

Validation Report

Client: Smart Energy Co., Ltd.

**12.82 MW Bundled Small
Hydropower Project in Qiandongnan
Autonomous Region, Guizhou
Province, P. R. China**

2008. 10. 03

Report No. GR07W0011D

JACO CDM., LTD

Validation Report

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| Approved by: Yasunori SHIMOI CEO, President of JACO CDM | Project No.: |
| Client: Client Name: Smart Energy Co., Ltd. | Client ref.: Takuya OGUSHI |
| <p>Summary:</p> <p>JACO CDM., Ltd has performed the validation of the "12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China". The bundled project consists of 4 projects, that is, Jinping Sandengkan Project, Majingao Project, Sancengdong Project, Wawadong (I) Project.</p> <p>The Jinping Sandengkan Project is located in Tonggu Town, Jinping County and the installed capacity is 4.8 MW. The Majingao Project is located in Taiyong Town, Jianhe County and the installed capacity is 1.5 MW. The Sancengdong Project is located in Cengong County and the capacity installed is 2.52 MW. The Wawadong (I) Project is located in Panxi Town, Jianhe County and the capacity installed is 4 MW.</p> <p>These Projects are connected to the Guizhou Power Grid which is a part of China Southern Power Grid (CSPG).</p> <p>The validation is the independent third party assessment of the project design, and is the requirement for all CDM projects. The project's compliance with the relevant UNFCCC and host country criteria are validated in order to confirm that the project design is sound and reasonable and meet the stated and identified criteria.</p> <p>This validation report summarizes the findings of the validation.</p> <p>The validation consisted of the following three steps: i) desk review of the project design, the baseline and the monitoring plan etc., ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and issuance of the final validation report and the opinion.</p> <p>The responses to JACO CDM's Corrective Action Requests and Clarifications to the PDD (version 1 to version 3) were satisfactorily provided by the Project participants and the PDD was revised.</p> <p>In summary, it is JACO CDM's opinion that the Bundled Project as described in the revised PDD (version 04, September 06, 2008) meets all relevant UNFCCC requirements for the CDM and host country criteria, and correctly applies the baseline and monitoring methodology AMS.I.D. "Grid connected renewable electricity generation" version 13. Hence, JACO CDM requests the registration of the "12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China" as a CDM project.</p> | |

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| Report title: Validation Report 12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China | | |
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Abbreviations

| | |
|--------|---|
| BM | Build margin |
| CAR | Corrective Action Request |
| CDM | Clean Development Mechanism |
| CEF | Carbon Emission Factor |
| CERs | Certified Emission Reduction |
| CL | Clarification Request |
| CM | Combined Margin |
| CSPG | China Southern Power Grid |
| DNA | Designated National Authority |
| DOE | Designated Operational Entity |
| EIA | Environmental Impact Assessment |
| ERPA | Emission Reduction Purchase Agreement |
| ERs | Emission Reductions |
| FSR | Feasibility Study Report |
| GHG | Green House Gas(es) |
| HFCDM | Guizhou Hongfeng Forestry Clean Development Mechanism |
| IPCC | Intergovernmental Panel on Climate Change |
| KP | Kyoto Protocol |
| LoA | Letter of Approval |
| MP | Monitoring Plan |
| NGO | Non Governmental Organization |
| ODA | Official Development Assistance |
| OM | Operating Margin |
| PDD | Project Design Document |
| PP(s) | Project Participant(s) |
| PPA | Power Purchase Agreement |
| SD | Sustainable Development |
| SSC | Small Scale CDM |
| UNFCCC | United Nations Framework Convention on Climate Change |

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1. INTRODUCTION

1.1. Objective

Smart Energy Co., Ltd. has commissioned JACO CDM to validate the “12.82 MW Bundled Small Hydropower Project in Qiandongnan Autonomous Region, Guizhou Province, P. R. China” (hereinafter the “Bundled Project”). The validation serves as design verification and is a requirement for all CDM projects. The purpose of a validation is to have an independent third party assess the project design. In particular, the project’s baseline, the monitoring plan (MP), and the project’s compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and 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).

UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities as agreed in the Bonn Agreement and the Marrakech Accords.

1.2. Scope

The validation scope is defined as an independent and objective review of the project design document (PDD), the project’s baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. JACO CDM has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach in the validation, 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 Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

The validation was conducted by the following validation team through the assessment of the PDD (version 01 dated August 28, 2007 and version 02 dated April 18, 2008, version 03 dated August 18, 2008) and the additional documents listed in the Chapter 6 “References”, also by the interviews with persons listed in the same Chapter.

The result of validation team activity was reviewed by the internal verifiers.

Validation Team

| | |
|----------------|------------------------|
| Teruo FUKUDA: | Validation team leader |
| Shigekazu OKA: | Validation team member |

Internal Verifiers

| | |
|-------------------|-----------------------------|
| Yoshihiro OTSUKA: | General Manager of JACO CDM |
| Osamu KOBAYASHI: | General Manager of JACO CDM |

1.3. GHG Project Description

The Bundled Project is a grid-connected run-of-river small hydropower plant located at Qiandongnan Autonomous Region, Guizhou Province, P.R.China. It consists of Jinping Sandengkan small hydropower plant (hereafter referred to as Jinping Sandengkan Project), Majingao small hydropower plant (hereafter referred to as Majingao Project), Sancengdong small hydropower plant (hereafter referred to as Sancengdong Project) and Wawadong (I) small hydropower plant (hereafter referred to as Wawadong (I) Project). The total installed

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capacity of the Bundled Project is 12.82 MW.

The Jinping Sandengkan Project is located on Liangjiang River within Tonggu Town. It is designed to deliver discharge flow of 36.6 m³/s with 15.77 m water head. The total installed capacity of the Jinping Sandengkan Project is 4.8 MW. It is estimated that the feed-in electricity to the Guizhou Power Grid from the Jinping Sandengkan Project is approximately 17,791 MWh per year. The project is developed by a private company, Jinping County Kaiyuan Hydropower Development Co., Ltd.

The Majingao Project is located at Liangwan River within Taiyong Town. It is designed to deliver discharge flow of 13.11 m³/s with 14.5 m water head. The total installed capacity of the Majingao Project is 1.5 MW. It is estimated that the feed-in electricity to the Guizhou Power Grid from the Majingao Project is approximately 4,520 MWh per year. The project is developed by a private company, Jianhe County Qianlian Hydropower Development Co., Ltd.

The Sancengdong Project is located at Liangxi River within Cengong County. It is designed to deliver discharge flow of 3.80 m³/s with 82 m water head. The total installed capacity of the Sancengdong Project is 2.52 MW. It is estimated that the feed-in electricity to the Guizhou Power Grid from the Sancengdong Project is approximately 10,016 MWh per year. The project is developed by a private company, Cengong County Sancengdong Electric Power Co., Ltd.

The Wawadong (I) Project is located at Guimian River within Panxi Town. It is designed to deliver discharge flow of 3.52 m³/s with 135.5 m water head. The total installed capacity of the Wawadong (I) Project is 4 MW. It is estimated that the feed-in electricity to the Guizhou Power Grid from the Wawadong (I) Project is approximately 10,659 MWh per year. The project is developed by a private company, Jianhe County Jiangjian Hydropower Development Co., Ltd.

Guizhou Power Grid is an integral part of the China Southern Power Grid (hereafter referred to as CSPG). The electricity currently generated by the grid is relatively carbon intensive, and estimated annual electricity supplied to Guizhou Power Grid by the Bundled Project is 42,986 MWh and an estimated annual emission reduction is 36,252 t CO₂e.

Jinping County, Jianhe County and Cengong County are areas in China suffering from extreme poverty in China, populated by minorities and supported by the Central Government. After the operation of the Bundled Project, shortage of electricity supply in Jinping County, Jianhe County and Cengong County will be mitigated, and electricity supply for township and village enterprises improved and results in promotion of local economic development.

2. METHODOLOGY

The validation consists of the following three phases:

- I. a desk review of the project design documentation
- 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 customized for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organizes, 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.

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

The validation protocol is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfillment of validation protocol criteria or where a risk to the fulfillment of project objectives is identified. Corrective Action Requests (CAR) is 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 validation team may also use the term Clarification (CL), which would be where:

- iv) Additional information is needed to fully clarify an issue.

| Validation Protocol Table 1: Mandatory Requirements | | | |
|--|--|---|--|
| Requirement | Reference | Conclusion | Cross reference |
| <i>The requirements the project must meet.</i> | <i>Gives reference to the legislation or agreement where the requirement is found.</i> | <i>This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Validation report.</i> | <i>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.</i> |

| Validation Protocol Table 2: Requirement checklist | | | | |
|--|--|---|---|---|
| Checklist Question | Reference | Means of verification (MoV) | Comment | Draft and/or Final Conclusion |
| <i>The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in seven different sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.</i> | <i>Gives reference to documents where the answer to the checklist question or item is found.</i> | <i>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.</i> | <i>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.</i> | <i>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). Clarification is used when the validation team has identified a need for further clarification.</i> |

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

Figure 1 Validation protocol tables

2.1. Review of Documents

The Project Design Document submitted by Smart Energy Co., Ltd. and additional background documents related to the project design and baseline were reviewed. Documents reviewed are listed in Chapter 6 "References".

The validation findings stated hereafter are based on the PDD version 01, dated August 28, 2007, version 02, dated April 14, 2008 and version 03 dated August 18, 2008.

2.2. Follow-up Interviews

In the period of November 4, 2007 to November 10, 2007, JACO CDM conducted on-site assessment and performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Smart Energy CO., Ltd. and HFCDM (Consultant) were interviewed. Interviews with Smart Energy CO., Ltd. were held several times from December, 2007 to September, 2008. The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

| Interviewed organisation | Interview topics |
|--|--|
| Smart Energy CO., Ltd. | <ul style="list-style-type: none"> ➤ Project Overview ➤ Feasibility Study ➤ Project Design |
| HFCDM office (Consultant) | <ul style="list-style-type: none"> ➤ Project Overview ➤ Feasibility Study ➤ Project Design |
| Guizhou Province (Ms. Yin Xiao-fen) | <ul style="list-style-type: none"> ➤ Sustainable development aspect of the project ➤ Procedures for DNA approval and roles of the province |
| Jinping County Kaiyuan Hydropower Development Co., Ltd. (Jinping Sandengkan Project) | <ul style="list-style-type: none"> ➤ Organization of the company ➤ Decision as a CDM project ➤ Project management, Monitoring & training ➤ Evidences for IRR calculation ➤ Environmental Impact ➤ Stakeholder's comments ➤ Project schedule |
| Jianhe County Qianlian Hydropower | <ul style="list-style-type: none"> ➤ Ditto |

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|---|---------|
| Development Co., Ltd. (Majingao Project) | |
| Cengong County Sancengdong Electric Power Co., Ltd. (Sancengdong Project) | ➤ Ditto |
| Jianhe County Jingjian Hydropower Development Co., Ltd. (Wawadong (I) project) | ➤ Ditto |

2.3. Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarification and any other outstanding issues which needed to be clarified for JACO CDM's positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by JACO CDM were resolved during communications between the Client and JACO CDM.

To guarantee the transparency of the validation process, the concerns raised and responses given are summarized in chapter 3 below and documented in more detail in the validation protocol in Appendix A.

Since modifications to the Project design document were necessary to resolve JACO CDM's concerns, the Client decided to revise the documentation. After revised PDD was submitted and reviewed, JACO CDM issued the final validation report and opinion.

3. VALIDATION FINDINGS

In the following sections the findings of the validation are stated. The validation findings for each validation subject are presented as follows:

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.

2) Where JACO CDM had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A.

The validation of the Project resulted in 3 Corrective Action Requests, 6 Clarifications.

3) Where Clarification or Corrective Action Requests have been issued, the exchanges between the Client and JACO CDM to resolve these Clarification or Corrective Action Requests are summarised.

4) The conclusions for each validation subject are presented.

3.1. Participation Requirements**3.1.1. Discussion**

In the PDD (version 1 to version 3), the project participants are Jinping County Kaiyuan Hydropower Development Co., Ltd., Jianhe County Qianlian Hydropower Development Co., Ltd., Cengong County Sancengdong Electric Power Co., Ltd. and Jianhe County Jiangjian Hydropower Development Co., Ltd. of host Party China and Smart Energy Co., Ltd. of the Annex I Party Japan. The host Party China and the Annex I Party Japan meet the requirements to participate in the CDM.

The DNA of China approved the Bundled Project as a CDM project on 24 June 2008.

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On behalf of the Japanese DNA, Minister of Economy, trade and Industry of Japan has issued a LoA on 14 April 2008 authorizing Smart Energy Co., Ltd. as a project participant to voluntarily participate in the proposed CDM project activity. (/2/)

Approval letter of Chinese DNA has not yet been given. **(CAR 1)**

3.1.2. Findings

Corrective Action Request 1.

A copy of the letter of Approval (LoA) issued by the DNA of Chinese government shall be submitted to the validation team before the request for registration.

3.1.3. Conclusion

CAR.1:

The DNA of China issued a LoA on 22nd August, 2008 confirming that the project assists China in achieving sustainable development. The letter authorizes Jinping County Kaiyuan Hydropower Development Co., Ltd. as a project participant to voluntarily participate in the Bundled Project, who is representing the 4 hydropower companies of the Bundled Project. (/3/)

Regarding this LoA description, 4 hydropower companies involved in the project agreed to revise the description of the project participants in the PDD.

CAR 1 was closed.

The project complies with the requirements.

3.2 Project Design

3.2.1 Discussion

(1) Boundary

The project's spatial (geographical) boundaries are clearly defined in the PDD.

Jinping Sandengkan Project is located within Zhongchen County which has geographical coordinates with east longitude of 108°48'37" ~ 109°24'35" and north latitude of 26°23'39" ~ 26°46'49". Majingao Project is located at Taiyong Town, Jianhe County which has geographical coordinates with east longitude of 108°25' and north latitude of 26°24' ~ 26°30'. Sancengdong Project is located within Kelou Town, Cengong County which has geographical coordinates with east longitude of 108°21'33" ~ 108°24'56" and north latitude of 27°20'50" ~ 27°20'13". Wawadong (I) Project is located within Jianhe County, dam has geographical coordinates with east longitude of 108°54'04" and north latitude of 26°42'43", power plant has geographical coordinates with east longitude of 108°53'54" and north latitude of 26°42'35".

The project's system (components and facilities used to mitigate GHGs) boundaries are clearly defined as the power plant and the China Southern Power Grid (CSPG) including Guangdong Province, Guangxi Province, Yunnan Province and Guizhou Province grid.

(2) Technology

The project is a bundled small hydropower project consisted of 4.8 MW Jinping Sandengkan Power Station, 1.5 MW Majingao Power Station, 2.52 MW Sancengdong Power Station and 4 MW Wawadong (I) Power Station. Total output capacity is 12.82 MW. The capacity is less than 15 MW and is qualified as a small scale CDM project activity Type I, category D as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for CDM. The project geographical boundary is not within 1 km radius of any other proposed CDM projects, hence the bundled project activity is not a debundled component of a larger project activity.

The hydro turbines, the generators and monitoring equipment are made by Chinese experienced manufacturers. The Bundled Project is newly built power station and all the energy generating equipment are new.

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As a renewable energy project, the proposed project activity is expected to supply 42,986MWh to CSPG grid annually according to the feasibility study, which will achieve the annual emission reductions of 36,252 tCO₂e.

The starting dates for the projects are as follows.

Jinping Sandengkan Project: November 5, 2005 (starting date of construction)

Majingao Project: March 28, 2006 (Turbines/Generators contract signed)

Cengong Sancengdong Project: March 17, 2006 (Turbines/Generators contract signed)

Wawadong (I) Project: June 30, 2005 (starting date of construction)

Operational lifetime of the project is 25 years and the crediting period is clearly defined as 7 years. The starting date of the first crediting period of the Bundled Project is October 01, 2008 or registration date, whichever is the latest date.

(3) Contribution to sustainable development

The Bundled Project is run-of-river type hydro power station and the environmental impacts of the project are considered negligible.

The power generated by the project will provide positive economic returns to improve life status in one of the most economically segregated regions in China.

Also, the project creates employment during its construction and operation.

Report for influence on the environment of each project was approved by the local government of Guizhou and each of these projects contributes to the sustainable development of China as confirmed in the LoA of China. (/6/, /12/)

(4) Public funding

There is no public funding.

3.2.2. Findings

Clarification 1

Maps are to be English version.

3.2.3. Conclusion

CL.1: Maps are revised to English version in the revised PDD and clarification 1 was resolved.

The Project complies with the requirements.

3.3. Baseline

3.3.1. Discussion

The project is a renewable energy project, Category I.D of the simplified modalities and procedures for small scale CDM project activities. This methodology is applied to hydropower project which supplies electricity to an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit.

The bundled project is connected with CSPG which is dominated by fossil fuel generation as indicated in the China Electric Power Yearbook 2004, 2005, 2006.

The bundled small-scale hydropower project is run-of river type hydro power project and the baseline methodology of category I.D is applicable to the project.

The baseline emission coefficient was calculated in accordance with AMS-I.D./ Version 12 § 9 (a).

AMS-I.D./ Version 12 § 9 (a): "A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the approved methodology ACM0002.

AMS-I.D./ Version 12 § 9 (b) is not applied because the data of the year in which project generation occurs is not publicly available in China.

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The ex-ante method was selected for OM and BM calculation based on the most recent information available for the period 2003-2005. The baseline is kWh produced by the renewable generating unit multiplied by an emission coefficient.

3.3.2. Findings

Corrective Action Request 2:

(1) The version of the small scale methodology AMS-I.D is to be revised as version 13 due to the expiry of the original version 12.

(2) AMS-I.D. version 13 requires the “Tool to calculate the emission factor for an electricity system”.

PDD is to be revised to comply with the requirement.

3.3.3. Conclusion

(1) The version of the small scale methodology AMS-I.D. applied to the PDD was revised from version 12 to version 13.

(2) Due to above revision, the OM / BM calculation was revised by using “Tool to calculate the emission factor for an electricity system”.

CAR 2 was closed and the project complies with the requirements.

3.4 Additionality

3.4.1 Discussion

The additionality of the project is demonstrated by applying the Attachment A to Appendix B to the Simplified Modalities and Procedures for Small-Scale CDM Project Activities.

3.4.1.1 Time line and CDM consideration

The validation team assessed the proof how the CDM incentive was considered at the project implementation.

According to the explanation of the project participants whom the validation team interviewed, these projects had been studied since long time ago. However, due to lack of finance and relatively low profitability, the projects had not been materialized until the introduction of the CDM.

Time line of CDM consideration of each project is as follows.

(1) Jinping Sandengkan project

9th Sep 2005: CDM development contract was signed between the PP and CDM consultant

15th Sep 2005: Investment decision at the Board Directors Meeting. The incentive of CDM is acknowledged as a key element of the project's profitability.

5th Nov 2005: Construction contract signed

17th Mar 2006: Turbines/ generators contract signed

25th Sept 2007: ERPA contract signed

9th Oct 2007: DOE contract signed

(2) Majingao project

19th Feb 2006: CDM development contract was signed between the PP and CDM consultant

1st Mar 2006: Investment decision at the Board Directors Meeting. The incentive of CDM is acknowledged as a key element of the project's profitability.

28th Mar 2006: Turbines/ generators contract signed

20th Apr 2006: Construction contract signed

25th Sept 2007: ERPA contract signed

9th Oct 2007: DOE contract signed

(3) Sancengdong project

20th Feb 2006: CDM development contract was signed between the PP and CDM

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|-----------------------------|---|
| | consultant |
| 6 th Mar 2006: | Investment decision at the Board Directors Meeting. The incentive of CDM is acknowledged as a key element of the project's profitability. |
| 17 th Mar 2006: | Turbines/ generators contract signed |
| 14 th May 2006: | Construction contract signed |
| 25 th Sept 2007: | ERPA contract signed |
| 9 th Oct 2007: | DOE contract signed |
- (4) Wawadong (I) project
- | | |
|-----------------------------|---|
| 18 th Jun 2005: | CDM development contract was signed between the PP and CDM consultant |
| 24 th Jun 2005: | The incentive of CDM is acknowledged as a key element of the project's profitability. |
| 30 th Jun 2005: | Construction contract signed |
| 15 th Nov 2006: | Turbines/ generators contract signed |
| 25 th Sept 2007: | ERPA contract signed |
| 9 th Oct 2007: | DOE contract signed |

As indicated above, investment decision was made at the Board Directors Meeting and the financial incentive created by CDM is acknowledged as a key element of the project's profitability.

3.4.1.2 Investment Barrier

As for the additionality, the existence of investment barrier and benchmark analysis was selected. In China, a FIRR of 10% (after tax) is regarded as the benchmark for investing in the small-scale hydropower as shown in "The trade standards of People Republic of China/ Economic Evaluation Code for Small Hydropower Projects" (SL16-95). (/14/)

The feasibility study reports (FSRs) for proposed projects were prepared by Guizhou Qiandongnan Autonomous Region Survey Design Research Institute for Water Resources and Hydro Power which is an independent third party entity. Each FSR was approved by Qiandongnan Autonomous Development and Reform commission and Qiandongnan Autonomous Water Resource Bureau.

For each project, the FIRR value indicated in the FSR and estimated FIRR corresponding to the actual condition applicable at the project decision making are as follows. (/7/, /8/)

(1) Jinping Sandengkan project

In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.215 RMB/kWh but actual electricity tariff for PPA is 0.1784 RMB/kWh approximately 17% lower than that of FSR.

Based on the correction, the estimated IRR was reduced from 12.91% to 5.53%.

(2) Majingao project

In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.244 RMB/kWh but actual electricity tariff for PPA is 0.1784 RMB/kWh approximately 27% lower than that of FSR.

Based on the correction, the estimated IRR was reduced from 10.42% to 5.79%.

(3) Sancengdong project

In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.208 RMB/kWh but actual electricity tariff for PPA is 0.215 RMB/kWh approximately 3% higher than that of FSR.

FSR does not include the transmission loss and the station loss such that the electricity delivered to the grid is approximately 17% less than that of FSR.

Based on the correction, the estimated IRR was reduced from 10.73% to 7.78%.

(4) Wawadong (I) project

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In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.215 RMB/kWh but actual electricity tariff for PPA is 0.1784 RMB/kWh approximately 17% lower than that of FSR.

Based on the correction, the estimated IRR was reduced from 8.31% to 4.28%.

The FIRR without CER revenues and with CER revenues was calculated as follows.

Jinping Sandengkan Project: 5.53% (without CER), 9.61% (with CER)

Majingao Project: 5.79% (without CER), 10.34% (with CER)

Sancengdong Project: 7.78% (without CER), 11.58% (with CER)

Wawadong (I) Project: 4.28% (without CER), 7.72% (with CER)

The validation team reviewed the FIRR of FSRs and FIRR calculation in the spread sheets for each project regarding following parameters.

- (a) Generation output (MWh) based on the historical water flow
- (b) Total investment
- (c) Electricity tariff and revenues
- (d) Generation cost including operational / maintenance cost
- (e) Tax and other expenses

Based on the review of the evidences for parameters (a) to (e) above, the validation team confirmed that FIRR calculation corresponding to the revised PDD for each project is appropriate.

3.4.2 Findings

Corrective Action Request 3

The evidences are required to indicate how the CDM incentive was considered at the project investment decision.

Clarification 2

Investment barrier analysis by IRR and its evidence data are to be clarified considering the guidance provided in EB38 paragraph 54 (relationship between Feasibility Study Report (FSR) and the CDM decision).

3.4.3 Conclusion

CAR 3

For each project, the following evidences were provided.

- Minutes of Board Directors Meeting
- CDM development contract between project owners & CDM consultants and decision

Regarding the FSR, in case of the Majingao Project and the Sancengdong project, the official FSR was provided to the project owners and they were reflected to the CDM decision. The time gap between the FSR and the Board Decision is approximately 6 months (Majingao Project) and 14 months (Sancengdong Project) and are sufficiently short. (/9b/, /9c/,)

However, in case of Jinping Sandengkan project and Wawadong (I) project, the official FSR was provided to the project owners after their CDM decisions.

For the latter 2 cases, the validation team clarified through interviews of the project owners that the projects had been studied since long time ago, however due to lack of finance; the projects have not been materialized until the introduction of the CDM. (/9a/, /9d/)

In this situation, the CDM decision was made before the finalization of the official FSR.

In each case, it is confirmed that the CDM incentive is seriously considered at the project investment decision.

CAR 3 was closed.

CL 2

Investment barrier analysis by IRR and its evidence data are clarified.

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It is confirmed that the FIRR calculation was carried out using conservative assumptions in the revised PDD version 04. (8/)

Parameters for electricity tariff, total investment and annual operation costs are selected in the sensitivity analysis. The FIRR is still below the FIRR bench mark value of 10% when the most sensitive parameter varies $\pm 10\%$.

Based on this assessment, the validation team confirmed that the bundled project is not financially feasible without CDM and the bundled project activity is additional due to the investment barrier.

The project complies with the requirements.

3.5. Monitoring Plan

3.5.1. Discussion

The approved baseline and monitoring methodology as described in AMS-I.D. – Grid connected renewable electricity generation is applied. The selected monitoring methodology is in line with the monitoring methodologies provided for the relevant project category as listed in Appendix B of the Simplified Modalities and Procedures for Small Scale CDM project activities.

The bundled project is a run-of river hydropower project and involves no flooded area, hence no indicators are defined regarding project emissions.

According to AMS-I.D., leakage calculation is only needed if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. By the on-site assessment, the validation team confirmed that the Bundled Project is newly built power station and all the energy generating equipments are new.

Therefore, leakage monitoring is not required.

The electricity generation will be monitored and baseline emissions will be determined by multiplying the net electricity kWh by the emission factor calculated as the combined margin. The electricity supplied to the grid and the electricity drawn from the grid will be monitored with the calibrated meters and checked jointly by CSPG and project participants. Also, these data will be cross-checked against the sales receipt.

Ex-ante emission factors are selected and fixed for the first 7 years crediting period. This choice complies with the SSC modalities and procedures.

It was confirmed at the on-site assessment that extensive initial training and maintenance efforts are taken by the project participants.

3.5.2 Findings

Clarification 3

- (1) Table of B.7.1 of the PDD is to be completed.
("value of data", "description of measurement methods –", and "QA/QC")
- (2) Frequency of measurement and recording is to be clarified.

Clarification 4

- (1) Organization structure for managing the bundled project is to be clarified.
- (2) Power Purchase Agreement (PPA) is to be provided.

Clarification 5

- (1) Procedures for training of monitoring personnel and management are to be clarified.
- (2) Procedures for emergency are to be clarified.
Ex. Back-up system of monitoring equipment
- (3) Chinese national standards and rules applied to the project are to be explained.
- (4) Procedures for maintenance of monitoring equipment and installations are to be explained.
- (5) Procedures for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation) are to be explained.
- (6) Procedures are to be explained for dealing with possible monitoring data adjustments and uncertainties.
- (7) Procedures are to be explained for internal audits of GHG project compliance with

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- operational requirements as applicable.
- (8) Procedures for project performance reviews are to be explained.
 - (9) Procedures for corrective actions in order to provide for more accurate future monitoring and reporting are to be explained.

3.5.3 Conclusion

CL 3

- (1) Table of B.7.1 was revised properly.
- (2) Frequency of measurement and recording was added.

Revision is appropriate and CL3 was clarified.

CL 4

- (1) Organization for managing the bundled project was described in the revised PDD.
- (2) PPA for each project was provided.

CL4 was clarified.

CL 5

- (1) Smart Energy Co., Ltd., and the designated agency will be in charge of training for monitoring personnel and management. It is indicated in the revised PDD.
- (2) Procedures for emergency are indicated in the revised PDD.
- (3) Procedures for calibration of monitoring equipment are indicated in the revised PDD with Chinese national standards and rules.
- (4) Procedures for maintenance of monitoring equipment and installations are indicated in the revised PDD. Electric meters for monitoring the generation belong to the local electric power grid company.
- (5) Procedures for day-to-day records handlings are indicated in the revised PDD.
- (6) Procedures are explained for dealing with possible monitoring data adjustments and uncertainties in the revised PDD.
- (7) The procedures for QA/QC are indicated in the PDD B.7.2.
The electricity delivered to and from the Grid will be monitored with electric meters and the data will be cross-checked against relevant electricity sales receipt and/or records from the Grid.
- (8), (9) Procedures for project performance review and corrective actions are indicated in the revised PDD.

CL5 was clarified.

The project complies with the requirements.

3.6. Calculation of GHG Emissions

3.6.1. Discussion

The project is a run-of river small scale hydropower project, hence the project emissions can be neglected.

The Bundled Project is newly built power station and all the energy generating equipments are new. Therefore, leakage counting is not required.

All the power plants connected to the CSPG are included for calculating the OM and BM. In the PDD version 01 & 02, the baseline emissions were calculated in accordance with ACM0002.

Connected electric power system is CSPG which imports electricity from Central China Grid.

As indicated in 3.3.2, the version of AMS-I.D. applied to the project was revised to version 13 and the PDD was revised to version 03 accordingly. In the revised PDD version 03, the emission factor is calculated using the methodological tool "Tool to calculate the emission factor for an electricity system" (hereinafter: Emission Factor Tool) as follows.

Step 1: Import from Central China Grid is calculated using option (b) of Step 1.

Step 2: Simple OM (low cost must run plants are hydropower, wind power and

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nuclear plant and the total generation by them in CSPG is 30 to 34% in 2001 to 2005. This is less than 50% and the Simple OM is applicable.

Step 3: Due to the situation that plant specific fuel consumption and electricity generation data are not publicly available in China, Options A and B are not applicable. Therefore, Option C is applied.

OM is based on the China Energy Statistical Yearbook 2004, 2005 and 2006 Edition.

Step 4: The set of power capacity additions in CSPG during the year 2003 to 2005 is 21.5% of the total installed capacity of CSPG in 2005. For BM calculation, capacity additions in CSPG from 2003 to 2005 is used. With regard to the vintage of the data, Option 1 was selected.

Step 5: BM is calculated using formula 12 of the Emission Factor Tool based on modified methods agreed by the EB for the approved methodologies AM005 and AMS-I.D. because plant specific data are not publicly available in China. Capacity additions in CSPG from 2003 to 2005 were used for estimating the BM emission factors.

In CSPG, there are 3 types of thermal power plants, that are, coal-fired, oil-fired and gas-fired plants. For calculating BM, efficiency level of best electricity generation technologies is applied and emission factor of 2006 IPCC Guidelines for National Greenhouse Gas Inventories is applied.

The application complies with the Emission Factor Tool and the EB clarification for the approved methodologies AM005 and AMS-I.D.

Step 6: CM is calculated using formula 13 of the Emission Factor Tool with $W_{OM}=0.5$ and $W_{BM}=0.5$.

Calculated results are OM = 1.0119, BM = 0.6748 and CM = 0.84335 tCO₂/MWh.

The calculation satisfies AMS-I.D. and relevant rules. (/2b/, /4/, /7/, /28/ ~/32/)

3.6.2. Findings**Clarification 6:**

How uncertainties are addressed in the feasibility study report is to be clarified.

3.6.3. Conclusion**CL 6**

Power supplied to the grid is based on the authorized Feasibility Study Report which estimates the generation based on the average water flow during approximately 30 years.

CL6 was clarified.

The project complies with the requirements.

3.7. Environmental Impacts**3.7.1. Discussion**

The bundled project is run-of-river type hydro power station and the environmental impacts of the project are considered negligible.

EIA approval letter is given to each project. (/12/)

3.7.2. Findings

None

3.7.3. Conclusion

The project complies with the requirements.

3.8. Comments by Local Stakeholders**3.8.1. Discussion**

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In September 2007, project participants carried out a survey of relevant stakeholders, that is, local residents, local authorities, local environmental protection authority, local electricity authority and local water authority. The project participants organized meetings for stakeholders comment. The procedures are appropriate to this project circumstances, as regulations and laws for stakeholder consultation process are not still available in China.

3.8.2. Findings

None

3.8.3. Conclusion

The project complies with the requirements.

3.9. Bundling of small scale CDM project Activities

3.9.1. Discussion

The 12.82 MW bundled project is consisted of 4 small scale hydropower projects, that is, 4.8 MW Jinping Sandengkan Power Station, 1.5 MW Majingao Power Station, 2.52 MW Sancengdong Power Station and 4 MW Wawadong (I) Power Station. All projects satisfy the following conditions of bundling.

- The projects in the Bundle are made at the same time.
- The projects in the Bundle have the same crediting period. (Starting date: Oct. 01, 2008 or registration date, which ever is the latest date.)
- The projects in the Bundle comply with the simplified modalities and procedures for small-scale CDM project activities, also they use the same methodology AMS-I.D.
- The sum of the generation capacity is 12.82 MW and less than 15MW.

A written statement by the project participants for bundling was provided in accordance with UNFCCC Information note on bundling of small scale CDM Project Activities, Version 04 dated 22 December, 2006. (/11/)

3.9.2. Findings

None

3.9.3. Conclusion

The project complies with the requirements.

4. COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

JACO CDM published the project documents on its website linked with UNFCCC web site on 2007-11-01 and invited comments until 2007-11-30 by Parties, stakeholders and non-governmental organizations. No comments were received.

Before submission to UNFCCC for request for registration, the validity of the version 12 of AMS-I.D expired on 13 Aug, 2008; therefore, the project participants revised the PDD based on the AMS-I.D version 13.

JACO CDM published the revised PDD on its website again on 2008 – 08 – 22 and invited comments until 2008 – 09 – 20 in accordance with the decision EB27 rep. 29 (a). No comments were received.

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5. VALIDATION OPINION

JACO CDM., Ltd has performed the validation of the “12.82 MW Bundled Small Hydropower Project in Qiandongnan Autonomous Region, Guizhou Province, P. R. China”. The bundled project consists of 4 projects, that is, Jinping Sandengkan Project, Majingao Project, Sancengdong Project, Wawadong (I) Project.

The Jinping Sandengkan Project is located in Tonggu Town, Jinping County and the installed capacity is 4.8 MW. The Majingao Project is located in Taiyong Town, Jianhe County and the installed capacity is 1.5 MW. The Sancengdong Project is located in Cengong County and the capacity installed is 2.52 MW. The Wawadong (I) project is located in Panxi Town, Jianhe County and the capacity installed is 4 MW.

These Projects are connected to the Guizhou Power Grid which is a part of China Southern Power Grid (CSPG).

The validation is the independent third party assessment of the project design, and is the requirement for all CDM projects. The project's compliance with the relevant UNFCCC and host country criteria are validated in order to confirm that the project design is sound and reasonable and meet the stated and identified criteria.

This validation report summarizes the findings of the validation.

The validation consisted of the following three steps: i) desk review of the project design, the baseline and the monitoring plan etc., ii) follow-up interviews with project stakeholders and iii) the resolution of outstanding issues and issuance of the final validation report and the opinion.

The responses to JACO CDM's Corrective Action Requests and Clarifications to the PDDs (version 01 to version 03) were satisfactorily provided by the Project participants and the PDD was revised.

In summary, it is JACO CDM's opinion that the Project as described in the revised PDD (version 04, September 06, 2008) meets all relevant UNFCCC requirements for the CDM and host country criteria, and correctly applies the baseline and monitoring methodology AMS.I.D. “Grid connected renewable electricity generation” version 13. Hence, JACO CDM requests the registration of the “12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China” as a CDM project.

Validation Report

6. REFERENCES

Category 1 Documents:

Documents provided by the Client that relate directly to the GHG components of the project,

- /1a/ PDD version 01 “12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China” dated August 28, 2007.
- /1b/ PDD version 02 “12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China” dated April 14, 2008.
- /1c/ PDD version 03 “12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China” dated August 18, 2008.
- /1d/ PDD version 04 “12.82 MW Bundled Small Hydropower Project in Quiandongnan Autonomous Region, Guizhou Province, P. R. China” dated September 06, 2008.
- /2a/ Approved Small-Scale methodology AMS-I.D., version 12
- /2b/ Approved Small-Scale methodology AMS-I.D., version 13
- /3/ Attachment A to Appendix B to the Simplified Modalities and Procedures for Small-scale CDM Project Activities
- /4/ Methodological tool “Tool to calculate the emission factor for an electricity system” (version 01)
- /5/ Approval of a CDM project and authorization of voluntary participation under the Kyoto Protocol by the Government of Japan
- /6/ Letter of Approval for 12.82MW Bundled Small Hydropower Project by Chinese DNA
- /7a/ The feasibility study report of the 4.8 MW Jinping Sandengkan Project (2006/04)
- /7b/ The feasibility study report of the 1.5 MW Majingao Project (2005/08)
- /7c/ The feasibility study report of the 2.52 MW Sancengdong Project (2004/12)
- /7d/ The feasibility study report of the 4 MW Wawadong (I) Project (2006/07)
- /8a/ IRR spread sheet for Jinping Sandengkan Project
- /8b/ IRR spread sheet for Majingao Project
- /8c/ IRR spread sheet for Sancengdong Project
- /8d/ IRR spread sheet for Wawadong (I) Project
- /9a/ Minutes of Board Directors Meeting (Jinping Sandengkan Project)
- /9b/ Board Directors Decision (Majingao Project)
- /9c/ Board Directors Decision (Sancengdong Project)
- /9d/ Board Directors Decision (Wawadong (I) Project)
- /10a/ CDM development contract (Jinping Sandengkan Project)
- /10b/ CDM development contract (Majingao Project)
- /10c/ CDM development contract (Sancengdong Project)
- /10d/ CDM development contract (Wawadong (I) Project)
- /11a/ Power Purchase Agreement (Jinping Sandengkan Project)
- /11b/ Power Purchase Agreement (Majingao Project)
- /11c/ Power Purchase Agreement (Sancengdong Project)
- /11d/ Power Purchase Agreement (Wawadong (I) Project)

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- /12a/ About approval of report for influence to environment of San Deng Kan project
- /12b/ The No.2007.2 letter of Bureau of Environment protection of Jianhe (Majingao project)
- /12c/ Comments by the approval organization (Sancengdong project)
- /12d/ The No.2006.14 documents of Bureau of Environment protection in Southeast of Guizhou (Wawa tong second class waterpower station in Jianhe county, Guizhou)
- /14/ The trade standards of People Republic of China, “ Economic Evaluation Code for Small Hydropower Projects” (SL16-95)
- /15/ Agreement of Project Bundling (Jinping Sandengkan, Majingao, Sancendong and Wawadong (I) Project)
- /16/ Minutes of Stakeholder’s meeting of the CDM Project in Qiandongnan Autonomous region (by HFCDM)

Category 2 Documents:

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

- /20/ Simplified modalities and procedures for small-scale CDM project activities
FCCC/KP/CMP/2005/8/add.1
- /21/ Glossary of CDM terms
- /22/ Information note on bundling of small scale CDM Project Activities, Version 04
- /23a/ ACM0002/ Version 06, Consolidated baseline and monitoring methodology
- /23b/ ACM0002/ Version 07, Consolidated baseline and monitoring methodology
- /24/ CDM Executive Board Meeting No. 38, Report § 54 (FSR)
- /25/ CDM Executive Board Meeting No. 41, Annex 45 (Investment Analysis)
- /26/ CDM Executive Board Meeting No. 41, Annex 46 (Prior Consideration)
- /27/ ERPA document for the 12.82 MW Bundled Small Hydropower project
- /28/ China Energy Statistical Year Book, 2004, 2005, 2006
- /29/ China Electric Power Year Book, 2004, 2005, 2006
- /30/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Workbook, Vol 2, Energy
- /31/ China DNA’s Guideline of emission factors of Chinese grids, published in 2007/08/09
[<http://cdm.ccchina.gov.cn/web/NewsInfo.asp?NewsId=2193>]
- /32/ EB’s clarification on request for clarification for methodologies AM005 on 07/10/2005
[http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_QEJWJEF3CFBP1OZAK6V5YXPQKK7WYJ]
- /33/ Environmental Protection Law of the People’s Republic of China
- /34/ Validation Verification Manual by IETA, 2004
- /35/ Technical administrative code of electric energy metering (DL/T 448-2000)

Persons interviewed:

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

- /41/ Takuya OGUSHI, CEO, Smart Energy Co., Ltd.
- /42/ Sun Liyan, Manager, Strategic Investment, Smart Energy Co., Ltd.

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- /43/ Chen Shi-kang, CEO, HFCDM
- /44/ Wu Qiao-ming, General Manager, HFCDM
- /45/ Li Jun, Senior Consultant, HFCDM
- /46/ Yang Sheng-gang, Project manager, HFCDM
- /47/ Chen Tong-xuan, Project manager, HFCDM
- /48/ Wu Zi-gang, Manager, Power Grid
- /49/ Ou Ru-Lin, CEO, Jinping Sandengkan Project
- /50/ Zeng Xiao-Chun, Vice President, Jinping Sandengkan Project
- /51/ Jiang Feng-qing. CEO, Majingao Project
- /52/ Wang, Majingao Project
- /53/ Li Jie-Shu, CEO, CEO, Sancengdong Project
- /54/ Liu Yimin, CEO, Wawadong (I) Project
- /55/ He Qing, Secretary, Cengong Electricity Board
- /56/ Qin Bin, Manager, Electricity Board
- /57/ Liu Qing-Ping, Engineer, Water Bureau, Jinping County
- /58/ Jiang Xian-Ping, Village Master, Dun Zhai Village
- /59/ Huang Sheng-Ke, Dun Zhai Village

APPENDIX A

CDM VALIDATION PROTOCOL

**12.82 MW Bundled Small
Hydropower Project in
Qiandongnan Autonomous
Region, Guizhou Province, P. R.
China**

BUNDLED SMALL-SCALE CDM VALIDATION PROTOCOL

INTRODUCTION

This document contains a generic Validation Protocol for small-scale CDM projects, which must be seen in conjunction with the Validation and Verification Guidelines and the Validation Report Template.

This validation protocol serves the following purposes:

- It organizes, details and clarifies the requirements a project is expected to meet; and
- It ensures a transparent validation process by inducing the validator to document how a particular requirement has been validated and which conclusions have been reached;

This protocol contains two tables with generic requirements for validation projects. Table 1 shows the requirements that the GHG emission reduction project will be validated against. Table 2 consists of a checklist with validation questions related to one or more of the requirements in Table 1. The checklist questions may not be applicable for all investors, and should not be viewed as mandatory for all projects. Where a finding is issued, a corrective action request or clarification request are stated. The resolution and final conclusions of these requests should be described in Table 3 of this protocol.

Before this generic validation protocol can be applied to validate a specific project, the validator must review and adjust/amend the protocol to make it applicable to individual project characteristics and circumstances as well as individual investor criteria. The application of the validator's professional judgment and technical expertise should ensure that checklist amendments cover all necessary specific project requirements that have impact on project performance and acceptance of the project. Given the above, the checklist part of the protocol is neither exhaustive nor prescriptive.

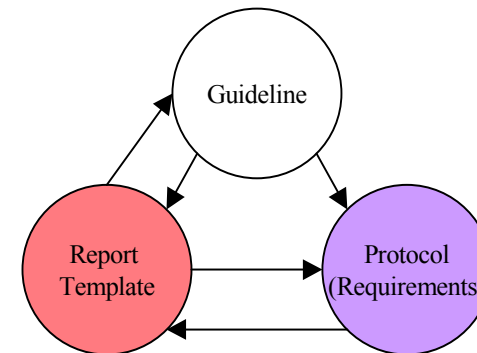


TABLE 1 MANDATORY REQUIREMENTS FOR SMALL SCALE CLEAN DEVELOPMENT MECHANISM (CDM) PROJECT ACTIVITIES

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|---|---|------------------------|--|
| 1. 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 One project participant Smart Energy Co., Ltd. Is from Annex I country. The project assists the Annex I country in achieving compliance with part of their emission reduction commitment under Art. 3. |
| 2. Assist non-Annex I Parties in achieving sustainable development and the project has obtained confirmation by the host country that the project assists in achieving sustainable development | Kyoto Protocol Art. 12.2, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a | CAR 1 OK | Table 2, Section A.3.3 CAR 1 (1) The confirmation by the Government of China that the project contributes to the SD of China is to be provided. |
| 3. Assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC? | Kyoto Protocol Art. 12.2. | CAR 1 OK | Table 2, Section E.4.1 CAR 1 (2) It is to be confirmed that the project assists China in contributing to the ultimate objective of the UNFCCC. |
| 4. The project has the written approval of voluntary participation from the designated national authorities of each party involved | Kyoto Protocol Art. 12.5a, Simplified Modalities and Procedures for Small Scale CDM Project Activities §23a | CAR 1 OK | Table 2, Section E.1 to E.4 The letter of approval by the DNA of Japan was provided. CAR 1 (3) The written approval of voluntary participation from the DNA of China is to be provided. |
| 5. The emission reductions should be real, measurable and give long-term benefits related to the mitigation of climate change | Kyoto Protocol Art. 12.5b | OK | Table 2, Section B.2.1 |
| 6. Reduction in GHG emissions must 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. 12.5.c, Simplified Modalities and Procedures for Small Scale CDM Project Activities §26 | CAR 2 OK | Table 2 B.2.1 Clarification Request 2 Evidence of IRR calculations should be clarified. |

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|--|---|------------|--|
| 7. Potential public funding for the project from Parties in Annex I is not a diversion of official development assistance | Marrakech Accords (Decision 17/CP.7) | OK | There is no public funding. |
| 8. Parties participating in the CDM shall designate a national authority for the CDM | Marrakesh Accords (CDM modalities§ 29) | OK | |
| 9. The host country and participating Annex I Party are a Party to the Kyoto Protocol | Marrakesh Accords (CDM modalities§ 30) | OK | China and Japan are a Party to the Kyoto Protocol. |
| 10. The participating Annex I Party's assigned amount shall have been calculated and recorded. | CDM Modalities and Procedure §31b | OK | AAUs have been calculated and recorded. |
| 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 Procedure §31b | OK | The participating Annex I Party has in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7. |
| 12. The proposed project activity shall meet the eligibility criteria for small scale CDM project activities set out in § 6 (c) of the Marrakesh Accords and shall not be a debundled component of a larger project activity | Simplified Modalities and Procedures for Small Scale CDM Project Activities §12a,c | OK | Table 2, Section A.1 |
| 13. The project design document shall conform with the Small Scale CDM Project Design Document format | Simplified Modalities and Procedures for Small Scale CDM Project Activities, Appendix A | OK | |
| 14. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and uses the simplified baseline and monitoring methodology for that project category | Simplified Modalities and Procedures for Small Scale CDM Project Activities §22e | OK | Table 2, Section A.1.3 and B.1 |
| 15. Comments by local stakeholders are invited, and a summary of these provided | Simplified Modalities and Procedures for Small Scale CDM Project Activities §22b | OK | Table 2, Section G |
| 16. If required by the host country, an analysis of the environmental impacts of the project activity is carried out and documented | Simplified Modalities and Procedures for Small Scale CDM Project Activities §22c | OK | Table 2, Section F |

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|---|--|------------|----------------------------|
| 17. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements and comments have been made publicly available | Simplified Modalities and Procedures for Small Scale CDM Project Activities §23b,c,d | OK | No comments have received. |
| 18. [Bundled small-scale CDM project] Bundled small-scale CDM project activities shall satisfy the conditions of bundling. | Guidelines for completing the form for submission of bundled small-scale CDM project activities (F-CDM-SSC-BUNDLE) | OK | Table 2, Section H |

TABLE 2 REQUIREMENTS CHECKLIST

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|---|-------------|------|--|--------------|--------------|
| 1 PROJECT DESCRIPTION The project design is assessed. | | | | | |
| A.1. Small scale project activity It is assess whether the project qualifies as small scale CDM project activity. | | | | | |
| A.1.1.Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM? | /1/ /20/ | DR | Yes. The project is a bundled small hydropower project consisted of 4.8 MW Jinping Sandengkan Project, 1.5 MW Majingao Project, 2.52 MW Sancengong Project and Wawadong (I) Project. Total output capacity is 12,82 MW. The capacity is less than 15 MW and is qualified as a small scale CDM project activity Type I, category D as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for CDM. | OK | OK |
| A.1.2.The small scale project activity is not a debundled component of a larger project activity? | /1/ /21/ | DR | No, the proposed project is not a de-bundled component of any larger scale project. The project geographical boundary is not within 1 km radius of any other proposed CDM projects. | OK | OK |
| A.1.3.Does proposed project activity conform to one of the project categories defined for small scale CDM project activities? | /1/ /2/ | DR | Yes. The project conforms to Type I (Renewable energy projects) and category of I.D. (Grid connected renewable electricity generation). | OK | OK |
| A.2. Project Design Validation of project design focuses on the choice of technology and the design documentation of the project. | | | | | |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|---|------------|------|--|----------------|--------------|
| A.2.1. Are the project's spatial (geographical) boundaries clearly defined? | /1/ | DR | <p>Yes.</p> <p>The project's spatial (geographical) boundaries are clearly defined in the PDD.</p> <p>Jinping Sandengkan Project is located within Zhongchen County which has geographical coordinates with east longitude of 108°48'37" ~ 109°24'35" and north latitude of 26°23'39" ~ 26°46'49".</p> <p>Majingao Project is located at Taiyong Town, Jianhe County which has geographical coordinates with east longitude of 108°25' and north latitude of 26°24' ~ 26°30'.</p> <p>Sancengdong Project is located within Kelou Town, Cengong County which has geographical coordinates with east longitude of 108°21'33" ~ 108°24'56" and north latitude of 27°20'50" ~ 27°20'13".</p> <p>Wawadong (I) Project is located within Jianhe County, dam has geographical coordinates with east longitude of 108°54'04" and north latitude of 26°42'43", power plant has geographical coordinates with east longitude of 108°53'54" and north latitude of 26°42'35".</p> <p>CL1</p> <p>Maps are to be English version.</p> | CL1 | OK |
| A.2.2. Are the project's system (components and facilities used to mitigate GHG's) boundaries clearly defined? | /1/ /2/ | DR | <p>Yes.</p> <p>The project's system (components and facilities used to mitigate GHGs) boundaries are clearly defined as the power plant and the China Southern Power Grid (CSPG) including Guangdong Province, Guangxi Province, Yunnan Province and Guizhou Province grid.</p> | OK | OK |
| A.2.3. Does the project design engineering reflect current good practices? | /1/ /2/ | DR | <p>Yes.</p> <p>It was confirmed that the project design engineering reflects current good practices.</p> <p>The hydro turbines, the generators and monitoring equipment are made by Chinese experienced manufacturer.</p> | OK | OK |

JACO CDM

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| A.2.4. Will the project result in technology transfer to the host country? | /1/ | DR | The technology is already available in China and no technology transfer is envisaged in the project. | OK | OK |
| A.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period? Does the project make provisions for meeting training and maintenance needs? | /1/ /48/~ /54/ | DR I | It was confirmed by the interview to the project participants at site that extensive initial training and maintenance efforts are taken by the project participants. | OK | OK |
| A.3. Contribution to Sustainable Development The project's contribution to sustainable development is assessed | | | | | |
| A.3.1. Will the project create other environmental or social benefits than GHG emission reductions? | /1/ /12/ | DR | Yes. The power generated by the project will provide positive economic returns to improve life status in one of the most economically segregated region in China. Also, the project creates employment during its construction and operation of the project. | OK | OK |
| A.3.2. Will the project create any adverse environmental or social effects? | /1/ /12/ | DR | The bundled project is run-of-river type hydro power station and the environmental impacts of the project are considered negligible. | OK | OK |
| A.3.3. Is the project in line with sustainable development policies of the host country? | /1/ /6/ | DR I | CAR 1 (1) The confirmation by the Government of China that the project contributes to the SD of China is to be provided. | (CAR1) | OK |
| A.3.4. Is the project in line with relevant legislation and plans in the host country? | /1/ /6/ | DR | Ditto | (CAR1) | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|---|-------------------|------|---|------------------|-----------------|
| 2 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 selected baseline methodology in line with the baseline methodologies provided for the relevant project category? | /1/ /2/ | DR | Yes. The project is a renewable energy project. Category I.D of the simplified modalities and procedures for small scale CDM project activities. This methodology is applied to hydropower project that supply electricity to an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit. | OK | OK |
| B.1.2. Is the baseline methodology applicable to the project being considered? | /1/ /2/ /4/ | DR | The bundled small-scale hydropower project is run-of river type hydro power project and the baseline methodology of category I.D is applicable to the project. According to the two options given by the simplified baseline methodology for small scale CDM project activities (AMS-I.D.), the second option (AMS-I.D. Option (a): "A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the "Tool to calculate the emission factor for an electricity system" is selected as the calculation method for the proposed project activity's baseline emission coefficient. The baseline is kWh produced by the renewable generating unit multiplied by an emission coefficient. CAR 2: (1) PDD applying AMS-I.D. version 12 shall be submitted for registration to UNFCCC before 13 August 2008. Otherwise, the PDD is to be modified applying version 13. | CAR 2 | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| B.2. Baseline Determination It is assessed whether the project activity itself is not a likely baseline scenario and whether the selected baseline represents a likely baseline scenario. | | | | | |
| B.2.1. Is it demonstrated that the project activity itself is not a likely baseline scenario due to the existence of one or more of the following barriers: investment barriers, technology barriers, barriers due to prevailing practice or other barriers? | /1/ /2/ /3/ /7/ /8/ /11/ /14/ /24/ ~ /32/ | DR | <p>The additionality of the project is demonstrated by investment barriers.</p> <p>In China, a FIRR of 10% is regarded as the benchmark for investing in the small-scale hydropower. The project's FIRR without CER revenues is as follows.</p> <p>Jinping Sandengkan Project: 5.53%</p> <p>Majingao Project: 5.79%</p> <p>Sancengdong Project: 7.78%</p> <p>Wawadong (I): 4.28%</p> <p>This shows that the bundled project is not financially feasible and the bundled project activity is additional due to the investment barrier.</p> <p>CL2</p> <p>Investment barrier analysis by IRR and its evidence data are to be clarified considering the guidance provided in EB38 paragraph 54.</p> <p>CAR 3</p> <p>The evidences are required to indicate how the CDM incentive was considered at the project investment decision. (Ref. EB41, Annex 46)</p> | CL2 CAR 3 | OK OK |
| B.2.2. Is the application of the baseline methodology and the discussion and determination of the chosen baseline transparent and conservative? | /1/ /2/ /4/ | DR | <p>The baseline is the electricity delivered to the grid multiplied by an emission coefficient as the combined margin.</p> <p>This complies with the baseline methodology.</p> <p>CAR 2 (2)</p> <p>AMS-I.D. version 13 requires the "Tool to calculate the emission factor for an electricity system".</p> <p>PDD is to be revised to comply with the requirement.</p> | CAR 2 (2) | OK |
| B.2.3. Are relevant national and/or sectoral policies and | /1/ | DR | | OK | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| circumstances taken into account? | | | Yes. The national policy favors the renewable energy. | | |
| B.2.4. Is the baseline selection compatible with the available data? | /1/ /4/ | DR | Yes. The baseline selection is compatible with the available data. | OK | OK |
| B.2.5. Does the selected baseline represent the most likely scenario describing what would have occurred in absence of the project activity? | /1/ /28/ ~ /30/ | DR | Yes. It is likely that the regional grid will remain dependent on fossil fuel energy for the first 7 years of the crediting period. | OK | OK |
| 3 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? | /1/ /7/ /9/ /10/ /24/ /26/ /48/ ~ /54/ | DR I | <p>The starting date of the project is indicated in the PDD as follows.</p> <p>Jinping Sandengkan Project: November 5, 2005 (starting date of construction)</p> <p>Majingao Project: March 28, 2006 (Turbines/Generators contract signed)</p> <p>Cengong Sancengdong Project: March 17, 2006 (Turbines/Generators contract signed)</p> <p>Wawadong (I) Project: June 30, 2005 (starting date of construction)</p> <p>Operational lifetime of the project is 25years</p> <p>(CAR 3) The evidences are required to indicate how the CDM incentive was considered at the project investment decision.</p> | (CAR 3) | OK |
| C.1.2. Is the crediting period clearly defined (seven years with two possible renewals or 10 years with no renewal)? | /1/ | DR | Yes. The crediting period is clearly defined as 7 years. | OK | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|---|------------|------|---|-----------------|-----------------|
| 4 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. | | | | | |
| .1. Monitoring Methodology It is assessed whether the project applies an appropriate monitoring methodology. | | | | | |
| D.1.1. Is the selected monitoring methodology in line with the monitoring methodologies provided for the relevant project category? | /1/ /2/ | DR | Yes. The approved baseline and monitoring methodology as described in AMS-I.D. – Grid connected renewable electricity generation is applied. The selected monitoring methodology is in line with the monitoring methodologies provided for the relevant project category as listed in Appendix B of the Simplified Modalities and Procedures for Small Scale CDM project activities. | OK | OK |
| D.1.2. Is the monitoring methodology applicable to the project being considered? | /1/ /2/ | DR | Yes. The monitoring methodology is applicable to the project. | OK | OK |
| D.1.3. Is the application of the monitoring methodology transparent? | /1/ /2/ | DR | Yes. The application of the monitoring methodology is transparent. | OK | OK |
| D.1.4. Will the monitoring methodology give opportunity for real measurements of achieved emission reductions? | /1/ /2/ | DR | Yes. According to AMS-I.D., the electricity generated will be measured to calculate the emission reductions. | OK | OK |
| 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. Are the choices of project emission indicators | /1/ | DR | The bundled project is a run-of river hydropower | OK | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|--|------------|------|---|-----------------|-----------------|
| reasonable? | | | project and involves no flooded area, hence no indicators are defined regarding project emissions. | | |
| D.2.2. Will it be possible to monitor / measure the specified project emission indicators? | — | DR | Not applicable | — | — |
| D.2.3. Do the measuring technique and frequency comply with good monitoring practices? | — | DR | Not applicable | — | — |
| D.2.4. Are the provisions made for archiving project emission data sufficient to enable later verification? | — | DR | Not applicable | — | — |
| D.3. Monitoring of Leakage It is assessed whether the monitoring plan provides for reliable and complete leakage data over time. | | | | | |
| D.3.1. If applicable, are the choices of leakage indicators reasonable? | /1/ /2/ | DR | According to AMS-I.D., leakage calculation is only needed if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. The Bundled Project is newly built power station and all the energy generating equipments are new. Therefore, leakage monitoring is not required. | OK | OK |
| D.3.2. If applicable, will it be possible to monitor / measure the specified leakage indicators? | — | DR | Not applicable | — | — |
| D.3.3. If applicable, do the measuring technique and frequency comply with good monitoring practices? | — | DR | Not applicable | — | — |
| D.3.4. If applicable, are the provisions made for archiving leakage data sufficient to enable later verification? | — | DR | Not applicable | — | — |
| D.4. Monitoring of Baseline Emissions | | | | | |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|--|-----------------------------|---------|---|------------------|--------------|
| It is established whether the monitoring plan provides for reliable and complete project emission data over time. | | | | | |
| D.4.1. Is the choice of baseline indicators, in particular for baseline emissions, reasonable? | /1/ /2/ /4/ | DR | The electricity generation will be monitored and baseline emissions will be determined by multiplying the proposed project generation kWh with the emission factor calculated as the combined margin. Ex-ante emission factors are selected and fixed for the first 7 years crediting period. This choice is in accordance with the SSC modalities and procedures. | OK | OK |
| D.4.2. Will it be possible to monitor / measure the specified baseline emission indicators? | /1/ /2/ /44/~ /56/ | DR I | Yes, the electricity supplied to the grid will be monitored directly. The baseline emissions will be calculated based on the electricity sold to the grid and cross-checked against invoices to CSPG. CL3 (1) Table of B.7.3 is to be completed. ("value of data", "description of measurement methods –" and "QA/QC") | CL3 | OK |
| D.4.3. Do the measuring technique and frequency comply with good monitoring practices? | /1/ /2/ /23/ | DR | CL3 (2) Frequency of measurement and recording is to be clarified. | CL3 | OK |
| D.4.4. Are the provisions made for archiving baseline emission data sufficient to enable later verification? | /1/ | DR | Yes | OK | OK |
| D.5. Project Management Planning It is checked that project implementation is properly prepared for and that critical arrangements are addressed. | | | | | |
| D.5.1. Is the authority and responsibility of project management clearly described? | /1/ /41/~ /56/ | DR I | CL4 (1) Organization structure for managing the bundled project is to be clarified. | CL4 | OK |
| D.5.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described? | /1/ /41/~ /56/ | DR I | CL4 (2) Power Purchase Agreement is to be provided. | CL4 OK | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| D.5.3. Are procedures identified for training of monitoring personnel? | /1/ /41/~ /56/ | DR I | CL5 (1) Procedures for training of monitoring personnel and management are to be clarified. | CL5 OK | OK |
| D.5.4. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions? | /1/ /41/~ /56/ | DR I | CL5 (2) Procedures for emergency are to be clarified. Ex. Back-up system of monitoring equipment | CL5 OK | OK |
| D.5.5. Are procedures identified for calibration of monitoring equipment? | /1/ /35/ /41/~ /56/ | DR I | Procedures for calibration of monitoring equipment are executed according to Chinese national standards and rules. CL5 (3) Chinese national standards and rules applied to the project are to be explained. | CL5 | OK |
| D.5.6. Are procedures identified for maintenance of monitoring equipment and installations? | /1/ /41/~ /56/ | DR | CL5 (4) Procedures for maintenance of monitoring equipment and installations are to be explained. | CL5 | OK |
| D.5.7. Are procedures identified for monitoring, measurements and reporting? | /1/ /41/~ /56/ | DR | OK | OK | OK |
| D.5.8. 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/ /41/~ /56/ | DR | CL5 (5) Procedures for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation) are to be explained. | CL5 | OK |
| D.5.9. Are procedures identified for dealing with possible monitoring data adjustments and uncertainties? | /1/ /41/~ /56/ | DR | CL5 (6) Procedures identified for dealing with possible monitoring data adjustments and uncertainties? | CL5 | OK |
| D.5.10. Are procedures identified for internal audits of GHG project compliance with operational requirements as applicable? | /1/ /41/~ /56/ | DR | CL5 (7) Procedures are to be explained for internal audits of GHG project compliance with operational requirements as applicable. | CL5 | OK |
| D.5.11. Are procedures identified for project performance reviews? | /1/ | DR | CL5 (8) Procedures for project performance reviews are to be explained. | CL5 | OK |
| D.5.12. Are procedures identified for corrective actions | /1/ | DR | CL5 (9) | CL5 | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| in order to provide for more accurate future monitoring and reporting? | /41/~ /56/ | I | Procedures for corrective actions in order to provide for more accurate future monitoring and reporting are to be explained. | | |
| E. Calculation of GHG emission 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 predicted project GHG emissions focuses on transparency and completeness of calculations. | | | | | |
| E.1.1. Are all aspects related to direct and indirect project emissions captured in the project design? | /1/ | DR | Yes. The project is a run-of river small scale hydropower project, hence the project emissions can be neglected. | OK | OK |
| E.1.2. Have all relevant greenhouse gases and sources been evaluated? | — | DR | Not applicable | — | — |
| E.1.3. Do the methodologies for calculating project emissions comply with existing good practice? | — | DR | Not applicable | — | — |
| E.1.4. Are the calculations documented in a complete and transparent manner? | — | DR | Not applicable | — | — |
| E.1.5. Have conservative assumptions been used? | — | DR | Not applicable | — | — |
| E.1.6. Are uncertainties in the project emissions estimates properly addressed? | — | DR | Not applicable | — | — |
| E.2. Leakage It is assessed whether there leakage effects, i.e. | | | | | |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| change of emissions which occurs outside the project boundary and which are measurable and attributable to the project, have been properly assessed. | | | | | |
| E.2.1. Are leakage calculation required for the selected project category and if yes, are the relevant leakage effects assessed? | /1/ /2/ | DR | The Bundled Project is newly built power station and all the energy generating equipments are new. Therefore, there is no leakage and this question is not applicable. | OK | OK |
| E.2.2. Are potential leakage effects properly accounted for in the calculations (if applicable)? | — | DR | Not applicable | — | — |
| E.2.3. Do the methodologies for calculating leakage comply with existing good practice (if applicable)? | — | DR | Not applicable | — | — |
| E.2.4. Are the calculations documented in a complete and transparent manner and (if applicable)? | — | DR | Not applicable | — | — |
| E.2.5. Have conservative assumptions been used (if applicable)? | — | DR | Not applicable | — | — |
| E.2.6. Are uncertainties in the leakage estimates properly addressed (if applicable)? | — | DR | Not applicable | — | — |
| E.3. Baseline GHG Emissions The validation of predicted baseline GHG emissions focuses on transparency and completeness of calculations. | | | | | |
| E.3.1. Are the baseline emission boundaries clearly defined and do they sufficiently cover sources for baseline emissions? | /1/ /2/ /4/ | DR | All the power plants connected to the CSPG are included for calculating the OM and BM. In the original PDD, the baseline emissions are calculated in accordance with ACM0002. CAR 2 (2) AMS-I.D. version 13 requires the “Tool to calculate the emission factor for an electricity system”. | CAR 2 (2) | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| | | | PDD is to be revised to comply with the requirement. | | |
| E.3.2. Are all aspects related to direct and indirect baseline emissions captured in the project design? | /1/ | DR | Yes. Validation team confirms all aspects related to direct and indirect baseline emissions captured in the project design. | OK | OK |
| E.3.3. Have all relevant greenhouse gases and sources been evaluated? | /1/ /2/ | DR | Yes. All relevant GHG and sources have been evaluated as complying with the methodology AMS-I.D. | OK | OK |
| E.3.4. Do the methodologies for calculating baseline emissions comply with existing good practice? | /1/ /2/ /4/ /28/~ /32/ | DR | Yes. The methodology as per appendix B of the simplified modalities and procedures for small scale CDM project activities. | OK | OK |
| E.3.5. Are the calculations documented in a complete and transparent manner? | /1/ /28/~ /32/ | DR | Yes. | OK | OK |
| E.3.6. Have conservative assumptions been used? | /1/ /28/~ /32/ | DR | Yes. | OK | OK |
| E.3.7. Are uncertainties in the baseline emissions estimates properly addressed? | /1/ /7/ /28/~ /32/ | DR | The estimation of the emission reductions is mainly based on the forecasted electricity production, which is the result of feasibility study. CL6 How uncertainties are addressed in the feasibility study report is to be clarified. | CL6 | OK |
| E.4. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations. | | | | | |
| E.4.1. Will the project result in fewer GHG emissions than the baseline case? | /1/ /2/ | DR | OK Based on the assessment for item B ~ E, it was confirmed that the project results in fewer GHG emissions than the baseline case. | Pending | OK |
| F. Environmental Impacts | | | | | |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|--|----------------------------------|---------|--|-----------------|-----------------|
| It is assessed whether environmental impacts of the project are sufficiently addressed. | | | | | |
| F.1.1. Does host country legislation require an analysis of the environmental impacts of the project activity? | /1/ /12/ /33/ | DR I | Host country's legislation requirement for an analysis of the environmental impacts of the project activity is to be clarified. | OK | OK |
| F.1.2. Does the project comply with environmental legislation in the host country? | /1/ /12/ /33/ | DR I | Each project complies with the Environmental Protection Law of China. EIA approval was given for each project. | OK | OK |
| F.1.3. Will the project create any adverse environmental effects? | /1/ /12/ /33/ | DR I | No. The bundled project is run-of-river type hydro power station and the environmental impacts of the project are considered negligible. | OK | OK |
| F.1.4. Have environmental impacts been identified and addressed in the PDD? | /1/ /12/ /33/ | DR | Yes. Environmental impacts are described in the PDD. | OK | OK |
| G. Comments by Local Stakeholder Validation of the local stakeholder consultation process. | | | | | |
| G.1.1. Have relevant stakeholders been consulted? | /1/ /16/ /41/ ~ /59/ | DR I | Yes. In September 2007, project participants carried out a survey of relevant stakeholders, that is, local residents, local authorities, local environmental protection authority, local electricity authority and local water authority. | OK | OK |
| G.1.2. Have appropriate media been used to invite comments by local stakeholders? | Ditto | DR I | Yes. The project participants organized meetings for stakeholders comment. The procedures are appropriate to this project circumstances. | OK | OK |
| G.1.3. If a stakeholder consultation process is required by regulations and laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations and laws? | Ditto | DR I | Regulations and laws for stakeholder consultation process are still not available in China. | OK | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
|--|-----------------------------|---------|---|--------------|--------------|
| G.1.4. Is a summary of the comments received provided? | Ditto | DR | Yes. A summary of the comments is provided in the PDD. | OK | OK |
| G.1.5. Has due account been taken of any comments received? | Ditto | DR I | Yes. Due account has been taken to stakeholders comments. | OK | OK |
| H. Conditions of Bundling of Small-scale CDM project activities | | | | | |
| H.1 General Characteristics | | | | | |
| H.1.1 The composition of bundles shall not change over time (i.e. the submission of project activities to be used in a bundle shall be made at the same time.) | /1/ /21/ /22/ | DR | Yes. All projects in the Bundle are made at the same time. | OK | OK |
| H.1.2 All project activities in the bundle shall have the same crediting period (i.e. the same length and same starting date of the crediting period). | /1/ /21/ /22/ | DR | Yes. All projects in the Bundle have the same crediting period. (October 01, 2008 or registration date, whichever is the latest date.) | OK | OK |
| H.1.3 Each small-scale CDM project in the bundle should comply with the simplified modalities and procedures for small-scale CDM project activities and use an approved simplified baseline and monitoring methodology. | /1/ /2/ | DR | Yes. All projects in the Bundle comply with the simplified modalities and procedures for small-scale CDM project activities, also they use the same methodology AMS-I.D. | OK | OK |
| H.1.4 Project participants shall at registration provide a written statement along with the submission of the bundle indicating <ul style="list-style-type: none"> • The agreement of all project participants to bundle their individual project activities; • One project participant who shall represent all project participants in order to communicate with the Board in accordance with approved Modalities and Procedures for Communication. | /1/ /15/ /21/ /22/ | DR | A written statement for bundling was provided in accordance with UNFCCC Information note on bundling of small scale CDM Project Activities, Version 04 dated 22 December, 2006. | OK | OK |
| H.1.5 Bundled project activities shall be submitted in a single submission to the Board and pay only one fee | /1/ | DR | Yes. | OK | OK |

| Checklist Question | Ref. | MoV* | Comments | Draft Concl. | Final Concl. |
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| proportional to the amount of expected average annual emission reduction of the total bundle. | | | | | |
| H.1.6 A form with information related to the bundle (F-CDM-BUNDLE) must be included in the submission. | /1/ | DR | Yes. | OK | OK |
| H.2 Small Scale limits | | | | | |
| H.2.1 The sum of the size of the technology or measure utilized in the bundle should not exceed the limits for small-scale CDM project activities. | /1/ /21/ /22/ | DR | Yes. The sum of the generation capacity is 12.82 MW and less than 15MW. | OK | OK |
| H.2.1 It should be demonstrated that the bundle will remain under the limit for the type for every year during the crediting period. The total emission reduction estimated for the crediting period must be included in the draft CDM-SSC-PDD and further monitored. | /1/ /21/ /22/ | DR | Ditto | OK | OK |

Table 3 Resolution of Corrective Action and Clarification Requests

| Draft report clarifications and corrective action requests by validation team | Ref. to checklist question in table 2 | Summary of project owner response | Validation team conclusion |
|--|---------------------------------------|--|--|
| <p>CAR 1</p> <p>(1) The confirmation by the Government of China that the project contributes to the SD of China is to be provided.</p> <p>(2) It is to be confirmed that the project assists China in contributing to the ultimate objective of the UNFCCC.</p> <p>(3) The written approval of voluntary participation from the DNA of China is to be provided.</p> | <p>(Table 1. No.2, 3, 4)</p> | <p>LoA of China DNA was provided.</p> <p>(1), (2) LoA confirms that the project complies with the requirements of CDM and assists the SD of China.</p> <p>(3) LoA authorizes Jinping County Kaiyuan Hydropower Development Co., Ltd. as China's participant to voluntarily participate in the project.</p> <p>Regarding this LoA description, 4 hydropower companies involved in the project agreed to revise the description of the project participants in the PDD.</p> | <p>OK</p> <p>CAR 1 was closed.</p> |
| <p>CAR 2:</p> <p>(1) PDD applying AMS-I.D. version 12 shall be submitted for registration to UNFCCC before 13 August 2008. Otherwise, the PDD is to be modified applying version 13.</p> <p>(2) AMS-I.D. version 13 requires the "Tool to calculate the emission factor for an electricity system". PDD is to be revised to comply with the requirement.</p> | <p>Table 2. B.1.2, B.2.2</p> | <p>(1) PDD was revised by applying version 13 of the methodology AMS-I.D version</p> <p>(2) Along with above revision, in the revised PDD, the emission factor is calculated using the "Tool to calculate the emission factor for an electricity system" as follows.</p> <p>Step 1: Import from Central China Grid is calculated using option (b) of Step 1.</p> <p>Step 2: Simple OM (low cost must run plants are hydropower, wind power and nuclear plant and the total generation by them in CSPG is 30 to 34% in 2001 to 2005. This is less than 50% and the Simple OM is applicable.</p> <p>Step 3: Due to the situation that plant specific fuel consumption and electricity generation data is not publicly available in China, Option A and B is not applicable. Therefore, Option C is applied. OM is based on the China Energy Statistical Yearbook 2004, 2005 and 2006 Edition.</p> <p>Step 4: The set of power capacity additions in CSPG during the year 2003 to 2005 is 21.5% of the total installed capacity of CSPG in 2005. For BM calculation, capacity additions in CSPG from 2003 to 2005 are used. With regards to the vintage of the data, Option 1 was selected.</p> <p>Step 5: BM is calculated using formula 12 of the</p> | <p>PDD was revised properly in accordance with the AMS-I.D version 13, "Tool to calculate the emission factor for an electricity system" and the EB clarification for the approved methodologies AM005 and AMS-I.D.</p> <p>CAR 2 was closed.</p> |

| Draft report clarifications and corrective action requests by validation team | Ref. to checklist question in table 2 | Summary of project owner response | Validation team conclusion |
|---|---------------------------------------|--|---|
| | | <p>Emission Factor Tool based on modified methods agreed by the EB for the approved methodologies AM005 and AMS-I.D. because plant specific data are not publicly available in China. Capacity additions in CSPG from 2003 to 2005 were used for estimating the BM emission factors. In CSPG, there are 3 types of thermal power plants, that are, coal-fired, oil-fired and gas-fired plants. For calculating BM, efficiency level of best electricity generation technologies is applied and emission factor of 2006 IPCC Guidelines for National Greenhouse Gas Inventories is applied.</p> | |
| <p>CAR 3 The evidences are required to indicate how the CDM incentive was considered at the project investment decision. (Ref.: EB 41, Annex 46)</p> | <p>Table 2, B.2.1</p> | <p>The Bundled Project had been studied since long time ago. However, due to lack of finance and relatively low profitability, the projects have not been materialized until the introduction of the CDM.</p> <p>The time line of the CDM consideration for Jinping Sandengkan, Majingao, Sancengdon and Waawadong (I) is as follows.</p> <p>(1) Jinping Sandengkan project 9th Sep 2005: CDM development contract was signed between the PP and CDM consultant 15th Sep 2005: Investment decision at the Board Directors Meeting. The incentive of CDM is acknowledged as a key element of the project's profitability. 5th Nov 2005: Construction contract signed 17th Mar 2006: Turbines/ generators contract signed 25th Sept 2007: ERPA contract signed 9th Oct 2007: DOE contract signed</p> <p>(2) Majingao project 19th Feb 2006: CDM development contract was signed between the PP and CDM consultant 1st Mar 2006: Investment decision at the Board</p> | <p>OK</p> <p>For each project, the following evidences were provided.</p> <ul style="list-style-type: none"> ➤ Minutes of Board Directors Meeting ➤ CDM development contract between project owners & CDM consultants and decision <p>Regarding the FSR, in case of the Majingao Project and the Sancengdong project, the official FSR was provided to the project owners and they were reflected to the CDM decision. However, in case of Jinping Sandengkan project and Wawadong (I) project, the official FSR was provided to the project owners after their CDM decisions.</p> <p>For the latter 2 cases, the projects had been studied since long time ago, however due to</p> |

| Draft report clarifications and corrective action requests by validation team | Ref. to checklist question in table 2 | Summary of project owner response | Validation team conclusion |
|---|---------------------------------------|---|--|
| | | <p>Directors Meeting. The incentive of CDM is acknowledged as a key element of the project's profitability.</p> <p>28th Mar 2006: Turbines/ generators contract signed 20th Apr 2006: Construction contract signed 25th Sept 2007: ERPA contract signed 9th Oct 2007: DOE contract signed</p> <p>(3) Sancengdong project 20th Feb 2006: CDM development contract was signed between the PP and CDM consultant 6th Mar 2006: Investment decision at the Board Directors Meeting. The incentive of CDM is acknowledged as a key element of the project's profitability. 17th Mar 2006: Turbines/ generators contract signed 14th May 2006: Construction contract signed 25th Sept 2007: ERPA contract signed 9th Oct 2007: DOE contract signed</p> <p>(4) Wawadong (I) project 18th Jun 2005: CDM development contract was signed between the PP and CDM consultant 24th Jun 2005: Investment decision at the Board Directors Meeting. The incentive of CDM is acknowledged as a key element of the project's profitability. 30th Jun 2005: Construction contract signed 15th Nov 2006: Turbines/ generators contract signed 25th Sept 2007: ERPA contract signed 9th Oct 2007: DOE contract signed</p> <p>As indicated above, for each project, investment decision was made at the Board Directors Meeting and the incentive of CDM is acknowledged as a key element of the project's profitability.</p> | <p>lack of finance; the projects have not been materialized until the introduction of the CDM. In this situation, the CDM decision was made before the finalization of the official FSR.</p> <p>In each case, it is confirmed that the CDM incentive is seriously considered at the project investment decision.</p> <p>CAR3 was closed.</p> |

| Draft report clarifications and corrective action requests by validation team | Ref. to checklist question in table 2 | Summary of project owner response | Validation team conclusion |
|---|---------------------------------------|---|--|
| CL1 Maps are to be English version. | A.2.1 | Location maps in the PDD are modified to English version. | OK |
| CL2 Investment barrier analysis by IRR and its evidence data are to be clarified considering the guidance provided in EB38 paragraph 54. | B.2.1 | <p>As the additionality, the existence of investment barrier and bench mark analysis was selected. In China, a FIRR of 10% (after tax) is regarded as the benchmark for investing in the small-scale hydropower as shown in “The trade standards of People Republic of China/ Economic Evaluation Code for Small Hydropower Projects” (SL16-95). (/14/)</p> <p>(1) Jinping Sandengkan project</p> <p>In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.215 RMB/kWh but actual electricity tariff for PPA is 0.1784 RMB/kWh approximately 17% lower than that of FSR. Based on the correction, the estimated IRR was reduced from 12.91% to 5.53%.</p> <p>(2) Majingao project</p> <p>In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.244 RMB/kWh but actual electricity tariff for PPA is 0.1784 RMB/kWh approximately 27% lower than that of FSR. Based on the correction, the estimated IRR was reduced from 10.42% to 5.79%.</p> <p>(3) Sancengdong project</p> <p>In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.208 RMB/kWh but actual electricity tariff for PPA is 0.215 RMB/kWh approximately 3% higher than that of FSR. FSR does not include the transmission loss and station loss and electricity to grid is approximately 17% less than that of FSR. Based on the correction, the estimated IRR was reduced from 10.73% to 7.78%.</p> | <p>The validation team assessed the FIRR spread sheets, background data and confirmed that in the revised PDD version 04 the FIRR calculation was carried out using conservative assumptions.</p> <p>The ratio of total investment to the capacity (MRMB/MW) was checked as shown below. These are average level compared with other small hydropower projects in China.</p> <p>Jinpin Sandengkan: 5.9 Majingao: 4.3 Sancengdong: 6.5 Wawadong (I): 5.0</p> <p>Parameters for electricity tariff, total investment and annual operation costs are selected in the sensitivity analysis. The FIRR is still below the FIRR bench mark value of 10% when the most sensitive parameter varies $\pm 10\%$.</p> <p>Based on this assessment, the validation team confirmed that the bundled project is not financially feasible without CDM and the bundled project activity is additional due to the investment barrier.</p> |

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| | | <p>(4) Wawadong (I) project</p> <p>In the scope of the FSR, IRR calculation referred to an electricity tariff of 0.215 RMB/kWh but actual electricity tariff for PPA is 0.1784 RMB/kWh approximately 17% lower than that of FSR.</p> <p>Based on the correction, the estimated IRR was reduced from 8.31% to 4.28%.</p> <p>The FIRR without CER revenues and with CER revenues was calculated as follows.</p> <p>Jinping Sandengkan Project: 5.53% (without CER), 9.61% (with CER)</p> <p>Majingao Project: 5.79% (without CER), 10.34% (with CER)</p> <p>Sancengdong Project: 7.78% (without CER), 11.58% (with CER)</p> <p>Wawadong (I) Project: 4.28% (without CER), 7.72% (with CER)</p> | CL2 was clarified. |
| <p>CL3</p> <p>(1) Table of B.7.1 is to be completed. ("value of data", "description of measurement methods –" and "QA/QC")</p> <p>(2) Frequency of measurement and recording is to be clarified.</p> | D.4.3 | <p>(1) Table of B7.1 was revised.</p> <p>(2) Frequency of measurement and recording is revised as "Measured continuously and recorded on a monthly basis; double check by receipt of sales."</p> | <p>OK</p> <p>Revision is appropriate and CL3 was clarified.</p> |
| <p>CL4</p> <p>(1) Organization structure for managing the bundled project is to be clarified.</p> <p>(2) Power Purchase Agreement is to be provided.</p> | D.5.1, 5.2 | <p>(1) Organization for managing the bundled project was described in the revised PDD.</p> <p>(2) Power Purchase Agreement for each project was provided.</p> | <p>(1) OK</p> <p>(2) OK</p> |
| <p>CL5</p> <p>(1) Procedures for training of monitoring personnel and management are to be clarified.</p> <p>(2) Procedures for emergency are to be</p> | D.5.3 ~ 5.12 | <p>(1) Smart Energy Co., Ltd., and designated agency will be in charge of training of monitoring personnel and management. It is indicated in the revised PDD.</p> <p>(2) Procedures for emergency are indicated in the revised</p> | (1) OK |

| | | | |
|--|-------|--|--|
| <p>clarified. Ex. Back-up system of monitoring equipment (3) Chinese national standards and rules to be applied to the project are to be explained. (4) Procedures for maintenance of monitoring equipment and installations? (5) Procedures for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation) (6) Procedures are to be explained for dealing with possible monitoring data adjustments and uncertainties. (7) Procedures for internal audits of GHG project compliance with operational requirements as applicable? (8) Procedures for project performance reviews? (9) Procedures for corrective actions?</p> | | <p>PDD. (3) Procedures for calibration of monitoring equipment are indicated in the revised PDD with Chinese national standards and rules. (4) Procedures for maintenance of monitoring equipment and installations are indicated in the revised PDD. Electric meters for monitoring the generation belong to the local electric power grid company. (5) Procedures for day-to-day records handlings indicated in the revised PDD. (6) Procedures are explained for dealing with possible monitoring data adjustments and uncertainties in the revised PDD. (7) The procedures for QA/QC are indicated in the PDD B.7.2. The electricity delivered to and from the Grid will be monitored with electric meters and the data will be cross-checked against relevant electricity sales receipt and/or records from the Grid. (8), (9) Procedures for project performance review and corrective actions are indicated in the revised PDD.</p> | <p>(2) OK (3) OK (4) OK (5) OK (6) OK (7) OK (8) OK (9) OK</p> |
| <p>CL6 How uncertainties are addressed in the feasibility study report is to be checked.</p> | E.3.7 | <p>Power supplied to the grid is based on the Feasibility Study Report prepared by Guizhou Qiandongnan Autonomous Region Survey Design Research Institute for Water Resources and Hydro Power which is an independent third party entity. Each FSR was approved by Qiandongnan Autonomous Development and Reform commission and Qiandongnan Autonomous Water Resource Bureau.</p> <p>The generated power is estimated based on the average water flow during approximately 30 years.</p> | OK |

**APPOINTMENT CERTIFICATE of Validation team members /
and CURRIKULUM VITAE for Internal Verifier**

APPOINTMENT CERTIFICATE

Validation team

Teruo FUKUDA

Shigekazu OKA

CURRIKULUM VITAE for Internal Verifiers

Yoshihiro OTSUKA

Osamu KOBAYASHI

APPOINTMENT CERTIFICATE

Mr. Teruo FUKUDA

born on 14 March 1942

satisfies the requirements as specified in the JACO CDM Quality Manual and is hereby appointed as

JACO CDM CDM Lead Auditor and

**Validation Team Leader for 12.82 MW Bundled
Small Hydropower Project in Qiandongnan
Autonomous Region, Guizhou Province, P. R.
China**

Tokyo, 29 October, 2007



Yoshihiro Otsuka

General Manager of the Business Development Division
JACO CDM Co., Ltd.

CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

1. Name of Firm: JACO CDM, Ltd.

2. Name of Staff: Teruo FUKUDA / Senior Chief Engineer, Assessment

3. Qualification: CDM lead auditor

4. Employment Record:

2004 - Present: Assessment Division of JACO CDM

- Verification team leader of China Xiaogushan Hydropower Project
- Validation team leader of Uganda Nile Basin AR Reforestation Project
- Verification team leader of “e7 Bhutan” CDM project
- Validation team member of Zafarana Windpower Project
- Validation team leader of “Fushun AN Plant” CDM project
- Validation team sub-leader of “e7 Bhutan” CDM project
- Verification team leader of domestic GHG emission assessment projects

2002 - 2004: Technical Advisor of Japan AE Power Systems Corporation

1998 - 2002: Director and manager of Environmental department, Japan Electrical
Manufacturers Association

1967 - 1998: Hitachi, Ltd. Head Office

5. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:

- Verification e7 Bhutan project: acted as a leader and made a verification report
- Verification of China Xiaogushan Hydropower Project: acted as a leader
- Validation of “Energy Recovery Project from Multistage Combustion treatment of Off-gas and Wastewater of the AN Plant of Fushun Chemical Company” (Trial project sponsored by Government of Japan, MOE): Acted as a validation team leader
- Validation of e7 Bhutan project: acted as a sub-leader and made a validation report and registration for EB

APPOINTMENT CERTIFICATE

Mr. Shigekazu OKA

born on 02 January 1945

satisfies the requirements as specified in the JACO CDM Quality Manual and is hereby appointed as

JACO CDM CDM Lead Auditor and

Validation Team Member for 12.82 MW Bundled Small Hydropower Project in Qiandongnan Autonomous Region, Guizhou Province, P. R. China

Tokyo, 29 October, 2007



Yoshihiro Otsuka

General Manager of the Business Development Division
JACO CDM Co., Ltd.

CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

1. **Name of Firm:** JACO CDM, Ltd.

2. **Name of Staff:** Shigekazu OKA

3. **Qualification:**

CDM lead auditor,

RST Trainer,

CEAR accredited Environmental lead auditor (A 1658)

4. **Employment Record :**

2004 - Present: Manager of Assessment Division of JACO CDM

- Verification team leader of domestic GHG emission assessment projects

2000 - 2004: Japan Audit and Certification Organization for Environment and Quality

1968 - 2000: Hitachi, Ltd.

*The manager of Production Technology Department

*Lead the operation of EMS

*Engaged in development of the elemental technology of new series, development of automation of production facilities and the rationalization of refrigerators, etc.

5. **Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:**

Validation of "Introduction of Gas turbine co-generation system" to Semiconductor Company Nagaoka Factory of Matsushita Electric Industrial Co., Ltd. (Trial Project sponsored by Government of JAPAN, MOE)

CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

1. **Proposed Position :** CDM Internal Auditor, Project manager
2. **Name of Firm:** JACO CDM., Ltd.
3. **Name of Staff:** Yoshihiro OTSUKA
4. **Date of Birth:** January 27, 1948 , **Nationality:** JAPAN
5. **Education:** Graduated from Faculty of Engineering, Chemical Engineering, Chiba University in 1970
6. **Qualification:**
CDM Lead Auditor
JRCA accredited Quality Auditor
CEAR accredited Environment Auditor
7. **Countries of Work Experience:** Japan, USA
8. **Languages:** Mother language: Japanese
Other language: Good in speaking, reading and writing in English
9. **Employment Record:**
2003 – Present: Director and General Manager of JACO CDM
2002 – 2003: Director of JACO Management System Co. Ltd.
1997 – 2002: Director of Tokai Branch, SONY Human Capital Corporation
1994 – 1997: Director of SONY Display Tube Co. Ltd. USA
1983 – 1994: Project Leader of “32 inches CRT”, SONY Inazawa Factory
1979 – 1983: SONY San Diego Factory, USA
1970 – 1979: SONY CRT Tube Manufacturing Division
10. **Detailed Tasks Assigned (Proposed)**
CDM Internal Auditor, Project manager for Capacity Building Project
11. **Work Undertaken that Best Illustrates Capability of Handle the Tasks Assigned:**
Planning, administration and dispatch of instructors for validator and verifier 5days course sponsored by METI (Japanese Government) (In 2004, 2005 and 2006, 3 times)

12. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.



Date: June 13, 2006

Full name of authorized representative: Yoshihiro OTSUKA

CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

1. Proposed Position:

2. Name of Firm: JACO CDM, Ltd.

3. Name of Staff/ Position: Osamu KOBAYASHI / Manager of Assessment Division

4. Date of Birth: February 22, 1947, **Nationality:** Japan

5. Education: Graduated from Faculty of Engineering, Tokyo University in 1970

6. Qualification: CEAR accredited Environmental lead auditor (A 7225)
CDM Lead Auditor

7. Membership of Professional Associations:

Full member of Japan Society of Mechanical Engineers

Full Member of Atomic Energy Society of Japan

8. Countries of Work Experience: Japan

9. Languages: Mother language: Japanese

Other languages: Proficiency in speaking, reading and writing in English

10. Employment Record :

2007 – Present: Manager of Assessment Division of JACO CDM

2004 - 2007: Assessment Division of JACO CDM

- Validation team member of Uganda Nile Basin AR Reforestation Project
- Determination team leader of Kaliakra Windpower Project in Bulgaria (JI project)
- Verification team member of “e7 Bhutan” CDM project
- Validation team leader of Zafarana Windpower Project
- Validation team leader of “e7 Bhutan” CDM project
- Verification team leader of domestic GHG emission assessment projects

2002 - 2004: Japan Audit and Certification Organization for Environment and Quality

1970- 2002: Fuji Electric Holdings Co., Ltd.

*Responsible for Research and Development of the technology of decommissioning of Tokai Nuclear Reactor as the general manager of Nuclear Power Co-ordination Division

*The manager of Nuclear Power Environmental Department

*The manager of Nuclear Power Design Department Nuclear Power Division

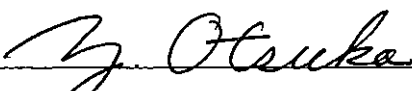
11. Detailed Tasks Assigned:

12. Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:

- Verification team member of “e7 Bhutan Micro Hydro Power CDM Project”
- Validation team leader of Kaliakra Windpower Project in Bulgaria
- Validation team leader of Zafarana Windpower Project in Egypt
- Validation team leader of “e7 Bhutan Micro Hydro Power CDM Project”
- Verification team leader of domestic GHG emission assessment projects

13. Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.



Full name of authorized representative: Yoshihiro Otsuka

Date: 29/10, 2007