/A Indication of accuracy provided? N/A QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑
B.7.2. Description of the monitoring plan				
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisoned situation?	1,2	Yes, it is. See B.7.2 of the PDD. However, an organigram about the CDM management structure is not given in the PDD. **Corrective Action Request24:** -Please provide an organigram about the CDM management structure in B.7.2. of the PDD. -What's the means of <u>each plant</u> in the chapter 2 in B.7.2 of provide PDD?	CAR24	☑
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1,2	Yes, the responsibilities and institutional arrangements for data collection and archiving are clearly provided. See B.7.2 of the PDD. However, see B.7.2.1.	See CAR24	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
B.7.2.3.	Does the monitoring plan provide current good monitoring practice?	1,2	**Corrective Action Request25:** 1. Chapter 7 in B.7.2. mentions that EGy is monitored in MWh and shall be measured and recorded hourly and monthly. Besides it is stated, that net electricity exported to the grid shall be measured monthly. However, B.7.1. mentions EGy as a calculated parameter (difference between EGout,y and EGin,y). Please revise this inconsistency. 2. The equation in chapter 8 (B.7.2.) has to be revised, as the data units are not correct. 3. Please make clear in chapter 7 that electricity´s data measurement is hourly and recording is monthly.	CAR25	☑
B.7.2.4.	If applicable: Does annex 4 provide useful information enabling a better understanding of the envisoned monitoring provisions?	1,2	There is no additional information provided in the annex4.	☑	☑
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)					
B.8.1.	Is there any indication of a date when the baseline was determined?	1	Yes, the baseline determination is dated 20/12/2007 according to the PDD.	☑	☑
B.8.2.	Is this consistent with the time line of the PDD history?	1	Yes, it is. See also A.1.3.	☑	☑
B.8.3.	Is the information on the person(s) / entity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	1	Ms. MSc Ir. Malgorzata Sieniuc and Ms. Huan Wang determined the monitoring methodology.	☑	☑
B.8.4.	Is information provided whether this person / entity is also considered a project participant?	1	**Corrective Action Request26:** The information should be provided whether the persons mentioned in the B.8 of the PDD is also considered a project partici-	CAR 26	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		pant.		
C. Duration of the project activity / crediting period				
C.1. Duration of the project activity				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1	The project's starting date is given as 24/10/2005 and the operational lifetime is expected to be 25 years. **Clarificaiton Request 9:** The evidence of the construction starting date should be delivered to the DOE. **Corrective Action Request27:** According to the revised CDM-PDD guidelines (EB41) C.1.1. of the PDD should provide a description of how the project´s starting date has been determined and a description of the evidence available to support this starting date.	CR9 **CAR 27**	☑
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	1	Fixed crediting period of max.10 years is chosen as the crediting period, and it is reasonable because the expected operational lifetime of the project activity is 25 years.	☑	☑
D. Environmental impacts				
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
D.1.1. Has the analysis of the environmental impacts of the project activity been suffi-	1, 12 13	Yes, the environmental impacts of the project activity have been clearly described.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	ciently described?				
D.1.2.	Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	1, 12 13	Yes, the EIA is a must in the P. R. China for new hydro power projects. The EIA of the proposed project was approved by the local Environment Protection Bureau	☑	☑
D.1.3.	Will the project create any adverse environmental effects?	1, 12 13	Referred to the EIA and the approval of EIA, the project will create very minor negative environmental impacts.	☑	☑
D.1.4.	Were transboundary environmental impacts identified in the analysis?	1, 12 13	There is no trans-boundary impact described in EIA report or approval of EIA. **Clarificaiton Request 10:** Please clarify if there are trans-boundary environmental impacts involved with the project activity.	CR10	☑
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party					
D.2.1.	Have the identified environmental impacts been addressed in the project design sufficiently?	1, 12 13	Refer to the EIA and the approval of EIA, there is no adverse environmental impact from the project activity.	☑	☑
D.2.2.	Does the project comply with environmental legislation in the host country?	1, 12 13	Yes, the project is in conformity with the environmental legislation of the P. R. China and the EIA has been approved by authorized organization.	☑	☑
E. Stakeholders' comments					
E.1. Brief description how comments by local stakeholders have been invited and compiled					
E.1.1.	Have relevant stakeholders been consulted?	1, 20	Yes, relevant stakeholders have been consulted in August 2005 and September 2007.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	1, 20	Yes. Questionnaires, newspaper as well as internet have been used to invite comments by local stakeholders.	☑	☑
E.1.3.	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1, 20	There are no regulations/laws in China for carrying out the stakeholder consultation process for this project activity.	☑	☑
E.1.4.	Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	1, 20	Yes, the process is described in a complete and transparent manner.	☑	☑
E.2. Summary of the comments received					
E.2.1.	Is a summary of the stakeholder comments received provided?	1, 20	Yes, a summary of the stakeholder comments received was provided.	☑	☑
E.3. Report on how due account was taken of any comments received					
E.3.1.	Has due account been taken of any stakeholder comments received?	1, 20	Referring to the PDD and filled questionnaires which were gathered from participants and reviewed by the auditor on site, almost all stakeholder comments are positive	☑	☑
F. Annexes 1 – 4					
Annex 1: Contact Information					
F.1.1.	Is the information provided consistent with the one given under section A.3?	1	Yes, it is.	☑	☑
F.1.2.	Is the information on all private participants and directly involved Parties pre-	1	Yes, it is.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	sented?				
Annex 2: Information regarding public funding					
F.1.3.	Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1	No public funding is involved in this project activity.	☑	☑
F.1.4.	If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	1	N.A., see F.1.3.	☑	☑
Annex 3: Baseline information					
F.1.5.	If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	1,2	Yes, the information is consistent with data presented by other section of the PDD.	☑	☑
F.1.6.	Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	1,2	Yes, the data provided is verifiable, and evidence has been provided to the validation team. However, the excel calculation sheet of the emissions factor calculation has not been submitted to the validation team yet. See CR 7	See CR 7	☑
F.1.7.	Does the additional information substantiate / support statements given in other sections of the PDD?	1,2	Yes, it does.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
Annex 5: Monitoring information					
F.1.8.	If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1	No additional background information is provided.	☑	☑
F.1.9.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1	See F.1.8	☑	☑
F.1.10.	Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1	See F.1.8	☑	☑

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Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Corrective Action Request1: 1. Please indicate in A.2. the amount of electricity supplied to the grid and mention the reason(s) for the difference between annual generation and supply to the grid. 2. Please include the following items in the description according to the new CDM-PDD guidelines (EB 41): a) The scenario existing prior to the start of the implementation of the project activity should be described (in the project case it should be the same as the baseline scenario). Please state that the scenario existing prior to the start of the implementation of the project activity is the same as the baseline scenario. b) Please make reference to the scenario, emission sources and gases described in A.4.3. and B.3. of the PDD. This should include amongst others information about the run-of-river reservoir.	A.2.1	1." supply 211,576 MWh (with Auxiliary Power Ratio 2%)" has been added in A.2. 2. text modified	☑ The annual power generation is expected to be 212000 MWh, and 211576 MWh will be supplied to the grid (NWCG). Section A.2 has been revised and is in line with the latest PDD guidelines (version 07), the scenario prior to the implementation of the proposed project, the project scenario and the baseline scenario were indicated. The contribution to sustainable development is also explained in detail.
Corrective Action Request2: According to the purchasing contract, the type of the generation units devices is inconsistent with the description	A.2.3	The types of both generator and turbine units have been revised in the table A.3.1.	☑ The types have been correctly described in the PDD.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
in the PDD. Please revise this issue.			
Corrective Action Request3: The first crediting period is presented in the section A.2, obviously that is in contradiction with section C.2.2 where the fixed crediting period of max.10 years is chosen as crediting period, please resolve this contradiction.	A.2.4	We have deleted the "first" to solve the contradiction.	☑ A fixed crediting period of 10 years has been chosen.
Corrective Action Request4: Please still add the following paragraph below Table A.3.1.: (*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.	A.3.1	This paragraph has been added in the Table A.3.1.	☑ The table format and the required content have been adopted from the latest guidelines.
Corrective Action Request5: --Regarding the Chinese PP: A.3. mentions "Company Ltd.", whereas Annex 1 states "Limited Company". Please be consistent. --Regarding the PP (buyer): A.3. mentions "v", whereas Annex 1 states "V". Please revise.	A.3.3	We modified the Annex 1 to keep consistent. "V" has been revised.	☑ Both parties (host and buyer) were consistently indicated throughout the PDD.
Corrective Action Request6:	A.4.1.1	The exact geographical coordinates of	☑

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
The information provided on the location of the project activity doesn't allow for a clear identification of the site, please submit the GPS coordinates of the power house and dam with degree, minute and second format.		the proposed project have been added in section A.4.1.1. The geographical coordinates of the dam are 102º44'57" E and 36º42'49" N, and the geographical coordinates of the powerhouse are 102º46'20" E and 36º39'58" N.	The provided GPS coordinates were double-checked with Google Earth and found to be realistic.
Corrective Action Request7: Please provide the following information in A.4.3. according to the revised CDM-PDD guidelines (EB 41): 1. The scenario existing prior to the start of the implementation of the project activity should be in detail described (in the proposed project case it should be the same as the baseline scenario). Please state that the scenario existing prior to the start of the implementation of the project activity is the same as the baseline scenario. 2. Please include in the equipment description information about: a) average lifetime of the equipment (turbines, generators, meters) based on manufacturer´s specifications and industry standards b) load factor and efficiencies c) information about meters and their location in the system	A.4.3.5	**First response:** 1,3,4. text added/modified. 2.The lifetime of the equipments is not shown in manufacturer's specifications and industry standards, so the estimated lifetime of the project is 25 years referring to the FSR. **Second response (wrt follow-up 1):** Text modified.	☑ **Follow-up 1:** As per the latest PDD guidelines, this section should be also further explained the purpose of the project activity, as described in section "A.2. Description of the project activity", taking the information provided in that section as a basis and including a detailed description of: (a) The scenario existing prior to the start of the implementation of the project activity, with a list of the equipment(s) and systems in operation at that time; (b) The scope of activities/measures that are being implemented within the project activity, with a list of the equipment(s) and systems that will be installed and/or modified within the project activity; (c) The baseline scenario, as identified in section "B.4 Description of how the baseline scenario is identified and description of the identified baseline scenario", with an indicative list of the equipment(s) and systems that would have been

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
3. Please include emissions sources and greenhouse gases involved in the project activity, according to the methodology. 4. Please provide information how the electricity would have been supplied to the grid in the absence of the proposed project activity.			in place in the absence of the project activity. The description of the scenarios should include, inter alia: (a) A list and the arrangement of the main manufacturing/production technologies, systems and equipments involved. Include in the description information about the age and average lifetime of the equipments based on manufacturer's specifications and industry standards, and existing and forecast installed capacities, load factors and efficiencies. The monitoring equipments and their location in the systems is of particular interest; (b) The emissions sources and the greenhouse gases involved in the project activity, according to the methodology used; and existing and forecast energy and mass flows and balances of the systems and equipments included in the project activity; (c) The types and levels of services (normally in terms of mass or energy flows) provided by the systems and equipments that are being modified and/or installed under the project activity and their relation, if any, to other manufacturing/production equipments and systems outside the project boundary. The types and levels of services provided by those manufacturing/production systems and equipments outside the project boundary may also constitute important parameters of the description. The description should clearly explain how the same types

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
			and levels of services provided by the project activity would have been provided in the baseline scenario. **Conclusion:** This section of the PDD was revised and is now in line with latest PDD guidelines.
Corrective Action Request8: --Please mention the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 2" in B.1. of the PDD. --Please update the Tool to calculate the emission factor for an electricity system to version 01.1.	B.1.1	1. The "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 2" have been added in B.1. of the PDD. 2. "Tool to calculate the emission factor for an electricity system" has been updated to version 01.1.	☑ The correct methodology and version that is used as well as any tools which the approved methodology draws upon were indicated in the revised PDD.
Corrective Action Request9: Please mention in B.2. that the proposed project activity results in a *new run-of-river reservoir.*	B.2.3	"The project activity results in new reservoirs." Has been added in section B.2.	☑ All necessary applicability criteria have been discussed in the latest PDD.
Corrective Action Request10: The exclusion of biomass fired power plants should be discussed in the PDD according to the methodology.	B.2.8	The exclusion of biomass fired power plants have been discussed in the PDD according to the methodology.	☑ All necessary applicability criteria have been discussed in the latest PDD.
Corrective Action Request 11: Please present a flow diagram of the project boundary, physically delineating the project activity, including all the equipments, systems and flows of	B.3.7.	**First response:** A flow diagram of the project boundary, physically delineating the project activity, based on the descriptions provided in section "A.4.3, has been add-	☑ **Follow-up 1:** The flow diagram is missing the emission sources and gases as well as the monitoring variables. Please include.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
energy. Please include in the diagram the emission sources and gases included in the project boundary and the monitoring variables.		ed in the section B.3. **Second response (wrt follow-up 1):** The emission sources have been indicated in the table. Monitoring variables have been given in B.6. Because the diagram was not very clear and the necessary data has already been included in the PDD, the diagram has been removed. **Third response (wrt follow-up 2):** A flow diagram included emission sources and gasses/monitoring variables has been added to the PDD.	**Follow-up 2:** The flow diagram is required by the new PDD guidelines, please include. **Conclusion:** Flow diagram and boundary is included in the latest PDD.
Corrective Action Request12: --The project's IRR without CDM revenues in the section B.4 is 4.84%, but it is 6.20% in the section B.5 of the PDD, please resolve the inconsistency. --Some words in the footnote 1 are wrongly spelled, please correct it.	B.4.1.	**First response:** 1. The inconsistency has been solved. The project's IRR without CDM revenues has been modified to 6.00%, for some calculation parameters of the 6.20% were not consistent with its FSR. 2. The misspelled words have been corrected. **Second response (wrt follow-up 1):** Please see the modified text in the PDD. The alternative of other renewable sources has been added to the PDD.	After thorough review of the revised PDD, the IRR calculation sheet and the information in the FSR, the audit team confirms that the presented data is now fully consistent. All the parameters are derived from the FSR (except the tariff, see also the discussion in the PDD), which was the basis of the decision to proceed with the investment in the project. The IRR was revised to 6% consistently throughout the PDD after removing various price fluctuation parameters that were also not indicated in the FSR. However, **Follow up 1:** According to the PDD, alternative iv (other renewable energy sources) is not realistic due to

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
			the lack of these sources. Please provide evidence and indicate in the PDD. Potential other renewable energy sources and the lack of these sources is discussed in the latest PDD.
Corrective Action Request13: The time schedule of the project implementation should be included in the B.5.1 of the PDD. This time schedule should include, where applicable, the date when the investment decision was made, the date when construction works started, the date when commissioning started and events and actions that evidence how CDM was considered in the decision to proceed with the proposed project activity.	B.5.1.	**First response:** The proof on early consideration of CDM in the project, as well as the time schedule, have been provided to the DOE as apart documents, as requested in the PDD Guidelines. **Second response (wrt follow-up 1):** Because there are many companies involved in the construction phase, such as transport local companies, iron suppliers, or parts of the equipment suppliers, the CDM developer did not asked for the detailed list of the contractors. Only most relevant bottlenecks of the project development have been included. If TUV SUD still wants a list of the contractors, the project owner will deliver it on special request. In 2006 had the CDM developer (DHV BEEC) regular contact with diverse validators and has got offers from TUR-R., DNV, SGS. Meanwhile DHV was searching for a buyer of the credits, contacting among others Eni, Tricoro-	☑ **Follow-up 1:** The date when the equipment purchase contract was signed as well as the date when the contract was signed with the construction companies should be added to the timeline table in the PDD. What happened between June 2006 and June 2008? Why did it take more than 18 months to contact TÜV SÜD for validation? **Follow-up 2:** The starting date of the project activity should be in line with the first real action when the PO committed to any expenditure. Hence, when was the first contract signed that clearly indicates that the PO agreed on spending any money? In addition, the project starting date is not consistent in the PDD (B.5 and C.1). If construction was started on October 24, 2005, the PO probably signed a contract with the construction company. When was this contract signed? In addition, please add additional actions to the timeline table that indicate that CDM actions were still on-going in parallel with the project implementation. Evidences should be submitted to

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
		na and few more. DHV had to go through a long way of negotiations concerning payments for CDM development and later ERPA's. Finally the contracts have been closed with a Dutch energy company Nuon, but because the company has no representation in China, the process was not efficient and time consuming. 1,5 year for the whole process is rather normal in these circumstances. After the ERPA's have been closed, the buyer of the carbon credits has decided to accept the offer of TUV SUE and to start the validation procedure. **Third response (wrt follow-up 2):** - The date of 19 October 2005 was the starting date on which the project owner signed the construction contract. Therefore this date is considered as a correct starting date of the project/CDM activity. - Additional actions added; the evidence sent with this document - Publication FSR August 2005	TÜV SÜD. See EB41, Annex 46 regarding CDM consideration. When was the FSR published? The PDD indicates August 2005 on page 14, and August 2006 on page 10. Please clarify. **Conclusion:** The timeline issues can be considered as clarified. The milestones and the project starting date is clearly presented in the PDD.
Corrective Action Request15: 1) The IRR presented in the feasibility study report is 8.0%, but it is 6.20 % in the PDD, the difference to the FSR IRR should	B.5.15	**First response:** 1) The difference is from the tariff in the IRR analysis. In the FSR the tariff is 0.2710(incl. VAT) based on previous	☑ **Follow-up 1:** Since the project is already operational, please provide evidence to demonstrate how much

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
be justified in the PDD. 2) Please justify why the expected CERs price is 8 EUR/tCO2e. Some extra costs mentioned under Unforeseen Cost Increase were occurred after investment decision, but according to the EB 39, these costs can not be taken into account, please delete it.		expectations of the project owner. However in the PDD, the IRR analysis are based on the tariff that was legally bounded by the Chinese Government, which is 0.227(incl. VAT) 2) We have changed the CER price to 10.85 USA$/CER referencing to ERPA. 3) The extra cost has been deleted. **Second response (wrt follow-up 1):** The actual costs of the investment have not been included in the PDD, where the base document is FSR with estimated investment. As far as known these costs are higher than expected. And overview has been provided in apart document to the validator. The PPA document has already been provided to TUV SUD. The fixed tariff is most conservative seen the inflation in China. It is too difficult to estimate in a realistic way the development of the tariffs seen the HPP is placed in poor developed region. **Third response (wrt follow-up 2):**	money has been spent for the construction and the equipment. What tariff is indicated in the PPA? What is the real tariff? Please provide TÜV SÜD with a copy of the [2004]1125 document indicating the applied tariff for the investment analysis. Why do you consider the application of a fixed value for the tariff as appropriate? **Follow-up 2:** "As far as known these costs are higher than expected. And overview has been provided in apart document to the validator." No documents have been submitted so far! **Follow-up 3:** Please explain why the power generation is decreasing after 15 years. **Conclusion:** Relevant documents were provided (see Annex 2). Even with no power decrease after 15 years the project still remains additional, hence it was accepted by the DOE.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
		Documents submitted. **Fourth response (wrt follow-up 3):** In the FSR, Chapter 4 "Task and Scale of the Project", Section 4.2 (Hydropower calculation), is written: The integrated water use of the upstream Datong River includes two parts: one is water use in agriculture, forestry, animal husbandry, industry and urban water; the other part is Da-to-Qin Water Diversion (this means transfer water of Datong River to Qin area), Liu-to-Jin Water Diversion, Da-to-Huang Water Diversion, the three water diversion projects. The water used for generation is calculated with the following equation: water used for generation = (natural runoff) - (integrated water use of the above two parts) - (eco-runoff). The integrated water use is expected to increase after 2020, which leads to the decrease in water available for generation and thus annual generation will be reduced. Why is the integrated water use expected to increase after 2020? The FSR said the design water diversion of "Da-to-Qin Water Diversion" is 443 MIL	

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
		m3 to solve the irrigation problem of Qinwangchuan area. But due to the policy of conversion of farmland to forest, the diversion water decreased, which is 148 MIL m3 (1/3 of the design water diversion). The FSR used the present data 148 MIL m3 to calculate the water used for generation before 2020, and used the design water diversion 443 MIL m3 to calculate after 2020. Da-to-Huang Water Diversion also caused a similar impact. So in conclusion, guaranteed output of Tianwanggou project is 7.2MW (212,000MWh, 4157h) before 2020, and is 4.3MW (183,000MWh, 3579h) after 2020.	
Corrective Action Request16: Please include variation of electricity generation as parameter into sensitivity analysis.	B.5.18.	**First response:** Variation of electricity generation is added as parameter into sensitivity analysis. **Second response:** Corrected.	☑ **Follow-up 1:** The results of the sensitivity analysis in the IRR xls file do not match with the results indicated in the PDD. Please revise and be consistent. **Conclusion:** The results are consistent now.
Corrective Action Request17: Please include variation of electricity generation as parameter into sensitivity analysis.	B.5.24.	**First response:** 1) The justification for selected geographical boundary and capacity boundary has been provided in the	☑ **Follow-up 1:** Please explain in the PDD why 0.5 to 1.5 times of 51 MW is taken as a range of similar capacity. Which notice/document refers to this range? How

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
--The justification for selected geographical boundary and capacity boundary should be provided in the PDD. --The latest version of Yearbook of China Water Resources should be applied.		PDD. 2) In the latest version of the Yearbook of China Water Resources, there is not the same information of the hydropower plants in Gansu. We could not find the data of hydropower plants in other published documents either. So we have to use this old version as data source. **Second response:** The Chinese Ministry of Water Resources has established codes for evaluating HP projects. In this case it has been referred to the document SL16-95. The list has been based on available at the moment of writing the PDD list provided in the Yearbook of China Water Resources, edition 2006. All calculations have been based on data from 2006.	have these factors been determined? The list is not complete, e.g. Haidianxia and others are missing. Please provide a complete list. Otherwise, please provide evidence that there is not a single hydropower plant in Gansu province that does not run under CDM. **Conclusion:** Criteria for similar projects are clearly defined, the provided list can be considered as complete.
Corrective Action Request18: This emissions factor should be included in the table in section B.6.2 of the PDD.	B.6.2.9	This parameter has been added to the table in section B.6.2 of the PDD.	☑
Corrective Action Request19: The OM factor should be included in	B.6.2.10.	This parameter has been added to the table in section B.6.2 of the PDD.	☑

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
the table in section B.6.2 of the PDD.			
Corrective Action Request20: The BM factor should be included in the table in section B.6.2 of the PDD.	B.6.2.11.	This parameter has been added to the table in section B.6.2 of the PDD.	☑
Corrective Action Request 21: Please revise the figure for the first year of estimation of overall emission reductions.	B.6.4.4	The figure has been changed.	☑ Yes. It was corrected. Consistent figures have been applied throughout the PDD.
Corrective Action Request22: 1) The indication of accuracy, reference to a standard and calibration frequency should be provided. 2) EGout and EGin presented in the column of comments should be EGout, y and EGin,y respectively, and the same mistake is shown up in the section B.7.2, please correct it. 3) The data should be kept for at least 2 years after the end of the fixed crediting period, but not 2 years after the last issuance of CERs for the proposed project activity, please correct it.	B.7.1.2	**First response:** 1) The accuracy, 1 kWh, has been provided. 2) Corrected 3) Corrected **Second response (wrt follow-up 1):** The statement of accuracy of 1kWh has been removed. No such parameter has been provided by the project owner. The accuracy has been further down indicated. 2 years after the end of the fixed crediting period. PDD corrected. Because the project aim renewable energy generation, the project owner has been obligated to purchase energy from renewable sources in case of any technical failure of his own hydropower	☑ **Follow up 1:** What do you mean by 1kWH? What is the basis? Please revise or provide evidence that the meter is really indicating an accuracy of 1 kWh. This is also not consistent with the accuracy indicated further down in the PDD. What do you mean by: "The data will be kept for at least 2 years after the end of the fixed crediting period, but not 2 years after the last issuance of CERs for the proposed project activity". That is a contradiction, so please clearly specify how long you will keep the data. Please further clarify if there is any back-up diesel generator on site if no power is imported from the grid at all. Furthermore, M1 measured power imported and exported from/to the grid. This is not in line with the info given in the table above in B.7.1. **Conclusion:**

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
		plant. Therefore, there is no diesel engine installed and also no electricity will be purchased from the grid.	The monitoring measures are clearly described.
Corrective Action Request23: The parameter should be added to the table in section B.7.1 of the PDD.	B.7.1.3	The parameter have been added to the table in section B.7.1 of the PDD	☑ The list of parameters can be considered as complete.
Corrective Action Request24: -Please provide an organizational chart about the CDM management structure in B.7.2. of the PDD. -What's the means of <u>each plant</u> in the chapter 2 in B.7.2 of provide PDD?	B.7.2.1	"Figure B.7.2-1 Management structure for monitoring' have been added to show the CDM management structure in B.7.2. We have delete "each" to correct it.	☑ Yes, it was corrected. However, see CAR22.
Corrective Action Request25: 1. Chapter 7 in B.7.2. mentions that EGy is monitored in MWh and shall be measured and recorded hourly and monthly. Besides it is stated, that net electricity exported to the grid shall be measured monthly. However, B.7.1. mentions EGy as a calculated parameter (difference between EGout,y and EGin,y). Please revise this inconsistency. 2. The equation in chapter 8 (B.7.2.) has to be revised, as the data units are not correct. 3. Please make clear in chapter 7 that electricity´s data measurement is	B.7.2.3.	1. the inconsistency has been solved. 2. the equation has been corrected. 3. "electricity data measurement is hourly and recording is monthly." Is added.	☑ All inconsistencies have been revised, and the equations are in line with the methodology.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
hourly and recording is monthly.			
Corrective Action Request26: The information should be provided whether the persons mentioned in the B.8 of the PDD is also considered a project participant.	B.8.4	"The person/entity is not project participant listed in Annex 1." Has been added to this section.	☑ Yes. It was corrected.
Corrective Action Request27: According to the revised CDM-PDD guidelines (EB41) C.1.1. of the PDD should provide a description of how the project´s starting date has been determined and a description of the evidence available to support this starting date.	C.1.1.	**First response:** The description of how the project's starting date has been determined and a description of the evidence available to support this starting date have been added in the Section C.1.1. **Second response:** August 2005, the date of the publication of the first FSR. C.1.1 corrected.	☑ **Follow-up 1:** This is not consistent with the information given in B.5. Please revise and be consistent. **Conclusion:** See follow-up wrt CAR13.
CRs:			
Clarification Request 1: Please deliver the evidences that demonstrate that the CDM was seriously taken into account for the decision to start the project to the DOE.	B5.1.	The evidence will be : 1) Loan Intent Letter on the Datong River Tianwanggou Hydropower Station Project 2) The Referendum on the Application of CDM Development of Tianwanggou Hydropower Station 3) The approval on application of the CDM development of Tianwanggou hydropower station by Gansu DRC. 4) Minutes of meeting of GEPIC Darong Electric Power Company	☑ The evidences have been provided (IRL Ref. No.8, 11, 12 respectively).

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Clarification Request 2: --Please make explanation in the PDD why this benchmark IRR document and benchmark IRR of 8% can be applied for the proposed project. --Please deliver this benchmark IRR document with translation to the DOE.	B.5.13	1) With reference to *Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects*, the benchmark of the China Power Industries is to be 8% of the total investment. Although the book said there are no unified and clear guidelines or laws for the benchmark for China Power Industry, 8% as the benchmark for the total investment has been the common practice in the China Power Industry. Besides, the Economic Evaluation Method and Parameters for Construction Projects as a reference for the *Feasibility Study Report of Tianwanggou hydropower engineering*, also define 8% as the benchmark for the hydropower project. The proposed project is a newly built hydropower project, so it also adopts 8% as the benchmark for total investment IRR. 2) Benchmark IRR document have been delivered to the DOE.	☑ The applied benchmark is commonly used in China and is also applicable to this type of project.
Clarification Request 3: --The economic assessment presented in the feasibility study report should be provided in English and delivered to the DOE. --IRR calculation spreadsheet should be delivered to the DOE, and all data	B.5.15	1) The economic assessment has been provided to DOE 2) IRR calculation spreadsheet has been delivered to the DOE, and all data quoted in the sheet have been carefully checked with the data source. 3) the tariff document have been deli-	☑ Yes, the documents were provided to TÜV SÜD (IRL Ref. No: 25, 23, 16, 15).

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
quoted in the sheet should be carefully checked with the data source. --The tariff document mentioned in the Table B.5-1 should be delivered to the DOE. --The PPA has not been provided to DOE. --As the project has been started to operate, the evidence of the real electricity tariff should be delivered to the DOE.		vered to DOE 4) the PPA has been delivered to DOE 5) the real electricity tariff has been delivered to DOE	
Clarification Request 4: Justification for the chosen range of the sensitivity analysis should be explained in the PDD.	B.5.19.	The 10% variation rang is common rule in the sensitivity analysis and is used in the FSR of the project. On the other hand, the financial plan will be carried out within 3 years, and the variation will be limited within these years. If we assume that the variation range is out of the 10%, it is impossible that the total investment and the operation cost got lower for the increase trend of the price. And according to the tariff policy of Gansu(which fix the tariff since 2004) and government's policy to control the price, it is also impossible to increase the tariff out of 10%. Last, the annual power supply is based on long series of hydrology data, and is impossible to increase out of 10%.	☑ As per the latest investment analysis guidance, +/-10% is the minimum requirement for the sensitivity analysis, which is met for this project.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Clarification Request 5: Reference documents and data sources for the common practice analysis should be delivered to the DOE.	B.5.24.	Reference documents and data sources have been delivered to the DOE.	☑ Yes, see IRL No. 26. However, see also follow-ups in B.5.
Clarification Request 6. It should be clarified why sub-step 4b) mentions "**most** of medium scale hydropower projects of Gansu Province…". **All** similar project activities mentioned in Table B.5.5. (beginning construction in 2002 or after) apply for CDM. Please clarify.	B.5.25.	The clarification has been made in the PDD.	☑ The historical boundary has been clearly discussed in the latest PDD.
Clarification Request 7 Please deliver the spreadsheet of the emissions factor calculation (operating margin, build margin and combined margin) to the DOE.	B.6.3.3.	The calculations have been provided by the Chinese authorities for climate change and details have been published on the website http://cdm.ccchina.gov.cn/ Project developer has no reason to bring the calculations into any doubt and therefore the margins were not recalculated.	☑ Yes, the operating margin, build margin and combined margin were shown there.
Clarification Request 8: It is not clear to the validation team why the electricity imported from the grid would be considered as project	B.7.1.2.	We have deleted the 1% part to correct it.	☑ As per the methodology, this project does not need to consider project emissions.

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
emissions when these emissions are equal to or more than 1% of baseline emissions, please clarify it. Please correct as well in B.7.2.			
Clarification Request 9: The evidence of the construction starting date should be delivered to the DOE.	C.1.1.	the Gansu's Daily has been delivered to DOE.	☑ Yes, see IRL Ref. No.19.
Clarification Request 10: Please clarify if there are trans-boundary environmental impacts involved with the project activity.	D.1.4.	There are no trans-boundary environmental impacts involved with the project activity.	☑ This is in line with the information given in the EIA.

Industrie Service

Annex 2: Information Reference List

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in CDM Context)
1.	01/05/2008	PDD of "Datong River Tianwanggou Hydropower Station", Version: 01	PP	PDD for GSP
2.	30/11/2007	Approved consolidated baseline and methodology "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", ACM0002 – Version 07	UNFCCC	
3.	26/08/2008	Tool for the demonstration and assessment of additionality, Version 05.2	UNFCCC	
4.	29/07/2008	Tools to calculate the emission factor for an electricity system, Version 01.1	UNFCCC	
5.	24/06/2008	Participant list of on-site interviews	TÜV SÜD	
6.	24/06/2008	On-site interviews at the office of GEPIC Darong Electric Power Company Ltd: Validation team: Mr. Carl Zhou Jiangsu TÜV Product Service Ltd., Shenzhen Branch Interviewed persons: Mr. Liu Yong Vice manager, GEPIC Darong Electric Power Company Ltd. Mr. Liu Feng Officer , GEPIC Darong Electric Power Company Ltd. Mr. Li Jun Safety leader, GEPIC Darong Electric Power Company Ltd. Ms. Yang Niu Engineering leader, GEPIC Darong Electric Power Company Ltd. Mr. Li Changfu CDM coordinator, GEPIC Darong Electric Power Company Ltd. Mr. Yang Wenli Administrator, GEPIC Darong Electric Power Company Ltd. Ms. Wang Huan Project manager, DHV Mr. Bao Sunfu Local villager Mr. Qian Caihong Local villager	TÜV SÜD	
7.	August 2005	Feasibility Study Report of "Datong River Tianwanggou Hydropower Station"; Version 1	Northwest Hydro Consulting Engineers, CHECC	
8.	13/09/2005	Loan Intent Letter on the Datong River Tianwanggou Hydropower Station Project	Lanzhou Electricity Power Branch of China Construction Bank	Early CDM Consideration

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in CDM Context)
9.	15/09/2005	Approval of Feasibility Study Report of "Datong River Tianwanggou Hydropower Station"	DRC of Gansu Province	
10.	19/09/2005	Meeting Records of the Board of Director of GEPIC Darong Electric Power Company Ltd.; Ganrongdiansiji[2005]18	GEPIC Darong Electric Power Company Ltd	Early CDM Consideration
11.	20/09/2005	The Referendum on the application of CDM development of Tianwanggou hydropower station	GEPIC Darong Electric Power Company Ltd	Early CDM Consideration
12.	22/09/2005	Local DRC approval letter to approve the proposed project as a CDM project	DRC of Gansu Province	Early CDM Consideration
13.	September 2005	Environmental Impact Evaluation Report of "Datong River Tianwanggou Hydropower Station"	Lanzhou University	
14.	20/09/2005	Approval letter of Environmental Impact Evaluation Report of "Datong River Tianwanggou Hydropower Station"	Environmental Protection Bureau of Gansu Province	
15.	April 2008	Power Purchasing Agreement (Agreement No.: SD/HT-2008-03)	GEPIC Darong Electric Power Company Ltd.; Gansu Electricity Co.	
16.	16/07/2008	Electricity Tariff Document (Ganjiadianli (2008)193)	Gansu Price Bureau	
17.	10/12/2007	Agreement on the compensation for land expropriation.	Villagers ; GEPIC Darong Electric Power Company Ltd	
18.	10/10/2005	Approval letter of Water & Soil Conservation Program	Water & Soil Conservancy Bureau of Gansu Province	
19.	24/10/2005	Actual construction starting date of this project according to the permission certificate from the Provincial Construction Bureau; Gansu Daily on 15/11/2006	Gansu Construction Bureau; Gansu Daily	
20.	12/12/2005	Turbines, Generators and Main Transformer Purchase Contract	GEPIC Darong Electric Power Company Ltd.; Hangzhou Liyuan Generator	

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in CDM Context)
			Device Co. Ltd.	
21.	August 2005	Stakeholders’ Comments Collection	GEPIC Darong Electric Power Company Ltd.	
22.	April 2002	Notice on Strictly Prohibiting the Construction of Fuel-fired Power Plants with Installed Capacity of 135MW or below.	General Office of the State Council	
23.	October 2008	IRR calculation sheet	DHV BEEC Ltd. Co.	
24.	2006	National Statistics Express of Power Industry	China Electricity Council	
25.	2003	Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects State Power	China Electric Power Press	Benchmark
26.	2003-2007	China Electric Power Yearbooks	China Electricity Council	
27.	June 2008	Letter of Approval (LoA) of China; No. 1195	NDRC of China	
28.	25/06/2008	Letter of Approval (LoA) of Netherlands	Netherlands DNA	
29.	29/06/2009	MoC	GEPIC Darong Electric Power Company Ltd. and N.V. Nuon Energy Trade & Wholesale	
30.	2002	State Council on the issuance of notice of the power reform program <National Development (2002) 5,>; http://www.china5e.net/laws/index2.htm?id=200608080001	State Council	
31.	28/11/1987	Notice on Implementation Method of Various Electricity Tariff (No. 101 Shuidiancaizi[1987])	Ministry of Water Resources and Electric Power, State Economic Committee and State Price Bureau	
32.	23/04/2001	Notice on Standardizing Electricity Tariff Management (No. 701 Jijiage[2001])	State Planning Committee	
33.	19/09/2007	Announcement on stakeholder consultation meeting	Gansu Daily	Common Practice

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in CDM Context)
34.	13/09/2007	www.dhv.cn: stakeholder consultation meeting – online announcement	DNV	Common Practice
35.	November 2005	Feasibility Study Report of “Datong River Tianwanggou Hydropower Station”; final version after input from local DRC	Northwest Hydro Consulting Engineers, CHECC	
36.	12/07/2004	Notice on Workshop of CDM Project Development and Financing	Gansu Science and Technology Promotion Center	
37.	2005	Introduction brochure and unsigned contract of other company	Arreon Company	
38.	17/08/2005	MOU of CDM development cooperation with DHV	GECIC Darong Electric Power Company Ltd. and DHV Beijing Environmental Engineering Company Ltd.	Early CDM consideration
39.	19/10/2005	Contract for the construction of water division system	GEPIC Darong Electricity Power Company Ltd. and China Railway 13th Bureau Group Corporation	Project Starting Date
40.	15/05/2006	Project approval document obtained (Gan Fa Gai Neng Yuan[2006] No. 367)	Development and Reform Commission of Gansu Province	
41.	06/06/2006	CDM development contract	GEPIC Darong Electric Power Company Ltd. & DHV BEEC Ltd. Co.	
42.	31/07/2006	First proposal from the buyer of the carbon credits	GEPIC Darong Electric Power Company Ltd.	
43.	24/07/2007	Final MoU	N.V. Nuon Energy, Trade & Wholesale & GEPIC Darong Electric Power Company	

Ref. No.	Issuance and/or submission date (dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in CDM Context)
			Ltd.	
44.	12/06/2007	Proposal for the validation of this and other projects	SGS	
45.	09/01/2008	ERPA	GEPIC Darong Electric Power Company Ltd. & DHV BEEC Ltd. Co.	
46.	2004	National policy: The Document Fagai Price[2004] No.1125	http://www.fz12358.com/seezcwj.asp?id=4643	
47.	18/02/2009	The Finished Investment and Investment Plan for 2009 of Tianwanggou Hydropower Station	GEPIC Darong Electric Power Company Ltd.	
48.	2006	Yearbook of China Water Resources	China Waterpower Press	
49.	25/07/2007	Invoice for Turbines; No. 02313868	Hangzhou Liyuan Generator Device Co. Ltd.	
50.	May 2008	Progress payments for Diversion engineering contract B for May; No. 00059445	China Railway 13th Bureau Group Corporation	
51.	18/04/2009	Electricity of Tianwanggou until April 18, 2009	GEPIC Darong Electric Power Company Ltd.	
52.	01/02/2009	Electricity Sales Invoice; No. 00182103	GEPIC Darong Electric Power Company Ltd.	