VALIDATION REPORT

YIYANG XIUSHAN HYDROELECTRIC PROJECT, P.R. CHINA

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VALIDATION REPORT

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Summary:
Det Norske Veritas Certification AS (DNV) has performed a validation of the "Yiyang Xiushan Hydroelectric Project (YXHP)" in China on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. This validation report summarizes the findings of the validation.
The validation consisted of the following three phases: i) a desk review of the project design documents, ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final validation report and opinion.

In summary, it is DNV's opinion that the project, as described in the project design document of 8 April 2009, meets all relevant UNFCCC requirements for the CDM and correctly applies the approved baseline and monitoring methodology ACM0002 version 06. Hence, DNV requests the registration of the "Yiyang Xiushan Hydroelectric Project" as a CDM project activity.

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Work verified by: Einar Telnes, Mari Grooss Viddal		
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Abbreviations

BM	Build Margin
CAR	corrective action request
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IBRD	International Bank for Reconstruction and Development
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change
YXHP	Yiyang Xiushan Hydroelectric Project

1 INTRODUCTION

The Taohuajiang Energy Development Company Ltd. has commissioned Det Norske Veritas Certification AS (DNV) to validate the Yiyang Xiushan Hydroelectric Project, P.R. China (hereafter called "the project"). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The validation team consisted of the following personnel:

Mr. Shuyong Sun	DNV Certification Beijing	Team leader, CDM validator
Mr. Michael Lehmann	DNV Certification Oslo	Sector expert
Mr. Einar Telnes	DNV Certification Oslo	Technical reviewer
Ms. Mari Grooss Viddal	DNV Certification Oslo	Technical reviewer

1.1 Validation Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002 version 06 of 19 May 2006. The validation team has, based on the recommendations in the Validation and Verification Manual /13/ employed a risk-based approach, been focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

1.3 Description of Proposed CDM Project

The Yiyang Xiushan Hydroelectric Project, P.R. China is a new reservoir type hydropower plant with the average power density of 10.3 W/m^2. The proposed installed capacity is 65MW consisting of five 13 MW turbines. The predicted power generation is 257 570MWh per year. The project is located in the lower reaches of Zijiang River, Xiushan Town, Taojiang County, Yiyang City of Hunan Province, 16 kms from Tiaojiang County Seat and 100 km from Changsha, the capital city of Hunan Province.

The electricity generated by the project will displace part of the electricity generated by the Central China Power Grid (CCPG) which is dominated by coal-fired power plants, and thus greenhouse gas (GHG) emissions are expected to be reduced. The estimated average annual GHG emission reductions are 243 043tCO_2e during a seven years renewable crediting period.

2 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the project design documents
II follow-up interviews with project stakeholders
III the resolution of outstanding issues and the issuance of the final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual /13/. The protocol shows in transparent manner criteria (requirements), means of verification 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.

The validation protocol consists of three tables. The different columns in these tables are described in Figure 1.

The completed validation protocol for the Yiyang Xiushan Hydroelectric Project, P.R. China is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of validation protocol criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;
ii) validation protocol requirements have not been met; or
iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

The term clarification may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities			
Requirement	***Reference***	***Conclusion***	***Cross reference***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*	*Used to refer to the relevant checklist questions in Table 2 to show how the specific requirement is validated. This is to ensure a transparent Validation process.*

Validation Protocol Table 2: Requirement Checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*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.*	*This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question (See below).A request for **Clarification (CL)** is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action Requests and Requests for Clarification			
Draft report corrective action requests and requests for clarifications	***Ref. to Table 2***	***Summary of project participants' response***	***Final conclusion***
If the conclusions from the draft Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the Corrective Action Request or Clarification Request is explained.*	*The responses given by the project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Validation protocol tables

2.1 Review of Documents

The PDD /1/ version 01 of August 2006 and revised version 03.2 of 8 April 2009 submitted by the Taohuajiang Energy Development Company Ltd. and additional background documents/2/-/24/ related to the project design and baseline were assessed as a part of the validation.

The main difference between the revised PDD of version 03.2 dated 8 April 2009 submitted for registration and PDD version 01 are the following:

1. Installed capacity was changed from 64MW to 65 MW. DNV was able to verify the installed capacity conforms with both the PDR and its approval by the local government.

2. The operating hours was changed from 4221 to 4235 hours. DNV was able to verify this is in line with the data in the PDR. And as for the IRR calculation this is a more conservative approach.

3. The power density was changed from 14.2 to 10.3 W/m^2. DNV was able to verify that this is in line with the information provided in the PDR. This change has no impact on the additionality of the project.

4. The data source for the IRR calculation input values was changed from FSR to PDR. The FSR and PDR are serving the same function, either one of them can be used for project approval in China. In this project, the data in the PDR is considered to be more appropriate than the FSR as it's issued later than the FSR and it had gotten the official approval. As we mentioned in the validation report, all data in the PDR are validated and considered to be accurate and reasonable.

5. The emission factor was changed from 0.93695 to 0.9436 tCO_2/MWh due to there was a mistake in the calculation, e.g. the emission factors for several fossil fuels were incorrectly applied in the calculation.

6. The Starting date of project activity was changed from 31 October 2004 to 18 August 2005. The PP mistakenly defined the start date as October 31 2004 in the PDD for global stakeholder comments. DNV was able to verify project construction start permission issued by Hunan yuhui hydropower construction supervision company dated 18 August 2005, construction contract with Guangdong hydropower 2nd construction Co., Ltd. dated 10 September 2005 and power generator purchasing contract with Tianjin Tianfa heavy machinery plant dated 10 September 2005. By checking above documents, DNV was able to verify the earliest project starting date was 18 August 2005. DNV is able to confirm that PP was getting to know CDM through the approval of PDR which was issued by Hunan DRC at 15 September 2004. The change of starting date thus has no impact on the additionality.

2.2 Follow-up Interviews

In the period of 21-22 November 2006, DNV performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Taohuajiang Energy Development Company Ltd., officers from local government, people affected by resettlement and Hunan CDM Project Service Centre were interviewed. The main topics of the interviews are summarised in Table 1.

Table 1 Interview topics

Interviewed organisation	Interview topics
Taohuajiang Energy Development Company Ltd.	➢ Information of project construction ➢ The approval status (incl. EIA approval, the feasibility study report /preliminary design report approval, CDM project approval) ➢ Project management ➢ Emission reduction monitoring plan ➢ Consulting process for stakeholder's comments ➢ Investment risks and barriers
officers from local government	➢ The development of hydropower project in Hunan province ➢ The local relevant regulation for resettlements
people affected by resettlement	➢ Status to the development of the proposed project ➢ The advantage/disadvantage due to the proposed project
Hunan CDM Project Service Centre	➢ Baseline determination of the project ➢ Applicability of selected methodology ACM0002 ➢ Issues related to the additionality ➢ Common practice analysis ➢ Emission reductions calculation ➢ Emission reduction monitoring plan and project management

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation was to resolve any outstanding issues which needed to be clarified for DNV's positive conclusion on the project design. The corrective action requests and requests for clarification raised by DNV, presented to the project participants in DNV's draft validation report of 28 November 2006 (rev. 0) were resolved during communications between the Taohuajiang Energy Development Company Ltd. and DNV. To guarantee the transparency of the validation process, the concerns raised and responses given are documented in the validation protocol in Appendix A.

Since modifications to the project design were necessary to resolve DNV's concerns, the client decided to revise the PDD and resubmitted the PDD dated 8 April 2009. After reviewing the revised PDD, DNV issued this final validation report and opinion.

2.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation of 8 April 2009.

3.1 Participation Requirements

The project participants are Taohuajiang Energy Development Company Ltd. of China and KfW Carbon Fund (KfW Bankengruppe) of Germany. The host Party China and Annex I Party Germany meet the requirements to participate in the CDM.

The DNA of China has issued the Letter of Approval (LoA) on 2 July 2007/2/, authorizing Taohuajiang Energy Development Company Ltd. as project participant and confirming that the project assists Chinese sustainable development.

The DNA of Germany has issued a LoA on 23 October 2007 /3/, authorizing the KfW Carbon Fund (KfW Bankengruppe) as project participant.

3.2 Project Design

The “Yiyang Xiushan Hydroelectric Project, P.R. China” (YXHP) is a new reservoir type plant with a total installed capacity of 65MW and power density of 10.3 W/m2/1/. The proposed project is to utilize the hydrological resource of Zijiang River to generate zero carbon emission electricity for the Central China Power Grid (CCPG).
By promoting renewable energy, the project will contribute to sustainable development in China.

The project activity was permitted to construction on 18 August 2005 and the designed operational life of the project is 33 years. The length of the first crediting period is 7 years, starting on 1 June 2008, or on the date of registration of the CDM project activity, whichever is later .

The estimated annual amount of emission reductions over the first crediting period (7 years) is 243 043tCO2e per year.

It has been verified that the project will not receive any public funding from Parties included in Annex I of the UNFCCC.

3.3 Baseline Determination

The YXHP applies the approved consolidated baseline methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” /14/ version 06. Its applicability has been justified by DNV due to that i) the project is a new reservoir type hydropower project and ii) is connected to a regional electricity grid (CCPG).

The baseline scenario is that an equivalent of electricity would, in the absence of the project activity, have been generated by the operation of grid-connected power plants and by the addition of new generation sources.

In accordance with ACM0002 version 06, the electricity baseline emission factor is determined ex-ante as a combined margin, consisting of the weighted average of the operating margin (OM) emission factor and the build margin (BM) emission factor.

The application of the baseline methodology is transparent and conservative.

3.4 Additionality

The additionality of the YXHP, as required by ACM0002, is demonstrated by applying the "Tool for demonstration and assessment of additionality" version 03 /15/ as follows:

Before the project was permitted to construction on 18 August 2005, an investment analysis was carried out in the preliminary design report/4/. This investment analysis indicated that the project was not financial attractive without CDM revenue. This decreased the confidence of the project owner and the bank to invest in the proposed project. DNV checked the loan agreement and was able to verify that the China Construction Bank decided to lend to the project in April 2005 and make the project proceed only after seriously considering the CDM incentives. The loan risk decreased because of the additional revenue from CDM /7/. This confirms that CDM was seriously considered prior to the decision to go ahead with the project.

Step 1 – Identification of alternatives to the project activity consistent with current laws and regulations:

Four alternative baseline scenarios to the project have been identified and discussed.

a To develop the proposed hydropower plant, but not as a CDM project activity;

b Construction of a thermal power plant with equivalent installed capacity or annual electricity generation;

c To build other grid-connected power plant with comparable power generation by other renewable sources;

d To generate an equivalent amount of electricity by the existing generation mix operating in the grid and the addition of new generation sources.

According to China power regulation, coal-fired power plants of less than 135MW without any special permission are prohibited for construction in the areas covered by large grids /16/ and the installation of thermal power units with less than 100MW is under tight control /17/. Hence, alternative b is not a realistic and credible alternative.

Since there are no other sufficient renewable energy sources (such as wind energy and biomass energy) in the proposed project site, alternative c is not a realistic alternative.

The alternatives a and d are in compliance with all applicable legal and regulatory requirements.

Step 2 – Investment analysis: The Tools for the Demonstration and Assessment of Additionality recommends three analysis methods /15/.

The project generates financial and economic benefits other than CDM related income, i.e. through the sales of electricity, and the simple cost analysis (Option I) is therefore not applicable. The investment comparison analysis (Option II) is the only applicable approach when the alternatives are considered similar investment projects. The realistic and credible alternative (d) is not a new investment project. Hence, a benchmark analysis (Option III) was chosen to assess the financial viability of the project activity.

In China, a project IRR of 8% is regarded as a benchmark /11/ for investments in hydropower plants, fossil fuel fired plants and wind farm projects. Based on the data in the proposed project's preliminary design report /4/, the project IRR without CER revenues is 6.53%, which shows that

the project in the absence of CDM benefits is not financially attractive compared to the benchmark.
In order to justify the reliability of input values used in the IRR calculation in accordance with the guidance of EB38 paragraph 54, DNV has validated the input parameters used and the procedures are shown as follow:

1: Assess the sources of the input parameters
All input parameters for the project IRR calculation are taken from the preliminary design report (PDR) of the project. The PDR, dated August 2004, was developed by an accredited third party (Hunan Province Design & Research Institute of Water Resources and Hydropower) and approved by development and reforming committee (DRC) of Hunan province on 15 September 2004. Therefore, all input parameters used in the IRR calculation can be considered as information provided by an independent and recognized sources.

2: Confirm that the values used in the PDD are fully consistent with the PDR

DNV has cross-checked the IRR calculation input values with the parameters stated in the preliminary design report. DNV was able to confirm that the values applied are consistent with the value stated in the documents referenced above.

3: Assess the period of time between the approval of adjusted preliminary design report and the investment decision
The adjusted PDR was approved on 15 September 2004, thus less than 11 month prior to the decision to proceed with the project activity (i.e. the construction starting permission date) which was on 18 August 2005. Given the short time period between approval of the PDR and the decision to proceed with the project activity, it is unlikely that the input values would have materially changed.

It is thus reasonable to assume that the PDR has been the basis of the decision to proceed with the investment in the project.

4: Cross-check the parameters used in the financial analysis with the parameters used by other similar projects
The input parameters used in the financial analysis were compared with the data reported for other similar proposed hydropower CDM projects connected to the Central China Power Grid, e.g. investment costs per kWh, O&M costs per MW, electricity tariff and percentage of O&M costs relative to total investment costs. While we acknowledge that the information from these projects is also based on feasibility study reports (FSR) or PDRs, it must be noted that these FSRs and PDRs were developed by several different independent institutes. In addition, based on our sectoral expertise, the input parameters used in the financial analysis are in DNV's opinion reasonable.

According to "Economic evaluation code for small hydropower projects (SL 16-95)" published by the Ministry of Water Resources, The project proponent uses fixed values for the IRR calculation. DNV was able to confirm that it is in line with the common practice in China.

1. DNV was able to verify through the approved PDR, that the IRR calculation is accepted by the local authority by using fixed values.
2. The "Economic Evaluation Code for Small Hydropower Project (SL16-95)" also uses fixed input values for IRR calculation. DNV considers appropriate to use fix values for the financial analysis. This is in accordance with SL 16-95 which stipulates that "the

current price, determined at the time of the assessment, should be used for the input values for the financial analysis".

3. China has been applying a new electricity tariff control policy, known as the "Price Competition for Power Supply to the Grid" policy[*] in the power industry since year 2002. Free competition between power plants is encouraged in order to lower cost of power production and thereby electricity tariffs. As the electricity tariff is always under strong influence of local government price policy, the tariff is set by the grid company according to regulations from the government and is outside the control of the project developer; therefore it was not possible to predict with certainty what would happen to the tariff in the future. DNV was able to verify a clarification letter issued by local government (price bureau of Taojiang county) dated 20 December 2007 /9/, it is confirm that the electricity tariff had followed price guidance strictly and have not changed since June 2003 in local. DNV considers it's reasonable to use fixed tariff due to the project developer could not predict with certainty how the tariff would vary at the time of the decision to proceed with the project.
4. The investment cost was audited in December 2007 to be 719 435 649 RMB by Yiyang Fangyuan Certified Public Accountants Co., Ltd. (Project investment Inspection Report[†]) /8 /. So the actual investment cost is higher than the estimated in the PDR which was RMB 627 411 300 mainly due to inflation in China. Therefore, it is conservative to use fixed investment cost value in the financial analysis.
5. Operating cost are keeping increasing in recent year due to inflation in China. DNV is able to verify that refer to the statistical yearbook 2007 published by Chinese government showing the rate of inflation in China for various commodities and services (http://www.stats.gov.cn/tjsj/ndsj). From year 2000 to 2006, the average annual increasing rate is 10.04% for labour costs, and 4.73% for materials, fuel and other costs. This shows that assuming fixed operating costs in the investment analysis was conservative.

As a conclusion, it is difficult for the project developer to predict with certainty what would happen to the electricity tariff in the future at the time of the investment decision. Variations to the operating costs have no substantial impact on the IRR of the project. Since "Economic Evaluation Code for Small Hydropower Project (SL16-95)" stipulates that input values should be fixed, it was reasonable for the proposed project to consider a fixed electricity tariff in the financial analysis. Moreover, also the applied benchmark is related to IRR analysis with fixed input values, and an IRR without escalation of the tariff and operating costs is thus suitable to be compared against the selected benchmark.

A sensitivity analysis shows that only if the changes of total investment reach 14.1%, annual O&M cost reach 99.28% and project revenue reach 17.4% respectively, the project IRR will match the benchmark.

Considering economical development in China and the price rising of materials in recent years, it is unlikely that the total investment and the annual O&M costs could decrease by 14.1% and 99.28% respectively to make the project IRR reach benchmark. Furthermore, DNV has checked the Project Investment Inspection Report /8/ by Yiyang Fangyuan Certified Public Accountants

[*] the Notice of the State Council on Printing and Distributing the Plan Regarding the Restructuring of the Power Industry (No.5 [2002] of the State Council)

[†] Project Investment Inspection Report by Yiyang Fangyuan Certified Public Accountants Co., Ltd. in 12 December 2007.

Co., Ltd. and was able to verify that the actual project total investments are higher than that estimates in the preliminary design report.

Since 2002, P. R. China has been applying a new electricity tariff control policy, known as the "Price Competition for Power Supply to the Grid" policy[*], in the power industry. Free competition between power plants is encouraged in order to lower cost of power production and thereby electricity tariffs. Furthermore, the tariff is determined as per local price bureau relevant guidance documents /9/. The guidance price form local government i.e. local price bureau is fixed in the past 5 years /9/, so it is unlikely that the tariff will increase so much to make the project IRR reach the benchmark.

The power generation is determined by a third party design institute in the preliminary design report based on decades of local hydrological data. Hence, it is unlikely that operation hours would increase so much to make the project IRR reach the benchmark.

The sensitivity analysis shows that without the income from CERs sales the IRR of the proposed project is lower than the benchmark, even when the possible variations of the main parameters are considered.

Step 3 –Barrier analysis: not applicable (only step 2 is selected).

Step 4 – Common practice analysis: The area of Hunan Province is so large (more than 200 000sq.km) with hundreds of large rivers. So the choose of Hunan Province as region is reasonable. All the hydropower plants with installed capacity from 50MW to 100MW in Hunan Province are compared with the proposed project and the analysis shows that 4 similar hydropower projects were developed by large electricity investment companies and one similar hydropower project got a long-term ODA loan with low interest, while the YXHP is developed by a small hydropower company who has limited competence to deal with the risk and to overcome the investment barriers. The other 5 projects built after 2002, when the reform of unbundling between generation and grid was implemented in China's electric power sector, are all applying as CDM projects. DNV was able to verify that hydropower projects with the installed capacity from 50MW to 100 MW were not a common practice in the province.

In conclusion, the assessment of the arguments presented above is deemed to sufficiently demonstrate that the project is not a likely baseline scenario, and that emission reductions resulting from the project are additional.

3.5 Monitoring Plan

The YXHP applies the approved monitoring methodology, ACM0002 "Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources" version 06. The selected monitoring methodology is applicable for the project.

The project is a grid-connected renewable power generation (with reservoir having power density greater than 10 W/m^2) project, which is applicable for the ACM0002 version 06.

The project is a new reservoir type hydropower project and the combined margin emission factor is determined *ex-ante* based on the most recent information available. Hence, both the electricity generated and that sold to the grid as well as the reservoir area will be monitored.

[*] the Notice of the State Council on Printing and Distributing the Plan Regarding the Restructuring of the Power Industry (No.5 [2002] of the State Council)

The net electricity generated from the project will be measured and recorded on an hourly basis. This data will be cross verified against the sales receipt from the grid.

Because the power density is 10.3 W/m2, which was verified to be reasonable from the preliminary design report, (greater than 10 W/m^2), the project emissions are regarded as zero. Surface area at full reservoir level will be measured at the start of the crediting period.

Leakage accounting is not required under ACM0002 and thus has not been considered for the project.

Monitoring of sustainable development indicators is not required by the Chinese DNA. The environmental impacts are considered minor and will be monitored by the local environmental authority during the project lifetime.

Training of the current workforce will be provided by the technology provider. The management manual including responsibilities and authorities for project management, procedures for monitoring and reporting, QA/QC procedures, procedures for calibration of metering equipment and procedures for training and maintenance have been elaborated in the monitoring plan. Detailed procedures will be in place prior to the start of the crediting period to enable subsequent verification of emission reductions.

The application of the monitoring methodology is transparent.

3.6 Calculation of GHG Emissions

The emission reductions ERy by the project activity during the crediting period is the difference between baseline emissions (BEy), project emissions (PEy) and emissions due to leakage (Ly), as follows:

1) Baseline emissions: Baseline emissions (BEy in tCO_2) are the product of the baseline emissions factor (EFy in tCO_2/MWh) times the electricity supplied by the project activity to the grid (EGy in MWh).

2) Project emissions: The YXHP power density is 10.3 W/m2 greater than $10W/m^2$, so the project emissions are regarded as zero.

3) Leakage: No leakage has to be considered for the proposed project activity.

4) Emission reductions: ERy= BEy- PEy- Ly= BEy.

For the calculation of the OM emission factor, the simple OM emission factor calculation method is selected because low-cost must-run projects constitute less than 50% (respectively 38%, 36.8%, 36.0%, 34.2% and 38% for 2000, 2001, 2002, 2003 and 2004) of the total grid generation and data is not available for applying the dispatch data analysis.

The aggregated generation and fuel consumption data are used as more disaggregated data are not available in the CCPG.

Country specific data for net calorific value of each type of fossil fuel /20/, the IPCC 1996 default values for the oxidation factor of each type of fossil fuel /23/ and the total electricity delivered to the ECPG were selected and are deemed reasonable /19/. The use of IPCC 1996 default values instead of IPCC 2006 as data from 2006 was not available at the time of the project validation start date.

Vintage data for the years 2002, 2003 and 2004 are used for operating margin calculation. The data vintage were the publicly available data at the point where the first PDD was submitted for validation and web-hosted at 19 September 2006 to 18 October 2006. The OM is calculated to be 1.2526tCO_2/MWh as a generation-weighted average for the three years.

In the PDD published in September 2006 for the global stakeholder's consultation, data vintages from 2002 – 2004 and the 1996 IPCC guidelines were used in the calculations of the combined margin emission factor. However, as the calculation for the OM and BM was not transparent in the published PDD and the emission factor for refinery gas, coke, coke oven gas and gas were not correctly applied from IPCC value. DNV requested the project proponents to update the calculations with the correct data during the validation but failed to issue a corrective action request in the validation report. In response to the request for review from the UNFCCC EB, and decision on EB44, DNV has took corrective action by issuing CAR 2 to make the validation process more transparent. This calculation has been validated by DNV and DNV can confirm that the values have been correctly used in the PDD version 3.2.

Because plant specific fuel consumption and electricity generation data is not publicly available in China, DNV requested guidance from the CDM Executive Board for a deviation of the baseline methodology of AM0005 and received the following answers /24/, which are deemed to be applicable for this project.

- Use of capacity additions for estimating the build margin emission factor for grid electricity.
- Use of weights estimated using installed capacity in place of annual electricity generation.
- Use the efficiency level of the best technology commercially available in the provincial/regional or national grid of China, as a conservative proxy, for each fuel type in estimating the fuel consumption to estimate the build margin (BM).

Since AM0005 has been replaced by ACM0002, the application of the above confirmation from EB to this project is deemed to be acceptable.

Following the EB's guidance the build margin is calculated as follows:

- The capacity additions from the years 2000 to 2004 is chosen and reach 22.5% of total installed capacity.
- The weight of installed capacity additions for thermal power plant is accounted for 69.8% of total installed capacity additions.
- The standard coal consumption of 336.66gSCE/kWh is defined as the best technology commercially available in China by the DNA of China/22/.
- The local value of 29.27 GJ/t standard coal equivalent, 25.8 tC/TJ for carbon content of the coal and the IPCC default value of carbon oxidisation factor of 98% are used to calculate the BM.
- The BM is calculated as 0.6346tCO_2/MWh.

The weights ω_{OM} and ω_{BM} are selected as 0.5 and 0.5, respectively, as stipulated for hydropower project by ACM0002 version 06. The combined margin of 0.9436tCO_2/MWh is fixed *ex-ante* for the first crediting period.

The last data used to calculate OM is derived from China Energy Statistical Yearbooks 2000-2002, 2004 and 2005; the BM calculation is derived from China Power Electric Power Yearbooks 2001 to 2005.

The GHG calculations are complete and transparent, and their accuracy has been verified.

3.7 Environmental Impacts

The environmental impact assessment (EIA) /5/ for this project was carried out by Hunan Province Design & Research Institute of Water Resources and Hydropower. The EIA report has already been approved by Hunan Province Environmental protection Bureau in June 2004.

The conclusion of the report has been described in the PDD. The project will have positive impact on local environment /5/.

The project involves the resettlement of 8 families. During the site visit, all the 8 families and local government were interviewed and it has been verified that a resettlement plan was designed and carried out in line with state regulations.

3.8 Comments by Local Stakeholders

Local stakeholders were invited initially through public discussion.

In the survey, 140 questionnaires were distributed to local stakeholders, and received 90% feedback (126 questionnaires returned out of 140). DNV have checked all the questionnaires received. The survey shows that the proposed project receives strong support from local people.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD version 01 of August 2006 was made publicly available on DNV's climate change website (www.dnv.com/certification/climatechange) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 19 September 2006 to 18 October 2006.

One comment was received on *10 October 2006*. The comment received (in unedited form) is given in the below text box.

Comment by: long yan, Huanneng environmental Consulting

Inserted on: 10 October 2006

Subject: common pratice

Comment:

Isn't the common practice analysis on Zishui River too narrow?

Isn't http://cdm.ccchina.gov.cn/WebSite/CDM/ UpFile/File1025.pdf already withdrawed?

There are so many concerns in the public comments, why there are barely any due account taken?

***How DNV has considered the comment received in its validation**:*

1. DNV agrees with the comment and has requested the common practise analysis to be revised. In the revised PDD all the hydropower plants with installed capacity from 50MW to 100MW in Hunan Province are compared with the proposed project. The analysis shows that 4 similar

hydropower projects were developed by large electricity investment companies and 1 similar hydropower project got a long-term ODA loan with low interest, while the YXHP is developed by a small-scale hydropower company who has limited competence to deal with the risk and to overcome the investment barriers. The other 5 projects built after 2002, when the reform of unbundling between generation and grid was implemented in China's electric power sector, are all applying as CDM projects. DNV was thus able to verify that hydropower projects with the installed capacity from 50MW to 100 MW were not a common practice in the province.

2. The link http://cdm.ccchina.gov.cn/WebSite/CDM/ UpFile/File1025.pdf is overdue and this reference is deleted in final PDD.

3. In final PDD according to the comments received, further protective measurements will be taken for alleviating environmental impacts. Response measures to the issues raised at the meeting are as follows:

1. As to the local traffic infrastructure, the Project developer will increase investment to build road, bridge and ferry;

2. The Project developer will increase irrigation and drainage machines, and build drainage ditches to minimize soil salinization. The EIA and relevant environmental protection plan have been approved by the local government.

3. The Project owner will increase the flood control standard of the embankments by strengthening the banks.

4. The resettlement plan report has been carried out by Hunan Province Design & Research Institute of Water Resources and Hydropower in May 2005, in which the compensation for resettlement is detailed as per state regulation and the plan has been approved by Hunan provincial Government in June 2005.

All the measures will be carried out under the supervision of construction supervisors and relevant departments.

5 VALIDATION OPINION

Det Norske Veritas Certification AS. (DNV) has performed a validation of the "Yiyang Xiushan Hydroelectric Project, P.R. China". The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host Party criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host Party is China and the Annex I Party is the Germany. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from China confirmed that the project assists in achieving sustainable development.

The project correctly applies ACM0002 version 06 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

By generating renewable energy which will displace grid electricity, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefit to the mitigation of climate change. It is demonstrated that the project 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.

The total emission reductions from the project are estimated to be on the average 243 043tCO2e per year over the selected 7 year crediting period. The emission reduction forecast has been checked and it is deemed likely that the state amount is achieved given that the underlying assumptions do not change.

The monitoring methodology ACM0002 has been correctly applied and the monitoring plan sufficiently provides for collection of data to determine the project's emission reductions. Adequate training and monitoring procedures will be implemented at the latest prior to the start of the crediting period.

In summary, it is DNV's opinion that the "Yiyang Xiushan Hydroelectric Project, P.R. China" as described in the PDD of 8 April 2009, meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002 version 06. DNV thus requests the registration of the project as a CDM project activity.

REFERENCES

Documents provided by the project proponent that relate directly to the project:

/1/ Project Design Document for YXHP, version 01 of August 2006, revised version 03.2 of 8 April 2009 .

/2/ Letter of Approval issued by Chinese DNA on 2 July 2007.

/3/ Letter of Approval issued by the DNA of Germany on 23 October 2007.

/4/ The project preliminary design report in August 2004 and the approval letter by Hunan Province Water Resource Bureau in September 2004.

/5/ The project environmental impact assessment report by Hunan Province Design & Research Institute of Water Resources and Hydropower in March 2004 and the approval letter by Hunan Province Environmental protection Bureau in June 2004.

/6/ The resettlement plan by Hunan Province Design & Research Institute of Water Resources and Hydropower in May 2005 and the approval letter by Hunan Province Government in May 2005

/7/ Loan agreement between China Construction Bank and Taohuajiang Energy Development Company Ltd. in April 2005.

/8/ Project Investment Inspection Report by Yiyang Fangyuan Certified Public Accountants Co., Ltd. in 12 December 2007.

/9/ Price guidance documents proof letter by local price bureau in 2007

Background documents related to the design and/or methodologies employed in the design or other reference documents:

/10/ CDM Project Management and Operating Procedures.

/11/ State Power Corporation of China. Interim Rules on Economic Assessment of Electrical Engineering Retrofit Projects. Beijing: China Electric Power Press, 2003

/12/ The Grid Accessing Agreement between the project owner and the grid company.

/13/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Validation and Verification Manual*. http://www.vvmanual.info

/14/ ACM 0002 Approved methodology, "Consolidated methodology for grid-connected electricity generation from renewable sources", version 06. 3 March 2006

/15/ CDM Executive Board: *Tool for the demonstration and assessment of additionality*, version 03

/16/ Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below, Issued by State Council Office, decree No. 2002-6

/17/ The Temporary Stipulation of the Construction Management of Small Scale Units of Fuel-fired Power Generation of August 1997

/18/ Chinese DNA's guidance for the determination of grid boundaries and emission facotors, http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File1053.pdf

/19/ China Electric Power Yearbook 2001, 2002, 2003, 2004 and 2005

/20/ China Energy Statistical Yearbook 2003, 2004 and 2005

/21/ http://www.ccchina.gov.cn/source/fa/fa2002082803.htm

/22/ The statistics by State Electricity Regulatory Commission (SERC) on newly built thermal plants in 10th "Five-Year Plan" period 2000-2005, and NDRC official website http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/2006/20061215144747182.pdf

/23/ Revised IPCC 1996 Guidelines for National Greenhouse Gas Inventories

/24/ The guidance for deviation in use of methodology AM0005 by several project activities in China by EB. http://cdm.unfccc.int/Projects/Deviations

Persons interviewed during the validation, or persons who contributed with other information that are not included in the documents listed above:

/25/ Zhang Hanwen, director, Hunan CDM Project Service Centre, 21-22 November 2006.

/26/ Liu Hongyu, senior project manager, Hunan CDM Project Service Centre, 21-22 November 2006.

/27/ Zheng Yaoguo, project manager, Hunan CDM Project Service Centre, 21-22 November 2006.

/28/ Wen Zhijun, general manager, Taohuajiang Energy Development Company Ltd., 21-22 November 2006.

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APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities

Requirement	Reference	Conclusion	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3	Kyoto Protocol Art.12.2	ok	Table 2, Section E.4.1
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	~~CAR 1~~ ok	Table 2, Section A.3 .
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	Ok	Table 2, Section E.4.1
4. The project shall have the written approval of voluntary participation from the designated national authority of each party involved	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	~~CAR 1~~ Ok	Table 2, Section A.3
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	Ok	Table 2, Section E
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	Ok	Table 2, Section B.2
7. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	Ok	The validation did not reveal any information that indicates that the project can be seen as a diversion of ODA funding towards China
8. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	ok	Chinese DNA is the State Development and Reform Commission. The DNA of

Requirement	Reference	Conclusion	Cross Reference / Comment
			Germany is Umweltbundesamt - Deutsche missionshandelsstelle.
9. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol	CDM Modalities §30/31a	ok	China ratified the Kyoto Protocol on 30 August, 2002. Germany ratified the Kyoto Protocol on 31 May 2002.
10. The participating Annex I Party's assigned amount shall have been calculated and recorded	CDM Modalities and Procedures §31b	ok	Germany assigned amount is 92% of the emission level in 1990.
11. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7	CDM Modalities and Procedures §31b	ok	The validation has not in detail assessed Germany compliance with article 5 and 7 of the Kyoto Protocol. The Germany has in place a national system for estimating GHG emissions and annually submits is most recent inventory to the UNFCCC.
12. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	CDM Modalities and Procedures §37b	ok	Table 2, Section G
13. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	ok	Table 2, Section F
14. Baseline and monitoring methodology shall be previously approved by the CDM Executive Board	CDM Modalities and Procedures §37e	ok	Table 2, Section B.1.1 and D.1.1
15. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	CDM Modalities and Procedures §37f	ok	Table 2, Section D

Requirement	Reference	Conclusion	Cross Reference / Comment
16. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	CDM Modalities and Procedures §40	ok	The PDD has been published on www.dnv.com/certification/ClimateChange, Parties, stakeholders and NGOs were invited through the UNFCCC CDM website to provide comments on the validation requirement during a period of 30 days, from 19 September 2006 to 18 October 2006. One comment was received.
17. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	CDM Modalities and Procedures §45c,d	ok	Table 2, Section B.2
18. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	CDM Modalities and Procedures §47	ok	Table 2, Section B.2
19. The project design document shall be in conformance with the UNFCCC CDM-PDD format	CDM Modalities and Procedures Appendix B, EB Decision	ok	PDD format version 3 is used.

Table 2 Requirements Checklist

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A.1.1. Are the project's spatial (geographical) boundaries clearly defined?	/1/	DR	Yes. Yiyang Xiushan Hydroelectric Project is located in the lower reaches of Zijiang River, Xiushan Town, Taojiang County, Yiyang City of Hunan Province, 16 kms from Tiaojiang County Seat and 100 km from Changsha, the capital city of Hunan Province The exact geographic project site is: Longitude: 112°11' E Latitude: 28°51' N		ok
A.1.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	/1/	DR	Yes, the hydropower plant will be connected to the CCPG though Hunan provincial power grid and will mitigate the power shortage in the CCPG. The power plant and the CCPG are defined as the project's system boundary.		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.2. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A.2.1. Does the project design engineering reflect current good practices?	/1/	DR	Yes. The project design engineering reflects current good practices.		ok
A.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/	DR I	The project uses state of the art technology with all the equipment produced domestically.		ok
A.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	/1/ /4/	DR	No. The technology is not likely to be substituted by other efficient technologies within the project period.		ok
A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	/1/	DR I	Yes. The initial training and maintenance efforts are required by the project.		ok
A.2.5. Does the project make provisions for meeting training and maintenance needs?	/1/	DR I	Yes. The project owner will make provisions for the training and maintenance needs before the operation of the project.		ok
A.3. Contribution to Sustainable Development *The project's contribution to sustainable development is assessed.*					
A.3.1. Is the project in line with relevant legislation and plans in the host country?	/1/ /4/ /5/	DR	Yes. The project is in line with relevant legislation and plans in China. The preliminary design report and EIA are both approved.		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
A.3.2. Is the project in line with host-country specific CDM requirements?	/1/	DR I	Confirmation from the DNA of China has not been received.	~~CAR 1~~	ok
A.3.3. Is the project in line with sustainable development policies of the host country?	/1/	DR I	The LoA from the DNA of China has not been received.	~~CAR 1~~	ok
A.3.4. Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	Yes. As a renewable energy project, it may produce positive environmental and economic benefits and contribute to the local sustainable development special on the alleviation of the power shortage in the local areas, alleviation of poverty in the county, increasing of new job opportunities for the local people.		ok
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B.1.1. Is the baseline methodology previously approved by the CDM Executive Board?	/1/	DR	Yes. The project applies the methodology of ACM0002 “Consolidated baseline methodology for grid-connected electricity generations from renewable sources”, version 6, approved by the EB.		ok
B.1.2. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	/1/	DR	Yes. The baseline methodology is applicable for the project and the appropriateness is justified. The		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			hydropower project is a new reservoir type plant with power density of 10.3 W/m2 (larger than 4W/m^2) and is connected to a regional electricity grid (CCPG).		
B.2. Baseline Determination *The choice of baseline will be validated with focus on whether the baseline is a likely scenario, whether the project itself is not a likely baseline scenario, and whether the baseline is complete and transparent.*					
B.2.1. Is the application of the methodology and the discussion and determination of the chosen baseline transparent?	/1/ /18/	DR	Yes. Four alternative baseline scenarios to the project have been identified and discussed. a To develop the proposed hydropower plant, but not as a CDM project activity; b Construction of a thermal power plant with equivalent installed capacity or annual electricity generation; c To build other grid-connected power plant with comparable power generation by other renewable sources; d To generate an equivalent amount of electricity by the existing generation mix operating in the grid and the addition of new generation sources. Since there are no other sufficient renewable energy sources (such as wind energy and biomass energy) in the proposed project site, alternative c is not a realistic alternative. b is not in compliance		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			with all applicable legal and regulatory requirements and a is less financial attractive (see B.2.7). So the baseline is determined as continued operation of the existing power plants and the addition of new generation sources to meet electricity demand.		
B.2.2. Has the baseline been determined using conservative assumptions where possible?	/1/	DR	Yes. According to the deduction from the available information, the assumptions are conservative.		ok
B.2.3. Has the baseline been established on a project-specific basis?	/1/	DR	Yes. The baseline has been established on a project-specific basis.		ok
B.2.4. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR I	Yes. All relevant national and sectoral policies, regulations and department rules and disciplines are considered.		ok
B.2.5. Is the baseline determination compatible with the available data?	/1/	DR	Yes. The baseline determination is compatible with the available data.		ok
B.2.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	/1/	DR	Yes. The selected baseline is the most likely scenario among other possible and/or discussed scenarios.		ok
B.2.7. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario?	/1/ /4/	DR I	Yes. The “tool for the demonstration and assessment of additionality” version 03 is applied exactly. Before the project was permitted to construction on 18 August 2005, an investment analysis was carried out in the preliminary design report/4/. This investment analysis indicated that the project was not financial attractive without CDM revenue. This decreased the confidence of the project owner and the		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			bank to invest in the proposed project. DNV checked the loan agreement and was able to verify that the China Construction Bank decided to lend to the project in April 2005 and make the project proceed only after seriously considering the CDM incentives. The loan risk decreased because of the additional revenue from CDM /7/. This confirms that CDM was seriously considered prior to the decision to go ahead with the project. Step 1 – Identification of alternatives to the project activity consistent with current laws and regulations: Four alternative baseline scenarios to the project have been identified and discussed. See B.2.1. Step 2 – Investment analysis: Since the project will generate the economic benefit other than CDM-related income through the electricity sale and that the project developer does not have alternative and comparable investment choices, the benchmark analysis – option 3 is used to assess the financial viability of the project activity. Further clarification is required to justify the benchmark rate. Please provide the spreadsheet for IRR calculation. Step 3 – Barrier analysis: not	~~CL 1~~ ~~CL 2~~	

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			applicable(only step2 is selected) Step 4 – Common practice analysis The similar hydropower projects through out of Hunan Province should be compared in the common practice analysis and the data source from third party should be provided.		
B.2.8. Have the major risks to the baseline been identified?	/1/	DR	There are no significant risks to the baseline except the enforcement of the Chinese renewable law. However, this law does not need to be taken into account as it is being implemented only now i.e. after the entry into force of decision 17.CP 7.		ok
B.2.9. Is all literature and sources clearly referenced?	/1/	DR	Yes.		ok
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	/1/	DR	Yes. The construction starting date of the project activity is 18 August 2005 and the operational lifetime of the project activity is 33 years, which has been confirmed.		ok
C.1.2. Is the assumed crediting time clearly defined (renewable crediting period of seven years with two possible renewals or fixed crediting period of 10 years with no renewal)?	/1/	DR	Yes. A renewable crediting period (7 years *3) is selected, starting on 1 June 2008, OR ON THE DATE OF REGISTRATION OF THE CDM PROJECT ACTIVITY, WHICHEVER IS LATER .		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D. Monitoring Plan *The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed ((Blue text contains requirements to be assessed for optional review of monitoring methodology prior to submission and approval by CDM EB).*					
D.1. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
D.1.1. Is the monitoring methodology previously approved by the CDM Executive Board?	/1/	DR	Yes. The project applies the approved monitoring methodology ACM0002 "consolidated monitoring methodology for zero emissions grid- connected electricity generation from renewable sources".		ok ok
D.1.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	/1/	DR	Yes. The project is a grid-connected renewable power generation (with reservoir having power density greater than 4 W/m^2) project, which is applicable for the ACM 0002 version 06.		ok
D.1.3. Does the monitoring methodology reflect good monitoring and reporting practices?	/1/	DR	Yes. The electricity generated delivered to the grid will be monitored directly by meter data in the plant and double checked by electricity sales receipts According to the methodology, the surface area at full reservoir level should also be monitored.	~~CL 3~~	ok
D.1.4. Is the discussion and selection of the monitoring methodology transparent?	/1/	DR	Yes		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
D.2. Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.2.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR I	This is a hydropower project with reservoir having power density greater than 10 W/m^2 that is not expected to result in project GHG emissions.		ok
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
D.3.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR	Indirect emissions can result from activities such as power plant construction, fuel handling (extraction, processing, and transport), and land inundation (for hydroelectric projects). Project participants do not need consider these emission sources as leakage in applying this methodology.		ok
D.4. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
D.4.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions	/1/	DR	Yes. The project uses the ex-ante determination approach to calculate the OM and BM. Only electricity generated and sold to the grid will be monitored ex-		ok

* MoV = Means of Verification, DR= Document Review, I= Interview

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
during the crediting period?			post.		
D.4.2. Is the choice of baseline indicators, in particular for baseline emissions, reasonable?	/1/	DR	Yes.		ok
D.4.3. Will it be possible to monitor / measure the specified baseline indicators?	/1/	DR	Yes. The electricity generated delivered to the grid will be monitored directly.		ok
D.4.4. Will the indicators give opportunity for real measurements of baseline emissions?	/1/	DR I	The electricity generated delivered to the grid will be monitored by meter data in the plant and double checked by electricity sales receipts.		ok
D.5. Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is checked that choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
D.5.1. Does the monitoring plan provide the collection and archiving of relevant data concerning environmental, social and economic impacts?	/1/	DR	Neither ACM0002 nor the China DNA requires collection and archiving of relevant data concerning environmental, social and economic impacts. However the environmental impacts will be monitored by local environmental authority.		ok
D.6. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
D.6.1. Is the authority and responsibility of project management clearly described?	/1/	DR I	Yes. The authority and responsibility of project management is described in the PDD.		ok
D.6.2. Is the authority and responsibility for	/1/	DR	The authority and responsibility for		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
registration, monitoring, measurement and reporting clearly described?		I	registration, monitoring, measurement and reporting are described in the monitoring plan.		
D.6.3. Are procedures identified for training of monitoring personnel?	/1/	DR I	The procedures for training of monitoring personnel are identified and will be implemented by a third party.		ok
D.6.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR I	According to the actual status of the hydropower project, no emergency situation which can cause unintended emissions is expected from the project.		ok
D.6.5. Are procedures identified for calibration of monitoring equipment?	/1/	DR	The procedures for calibration of monitoring equipment are identified in the monitoring plan.		ok
D.6.6. Are procedures identified for maintenance of monitoring equipment and installations?	/1/	DR I	The procedures for maintenance of monitoring equipment and installations are identified in the monitoring plan.		ok
D.6.7. Are procedures identified for monitoring, measurements and reporting?	/1/	DR	Yes. The procedures for monitoring, measurements and reporting are identified in the monitoring plan.		ok
D.6.8. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR	The procedures for records handling are identified in the monitoring plan.		ok
D.6.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties?	/1/	DR	Yes. The responsibility of dealing with the monitoring data adjustments and uncertainties is identified by the project owner. The relevant procedures are identified in the monitoring plan.		ok
D.6.10. Are procedures identified for review of reported results/data?	/1/	DR	Yes. There are supervising procedures for the reported data identified in the monitoring plan.		ok
D.6.11. Are procedures identified for internal audits of GHG project compliance with operational	/1/	DR	The project is under construction stage. Detailed procedures for internal audits of		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
requirements where applicable?			GHG project compliance with operational requirements have not being developed yet. These will need to be in place and maintained and implemented at the latest prior to the start of the crediting period to enable subsequent verification of emission reductions.		
D.6.12. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	/1/	DR	Ditto		ok
D.6.13. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	Yes. Any corrective actions for more accurate monitoring and reporting will be dealt with according to the identified procedures.		ok
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Project GHG Emissions *The validation of ex-ante estimated project GHG emissions focuses on transparency and completeness of calculations.*					
E.1.1. Are all aspects related to direct and indirect GHG emissions captured in the project design?	/1/ /4/	DR	The project is new reservoir type hydropower project with the power density of 10.3 W/m2, greater than 10 W/m^2, so it is not expected to result in project GHG emissions. See D.2.1		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
E.2. Leakage *It is assessed whether there leakage effects, i.e. change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed and estimated ex-ante.*					
E.2.1. Are potential leakage effects beyond the chosen project boundaries properly identified?	/1/	DR	No leakage from these activities is expected. See D.3.1.		ok
E.3. Baseline Emissions *The validation of ex-ante estimated baseline GHG emissions focuses on transparency and completeness of calculations.*					
E.3.1. Have the most relevant and likely operational characteristics and baseline indicators been chosen as reference for baseline emissions?	/1/	DR	Yes. All the power plants connected to the CCPG are included for calculating the OM and BM.		ok
E.3.2. Are the baseline boundaries clearly defined and do they sufficiently cover sources and sinks for baseline emissions?	/1/	DR	Yes. CCPG is clearly defined as the baseline boundary.		ok
E.3.3. Are the GHG calculations documented in a complete and transparent manner?	/1/ /21/ /22/ /24/	DR	Yes. For the calculation of the operating margin (OM) the simple OM emission factor calculation method is selected due to a lack of data availability for the dispatch data analysis. Following the EB guidance, the average emission factor for the grid for each fuel type is calculated based on a 3-year average of the most recent statistics available (data available for 2002, 2003 and 2004 at the time of PDD submission). The simple OM	~~CAR2~~	ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
			emission factor is calculated to 1.2526tCO2/MWh. For the calculation of the build margin (BM), following the EB guidance, the standard coal consumption of 320 g SCE/kWh is used to determine the BM emission factor, which is deemed conservative. The coal consumption efficiency of 336.66 g SCE/kWh is defined as the best technology commercially available in China by the DNA of China/22/. The capacity additions of 22.8% from the years 2000 to 2004 have been identified by applying weights estimated using installed capacity instead of annual electricity generation; the BM is calculated as 0.6346tCO2/MWh. The combined margin of 0.9436tCO2/MWh is fixed ex-ante for the entire first crediting period. The local value of 29.27 GJ/t standard coal, the IPCC default value of 25.8 tC/TJ and the carbon oxidization factor of 98% are used to calculate the OM and BM. In summary, the GHG calculations are in a complete and transparent manner.		
E.3.4. Have conservative assumptions been used when calculating baseline emissions?	/1/	DR	Yes. The local value of 29.27 GJ/ t standard coal (data source: China Energy Statisics Yearbook 2004) and the IPCC default value of 25.8 tC/TJ, carbon oxidised OXIDi 98% are used to calculate the CO_2 coefficient.		ok
E.3.5. Are uncertainties in the GHG emission	/1/	DR	No significant uncertainties have been		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
estimates properly addressed in the documentation?			addressed in the PDD.		
E.3.6. Have the project baseline(s) and the project emissions been determined using the same appropriate methodology and conservative assumptions?	/1/	DR	Yes.		ok
E.4. Emission Reductions *Validation of ex-ante estimated emission reductions*.					
E.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	/1/	DR	Yes, The project is forecasted to reduce CO_2 emissions 243 043tCO2e /year average over the crediting period.		ok
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
F.1.1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR	Yes. The impacts including on land use, noise, waste water, air, ecological environment are all described.		ok
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /5/	DR	Yes. The EIA has been approved by Gansu Provincial Environmental Protection Bureau.		ok
F.1.3. Will the project create any adverse environmental effects?	/1/ /5/	DR	The project will have positive impact on local environment.		ok
F.1.4. Are transboundary environmental impacts considered in the analysis?	/1/ /5/	DR I	There are no transboundary environmental impacts foreseen for the project.		ok
F.1.5. Have identified environmental impacts been addressed in the project design?	/1/ /4/ /5/	DR	Yes. The environmental impacts identified have been addressed in the project design.		ok

Checklist Question	Ref.	MoV*	Comments	Draft Concl	Final Concl
F.1.6. Does the project comply with environmental legislation in the host country?	/1/ /5/	DR	Yes. The EIA has been approved.		ok
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*					
G.1.1. Have relevant stakeholders been consulted?	/1/	DR	Yes. Local stakeholders were invited initially through a survey during the EIA process. All comments received and how they will be taken into account is included in the EIA report. The provided document has been verified by DNV.		ok
G.1.2. Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	Yes. The site surveys, distribution of questionnaires and meetings have been used to invite comments by local stakeholders.		ok
G.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/	DR	Yes. The stakeholder consultation process is in accordance with Chinese EIA regulations.		ok
G.1.4. Is a summary of the stakeholder comments received provided?	/1/	DR	A summary of the stakeholder comments received is described in the PDD. Please explain the disagreeable comments.	~~CL 4~~	ok
G.1.5. Has due account been taken of any stakeholder comments received?	/1/	DR	Please explain how due account has been taken of stakeholder comments received.	~~CL 5~~	ok

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
~~CAR 1~~**:** The LoAs from the Chinese DNA and the DNA of Germany have not been received.	A.3.2 A.3.3	The LoAs from the Chinese DNA and the DNA of Germany have been received.	Ok. LoAs are received. The CAR is closed.
CAR 2: The calculation for the OM and BM was not transparent and the emission factor for refinery gas, coke, coke oven gas and gas were not correctly applied from IPCC value.	E.3.3	In the PDD (version 01) submitted for the validation, the emission factor was from NDRC version August 2006. However, there was a mistake in the calculation, e.g. the emission factors for several fossil fuels were incorrectly applied in the calculation. we have modified the calculation base on the publicly available data at PDD webhosting. The corrected data including following emission factors: refinery gas: 18.2 change to 15.7 coke: 29.5 change to 29.2 coke oven gas: 13 change to 12.1 coal gas: 13 change to 12.1	OK. In the PDD published in September 2006 for the global stakeholder's consultation, data vintages from 2002 – 2004 and the 1996 IPCC guidelines were used in the calculations of the combined margin emission factor. However, as the calculation for the OM and BM was not transparent in the published PDD and the emission factor for refinery gas, coke, coke oven gas and gas were not correctly applied from IPCC value. DNV requested the project proponents to update the calculations with the correct data during the validation but failed to issue a corrective action request in the validation report. In response to the request for review from the UNFCCC EB, and decision on EB44, DNV has taken corrective action by issuing CAR 2 to make the validation process more transparent. This calculation has been validated by DNV and DNV can confirm that the values have been correctly used in the PDD version 3.2.

* MoV = Means of Verification, DR= Document Review, I= Interview

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
			CAR is closed x x
~~CL 1~~**:** Further clarification is required to justify the benchmark rate. Please provide the spreadsheet for IRR calculation.	B.2.7	According to the relevant regulation in China/11/, IRR of 8 % for total investment of a project is regarded as benchmark for investments in hydropower plants, fossil fuel fired plants and wind farm projects. The financial analysis has been provided to DNV.	Ok. DNV has checked the financial analysis and was able to verify that the choice of benchmark and the IRR calculation are both reasonable. CL is closed.
~~CL 2~~**:** The similar hydropower projects through out of Hunan Province should be compared in the common practice analysis and the data source from third party should be provided.	B.2.7	The area of Hunan Province is so large (more than 200 000sq.km) with hundreds of large rivers. So the choose of Hunan Province as region is reasonable. All the hydropower plants with installed capacity from 50MW to 100MW in Hunan Province are compared with the proposed project and the analysis shows that 4 similar hydropower projects were developed by large electricity investment companies and one similar hydropower project got a long-term ODA loan with low interest, while the YXHP is developed by a small hydropower company who has limited competence to deal with the risk and to overcome the investment barriers. The other 5 projects built after 2002, when	DNV was able to verify that hydropower projects with the installed capacity from 50MW to 100 MW were not a common practice in the province. OK. CL is closed.

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
		the reform of unbundling between generation and grid was implemented in China's electric power sector, are all applying as CDM projects. Data source used for common practice analysis are official statistics yearbooks.	
~~CL 3~~**:** According to the methodology, the surface area at full reservoir level should also be monitored.	D.1.3	The surface area will be monitored at the start of each crediting period.	Ok. This is addressed in the revised PDD. CL is closed.
CL 4.Please explain the disagreeable comments.	G.1.4	The stakeholders at the meeting expressed their views on emigration, transportation and electricity supply, and fully supported the project activity. The stakeholders also raised three issues to the project developer, and hoped these three issues can be addressed, as follows: 1. It is their hope that the traffic infrastructure of reservoir area can be further improved. 2. The Project activity may lead to soil salinization for part of the land, the project developer was expected to take actions to address this issue. 3. To avoid the flood risk, the Project developer should take actions to reinforce the embankment.	Ok. Further information on the negative comments from the local stakeholders has been provided. CL is closed.
CL 5. Please explain how due account has been taken of stakeholder comments	G.1.5	According to the comments received, further protective measurements will be	Ok. Further information on how due account has been taken is provided and

Draft report corrective action requests and requests for clarifications	Ref. to Table 2	Summary of project participants' response	Final conclusion
received.		taken for alleviating environmental impacts. Response measures to the issues raised at the meeting are as follows: 1. As to the local traffic infrastructure, the Project developer will increase investment to build road, bridge and ferry; 2. The Project developer will increase irrigation and drainage machines, and build drainage ditches to minimize soil salinization, the EIA and relevant environmental protection plan have been approved by local government. 3. The Project owner will increase the flood control standard of the embankments by strengthening the banks. 4. The resettlement plan report have been carried out by Hunan Province Design & Research Institute of Water Resources and Hydropower in May 2005, in which the compensation for resettlement is detailed as per state regulation and the plan has been approved by Hunan provincial Government in June 2005. All the measures will be carried out under the supervision of construction supervisors and relevant departments.	deemed appropriate. The CL is closed.

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APPENDIX B

CERTIFICATES OF COMPETENCE

CERTIFICATE OF COMPETENCE

Mari Grooss Viddal

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes		
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes		

Høvik, 26 September 2007

Michael Lehmann
Technical Director, International Climate Change Services

CERTIFICATE OF COMPETENCE

Einar Telnes

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3 6 & 10		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0030*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0031*	Yes
ACM0004, ACM0012	Yes	*AM0032*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0035*	Yes
ACM0007	Yes	*AM0038*	Yes
ACM0008	Yes	*AM0041*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0034*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0043*	
AM0009, AM0037	Yes	*AM0046*	
AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I	Yes	*AM0047*	
AM0014	Yes	*AMS-II.A-F, AM0044*	Yes
AM0017	Yes	*AMS-III.A*	Yes
AM0018	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0020	Yes		
AM0021, AM0028, AM0034, AM0051	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3 & 9		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0028, AM0034*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0030*	Yes
ACM0004	Yes	*AM0031*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0032*	Yes
ACM0007	Yes	*AM0035*	Yes
ACM0008	Yes	*AM0038*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0041*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0034*	Yes
AM0009, AM0037	Yes	*AM0043*	
AM0013, AM0022, AM0025, AM00379, AMS-III.H, AMS-III.I	Yes	*AM0046*	
AM0014	Yes	*AM0047*	
AM0017	Yes	*AMS-II.A-F, AM0044*	Yes
AM0018	Yes	*AMS-III.A*	Yes
AM0020	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0021	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

CERTIFICATE OF COMPETENCE

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Shu Yong Sun

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 12 March 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director