



VALIDATION REPORT
for the CDM Project Activity

4 MW AMDB Perting Mini
Hydro Project

in
Bentong, Pahang,
Malaysia

Report No. 01 997 9105048789

Version No. 1.5, 2010-11-16

TÜV Rheinland Japan Ltd.

I. Project description:

Project title: 4 MW AMDB Perting Mini Hydro Project
Host Country: MALAYSIA
Methodology: AMS-1.D. version 15 ☐ Large Scale ☒ Small Scale
Annual average emission reductions (estimate): 17,380 tCO₂e/yr
GHG reducing measure/technology:

| Party | Project Participants | Party considered a project participant |
|----------|------------------------------|--|
| Malaysia | AMDB Perting Hydro Sdn. Bhd. | No |
| Denmark | Energi Midt Handel A/S | No |

II. Validation:

Contract party: YTL-SV Carbon Sdn. Bhd.

Validation Team:

| Role | Full name | Appointed for Sectoral Scopes | Affiliation |
|--------------------|---|-------------------------------|--------------------------------|
| Team Leader | Robert Chun Yuen Cheong (until 20-2 -2009) | 1, 13 | TUV Rheinland Malaysia Sdn Bhd |
| | Rupa Renganathan (starting from 29-3-2010 until present) | | |
| Trainee | Nicholas Chee Yin Cheong (until 31-7-2009) | N/A | TUV Rheinland Malaysia Sdn Bhd |
| | Nelly Yong Tau Lan (starting from 1-7-2009 until present) | | |
| Technical Reviewer | Kai Zhou | 1, 5, 13 | TUV Rheinland (Guangdong) Ltd. |

Validation Phases:

- ☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues

Validation Status:

- ☐ Corrective Actions / Clarifications Requested
☒ Full Approval and Submission for Registration
☐ Rejected

III. Validation Report:

| | | | |
|---|-------------------------------------|--|---|
| Report No.: 01 997 9105048789 | Current revision No.: 1.5 | Date of current revision: 2010-11-16 | Date of first issue: 2009-11-19 |
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|--|---|--|
| Final approval: <input checked="" type="checkbox"/> | Released on: 2010-11-23 By: Dr. Manfred Brinkmann | Designated Operational Entity (DOE): TÜV Rheinland Japan Ltd. Shin Yokohama Daini Center Bldg., 3-19-5, Shin Yokohama Kohoku-ku, Yokohama, JAPAN 222-0033 Tel.: +81 45 470 1850, Fax: +81 45 470-2361 E-mail: cdm@tuv.com |
|--|---|--|

Abbreviations

| | |
|-------------------|---|
| AMDB | AMDB Perting Hydro Sdn. Bhd. |
| AMS | Approved Methodology Small Scale |
| ACM | Approved consolidated baseline and monitoring methodology |
| BOD | Board of Directors |
| CAR | Corrective Action Request |
| CDM | Clean Development Mechanism |
| CEF | Carbon Emission Factor |
| CER | Certified Emission Reduction |
| CH ₄ | Methane |
| CL | Request for Clarification |
| CO ₂ | Carbon Dioxide |
| CO ₂ e | Carbon Dioxide Equivalent |
| COD | Chemical Oxygen Demand |
| DNA | Designated National Authority |
| DoE | Department of Environment |
| DOE | Designated Operational Entity |
| DR | Document Review |
| EB | Executive Board |
| EIA | Environmental Impact Assessment |
| ER | Emission Reduction |
| ERPA | Emission Reduction Purchase Agreement |
| GHG | Greenhouse Gases |
| GSP | Global Stakeholder Process |
| GWP | Global Warming Potential |
| I | Interview |
| IETA | International Emissions Trading Association |
| IPCC | Intergovernmental Panel on Climate Change |
| IRR | Internal Rate of Return |
| kWh | kilo Watt hours |
| LoA | Letter of Approval |
| MCF | Methane Correction Factor |
| MoC | Modalities of Communication |
| MoV | Means of Verification |
| MP | Monitoring Plan |
| MW | Mega Watt |
| MWh | Mega Watt Hours |
| NGO | Non-Governmental Organization |
| ODA | Official Development Assistance |
| OM | Operating Margin |
| PDD | Project Design Document |
| QA/ QC | Quality Assurance / Quality Control |
| t | Tonne |
| REPPA | Renewable Energy Power Purchase Agreement |
| TNB | Tenaga Nasional Berhad |
| UNFCCC | United Nations Framework Convention on Climate Change |

Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland Japan Ltd.) concludes that the CDM Project Activity “4MW AMDB Perting Mini Hydro Project” located at Bentong, Pahang, Malaysia, as described in the PDD (Version 2.2, 22-07-2010), meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline/monitoring methodologies are applicable to the project and correctly applied. The DOE therefore requests the registration of the project as a CDM project activity.

The validation has been performed in the following stages:

1. Desk review of preliminary PDD (version 1.0, 2008-09-22)
2. Public stakeholder comment process (2008-09-26 to 2008-10-25)
3. On-site visit & interview of stakeholders & subsequent follow-up interview with project participants, consultants, technology provider, and other relevant stakeholders (2008-10-29 & 2008-11-04)
4. Issue of the draft validation report & protocol with corrective action requests (CARs) and clarification requests (CLs) (2008-11-19)
5. Desk review of revised PDD (Version 2.2, 22-07-2010)
6. Issue of the final validation report & protocol

At the time of PDD finalization, the mini hydropower plant was already commissioned on 12th Oct, 2009. The work progress & completion status of the hydro project have been listed in the PDD Table B.8

The validation process had provided the DOE with sufficient evidence to determine the fulfilment of the validation criteria. The project activity also has fulfilled the host country's national CDM criteria.

The host country of the project activity is Malaysia and Annex 1 country is Denmark. Both countries had fulfilled the stated participation criteria set under the Kyoto Protocol. The Letter of Approvals (LoAs) issued by the parties had approved the project activity and authorised the project participants participation.

The project activity has correctly applied the approved methodology AMS-I.D “Grid Connected Renewable Electricity Generation” Version 15 and the following methodology tools were applied:

1. Tool to calculate the emission factor for an electricity system version 02, EB50, Annex 14

The validation team has checked that the project correctly applies AMS I.D (Version 15) - “*Grid connected renewable electricity generation*”. By generating renewable electricity which will displace fossil fuel based grid electricity, the project results in the reductions of CO₂ emissions that are real, measurable and give long term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission

reductions attributable to the project are hence additional to any that would have occurred in the absence of the project activity.

The total emission reductions from the project activity are estimated to be 17,380tCO₂e per year over the selected 7 years plus two renewable crediting periods. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achievable on the basis that the underlying assumptions do not change.

Adequate training and monitoring procedures have been developed and will be further implemented when the project activity is in operations.

In summary, the validation team concludes that the “4MW AMDB Perting Mini Hydro Project in Bentong, Pahang, Malaysia” described in the PDD meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria, and correctly applies the baseline and monitoring methodology AMS-I.D version 15. The validation team thus requests the registration of the project as a CDM project activity.

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Appendix A: Validation Protocol

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1 INTRODUCTION

YTL-SV Carbon Sdn. Bhd. has commissioned the DOE TÜV Rheinland Japan Ltd. to perform a validation of the CDM Project “4MW AMDB Perting Mini Hydro Project in Bentong, Pahang, Malaysia” (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the simplified modalities and procedures for small-scale CDM project activities and the subsequent decisions by the CDM Executive Board.

1.1 Objective

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

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the relevant criteria (see above) and decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual employed a rules-based mechanism while conducting the validation process

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

2 METHODOLOGY

The validation consists of the following three phases:

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

The following sections outline each step in more detail.

2.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the validation:

Documents provided by the project participant(s):

- /P01/ PDD [initially published version], Version 1.0, dated 22 September 2008
- /P02/ PDD [final version], Version 2.2, dated 22 July 2010
- /P03/ Host Country Approval / Letter of Approval: Malaysia, DNA: Ministry of Natural Resources
 - a) Reference number: NRE(S)62.120.010.001.002/012 Jld 10 (52), 19 October 2009
Email confirmation received from Malaysia DNA dated 15 July 2010
 - b) Reference number: NRE(S)62.120.010.001.002/012 Jld 12 (51), 16 November 2010
Email confirmation received from Malaysia DNA dated 16 November 2010
- /P04/ Annex 1 party Letter of Approval: UK DNA: Department of Energy & Climate Change
Reference number: EMH/02/2009, 3 December 2009
Email confirmation received from UK DNA dated 7 July 2010
- /P05/ Modalities of Communication: date 24 November 2009
- /P06/ Financial & Emission Reduction Calculations Excel Spreadsheets "Perting Hydro Cashflow 220110.xls"
- /P07/ Site layout drawing – August 2005
Technical drawing for penstock length – Jan 2007 (for construction)
Technical specification for turbines & generators
- /P08/ Renewable Energy Power Purchase Agreement (REPPA), 29 November 2006
- /P09/
 - a) Letter of Award – Package A: Construction & Completion of Power Intake, Penstock, Powerhouse & Associated Civil & General Mechanical & Electrical Works, 21 December 2006
 - b) Letter of Award – Package B: Design, Supply, Installation &

Commissioning of Power Generating Equipment & Associated Works,
21 December 2006

- c) Letter of Award – Package C: Supply, Delivery, Laying, Jointing, Termination, Testing & Commissioning of 11 kV Transmission Line & Associated Works, 21 December 2006

- /P10/ Operation & Maintenance Agreement, 24 April 2007
- /P11/ Flow duration curve of Sungai Perting
- /P12/ Procedure for Training of Monitoring Personnel, 1-Feb-2009
Procedure for Monitoring, Measurement and Reporting, 1-Feb-2009
- /P13/ 9th Malaysia Plan 2006 – 2010, Economic Planning Unit, Prime Ministers Department, 2006 : Pg 408, Section 19.46.
- /P14a/ Study on Grid Connected Electricity Baselines in Malaysia: 2005, published by Malaysia Energy Centre, January 2008
- /P14b/ Study on Grid Connected Electricity Baselines in Malaysia : 2006 & 2007, Version 2.0, published by Malaysia Energy Centre, December 2008
- /P15/ Letter from AMDB Perting Hydro Sdn. Bhd. to Tenaga Nasional Berhad informing commencement of project dated 27th April 2007, (Ref No. amdbpwr/ptghy/corresp_tnb270407)
- /P16/ Letter of CDM inquiry from AMDB to Malaysian Energy Centre, dated 13th May 2005.
- /P17/ Internal memo dated 20th Sept 2005 and supported by Bank Pembangunan Brochure on facilities available for renewable energy, 2005.
- /P18/ Approved bank loan from Bank Pembangunan Malaysia Berhad, dated 26 March 2007
- /P19/ Bank Pembangunan product brochure for renewable energy and CDM. Pg. 3, (e).
- /P20/ Bank Negara Malaysia report on “Statutory requirements” Published 22nd March 2006, Table 1.2, pg 15 of 366
- /P21/ Project Management Consultancy Agreement between AMDB Perting Hydro Sdn Bhd and AMDB Power Services, dated 2 Feb 2007
- /P22/ Insurance quotation slip quotation given by AON Insurance Brokers (Malaysia) Sdn Bhd.
- /P23/ Approval letter (approving the mini hydropower development project for Sg Perting, by AMDB) received from Unit Perancang Ekonomi Negeri (State Economy Planning Unit), Pahang, dated 30 May 2005
- /P24/ Bank Negara Malaysia Annual Report 2007, Press Release, Page 4
Bank Negara Malaysia Annual Report 2008, Press Release, Page 3
- /P25/ EIA Exemption letter received from the Department of Environment, Pahang, dated 19 December 2008
- /P26/ Environmental Management Programme Letter of Approval received from Department of Environment, Pahang, dated 21 November 2006
- /P27/ Energy Supply Industry in Malaysia – Performance and Statistical

- Information 2007, published by Energy Commission
- /P28/ Source: UNFCCC website
Esajadi small hydropower project in Malaysia
<http://cdm.unfccc.int/Projects/DB/JQA1205311728.41/view>
- Project cost comparison spreadsheet
- /P29/ Package A construction stop work order to civil contractor dated, 2 July 2007, (Ref No. PTGHY/002GN/010707(2)
Package A construction start work order to civil contractor dated 15 Oct 2007, (Ref No. PTGHY/002GN/151007(3)
- /P30/ CDM Agreement finalized & signed with CDM consultant, SV Carbon Sdn. Bhd. dated 3 March 2008
- /P31/ Announcement of AMDB Berhad become the subsidiary of AMCORP Group Berhad dated on 14th June, 2007
- /P32/ Appointment of CEO on 30th July, 2007
- /P33/ Letter from ABDB to Tenaga Nasional Berhad dated 6 March 2009 for the installation of 1 unit of reverse power relay which will only allow electricity to flow in one direction to ensure that no electricity is imported from the grid. (Ref no, PTGHY/005TNB/060309 (10))
- /P34/ Signed ERPA, dated 23 November 2009
- /P35/ Overview of Policy Instruments for the Promotion of Renewable Energy and Energy Efficiency in Malaysia
<http://www.serd.ait.ac.th/cogen/62/reports/countries/malaysia.pdf>
- /P36/ Ministry of Energy, Green Technology & Water Malaysia
<http://www.kettha.gov.my/en/content/small-renewable-energy-power-programme-srep>
- /P37/ Suruhanjaya Tenaga (Energy Commission) Malaysia
http://www.st.gov.my/index.php?option=com_content&view=article&id=5245&Itemid=4228&lang=en

Background investigation and other referred documents/websites:

- /B01/ CDM Validation and Verification Manual (version 01.2), EB 55, Annex 1
- /B02/ CDM-SSC-PDD - Project Design Document form for Small-Scale project activities, **Version 03**
http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html
GUIDELINES FOR COMPLETING THE SIMPLIFIED PROJECT DESIGN DOCUMENT (CDM-SSC-PDD) AND THE FORM FOR PROPOSED NEW SMALL SCALE METHODOLOGIES (CDM-SSC-NM), **Version 05**
<http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html>
- /B03/ Approved Baseline & Monitoring Methodology: AMS-I.D, version 13 (for PDD [initially published version] /P01/)

- Approved Baseline & Monitoring Methodology: AMS-I.D, version 15 (for PDD [final version] /P02/)
- /B04/ Web sites referred
<http://www.doe.gov.my/en/content/environmental-quality-act-1974>
- /B05/ Tool to calculate the emission factor for an electricity system version 02, EB50, Annex 14
- /B06/ Glossary of CDM Terms Version 05
- /B07/ Email confirmation received from Malaysia Energy Centre & the DNA of Malaysia (Ministry of Natural Resources & Environment Malaysia) 27 January 2010
- /B08/ Guidelines On The Assessment Of Investment Analysis Version 03 EB 51
- /B09/ Tool to determine the remaining lifetime of equipment, Version 01 EB50

2.2 Follow-up Interviews with Project Stakeholders

Identify any personnel who have been interviewed and/or provided additional information to the presented documentation.

| | Date | Name | Organization | Topic |
|-----|--------------------------------------|--|--|--|
| /A/ | 29 th October 2008 | Mr. Badrul Hisham Hamdan – Deputy General Manager of AMDB Perting Hydro Sdn.Bhd. Mr. Mohd Rahimi Mohd Yusof – Senior Manager of AMDB Perting Hydro Sdn.Bhd. Ms. Cassie Lui Yin Shin – Operation and Admin Executive of AMDB Perting Hydro Sdn.Bhd. | AMDB Perting Hydro Sdn Bhd | PDD Review <ul style="list-style-type: none"> • Baseline • Monitoring Plan • EIA Compliance • Confirmation of project participants • Confirmation of Annex I party • Quality Assurance • Project lifespan • Additionality • Financial • Project Funding • PDD • Board of Directors approvals • Project agreement • Archiving of data • LoAs • Modalities of Communications |
| | | Ms. Bhavna Khandhar – Senior CDM Consultant of YTL-SV Carbon Sdn.Bhd. Mr. Soeren Varming – CEO/Founder of YTL-SV Carbon Sdn.Bhd. | YTL-SV Carbon | |
| /B/ | 04 th November 2008 | Mr. Shaiful Reazal Romli – Plant Manager of AMDB Perting Hydro Sdn.Bhd. Mr. Mohd Asaad Hashim – Resident Engineer of Angkasa | AMDB Perting Hydro Sdn Bhd Angkasa Consulting | On-site Assessment <ul style="list-style-type: none"> • Plant address • Plant operations data, • Location of project activity, • Operating procedures /work |

Consulting Services Sdn.Bhd.

Services
Sdn.Bhd.

instructions

- Calibration and Training
- Project lifespan
- Electricity source
- Technology

2.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues which need be clarified prior to TÜV Rheinland's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for this project is enclosed in Appendix A to this report.

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

- i) mistakes have been made with a direct influence on project results;
- ii) CDM and/or methodology specific 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.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

A forward action request (FAR) may be raised to highlight issues related to project implementation that require review during the first verification of the project activity.

| Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities | | |
|---|--|--|
| Requirement | Reference | Conclusion |
| <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 acceptable based on evidence provided (OK), a Corrective Action Request (CAR) of risk or non-compliance with stated requirements or a request for Clarification (CL) where further clarifications are needed.</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 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.</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). A request for clarification (CL) is used when the validation team has identified a need for further clarification.</i> |

| 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 CAR or a CL, these should be listed in this section.</i> | <i>Reference to the checklist question number in Table 2 where the CAR or CL is explained.</i> | <i>The responses given by the project participants during the communications with the validation team should be summarised in this section.</i> | <i>This section should summarise 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

2.4 Internal Quality Control

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

2.5 Validation Team

| Role | Full Name | Appointed for Sectoral Scopes | Affiliation |
|---------------------------|---|-------------------------------|--------------------------------|
| Team Leader | Robert Chun Yuen Cheong (until 20-2 - 2009) | 1, 13 | TUV Rheinland Malaysia Sdn Bhd |
| | Rupa Renganathan (starting from 29-3-2010 until present) | | |
| Trainee | Nicholas Chee Yin Cheong (until 31-7-2009) | N/A | TUV Rheinland Malaysia Sdn Bhd |
| | Nelly Yong Tau Lan (starting from 1-7-2009 until present) | | |
| Technical Reviewer | Kai Zhou | 1, 5, 13 | TUV Rheinland (Guangdong) Ltd. |

3 VALIDATION FINDINGS

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

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

3.1 Approval and Participation

The below table summarizes the project participants and parties involved. These LoA(s) are therefore regarded as valid and meeting the requirements.

| | | |
|----------------------------------|---|---|
| Project participants | 1. AMDB Perting Hydro Sdn Bhd | 2. EnergiMidt Handel A/S |
| Parties involved | Malaysia | United Kingdom |
| APPROVAL | Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia DNA | Department of Energy & Climate Change, UK DNA |
| LoA received | Yes | Yes |
| Date of LoA | a) 19 October 2009 b) 16 November 2010 (new LoA received due to the expiry of the 1 st LoA) | 3 December 2009 |
| Reference to document | a) 1 st LoA: Ref. NRE(S)62.120.010.001.002/012 Jld 10 (52) b) New LoA :Ref. NRE(S)62.120.010.001.002/012 Jld 12 (51), 16 November 2010 | EMH/02/2009 |
| LoA received from | PP | PP |
| Validation of authenticity | <p>The received LoAs were compared with LoA of those registered CDM projects which have the same DNA. The LoAs were compared on the alignment, the standard format and signatory of the person who issued the letter. The validation team has confirmed these LoAs are authentic based on the email confirmation received from both host country & Annex 1 country DNAs /P03, P04/</p> <p>The letter(s) of approval was also found to be unconditional with respect to paragraph 45 (a) to (d) of Validation and Verification Manual Version 01.2 EB 55 Annex 1 /03/. The validation team concluded that these letter(s) are in accordance with paragraphs 45 - 48 of Validation and Verification Manual Version 01.2 EB 55 Annex 1 /B01/</p> | |
| Validity of LoA | Valid | Valid |
| PARTICIPATION | | |
| Party is party to Kyoto Protocol | Yes | Yes |
| Voluntary participation | Yes | Yes |

| | | |
|--|---------------|---------------|
| Diversion of official development aid towards host country | No indication | No indication |
| Project contribution to SD | Yes | Yes |

Validation of ODA

The validation did not reveal any evidence that this project activity can be seen as a diversion of ODA. This has been confirmed through interview with the project participant. The project will be fully funded by AMDB Perting Hydro Sdn. Bhd. The financing plan of the project activity is through local bank borrowings & equity investment.

Confirmation of MoC

The project MoC /P05/, signed on 24 November 2009 was received from the host PP. The validation team has verified & confirmed that the authorized signatories in the MoC are the same as in the LoAs /P03, P04/ for host & Annex 1 party respectively. The name of the contact person (primary authorized signatory) mentioned in the MoC is also consistent with the final PDD Annex 1 /P02/.

Confirmation of PDD Changes (Initial Published PDD /P01/ for GSP Versus Final PDD /P02/

The validation team has reviewed the initial published PDD /P01/ versus final PDD /P02/ & the validation team has confirmed that the latest PDD were updated based on the latest methodology AMS-I.D version 15.

Upon reviewing the history of the methodology revision as shown below, it was confirmed that the changes as indicated in the revised methodology have been incorporated & updated in the PDD. The detail explanation of the applicable changes have been addressed in the PDD

| Version | Date | Nature of revision(s) | Latest PDD /P02/ |
|---------|---------------------------------|--|---|
| 15 | EB 50, Annex 29 16 October 2009 | To include the procedures to calculate project emissions for hydropower with reservoirs as specified in Annex 5 of EB 23. | Justification of its applicability have been addressed clearly in the PDD Section B.2 |
| 14 | EB 48, Annex 23 17 July 2009 | To include more guidance on: the monitoring of electricity generated; calculation of project emissions for geothermal project activities; and editorial changes. | Calculation of project emissions for geothermal project activities are not applicable for this project activity Guidance on the monitoring of electricity generated have been followed |

The key changes between the initial published PDD /P01/ & latest PDD /P02/ are summarized as follows:

| No. | PDD Section | Initial Published PDD /P01/ | Latest PDD /P02/ |
|-----|-------------|---|---|
| 1 | A.2 | Host country project participant : AMDB Power Sdn. Bhd. | Changed to AMDB Perting Hydro Sdn. Bhd. – see CAR.1 for further details in the validation protocol |
| 2 | B.1 | Methodology AMS-I.D Version 13 | Updated to AMS-I.D Version 15 |
| 3 | B.2 | - | Updated to include the justification for applicability of hydropower plants with reservoirs |
| 4 | B.5 | Project IRR previously calculated for 10 & 20 years | Project IRR calculated for 23 years (21 years operation period + 2 years construction period) |
| 5 | B.5 | Benchmark level not specified clearly | Benchmark has been set as 8.7% - see Cl.6 for further details in the validation protocol |
| 6 | B.6.2 | Only 2 parameters were specified | Updated to include additional of 4 parameters |
| 7 | B.6.3 | Baseline emission factor of the grid = 0.614 t CO ₂ /MWh This value was derived based on calculation in PDD Section B.6.2 | Baseline emission factor of the grid = 0.62 t CO ₂ /MWh The baseline emission factor in Peninsular Malaysia shown in “Study on Grid Connected Electricity Baselines in Malaysia : 2006 & 2007, Version 2.0, published by Malaysia Energy Centre, December 2008” /P14/ are adopted – See Section 3.4.4 for further details |
| 8 | B.6.3 | Emission reduction calculated = 17,212 tCO ₂ e / year | Emission reduction calculated = 17,380 tCO ₂ e / year |
| 9. | C.1.1 | Project starting date : September 2007 (construction start date) | Project starting date : 27 April 2007 See Section 3.5.1 for further details |
| 10 | C.2 | Selected 10 years fixed crediting period | Selected 7 years renewable crediting period |

3.2 Project Design Document

The Project Design Document is based on the currently valid PDD template and is completed in accordance with the applicable guidance document /B02/.

3.3 Project Description

The proposed project activity involves installation & operation of run-of-river hydropower plant on Perting river, in the district of Bentong, Pahang, Malaysia. The following GPS coordinates of the project activity as shown below was confirmed by the validation team during on site using a portable GPS device & re-confirmed to be still correct via Google Earth website

| Location | Latitude | Longitude |
|---------------------|----------|-----------|
| Weir / water intake | 03.5104 | 101.8391 |
| Power House | 03.5103 | 101.8562 |

The project activity, developed by AMDB Power Sdn. Bhd. is designed with installed capacity of 4.2MW, with a net export capacity of 4 MW.

The project consists of the construction of Power Intake & Weir Structure, a Penstock & a Powerhouse (to be installed with 2 units of turbines with a rated capacity of 2181 kW & the associated generators & electricity evacuation system). These have been confirmed through interview with the PP, review of the site layout drawings & review of the equipment specifications provided by the PP /P07/. The project activity neither constructs any dam nor creates a reservoir. The water collection and intake of the project activity is diverted from 2.5m height overflow weir into settling basin. The electricity generated from the project activity will be transferred to Tenaga Nasional Berhad (TNB) sub-station at a distance of 14 km through an 11 kV transmission line. The electricity is subsequently supplied to the Peninsular Grid, Malaysia, which is operated & owned by Tenaga Nasional Berhad (TNB). The project activity does not require demonstrating project emission from the reservoir since there is no reservoir involved.

The validation team has reviewed the following documents:

- a) The power purchase agreement i.e. Renewable Energy Power Purchase Agreement (REPPA) /P08/ between Tenaga Nasional Berhad & AMDB Perting Hydro Sdn. Bhd
- b) Agreement to purchase equipments related to the power generation & evacuation to the grid /P09/, signed between AMDB Perting Hydro Sdn. Bhd. & suppliers
- c) The Operation & Maintenance Agreement /P10/ signed between AMDB Perting Hydro Sdn. Bhd. & AMDB Power Services Sdn. Bhd.

The expected net electricity to be supplied by the project activity is 28,032 MWh / year, calculated based on the plant capacity, which is expected to operate at 80% utilization factor. This has been determined based on the flow duration curve of Sungai Perting /P11/

The aim of the project activity is to reduce GHG emissions from the current business as usual where electricity generation is generated mainly by fossil fuel. The implementation of the

project activity will help in achieving the sustainable development such as contribution towards meeting the target of the Ninth Malaysian Plan /P13/ to achieve 350MW of electricity from renewable sources. This has been also confirmed in the letter of approval from Malaysia DNA /P03/

The overall emission reductions from the project activity is estimated to be 121,660tCO_{2e} over a 7 years plus 2 renewal crediting period, which equals an annual average emission reductions of 17,380tCO_{2e}.

| Starting date of project | Expected project operational lifetime | Crediting period |
|---------------------------------|--|---|
| 27 April 2007 | 21 years. The expected lifetime of the project was determined based on the the REPPA /P08/ signed between the National Utility company, TNB and AMDB Perting Hydro Sdn Bhd where TNB will only purchase the electricity for 21 years. | 7 years plus two renewal starting on 01 December 2010 or on the date registration of the project activity, whichever occurs later |

Formal sets of standard operation procedure (SOP) & training procedure have been established & defined in the PDD Section B.7.2 /P12/. The procedure has included training such as

- a) Training on operation and maintenance of process
- b) Training on operation, use and maintenance of instrumentation and other equipment

Observation and discussion with the project participants during the on-site validation activity has accurately determined the project description. Based on the validation team's opinion, the PDD has accurately described the current situation of the project activity.

3.4 Baseline and Monitoring Methodology

3.4.1 Applicability of the selected methodology to the project activity

The proposed CDM project applies the approved baseline methodology AMS.I.D "Grid Connected Renewable Electricity Generation", Version 15 /B03/, which also uses the "Tool to calculate the emission factor for an electricity system". Its applicability has been justified to the validation team in accordance with the requirements of the methodology. The selected baseline methodology is applicable for the project since the project will generate renewable electricity from hydropower source & displaces the grid electricity. The validation team has performed document review & interview with the project participants. The validation team concludes that the approved methodology has been applied correctly

The project activity produces electricity & supplies to the Peninsular Grid, Malaysia which is supplied by several fossil fuel based sources /P27, page 79/

The project eligibility to a small-scale project was determined by the validation team with the following analysis:

- 1) The installed rated capacity of the proposed project is 4.2 MW, with a net export capacity of 4 MW, which is below the qualifying limit of 15 MW for type 1 small scale projects.
- 2) There is no registered small-scale project activity under the CDM or an application to register another small-scale CDM project activity by the project owner within the previous 2 years with the same project category & technology within 1 km of the project boundary of the proposed project. The validation team has cross checked with the UNFCCC web site and CDM Pipeline & not identified any other small scale project being developed by the project owner in accordance with Annex 32 of EB 47

Hence, the proposed project is confirmed to be not a de-bundled component of a large project activity in accordance with Annex 32 of EB 47.

All GHG emissions occurring within the CDM project activity boundary as a result of the implementation of the proposed CDM project activity are indicated as the project emissions according to the approved methodology. There will be no other expected GHG emissions which can contribute more than 1 % of the overall expected average annual emissions other than those stated in the approved methodology.

3.4.2 Project Boundary

The project boundary was assessed in the context of physical site inspection, interviews & based on supporting evidences & documents submitted for the project design.

The project boundary encompasses the diversion weir, penstock, powerhouse, tailrace & transmission line, including the interconnection point with TNB sub-station to the Peninsular Grid, Malaysia

The sources and sinks of greenhouse gas identified in the PDD are deemed appropriate. The project boundary has been clearly determined in accordance with the methodology (see below table). All assumptions, reference documents and relevant local policies and regulations are correctly quoted and referenced in the PDD. A comprehensive overview about all emissions included in the project boundary is provided in the PDD section B.6.1 for project activity emissions and baseline emissions.

| | GHGs involved | Description |
|--------------------|---------------------|--|
| Baseline emissions | CO ₂ | Major emission source, which is emitted from the electricity generation by fossil fuel-fired power plants connected to the National Grid, Malaysia |
| Project emissions | No project emission | No supplementary fossil fuel is required for power generation. Project emissions = 0 |
| Leakage | No leakage | This is consistent with AMS-I.D version 15 where the project participant does not need to consider leakage as the energy generating equipment is not transferred from another activity |

3.4.3 Baseline Identification

The continuation of the current situation, with the electricity generated by the operation of grid connected power plants & by addition of new generation sources in the Peninsular Grid, Malaysia is considered as a realistic baseline scenario for the project activity.

The table below summarized the applicability and justification of the project baseline identification to the approved methodology:

| | | |
|---|--|---|
| The approved baseline methodology applicable to the project - explicit criteria - implicit criteria (e.g. available scenarios, applicability of formulas for BE/PE/LE calculations) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Details in Section 3.4.1 |
| PDD includes all assumptions and data used by project participants | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | All assumptions and data defined in the PDD are justifiable and reasonable |
| All the references and documents used are relevant for establishing the baseline scenario | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | All references and documents are relevant to determine the baseline scenario. |
| All the references and documents used are correctly quoted and conservatively interpreted in the PDD | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | All references and documents are conservative and reasonable to determine the baseline scenario. |
| All relevant policies / regulations considered are listed in the PDD | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | All relevant regulations of the Host country have been considered by the project proponent. Currently, there is no regulation established by the local authority to generate electricity from renewable source. |
| Identified potential baseline scenarios reasonably represent what would/could occur in the absence of the proposed project activity | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | In absence of the project activity, there will be continual of greenhouse gases emission from fossil fuel fired power plant. |
| The baseline scenario selection is appropriate and determined according to the methodology | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | As per AMS-I.D version 15 |
| The approved methodology used is applicable to the identified baseline scenario | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Details in Section 3.4.1 |

3.4.4 GHG Emission Reductions

The GHG emission reduction calculations are based on the formulae outlined in the methodology AMS-I.D version 15 /P06/. The validation team has confirmed the calculations

are transparently documented & appropriate assumptions regarding the expected amount of electricity generated have been used to determine the emission reductions

For estimating the emission reductions by the project activity, the baseline emission factor in Peninsular Malaysia shown in “Study on Grid Connected Electricity Baselines in Malaysia : 2006 & 2007, Version 2.0, published by Malaysia Energy Centre, December 2008” /P14b/ are adopted.

The validation team has confirmed with the Malaysia Energy Centre (email dated 27 January 2010) /B07/ that the report has been approved by the DNA of Malaysia (Ministry of Natural Resources & Environment). The validation team has also obtained written email confirmation from the DNA of Malaysia (Ministry of Natural Resources & Environment) /B07/ which states that the report issued by Malaysia Energy Centre /P14a, b/ was approved & adopted by the National Committee on CDM Malaysia. The validation team has also further confirmed that the Malaysia Energy Centre is the appointed technical committee for energy under the National Committee on CDM Malaysia, as depicted in the website <http://cdm.eib.org.my/subindex.php?menu=7&submenu=33> , which further affirmed the validity of the studies conducted

The emission factor calculation has been assessed & reviewed by the DNA of the Malaysia through the application of “Tool to calculate the emission factor for an electricity system”, as confirmed by the Malaysia Energy Centre /41/.

Based on the document assessment & confirmation received from the DNA & Malaysia Energy Centre, the validation team has accepted the emission factor values used

The power generated by the project activity will be supplied to the Peninsular Grid of Malaysia. Thus, the baseline emission factor is calculated on the basis of the Peninsular Grid of Malaysia. According to the “Study on Grid Connected Electricity Baselines in Malaysia : 2006 & 2007, Version 2.0, published by Malaysia Energy Centre, December 2008” /P14b/, the baseline emission factor (EF) is determined ex-ante, calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) factors

According to the “Study on Grid Connected Electricity Baselines in Malaysia : 2006 & 2007, Version 2.0, published by Malaysia Energy Centre, December 2008” /P14b/, the calculation of the OM emission factor, the simple OM emission factor calculation method was selected because low cost and must run power plants constitute less than 50% of the total grid generation. The simple OM emission factor has been calculated based on the full generation weighted average for the most recent 3 years (2003 to 2005) according to the data vintages guidelines. The Simple OM is calculated as the generation-weighted emissions per electricity unit of all generating units serving the system, excluding low operating cost and must-run power plants.

The 3 years data were indicated in the “Study on Grid Connected Electricity Baselines in Malaysia: 2005, published by Malaysia Energy Centre, January 2008” /P14a/ & “Study on Grid Connected Electricity Baselines in Malaysia: 2006 & 2007, Version 2.0, published by Malaysia Energy Centre, December 2008” /P14b/ was the latest officially available data at the time of PDD submission /P01/.

Remarks: The reason why “Study on Grid Connected Electricity Baselines in Malaysia: 2006 & 2007, Version 2.0, published by Malaysia Energy Centre, December 2008” /P14b/ was referred was due to the fact that errata sheet has been published for the corrected combined margin values. There were no corrected values published for the EF_{grid} , OM simple & $EF_{grid, BM}$

CO₂ emission coefficients of each type of fuel were based on IPCC 2006 default values. The EF_{grid, OM simple} is calculated to be 0.592 tCO₂/MWh /P14a/. See Remarks above

The Build Margin (BM) was calculated using a set of power capacity additions in the electricity system that comprise 20 per cent of the system generation (in MWh) and the sample plants are the 5 plants that have been built most recently /P14a, b/

The build margin is calculated as the generation weighted average emission factor of the sample power plants identified in /P14a/. The EF_{grid, BM} is calculated to be 0.636 tCO₂/MWh /P14a/. See Remarks above

The weights w_{OM} and w_{BM} are selected as 0.5 and 0.5 respectively, as stipulated in /P14a, b/.

The combined margin for the Peninsular Malaysia grid has been estimated 'ex-ante' to be 0.620 tCO₂/MWh /P14b/.

The previous value calculated as published in the "Study on Grid Connected Electricity Baselines in Malaysia: 2005, published by Malaysia Energy Centre, January 2008" /P14a/ is 0.614 tCO₂/MWh. This value was not considered in the emission reduction calculation purpose & the corrected value published in /P14b/ is adopted.

During commissioning the plant has to be powered by diesel generator as TNB does not allow of importing of power from the grid. This has been confirmed by the validation team through review of a letter dated 06/03/09 from AMDB to TNB after the discussion on 02/02/09 that AMDB agreed to install the reverse power relay which only allow electricity flow in one direction to ensure that no electricity to be imported from the grid /P33/. The validation team has reconfirmed with the AMDB that there will be no diesel generator placed at the project site. Thus, there will be no diesel to be consumed during emergency condition.

The validation team has also confirmed with AMDB that during the emergency situations such as fire and flooding, as a safety precaution, it is normal practice to shutdown all equipment and electrically isolates the plant and machineries. Thus, no electrical power is needed. For fire extinguishing, portable powder type extinguishers and sand will be used. If water is required, the main pipe has high pressured water that can be used and hence no water pumps are required.

The project proponent will overhaul one turbine/generator at a time, so that electricity is still being produce by the other turbine/generator.

Therefore, the emission reductions due to the project activity were estimated ex-ante to be 17,380tCO₂e per year in the PDD. The validation team has cross checked the information presented in the PDD Section B.6.3 & Financial & Emission Reduction Calculations Excel Spreadsheets "Perting Hydro Cashflow 220110.xls" /P06/ & confirmed the calculation is correct

The table below summarized the applicability and justification of the project activity's emission reduction:

| | | |
|---|--|--------------------------------------|
| All assumptions made for estimating GHG are listed in the PDD | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | As per PDD Section B.6 |
| All data used by project | <input checked="" type="checkbox"/> Yes | As per PDD Section B.6 & PDD Annex 3 |

| | | |
|--|--|---|
| participants are listed in the PDD | <input type="checkbox"/> No | Baseline Information |
| Their references and sources are also listed in the PDD | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | As per PDD Section B.6 & PDD Annex 3 Baseline Information |
| Formulas, parameters, values are complete, accurate, transparent and conservative | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | As per PDD Section B.6.3 & PDD Annex 3 Baseline Information |
| All the references and documents used are correctly quoted and conservatively interpreted in the PDD | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | As per PDD Section B.6 & PDD Annex 3 Baseline Information |
| Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | As per AMS-I.D version 15 & methodological tool, "Tool to calculate the emission factor for an electricity system version 01.1" |
| All the emissions of baseline emissions can be replicated using information provided in the PDD | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | The baseline emissions can be replicated using the information in the PDD section B.6.3. |

3.5 Additionality

The additionality of the project has been presented in the PDD Section B.5 using the following approach:

According to Attachment A to Appendix B of the "Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories", the additionality has been demonstrated by investment barrier, using benchmark analysis.

The data, rationales, assumptions, justifications and documentation provided by the project participants are reliable and credible to the demonstrated additionality.

The validation team was able to verify that CDM has been introduced and considered prior to the starting of the project.

In conclusion, the assessment of the arguments presented in the PDD has been sufficient to demonstrate that the proposed project is not likely the baseline scenario and the emission reductions resulting from the project activity are additional

The following sections described how is the additionality of the project activity has been validated

3.5.1 CDM consideration

| | |
|--------------------------|---|
| Starting date of project | 27/04/2007 |
| Justification of and | The starting date of the project activity is the date where it was based on the first day concrete was poured at site, i.e. |

| | |
|--|---|
| evidences (references) on the starting date of project | <p>27/04/2007 /P15/.</p> <p>The validation team has cross checked following evidences:</p> <ul style="list-style-type: none"> a) Letter from AMDB Perting Hydro Sdn. Bhd. to Tenaga National Berhad informing commencement of project dated 27th April 2007" /P15/ b) Letter of awards signed for construction dated 21 December 2006 /P09/ c) Project Management Consultancy Agreement between AMDB Perting Hydro Sdn Bhd and AMDB Power Services, dated 2 Feb 2007 /P21/ <p>and confirmed that based on the dates of stipulated in these documents, the earliest possible date for project starting date will be still 27/04/2007. There is no construction conducted prior to this date, as confirmed during on site interview with the project participants.</p> <p>Hence according to the Glossary of CDM Terms, Version 05, the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. The date selected in this case has been confirmed to be appropriate</p> |
| Date of CDM consideration | 13/05/2005 |
| Justification of and evidences (references) on the CDM consideration date of project | <ul style="list-style-type: none"> • The project participants have considered CDM as part of the project development when the initial inquiry on CDM process was submitted to Malaysia Energy Centre (Pusat Tenaga Malaysia) by the PP /P16/, as confirmed during on site interview. • Confirmed through the review of the following documents during on site visit to substantiate that the PPs have taken the real actions in order to continue the project activity as CDM <ul style="list-style-type: none"> a) Internal memo dated 20th Sept 2005 and supported by Bank Pembangunan Brochure on facilities available for renewable energy, 2005 /P17/. b) Approval letter (approving the mini hydropower development project for Sg Perting, by AMDB) received from Unit Perancang Ekonomi Negeri (State Economy Planning Unit), Pahang, dated 30 May 2005/P23/ c) The power purchase agreement i.e. Renewable Energy Power Purchase Agreement (REPPA) /P08/ |

| | |
|--|---|
| | <p>& agreement to purchase equipments related to the power generation & evacuation to the grid have been signed & reviewed by the validation team /P09/.</p> <p>d) Approved bank loan from Bank Pembangunan Malaysia Berhad, dated 26 March 2007 /P18/</p> <p>e) 1st concrete poured on site based on progress report to Tenaga Nasional Berhad /P15/</p> <p>f) CDM Agreement finalized & signed with CDM consultant, SV Carbon Sdn. Bhd. /P30/</p> <ul style="list-style-type: none"> • The validation team had also validated the following events which had caused the project delay, as stated in PDD Table B.7 <p>a) Change of Management (Project was put on hold). This was re-confirmed by the validation team during on site interview & review of the evidences presented by the PP i.e. Announcement of AMDB Berhad become the subsidiary of AMCORP Group Berhad dated on 14th June, 2007 /P31/</p> <p>b) Appointment of CEO on 30th July, 2007 /P32/</p> <p>c) Stop Work order given to contractor to immediately stop all services in relation to the project /P29/</p> <p>d) Start work order to civil contractor for the mini hydro project /P29/</p> <p>From the project history of CDM development above, it was verified by the validation team that the incentives from the CDM were seriously considered since the project design stage, which was then followed by the signing of the ERPA /P34/. Continuous CDM development with real actions to secure the project CDM status can be seen from the project history above.</p> <p>Hence, according to EB 49 Annex 22 Guidelines on the Demonstration and Assessment Of Prior Consideration of CDM Version 03, proposed project activities with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, are required to demonstrate that the CDM was seriously considered in the decision to implement the project activity. With the justification presented above, the validation team concluded that the project activity conforms to the stipulations defined in the EB 49 Annex 22, regarding the serious consideration of CDM activity</p> |
|--|---|

3.5.2 Alternatives

The AMS-I.D version 15 methodology has prescribed the baseline scenario requirements & the project participant has identified the baseline scenario – see Section 3.4.3

3.5.3 Investment analysis

See 3.5.4 Barrier analysis

3.5.4 Barrier analysis

According to Attachment A to Appendix B of the “Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories”, the project participants have chosen investment barrier in order to demonstrate the additionality of the project.

The relevant best practice example selected is by applying the benchmark analysis project IRR as the financial indicator.

In order to assess the claim from the project participant that the project scenario is not economically feasible without benefits from CER sales, the validation team adopted the following approach:

- a) Determining the suitability of the benchmark applied for the type of financial indicator presented

According to the Guidelines On The Assessment Of Investment Analysis, Version 03 /B08/ article 12, “Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR”. The type of benchmark selected by the project participant is the local commercial lending rate offered by the bank (effective cost of funds & spread up to 2.5%) /P19/.

The banks cost effective fund in late year 2005 was 6.2% /P20/, thus the project benchmark has been determined as 8.7%. The validation team has also noted that there was a gap in the project between the date of CDM consideration (year 2005) & the project starting date (year 2007). See Section 3.5.1 for details.

The validation team has re-confirmed that the benchmark value used is still valid & conservative. The validation team has cross checked with the Bank Negara Annual Reports Year 2007 & confirmed the bank cost effective fund in year 2007 was 6.72% which would make up the total project benchmark as 9.22%. In comparison with the selected benchmark value, the validation team confirmed that the value selected i.e. 8.7% is more conservative & therefore is valid

Therefore the validation team concludes that the benchmark selected is appropriate & conforms to the Guidelines On The Assessment Of Investment Analysis, Version 03 /B08/

- b) Conducting an assessment of parameters and assumptions used in calculating the financial indicator and determining the accuracy & suitability of parameters.

The project is envisaged to be financed 80% through bank debt & 20% equity. This has been confirmed through review of the Bank Loan document /P18/

The validation team had reviewed the following input values used in the financial calculation through review of sources presented in the PDD Section B.5 & financial calculation spreadsheet

| Parameter | Reference Documents / Evidences |
|------------------------------|---|
| Capital expenditure | <p>The capital expenditure (value RM 31.5 million in total) consists of mainly:</p> <ol style="list-style-type: none"> 1. Civil works 2. Turbine, Generator & accessories 3. Transmission line 4. Project management 5. Consultancy fees <p>The detailed cost breakdown including the applicable supporting evidences such as letter of awards, signed contracts & quotation /P09, P21/ for each category is listed clearly in the financial calculation spreadsheet, worksheet "Note 3". For each category, the cost breakdown indicated in the financial calculation spreadsheet has been cross checked versus the supporting evidences & PDD. It is also noted that the main equipments such as the turbines and piping makes up almost 70% of the total capital expenditure, as confirmed by the validation team (i.e. RM 22 million)</p> <p>The validation team has also conducted a further comparison with the total capital invested for this project activity versus other comparable registered CDM project in the same country /P28/. The validation team has cross checked CDM Pipeline list in http://cd4cdm.org/ website & confirmed so far there are only 1 registered CDM project for hydropower project /P28/</p> <p>It shows an approximate range of USD 4,886,553 to USD 11,198,718 The total capital invested for this project activity lies well within this range [assuming exchange rate 1 USD = RM 3.76 (average in year 2005), therefore RM 31.5 million = USD 8,377,660]</p> <p>The validation team concluded the values indicated in the spreadsheet are correct & appropriate</p> |
| Operation & Maintenance Cost | <p>The value (RM 753,000 / year) has been cross checked with the PDD & financial calculation spreadsheet versus the signed contract between AMDB Perting Hydro Sdn. Bhd. & AMDB Power Services Sdn. Bhd./P10/.</p> <p>The validation team has also conducted a further comparison with the total capital invested for this project activity versus other comparable registered CDM project in the same country /P28/. The validation team has cross checked CDM Pipeline list in http://cd4cdm.org/ website & confirmed so far there are only 1 registered CDM project for hydropower project /P28/</p> <p>It shows an approximate range of USD 164,838 to USD 210,121. The operation & maintenance cost for this project activity lies well within this range [assuming exchange rate 1 USD = RM 3.76 (average in year 2005), therefore RM 753,000 = USD 200,266]</p> <p>The value applied was found to be correct & appropriate</p> |

| | |
|----------------|---|
| Power tariff | <p>The value (RM 0.167 / kWh) has been cross checked with the PDD & financial calculation spreadsheet versus the signed Renewable Energy Power Purchase Agreement (REPPA), 29 November 2009 /P08/. The power tariff does not include tax & there is no tax applicable for sales of power. The validation team has re-confirmed this through review of the Renewable Energy Power Purchase Agreement (REPPA), 29 November 2009 /P08/</p> <p>The validation team has also compared with another similar registered CDM project /P28/ & confirmed that the registered project also signed power purchase agreement with fixed tariff for 21 years.</p> <p>The validation team has reviewed the websites</p> <p>a) Ministry of Energy, Green Technology & Water Malaysia /P36/ b) Suruhanjaya Tenaga (Energy Commission) Malaysia /P37/</p> <p>Both websites have shown that the “renewable energy electricity producer shall be given a licence for a period of 21 years, to be effective from the date of commissioning of the plant.” Hence this term stated in the REPPA is valid & applicable for all other REPPAs signed by other local small hydropower projects</p> <p>As for the power tariff price trend, the price comparison for other local small power plants cannot be carried out by the validation team. The published information in the website /P36, P37/ has indicated that “Project developers will have to negotiate the Renewable Electricity Purchase Agreement with the relevant Utility, including the selling price on a willing-seller, willing buyer basis, based on take and pay.”</p> <p>There is no publicly available information in Malaysia which can show what is the actual power tariff price signed by other local small hydropower projects since this information is deemed to be confidential.</p> <p>However, the validation team is able to find out further information about the price in the published report “Overview of Policy Instruments for the Promotion of Renewable Energy and Energy Efficiency in Malaysia”</p> <p>http://www.serd.ait.ac.th/cogen/62/reports/countries/malaysia.pdf /P35/</p> <p>In this report, page 22, Section 3.2 Policy Initiatives & programs, it was indicated that “Selling price is capped at a ceiling of RM 0.17 sen / kWh”</p> <p>The validation team thus could conclude that the power price tariff for this project i.e. RM 0.167 / kWh and also RM 0.165 – RM 0.17 kWh for the CDM registered project /P28/ is valid.</p> |
| Insurance cost | <p>The cost breakdown for the insurance cost amounting total of RM 82,056 has been provided to the validation team for review.</p> <p>The values reflected in the financial calculation spreadsheet have been cross checked versus the quotation slip given by AON Insurance Brokers (Malaysia) Sdn Bhd. /P22/. Although there were some inconsistencies of values found during the desk review, the project participant has provided written explanation & justification on the errors in the quotation calculation & that the values reflected in the financial calculation spreadsheet were the correct & accurate values.</p> <p>The validation team has confirmed the justification provided are real & accepted.</p> |

| | |
|-----------------------------|--|
| Payment to State Government | The value has been cross checked with the PDD & financial calculation spreadsheet versus the Approval letter (approving the mini hydropower development project for Sg Perting, by AMDB) received from Unit Perancang Ekonomi Negeri (State Economy Planning Unit), Pahang, dated 30 May 2005 /P23/. The letter has stated that AMDB shall pay 2.2% of Gross Revenue (Gross billing to TNB) annually |
|-----------------------------|--|

- a) Cross checking the parameters against third party or publicly available sources
See table above
- b) Assessing the correctness of computations carried out and documented
The right input values taken from the supporting documents have been cross checked with the financial spreadsheet & confirmed to be correct.

The project IRR has been computed for a period of 23 years, which is the lifetime of the project & is in conformity with the "Guidelines On The Assessment Of Investment Analysis Version 03 EB 51" /B08/ & "Tool to determine the remaining lifetime of equipment, Version 01 EB50" /B09/. The Project IRR of the project activity is as below:

| IRR without CDM | IRR with CDM |
|-----------------|--------------|
| 8.21% | 10.58% |

Sensitivity analysis has been performed by varying the key parameters, as listed below:

1. Total investment cost reduced by 10%
2. Electricity tariff increased by 10%
3. Net electricity generation increased by 10%
4. Annual operation & maintenance cost reduced by 10%

The sensitivity analysis showed that within the sensitivity range covered for the analysis, the IRR still would not reach the benchmark level.

The followings are the summary of the validation conclusion with regards to the sensitivity analysis assumptions as stipulated in the PDD

| Parameter | Means of validation & conclusion |
|--------------------------------------|---|
| Total investment cost reduced by 10% | <p>The validation team has reviewed the historical trends of the inflation rate /P24/ & confirmed that based on the increasing trend of the inflation rate, the investment cost is unlikely to be reduced to a level which allows the IRR to cross the benchmark level. Besides that, the validation team has also surveyed the price trend for the civil works / construction work cost via independent assessment through the following website: http://www.cidb.gov.my/v6/?q=en/information/366</p> <p>The Construction Industry Development Board of Malaysia official portal has been assessed to review the information</p> |

| | |
|--|--|
| | on the building material cost index trend from year 2006 till year 2008. The review confirmed that the construction cost has escalated since year 2006. |
| Electricity tariff increased by 10% | The electricity tariff has been fixed for 21 years as confirmed through review of the signed Renewable Energy Power Purchase Agreement (REPPA), 29 November 2009 /P08/. |
| Net electricity generation increased by 10% | The validation team has reviewed the signed Renewable Energy Power Purchase Agreement (REPPA), 29 November 2009 /P08/ & confirmed that any excess of additional electricity delivered to TNB will be at no cost, thus no excess revenue will be received from TNB. The contract has clearly stipulated the limit of the net electrical energy to be generated in 1 complete year |
| Annual operation & maintenance cost reduced by 10% | The operation & maintenance cost is very unlikely to be reduced as confirmed through review of historical trends of inflation rate /P24/. The trend shows that from year 2006 till 2008, there is significant increase in the inflation rate. Thus the validation concluded that the operation & maintenance cost would not be reduced to a level which allows the IRR to cross the benchmark level. |

Based on the assessment of the conformity of additionality demonstration & benchmark selection to the latest version of the guidance issued by EB on the assessment of investment analysis, plausibility & appropriateness of parameters used & correctness of financial calculations, the validation team concludes that the project scenario is not economically feasible without benefits from the CER sales.

3.5.5 Common practice analysis

Not considered for this project activity

3.6 Monitoring

The monitoring plan presented in the PDD Section B.7 complies with the requirements of methodology AMS.I.D “Grid Connected Renewable Electricity Generation”, Version 15 /B03/, through cross checking of all parameters stipulated in the monitoring plan.

According to the document review in PDD, detailed monitoring procedures, monitoring structure, monitoring items & functions are clearly demonstrated in the PDD which enable the monitoring plan to implemented feasibly

Interview & on site assessment through physical inspection with the project participant & consultant has allowed the validation team to confirm that the monitoring plan defined in the PDD is feasible to be implemented.

3.6.1 Parameters determined ex-ante

The following data and parameters were available during the validation and will remain fixed ex-ante throughout the crediting period:

1. Generation mix (GWh)
2. Baseline emission factor for the Peninsular Grid (tCO₂e/MWh)

3. Installed capacity (MW)
4. Annual operation hours (Hr/yr)
5. CO₂ emission coefficient for diesel (kgCO₂ / kg diesel)
6. Diesel density (kg / l)

The parameters for determining the GHG emissions reductions have been clearly demonstrated in PDD Section B.6.2. The emission factor was calculated to be 0.62 tCO₂e / P14/ - see section 3.4.4 of this report for details

The validation team has verified the value used against the sources & conclude that all relevant parameters to calculate the GHG emissions reductions of the project have been sufficiently considered, real, measurable & conservative.

3.6.2 Parameters monitored ex-post

The baseline and project emission parameters that are monitored ex-post are indicated in Section B.7.1 and Annex 3 of the PDD and as follows:

1. Gross electricity generated (MWh).
2. Fossil fuel usage for the standby generator set on-site (liters)

The monitoring of emission reductions generated by the project activity will be carried out systematically according to the monitoring plan. All relevant parameters are monitored closely as required by methodology throughout the project activity implementation.

All parameters required by the methodology including the accuracy of the measurement have been included in the PDD Section B.7.1.

All archived monitoring data, required for verification and issuance, will be kept for at least two years after the end of the crediting period or the last issuance of CER.

Monitoring of leakage emissions is not required as the project equipments are not transferred from another project activity

3.6.3 Management system and quality assurance

The DOE validation team has assessed the proposed management system and how does the quality will be assured in the proposed project activity. The outline of the operational procedure was briefly described in the PDD. The operational procedure will be updated by the project participant as required during the operation of the project activity. The monitoring and recording of the required parameters will be carried out by trained personnel who will be managed by the Project Manager

The aspects related to the monitoring plan are addressed as the following:

- i) Establishing and maintaining the appropriate monitoring systems for electricity generated by the project;
- ii) Quality control of the measurements;
- iii) Procedures for the periodic calculation of GHG emission reductions;
- iv) Assigning monitoring responsibilities to personnel;
- v) Data storage and filing system;

- vi) Preparing for the requirements of an independent, third party auditor or verifier.

All measurements will use calibrated measurement equipment that will be maintained regularly and checked for its functioning.

Hence, all indicators of importance for controlling and reporting of projects performance have been incorporated in the monitoring plan as well as indicated in the planned formal set of monitoring protocol and work instructions.

The validation team has also reviewed the Management Structure to monitor emission reductions in the PDD Section B.7.2 & confirmed that the designated personnel & their responsibility have been defined clearly with respect to key monitoring features.

The application of the monitoring methodology is transparent and the validation team considers the project participants able to implement the monitoring plan.

3.7 Sustainable Development

The host country DNA requires the project activity to be developed in sustainable development manner. The validation team has reviewed the letter of approval issued by the DNA of Malaysia /P03/ & confirmed that the project activity will contribute to sustainable development.

3.8 Environmental Impacts

The validation team has reviewed the Section 34A of the Environmental Quality Act 1974 and Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 1987 of Malaysia /B04/ & confirmed that the Environmental Impact Assessment (EIA) is not required for the project activity.

The exemption letter /P25/ received from the Department of Environment, Pahang stating that the project activity does not require any approval and Environmental Impact Assessment (EIA) report according to Section 34A of the Environmental Quality Act 1974. However, Department of Environment, Pahang has also provided letter of approval /P26/ for approving the Environmental Management Programme required for the project activity. The letter of approval has stipulated requirements such as regular monitoring of water quality, steps to be taken to minimise soil erosion & written confirmation to be obtained from project contractors to implement steps to control pollution

3.9 Local Stakeholder Consultation

There is no local requirement to carry out local stakeholder consultation in the host country. In order to fulfill the requirements of CDM Modalities and Procedures, the local stakeholder forum was held on 27/6/2008.

The relevant stakeholders have been invited via invitation letter & memos to the Forestry Department, local council, village head, project consultant & developer. The validation team has confirmed that the relevant stakeholders invited are in line with the definition of stakeholders, according with Glossary of CDM Terms /B06/. The media utilized to invite the stakeholders are appropriate.

There were no negative comments received from the local stakeholders during the public forum. Participants did not raise any objections to the project and demonstrated a keen interest in its environmental and social impacts. A summary of the comments has been

provided in the PDD Section E.2 and report on how due account was taken of any comments received are provided in PDD Section E.3.

Hence, the validation team confirmed that local stakeholder consultation process is conducted adequately & credible

3.10 Comments by Parties, Stakeholders and NGOs

The PDD version 1.0 of 22 September 2008 was made publicly available on UNFCCC CDM website:

<http://cdm.unfccc.int/Projects/Validation/DB/EMKAQK58TWL7CF3BETY0J5D6ISN5NZ/view.html>

from 26 Sep 08 - 25 Oct 08 in order to invite comments from public stakeholders.

No public comments have been received during that period.

APPENDIX A

**CDM VALIDATION PROTOCOL
4MW AMDB Perting Mini Hydro Project
REPORT NR. 01 997 9105048789
VERSION No: 1.3**

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

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|--|---|------------------------------------|--|
| About Parties | | | |
| 1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3. | Kyoto Protocol Art.12.2 | CAR.1 | Table 2, Section A.2.1 Annex I Party. The Annex I party information is not available at the time of validation. |
| 2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC. | Kyoto Protocol Art.12.2. | OK | Table 2, Section A.2.1 |
| 3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved. | Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a | CAR.2 | There is no Approvals of voluntary participation has been received from the Malaysian and Annex 1 party DNAs. |
| 4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof. | Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a | CAR.3 | Table 2, Section A.2.2. There is no confirmation from the Malaysian DNA as the Letter of Approval has not been received. |
| 5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from | Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2 | OK (No public funding involved) | The review of documents and the interviews during the on-site assessment showed that no ODA is used for the project financing. |

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|--|------------------------------------|------------|---|
| and is not counted towards the financial obligations of these Parties. | | | |
| 6. Parties participating in the CDM shall designate a national authority for the CDM. | CDM Modalities and Procedures §29 | CAR.1 | Malaysia Designated National Authority is Conservation and Environmental Management Division, Ministry of Natural Resources and Environment Table 2, Section A.2.3 Refer to item 1 above; Annex 1 party information is not available. |
| 7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol. | CDM Modalities §30/31a | CAR.1 | Malaysia ratified the Kyoto Protocol on 04 th September 2002; Table 2, Section A.2.3 Refer to item 1 above. Annex 1 party information is not available. |
| 8. The participating Annex I Party's assigned amount shall have been calculated and recorded. | CDM Modalities and Procedures §31b | CAR.1 | Table 2, Section A.2.3 Refer to item 1 above. Annex 1 party information is not available. |
| 9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7. | CDM Modalities and Procedures §31b | CAR.1 | Table 2, Section A.2.3 Refer to item 1 above. Annex 1 party information is not available. |

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|---|--|----------------|---|
| About additionality | | | |
| 10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity. | Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43 | OK | Table 2, Section B.3 |
| About forecast emission reductions and environmental impacts | | | |
| 11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change. | Kyoto Protocol Art. 12.5b | OK | Table 2, Section B.4 to B.7 |
| For large-scale projects only | | | |
| 12. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out. | CDM Modalities and Procedures §37c | Not Applicable | Not Applicable |
| About small-scale project activities (if applicable) | | | |
| 13. The proposed project activity shall meet the eligibility criteria for small scale CDM project | Simplified Modalities and Procedures for Small Scale | OK | Table 2, Section A.5.2 There is no other similar |

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|---|--|------------|---|
| activities set out in § 6 (c) of the Marrakech Accords and shall not be a debundled component of a larger project activity. | CDM Project Activities §12a,c | | project being registered by the project participant within 1 km of the project. |
| 14. The proposed project activity shall confirm to one of the project categories defined for small scale CDM project activities and use 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 B.1.1 The project is applying the approved baseline methodology AMS-I.D – Grid connected renewable electricity generation (version 15). |
| 15. 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 D.1.2 There are no requirements by the host country for an Environment Impact Assessment for this project activity. |
| About stakeholder involvement | | | |
| 16. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received. | CDM Modalities and Procedures §37b | OK | Table 2, Section E.1.1 & E.1.2 The public stakeholder consultation forum was conducted on 27 June 2008 prior to the project implementation. |
| 17. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and | CDM Modalities and Procedures §40 | OK | The PDD was published for invitation of comments for a 30 days period from 26 September 2008 to 25 |

| Requirement | Reference | Conclusion | Cross Reference / Comment |
|--|---|------------|--|
| comments have been made publicly available. | | | October 2008. There were no comments received during the period of the comment. |
| Other | | | |
| 18. The baseline and monitoring methodology shall be previously approved by the CDM Executive Board. | CDM Modalities and Procedures §37e | OK | The baseline and monitoring methodology was approved at EB 36 on 14 December 2007 |
| 19. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances. | CDM Modalities and Procedures §45c,d | OK | The baseline has been established in a transparent manner as stated in PDD |
| 20. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure. | CDM Modalities and Procedures §47 | OK | This has been considered in the project emissions. |
| 21. The project design document shall be in conformance with the UNFCCC CDM-PDD format. | CDM Modalities and Procedures Appendix B, EB Decision | OK | The PDD is in conformance with UNFCCC format CDM-SSC-PDD Version 03 effect as of 22 December 2006. |
| 22. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP. | CDM Modalities and Procedures §37f | OK | This has been considered in the monitoring plan. |

Table 2 Requirements Checklist

| CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview | | Ref. | MoV* | COMMENTS | Draft Concl. | Final Concl. |
|---|--|------|----------|--|-----------------|-----------------|
| A. General Description of Project Activity <i>The project design is assessed.</i> | | | | | | |
| A.1. Project Boundaries <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i> | | | | | | |
| A.1.1. Are the project's spatial boundaries (geographical) clearly defined? | | | DR, I | <p><i>The project is located at the Perting River, Bentong Pahang, Malaysia.</i></p> <p>CI.1: As stated in the PDD section A.4.1.4, the coordinates of the power house and water catchment are as</p> <p>Water catchment:</p> <ul style="list-style-type: none"> – 03.5104°N – 101.8391°E <p>Power house</p> <ul style="list-style-type: none"> – 03.5103°N – 101.8562°E. <p>However in table 1 section A.4.2, the coordinates stated was</p> <ul style="list-style-type: none"> – 03°51.04'N – 101°83.91'E <p>Power house</p> <ul style="list-style-type: none"> – 03°51.03'N – 101°85.62'E. <p>Please clarify the coordinates applied to define the project location.</p> | CI.1 | OK |

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|--|--|------|----------|---|--------------|--------------|
| A. 1.2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined? | | | DR, I | <p><i>The project boundary includes the construction of hydro power plant and connection to the national grid.</i></p> <p><i>The project activity does not involve reservoir and dam as the water intake of the project activity is through a 2.5 meter height overflow weir constructed across the river to divert the water into the settling basin before channelling into the water tunnel to the power house. .</i></p> <p><i>The electricity generated by the project activity will be supplied to the national electricity grid, which will displace part of the electricity supplied by fossil fuel dominated power plants to the national grid, and hence GHG emission reduction could be achieved.</i></p> <p>CI.2: Please clarify the total installed capacity of the project activity. In table 1 section A.4.2 of the PDD, it is stated that the installed capacity is 2 X 2.1MW. However in A.2, the project was described to have an installed capacity of 4MW.</p> | CI.2 | OK |
| A.2. Participation Requirements <i>Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms</i> | | | | | | |

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| <i>Party, Letter of Approval, Authorization and Project Participant.</i> | | | | | | |
| A.2.1. Which Parties and project participants are participating in the project? | | | DR, I | <p><i>The host party of the project activity is Malaysia and the host party project participant is AMDB Perting Hydro Sdn. Bhd., is the project participant from Malaysia.</i></p> <p>CAR.1: During the on-site validation the project proponent has confirm that AMDB Perting Hydro Sdn. Bhd., is the project participant. The host country project participant in section A.3 and Annex 1 of the PDD indicated a different project participant.</p> <p>CAR.2: During the on-site validation, Annex 1 party participation was not being identified. Please provide the details of the Annex 1 country participant as according to the national criteria, all CDM projects in Malaysia required an Annex 1 party participant.</p> | CAR.1 CAR.2 | OK |
| A.2.2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party? | | | DR, I | <p>CAR.3: There is no LoA has been received by the host country. There is no Annex 1 country participant.</p> <p>CAR.2: Please refer to A.2.1</p> | CAR.2 CAR.3 | OK |
| A.2.3. Do all participating Parties fulfil the participation | | | DR | <i>Yes. Malaysia has ratified the Kyoto</i> | CAR.2 | OK |

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| requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority | | | | <i>Protocol on 04 September 2002 for voluntary participation in GHG emissions. The DNA is Conservation and Environmental Management Division of the Ministry of Natural Resource and Environment.</i> CAR.2: Please refer to A.2.1 | | |
| A.2.4. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance. | | | DR, I | <i>The project is privately funded and reviewing of documents did not reveal any information indicating, that ODA is used for financing the project. No diversion of ODA occurs.</i> | OK | OK |
| A.3. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i> | | | | | | |
| A.3.1. Does the project design engineering reflect current good practices? | | | DR, I | <i>The project design engineering reflects current good practices where its generates electricity with renewable sources by partly replace power generated by fossil fuel in which of current practice allowing carbon dioxide emitting to the atmosphere.</i> | OK | OK |
| A.3.2. Does the project use state of the art technology or | | | DR, | Yes. <i>The project activity employs a</i> | OK | OK |

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| would the technology result in a significantly better performance than any commonly used technologies in the host country? | | | I | <i>technology which is significantly cleaner in generating power comparing to the conventional power generation by fossil fuel in Malaysia.</i> | | |
| A.3.3. Does the project make provisions for meeting training and maintenance needs? | | | DR, I | CI.3: At the time of validation, there are no documented procedures made available to the validation team for training and maintenance needs. Please provide the operating procedures to the validation team for review. | CI.3 | OK |
| A.4. Contribution to Sustainable Development <i>The project's contribution to sustainable development is assessed.</i> | | | | | | |
| A.4.1. Has the host country confirmed that the project assists it in achieving sustainable development? | | | DR, I | CAR.4: The project proponent has not received any confirmation from the host country in achieving sustainable development. | CAR.4 | OK |
| A.4.2. Will the project creates other environmental or social benefits than GHG emission reductions? | | | DR, I | <i>The project will:</i> 1. <i>Create employments for professionals, skilled and unskilled less-educated workers during construction and operational.</i> 2. <i>Contribute towards in meeting the Ninth Malaysia Plan to achieve the target of 350MW electricity generated from renewable sources by 2010.</i> | OK | OK |

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|---|--|------|------|---|--------------|--------------|
| | | | | 3. <i>Help to conserve the country's foreign exchange by reducing reliance on imported fossil fuels for electricity generation.</i> | | |
| A.5. Small scale project activity <i>It is assessed whether the project qualifies as small-scale CDM project activity</i> | | | | | | |
| A.5.1 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? | | | DR | Yes, <i>The project activity is a small scale CDM Type I category with power generation capacity less than 15MW and emission reductions is less than 60ktCO₂.</i> | OK | OK |
| A.5.2 Is the small scale project activity not a debundled component of a larger project activity? | | | DR | <i>The project activity is not a debundled component of a larger project activity as there are no similar projects with the same project participants and same technology registered within 1km from this project location.</i> | OK | OK |
| B. Project Baseline <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i> | | | | | | |
| B.1. Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i> | | | | | | |

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| B.1.1. Does the project apply an approved methodology and the correct version thereof? | | | DR' I | Yes. The project applies the approved baseline methodology AMS-I.D – Grid Connected Renewable Electricity generation Version 15 | OK | OK |
| B.1.2. Are the applicability criteria in the baseline methodology all fulfilled? | | | DR, I | Yes. The project fulfils the application criteria as it comply requirements required by AMS-I.D version 15 in combination with the Tool to calculate the emission factor for an electricity system. | OK | OK |
| B.2. Baseline Scenario Determination <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i> | | | | | | |
| B.2.1. What is the baseline scenario? | | | DR, I | The baseline scenario is the continuing use of fossil fuel for electricity generation supplying to the national grid. 1. The Project activity is displacing electricity from electricity distribution system that is supplied by fossil fuel to the national grid of Malaysia with renewable sources of hydro energy. 2. The project activity is not a combined of heat and power (co-generation) systems. | OK | OK |

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| | | | | <p>3. <i>With the new installed capacity, the project activity has a renewable component that the entire unit does not exceed the limit of 15 MW. The total capacity of the project is 4.2MW.</i></p> <p>4. <i>The project activity does not involve addition of renewable energy generation units.</i></p> <p>5. <i>The project activity is not a retrofitted or modified existing renewable energy generation.</i></p> | | |
| B.2.2. What other alternative scenarios have been considered and why is the selected scenario the most likely one? | | | DR | <p><i>The project proponent has identified the possible and realistic alternative of the project activity which includes:</i></p> <p>1. <i>The proposed project activity does not undertake as CDM project.</i></p> <p>2. <i>Continual of current situation where the grid electricity is generated by at least one of the fossil fuel sources or the existing mix generation of the national grid.</i></p> <p>3. <i>Installation of a new fossil fuel fired power plant at project site with the equivalent installed capacity or annual power generation.</i></p> <p>4. <i>Installation of new power plant using</i></p> | CI.4 | OK |

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|---|--|------|------|--|-----------------|-----------------|
| | | | | <p><i>other renewable sources at the project site with the equivalent installed capacity or annual power generation.</i></p> <p><i>The alternative for the project activity is continual of power generation with at least one of the fossil fuel sources since the proposed project activity faces investment barrier with the absence of CDM assistance.</i></p> <p>CI.4: Please clarify what is the Malaysian current regulation in power generation as stated in alternative 3 in table 3 of the PDD.</p> | | |
| B.2.3. Has the baseline scenario been determined according to the methodology? | | | DR | <p><i>Yes. The baseline is of the project activity is continual of power generation with at least on of the fossil fuel sources which is accordance to the methodology AMS-I.D.</i></p> | OK | OK |
| B.2.4. Has the baseline scenario was determined using conservative assumptions where possible? | | | DR | <p><i>The baseline scenario has applied conservative assumptions for calculating the baseline emissions the project.</i></p> | OK | OK |
| B.2.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations? | | | DR | <p><i>At current there is no Government regulation or policies in Malaysia to governed power generation through renewable sources. However, in the</i></p> | OK | OK |

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|---|--|------|------|---|--------------|--------------|
| | | | | <i>Ninth Malaysia Plan, the Government has promoted power generation with renewable resources.</i> | | |
| B.2.6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced? | | | DR | <p><i>The baseline scenario is deemed appropriate with available data and all sources are clearly referenced.</i></p> <ol style="list-style-type: none"> <i>1. The grid connected electricity baseline information was obtained from a study on Grid-Connected Electricity Baselines in Malaysia year 2008 conducted by Pusat Tenaga Malaysia.</i> <i>2. The potential of hydro power generation in Malaysia information was obtained from the Special Committee on Renewable Energy (SCORE) and Electricity Supply Industry in Malaysia, Performance and Statistical Information by the Energy Commission year 2006.</i> <i>3. The promotion of power generation with renewable sources was obtained from the Ninth Malaysia Plan year 2006-2010.</i> <i>4. The state water royalty tax was obtained from the State Economic</i> | OK | OK |

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|---|--|------|------|---|------------------------------|--------------|
| | | | | <i>Planning Unit (Unit Perancang Ekonomi Negeri – UPEN).</i> | | |
| B.2.7. Have the major risks to the baseline been identified? | | | DR | <i>Major risks to the baseline have been considered in the additionality discussions.</i> | OK | OK |
| B.3. Additionality Determination <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i> | | | | | | |
| B.3.1. Is the project additionality assessed according to the methodology? | | | DR, | <p><i>Yes. The additionality tool of Attachment A to Appendix B has been applied to address additionality as indicated in Section B.5 of the PDD. The most significant barrier is investment.</i></p> <p><i>1. Investment barrier – With the current out tariff offered by TNB (Tenaga Nasional Berhad – National Utility Company) to the proposed project activity at RM0.167/kWh, the proposed project activity will not be viable and could not achieve the expected project IRR. Hence without the assistance from the CERs sales, the investment barrier could not be overcome.</i></p> <p>CI.5: Please clarify the financial indicator</p> | CI.5 CI.6 CI.7 CI.8 | OK |

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| * MoV = Means of Verification, DR= Document Review, I= Interview | | | | <p>in determining the project benchmark. There is no clear indication of the financial indicator in the PDD.</p> <p>CI.6: As stated in table 6 of the PDD, the benchmark for sensitivity analysis is project IRR of 9.4%. Also stated in page 18 of the PDD, the IRR of the project activity is well below the 12% which is the standard return for the independent power producers. Please clarify what is the IRR benchmark used to determine the sensitivity analysis.</p> <p>CI.7: As stated in table B.2 of the PDD, the total percentage of power generation source is more than 100%. Please clarify.</p> <p>CI.8: Please provide evidence for following:</p> <ul style="list-style-type: none"> • Capital Costs of Plant and Equipment, • Construction Costs • Assumption of Annual Operations and Maintenance Costs • Sale price of CERs | | |
| B.3.2. Are all assumptions stated in a transparent and conservative manner? | | | DR, | Please refer to B.3.1 | CI.5 | OK |

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| | | | | | Cl.6 Cl.7 Cl.8 | |
| B.3.3. Is sufficient evidence provided to support the relevance of the arguments made? | | | DR, I | Please refer to B.3.1 | Cl.5 Cl.6 Cl.7 Cl.8 | OK |
| B.3.4. If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity? | | | DR, I | <i>The project starting date is 27 April 2007 2006. The project proponent has considered CDM to the project activity since 13 May 2005 where enquiry on CDM was made through Pusat Tenaga Malaysia (the DNA secretariat of Malaysia).</i> CAR.5: The starting date of the project activity stated in C.1.1 of the PDD is not accordance to the validation findings. | CAR.5 | OK |
| B.4. Calculation of GHG Emission Reductions – Project emissions <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i> | | | | | | |
| B.4.1. Are the calculations documented according to the approved methodology and in a complete and | | | DR, | <i>Yes. The project emissions calculations have been calculated according to the</i> | OK | OK |

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| transparent manner? | | | | <i>approved methodology AMS-I.D version 15 and provided in a transparent manner.</i> | | |
| B.4.2. Have conservative assumptions been used when calculating the project emissions? | | | DR, | <i>The project emission has been calculated using conservative assumptions.</i> | OK | OK |
| B.4.3. Are uncertainties in the project emission estimates properly addressed? | | | DR | <i>Yes. The uncertainties of the project emissions are properly addressed.</i> | OK | OK |
| B.5. Calculation of GHG Emission Reductions – Baseline emissions <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i> | | | | | | |
| B.5.1. Are the calculations documented according to the approved methodology and in a complete and transparent manner? | | | DR, | CI.9: The emission factor of the project activity was calculated by Pusat Tenaga Malaysia using the approved methodology ACM0002 version 06. Since the emission factor is the most recent available data, please clarify the applicability of the emission factor as accordance to the “tool to calculate emission factor for and electricity system” version 01. | CI.9 | OK |
| B.5.2. Have conservative assumptions been used when calculating the baseline emissions? | | | DR, | CI.10: Please clarify how Simple OM was been selected to determine the operation | CI.10 | OK |

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| | | | | margin emission factor. | | |
| B.5.3. Are uncertainties in the baseline emission estimates properly addressed? | | | DR, | <i>Yes. The uncertainties of the baseline emission are properly addressed.</i> | OK | OK |
| B.6. Calculation of GHG Emission Reductions – Leakage <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i> | | | | | | |
| B.6.1. Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner? | | | DR | <i>No leakage effects need to be accounted as the equipment is new and not being transferred from another activity.</i> | OK | OK |
| B.6.2. Have conservative assumptions been used when calculating the leakage emissions? | | | DR | <i>Refer to B.6.1 above</i> | OK | OK |
| 6.3. Are uncertainties in the leakage emission estimates properly addressed? | | | DR | <i>Refer to B.6.1 above</i> | OK | OK |
| B.7. Emission Reductions <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i> | | | | | | |
| B.7.1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change. | | | DR, | CI.11: Please clarify the crediting period applied to the project activity and the expected emission reductions over the crediting period. CI.12: Please clarify the source of the | CI.11 CI.12 CI.13 | OK |

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| | | | | 80% load factor applied to determine the annual power supplied to grid. CI.13: Please provide the data and parameter of the following in section B.6.2 of the PDD to determine the ex-ante calculation of emission reduction: 1. Installed capacity of the proposed project activity. 2. Estimation of annual gross power generated and auxiliary consumption of the proposed project activity. | | |
| B.8. Monitoring Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i> | | | | | | |
| B.8.1. Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner? | | | DR, I | Yes, the monitoring plan applies the approved monitoring methodology AMS-I.D version 15 in a complete and transparent manner and summarised in B.7.2. | OK | OK |
| B.8.2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later? | | | DR, I | CI.14: Please clarify the archiving period of the monitored data after the crediting period. | CI.14 | OK |
| B.9. Monitoring of Project Emissions <i>It is established whether the monitoring plan provides</i> | | | | | | |

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| <i>for reliable and complete project emission data over time.</i> | | | | | | |
| B.9.1. | Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period? | | DR, I | <i>The monitoring plan has been address in section B.7.1.</i> | OK | OK |
| B.9.2. | Are the choices of project GHG indicators reasonable and conservative? | | DR, I | <i>Yes, the choice is conservative and reasonable. Carbon dioxide (CO₂) is the GHG indicators.</i> | OK | OK |
| B.9.3 | Is the measurement <i>method</i> clearly stated for each GHG value to be monitored and deemed appropriate? | | DR, I | <i>Yes. The project emissions indicators will be monitored and measured throughout the crediting and summarized in B.7.1.</i> | OK | OK |
| B.9.4. | Is the measurement <i>equipment</i> described and deemed appropriate? | | DR, I | <i>Yes. The monitoring equipments used for on-site measurements are indicated in B.7.1.</i> | OK | OK |
| B.9.5. | Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements? | | DR, I | <i>Yes. The PDD describes measurement accuracy in table form.</i> CI.15: At the time of on-site validation, there are no operation procedures available for review. The procedure shall also include calibration interval for monitoring equipment, emergency response plan, working instruction, health and safety issues, corrective actions and reporting of data/results. | CI.15 | OK |

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| | | | | Kindly established and forward to validation team for review. | | |
| B.9.6. Is the measurement <i>interval</i> identified and deemed appropriate? | | | DR, I | <i>The measurements frequency is determined in the tables in Section B.7.1</i> | OK | OK |
| B.9.7. Is the <i>registration, monitoring, measurement and reporting</i> procedure defined? | | | DR, I | CI.15: Please refer to B.9.5 | CI.15 | OK |
| B.9.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed? | | | DR, I | CI.15: Please refer to B.9.5 | CI.15 | OK |
| B.9.9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation) | | | DR, I | CI.15: Please refer to B.9.5 | CI.15 | OK |
| B.10. Monitoring of Baseline Emissions <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i> | | | | | | |
| B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period? | | | DR, I | <i>Yes. The monitoring plan considers objectives, organisation, equipment and data collection to determine baseline emissions during the crediting period (Section B.7.2).</i> | OK | OK |
| B.10.2. Are the choices of baseline GHG indicators reasonable and conservative? | | | DR, | <i>Yes, the choices of baseline GHG indicators are in accordance to AMS-I.D and are reasonable.</i> | OK | OK |

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|---|--|-------------|-------------|---|-------------------------|-------------------------|
| * MoV = Means of Verification, DR= Document Review, I= Interview | | | | | | |
| B.10.3. Is the measurement <i>method</i> clearly stated for each baseline indicator to be monitored and also deemed appropriate? | | | DR, | Yes, the choices of baseline indicators are in accordance to AMS-I.D and are reasonable. CI.13: Please refer to B.7.1 | CI.13 | OK |
| B.10.4. Is the measurement <i>equipment</i> described and deemed appropriate? | | | DR, | Yes. Measurement method for each baseline indicator are monitored and deemed appropriate as described in the PDD. CI.13: Please refer to B.7.1 | CL 13 | OK |
| B.10.5. Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements? | | | DR, | Yes. Measurement accuracy are addressed and deemed appropriate as described in the PDD. CI.13: Please refer to B.7.1 CI.15: Please refer to B.9.5 | CI.13 CI.15 | OK |
| B.10.6. Is the measurement <i>interval</i> for baseline data identified and deemed appropriate? | | | DR, | Yes. Measurement interval are addressed and deemed appropriate as described in the PDD. CI.13: Please refer to B.7.1 | CI.13 | OK |
| B.10.7. Is the <i>registration, monitoring, measurement and reporting</i> procedure defined? | | | DR, | CI.15: Please refer to B.9.5 | CI.15 | OK |
| B.10.8. Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed? | | | DR, | CI.15: Please refer to B.9.5 | CI.15 | OK |
| B.10.9. Are procedures identified for day-to-day records | | | DR, | CI.15: Please refer to B.9.5 | CI.15 | OK |

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| * MoV = Means of Verification, DR= Document Review, I= Interview | | | | | | |
| handling (including what records to keep, storage area of records and how to process performance documentation) | | | | | | |
| B.11. Monitoring of Leakage <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i> | | | | | | |
| B.11.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage? | | | DR | <i>There is no leakage effects need to be accounted in this project.</i> | OK | OK |
| B.11.2. Are the choices of project leakage indicators reasonable and conservative? | | | DR | <i>Please refer to B.11.1 above</i> | OK | OK |
| B.11.3. Is the measurement <i>method</i> clearly stated for each leakage value to be monitored and deemed appropriate? | | | DR | <i>Please refer to B.11.1 above</i> | OK | OK |
| B.12. Monitoring of Sustainable Development Indicators/ Environmental Impacts <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i> | | | | | | |
| B.12.1. Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country? | | | DR | <i>Monitoring of data concerning social and economic impacts is not requested by the host country. The project activity is exempted also from Environmental Impact Assessment.</i> | OK | OK |
| B.12.2. Does the monitoring plan provide for the collection and archiving of relevant data concerning | | | DR | <i>Please refer to B.12.1</i> | OK | OK |

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|---|--|------|----------|--|-----------------|-----------------|
| environmental, social and economic impacts? | | | | | | |
| B.12.3. Are the sustainable development indicators in line with stated national priorities in the Host Country? | | | DR | <i>Please refer to B.12.1</i> | OK | OK |
| B.13. Project Management Planning <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i> | | | | | | |
| B.13.1. Is the authority and responsibility of overall project management clearly described? | | | DR, I | <i>The PDD describe the overall project management and responsibilities to manage and operate the project.</i> CI.16: Please include a site specific operation organization chart with task allocation in the PDD. | CI.16 | OK |
| B.13.2. Are procedures identified for training of monitoring personnel? | | | DR, I | CI.3: Please refer to A.3.3 | CI.3 | OK |
| B.13.3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions? | | | DR, I | <i>Currently no procedures for emergency cases where it can cause unintended emissions are foreseen in the PDD.</i> CI.15: Please refer to B.9.5 | CI.15 | OK |
| B.13.4. Are procedures identified for review of reported results/data? | | | DR | CI.15: Please refer to B.9.5 | CI.15 | OK |
| B.13.5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting? | | | DR | CI.15: Please refer to B.9.5 | CI.15 | OK |

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|---|---|------|----------|--|--------------|--------------|
| C. Duration of the Project/ Crediting Period <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i> | | | | | | |
| C.1.1 | Are the project's starting date and operational lifetime clearly defined and evidenced? | | DR, I | Yes, the consideration of CDM and the starting date of the project were clearly evidenced by the project participants. Refer to B.3.4 | OK | OK |
| C.1.2. | Is the start of the crediting period clearly defined and reasonable? | | DR, I | CI.11: Please refer to B.7.1 CI.17: Please reconsider a reasonable starting date of crediting period in C.2.1.1 of the PDD. | CI.17 | OK |
| D. Environmental Impacts <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i> | | | | | | |
| D.1.1. | Has an analysis of the environmental impacts of the project activity been sufficiently described? | | DR, I | The environmental impacts have been sufficiently assessed in the PDD, Section D. | OK | OK |
| D.1.2. | Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved? | | DR, I | The project activity has been exempted from EIA. However the project proponent has to comply with the local environmental regulations during the project operations. | OK | OK |
| D.1.3. | Will the project creates any adverse environmental effects? | | DR, I | No significant negative impacts are anticipated from the project as the | OK | OK |

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| | | | | <i>location of the project has no human and wildlife activities.</i> | | |
| D.1.4. Are transboundary environmental impacts considered in the analysis? | | | DR | <i>No transboundary environmental impacts to other regions or countries have been identified.</i> | OK | OK |
| D.1.5. Have identified environmental impacts been addressed in the project design? | | | DR | <i>No negative environmental impacts have been identified in the project. The project will reduce CO₂ emission from displacing electricity from electricity distribution system that is supplied by fossil fuel to the national grid.</i> | OK | OK |
| D.1.6. Does the project comply with environmental legislation in the host country? | | | DR | <i>Yes. The project complies with the environmental legislation of the host country.</i> | OK | OK |
| D.2. For Small-scale projects | | | | | | |
| D.2.1. Does host country legislation requires an analysis of the environmental impacts of the project activity? | | | DR | <i>Refer to D.1.2</i> | OK | OK |
| D.2.2. Does the project comply with environmental legislation in the host country? | | | DR | <i>Refer to D.1.2</i> | OK | OK |
| D.2.3. Will the project creates any adverse environmental effects? | | | DR | <i>The project will not create any adverse environmental effects</i> | OK | OK |
| D.2.4. Have environmental impacts been identified and addressed in the PDD? | | | DR | <i>No environmental impacts are identified since the project activity will not create any adverse effects.</i> | OK | OK |
| E.1. Stakeholder Comments | | | | | | |

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| <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i> | | | | | | |
| E.1.1. Have relevant stakeholders been consulted? | | | DR, I | Yes. <i>The public stakeholder consultation forum was conducted on 27 June 2008 at the local council office in Bentong district, Pahang, Malaysia.</i> CI.18: Please provide the attendance list of the stakeholder meeting. | CI.18 | OK |
| E.1.2. Have appropriate media been used to invite comments by local stakeholders? | | | DR, I | CI.19: Please clarify what was the media been used to invite the stakeholders. | CI.19 | OK |
| E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws? | | | DR, I | <i>Stakeholder consultation process is not required by law of the host country.</i> | OK | OK |
| E.1.4. Is a summary of the stakeholder comments received provided? | | | DR, I | Yes. <i>A detailed summary of comments received is provided in the PDD Section E.2</i> | OK | OK |
| E.1.5. Has due account been taken of any stakeholder comments received? | | | DR, I | Yes. <i>All comments raised during the consultation are addressed and indicated in the PDD Section E.2.</i> | OK | OK |

Table 2 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 |
|---|---------------------------------------|---|---|
| CAR.1: During the on-site validation the project proponent has confirm that AMDB Perting Hydro Sdn. Bhd., is the project participant. The host country project participant in section A.3 and Annex 1 of the PDD indicated a different project participant. | A.2.1 | Changed the name of project proponent to “ AMDB Perting Hydro Sdn Bhd ” in Section A.3, Table A.1 and in Annex 1 of the PDD. | PDD Version 2.2 reviewed & confirmed the corrections have been addressed CAR.1 is resolved & closed |
| CAR.2: During the on-site validation, Annex 1 party participation was not being identified. Please provide the details of the Annex 1 country participant as according to the national criteria, all CDM projects in Malaysia required an Annex 1 party participant. | A.2.1 A.2.2 A.2.3 | Annex 1 country Project Participant has been provided for review to the validation team | Annex 1 country project participant has been identified : “Energi Midt Handel A/S” PDD Version 2.2 has been updated CAR.2 is resolved & closed |
| CAR.3: There is no LoA has been received by the host country. There is no Annex 1 country participant. | A.2.2 | Host country LoA has been provided for review to the validation team | LoA have been received from Annex 1 country (Denmark) dated 3 December 2009 & host country, Malaysia dated 18 October 2009. Latest LoA has been received dated 16 November 2010 due to the expiry of the previous LoA issued by the Malaysia DNA CAR.3 is resolved & closed |
| CAR.4: The project proponent has not received any confirmation from | A.4.1 | Host country LoA has been provided for review to the validation team | The LoA received from host country, Malaysia dated 19 |

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| 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 |
|---|---------------------------------------|--|---|
| the host country in achieving sustainable development. | | | <p>October has been reviewed & confirmed that the project activity will contribute to sustainable development achievement</p> <p>Latest LoA has been received dated 16 November 2010 due to the expiry of the previous LoA issued by the Malaysia DNA & it still confirms that the project activity will contribute to sustainable development achievement</p> <p>CAR. 4 is resolved & closed</p> |
| CAR.5: The starting date of the project activity stated in C.1.1 of the PDD is not accordance to the validation findings. | B.3.4 | Start date of project is changed to 27/4/2007, based on the Letter of information to Tenaga National Berhad on the first pouring of concrete at site dated 27/4/07 (Attachment 1) | <p>The letter has been reviewed & confirmed the project starting date is correct</p> <p>CAR.5 is resolved & closed</p> |
| CI.1: As stated in the PDD section A.4.1.4, the coordinates of the power house and water catchments are as Water catchment: <ul style="list-style-type: none"> – 03.5104°N – 101.8391°E Power house <ul style="list-style-type: none"> – 03.5103°N | A.1.1 | <p>Section A.4.2, Table A.2, the typo error of the coordinates is changed to</p> <p>Water catchment:</p> <ul style="list-style-type: none"> – 03.5104°N – 101.8391°E <p>Power house</p> <ul style="list-style-type: none"> – 03.5103°N – 101.8562°E. | <p>The PDD Version 2.2 has been reviewed & confirmed that the coordinates have been corrected</p> <p>CI.1 is resolved & closed</p> |

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| 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 |
|---|---------------------------------------|---|---|
| <ul style="list-style-type: none"> – 101.8562°E. <p>However in table 1 section A.4.2, the coordinates stated was</p> <ul style="list-style-type: none"> – 03°51.04'N – 101°83.91'E <p>Power house</p> <ul style="list-style-type: none"> – 03°51.03'N – 101°85.62'E. <p>Please clarify the coordinates applied to define the project location.</p> | | | |
| <p>CI.2: Please clarify the total installed capacity of the project activity. In table 1 section A.4.2 of the PDD, it is stated that the installed capacity is 2 X 2.1MW. However in A.2, the project was described to have an installed capacity of 4MW.</p> | A.1.2 | <p>The total installed capacity of the project is 4.2MW with a net export capacity of 4MW. This sentence is clarified in the following sections of the PDD:</p> <p>Section A.2, paragraph 2, Section A.4.2, Para a & b Section B.2, Table B.1 Section B.5, Table B.6</p> | <p>The clarification has been reflected in the PDD as per explanation</p> <p>CI.2 is resolved & closed</p> |
| <p>CI.3: At the time of validation, there are no documented procedures made available to the validation team for training and maintenance needs. Please provide the operating procedures to the validation team for review.</p> | A.3.3 B.13.2 | <p>Refer to Attachment 2(a) for Training procedure and Attachment 2(b) for the monitoring procedure.</p> | <p>The validation team has reviewed the training procedure “Procedure for Training of Monitoring Personnel” & monitoring procedure “Procedure for Monitoring, Measurement and Reporting & confirmed to be</p> |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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 |
|---|---------------------------------------|---|--|
| | | | adequate Cl.3 is resolved & closed |
| Cl.4: Please clarify what is the Malaysian current regulation in power generation as stated in alternative 3 in table 3 of the PDD. | B.2.2 | Table 2 : Section B.4 Deleted reference to Malaysian regulation and instead justified using unconducive geographical location to justify the alternative. (Refer to Attachment 9 for the 4 MW AMDB Perting Mini Hydro Version 03) | PDD Section B.4, Version 2.2 has been revised & updated according to the latest methodology AMS-I.D Version 15. Cl.4 is resolved & closed |
| Cl.5: Please clarify the financial indicator in determining the project benchmark. There is no clear indication of the financial indicator in the PDD. | B.3.1 B.3.2 B.3.3 | The initial financial decision for Sungai Perting Mini hydro was conducted in late 2005 using the Bank Pembangunan Malaysia Berhad Renewable Energy loan product. The interest rate offered at that time was the Banks effective cost of funds plus a spread of up to 2.5%. The banks effective cost of funds in late 2005 was 6.2%. A more detailed description is stated in Section B.5 of the PDD on other applications of this internal benchmark. | PDD Section B.5 has been revised to include explanation on the financial indicator. CL.5 is resolved & closed |
| Cl.6: As stated in table B.6 of the PDD, the benchmark for sensitivity | B.3.1 B.3.2 | Section B.5, Table B.6 | PDD Section B.5, Version 2.2 has been revised & updated to |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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>analysis is project IRR of 9.4%. Also stated in page 18 of the PDD, the IRR of the project activity is well below the 12% which is the standard return for the independent power producers. Please clarify what is the IRR benchmark used to determine the sensitivity analysis.</p> | B.3.3 | <p>The initial financial decision for Sungai Perting Mini hydro was conducted in late 2005 using the Bank Pembangunan Malaysia Berhad Renewable Energy loan product. The interest rate offered at that time was the Banks effective cost of funds plus a spread of up to 2.5%. The banks effective cost of funds in late 2005 was 6.2%. This will make the internal benchmark for this project to be at 8.7%</p> <p>Table B.6 is amended to include benchmark IRR as 8.7%. IRR with out CDM is 8.21%.</p> <p>Also, registration of the project activity as a CDM project activity is critical to ensure a commercially reasonable return of 10.58% (IRR with CDM).</p> <p>Reference to IRR if 12% is removed from the PDD.</p> | <p>reflect the explanation provided by the PP. The evidence documents provided in the explanation has been reviewed & accepted</p> <p>Cross checked the values applied in the financial calculation spreadsheet “Perting Hydro Cashflow 220110” versus PDD & confirmed are consistently reflected</p> <p>Cl.6 is resolved & closed</p> |
| <p>Cl.7: As stated in table B.7 of the PDD, the total percentage of power generation source is more than 100%. Please clarify.</p> | B.3.1 B.3.2 B.3.3 | <p>Table B.4:</p> <p>The Installed capacity is 4.2MW and the net-export capacity is 4.0MW. This</p> | <p>PDD Section B.4, Version 2.2 has been revised & updated and the correct installed capacity & net export capacity has been stated in PDD</p> |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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 |
|--|---------------------------------------|---|--|
| | | figure is clarified in table B.4 | Section B.5 Table B.4 Cl.7 is resolved & closed |
| Cl.8: Please provide evidence for following: <ul style="list-style-type: none"> Capital Costs of Plant and Equipment, Construction Costs Assumption of Annual Operations and Maintenance Costs Sale price of CERs | B.3.1 B.3.2 B.3.3 | a) Refer to CER spreadsheet Note 3 and relevant attachments. b) Refer to CER spreadsheet Note 3 and relevant attachments. c) Refer to CER spreadsheet Note 4 and relevant attachments. d) Refer to attached proposed term sheet from a buyer indicating the CER price. <u>Answer</u> a) A hydro project would typically take up to 2 years for construction and commissioning. Referred to the Attachment 10 for Perting Work Program Gantt chart which shows the spread of work over 20 months period where a bulk of the civil and structural work is planned in 1 st year. Refer to note 7 in the financial spreadsheet for the | Cross checked all supporting attachment documents listed in the spreadsheet "Note 1 & Note 3" and confirmed all values are correctly reflected In the financial calculation spreadsheet, a) Cell F12:G12, worksheet "IRR Wo CDM" & "IRR With CDM", kindly clarify why the CAPEX was split into 2 years (Year 1 & Year 2)? → CLOSED: Note 7 showing detailed cost breakdown has |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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>payments planned as per the work schedule.</p> <p>b) The values that stated in the “Perting Hydro Cashflow 101009” in IRR wo CDM worksheet, cell F19:G19 & IRR With CDM worksheet, cell F20:G20 is update to be the same in the value in the note 7 of financial spreadsheet.</p> <p>c) Cell AB9, worksheet “IRR Wo CDM” is updated.</p> | <p>been reviewed, cross checked with input values stated in Note 3, cross checked versus all supporting attachment documents. Confirmed the values reflected are correct</p> <p>b) Kindly provide evidences to substantiate the amount depicted in Year 1 & Year 2 → Reviewed the excel sheet “breakdown in capex (2) & found the values for year 1 & 2 computed has minor different values as stated in the “Perting Hydro Cashflow 101009” in IRR wo CDM worksheet, cell F19:G19 & IRR With CDM worksheet, cell F20:G20 → CLOSED: Cross checked the worksheet Note 7 versus cell F19:G19 & IRR With CDM worksheet, cell F20:G20 and the values are reflected correctly</p> <p>c) Cell AB9, worksheet “IRR Wo CDM”, please update</p> |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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>d) & e) The assumption is made to assume that TNB will not renew the concession and the project activity will not be continued.</p> | <p>to ensure it is not linked with external file reference → CLOSED: The cell has been updated & referenced to the correct worksheet</p> <p>d) Kindly substantiate the assumptions made in Note 2 worksheet “TNB will not renew the concession and would take over the site to develop a bigger scale hydro plant. There existing structure of the plant would be demolished to allow a structure with bigger capacity”. → CLOSED: The explanation is accepted</p> <p>e) Will there be any possibility to renew the concession after 21 years? Kindly confirm → CLOSED: The explanation is accepted</p> <p>Cl.8 is resolved & 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 |
|--|---------------------------------------|---|---|
| CI.9: The emission factor of the project activity was calculated by Pusat Tenaga Malaysia using the approved methodology ACM0002 version 06. Since the emission factor is the most recent available data, please clarify the applicability of the emission factor as accordance to the “tool to calculate emission factor for and electricity system” version 01. | B.5.1 | The Baseline Study mentions that the emission factor has been calculated as per ACM0002. It must be noted that the steps specified in ACM0002 to estimate the emission factor are same as in “Tool to calculate the emission factor for an electricity system – Version1.1. The Baseline study had adopted the latest IPCC 2006 Guidelines for National Greenhouse Gas Inventories to estimate the emission factor. Therefore, it may be considered that the emission factor has been calculated as per the tool. | PDD Section B.6.3 & Annex 3 has included the explanation on the emission factor data used & is accepted by the validation team CI.9 is resolved & closed |
| CI.10: Please clarify how Simple OM was been selected to determine the operation margin emission factor. | B.5.2 | Annex 3 : The installed capacity of the Peninsular grid is about 91 % (Attachment 6) of total installed capacity of Malaysia. All other grids constitute for only 9 % of the total capacity. Therefore, it is justified to use the simple operating margin to calculate the grid emission factor for the Peninsular Grid. The Baseline study by PTM, Malaysia has estimated the emission factor for small scale projects as 0.620 ton CO₂ e / MWh | The justification has been included in PDD Annex 3 & accepted by the validation team CI.10 is resolved & closed |
| CI.11: Please clarify the crediting period applied to the project activity and the expected emission reductions over the crediting period. | B.7.1 | The crediting period is for 7 years, renewable. The crediting period is estimated 121,660 tCO ₂ e for the 7 years | The crediting period choice has been specified clearly in the PDD Section C.2 |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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 |
|--|---|---|--|
| | | crediting period. (Refer to the PDD Section C.2) | Cl.11 is resolved & closed |
| Cl.12: Please clarify the source of the 80% load factor applied to determine the annual power supplied to grid. | B.7.1 | Hydrology data The 80% load factor is the value used to derive the available energy generated from the flow duration curve. The factor is needed as the flow is not constant throughout the year. It is applied for calculation of available energy (kWh) for sale by multiplying against the installed capacity at the interconnection point and the number of hours per year (8760). Refer to attached flow duration curve of Sungai Perting. (Refer to the Attachment 11) | The attachment file for flow duration of curve of Sungai Perting has been reviewed. The applicable reference source & the justification in PDD Section B.6.3 has been updated Cl.12 is resolved & closed |
| Cl.13: Please provide the data and parameter of the following in section B.6.2 of the PDD to determine the ex-ante calculation of emission reduction: 1. Installed capacity of the proposed project activity. 2. Estimation of annual gross power generated and auxiliary consumption of the proposed project activity. | B.7.1 B.10.3 B.10.4 B.10.5 B.10.6 | Section B.6.2 The following parameters are added to section B.6.2: 1. Installed capacity of the proposed project activity. 2. Estimated operation hours of the project activity. Estimation of auxiliary consumption | PDD has been revised & the parameters have been reflected in Section B.6.2 PDD Section B.6.2: Generation mix stated that |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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 |
|--|--|--|--|
| | | | 19,723 GWh generated annually by referring to Appendix 3. There is no Appendix 3 in the document. Which section does the value originated? Please clarify -> CLOSED: The PDD Section B.6.2 & Annex 3 has been revised |
| Cl.14: Please clarify the archiving period of the monitored data after the crediting period. | B.8.2 | All data will be archived for a period of two years after the crediting period. This statement is added in the monitoring ID in section B.7.1. | The archiving period has been included in the PDD Section B.7.1 & B.7.2 Cl.14 is resolved & closed |
| Cl.15: At the time of on-site validation, there are no operation procedures available for review. The procedure shall also include calibration interval for monitoring equipment, emergency response plan, working instruction, health and safety issues, corrective actions and reporting of data/results. Kindly established and forward to validation team for review. | B.9.5 B.9.7 B.9.8 B.9.9 B.10.5 B.10.7 B.10.8 B.10.9 B.13.3 B.13.4 B.13.5 | Please refer to following attachments: Attachment 2(a) – Monitoring and Operating Procedure Added Emergency Response Plan in Section B.7.2. The only equipment that requires monitoring is the power meter and the calibration procedure is described in detail is sections B.7.1 and B.7.12. 2 | The procedures have been defined in PDD Section B.7.2. Cl.15 is resolved & closed |
| Cl.16: Please include a site specific operation organization chart with task | B.13.1 | The Organization chart is added in Figure B.2, Section B.7.2 with detailed | Organization chart has been added in the PDD Version 2.2 |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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 |
|--|---------------------------------------|--|---|
| allocation in the PDD. | | description on the responsibilities. | Cl.16 is resolved & closed |
| Cl.17: Please reconsider a reasonable starting date of crediting period in C.2.1.1 of the PDD. | C.1.2 | The crediting period is revised to 1 st November 2009, The start date of the crediting period is expected to be the day the project is registered by the UNFCCC | The latest crediting period has been revised to 1 st December 2010 Cl.17 is resolved & closed |
| Cl.18: Please provide the attendance list of the stakeholder meeting. | E.1.1 | Refer to Attachment 8 for the attendance list for the stakeholder meeting. | Stakeholder attendance list dated 27 th June 2008 has been reviewed & accepted Cl.28 is resolved & closed |
| Cl.19: Please clarify what was the media been used to invite the stakeholders. | E.1.2 | The stakeholder meeting was part of the town council meeting where representatives from all divisions came. It was more by internal memo that was hand delivered to all parties. | PDD Section E.1 has been reviewed & confirmed the invitation process has been explained Cl.1 is resolved & closed |
| Cl.20: 1) Kindly reconfirm whether reservoir is presence in the project activity or not? The project activity has been confirmed previously as a run off river hydro project without reservoir. | | 1) & 2) As the project activity is a run-off river hydro project without reservoir, thus the project emissions due to water reservoirs is not considered in the project. | PDD Section B.6.3 has been revised & confirmed to be accepted Cl.20 is resolved & closed |

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CDM Validation Report, No. 9105048789
4MW AMDB Perting Mini Hydro Project

| 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>2) Kindly clarify how is the power density being calculated in this case? See PDD Section B.6.3. According to ACM0002 version 11, page 7, “Emissions from water reservoirs of hydro power plants (PEHP,y): For hydro power project activities <u>that result in new reservoirs and hydro power project activities that result in the increase of existing reservoirs</u>, project proponents shall account for CH4 and CO2 emissions from the reservoir.....” Since reservoir is not presence, hence the project emission due to water reservoirs = 0 ? And how is it possible to calculate for power density when it was mentioned earlier that there is no reservoir?</p> <p>3) PDD Section B.6.3 – the power density calculated is 5,332W/m² It was also stated that ” The power density calculated for the project is higher than 10W/m²”??</p> | | <p>3) - The power density is required for calculation of project emissions due to water reservoirs. The power density need not to be take into consideration as it is a run-off river hydro project without reservoirs.</p> | |

Qualification

Renganathan, Rupa /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level:
(Qualifikationsstufe)

Lead Auditor

External:
(Externer)

☒ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)
CDM 13 – Waste handling and disposal

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

2009/06/26

Valid to:
(Gültig bis)

2012/06/25

Remarks:

Scope 1: limited to 1b (Biomass generation), 1c (Renewables)
Scope 13: limited to 13a (anaerobic processes)

Languages:

Tamil
English

Experience Exchange

Date

Location

Remarks

Accreditation(s)

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next Monitoring:
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date:
Change:
By:
Reason:

Date: 2010-05-17
Change: EAC CDM, CDM added
By: Manfred Brinkmann
Reason: CDM 01: renewable Energies, Biomass

History

| | | |
|-----------|---------------------|------------------------------------|
| Created: | 2009/06/10 17:52:14 | Manineth Apolinario Pulido/Sin/TUV |
| Modified: | 2010/08/13 10:41:52 | Manfred Brinkmann/Jpn/TUV |

Qualification

Cheong, Robert (Chun Yuen) /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level: Auditor
(Qualifikationsstufe)

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)
CDM 13 – Waste handling and disposal

Add. qualification:
(zus. Qualifikation)

First Appointment: 2007/09/10
(Erstberufung)

Valid to: 2010/09/09
(Gültig bis)

Remarks:

Languages:

Chinese
English
Indonesian
Mandarin

Experience Exchange

Date

Location

Remarks

Accredita

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next
Monitoring:
(nächste
Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2008-05-25
Change: EAC CDM, CDM added
By: Manfred Brinkmann
Reason:

History

Created: 2008/05/25 19:24:27 Manfred Brinkmann/Jpn/TUV

Modified: 2008/05/25 19:24:42 Manfred Brinkmann/Jpn/TUV

Qualification

Zhou, Kai /

Emission Trading United Nations Framework Convention on Climate Change

Auditor No.:
(AuditorenRegNr)

Appointed:
(Zugelassen)

☒ ja

Qualification Level:
(Qualifikationsstufe)

Auditor

External:
(Externer)

☐ ja

Add. reviewer:
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:
(EAC Branchen)

CDM 01 – Energy industries (renewable – / non-renewable sources)
CDM 05 – Chemical industry

Add. qualification:
(zus. Qualifikation)

First Appointment:
(Erstberufung)

2008/08/24

Valid to:
(Gültig bis)

2011/08/23

Remarks:

Languages:

Chinese simplified
English
German

Experience Exchange

Date

Location

Remarks

Accreditation(s)

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next Monitoring:
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

History of scope allocation

Date: 2008-09-25

Change: EAC CDM, CDM added

By: Manfred Brinkmann

Reason: 1st project to be accompanied by an appointed team leader for 'monitoring' and mutual exchange of experience & knowledge

Appointment for scope 1 based on project experience (almost exclusively Hydropower), therefore limited to renewable energies; other projects subject to case-by-case decision.

History

| | | |
|-----------|---------------------|---------------------|
| Created: | 2008/09/01 18:27:46 | Kai Zhou/Gz/Chn/TUV |
| Modified: | 2008/09/01 18:28:58 | Kai Zhou/Gz/Chn/TUV |