



POA VALIDATION REPORT

INTEGRA CARBON SDN BHD

VALIDATION OF THE

MALAYSIA BIOMASS POWER PLANT PROJECT

REPORT NO. MALAYSIA-VAL/0005/2011/POA
REVISION No. 02

BUREAU VERITAS CERTIFICATION

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VALIDATION REPORT

Date of first issue: 06/12/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: GenPower Carbon Solutions, L.P.	Client ref.: Mr Gerald Peter Hamaliuk

Summary:

Bureau Veritas Certification has made the validation of the PoA Malaysia Biomass Power Plant Project, project of GenPower Carbon Solutions, L.P. located in Kuala Lumpur and CPA Bera 10MW Power Plant Project which located at Bera, Pahang, Malaysia on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology *ACM 0018 ver.02.0.0; Consolidated Methodology for Electricity Generation from Biomass Residues in Power-Only Plants* and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.: MALAYSIA-val/0005/2011/POA	Subject Group: CDM
Project title: MALAYSIA BIOMASS POWER PLANT PROJECT (PoA) BERA 10MW BIOMASS POWER PLANT, BERA, PAHANG (3.2750;102.5508 – PoA1) (CPA)	
Work carried out by: Jasmine Tang (Team Leader) Selina Cheang Wai Im (Team Member) Toh Ket Tiong (Team Member) Matthew Tang (Financial Specialist) Sushil Budhia (Second Financial Specialist)	
Internal Technical Review carried out by: Nancy Zhang	
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Indexing terms

Work approved by:

Name and signature of GPM

Flavio Gomes

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1 INTRODUCTION

Integra Carbon Sdn Bhd has commissioned Bureau Veritas Certification to validate its CDM project Malaysia Biomass Power Plant Project (hereafter called “the project”) at all states of Malaysia.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

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

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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

1.3 Validation team

The validation team consists of the following personnel:

Function	Name	Code Holder*		Task Performed *		
Lead Verifier	Jasmine tang	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> DR	<input checked="" type="checkbox"/> SV	<input checked="" type="checkbox"/> RI
Verifier	Selina Cheang Wai Im	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> DR	<input checked="" type="checkbox"/> SV	<input checked="" type="checkbox"/> RI
Verifier	Toh Ket Tiong	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> DR	<input checked="" type="checkbox"/> SV	<input checked="" type="checkbox"/> RI



Financial Specialist	Matthew Tang	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> DR	<input type="checkbox"/> SV	<input type="checkbox"/> RI
2nd Financial Specialist	Sushil Budhia	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> DR	<input type="checkbox"/> SV	<input type="checkbox"/> RI
Internal Technical Reviewer (ITR)	Nancy Zhang	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> DR	<input type="checkbox"/> SV	<input type="checkbox"/> RI

*DR = Document Review; SV = Site Visit; RI = Report issuance

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the version 01.2 of the Clean Development Mechanism Validation and Verification Manual, issued by the Executive Board at its 55th meeting on 30/07/2010. The protocol shows, in a transparent manner, criteria (requirements), means of validation and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

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

2.1 Review of Documents

The PoA Project Design Document (PDD) submitted by Integra Carbon Sdn Bhd and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Integra Carbon Sdn Bhd revised the PoA-DD and PoA-DD and resubmitted it on August 2012 and the last submission of all the updated PDDs on 05 December 2012.



The validation findings presented in this report relate to the project as described in the PoA-DD and CPA-DD version 2.3.

2.2 Follow-up Interviews

On 19 & 20/07/2011 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Agni Power Sdn Bhd – Mr Shakib Abdul Hamid and GenPower Carbon Solutions Services (Malaysia) Sdn Bhd (the previous CME)- Ms Foo Siew Theng, Mr. Asrulnizam Alias, GenPower Carbon Solutions, L.P. - Mr Gerald Peter Hamaliuk, etc. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Agni Power Sdn Bhd	<ul style="list-style-type: none"> ➤ CPA design document ➤ Technology description ➤ Additionality assessment ➤ Environmental approval from Department of Environment ➤ Monitoring plan
LOCAL Stakeholder	<ul style="list-style-type: none"> ➤ Stakeholder consultation process
GenPower Carbon Solutions Services (Malaysia) Sdn Bhd (the previous CME)	<ul style="list-style-type: none"> ➤ Technology description ➤ Additionality of the PoA/CPA ➤ Monitoring plan ➤ Monitoring methodology ➤ Baseline emission estimation ➤ Project emission estimation ➤ Emission reduction estimation. ➤ Environmental requirement compliance. ➤ Stakeholder consultation process

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

Corrective Action Requests (CAR) is issued, where:

- (a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- (b) The CDM requirements have not been met;



(c) There is a risk that emission reductions cannot be monitored or calculated.

The validation team may also use the term Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in Appendix A.

2.4 Internal Technical Review

The validation report underwent a Internal Technical Review (ITR) before requesting registration of the project activity.

The ITR is an independent process performed to examine thoroughly that the process of validation has been carried out in conformance with the requirements of the validation scheme as well as internal Bureau Veritas Certification procedures.

The Lead Verifier provides a copy of the validation report to the reviewer, including any necessary validation documentation. The reviewer reviews the submitted documentation for conformance with the validation scheme. This will be a comprehensive review of all documentation generated during the validation process.

When performing an Internal Technical Review, the reviewer ensures that:

The validation activity has been performed by the team by exercising utmost diligence and complete adherence to the CDM rules and requirements.

The review encompasses all aspects related to the project which includes project design, baseline, additionality, monitoring plans and emission reduction calculations, internal quality assurance systems of the project participant as well as the project activity, review of the stakeholder comments and responses, closure of CARs, CLs and FARs during the validation exercise, review of sample documents.

The reviewer compiles clarification questions for the Lead Verifier and Validation Team and discusses these matters with Lead Verifier.

After the agreement of the responses on the 'Clarification Request' from the Lead Verifier as well as the PP(s) the finalized validation report is accepted for further processing such as uploading on the UNFCCC webpage.



3 VALIDATION CONCLUSIONS

In the following sections, the conclusions of the validation are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Validation Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in 9 Corrective Action Requests (CARs) and 28 Clarification Requests (CLs).

The CARs and CLs were closed based on adequate responses from the Project Participant(s) which meet the applicable requirements. They have been reassessed before their formal acceptance and closure.

The number between brackets at the end of each section correspond to the VVM paragraph

3.1 Approval (49-50)

A letter of approval has been received (Ref 6 and 7) directly from the project participant confirming Malaysia is party to Kyoto Protocol and has ratified Kyoto Protocol on 28 July 2004 and participates voluntarily in this proposed CDM activity. Letter of approval also been obtained from UK DNA confirming that the UK ratified the Kyoto Protocol on 31st May 2002, participates voluntary in the CDM and authorized GenPower Carbon Solutions, L.P. to participate in this CDM project. The details of the documents received as following:

- Host Country's Letter of Approval for Malaysia Biomass Power Plant Project (Ref: NRE(S) 602-2/11Jld.16 (3); dated: 05 July 2012)
- Article 12 Kyoto Protocol to The United Nations Framework Convention on Climate Change – Written Approval of Voluntary Participation from UK DNA (Ref: EA/GenPCS/01/2012; dated: 19/01/2012)

Bureau Veritas Certification received this letter from Integra Carbon Sdn Bhd and does not doubt its authenticity.

The title and contents of the letter of approval refer to the precise proposed CDM project activity title in the PoA-DD being submitted for registration.

Bureau Veritas Certification considers the letters are in accordance with paragraphs 45 - 48 of the VVM.



3.2 Participation (54)

The participation for each project participant has been approved by a Party of the Kyoto Protocol.

The validation team concluded this by referring to the approval letter obtained from the respective project participants' DNA. As indicated in the LoA from host country DNA of Malaysia, Malaysia has ratified the United Nations Framework Convention on Climate Change on 13th July 1994 and Kyoto Protocol on 4th September 2002; whereas for Annex 1 Country i.e. United Kingdom (UK), as indicated in the LoA, the UK's DNA confirms that the UK ratified the Kyoto Protocol on 31st May 2002.

3.3 Project design document (57)

The PoA-DD submitted by Integra Carbon Sdn Bhd and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document, Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Integra carbon Sdn Bhd revised the PDD resubmitted it on August 2012.

The validation findings presented in this report relate to the project as described in the PoA-DD version 2.3, dated 05 December 2012.

The validation team hereby confirms that the PoA-DD version 2.3 complies with the latest forms and guidance documents for completion of PDD as per 'Clean Development Mechanism Validation and Verification Manual', EB55, Annex 1, version 01.2 and 'Guidelines for Completing the Programme Design Document Form for CDM Programmes of Activities', EB67, Annex 28, version 02.0.

3.3.1 Specific PoA Requirements (167)

(a) Eligibility Criteria for Enrolling CPA

According to the EB 60 Annex 26 Clarifications regarding the .procedures for registration of a Programme of Activities as a single CDM Project Activity and issuance of Certified Emission Reductions for a Programme of Activities (version 01), a full additionality assessment is not required in the context of component project activities (CPA), rather the confirmation of additionality for CPAs should be conducted by means of the eligibility criteria.

The Malaysia Biomass Power Plant Project PoA clearly establishes eligibility criteria for inclusion of a project as a CPA under the PoA in section A.4.2.2 Eligibility criteria for inclusion of a CPA in the PoA of the POA-DD. The eligibility criteria are as below:

- a) All CPA are within the geographical boundary including any time-induced



- boundary set in the PoA, per section A.4.1.2 of this PoA
- b) Each CPA included in this PoA will have a unique identification number as a reference. To avoid double counting, each included CPA with its reference number will be linked with the geographic coordinates of the power plant marked by GPS
 - c) The applicable projects activities are those that generate electricity in biomass residue (co-)fired power-only plants. The project activity may include the following activities, or where applicable, combinations of these activities:
 - (i) The installation of new biomass residues (co-)fired power-only plants at a site where currently no power generation occurs (Greenfield power projects);
 - (ii) The installation of new biomass residues (co-)fired power-only plants, which replace or are operated next to existing power-only plants fired with fossil fuels and/or biomass residues (power capacity expansion projects);
 - (iii) The improvement of energy efficiency of existing biomass residues (co-)fired power-only plants (energy efficiency improvement projects), which can also lead to a capacity expansion, e.g. by retrofitting the existing plant;
 - (iv) The total or partial replacement of fossil fuels by biomass residues
 - d) The start date of each CPA will be based on documentary evidence on implementation or construction or real action of the CPA
 - e) Each CPA must adhere to the applicability, baseline and monitoring methodology of ACM 0018 "Consolidated methodology for electricity generation from biomass residues in power-only plants" version 02.0.0 methodology or future update.
 - f) Each CPA to demonstrate the project additionality by applying procedures provided in the procedure for the selection of baseline scenario and demonstration of additionality as stated in the latest version of ACM0018.
 - g) The PoA-specific requirements stipulated by the CME:
 - (i) The CME has approved the participation of the CPA into the PoA (i.e. inclusion form);
 - (ii) Local stakeholder meeting shall be conducted at the CPA level;
 - (iii) Environmental impact assessment is not required for the implementation of project activity generating power from utilization of biomass residues per the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987;
 - (iv) An electricity purchase agreement (example: REPPA for grid connected power agreement) to be signed between project owner and relevant third party (example: Tenaga Nasional Berhad)
 - h) Each CPA shall provide written affirmation that if there is funding from Annex 1 parties, and that said funding does not result in a diversion of official development assistance
 - i) The target group is grid connected entities. The distribution mechanism is either by direct installation or contractual installation



j) Each CPA will be verified individually

The methodology is applicable under the following conditions:

- (1) No other biomass types than biomass residues, as defined above, are used in the project plant;
- (2) Fossil fuels may be co-fired in the project plant. However, the amount of fossil fuels cofired shall not exceed 80% of the total fuel fired on an energy basis;
- (3) For projects that use biomass residues from a production process (e.g. production of sugar or wood panel boards), the implementation of the project shall not result in an increase of the processing capacity of raw input (e.g. sugar, rice, logs, etc.) or in other substantial changes (e.g. product change) in this process;
- (4) The biomass residues used by the project facility should not be stored for more than one year;
- (5) Projects that chemically process the biomass residues prior to combustion (e.g. by means of esterification, fermentation and gasification) are not eligible under this methodology. The biomass residues can however be processed physically such as by means of drying, pelletization, shredding and briquetting;
- (6) No power and heat plant operates at the project site during the crediting period;
- (7) If any heat is generated for purposes other than power generation (e.g. heat which is produced in boilers or extracted from the header to feed thermal loads in the process) during the crediting period or was generated prior to the implementation of the project activity, by any on-site or off-site heat generation equipment connected to the project site, the following conditions should apply:
 - (a) The implementation of the project activity does not influence directly or indirectly the operation of the heat generation equipment, i.e. the heat generation equipment would operate in the same manner in the absence of the project activity;
 - (b) The heat generation equipment does not influence directly or indirectly the operation of the project plant (e.g. no fuels are diverted from the heat generation equipment to the project plant); and
 - (c) The amount of fuel used in the heat generation equipment can be monitored and clearly differentiated from any fuel used in the project activity.
- (8) In the case of fuel switch project activities, the use of biomass residues or the increase in the use of biomass residues as compared to the baseline scenario is technically not possible at the project site without a capital investment in:
 - The retrofit or replacement of existing heat generators/boilers; or
 - The installation of new heat generators/boilers; or
 - A new dedicated biomass residues supply chain established for the purpose of the project (e.g. collecting and cleaning contaminated new sources of biomass residues that could otherwise not be used for energy purposes);
 - Equipment for preparation and feeding of biomass residues.

Finally, the methodology is only applicable if the most plausible baseline scenario, as identified per the "Procedure for the selection of the baseline scenario and demonstration of additionality", section hereunder, is:

- For power generation: Scenarios P2 to P7, or a combination of any of those scenarios;
- For biomass use: Scenarios B1 to B8, or a combination of any of those scenarios.



However, note that for scenarios B5 to B8, leakage emissions should be accounted for as per the procedures of the methodology.

The eligibility for inclusion of CPA in the PoA are justified based on the following:

- (i) The applicability conditions of the applied methodology has been explained;
- (ii) The means of demonstrating the additionality of the CPA has been explained;
- (iii) The eligibility criteria are verifiable, explicit and objective.

Based on these criteria, the DOE conclude that it was sufficient to ensure that all CPAs would comply with the CDM requirements applicable to the PoA.

(b) Operational and Management Arrangements for the PoA (166)

As describe in section A4.4, Integra Carbon Sdn Bhd is the coordinating or managing entity (CME) of the management and monitoring for the PoA, wherein the operation and maintenance program is to be responsible by the project owner of each CPA.

- (i) The CME has a procedure of responsibilities and organization to define the roles and responsibilities of personnel involved in the process of inclusion of CPAs
- (ii) The CME will maintain the existing relationship with the CPA implementers and ensure proper training for data monitoring is being provided to CPA implementer
- (iii) The CME has established operational and management for the implementation of the PoA, including a record keeping system for each CPA under the PoA that considers:
 - Name of the CPA and its unique ID number
 - Name of the implementing entity of the CPA
 - Contact detail of the implanting entity (contact person, address, telephone and email)
 - Location of the CPA (GPS coordinates)
 - Relevant technical specification of the CPAThe record keeping will be carried out by using the field instruments, hardware and software installed at every Project site and/or manual data recording in the log book. The captured data will be transferred to the serer of CME, which will have provision to archive the data as per individual CPAs.
- (iv) The CME will confirm as per EB 55 Annex 38 Paragraph 6(i), that the Project activities included in the CPA is not registered as CPA of another PoA or any other registered CDM Project activity. Declaration from the CPA implementer will be requested.

(C) Validation of CPAs (168)

The validation of the first real case of CPA carried out during the on-site assessments on 19 - 20 July 2011 (CPA - Bera 10MW Biomass Power Plant, Bera, Pahang (3.2750;102.5508 – PoA1)). DOE conclude that the CPA is complies with the eligibility criteria specified in the POA-DD.

3.4 Changes in the Project Activity

During the site visit no drastic changes were observed in project as compared to details mentioned in webhosted PoA-DD. The only changes to the project is the PDD, it was



been revised due to some of the EB requirements were not successfully presented in the PDD prepared earlier and also some updates due to took over of the project by Integra Carbon Sdn Bhd.

The final PoA-DD ver 2.3 has been submitted with changes noted on the CAR/CL that has been raised by the DOE (Refer to CAR/CL in Appendix A).

3.5 Project description (64)

The process undertaken to validate the accuracy and completeness of the project description include the document review, interview of project participants and on-site assessments on 19 - 20 July 2011.

The proposed PoA will be developed within Malaysia only. The location of the first CPA which will be implemented is at N 03°16' 30.07" E 102° 33' 2.9" - 20 acre state owned land leased from the Pahang State Government.

The PoA is developed by Integra Carbon Sdn Bhd as the coordinating and managing entity (CME), and the proposed project activity is mean to reduce greenhouse gas emissions (GHGs) through the installation of biomass residue (co-)fired power-only power plants. This is conjunction to the Tenth Malaysia Plan 2011 – 2015, the Renewable Energy Policy and Action Plan is to be undertaken to achieve a renewable energy target of 985 MW by 2015, contributing 5.5% to Malaysia's total electricity generation mix, providing an annual CO₂ avoidance of 3.2 million tonnes. The planned energy capacity for biomass in the mix is targeted at 330MW.

This power-only plants eligible for this PoA are planned to utilize biomass residues only, be it a Greenfield power project(s), power capacity expansion project(s), energy efficiency improvement project(s) (which can also lead to a capacity expansion), retrofitting of existing plant to use biomass, and fuel switch project(s). Each CDM Programme Activity (CPA) which included in the PoA will consist of power-only plant(s) and the power-only plant(s) owner (be it project developer/ project investor/ project participant) will sign a contractual agreement with GenPower Carbon Solutions L.P. prior to being included into the Programme of Activities (PoA). CME will provide the complete CDM service and technical support for management and monitoring of the CPA.

The main objective of this PoA is to reduce significant amounts of GHG emissions from:

- The electricity produced by carbon intensive resources, e.g. coal, fossil fuels
- Power plants that are less efficient in resource to power conversion
- The biomass residues currently being dumped/ land filled and decaying under anaerobic conditions

The proposed PoA is a voluntary action by CME and CPAs will be developed by CME and/or project owner(s).



There are no existing regulations in Malaysia enforcing the development of biomass residue (co-)fired power-only plants or utilization of biomass residues in power generation. CME is not obliged by law or any governmental policy to implement the PoA, and CME also does not have any contractual obligation to implement the PoA.

In the absence of the PoA, power generation will continue to utilize carbon intensive resources for power generation and biomass residues will continue to be dumped or land filled, leading to decay under anaerobic conditions.

The length of the PoA is 28 years. The PoA did not obtain nor is seeking any public funding. The PoA will cover all states of Malaysia.

The starting date of the PoA shall be the start of the public comment period of validation.

This PoA is claimed to be able to support the sustainable development policies of Malaysia and bring about direct benefit towards achieving sustainable development, wherein each CPA will provide social, economic and environmental benefits.

Energy in the biomass can be converted to steam, heat, electricity and fuels through various conversion methods, such as direct combustion boiler and steam turbines, anaerobic digestion, co-firing, gasification and pyrolysis.

Presently, direct combustion of biomass is the simplest route of energy recovery from the biomass residues; however, suitability of the various combustion technologies available in the market depends on the characteristics of the biomass itself and each CPA will employ individual biomass residue (co-)fired power-only plant technology based on the site conditions and requirements, which shall be discussed in detail in each CPA-DD.

The DOE hereby confirms that the project description in PoA-DD (ref 3) is accurate and complete in all respects and that there are no changes to the project activity/design or boundary as compared to the webhosted PoA-DD.

3.6 Baseline and monitoring methodology

3.6.1 General requirement (76-77)

According to the PoA-DD, the CPA under the PoA will apply the large scale methodology ACM0018 "Consolidated methodology for electricity generation from biomass residues in power-only plants; Version 02.0.0, EB66, dated 02 March 2012. The CME will follow the guidelines in accordance to Annex 38 of EB 55, which laid out "Procedure for Registration of a Programme of Activities as a Single CDM Project Activity and Issuance of Certified Emission Reductions for a Programme of Activities" and "Implications of an approved methodology being put on hold or withdrawn".

The steps taken to assess the relevant information contained in the first real case CPA-DD against each applicability conditions are described in first CPA validation report.



The DOE confirmed that the selected baseline and monitoring methodology is previously approved by the CDM Executive Board, and it is applicable to the project activity and complies with all the applicability conditions.

The DOE hereby confirms that, as a result of the implementation of the proposed CDM project activity, there are no greenhouse gas emissions occurring within the proposed CDM project activity boundary, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, which are not addressed by the applied methodology.

3.6.2 Project boundary (80)

The geographical boundary of the PoA will be within the country of Malaysia.

The PoA-DD has described the GHG emission sources and sinks that will occur during the operation of the project activity. The emission included or excluded from the project boundary is justified and explained.

For PoA Malaysia Biomass Power Plant Project, the source and sink of greenhouse gases is described as per table below:

Table 2 Source and Sink of Greenhouse Gases

	Source	Gas		Justification / Explanation
Baseline	Electricity generation	CO ₂	Included	Main emission source
		CH ₄	Excluded	Excluded for simplification. This is conservative
		N ₂ O	Excluded	Excluded for simplification. This is conservative
	Uncontrolled burning or decay of surplus biomass residues	CO ₂	Excluded	It is assumed that CO ₂ emissions from surplus biomass residues do not lead to changes of carbon pools in the LULUCF sector
		CH ₄	To be decided by CPA	CPA may decide to include this emission source, where case B1, B2 or B3 has been identified as the most likely baseline scenario
		N ₂ O	Excluded	Excluded for simplification. This is conservative.
	Source	Gas		Justification / Explanation
Project Activity	On-site fossil fuel consumption	CO ₂	Included	May be an important emission source
		CH ₄	Excluded	Excluded for simplification. This emission source is assumed to be very small.
		N ₂ O	Excluded	Excluded for simplification. This emission source is assumed to be very small
	On-site and off-site transportation and processing of biomass residues	CO ₂	Included	May be an important emission source
		CH ₄	Excluded	Excluded for simplification. This emission source is assumed to be very small
		N ₂ O	Excluded	Excluded for simplification. This emission source is assumed to be very small
	Combustion of biomass residues for	CO ₂	Excluded	It is assumed that CO ₂ emissions from surplus biomass residues do not lead to changes of carbon pools in the LULUCF sector



	Source	Gas		Justification / Explanation
	electricity	CH ₄	Included or excluded	This emission source must be included if CH ₄ emissions from uncontrolled burning or decay of biomass residues in the baseline scenario are included
		N ₂ O	Excluded	Excluded for simplification. This emission source is assumed to be very small
	Storage of biomass residues	CO ₂	Excluded	It is assumed that CO ₂ emissions from surplus biomass residues do not lead to changes of carbon pools in the LULUCF sector
		CH ₄	Excluded	Excluded for simplification. Since biomass residues are stored for not longer than one year, this emission source is assumed to be small
		N ₂ O	Excluded	Excluded for simplification. This emission source is assumed to be very small
	Wastewater from the treatment of biomass residues	CO ₂	Excluded	It is assumed that CO ₂ emissions from surplus biomass residues do not lead to changes of carbon pools in the LULUCF sector
		CH ₄	Included	This emission source shall be included in case where the waste water is treated (partly) under anaerobic conditions
		N ₂ O	Excluded	Excluded for simplification. This emission source is assumed to be small

The emission which is expected to sink during the operation of the project activity is methane gas from the uncontrolled burning or decay of surplus biomass residues.

Emissions from the project activity are as follow:

- (i) Carbon dioxide emission from using fossil fuel for auxiliary equipment, systems of biomass and transportation
- (ii) Methane gas emission from combustion of biomass residues for electricity and emission from wastewater treatment process

PoA-DD explained methane gas and carbon dioxide is included as these are the main emission but nitrogen oxide is excluded from simplification purpose.

The DOE validated the project boundary by conducting site visit to the first real case CPA to be included in the PoA. The site visit to the Bera 10MW Biomass Power Plant (3.2750;102.5508 – PoA1) was on 20 July 2011.

During the CPA site visit, the DOE has visited to a few sites including of the CPA actual project site, biomass supplier mills and the incinerated EFB dumping site.

As such, DOE confirm that the project boundary is correct and the selected sources and gases are justified for the project activity and meet the requirements of the methodology.

Based on the above assessment, the DOE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.



3.6.3 Baseline identification (87-88)

The steps taken to assess the requirement given in paragraph 81 and 82 of the VVM are described below:

Due to the differing nature of power generation from biomass residues in power-only plants applicable under ACM0018, each CPA will be provided with description of how the baseline scenario for that CPA is identified. The baseline will be established on a project specific basis for each CPA.

The baseline scenario shall be separately determined for electricity generation and biomass residue utilization.

In the PoA, scenarios P1 to P7 is applicable for power generation and scenarios B1 to B8 is applicable for biomass use as per methodology ACM0018; version 02.0.0. Each CPA that is going to be included in this PoA will have to justify the applicable measures and to define the applicable scenarios.

3.6.4 Algorithms and/or formulae used to determine emission reductions (92-93)

The steps taken to assess the requirement outlined in paragraph 89 the VVM are described below:

As per the PoA-DD, a typical CPA will apply methodology ACM0018 “Consolidated methodology for electricity generation from biomass residues in power-only plants” to determine emission reductions. There are 6 tools that can be used as reference to the ACM0018 methodology:

- Tool to calculate the emission factor for an electricity system
- Emissions from solid waste disposal site
- Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion
- Tool to calculate baseline, project and/or leakage emissions from electricity consumption
- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period
- Project and leakage emissions from transportation of freight

For emission reduction calculation, the following equation is used:

$$ER_y = BE_y - PE_y - LE_y$$

For baseline emission calculation, the following equation is used:

$$BE_y = BE_{EL,y} + BE_{BR,y}$$

No	Parameters	Value	Source of Value
1	$BE_{EL,y}$	Determined using "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" and "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion"	
1(a)	$BE_{EL,y} = EG_{PJ,y} * EF_{BL,EL,y}$		
1(b)	$EG_{PJ,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
1(c)	$EF_{BL,EL,y}$	To be determined with respect to each CPA - The electricity generated under the project activity could be generated in the baseline in three different ways, depending on the baseline scenario and the particular situation of the project activity: (i) Use of biomass residues at the project site (ii) Use of fossil fuels at the project site. (iii) Power generation in the electricity grid.	Historical data or measurement campaign or designer data
1(d)	$EF_{BL,EL,y} =$	$\frac{EG_{BL,FF,y} * EF_{BL,FF,y} + EG_{BL,grid,y} * EF_{grid,CM,y} + EG_{BL,FF/grid,y} * \text{MIN}(EF_{BL,FF,y} ; EF_{grid,CM,y})}{EG_{BL,BR,y} + EG_{BL,FF,y} + EG_{BL,grid,y} + EG_{BL,FF/grid,y}}$	
1(e)	$EG_{BL,FF,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
1(f)	$EF_{BL,FF,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
1(g)	$EF_{grid,CM,y}$	Determined using "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" and "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion"	
1(h)	$EG_{BL,FF/grid,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
1(i)	$EG_{BL,BR,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
1(j)	$EG_{BL,grid,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
2	$BE_{BR,y}$	The calculation of baseline emissions due to uncontrolled burning or decay of biomass residues is optional and project participants can decide whether to include these emission sources or not. If project wish to include then this formula applies: $BE_{BR,y} = BE_{BR,B1/B3,y} + BE_{BR,B2,y}$	
2(a)	$BE_{BR,B1/B3,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
2(b)	$BE_{BR,B2,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data

For project emission calculation, the following equation is used:

$$PE_y = PE_{FF,y} + PE_{EL,y} + PE_{TR,y} + PE_{BR,y} + PE_{WW,y}$$

No	Parameters	Value	Source of Value
1	$PE_{FF,y}$	Determined using the "Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion"	
2	$PE_{EL,y}$	Determine using "Tool to calculate baseline, project and/or leakage emissions from electricity consumption"	
3	$PE_{TR,y}$	Determined using the tool "Project and leakage emissions from road transportation of freight". $PE_{TR,m}$ in the tool corresponds to the parameter $PE_{TR,y}$ in this methodology and the monitoring period m is one year.	
4	$PE_{BR,y} = GWP_{CH4} \cdot EF_{CH4,BR} \cdot \sum_n BR_{PJ,n,y} \cdot NCV_{n,y}$		
4(a)	GWP_{CH4}	21	IPCC value in methodology ACM0018 version 02.0.0
4(b)	$EF_{CH4,BR}$	To be determined with respect to each CPA	Conduct measurements at the plant site or use IPCC default values
4(c)	$BR_{PJ,n,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
4(d)	$NCV_{n,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
5	$PE_{WW,CH4,y} = GWP_{CH4} \cdot V_{WW,y} \cdot COD_{WW,y} \cdot B_{o,WW} \cdot MCF_{WW}$		
5(a)	GWP_{CH4}	21	IPCC value in methodology ACM0018 version 02.0.0
5(b)	$V_{WW,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
5(c)	$COD_{WW,y}$	To be determined with respect to each CPA	Historical data or measurement campaign or designer data
5(d)	$B_{o,WW}$	To be determined with respect to each CPA	On-site measurement or reference default values
5(e)	MCF_{WW}	To be determined with respect to each CPA	On-site measurement or reference default values

For the categories of biomass residues whose baseline scenario has been identified as B5, B6, B7 or B8, project participants shall calculate leakage emissions.

For project leakage emission calculation, the following equation is used:

$$LE_y = EF_{CO2,LE} \cdot \sum_n BR_{PJ,n,y} \cdot NCV_{n,y}$$

No	Parameters	Value	Source of Value
1	$EF_{CO2,LE}$	To be determined with respect to each CPA	National default values for the CO ₂ emission factor. Otherwise, IPCC default values may be used
2	$BR_{PJ,n,y}$	To be determined with respect to each CPA	On-site measurement or reference default values. The determination of $BR_{PJ,n,y}$ shall be based on the monitored amounts of biomass residues used in power plants included in the project boundary. In



			<p>the case that negative overall emission reductions arise in a year through application of the leakage emission, CERS are not issue to project participants for the year concerned and in subsequent years, until emission reductions from subsequent years have compensated the quantity of negative emission reductions from the year concerned. For example, if negative emission reductions of 30 tCO₂e occur in the year t and positive emission reductions of 100 tCO₂e occur in the year t+1, only 70 CERs are issued for the year t+1.</p> <p>Changes required for methodology implementation in 2nd and 3rd crediting periods At the start of the second and third crediting period for a project activity, the continued validity of the baseline shall be assessed by applying the latest version of the tool "Assessment of the validity of the original/ current baseline and update of the baseline at the renewal of the crediting period".</p>
3	NCV _{n,y}	To be determined with respect to each CPA	Reference to default values (dry matter)
4	n	Categories of biomass residues for which B5, B6, B7 or B8 has been identified as the baseline scenario	

For project or leakage CO₂ emissions from fossil fuel combustion calculation, the following equation is used:

$$PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$$

For Option A: The CO₂ emission coefficient $COEF_{i,y}$ is calculated based on the chemical composition of the fossil fuel type i , using the following approach:

If $FC_{i,j,y}$ is measured in a mass unit: $COEF_{i,y} = w_{C,i,y} \times 44/12$

If $FC_{i,j,y}$ is measured in a volume unit: $COEF_{i,y} = w_{C,i,y} \times \rho_{i,y} \times 44/12$

For Option B: The CO₂ emission coefficient $COEF_{i,y}$ is calculated based on net calorific value and CO₂ emission factor of the fuel type i , as follows:



$$C0EF_{i,y} = NCV_{i,y} \times EF_{C02,i,y}$$

No	Parameters	Value	Source of Value
1	$FC_{i,j,y}$	To be determined with respect to each CPA	On-site measurement
2	$W_{C,i,y}$	To be determined with respect to each CPA	To obtain from fuel supplier or on-site measurement
3	$\rho_{i,y}$	To be determined with respect to each CPA	To obtain from fuel supplier or on-site measurement or using of regional/national default value
4	$EF_{C02,i,y}$	To be determined with respect to each CPA	To obtain from fuel supplier or on-site measurement or using of regional/national default value or using of IPCC default value

For calculation for baseline, project or leakage emissions of methane from solid waste disposal or prevented from disposal at a SWDS, the Application B (The CDM project activity avoids or involves the disposal of waste at a SWDS) [by referring to the tool: Emissions from solid waste disposal sites" version 06.0.1 (versions which may be updated, as necessary) has been chosen.

Based on the above assessment, the DOE hereby confirms that:

- All assumptions and data used by the project participants are listed in the PoA-DD, including their references and sources;
- All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PoA-DD;
- All values used in the PoA-DD are considered reasonable in the context of the proposed CDM project activity;
- The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PoA-DD.

3.7 Additionality of a project activity (97)

The steps taken and sources of information used, to cross-check the information contained in the CPA-PDD on this matter are described below:

Each CPA will demonstrate additionality based on the following criteria for inclusion into the PoA:

- Define credible possible alternative scenarios to the project activity. Ensure that the proposed CPA is not the only alternative amongst those considered and of which is consistent with mandatory laws and regulations;
- Determine most relevant barrier in terms of investment analysis and barrier analysis;
- Employ either simple cost analysis, investment comparison analysis or benchmark analysis to demonstrate that the proposed CPA is unlikely to be the most financially attractive alternative or is unlikely to be financially attractive;
- No similar activities can be observed; or that if similar activities are observed, essential



distinctions between the proposed CPA and similar activities can be reasonably explained;

- The CPA participation is voluntary and there is no requirement or enforcement under existing national/ state/ local regulations to enforce implementation of the project activity

Based on the barrier analysis and investment analysis, it is sufficient to demonstrate the additionality of a typical CPA. Each CPA's additionality will be assessed individually.

3.7.1 Prior consideration of the clean development mechanism (104)

The DOE validated the project activity start date provided in the PoA-DD by assessing notification letter to DNA Malaysia and consulting UNFCCC website.

The project activity will only start when the CPA is registered as there is no other revenue except from carbon credits.

According to EB 49 Annex 22, if the starting date of project activity is after 2nd August 08, the project participant must inform a host party DNA and the UNFCCC secretariat in writing of the commencement of the project activity and of their intention to seek CDM status. However, such notification is not necessary if the PoA-DD and CPA-DD has been published for GSP before the start date of the project activity. The PoA and the real case CPA, CPA Bera 10MW Power Plant Project were web posted for GSP from 18 May 2011 to 16 Jun 11.

The assessment of the Prior Consideration of the project activity "PoA Malaysia Biomass Power Plant Project" is conducted by consulting the UNFCCC website, and the DOE hereby confirms that the Period for Comments related to this project activity as per above mentioned date and that the CDM benefits were considered necessary in the decision to undertake the project as a proposed CDM project activity.

Based on the above assessment, the DOE hereby confirms that the proposed CDM project activity complies with the requirements of the latest version of the Guidance on prior consideration of CDM.

3.7.1.1 Historical information on project timeline

This section is not applicable.

3.7.2 Identification of alternatives (107)

The identification of alternatives is to be demonstrated at CPA level. There are 2 sub-step to perform this i.e.:

Sub-Step 1a: Define alternative scenarios to the proposed CPA project activity

- The alternative baseline scenarios shall be separately determined regarding:
 - How electric power will be generated in the absence of the CDM project activity; and
 - What would happen to the biomass residues in the absence of the project activity

Below is the 2 list of alternative scenarios; scenarios for electric power and also scenarios for use of biomass residue.

Table 3: List of alternative scenarios for electric power

Alternative	Description
P1	The proposed activity not undertaken as a CDM project activity
P2	If applicable ¹⁸ , the continuation of power generation in existing power-only plants fired with biomass residues, or fossil fuels, or a combination of both, at the project site. The existing power-only plants would operate at the same conditions (e.g. installed capacities, average load factors, or average energy efficiencies, fuel mixes, and equipment configuration) as those observed in the most recent three years prior to the project activity
P3	If applicable ²² , the continuation of power generation in existing power-only plants fired with biomass residues, of fossil fuels, or a combination of both, at the project site. The existing power-only plants would operate with different conditions from those observed in the most recent three years prior to the project activity
P4	If applicable ²² , the retrofitting of existing power-only plant fired with biomass residues, or fossil fuels, or a combination of both, at the project site. The retrofitting may or may not include a change in fuel mix
P5	The generation of power in the grid
P6	The installation of new power-only plants fired with biomass residues, or fossil fuels, or a combination of both, at the project site, using the same amount or less biomass residues than under scenario P1
P7	The installation of a new power-only plants fired with biomass residues, or fossil fuels, or a continuation of both, at the project site, using more biomass residue than under scenario P1

Table 4: List of alternative scenarios for use of biomass residue

Alternative	Description
B1	The biomass residues are dumped or left to decay mainly under aerobic conditions. This applies, for example, to dumping and decay of biomass residues in fields
B2	The biomass residues are dumped or left to decay under clearly anaerobic conditions, in landfills which are deeper than 5 meters. This does not apply to biomass residues that are stock piled or left to decay on fields
B3	The biomass residues are burned in an uncontrolled manner without utilizing it for energy purposes
B4	The biomass residues are used for electricity generation in power-only plant configuration at the project site in new and/or existing power plants
B5	The biomass residues are used for power and/or heat generation in other existing or new power plants at other sites
B6	The biomass residues are used for other energy purposes, such as the generation of bio-fuels
B7	The biomass residues are used for non-energy purposes, e.g. as fertilizer or as feedstock in processes (e.g. in the pulp and paper industry)
B8	The primary source of biomass residues and/or their fate in the absence of the project activity cannot be clearly defined



Sub-Step 1b: Consistency with mandatory applicable laws and regulations
From the list of plausible alternative scenarios to the project activity, the project participant shall ensure that the alternative(s) are in compliance with all mandatory applicable legal and regulatory requirements, even if these laws and regulations have objective other than GHG reductions, e.g. to mitigate local air pollution. National and local policies that do not have legally-binding status are not considered.

The DOE considers the listed alternatives to be credible and complete.

3.7.3 Investment analysis (114)

According to PoA-DD, the baseline scenario is identified and established on a project-specific basis for each CPA and will be described in detail in the CDM Programme Activity Design Document (CDM-CPA-DD). The baseline scenario will be investigated during the feasibility study of each CPA in the planning stage or before any project activity decision is confirmed. The identified baseline shall be in accordance with the procedures provided in the procedure for the selection of baseline scenario as stated in the latest version of ACM0018.

The objective of investment analysis is to compare the economic or financial attractiveness of the alternative scenarios remaining after the alternative scenarios has been identified (Step 1) and barrier analysis (Step 2) is conducted. The analysis should include all alternative scenarios remaining after barrier analysis, including scenarios where the project participants do not undertake an investment.

The financial indicator will be identified for each of the CPA, such as IRR, NPV, cost benefit ratio, or unit cost of service (e.g. levelized cost of electricity production in \$/kWh or levelized cost of delivered heat in \$/GJ) most suitable for the project type and decision-making context. If one of the alternative scenarios remaining after Step 2 corresponds to the situation where the project participants do not undertake any investment, then use either the NPC or the IRR as financial indicator in the analysis.

Financial experts have been engaged by DOE to carry out the validation of the financial analysis report. The DOE considers the listed alternatives to be credible and complete.

3.7.4 Barrier analysis (118)

The barriers have been presented to show that project activity is not the likely baseline scenario and that emissions reductions from the project are additional.

Barrier analysis is divided into 2 sub-step i.e. Identify barriers that would prevent the implantation of alternative scenarios (Sub-Step 2a) and Eliminate alternative scenarios which are prevented by the identified barriers (Sub-Step 2b).

**Sub-Step 2a:**

To evaluate the list of realistic and credible barriers that may prevent alternative scenarios to occur, this includes Investment, Technological, Lack of prevailing practice barriers as well as other barriers.

Sub-Step 2b:

Identify which alternative scenarios are prevented by at least one of the barriers listed in sub-step 2a, and eliminate those alternative scenarios from further consideration. All alternative scenarios shall be compared to the same set of barriers. The assessment of the significance of barriers should take into account the level of access to and availability of information, technologies and skilled labour in the specific context of the industry where the project type is located.

The DOE considers the listed alternatives to be credible and complete.

3.7.5 Common practice analysis (121)

The previous steps (i.e. Step 1- Identification of Alternative Scenarios, Step 2 – Barrier Analysis, and Step 3 – Investment Analysis) shall be complemented with an analysis of the extent to which the proposed project type (e.g. technology or practice) has already diffused in the relevant sector and geographical area. This test is a credibility check to demonstrate additionality which complements the barrier analysis (Step 2) and, where applicable, the investment analysis (Step 3).

Provide an analysis to which extent similar activities to the proposed CDM project activity have been implemented previously or are currently underway. Similar activities are defined as activities (i.e. technologies or practices) that are of similar scale, take place in a comparable environment, *inter alia*, with respect to the regulatory framework and are undertaken in the relevant geographical area, as defined in Sub-step 1a above. Other registered CDM project activities are not to be included in this analysis.

Provide documented evidence and, where relevant, quantitative information. On the basis of that analysis, describe whether and to which extent similar activities have already diffused in the relevant geographical area.

The DOE considers the listed alternatives to be credible and complete.

3.8 Monitoring plan (124)

The DOE hereby confirms that the monitoring plan complies with the requirements of the methodology.

The steps taken to assess whether the monitoring arrangements described in the monitoring plan are feasible within the project design are described below.

Determination of the baseline project parameters are explained in section E.6.3 of the PoA-DD and found acceptable and in accordance to methodology ACM0018; ver.02.0.0.



For the real case CPA, for parameters monitored ex-post, their monitoring methods, frequencies and measurement equipment are acceptable and in line to methodology ACM0018 version 02.0.0.

The parameters identified to be monitored ex-post for first real case CPA are as follows:

1. Quantity of the main product of the production process (e.g. sugar cane, rice) produced in year y from plants operated at the project site
2. Amount of fuel used in the heat generation equipment, if any
3. Biomass residues categories and quantities used in the project activity
4. Quantity of biomass residues of category n used in power plants which are located at the project site and included in the project boundary in year y
5. Amount of biomass residues category n used in the project plant(s) included in the project boundary in year y for which B1 or B3 has been identified as the most plausible baseline scenario
6. For biomass residues categories for which scenarios B1, B2 or B3 is deemed a plausible baseline alternative, project participants shall demonstrate that this is a realistic and credible alternative scenario:
 - Quantity of available biomass residues of type n in the region
 - Quantity of biomass residues of type n that are utilized (e.g. for energy generation or as feedstock) in the defined geographical region
 - Availability of a surplus of biomass residues type n (which cannot be sold or utilized) at the ultimate supplier to the project and a representative sample of other suppliers in the defined geographical region
7. Quantity of biomass residues that would be fired in biomass-residue-only heat generators (of power-only plants) in the baseline in year y
8. Quantity of biomass residues that would be fired in co-fired heat generators (of power-only plants) in the baseline in year y
9. Gross quantity of electricity generated in all power plants which are located at the project site and included in the project boundary in year y
10. Total quantity of auxiliary electricity consumption required for the operation of the power plants at the project site
11. Net calorific value of biomass residues of category n in year y
12. CH₄ emission factor for uncontrolled burning of the biomass residues category n during the year y
13. Moisture content of each biomass residues type k
14. Maximum electricity generation capacity of baseline power plant p in year y if fossil-fuel-only heat generators and co-fired heat generators are used
15. CH₄ emission factor for the combustion of biomass residues in the project plant
16. CO₂ emission factor of the most carbon intensive fuel used in the country
17. Quantity of waste water generated in year y
18. Average chemical oxygen demand of the waste water in year y
19. Methane generation potential of the waste water
20. Methane correction factor for the waste water
21. Quantity of fuel type i combusted in process j during the year y



22. Weighted average mass fraction of carbon in fuel type i in year y
23. Weighted average density of fuel type i in year y
24. Weighted average CO₂ emission factor of fuel type i in year y
25. Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y
26. Total amount of waste disposed in a SWDS in year x or month i
27. Weight fraction of the waste type j in the sample n collected during the year x or month i
28. Number of solid waste samples collected during the year x
29. Depth of the SWDS
30. Height of the water table in the SWDS
31. Effect of the uncertainty of different parameters
32. Return trip distance between the origin and destination of freight transportation activity f in monitoring period m
33. Total mass of freight transported in freight transportation activity f in monitoring period m

The validation team concludes that selected parameters, monitoring methods, frequencies and the measurement equipment were in line with the methodology. Leakage is not considered in this project activity as no equipment is transferred from other activities.

Integra Carbon Sdn Bhd as a managing entity will manage the monitoring done by each CPA to make sure every CPA meets the requirement for data collection, processing and reporting. Each CPA will be verified individually based on the unique identification number as a reference to ensure single counting of the PoA. The CPA reference number will be linked with geographical coordinates marked by GPS coordinate based on each specific fixed site location.

A CDM team will be established for monitoring and recording data of operation and maintenance of the equipments. All relevant monitoring equipment will be calibrated at pre-determined frequency to ensure valid monitoring results. CDM operations and monitoring manual will be prepared before the start of the first crediting period to ensure that CERs are calculated in a transparent manner and monitoring is carried as specified in the manual.

For quality assurance, data and records will be cross-checked by the designated person-in-charge. Data will thus have been checked for anomalies or other monitoring issues prior to being sent to the CDM consultant. Regular internal audits will assure that the project is in compliance with operational and CDM requirements. Procedures will be developed to deal with possible monitoring data adjustments and uncertainties, such as cases of missing data, incorrect data, or loss of acquired data.

The DOE hereby confirms that the project participants are able to implement the monitoring plan.



3.9 Sustainable development (127)

The host Party's DNA confirmed the contribution of the project to the sustainable development of the host Party. Refer to item 3.1 of this report.

3.10 Local stakeholder consultation (130)

The steps taken to assess the adequacy of the local stakeholder consultation are described below.

Local stakeholder consultation process is done at CPA level. For first real case CPA, Bera 10MW Biomass Power Plant, Bera, Pahang (3.2750;102.5508 – PoA1), stakeholder meeting was held on 20 September 2010 at the meeting room of Tementi Palm Oil Mill. A list of attendees and their signature has been provided for validation. 20 comments were received during the meeting and all has been closed during the meeting. There were no adverse comments received during the stakeholder consultation meeting.

The DOE hereby confirms that the process of local stakeholder consultation is observed to be adequate.

3.11 Environmental impacts (133)

There is no requirement for an Environment Impact Assessment (EIA) as in accordance with Malaysia Law. Project participant has also received a notification of no objection to the construction of the project from the Department of Environment Pahang State, provided that all regulations in approval letter are fully adhered to.

The project activity will comply with the Malaysian government regulations in relation to waste discharge from a palm oil mill waste source, air pollution from the boiler stack, no open burning and noise pollution limits. Minor and localized environmental impact is to be expected during project construction. These include increase of transport vehicles required to bring in the construction materials, dust and noise pollution from the work site due to construction activities.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD using methodology ACM 0018 Version 01.2.0 was webhosted on the UNFCCC for global stakeholders comments as per CDM requirements. The project was webhosted from 18 May 11 - 16 Jun 11. No comments were received.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the Bera 10MW Biomass Power Plant, Bera, Pahang (3.2750;102.5508 – PoA1) in Malaysia. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.



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

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the CPA-DD provides analysis of investment, technological and other barriers to determine that the project activity itself is not the baseline scenario.

By synthetic description of the project, the project is likely to result in reductions of GHG emissions partially. An analysis of the investment and technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation (CPA-DD version 02.3) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. Bureau Veritas Certification thus requests registration of 'project title' as CDM project activity.

6 REFERENCES

Category 1 Documents:

Documents provided by Type the name of the company that relates directly to the GHG components of the project.

- /1/ CDM-POA-DD; version: 01, dated: 21 February 2011
- /2/ CDM-CPA-DD; version: 01, dated: 21 February 2011
- /3/ CDM-POA-DD; version: 02, dated: 29 November 2011
- /4/ CDM-CPA-DD; version: 02, dated: 11 January 2012
- /5/ CDM-POA-DD; version: 02.1, dated: 11 June 2012
- /6/ CDM-CPA-DD; version: 02.1, dated: 13 June 2012
- /7/ CDM-POA-DD; version: 02.2, dated: 01 August 2012
- /8/ CDM-CPA-DD; version: 02.2, dated: 01 August 2012
- /9/ CDM-POA-DD; version: 02.3, dated: 05 December 2012
- /10/ CDM-CPA-DD; version: 02.3, dated: 06 December 2012
- /11/ CDM-CPA-DD (Generic)
- /12/ CPA-DD-Bera ER Cost Analysis – ACM0018; Version 2.2; dated: 01 August 2012



- /13/ CPA-DD-Bera ER Tabulation – ACM0018; Version 2.2; dated: 01 August 2012
- /14/ CPA-DD-Bera ER Cost Analysis – ACM0018; Version 2.3; dated: 06 December 2012
- /15/ CPA-DD-Bera ER Tabulation – ACM0018; Version 2.3; dated: 06 December 2012
- /16/ Host Country's Letter of Approval for Malaysia Biomass Power Plant Project (ref# NRE(S)602-2/11Jld.16(3) dated: 05 July 2012
- /17/ Article 12 Kyoto Protocol to the United Nations Framework Convention on Climate Change. Written Approval of Voluntary Participation from UK DNA (ref# EA/GenPCS/01/2012) dated: 19 January 2012
- /18/ Stakeholder Meeting (on 20 September 2010) Attendance List
- /19/ PeckYean Gan and ZhiDong Li. An econometric study on long-term energy outlook and the implications of the renewable energy utilization in Malaysia. Energy Policy, Volume 36, Issue 2, February 2008, Pages 890 - 899
- /20/ APEC Energy Demand and Supply Outlook, Volume 1, 4th Edition, Table 4.1, 5.1, pg 74, 93
- /21/ M.A.A. Mohammed *et al.* Hydrogen rich gas from oil palm biomass as a potential source of renewable energy in Malaysia. Renewable and Sustainable Energy Reviews 15 (2011) 1258 - 1270
- /22/ <http://eib.org.my/index.php?page=article&item=100,136,142>
- /23/ Tenth Malaysia Plan 2011 – 2015,
<http://www.epu.gov.my/html/themes/epu/html/RMKE10/img/pdf/en/chapt6.pdf>
- /24/ Performance and Statistical Information on Electrical Supply 2009, Energy Commission Malaysia, Page 168;
http://www.st.gov.my/index.php?option=com_phocadownload&view=category&id=10%3Astatistics&Itemid=4241&lang=en
- /25/ 9th Malaysia Plan (9MP) (2006-2010)
- /26/ Anders Evald, and Mohammad Iskandar bin Majidi. Biomass fuels for industrial use – A report prepared under the Malaysian – Danish Environmental Cooperation Programme Renewable Energy and Energy Efficiency Component, performed in Malaysia 2004
- /27/ Performance and Statistical Information on Electrical Supply 2009, Energy Commission Malaysia, Page 170
- /28/ Anders Evald, and Mohammad Iskandar bin Majidi. Biomass fuels for industrial use – A report prepared under the Malaysian – Danish Environmental Cooperation Programme Renewable Energy and Energy Efficiency Component, performed in Malaysia 2004
- /29/ Environmental quality (prescribed activities) (EIA) order 1987
- /30/ Refuse Derived Fuel (RDF) may be used in the project plant but all carbon in the fuel, including carbon from biogenic sources, shall be considered as fossil fuel
- /31/ 2006 IPCC Guidelines for National Gas Inventories: Reference Manual; Volume 2, Chapter 1, Table 1-4
- /32/ 2006 IPCC Guidelines, Volume 4, table 2.5, default value for agricultural residues
- /33/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 5 Chapter 6 Page 6.12Table 6.2



- /34/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 5
Chapter 6 Page 6.13 Table 6.3
- /35/ PoA Management Documentation; Version 1.0; 27 Jun 2012 – CPA 1
- /36/ PoA-CPA Inclusion; Version 1.0
- /37/ PoA Management Documentation; Version 2.0; 27 Jun 2012
- /38/ Study on Grid Connected Electricity Baselines in Malaysia Year 2009; Version
1.0; Jan 2011
- /39/ Comparison of Capital Cost

Category 2 Documents:

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

- /1/ Clean development mechanism validation and verification manual, version 01.2, EB55, dated 30 July 2010
- /2/ Approved consolidated baseline and monitoring methodology ACM0018
Consolidated methodology for electricity generation from biomass residues in power-only plants; Version 02.0.0, EB66, dated 02 March 2012
- /3/ Tool to calculate the emission factor for an electricity system, Version 03.0.0, EB70 dated 23 November 2012
- /4/ Emissions from solid waste disposal site, Version 06.0.1, EB66, dated 2 March 2012
- /5/ Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion, Version 02, EB41, dated 02 August 2008
- /6/ Tool to calculate baseline, project and/or leakage emissions from electricity consumption, Version 01, EB39, dated 16 May 2008
- /7/ Assessment of the validity of the original/ current baseline and update of the baseline at the renewal of the crediting period, Version 03.0.1, EB66, 02 March 2012
- /8/ Project and leakage emissions from transportation of freight, Version 01.1.0, EB70, 23 November 2012
- /9/ Glossary: CDM terms, Version 07.0, EB70, dated 23 November 2012
- /10/ Procedures for registration of a programme of activities as a single CDM project activity and issuance of certified emission reductions for a programme of activities, version 4.1, EB55, dated 02 August 2010.



Persons interviewed:

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

- /1/ Ms Foo Siew Theng - GenPower Carbon Solutions Services (Malaysia) Sdn Bhd
- /2/ Mr. AsruInizam Alias - GenPower Carbon Solutions Services (Malaysia) Sdn Bhd
- /3/ Mr Gerald Peter Hamaliuk - GenPower Carbon Solutions, L.P.
- /4/ Mr. Shakib Abdul Hamid - Agni Power Sdn Bhd
- /5/ Mr. Ahmad bin Wok - JKKK(F) Tementi
- /6/ Mr. Shamsul Kamal Ibrahim – Tementi Palm Oil Mill

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7 CURRICULA VITAE OF THE DOE'S VALIDATION TEAM MEMBERS

Team Leader: Jasmine Tang (Ms)

She holds a Master Degree in Environmental Engineering. Before joining BV in 2008, she gained two years of CDM technical working experience in P.R China. She obtained the certificate of CDM Lead Verifier, Lead Auditor for ISO 14001 and ISO 14064.

Team Member: Selina Cheang Wai Im (Ms)

Climate change verifier. She holds a Bachelor Degree in Food Studies from Universiti Putra Malaysia. She has more than six years experience as Quality and Environmental Management System Lead Auditor. She obtained the certificate of CDM Lead Verifier and ISO 14001 Lead Auditor.

Team Member: Toh Ket Tiong (Mr)

Climate change verifier. He holds a Master Degree in Environmental Technology and Management from Asian Institute of Technology, Bangkok, Thailand. He has more than ten years experience as Environmental Consultant and more than six years as ISO 14001 Lead Auditor. He obtained the certificate of CDM Lead Verifier and ISO 14001 Lead Auditor.

Financial Specialist: Matthew Tang Zhong-Zheng (Mr)

Senior Audit in Deloitte KassimChan. He graduated from Curtin University, Australia with a B. Commerce degree majoring in Accounting and Finance. He is currently pursuing his studies in ICAEW (Institute of Chartered Accountants in England and Wales) at Professional stage. He has 4 years of working experience in audit specifically in both public listed and non-public listed companies in Trading, Manufacturing, Construction, and Property Development. His roles and responsibilities includes audit planning, reviewing on computation of tax, reporting for MNC companies and drafting financial reports.

Second Financial Specialist: Sushil Budhia (Mr)

He qualified as a Chartered Accountant in the year 1981 and has ranked 3rd in the LLB(G) Examination conducted by the University of Mumbai. He started his career in Larsen & Toubro Ltd and has been practicing as an independent Chartered Accountant since 1986. He has a lot of experience in handling Project Finance, Compliance related Practice, Taxation, Registration of projects with UNFCCC under Clean Development Mechanism (CDM) and Business Advisory services. He has attended the lead verifier course.

Internal Technical Reviewer: Nancy Zhang (Ms)

She holds a Bachelor Degree of Thermal Power Engineering. She has three years' experience in manufacturing of thermal power equipment. Before joining BV in 2010, she gained two years of CDM audit experience in P.R China. She obtained the certificate of CDM expert and Lead Auditor for ISO 14001.



VALIDATION PROTOCOL

TABLE 1 **VALIDATION REQUIREMENTS BASED ON THE CLEAN DEVELOPMENT MECHANISM VALIDATION
AND VERIFICATION MANUAL (VERSION 01.2)**



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1. Project design document _ PoA					
a. Is the PDD used as a basis for validation prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website?	VVM	55	Yes. CDM POA DD prepared as of version 3 (same version as in UNFCCC website; in effect as of: 28 July 2006).	OK	OK
b. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	VVM	56	Yes. The DD in accordance with the applicable CDM requirements for completing the PDD.	OK	OK
i. Is the PDD in accordance with the applicable CDM requirements for completing the PDD?	EB 33	Ann 41	Yes.	OK	OK
ii. In CDM-PoA-DD section A.1 Title of project provided?	EB 33	Ann 41	Yes. Malaysia Biomass Power Plant Project	OK	OK
iii. In CDM-PoA DD section A.2 are following provided?					
1. Description of the general operating and implementing framework of PoA	EB 33	Ann 41	Yes, the description of the programme of activities provided. The proposed project activity will reduce greenhouse gas emissions (GHGs) through the installation of biomass residue (co-)fired power-only power plants. The power-only plants eligible for this PoA are planned to utilize biomass residues only, be it a Greenfield power project(s), power capacity expansion project(s), energy efficiency improvement project(s) (which can also lead to a capacity expansion), retrofitting of existing plant to use biomass, and fuel switch project(s).	OK	OK
2. Description of Policy / measure or stated goal of PoA	EB 33	Ann 41	Yes. The main objective of this PoA is to reduce significant amounts of GHG emissions from: <ul style="list-style-type: none"> • The electricity produced by carbon intensive resources, e.g. coal, fossil fuels • Power plants that are less efficient in resource to power conversion 	OK 35	OK


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			• The biomass residues currently being dumped/ land filled and decaying under anaerobic conditions		
3. Confirmation of that the proposed PoA is a voluntary action by the coordinating / managing entity	EB 33	Ann 41	Yes. The PoA is a voluntary action by CME i.e. Integra Carbon Sdn Bhd , there is no existing regulations in Malaysia enforcing the use of biomass residues in power generation.	OK	OK
iv. In CDM-PoA-DD section A.3 are following information provided?	EB 33	Ann 41	Yes.	OK	OK
1. Coordinating or managing entity of the PoA as the entity which communicates with the Board	EB 33	Ann 41	GPCS but being taken over by Integra Carbon Sdn Bhd	OK	OK
2. Project participants being registered in relation to the PoA. Project participants may or may not be involved in one of the CPAs related to the PoA.	EB 33	Ann 41	Parties involved: Malaysia (Host) and United Kingdom of Great Britain and Northern Ireland. Private entities: Integra Carbon Sdn Bhd and GenPower Carbon Soultions, L.P.	OK	OK
v. In CDM-PoA-DD section A.4 are technical description of the large-scale programme of activities provided?	EB 33	Ann 41	Yes.	OK	OK
1. In CDM-PoA-DD section A.4.1. location of the programme of activities provided?	EB 33	Ann 41	Yes, the PoA cover all states of Malaysia.	OK	OK
2. In CDM-PoA-DD section A.4.1.1 host party (ies) name provided?	EB 33	Ann 41	Yes. Host party is Malaysia.	OK	OK
3. In CDM-PoA-DD section A.4.1.2 is Physical / geographical boundary provided?. Definition of boundary for the POA in terms of a geographical area (e.g municipality, region within a country, country or several countries) within which all small-scale CDM programme activities (SSC-CPAs) included in the POA will be	EB 33	Ann 41	Yes. All states of Malaysia.	OK	OK



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implemented, taking into consideration the requirement that all applicable national and / or sectoral policies and regulations of each host country within that chosen boundary.					
4. In CDM-PoA-DD section A.4.2 are description of a typical CDM programme activity (CPA) provided	EB 33	Ann 41	Yes. The CPA will be a biomass residue (co-) fired power-only plant that will be utilizing biomass residues for power generation.	OK	OK
5. In CDM-PoA-DD section A.4.2.1 A description of technology or measures to be employed by the CPA provided?	EB 33	Ann 41	Yes. Each CPA will employ individual biomass residue (co-) fired power-only plant technology based on the site conditions and requirements. The details is discussed in CPA-DD.	OK	OK
6. In CDM-PoA-DD section A.4.2.2 description of eligibility criteria for inclusion of a CPA in the PoA provided?. This section of A.4.2.2 only a description of criteria for enrolling the CPA shall be described; the criteria for demonstration additionality of CPA shall be described in Section E5.	EB 33	Ann 41	<p>Yes. <u>4 criteria:</u></p> <ol style="list-style-type: none"> 1. The project is generation of electricity from biomass residue (co-)fired power-only plant 2. The project will fulfil Malaysia's National CDM criteria 3. Each CPA is to be approved by the CME prior to its incorporation into the PoA 4. An electricity purchase agreement (example: REPPA for grid connected power agreement) will be signed between project owner and relevant third party (example: Tenaga Nasional Berhad) <p>CL.1 Please indicate the Malaysia's National CDM criteria as mentioned in the PoA-DD.</p> <p>Close of CL1</p>	CL.1	OK


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			The Malaysia's National CDM criteria has been indicated in the PoA-DD.		
7. In CDM-POA DD section A.4.3 is the description of how the anthropogenic emission of GHG by sources are reduced by a CPA below those that would have occurred in the absence of the registered PoA (assessment and demonstration of additionality)	EB 33	Ann 41	Yes. The proposed PoA is a voluntary coordinated action from CME to promote the implementation of biomass residue (co-)fired power-only generation, either for renewable energy power utilization or grid connection. In the absence of the PoA, power generation will continue to utilize carbon intensive resources for power generation and biomass residues will continue to be dumped or land filled, leading to decay under anaerobic conditions. In addition to that, there is no mandatory law to enforce biomass residue power-only plants.	OK	OK
i. Is the proposed PoA a voluntary coordinated action?	EB 33	Ann 41	Yes. The proposed PoA is a voluntary coordinated action by CME.	OK	OK
ii. Demonstrated if the PoA is implementing a voluntary coordinated action, it would not be implemented in that absence of the PoA.	EB 33	Ann 41	Currently there are no existing mandatory policy/regulations enforcing biomass residue power-only plants. The only existing regulation is on the prohibition of uncontrolled open burning of biomass under the Malaysian Legislation, "Environmental Quality (Declared Activities) (Open Burning) Order 2003". CL.2 Please explain why the PoA would not be implemented in the absence of the PoA. Close of CL2 The justification for why PoA would not be implemented in the absence of PoA is provided in	CL.2	OK


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			the revised PoA-DD.		
iii. Demonstrated if the PoA is implementing a mandatory policy / regulation, this would / is not enforced.	EB 33	Ann 41	N/A No mandatory policy / regulation that is being enforced.	OK	OK
iv. Demonstrated if mandatory a policy / regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy / regulation.	EB 33	Ann 41	N/A	OK	OK
v. The information presented here shall constitute the demonstration of additionality of the PoA as a whole.			CAR.1 The information presented in section A4.3 does not constitute the demonstration of additionality of the PoA as a whole. Close of CAR1 Further justification given to demonstrate the additionality of the PoA as a whole.	CAR.1	OK
1. In CDM-PoA DD section A.4.4.1 is operation and management arrangement arrangements \ established by coordination / management entity for the implementation for the PoA, including following:	EB 33	Ann 41	Yes.	OK	OK
i. a record keeping system for each CPA under the PoA	EB 33	Ann 41	Yes. CME will ensure that each CPA maintains standard records documentation, archives the monitored data in a secure database and keeps the records for the entirety of the crediting period and two years after. Data (paper and electronic) is to be transmitted semi-annually to CME for data audit, checking on compliance to the baseline and monitoring methodology and production of monitoring reports.	OK	OK
ii. a system / procedure to avoid double	EB	Ann	Yes.	OK	OK


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a	accounting e.g to avoid the case of including new CPA that has been already registered either as a CDM project activity or as a CPA of another PoA	33	41	Prior to registering a new CPA under the proposed PoA, the CME will check the CPA and PoA databases in the UNFCCC website to avoid adding a new CPA that has previously been registered or submitted for validation. Furthermore, each CPA included in this PoA will be provided with a unique identification number as reference. For streamlining purposes, the reference number is planned to be linked to the geographic coordinates (in decimal degrees format) for each specific CPA site.		
	iv. The provision to ensure that those operating the CPA are aware of and have agreed that their activity being subscribed to the PoA.	EB 33	Ann 41	Yes. The individual CPA will need to issue an authorization letter to the CME informing that they are aware of and have agreed that the project activity is being subscribed to the proposed PoA, and that they are not registered either as a CDM project activity or as a CPA of another PoA.	OK	OK
	9. In CDM-PoA-DD section A4.4.2 is monitoring plan provided the following information:	EB 33	Ann 41			
	i. description of the proposed statistically sound sampling method / procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by source or removals by sinks of greenhouse gases achieved by CPAs under PoA	EB 33	Ann 41	N/A. CME opt for verification method that verifies each CPA in a transparent manner.	OK	OK
	ii. In case the coordination / managing entity opts for verification method that does not use sampling but verifies each CPA (whether in groups or not, with different or identical verification periods) a transparent system is to	EB 33	Ann 41	CME opts for each CPA to be verified individually. Baseline and monitoring methodology for each CPA will be developed in accordance with the applied technology utilized, as described in Section E below, at the CPA level. Each CPA is provided	OK	OK


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be defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA.			with a unique identification number for reference, linked to the geographic coordinates		
10. In CDM-PoA-DD section A.4.5 is public funding of the programme of activities (PoA) is provided?	EB 33	Ann 41	No. The PoA did not obtain nor is seeking any public funding	OK	OK
c. In CSM-PoA-DD section B.1 is the starting date of the programme of activities (PoA) provided?	EB 33	Ann 41	Yes. The starting date of the PoA shall be the start of the public comment period of validation.	OK	OK
d. In CSM-PoA-DD section B.2 is the length of the programme of activities (PoA) provided?	EB 33	Ann 41	Yes. 28 years.	OK	OK
e. In CDM-PoA-DD section C.1. is level of which environmental analysis as per requirement of the CDM modalities and procedures is undertaken indicated in the section and justify of the choice provided?	EB 33	Ann 41	Yes. The environmental analysis is to be carried out at the CPA level and justification provided.	OK	OK
f. In CDM-PoA-DD section C.2 is documentation on the analysis of the environmental impacts, including transboundary impacts provided?	EB 33	Ann 41	Yes. The project will not have any adverse environmental impact, including transboundary impacts. Conversely, the project will provide the following environmental benefits: 1. Generation of renewable energy 2. Reduction of carbon intensive fuel source for power plants 3. Effective use of biomass residues 4. Reduction of greenhouse gas emissions from decay and landfill of biomass residues and utilization of carbon intensive fuel sources for power plants	OK	OK
g. In CDM-PoA-DD section C.3 is a statement on \ whether in accordance with the host Party laws /	EB 33	Ann 41	The proposed project is not a prescribe activity under Environmental Quality (Prescribed Activities)	OK	OK


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regulations, an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA)			(EIA) Regulations 1987 and thus EIA is not require for the proposed project activity.		
h. In CDM-PoA-DD section D.1 is the level at which local stakeholder comments are invited indicated and justify the choice provided?	EB 33	Ann 41	Yes. Local stakeholder consultation is done at CPA level.	OK	OK
i. In CDM-PoA DD section D.2 is brief description how comments by local stakeholders have been invited and compiled provided?	EB 33	Ann 41	Yes. As mentioned in the PoA-DD, the description pertaining to this has been addressed at the CPA level (CDM-CPA-DD; section D.2.	OK	OK
j. In CDM-PoA DD section D.3 a summary of comments received provided?	EB 33	Ann 41	Yes. As mentioned in the PoA-DD, the description pertaining to this has been addressed at the CPA level (CDM-CPA-DD; section D.3.	OK	OK
k. In CDM-PoA DD section D.4 a report on how due account was taken of any comments received provided?	EB 33	Ann 41	Yes. As mentioned in the PoA-DD, the description pertaining to this has been addressed at the CPA level (CDM-CPA-DD; section D.4.	OK	OK
l. In CDM-PoA-DD section E.1 is the title and reference of the approved baseline and monitoring methodology applied to a CPA included in the PoA provided?	EB 33	Ann 41	Yes. ACM0018 ver.02.0.0: Consolidated methodology for electricity generation from biomass residues in power-only plants.	OK	OK
m. In CDM-PoA-DD section E.2 is justification of the choice of the methodology and why it is applicable to a CPA provided?	EB 33	Ann 41	Yes. Justification of the choice of the methodology and why it is applicable to a CPA is provided.	OK	OK
n. In CDM-PoA-DD section E.3 is description of the sources and gases included in the CPA boundary provided?	EB 33	Ann 41	Yes. Description of the sources and gases included in the CPA boundary provided. Emission for baseline scenario are as follows: (i) Gas carbon dioxide from electrical energy generation; (ii) Gas methane from uncontrolled burning	OK	OK


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			<p>or decay of surplus biomass residues (as decided by the CPA to include this; scenario B2 – emission from biomass decay in landfills).</p> <p>Emission for project scenario are as follows:</p> <ul style="list-style-type: none"> (i) Gas carbon dioxide from on-site fossil fuel consumption; (ii) Gas carbon dioxide from on-site and off-site transportation and processing of biomass residues; (iii) Gas methane from combustion of biomass residues for electricity; (iv) Gas methane from wastewater treatment for the biomass residues. <p>Justification for inclusion and exclusion are provided. Exclusion is for simplification and inclusion is due to main emission source.</p>		
o. In CDM-PoA-DD section E.4 is description of how the baseline scenario is identified and description of the identified baseline scenario provided?	EB 33	Ann 41	<p>CAR.2</p> <p>There is no description on how the baseline scenario is being identified.</p> <p>Close of CAR2</p> <p>Description on identification of baseline scenario has been provided.</p>	CAR.2	OK
p. In CDM-PoA-DD section E.5 is the description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the CPA being included as registered PoA (assessment and demonstration of additionality of CPA) provided as following:	EB 33	Ann 41			


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i. In CDM-PoA-DD section E5.1 has PPs demonstrated, using the procedure provided in the baseline and monitoring methodology applied, additionality of a typical CPA?	EB 33	Ann 41	Yes. The baseline scenario is identified and established on a project-specific basis for each CPA and is described in detail in CDM-CPA-DD. The identification of baseline in accordance with the procedures provided in the procedure for the selection of baseline scenario as stated in the ACM0018, ver.02.0.0.	OK	OK
ii. In CDM-PoA-DD section E5.2 has the PPs provided the key criteria for assessing additionality of a CPA when proposed to be included in the registered PoA. The criteria shall be based on additionality assessment undertaken in the E5.1 above?	EB 33	Ann 41	Yes. Criteria for CPA included in the registered PoA: i. Define credible possible alternative scenarios to the project activity; ii. Determine most relevant barrier in terms of investment analysis and barrier analysis; iii. To demonstrate that the proposed CPA is unlikely to be the most financially attractive alternative or is unlikely to be financially attractive; iv. No similar activities can be observed; or that if similar activities are observed, essential distinctions between the proposed CPA and similar activities can be reasonably explained; v. The PP is voluntary and there is no requirement or enforcement under existing national/ state/ local regulations to enforce implementation of the CPA.	OK	OK
iii. Has the PPs justify the choice of criteria based on analysis in above section. Notes: Information provided here shall be incorporated into the PoA specific CDM-CPA-DD that shall be included in documentation submitted by project participants at registration of PoA.	EB 33	Ann 41	Yes. The baseline scenario and demonstration of additionality is conducted according to the methodology ACM0018; ver.02.0.0	OK	OK


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q. In CDM-PoA-DD section E.6 information of estimation of emission reductions of a CPA is provided as follows:	EB 33	Ann 41			
i. In CDM-PoA-DD section E.6.1 Explanation of methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical CPA provided?	EB 33	Ann 41	<p>Yes.</p> <p>The following methodologies and tools are selected for the CPA:</p> <p><u>Methodology:</u></p> <p><input type="checkbox"/> ACM0018 ver. 02.0.0: Consolidated methodology for electricity generation from biomass residues in power-only plants and subsequent versions</p> <p><u>Tools:</u></p> <ul style="list-style-type: none"> (i) Tool to calculate the emission factor for an electricity system (ver.03.0.0); (ii) Emissions from solid waste disposal site (ver.06.0.1); (iii) Tool to calculate project or leakage CO2 emissions from fossil fuel combustion (ver.02); (iv) Tool to calculate baseline, project and/or leakage emissions from electricity consumption (ver.01); (v) Assessment of the validity of the original/ current baseline and update of the baseline at the renewal of the crediting period (ver.03.0.1) (vi) Project and leakage emissions from transportation of freight (ver.01.1.0) 	OK	OK


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ii. In CDM-PoA-DD section E6.2 Equation, including fixed parametric values, to be used for calculation of emission reductions of a CPA provided?	EB 33	Ann 41	Yes. Equation to be used for calculation of baseline emission, project emission and emission reduction are provided.	OK	OK
iii. In CDM-PoA-DD section E.6.3 data and parameters that are to be reported in CDM-CPA-DD form with the following data / parameter on data unit, description, source of data used, value applied, justification of the choice of data or description of measurement methods and procedures actually applied, any comments	EB 33	Ann 41	Yes. The data and parameters that are to be reported in CDM-CPA-DD form is as per the questionnaire defined format.	OK	OK
r. In CDM-PoA-DD section E.7 is application of the monitoring methodology and description of the monitoring plan provided as follows:	EB 33	Ann 41			
i. In the CDM-PoA-DD section E7.1 data and parameters to be monitored by each CPA with the following data/ parameters on data unit, description, source of data to be used, value of data applied for the purpose of calculating expected emission reductions in Section B.5, Description of measurement methods and procedures to be applied, QA/QC procedures to be applied, any comment.	EB 33	Ann 41	Yes. The parameters to be monitored by each CPA are described with data unit, description, source of data to be used, value of data applied for the purpose of calculating expected emission reductions in Section B.5, Description of measurement methods and procedures to be applied, QA/QC procedures to be applied, any comment.	OK	OK
ii. In the CDM-PoA-DD section E7.2 is description of the monitoring plan for a CPA provided?	EB 33	Ann 41	Yes. The monitoring plan is made in accordance with the relevant rules and regulations of CDM and the CME will manage the monitoring programme, adherent to the duration of the project activity, to monitor the progress of the project activity, and in the same time prepare for the periodic verification process. Each CPA project owner will maintain a management, operational and maintenance	OK	OK


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			procedure in order to ensure successful operation of the CPA and the credibility and verifiability of the CERs tabulated. This includes: data handling, quality assurance, and training.		
s. In the CDM-PoA-DD section E.8 is date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s) / entity(ies) provided?	EB 33	Ann 41	Yes. As provided in the PoA, the completion date of the application of the baseline study and monitoring methodology is on 11 January 2011 and it was completed by Gerald Peter Hamaliuk, Chief Technical Officer of Genpower Carbon Solutions L.P.	OK	OK
t. In CDM-PoA-DD Annex 1 is Contact information on coordinating / managing entity and participants in the programme of activities provided?	EB 33	Ann 41	Yes. The managing entity of the PoA is Integra Carbon Sdn Bhd located at Level 28, The Garden South Tower Mid Valley City, 59200 Lingkaran Syed Putra, Kuala Lumpur and the participant in the PoA is GenPower Carbon Solutions, L.P.	OK	OK
u. In CDM-PoA-DD Annex 2 is Information Regarding Public Funding provided?	EB 33	Ann 41	Yes.	OK	OK
v. In CDM-PoA-DD Annex 3 is Baseline Information provided?	EB 33	Ann 41	Yes.	OK	OK
w. In CDM-PoA-DD Annex 4 is Monitoring Information Provided?	EB 33	Ann 41	Yes.	OK	OK



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Table 2 Specific validation activities (delete this table if the project activity is not a programme of activities)

CHECKLIST QUESTION	Ref.	§	COMMENTS	Draft Concl	Final Concl
1. Project design of programme of activities <i>(delete this table if the project activity is not a programme of activities)</i>					
a. Are the operational and management arrangements which have been established by the coordinating / managing entity in order to determine whether these arrangements are suitable for the PoA being validated?	VVM	166	Yes	OK	OK
b. Are these arrangements sufficient to ensure that the coordinating/managing entity will have control of all records and information related to the implementation of individual CPAs and will be in a position to ensure each CPA is being operated in accordance with the specific requirements of the programme?	VVM	166	Yes	OK	OK
c. Are the specified eligibility criteria in the POA-DD sufficient to ensure that all CPAs would comply with the CDM requirements applicable to the PoA, including inter alia the means of demonstrating the additionality of the CPA and the applicability of the applied methodology?	VVM	167	Yes	OK	OK
d. Does any proposed CPA, which coordinating/managing entity wishes to include in the PoA, comply with the eligibility criteria specified in the POA-DD?	VVM	168	Yes	OK	OK



VALIDATION REPORT

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1 and 2	Summary of project owner response	Validation team conclusion
CAR.1 The information presented in section A4.3 does not constitute the demonstration of additionality of the PoA as a whole.	1.7.v.	Additional information has been presented to section A.4.3 of PoA-DD to demonstrate additionality of the PoA as a whole	The action taken to rectify CAR.1 has been verified closed.
CAR.2 Please clarify and show supporting evidence on the distribution of 10MW to the grid and 3MW for auxiliary equipment consumption from the total of 13MW electrical energy generated.	1.o	Description on identification of baseline scenario has been presented to section E.4 of PoA-DD	The action taken to rectify CAR.2 has been verified closed.
CL.1 Please indicate the Malaysia's National CDM criteria as mentioned in the PoA-DD.	1.6	The Malaysia's National CDM criteria is specified in section A.4.2.2 of PoA-DD and section B.2 of CPA-DD	The Malaysia's National CDM criteria indicated in the section A.4.2.2 of PoA-DD and section B.2 of CPA-DD. CL.1 is verified closed.
CL.2 Please explain why the PoA would not be implemented in the absence of the PoA.	1.7.ii	Justification for why PoA would not be implemented in the absence of PoA is described in section A.4.3 of PoA-DD	Justification provided and it is found to be accepted. CL.2 is closed.