



# FINAL VALIDATION REPORT

PT PACIFIC INDOPALM INDUSTRIES  
BIOMASS BASED CO-GENERATION PROJECT

**Report No: 010906382 - 09/300**

**Date: 2011-05-09**

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	BIOMASS BASED CO-GENERATION PROJECT	2009-08-21	2011-01-20	
<b>Client:</b>	PT Pacific Indoplam Industries		<b>Client ref: Mr. Arvind Johar</b>	
<b>Project Participant(s):</b>	<b>Host Party:</b>	<b>Other involved parties:</b>		
	Indonesia	-		
<b>Applied methodology/ies:</b>	<b>Title:</b>	<b>No.:</b>	<b>Scope / TA:</b>	
	Thermal energy production with or without electricity	AMC-I.C ver16	1/ U	
<b>Validation team / Technical Review and Final Approval</b>	<b>Validation Team:</b>		<b>Technical review:</b>	<b>Final approval:</b>
	Nichoas Cheong      Robert Chun Chee Yin              Yuen Cheong Hoo Boon Han      Ellys Simamora		Dr Jochen Schubert	Martin Saalmann
<b>Expected Emission reductions: [t CO<sub>2</sub>e]</b>	<b>Expected emission reductions over the first crediting period:</b>		<b>Expected project starting date:</b>	
	867,600 t CO <sub>2</sub> e		2011-03-01	
<b>Confidential content:</b>	<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> No	
<b>Summary of Validation Opinion:</b>	<input checked="" type="checkbox"/> Positive validation opinion		<input type="checkbox"/> Negative validation opinion	
<p>PT Pacific Indoplam Industries has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "BIOMASS BASED CO-GENERATION PROJECT" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board</p> <p>In the course of the validation, 23 Corrective Action Requests (CARs) and 9 Clarification Requests (CLs) were raised and successfully closed. No Forward Action Request (FAR) was raised which should be reviewed during the first verification.</p> <p>The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria. In detail the conclusions can be summarised as follows:</p> <ul style="list-style-type: none"> <li>- The project is in line with all relevant host country criteria (Indonesia) and all relevant UNFCCC requirements for CDM.</li> <li>- The project activity approval have been obtained from DNA of Indonesia vide the Letter of Approval (HCA) dated 2010-01-21 (Ref. B001/KNMPB/01/2010). The proposed project activity has one participant from the Host Country. and no participants from the Annex 1 Country.</li> <li>- The project additionality is sufficiently justified in the PDD.</li> <li>- The monitoring plan is transparent and adequate.</li> <li>- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 867,600tCO<sub>2</sub>e are most likely to be achieved within the fixed 10 years crediting period.</li> </ul> <p>The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.</p>				
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## Abbreviations

<b>BAU</b>	Business as usual
<b>CA</b>	Corrective Action / Clarification Action
<b>CAR</b>	Corrective Action Request
<b>CDM</b>	Clean Development Mechanism
<b>CER</b>	Certified Emission Reduction
<b>CL</b>	Clarification Request
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>CO<sub>2e</sub></b>	Carbon dioxide equivalent
<b>CP</b>	Certification Program
<b>DNA</b>	Designated National Authority
<b>EB</b>	CDM Executive Board
<b>EFB</b>	Empty Fruit Bunches
<b>EIA</b>	Environmental Impact Assessment
<b>FAR</b>	Forward Action Request
<b>FFB</b>	Fresh Fruit Bunches
<b>GHG</b>	Greenhouse gas(es)
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>PDD</b>	Project Design Document
<b>QC/QA</b>	Quality control/Quality assurance
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>UKL</b>	Upaya Pengelolaan Lingkungan Hidup (Environmental Management Effort)
<b>UPL</b>	Upaya Pemantauan Lingkungan Hidup (Environmental Monitoring Effort)
<b>VVM</b>	Validation and Verification Manual

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## 1 OBJECTIVE / SCOPE

The purpose of a validation is to have an independent third party assess the project design. In particular the project's baseline, the monitoring plan (MP), and the project's compliance with

- the requirements of Article 12 of the Kyoto Protocol;
- the CDM modalities and procedures as agreed in the Marrakech Accords under decision 3/CMP.1
- the annex to the decision;
- subsequent decisions made by COP/MOP & CDM Executive Board and
- other relevant rules, including the host country legislation and sustainability 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 seen as necessary to provide assurance to stakeholders on the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is given as a thorough independent and objective assessment of the project design including especially: the correct application of the methodology, the project's baseline study, additionality justification, local stakeholder commenting process, environmental impacts and monitoring plan, which are included in the PDD and other relevant supporting documents, to ensure that the proposed CDM project activity meets all relevant and applicable CDM criteria.

The information included in the PDD and the supporting documents were reviewed against the requirements as set out by the UNFCCC. The validation team has, based on the requirements in the Validation and Verification Manual<sup>VVM</sup>, carried out a full assessment of all evidences to assess the compliance of the project with the key areas as outlined in section V.E. and V.F. of the VVM (version 1.2, EB 55).

The validation is based on the information made available to TÜV NORD JI/CDM CP and on the contract conditions. TÜV NORD JI/CDM CP can not be held liable by any entity for making its validation opinion based on any false or misleading information supplied to it during the course of validation.

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

## 2 GHG PROJECT DESCRIPTION

### 2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

**Table 2-1:** Project Characteristics

Item	Data		
Project title	Biomass based co-generation project		
Project size	<input type="checkbox"/> Large Scale <input checked="" type="checkbox"/> Small Scale		
Project Scope (according to UNFCCC sectoral scope numbers for CDM)	<input checked="" type="checkbox"/>	1	Energy Industries (renewable- /non-renewable sources)
	<input type="checkbox"/>	2	Energy distribution
	<input type="checkbox"/>	3	Energy demand
	<input type="checkbox"/>	4	Manufacturing industries
	<input type="checkbox"/>	5	Chemical industry
	<input type="checkbox"/>	6	Construction
	<input type="checkbox"/>	7	Transport
	<input type="checkbox"/>	8	Mining/Mineral production
	<input type="checkbox"/>	9	Metal production
	<input type="checkbox"/>	10	Fugitive emissions from fuels (solid, oil and gas)
	<input type="checkbox"/>	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	<input type="checkbox"/>	12	Solvents use
	<input type="checkbox"/>	13	Waste handling and disposal
	<input type="checkbox"/>	14	Afforestation and Reforestation
	<input type="checkbox"/>	15	Agriculture
Applied Methodology	AMS-I.C Thermal energy production with or without electricity, Ver. 16		
Technical Area(s)	U: Renewables - Biomass		
Crediting period	<input type="checkbox"/> Renewable Crediting Period (7 y) <input checked="" type="checkbox"/> Fixed Crediting Period (10 y)		
Start of crediting period <sup>1</sup>	2009-10-01		

### 2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

**Table 2-2:** Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Indonesia	PT Pacific Indopalm Industries

### 2.3 Project Location

The details of the project location are given in table 2-3:

<sup>1</sup> As per the published PDD (version 1). The revised starting date of the crediting period is 2011-03-01.

**Table 2-3:** Project Location

No.	Project Location
Host Country	Indonesia
Region:	Riau Province, Sumatra Island
Project location address:	Jalan Raya Dumai-Basilam Baru, KM 14 Keluharan Lubuk Gaung, Kecamatan Sungai Sembilan, Dumai
Latitude:	001°41'00"N
Longitude:	101°27'00"E

## 2.4 Technical Project Description

The technical key data are provided in table 2-4 below

**Table 2-4:** Technical data of the project activity

Parameter	Unit	Value
<b>Biomass based boiler</b>		
Type	2	Bi Drum, water tube
Capacity		20 tonnes per hour (TPH)
Steam pressure		67Barg
Steam Temperature		450°C
<b>Back pressure turbine</b>		
Type	1	Back pressure turbine
Capacity		2MW
Steam inlet pressure		66.5-67Barg
Steam inlet temperature		435°C
Back pressure (exhaust)		7Barg
Steam flow		22 TPH
<b>Condensing turbine</b>		
Type	1	Full condensing turbine
Capacity		2MW
Steam inlet pressure		66.5-67Barg
Steam inlet temperature		435°C
Exhaust pressure		0.01Barg
Steam flow		9.79TPH

### 3 METHODOLOGY AND VALIDATION SEQUENCE

#### 3.1 Validation Steps

The validation of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- Desk review of the PDD and supporting documents
- Validation planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft validation reporting
- Resolution of corrective actions (if any)
- Final validation reporting
- Technical review
- Final approval of the validation.

The sequence of the validation is given in the table 3.1 below:

**Table 3.1:** Validation sequence

Topic	Time
Assignment of validation	2009-05-29
Assignment of validation (additional requirement)	2010-02-01
Submission of PDD for global stakeholder commenting process	2009-08-22
On-site visit	2009-10-12 – 2009-10-14
Draft reporting finalised	2009-10-30
Final reporting finalised	2011-11-22
Technical review on final reporting finalised	2011-01-21
Final approval following Request for Review by EB dated 2011-04-11	2011-05-09



### 3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the validation can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

### 3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a validation team, consistent of one team leader and 3 additional team members, were appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

**Table 3-2:** Involved Personnel

	Name	Company	Function <sup>1)</sup>	Qualification Status <sup>2)</sup>	Scheme competence	Technical competence <sup>4)</sup>	Host country Competence	Team Leading competence
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Robert Cheong	TUV NORD Malaysia	TL	A	<input checked="" type="checkbox"/>	U	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Nicholas Cheong	TUV NORD Malaysia	TM	E	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Ellys Simamora	TUV NORD Indonesia	TM	E	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Hoo Boon Han	TUV NORD Malaysia	-	T	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Jochen Schubert	TUV NORD GmbH	TR <sup>3)</sup>	A	<input checked="" type="checkbox"/>	U	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Martin Saalman	TUV NORD GmbH	FA	SA	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<sup>1)</sup> TL: Team Leader; TM: Team Member, TR: Technical review; FA: Final approval

<sup>2)</sup> GHG Auditor Status: A: Assessor; E: Expert; SA: Senior Assessor; T: Trainee; TE: Technical Expert

<sup>3)</sup> No team member

<sup>4)</sup> As per S01-MU03 or S01-VA070 A2 (such as A, B, C.....)

Certificates of appointment for the above mentioned team members are enclosed in annex 6 of this report.

### **3.4 Consideration of Public Stakeholder Comments**

Acc. to the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the validation activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

In case comments are received, they are taken into account during the validation process. The comments and the discussion of the same are documented in annex 5 of this report.

### **3.5 Validation Protocol**

In order to ensure consideration of all relevant assessment criteria, a validation protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic CDM requirements each CDM project has to meet as well as project specific issues as applicable. The validation protocol serves the following purposes:

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

The validation protocol is described in Figure 1.

<b>Validation Protocol Table A-1: Requirement checklist</b>				
<b>Checklist Item</b>	<b>Validation Team Comment</b>	<b>Reference</b>	<b>Draft Conclusion</b>	<b>Final Conclusion</b>
<i>The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.</i>	<i>Gives reference to the information source on which the assessment is based on</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CR or FAR (see below) is raised. The assessment refers to the draft validation stage.</i>	<i>In case a corrective action or a clarification the final assessment at the final validation stage is given.</i>

**Figure 1:** Validation protocol tables

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

### 3.6 Review of Documents

The published PDD (version 1) and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the validation team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

### 3.7 Follow-up Interviews

The validation team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for CDM.

During validation the validation team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

**Table 3-3:** Interviewed persons and interview topics

<b>Interviewed Persons / Entities</b>	<b>Interview topics</b>
Project proponent representatives PT Pacific Indopalm Industries 1. Mr. Arvind Johar 2. Mr. Ferdinando.W	<ul style="list-style-type: none"> <li>- Chronological description of the project activity with documents of key steps of the implementation (CDM consideration &amp; project start date).</li> <li>- Current status of plant design</li> </ul>

Interviewed Persons / Entities	Interview topics
<p>Emergent Venture India Pte. Ltd. – Project consultant</p> <ol style="list-style-type: none"> <li>1. Mr. Sunil Kumar Sharma</li> <li>2. Mr. Ankur Kansal</li> </ol>	<ul style="list-style-type: none"> <li>- Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project</li> <li>- Host Government Approval / LoA</li> <li>- Approval procedures and status</li> <li>- Local authorities approval</li> <li>- Monitoring and measurement equipment and system.</li> <li>- Financial aspects</li> <li>- Crediting period</li> <li>- Project activity starting date</li> <li>- Baseline study assumptions</li> <li>- Baseline emission reduction estimation including data and parameter.</li> <li>- Methodology and tools applicability</li> <li>- Additionality</li> <li>- Monitoring plan including QA/QC procedure, operation procedures, and emergency/contingency procedures.</li> <li>- Sustainable development issues</li> <li>- Local environment requirements compliances</li> <li>- Roles &amp; responsibilities of the project participants w.r.t. project management, monitoring and reporting</li> <li>- National Legislation</li> </ul>
<p>Project proponent representatives PT Pacific Indopalm Industries</p> <ol style="list-style-type: none"> <li>1. Mr. Arvind Johar</li> <li>2. Mr. Ferdinando.W</li> <li>3. Mr. Ali Saleh Sulaiman</li> <li>4. Mr. Pralhad Mulick</li> <li>5. Mr. Imam Susanto</li> </ol> <p>Emergent Venture India Pte. Ltd. – Project consultant</p> <ol style="list-style-type: none"> <li>1. Mr. Sunil Kumar Sharma</li> <li>2. Mr. Ankur Kansal</li> </ol>	<ul style="list-style-type: none"> <li>- Biomass availability</li> <li>- Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project</li> <li>- Monitoring and measurement equipment and system</li> <li>- Analysis of local stakeholder consultation</li> <li>- Plant technical/operational lifespan</li> </ul>
<p>Project proponent representatives PT Pacific Indopalm Industries</p> <ol style="list-style-type: none"> <li>1. Mr. Arvind Johar</li> <li>2. Mr. Salah Saeed</li> </ol> <p>Emergent Venture India Pte. Ltd. – Project consultant</p> <ol style="list-style-type: none"> <li>1. Mr. Sunil Kumar Sharma</li> <li>2. Mr. Ankur Kansal</li> </ol>	<ul style="list-style-type: none"> <li>- Additionality</li> <li>- Investment analysis</li> <li>- Project funding source</li> <li>- CER allocation / ownership and MoC</li> <li>- Reference documents used in the PDD</li> <li>- Editorial issues of the PDD</li> </ul>

A comprehensive list of all interviewed persons is part of section 7 'References'.

### 3.8 Project comparison

The validation team has compared the proposed CDM project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. regarding:

- Project technology
- Additionality issues
- Reasons for reviews, requests for reviews and rejections within the CDM registration process.

### 3.9 Resolution of Clarification and Corrective Action Requests

#### 3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence the project results,
- the requirements deemed relevant for validation of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC or that emission reductions would not be able to be verified and certified.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first verification.

#### 3.9.2 Draft Validation

After reviewing all relevant documents and taken all other relevant information into account, the validation team issues all findings in the course of a draft validation report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

### **3.9.3 Final Validation**

The final validation starts after issuance of the proposed corrective action (CA) of the CARs CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are “closed out” by the validation team in case the response is assessed as sufficient. In case of raised FARs the project proponent has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first verification. The validation team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive validation opinion can be issued by the validation team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

### **3.10 Technical review**

Before submission of the final validation report a technical review of the whole validation procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the validation team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the validation opinion and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

### **3.11 Final approval**

After successful technical review of the final report an overall (esp. procedural) assessment of the complete validation will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for registration can be started (in case of a positive validation opinion).

## 4 VALIDATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised:

**Table 4-1:** Summary of CARs, CLs and FARs issued

Validation topic <sup>1)</sup>	No. of CAR	No. of CL	No. of FAR
General description of project activity (A) <ul style="list-style-type: none"> <li>- Project specification</li> <li>- Technical project description</li> <li>- Participation</li> <li>- Contribution to sustainable development</li> <li>- PDD editorial aspects</li> <li>- Technology to be employed</li> </ul>	6	3	0
Project Baseline, Additionality and Monitoring Plan (B) <ul style="list-style-type: none"> <li>- Application of the Methodology</li> <li>- Project Boundary</li> <li>- Baseline identification</li> <li>- Calculation of GHG emission reductions <ul style="list-style-type: none"> <li>Project emissions</li> <li>Baseline emissions</li> <li>Leakage</li> </ul> </li> <li>- Additionality determination</li> <li>- Monitoring Methodology</li> <li>- Monitoring Plan</li> <li>- Project management planning</li> </ul>	14	5	0
Duration of the Project / Crediting Period (C)	2	1	0
Environmental impacts (D)	1	0	0
Stakeholder Comments (E)	0	0	0
<b>SUM</b>	<b>23</b>	<b>9</b>	<b>0</b>

<sup>1)</sup> The letters in brackets refer to the validation protocol

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all validation items it should be referred to the validation protocols (see Annex 1).

The findings of validation process are summarized in the tables below.

General	Finding A1		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The project participation of the project participant stated in section A.3 of the PDD has not been approved / issued by the Host Party. The host country of the proposed project activity is Indonesia.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Project activity has been approved by Host party, Indonesia. Letter of approval is provided to DOE.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The proposed project activity has only one party. The party involved is Republic of Indonesia.</p> <p>The Host Country Approval from the DNA of Indonesia was dated 2010-01-21 (Ref.B001/KNMPB/01/2010)</p> <p>The validation team has reviewed the Letter of Approval issued by the DNA of Indonesia.</p> <p>The validation team is able to conclude the following:</p> <ol style="list-style-type: none"> <li>1. The Party involved in this project activity had issued the approval to the project participant.</li> <li>2. The LoA was issued by the organization listed as DNA as stated on the UNFCCC CDM website.</li> <li>3. The LoA had confirmed that the Party is a party to the Kyoto Protocol.</li> <li>4. The LoA had confirmed that the participation of the project participant is voluntary.</li> <li>5. The LoA from Indonesia has confirmed the sustainable development contribution of the project activity.</li> <li>6. The LoA have stated the correct project title (Biomass based Co-generation Project).</li> <li>7. There are no other conditions which had been stated in the LoA.</li> <li>8. The LoA issued by Indonesia has approved PT Pacific Indopalm Industries as the project participant from the host country.</li> <li>9. There is no other project participant which involved in the project activity other than PT Pacific Indopalm Industries. The project is a unilateral project activity.</li> </ol>		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		



General	Finding A2		
<b>Classification</b>	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The project activity is expected to combust biomass to generate heat and hence steam. As stated in the PDD section A.2, the project activity will result in lower GHG emissions. Please provide explanation, since there are possibilities of environmental impacts (e.g. particulates that are produced from biomass combustion), how could the explanation in section A.2 of the PDD contribute towards healthier local environment.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The project activity will result in lower GHG emission compared to the baseline scenario where coal would have been used. Further PP will install multi cyclone dust collector to control the emission of particulate matters.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Open The validation team could not identify such explanation in the PDD. Furthermore please provide explanation if the PP is required to monitor such particulate matters and provide a report to the local authorities. Is there any regulatory which govern the project activities which control the possible pollution (this is also in line with the requirements of the National policies and circumstances relevant to the baseline of the proposed project activity).		
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Renewable biomass will be used as a fuel in the project activity. Use of renewable fuels will reduce the GHG emissions to the environment as compared to non-renewable fuels which have positive emissions to the atmosphere. Further PP will install multi cyclone dust collector to control the emission of particulate matters. The same explanation has been updated in the PDD section A.2.  As per letter from environmental office, Dumai dated 07/12/2009, reference number: 900/LH/2009, PT Pacific Indopalm has agreed to execute the activities of environment and pollution control as stated in revised UKL & UPL (copy of UKL & UPL has been submitted to DOE) and company will also submit a report of activities of environmental and pollution control to the Government of Dumai every 6 (six) months. It's the environment office, Dumai which controls the environment related activities and possible pollution due to project activities. Reference documents submitted:- 1) Revised copy of UKL & UPL, 2) Letter from environmental office, Dumai, dated 07/12/2009, reference number: 900/LH/2009		

General	Finding A2
<p><b>DOE Assessment #2</b>  <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>Closed.</p> <p>The validation team had reviewed the revised Environmental Management Effort (UKL – Upaya Pengelolaan Lingkungan Hidup) and Environmental Monitoring Effort (UPL – Upaya Pemantauan Lingkungan Hidup).</p> <p>The validation team had reviewed the letter issued by the Environmental Department of Dumai District<sup>/EA4/</sup> which requested the project participant to revise the existing UKL/UPL to include the activities of the project activity (includes energy generation and usage of sea water for cooling).</p> <p>The revised UKL/UPL had stipulated the efforts to control the particulate emissions. The validation team had reviewed the approval issued by the Environmental Department of Dumai District<sup>/EA3/</sup>. The approval letter issued by the authority had indicated that they agreed on the efforts stated in the submitted UKL/UPL.</p> <p>The project activity is expected to contribute to economic, social and technology knowledge other than environmental sustainability.</p> <p>The project participant would employment opportunity to the local population during the period. With the reduction in fossil fuel usage, the project activity could contribute to release the dependent of fossil fuel costs. Since the biomass would be a “waste” after the milling process, if such residue is not utilized, the value resources are just being wasted. The implementation of the project activity will introduce the rarely used boiler technology in palm oil refinery. This introduction will allow the local population expose to new technology.</p> <p>Through the technical experience of the validation team, the validation team could conclude that biomass boiler is rarely used in palm oil refinery. The reason is due to that the process of refining the palm oil mill required stable and consistent steam supply. Therefore in norm practice of a refinery, fossil fuel is preferred.</p> <p>The validation team had reviewed the sustainable development criteria<sup>/dna/</sup> of the host country. As according to the criteria, the project developer is required to fulfill the environment, economy, social and technology criteria. All criteria had been demonstrated in the PDD. Since the project participant had received the LoA, the sustainability criteria had already been met.</p> <p>The validation team concluded that the project activity will create other sustainable benefits other than environmental sustainability by GHG emissions reductions.</p>
<p><b>Conclusion</b>  <i>Tick the appropriate checkbox</i></p>	<p> <input type="checkbox"/> To be checked during the first periodic verification  <input checked="" type="checkbox"/> Appropriate action was taken  <input checked="" type="checkbox"/> Project documentation was corrected correspondingly  <input type="checkbox"/> Additional action should be taken  <input checked="" type="checkbox"/> The project complies with the requirements </p>

General	Finding A3		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD did not demonstrate the sink of GHG emissions occurring within the proposed project activity boundary. Please refer to VVM version 01 paragraph 79.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	There is no sink of GHG emission within the proposed project boundary. However as per the discussion with DOE "Emissions sources included in or excluded from the project boundary" has been updated in section B3, Description of the project boundary.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Open According to AMS-I.C version 16, the PP is required to demonstrate any other significant emissions associated with project activity within the project boundary. The emission sources included in the PDD has excluded the possible offsite transportation of the biomass residues (this may constitute a significant emissions). The only possibility of such exclusion is due to the difference in incremental of the distance of the source (coal and biomass). However this argument cannot be found in the PDD. Moreover is the validation team's opinion, the emissions from the biomass transportation shall be monitored to confirm the incremental is correct to be determined as zero.		
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The PKS used for the project activity is procured mainly from CPO mills which are located well within 200 km from the project site and the distance of transportation of PKS from CPO mills to project site is less than 200 km. Hence for ex-ante demonstration and as per AMS I C version 16, para 29, foot note 11, the emission due to transportation of PKS has been neglected. However the distance of transportation will be monitored during the crediting period. Emission due to transportation will be accounted in case the transportation distance is more than 200 km in any given year. The part of total biomass quantity used in the year that would be coming from a distance more than 200 km would be considered for calculation of leakage. The quantity that would be coming from within the 200 km distance would be excluded for such calculations.		

General	Finding A3
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team had reviewed the revision made to the PDD. The PDD had indicated the GHG sources as according to the requirement of VVM version 1.2 paragraph 79.</p> <p>The baseline emission source of the project activity is CO<sub>2</sub>. The project activity is an energy generation project. The project activity aims to replace the fossil fuel usage (as defined in section B.4 of the PDD) for energy generation in palm oil refinery. The project activity would not be connected to the National Grid. Hence there it is not expected to have CO<sub>2</sub> emissions from electricity consumption by the project activity. The National Utilities of Indonesia (PT PLN PERSERO) had rejected the application of the project participant. The validation team had reviewed the letter issued by PT PLN PERSERO<sup>/BL2/</sup>.</p> <p>The monitoring of the transportation of the biomass (as per footnote 11 of AMS-I.C ver16) to the project location is being monitored during the crediting period to account any leakages.</p> <p>The proposed project activity will be utilizing onsite vehicles (e.g. wheel loaders) to manage and transport the biomass within the project site. Such fossil fuel used by the vehicles will be accounted for project emissions during the crediting period. The parameter is included in section B.7.1 of the PDD.</p> <p>In any case where fossil fuels are used (e.g. coal, diesel) for generating steam (and electricity), such emissions are not included as project emissions as such emissions are the baseline emissions.</p> <p>Hence the emission source is correctly chosen.</p> <p>The validation team concluded that the PDD had been filled in accordance to the guidance of the VVM ver1.2 and the Guidelines for completing CDM-SSC-PDD ver05.</p> <p>The validation team concluded that all the sources and GHGs included in the project activity are according to the choice of the methodology.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding A4
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The date format stated in the PDD (e.g. section B.8 and C) is not according to the Guidance for Completing the CDM-SSC-PDD version 05 EB 34 Annex 9.</p>

General	Finding A4
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The dates have been updated as per DD/MM/YYYY format in PDD version 2.0.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team had reviewed the changes made to the PDD. The dates illustrated in the PDD are accordance to the Guidance for Completing the CDM-SSC-PDD version 05 EB 34 Annex 9.</p> <p>The validation team concluded that the PDD had been filled in accordance to the guidance of the VVM ver1.2 and the Guidelines for completing CDM-SSC-PDD ver05.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding A5
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During the on-site assessment, the validation team has found that the project activity will include installation of a MFO boiler and a diesel generator set. The PDD of the project activity did not include such description as such usage of equipment will cause project emissions which are directly affect the emission reductions of the proposed project activity.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The project activity includes the installation of biomass based cogeneration plant. MFO based boilers are not included in the project activity. Hence any combustion of MFO in MFO boilers will not lead to project emission. However during the start up of biomass based cogeneration plant, auxiliary power demand will be met by DG set. Any emission due to generation of power from DG set would be considered and monitored as per the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". The same has been updated in PDD under project emission section.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open</p> <p>The validation team had understood from the project participant that the MFO boilers is the back-up source for the refinery's operations during any unplanned shut down or unstable energy provided by the biomass boilers. Please clarify the monitoring of the steam of that has been generated by the MFO boiler.</p>
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	MFO boilers are kept as standby units. These low pressure boilers will meet only thermal energy demand of process in case of any unplanned shut down or unstable energy provided by the biomass boilers. They have separate monitoring system for MFO boilers related parameters like flow rate, steam pressure, steam temperature, feed water temperature etc. In other words the monitoring of biomass boilers and MFO boilers are separate.

General	Finding A5
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>Through the technical knowledge of the validation team, it is convinced that the MFO boiler will not be connected to the biomass boiler's monitoring. Such scenario would most probably not happen due to the safety operation of both the boilers.</p> <p>The validation team had reviewed the steam diagram of the boiler. The validation team could not identify the connection of the MFO boiler into the biomass boiler system<sup>/T11/</sup>.</p> <p>The validation team had reviewed the changes made to the PDD (section B.6.1) which described the usage of fossil fuel in co-firing during the start-up of the biomass boiler. Hence this has illustrated that there is an MFO boiler installed in the project location.</p> <p>The validation team concluded that the PDD has contained a clear, accurate and complete description of the project activity.</p> <p>The validation team concluded that the applicability criteria of the methodology, the applied tools and other methodology component have been fulfilled.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

General	Finding A6
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The PDD did not provide sufficient information on the total power (electricity) and total steam requirements of the whole refinery plant that would be supplied by the project activity or otherwise the baseline scenario.</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>Steam consumption details and power consumption details are provided in section A4.2 of PDD under title "Technology employed for the project activity".</p>



General	Finding A6
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Close.</p> <p>The validation team had reviewed the steam and power design provided by the technology provider<sup>T11/</sup> to confirm that the information stated in the PDD is consistent. The design had shown the required power and steam for the turbines and processes consumptions.</p> <p>The requirement of steam for the processes and power generation of the refinery is 38.892MT/hr. The refinery process required 7.1THP of steam and required 31.792THP of steam to generated electricity of 4MW required by the refinery. Hence the installation of 2X20THP boiler is reasonable.</p> <p>The validation team concluded that information in the PDD is clear, accurate and complete the description of the project activity. The PDD has provided precise technical aspects of its implementation.</p> <p>The description in the PDD is according to the actual situation. As during the onsite assessment, the validation team could sight some of the installation. Others that are no installed, the validation team had compared with the technical design of the project activity. The validation team concluded that the description in the PDD is most likely the implementation of the project activity.</p> <p>The validation team concluded that the applicability criteria of the methodology, the applied tools and other methodology component have been fulfilled.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding A7
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<b>CAR.A7:</b> The project activity is a Greenfield project activity. As accordance to the EB55 Annex 35, the project activity shall demonstrate that the possible baseline scenario which include the assessment of alternatives. For this purpose, the project participant may apply steps of the latest version of Guidelines to SSC CDM methodologies.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>Possible baseline scenarios have been identified as per para 12 of AMS IC version 16 methodology for the proposed small scale project activity. Baseline assessment is based on the unit cost of power generation (USD/MWh).</p> <p>The additionality of the project activity is explained on the basis of barrier analysis mentioned in Attachment A to Appendix B of Simplified modalities and procedures for small scale project activities. It's appropriate to used Attachment A to Appendix B of Simplified modalities and procedures for demonstration of additionality for small scale project activity.</p>

General	Finding A7
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open.</p> <p>The validation team found that the argument is possible. However please provide a clear demonstration as according to the latest Guidelines to SSC CDM methodologies version 14, EB55. According to the guidelines, the PP needs to demonstrate step 1-4. Please indicate in the PDD which steps are being demonstrated. In addition, step 1b “<b>Consistency with mandatory applicable laws and regulations</b>” was not demonstrated.</p>
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>A clear demonstration for baseline selection has been presented in section B4 of PDD as per latest general Guidelines to SSC CDM methodologies version 14, EB55. Steps mentioned in general guidelines to SSC CDM methodologies in addition to para. 12 of AMS IC version 16 have been used for identification of baseline scenario.</p> <p>The consistency with mandatory applicable laws and regulations are also demonstrated in step 2. The PP has got all the required approvals for proposed project activity from host country. Copy of UKL and UPL along with host country approval letter have been submitted to DOE.</p>
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open.</p> <p>Please clarify in the PDD, as for Alternative 1, 2, 5 and 6, can it be still assume that the boiler of 2 X 20 Mt/Hr Boilers (complete system) is necessary to generated electricity?</p>
<b>Corrective Action #3</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The steam requirement in the process is 29.1 TPH (22 TPH low pressure steam and 7.1 TPH high pressure steam). To meet the thermal energy demand, PP would install 2 X 20 TPH boilers and they will run at lower capacity (not utilizing its maximum capacity i.e. 40 TPH) to generate 29.1 TPH of steam. It is technically possible to run boilers at a lower capacity.</p> <p>High pressure steam (7.1 TPH) will be taken out from HP steam header and PRV (pressure reducing valve) will be used to produce low pressure steam (22 TPH) to meet the thermal energy demand of process.</p>



General	Finding A7
<p><b>DOE Assessment #3</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>Closed.</p> <p>In alternative 1, 2, 5 and 6, although there is import of electricity, it will not cause any changes of the boiler design. This is because the refinery requires minimum of 29.1TPH of steam for all processes (7.1TPH of high pressure steam and 22TPH of low pressure steam).</p> <p>The installed Back Pressure Turbine (for electricity generation in the project activity) acts as the pressure reducing valve in the case of project activity (where in alternative 1, 2 and 6 an actual Pressure reducing valve is needed to be install to generate low pressure steam). Hence regardless if the refinery would to import electricity from the National Grid, the project participant is still required to install 2X20TPH steam boiler.</p> <p>The validation team is convenience that it is impossible for the project participant to install 1X20TPH steam boiler and 1X10TPH steam boiler as the margin to the required steam (29.1TPH) is too small. Such small margin will affect the refinery process (as refinery is a very sensitive process).</p> <p>Through the validation team technical knowledge, it will be more economical to install a 20TPH steam boiler as compare to a 15TPH steam boiler. Furthermore, it is technically ideal for the project participant to install a 20TPH steam boiler compare to 15TPH due to the reason of maintaining a safe buffer to produce constant steam required for the highly sensitive refinery process.</p> <p>The validation team had reviewed the alternative baseline scenario demonstration of the project activity. The demonstration was conducted according to the Guidelines of the SSC methodologies version 14. The project participant had demonstrated the alternatives baseline scenarios as according to paragraph 12 or AMS-1.C version 16.</p> <p>Please see Annex-A2 for assessment on the baseline scenarios alternatives.</p> <p>The validation team concluded that the applicability criteria of the methodology, the applied tools and other methodology component have been fulfilled.</p> <p>The project participant had taken those identified baseline in AMS-I.C version 16 to demonstrate the baseline scenario. The validation team deemed that the list of alternative is complete and sufficient to represent the baseline scenario. The baseline scenario has been determined using conservative assumptions. All identified alternatives are realistic.</p> <p>The validation team concluded that those non plausible alternatives have been excluded. The exclusion of the alternatives was made using the investment comparison and compliance to local regulations. The alternatives identified by the project participant includes the alternative of the project activity is undertaken without CDM and also other means of generating energy which is required by the refinery.</p>
<p><b>Conclusion</b></p> <p><i>Tick the appropriate checkbox</i></p>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

General	Finding A8		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The General Guidance on leakage in biomass project activities (Attachment C to Appendix B) was not applied as required by the methodology		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The General guidance on leakage in biomass project activities, Version 03, EB 47 has been applied to project activity under leakage section B6.1.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Open. The PDD indicated that there is a biomass assessment survey that the quantity of available palm kernel shell in the region is 25% larger than the quantity of biomass that is utilized including.... The Validation team could not find any attached survey in the PDD. Please provide such survey to the validation team for further evaluation.		
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The surplus of biomass has been demonstrated in annex 6 of PDD. The demonstration is based on total generation of FFB from plantation area in Indonesia. For conservativeness, Immature plantation has not been considered for the above demonstration. Further a conservative estimate has been taken for PKS production from FFB (6% of PKS from FFB) however there are literatures which suggest that PKS generation is 7%-9% of FFB<sup>2</sup>. Further it is assumed that 50% of produced PKS is consumed by CPO mills though there are some literatures which suggest that only 30% of PKS is consumed internally.</p> <p>It's assumed that in Malaysia 25% of PKS is consumed in other industries<sup>3</sup>. Malaysia and Indonesia both are neighbouring countries but Malaysia has higher per capita income compared to Indonesia. Since in Indonesia per capita income (\$4156) is less than per capita income of Malaysia (\$13769)<sup>4</sup>, hence it can be safely assumed that the fuel demand in Indonesia will be lower compared to the fuel demand in Malaysia. Hence it will be conservative to assume that 25% of PKS will be consumed in other industries in Indonesia also. The available 25% of PKS generated is available as surplus. The estimated consumption of PKS for all registered projects in Indonesia has been deducted from available 25% of PKS. The balance amount is shown as surplus biomass which is more than 25% of biomass consumed.</p>		
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open.</p> <ol style="list-style-type: none"> <li>1. According to the requirement of CDM, no other registered project can be referenced, unless those reference documents indicated in the registered project activity. Hence reference 2 is not appropriate.</li> <li>2. In Step 1 of Annex 6 of the PDD, please provide reference of 1 million immature plants in Indonesia.</li> <li>3. Please further elaborate how could the per capital income of a country determined the fuel demand. Since PKS is rather a cheaper fuel compare to FF, so it shall be the country with lower capital will source for alternative sources for fuel. Furthermore, the economics of Indonesia and Malaysia is different. Although the palm oil industry are similar, but the pattern of purchasing PKS for other industry may be different.</li> </ol>		

<sup>2</sup> Registered project by Nagamas<sup>3</sup> Palm Kernel Shell (PKS) is More Than Biomass for Alternative Fuel After 2005 by Mohammad Dit<sup>4</sup> Wikipedia

General	Finding A8												
<b>Corrective Action #3</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<div><div><div>1. As per the registered Nagamas PDD (Ref: 1312), the PKS generation is 7% - 9% of FFB. But this reference has not been used in PDD for calculation of PKS generation from FFB. This information is used only to show the conservativeness. Instead of that publicly available information (6% of PKS from FFB) has been used for generation of PKS from FFB. (Source:- <a href="http://www.biomass-asia-workshop.jp/biomassws/02workshop/reports/2005121302CR-MALAYSIA.pdf">http://www.biomass-asia-workshop.jp/biomassws/02workshop/reports/2005121302CR-MALAYSIA.pdf</a>)</div><div>2. Reference for 1 million ha of immature plantation: <i>Indonesia palm oil industry by Derom Bangun</i> (the reference is mentioned in PDD and the same was provided to DOE). The reference is updated with page no 3 and 6 in the revised PDD.</div><div>3. The cost of power generation from PKS is costlier compared to the cost of power generation from FF (coal) in Indonesia. The same has been demonstrated in misc sheet of CER calculation sheet. Summary of the result is given below.</div></div><div><table><tr><th>Fuel type</th><th>Fuel NCV (TJ/Kg)</th><th>Fuel price</th><th>Cost per unit of energy (USD/TJ)</th></tr><tr><td>Coal</td><td><u>0.000020934</u></td><td><u>USD</u> 0.08748/Kg</td><td>4179</td></tr><tr><td>Biomass (PKS)</td><td>0.000014651</td><td>USD 0.0618/Kg</td><td>4218</td></tr></table></div><div><p>Hence Indonesia which has lower per capita income compared to Malaysia will source for other cheaper fuel (coal).</p><p>Further the demand of PKS is active in Malaysia but much of PKS is not used in Indonesia yet (Page 2, Consulting Service Report for Improving the Efficiency of Carbonizing Plant for PKS Charcoal In Malaysia, March 2010).</p><p>Hence the consumption of PKS in Indonesia can be conservatively compared with the consumption of PKS in Malaysia.</p><p>There are almost 400 captive power plants in Indonesia and they are mainly running on Diesel (page no 5 of Electric power sector in Indonesia by Anasia Silviati, US commercial service, CS Jakarta dated 11/08/2005). This also envisages that most of the power generating companies still depends on conventional type of fuel.</p><p>This justify that much of PKS is not used in Indonesia and other industries (similar to our project activity generating captive power) are running on fossil fuels. However we have considered that 25% of PKS is consumed in other industries. This is very much conservative. Hence the demonstration of surplus amount of PKS is valid.</p></div></div>	Fuel type	Fuel NCV (TJ/Kg)	Fuel price	Cost per unit of energy (USD/TJ)	Coal	<u>0.000020934</u>	<u>USD</u> 0.08748/Kg	4179	Biomass (PKS)	0.000014651	USD 0.0618/Kg	4218
Fuel type	Fuel NCV (TJ/Kg)	Fuel price	Cost per unit of energy (USD/TJ)										
Coal	<u>0.000020934</u>	<u>USD</u> 0.08748/Kg	4179										
Biomass (PKS)	0.000014651	USD 0.0618/Kg	4218										

General	Finding A8
<p><b>DOE Assessment #3</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>Closed.</p> <ol style="list-style-type: none"> <li>1. The validation team had reviewed the reference/<sup>RD1/</sup> provided by the project participant to demonstrate the ratio of the PKS produced by per tonne of FFB process. The project participant had considered 6% of PKS per tonne of FFB produce. Through the validation team industrial experience, the validation team is convenience the 6% assumption is conservative. The validation team had reviewed the registered project Ref: 1312 to confirm that the project participant had taken a more conservative approach. The registered project had considered 7-9% of PKS per tonne of FFB produce.</li> <li>2. The validation team had reviewed the reference/<sup>RD2/</sup> provided by the project participant. The reference had provided the information on the hectare size of the immature oil palm plantation in Indonesia.</li> <li>3. The validation team had reviewed the reference/<sup>RD3/RD4/</sup> provided by the project participant to demonstrate the PKS usage in Indonesia and the normal practice of captive generation.</li> </ol> <p>The project participant has provided the assumption of the usage of the PKS base on the Malaysia scenario. Malaysia and Indonesia are the world palm oil export leaders. Many of the palm oil mill investors in Indonesia are from Malaysia. Hence, the practice of milling is very much similar. According to /RD3/ the PKS are not very much in used in Indonesia comparing to Malaysia. The reason of no such usage is because the cost of conventional fossil fuel captive generation is relatively lower than a biomass fueled boiler (also demonstrated by the project activity). Hence FF generations are more economical to a lower capital income country. According to /RD4/ diesel is captive generation is still preferred by the captive generator in Indonesia.</p> <p>Palm oil mills are located in remote areas. As Indonesia is still a developing country, the road condition in the country does not permits easy transportation of biomass (PKS) to be utilized by captive generators. Such transportation will increase cost of generation. As compare to Malaysia (which have better infrastructure), many of the manufacturing industries (e.g. cement and rubber manufacturer) and captive generators will option to use biomass due to easier availability of biomass fuel. According the Indonesia Market Intelligence report (<a href="http://www.datacon.co.id/Palm%20Oil%2006.html">http://www.datacon.co.id/Palm%20Oil%2006.html</a>), the oil palm plantation is expanding 12% annually on average. Therefore the milling output will be expecting to increase 12% annually on average too.</p> <p>The validation team concluded that the demonstration of the surplus of the biomass (25%) is plausible. The project participant had conservatively considered the current usage of PKS in other industries (e.g. manufacturing industries) in Indonesia is 25%. The validation team is convinced the assumption of 25% is conservative as literatures had illustrated that the PKS are still widely unused in Indonesia and the dependent of captive generation is still fossil fuel. Hence the leakage of the project activity has been correctly demonstrated.</p> <p>The validation team concluded that the applicability criteria of the methodology, the applied tools and other methodology component have been fulfilled.</p> <p>The validation team concluded that the alternatives are complying with local regulations.</p>

General	Finding A8
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding A9
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Please provide the local regulation that indicated EIA is not required for any installation of power plant which has the installed capacity of less than 10MW. Since the project activity is a combination of thermal and electricity energy, does the regulation include any appropriate equivalent?
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	EIA is not required as power production capacity is less than 10 MW. Supporting document will be provided to DOE. The regulation doesn't include any appropriate equivalent. However PP has conducted environmental study (AMDAL) for the refinery unit. A copy of AMDAL will be provided to DOE.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Open. The PDD has not illustrated such regulation to support the exclusion.  More during the onsite assessment, the validation team has took note that the UKL/UPL has been revised due to requirement by the local authority, please provide the confirmation / approval by the local authority that such procedures has been submitted and receive approval.
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	As per documentary evidence submitted in reference to the applicability of EIA, it's evident that the EIA is required if the plant capacity is more than 10 MW. However, the project proponent had conducted an environmental study (UKL/UPL) for the refinery unit. The same has been updated in PDD section D1.  Source: Summary of Environmental and Social Considerations, Page no 7, Table 1- Facilities subject to EIA in the electricity sector, and authorities competent to their EIA.
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed.  The validation team had reviewed the regulation on the EIA requirement. As stated in the regulation <sup>/EA5/</sup> the project participant is not required to conduct an EIA for the power generation project. However, the project participant was required <sup>/EA3/</sup> to include the elements of the captive generation using biomass fuel into the existing Environmental Management Effort (Upaya Pengelolaan Lingkungan Hidup – UKL) and Environmental Monitoring Effort (Upaya Pemantauan Lingkungan Hidup – UPL).  The Local Authority of Dumai had approved the revised UKL/UPL <sup>/EA2/</sup> that had included the elements of the captive generation using the biomass fuel <sup>/EA1/</sup> . According to the approval the project participant is required to submit the UKL/UPL every 6 months to the Local Authority of Dumai.  The validation team concluded that the project activity had met the requirement of the Host country in assessing the environmental impact of the proposed SSC CDM project activity.



General	Finding A9
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B1
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During the onsite assessment the validation team has found that there is a possibility of grid connection to the project activity. The National grid of Sumatera lies in front of the project location. Hence please provide justification on why there is no possibility that the proposed palm oil refinery would not import any electricity from grid as part of the energy requirement if with the absent of the project activity (baseline scenario).
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Although the national grid lies in front of project location, but due to deficit in power they won't be able to supply power to the proposed project activity. A copy of letter issued by PLN against the request for power will be provided to DOE. A copy of letter from PLN has been provided to DOE. Reference:- Letter from PLN dated 11/11/2009, reference no:290/161/DUM/2009
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed. The validation team had reviewed the letter issued by PT PLN <sup>T12/</sup> . PT PLN had rejected the application for Electricity Installation due to the deficit power capacity at Dumai District. Hence the validation team is convinced that the baseline of the project activity could not be grid connected (alternative 1, 5 and 6). Please see Annex-A2 for further assessment on the baseline scenarios. The baseline scenarios considered by the project activity is based on the methodology AMS-I.C version 16. The baseline scenario was identified to be "Electricity and thermal energy are produced in a cogeneration unit, using fossil fuel (with a possibility of export of electricity to the grid/other facilities and/or thermal energy to other facilities)". The validation team concluded that the baseline scenario considered is plausible. The project participant had taken those identified baseline in AMS-I.C version 16 to demonstrate the baseline scenario. The validation team deemed that the list of alternative is complete and sufficient to represent the baseline scenario. The baseline scenario has been determined using conservative assumptions. The validation team concluded that those non plausible alternatives have been excluded. The exclusion of the alternatives were made using the investment comparison and compliance to local regulations. The ex-ante of the emissions reduction calculation was determined according to alternative 4 (where the baseline is using coal for captive generation due to the lowest unit costs of generation). The validation team concluded that the equations applied to calculate the emissions reductions are correct and according to AMS-I.C version 16.

General	Finding B1
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B2
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>As accordance to EB22 Annex 3 – Clarification on the Consideration of national and/or Sectoral Policies and Circumstances in Baseline Scenarios, the establishment of the baseline scenario shall take national and/or sectoral policies and circumstances into account, without creating perverse incentives that may impact host Parties' contributions to the ultimate objective of the Convention.</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>PP has taken all the requisite approval for the proposed project activity. There is no national and/or sectoral policy which prevents PP from using coal in the baseline.          A copy of UKL/UPL, AMDAL and BADAN KOORDINASI PENANAMAN MODAL will be provided to DOE.</p>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The project activity is compliance with the environmental required of the project activity<sup>/EA2/</sup>.</p> <p>The project activity is not a Grid connected power project. Since the project is not Grid connected, the E+/- on the tariff is not relevant to the project activity.</p> <p>Indonesia is still deficit in electricity supply<sup>/T12/</sup>. The demand of power required by the growing industry could not be fulfilled by the National Utilities (PT PLN). Hence the industry itself needs to be dependent to generate captive power. In this scenario, there is no restriction for captive power generation. As according to /RD4/, the industries in Indonesia are generating its power mainly from diesel.</p> <p>The host country competent from the validation team could confirm that there is no regulation available yet in Indonesia that governs the industries to utilize renewable resources to generate captive power.</p> <p>The validation team concluded that the baseline scenario identified has sufficiently taken into account the relevant national and/or sectoral policies, macro-economic trends and political aspirations.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B3
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General	Finding B3		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The elimination of the defined alternatives is not clearly referenced with either literatures or other sources.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Proper references are provided in updated excel sheet. Hard copies of document, wherever applicable, will be provided to DOE.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team had reviewed the reference documents provided by the project participant <sup>/BL3/BL4/BL5/BL6/BL7/BN/PSD1/PSD2/ffc/GC/cf1/cf2/ec/ET/</sup>.</p> <p>The baseline scenario has been identified with cost comparison of the alternatives scenarios. The baseline scenario has been chosen based on the lowest investment costs per MWh of installed capacity of the thermal power plants.</p> <p>Please refer to Annex-A2 for detail assessment.</p> <p>The validation team concluded that the baseline scenario was determined compatibly with available data and references.</p>		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

General	Finding B4		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD has described the possible technology barriers are due to the biomass fuel which can consider as a technology risks. However please demonstrate to the validation team to further convenience that the project activity has non-availability of human capacity to operate and maintain the technology, lack of infrastructure to utilize the technology and unavailability of the technology. Please also consider the latest requirements of EB50 Annex 13.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>Though It's evident to project proponent that there will be non availability of human capacity to operate and maintain the technology as this is new compared to exiting technologies in that region but proper training will be provided by technology supplier to overcome this barrier. Hence this barrier due to non availability of human capacity has been removed in revised PDD.</p> <p>A Letter from technology supplier regarding the training will be provided to the DOE.</p>		



General	Finding B4
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team had reviewed the equipment contract with Mackenzie Industries Sdn. Bhd.<sup>/PSD2/</sup>. As stated in the contract, the supplier is obliged to provide training to the employee of the purchaser (project participant). The validation team had reviewed the confirmation letter issued by Mackenzie Industries Sdn. Bhd. to confirm the training and its training scheme<sup>/OM1/</sup>.</p> <p>The non-availability of human capacity could be overcome with the training provided by the supplier. Hence, the validation team concluded that the removal of the non-availability of human capacity is correct and the removal is accordance to paragraph 117(a) of the VVM version 1.2.</p> <p>The validation team had reviewed the quotation provided by the project participant on the efficiency of both the biomass and coal boiler.</p> <p>According to expert Omori<sup>/R1/</sup>, the efficiency of a biomass water-tube boiler is less than 80%. Through the experience of the validation team, the efficiency of a biomass boiler is lower due to the net calorific value of the biomass fuel (this cause lower combustion). This is supported by A Wienese<sup>/R2/</sup>. According to Wienese, the NCV is related to the higher moisture content in biomass fuel. Also, according to Wienese, the efficiency of a coal boiler is approximately 85%.</p> <p>According to Energy Technology Systems Analysis Programme<sup>/R4/</sup>, new boilers running on coal, oil, natural gas and biomass can reach efficiencies of 85%, 80%, 75% and 70% respectively.</p> <p>The validation team concluded that the project activity will have technology barrier due to the lower efficiency of a biomass boiler. In refinery process, steam is a crucial parameter. If the efficiency of the boiler is not achieved, the amount of energy required could not be generated, hence affects the refinery process.</p> <p>The validation team concluded that the PDD had clearly described the additionality of the project activity. Proper justification and reference has been provided to demonstrate the additionality of the project.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B5
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	As according to Attachment A Appendix B, please describe the practice of the proposed project activity is first-of-its-kind in terms of technology, geography, sector, type of investment, investors and market.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Project activity will use Biomass Fired High Pressure system which is amongst the first few of its kind in Edible Oil Refinery sector in Indonesia. However in the absence of publicly available documents, PP is only demonstrating investment barrier and technological barrier amongst the barriers given in Attachment A to Appendix B.

General	Finding B5
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The first-off-its-kind of the prevailing practices could not be substantiated. This is due to the lack of availability of literature and reference. However, with the sectoral and local expert of the validation team, it is the validation team's judgment that the project activity is the first few of its kind in Edible Oil Refinery in Indonesia. The reason of the validation team judgment:</p> <ol style="list-style-type: none"> <li>1. Refinery is a sensitive process which requires constant steam and energy to maintain all process control. Hence most of the refinery would not risk such energy production. Most of the refinery would prefer fossil fuel base boiler to enable to achieve constant energy generation.</li> </ol> <p>Hence, the validation team concluded that the non-consideration of the barrier due to prevailing practice is correct and the removal is accordance to paragraph 117(a) of the VVM version 1.2.</p> <p>The validation team concluded that the PDD had clearly described the additionality of the project activity. Proper justification and reference has been provided to demonstrate the additionality of the project.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B6
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The starting of the project activity as accordance to paragraph 67 of EB 41, the start date of the project activity the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. The proposed project activity has considered the day of the investment decision of the project participant is start date of project activity.</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The project start date has been updated as per the date on which contract is done with technology supplier. This date also refers to the date on which PP has committed to expenditures related to the implementation of project activity.</p> <p>This is in line with EB41.</p>

General	Finding B6
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team has compared the start date stated in section B.5 and C.1.1 of the PDD. The start date stated in the PDD is consistent with the contract signed between PT Pacific Indopalm Industries and Mackenzie Industries Sdn. Bhd<sup>/PSD2/</sup>. On the same day PT Pacific Indopalm Industries had also entered into contract with Dalex Engineering Sdn. Bhd<sup>/PSD1/</sup>.</p> <p>The project activity has a start date after 2008-08-02. The project participant had sent a notification to the UNFCCC. The PP had received the confirmation for the CDM Registration and Issuance team on 2008-11-11. The notification can also be seen in the UNFCCC/CDM website<sup>/unfccc/PSD/</sup> ..</p> <p>The validation team concluded that the start date of the project activity is according to the glossary of terms and the available evidences.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B7
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The dates of the continuous promotional CDM activities are not consistence with document reviewed by the validation team during the on-site assessment. The dates have mainly editing errors.</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The dates of the continuous promotional CDM activities are updated in revised PDD.</p>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open.</p> <ol style="list-style-type: none"> <li>1. The investment decision of the PP is in 2008-10-24. As stated in the PDD, the cost of the project activity (page 24 of the PDD), please clarify is there a major difference of the contract price and the proposal price. Please also clarify what price was being used to make the investment decision to invest in the biomass project activity.</li> <li>2. Please provide item 1,2,3,5,6,7,8 and 10 to the validation team for further evaluation.</li> </ol>

General	Finding B7
<p><b>Corrective Action #2</b></p> <p><i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i></p>	<p>1. There is no difference in quotation price and contract price. This can be verified from following documents:-</p> <ul style="list-style-type: none"> <li>a. Quotation for biomass fired boilers, Reference no – MIQ/WT149-20/08 R3, dated 14/11/2008,</li> <li>b. Contract for biomass fired boilers, reference no – P002/PII/CONTRACT/XII/2008, dated 10/12/2008,</li> <li>c. Quotation for 2 MW condensing turbine, reference no – DL/0455E/08, dated 28/10/2008,</li> <li>d. Quotation for 2 MW back pressure turbine, reference no – DL/0456E/08, dated 28/10/2008,</li> <li>e. Contract for turbine, reference no – 001/PII/CONTRACT/XII/2008, dated 10/12/2008.</li> </ul> <p>2. All the requested documents (1, 2, 3, 5, 6, 7, 8 and 10) have been provided to DOE.</p>
<p><b>DOE Assessment #2</b></p> <p><i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>Closed.</p> <p>The validation team had reviewed the evidence document provided by the project participant<sup>/CPC2/CPC3/CPC4/PSD1/PSD2/</sup>. The price stated in the in the contract is consistent with the quotation provided by the supplier to the project participant. Hence the validation team could conclude that the prices stated in the investment comparison are correct and according to the available evidences.</p> <p>The investment decision of the project activity was made on 2008-10-24. Prior to the decision, the project participant had received varies quotation<sup>/CPC2/CPC3/CPC4/CPC5/</sup> to identified the cost of varies boilers for possible alternatives.</p> <p>The decisive factor of the investment decision of the project activity was shown clearly in the minutes of the meeting of the BOD. The BOD had identified that the carbon credits is one of the factor for long term sustenance of the project activity. With the assistance of CDM, the investment cost per MW will fall below the baseline (coal fired boiler) and hence make it viable and more attractive to be invested.</p> <p>After the start date of the project activity, the project participant had conducted the stakeholder meeting on 2009-01-22. The project participant had sent the documents to the DNA for LoA approval on 2009-05-08. The project participant had later entered into a validation contract with the DOE on 2009-05-29.</p> <p>The proposed project activity is located in Indonesia. As according to the DNA criteria, the project activity could be a unilateral project (registration without an Annex 1 buyer).</p> <p>The validation team concluded that the project participant had continuous and real action to secure the CDM status of the project activity.</p> <p>The validation team concluded that there is not 2 years of gap in between the start date of the project activity till the contractual agreement signed with the DOE (start of validation). The gap from the start date to the validation contractual agreement is approximately 6 months.</p> <p>The validation team concluded that the investment decision of the project activity is evidence and supported with a concrete decisive factor.</p>

General	Finding B7
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B8
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The information in the PDD could not replicate or demonstrate, if with the CERs revenues, would the investment be possible lower than the defined baseline scenario.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Unit cost of power generation in project activity without CDM is 241 USD/MWh which is higher than unit cost of power generation in baseline scenario (213 USD/MWh). CDM revenue from sale of CERs will bring down the unit cost of power generation in project activity to 167 USD/MWh. This will make project commercially feasible compared to the identified baseline.  The same has been updated in investment barrier in section B5 of PDD.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed.  The project participant had chosen the investment comparison method to demonstrate the financial analysis of the project activity.  The project participant had compared the unit cost of generation of the project activity with the identified baseline scenario. The result of the comparison is the proposed project activity requires assistance from CDM to reduce the unit cost of generation to meet the baseline unit costs. With assistance of CDM, the unit cost of the project activity went below the baseline scenario which had made it more feasible and attractive to be invested.  The validation team had reviewed value inputs for the investment comparison. Please see Finding B3 for validation team assessment.  The validation team concluded that the PDD has provided sufficient information to demonstrate that the project activity would not be economically or financially attractive without the revenues from the sale of CERs.
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B9
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR

General	Finding B9
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The comparison inputs are consistent for both the project scenario and the baseline scenario. However, values inputs needs to be substantiated. The validation team could not obtain any evidence to substantiate the values of the following:</p> <ul style="list-style-type: none"> <li>- O&amp;M cost</li> <li>- Insurance cost</li> </ul>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>As per discussion with DOE during site visit, Insurance cost has been removed from the calculation sheet. A relevant reference for O &amp; M cost will be provided to DOE.</p>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open</p> <p>The validation team has reviewed the evidence provided to substantiate the O&amp;M cost. However, please further clarify the conservativeness of the 5% assumption which is applied also to the normal boilers (or the other alternatives).</p>
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>It has been demonstrated with appropriate evidence that O&amp;M cost in case of biomass fired boiler is 5% of capital cost.</p> <p>Comparison of O&amp;M cost between coal fired boiler and biomass fired boiler:-</p> <p>All the alternatives include either coal fired boiler or biomass fired boiler. The cost of O&amp;M in case of biomass (PKS) boiler will be higher compared to coal fired boiler. This is mainly due to formation of slag and clinker in biomass fired boiler. Boiler needs frequent shutdown for cleaning of clinker. This will increase O&amp;M cost.          (Source: <a href="http://sentralind.com/products/biomass.html">http://sentralind.com/products/biomass.html</a>)</p> <p>Comparison of O&amp;M cost between alternative 4 (coal based cogeneration) and project activity:-</p> <p>The cost of O&amp;M in case of coal fired plant in India is 2.5% of the capital cost. For US it is 1.52% for the coal plants.          (Source: Cost and carbon emissions of coal and combined cycle power plants in India: Implications for costs of climate mitigation projects in a nascent market by Jayant Sathaye and Amol Phadke, page no 17).</p> <p>The coal based cogeneration and coal based power plants employ similar equipments (boiler and turbine) and hence their cost of O&amp;M is almost similar. Hence the cost of O&amp;M in case of coal based cogeneration can be taken as 2.5% of capital cost.</p> <p>It is evident from above demonstration that the O&amp;M cost in case of project activity is either equal to or higher compared to O&amp;M cost in case of other alternatives. To be on the conservative side the O&amp;M cost has been taken as 5% of capital cost for all selected alternatives.</p>



General	Finding B9
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The major reason of the higher O&amp;M costs for a biomass boiler is due to additional cleaning is required on the walls of the biomass boiler and constant checking on the water tube. Biomass (especially palm oil waste) contains high silica and moisture (compare to coal) which will cause formation of slag and clinker at the boiler's wall. Therefore in order to maintain good efficiency (effective combustion) of the boiler, the wall shall be cleaned regularly. The validation team had interviewed the industry experts<sup>/IM09/IM10/</sup> to confirm such slag and clinker forming. According to the experts, the biomass boiler is required to stop at least once a month for such cleaning.</p> <p>According to Powering Asia<sup>/R3/</sup>, biomass fuel also contain certain chemicals. The presence of the chlorine and sulphur in the flue gas and fuel will erode the boiler walls and tubes. This will lead to busting of boiler tubes and may threaten the safety operations. Therefore regular maintenance is required for a biomass boiler to inspect the corrosion.</p> <p>The validation team had reviewed the reference provided by the project participant and deemed that the information provided on the higher O&amp;M costs for biomass boiler is correct.</p> <p>The validation team had reviewed the reference provided by the project participant on the O&amp;M costs to for coal fired boiler. The cost of operating the boiler would not have any significant difference between India and Indonesia as the economic condition of the both the countries are still in the stage of developing countries. According to /RD5/ the cost of operating the coal boiler is 2.5% of the capital cost. Considering this, the project participant had considered to apply 5% of O&amp;M costs to the alternatives baseline scenario as conservative and equal comparison. The unit costs of generation of the identified baseline scenario had considered 5% in O&amp;M costs (which had led to the lowest unit costs of generation). The assumption made by the project participant is plausible.</p> <p>The validation team concluded that the comparison input of the project activity and the baseline scenarios are consistent. The validation team concluded that investment analysis method is appropriate.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B10
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The final "unit cost of power generation #" is not consistent with the available excel spreadsheet.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Unit cost of power generation in PDD is updated as per the excel sheet.

General	Finding B10
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Close.</p> <p>The validation team had reviewed the changes in the PDD and excel sheet.</p> <p>The validation team confirmed the consistence of the value and results input of the PDD and the excel sheet.</p> <p>The validation team concluded that the excel spreadsheet is clear, viewable and unprotected.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B11
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>Please provide explanation to the validation team on the following values inputted to the excel calculation:</p> <ul style="list-style-type: none"> <li>- "Project cost" sheet, cell D4 where indicate 13,000,000</li> <li>- "Project cost" sheet, cell D16 where indicate 12,200,000</li> </ul>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>Proper references have been provided in the calculation sheet and documents will be provided to DOE.</p>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>Please refer to the DOE assessment # 2 of finding B7.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements



General	Finding B12		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD has provided explanation on the possible technology risk which may be face by the implementation. However the failure of the proposed project activity which may due to operation and maintenance of the project, the availability of human capacity to operate & maintain the plant and lack of infrastructure to utilize the technology has not been identified as suggested in the Attachment A of Appendix B of the Simplified modalities and procedures for small scale CDM project activities.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Though It's evident to project proponent that there will be non availability of human capacity to operate and maintain the technology as this is new compared to exiting technologies in that region but proper training will be provided by technology supplier to overcome this barrier. Hence this barrier due to non availability of human capacity has been removed in revised PDD. A Letter from technology supplier regarding the training will be provided to the DOE.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed. Please refer to DOE assessment #1 of finding B4		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

General	Finding B13		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD has demonstrated that the prevailing practice of the energy generation sector in Indonesia is very much dependent on fossil fuel. However it is not compared with the palm oil refinery sector.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Though there is information available to PP on the use of fuel in the palm oil industry, however there are no publicly available documents which substantiate the cogeneration system installed in palm oil refinery. Hence PP is not referring to this aspect in the revised PDD.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed. Please refer to DOE assessment #1 of finding B5		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

General	Finding B14		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The identification of the other barrier are not substantiated and merely quantitative statement		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Other barriers (like barriers faced during collection, transportation, storage of biomass etc) are not applicable to project activity where PKS is used hence they have been removed after discussion with DOE from the revised PDD.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed.  Please refer to DOE assessment #1 of finding B4 and B5		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

General	Finding B15		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>According to the methodology, the efficiency of the boiler shall be determined according to:</p> <p>a. Highest measured operational efficiency over the full range of operating conditions of a unit with similar specifications, using baseline fuel. The efficiency tests shall be conducted following the guidance provided in relevant national / international standards.</p> <p>b. Highest of the efficiency values provided by two or more manufacturers for units with similar specifications, using the baseline fuel</p> <p>c. Default efficiency of 100%</p> <p>Since the boiler efficiency is estimated according to manufacture (based on the excel sheet), it is required to use information which is provided two or more manufactures for units with similar specifications which use the baseline fuel.</p>		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The default efficiency of 100% of baseline boilers has been used for estimation of CERs.</p> <p>Cogeneration efficiency, 70% is calculated based on default efficiency (100%) of baseline boiler (refer to cell G24, Sheet BE of calculation sheet). The same has been updated in revised PDD.</p>		

General	Finding B15
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Close.</p> <p>The validation team has compared the information in the PDD and the excel sheet is consistent.</p> <p>The validation deems that the assumption is conservative. This is because, the lower the efficiency of the boiler, the more fuel will be consumed and hence higher emission reduction will be accounted.</p> <p>The validation team concluded that the equation choices are applied properly according to the methodology.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

General	Finding B16
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The refinery plant is expected to operate at 7920 hours per year. How was the estimation of the operating days being determined?</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>This is based on assumption that plant (baseline as well as project activity) will operate for 24 X 330 hours in a year. Ex-ante calculation is based on number of operation days. However CERs will be issued based on actual operation of hours.</p>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open.</p> <p>Please provide the assumption of 330 days of operations. As according to the latest Guidelines for the reporting and validation of plant load factor, The plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options:</p> <p>(a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval;</p> <p>(b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company);</p>
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The plant will run for similar no of days in the absence of proposed project activity. Further the proposed project activity and the identified baseline alternative generate no financial or economic benefits other than CDM related income. Hence the number of operation days has no impact on the additionality of project.</p> <p>The PLF has been taken as approximately 90% based on 330 days of operation in a year for ex-ante estimation of CERs. However actual number of CERs will be generated based on actual operation of boilers.</p> <p>The assumption for PLF as 90% is justified as the PLF assumed for various Greenfield plants is assumed as 90% for financial calculation.</p> <p>(Source:- Page no 4, Renewable Energy and Energy Efficiency in Indonesia, web-link - <a href="http://www.adb.org/documents/events/2009/Climate-Change-Energy-Workshop/Renewable-Energy-Girianna.pdf">http://www.adb.org/documents/events/2009/Climate-Change-Energy-Workshop/Renewable-Energy-Girianna.pdf</a>)</p>

General	Finding B16
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The proposed project activity is not demonstrated using investment analysis of financial indicator (e.g. IRR or NPV). The project activity demonstrated the additionality through investment comparison with the baseline scenario. Hence the PLF of the project activity will only effect the CERs calculation. In order to calculate the ex-post emission reductions, parameter stated in section B.7.1 of the PDD shall be monitored.</p> <p>The validation team concluded that conservative assumptions have been used to calculate the project emissions.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the first periodic verification</p> <p><input checked="" type="checkbox"/> Appropriate action was taken</p> <p><input checked="" type="checkbox"/> Project documentation was corrected correspondingly</p> <p><input type="checkbox"/> Additional action should be taken</p> <p><input checked="" type="checkbox"/> The project complies with the requirements</p>

General	Finding B17
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The PDD of the proposed project activity did not demonstrate the project emission which will be expected from the CO<sub>2</sub> emissions through the collection/processing/transportation of the biomass residues to the project site</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>As per the AMS IC version 16, project emission doesn't include emission due to collection/processing of the biomass residues.</p> <p>However there will be emission due to transportation of biomass residue from CPO mills but this emission will be less compare to the baseline scenario where coal would be transported from coal mines. Coal mines are located at larger distance compared to CPO mills. Hence this can be neglected. Since PKS is procured from CPO mills and they don't require any processing before combustion hence there won't be any significant emission due to collection/processing of biomass residues.</p>

General	Finding B17
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team had reviewed the supplier offer of the PKS. The validation team had checked the distance of the supplier and deemed that the distance is less than 200km. As accordance to footnote 11 of AMS-I.C version 16, if the distance of the transportation of the biomass is less than 200km, the leakage can be neglected.</p> <p>The project participant had included the parameter "AVD" to monitor the distance of the biomass supplier to calculate any leakages for an-post.</p> <p>In palm oil milling process, the kernel of the palm fruit will be crushed opened to remove the "flesh". The "flesh will be pressed and extracted for the oil. The remaining of this process is the palm kernel shell and palm kernel. The palm kernel shell (PKS) will then be a by-product (utilizes as biomass fuel of the project activity as renewable resources) where the palm kernel will be utilized for palm kernel oil extraction. The validation team deemed that the assumption of the project participant that there is no treatment is required for the PKS is correct.</p> <p>The validation team concluded that the emission from the leakage and project is properly justified to be zero in ex-ante. However the leakages from transportation of the biomass will be monitored during the crediting period.</p> <p>The validation team concluded that there is no expectation of GHG emissions which are expected to contribute more than 1% of the overall expected average emission reductions which are not addressed by the methodology.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B18
<b>Classification</b>	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	As stated in the monitoring plan, $SEC_{j,biomass,y,measured}$ and $SEC_{j,coal,y,measured}$ is calculated according to paragraph 32. However as accordance to paragraph 32 of AMS-I.C, there is no specific equation to determine the energy.
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	$SEC_{j,biomass,y}$ and $SEC_{j,coal,y}$ are calculated according to paragraph 34 of AMS IC version 16. The same has been updated in PDD.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open.</p> <p>Most of the parameter stated in section B.7.2 of the PDD did not clearly indicate the monitoring frequency.</p>

General	Finding B18
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Monitoring frequency for parameters mentioned under B7.1 of PDD has been updated.
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The changes of <math>SEC_{j,biomass,y}</math> and <math>SEC_{j,coal,y}</math> has been made in the PDD.</p> <p>The monitoring frequencies of the monitored parameters are included in section B.7.1 of the PDD and it is plausible.</p> <p>The validation team had compared the required monitored parameters stated in AMS-I.C version 16 with those stated in the PDD. The PDD has illustrated all the required parameters. Please see chapter 5 of the report for further comparison.</p> <p>The validation team had compared the means of monitoring of all parameters (information included in each parameter) with the Guidelines for completing CDM-SSC-PDD and CDM-SSC-NM. The PDD version05 had illustrated the correct format as stated in the Guidelines.</p> <p>The methodology AMS-I.C version 16 does not consider any equations for estimating the ex-post emission reduction.</p> <p>The validation team concluded that the monitoring arrangement stipulated in the PDD can be properly implemented.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding B19
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The descriptions of the QA/QC procedures of the monitoring parameters are rather ambiguous. E.g. How would the NCV analysis being conducted without any procedures? What are the standard that are most likely to be followed while calibrating the temperature gauge of the boiler?
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	QA/QC for all parameters which will be monitored during the crediting period has been defined in revised PDD. NCV of biomass will be tested once in six months from outside laboratory. Calibration of temperature gauge would be done as per national standard procedures.
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Open.</p> <p>Such statement, "Calibration of temperature gauge would be done as per national standard procedures" could not be found in the PDD. The changes made in the PDD has no significant different as the validated PDD.</p>
<b>Corrective Action #2</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The applied QA/QC procedures have been updated in PDD.



General	Finding B19
<b>DOE Assessment #2</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team had reviewed the QA/QC procedures stated in the PDD for each monitored parameter. The validation team deemed that the methods to ensure the data are correctly capture is plausible.</p> <p>Those monitoring devices will be calibrated annually as according to the national standard procedures.</p> <p>The project participant will cross check the boiler fuel utilized (coal and biomass) with available invoice to ensure the balance of the fuel and there is no reselling of the fuel.</p> <p>Those test result from external laboratory (e.g. NCV, moisture content) are considered reliable as external laboratory will be controlled under National compliance to operate a laboratory.</p> <p>The validation team concluded that the QA/QC procedures are appropriate and sufficient to ensure the emissions reductions achieved from the project activity can be reported ex-post and verified.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

General	Finding C1
<b>Classification</b>	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The defined start date of the project activity is not accordance to the glossary of terms as stated in the EB41 meeting report.</p>
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>The project start date has been updated as per the date on which contract is done with technology supplier. This date also refers to the date on which PP has committed to expenditures related to the implementation of project activity. This is in accordance with Guidance on the demonstration and assessment of prior consideration of the CDM (Version 03).</p>
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Close.</p> <p>The validation team has reviewed the contract signed by the PP and the technology provided.</p> <p>The validation team concluded that the starting date is clearly defined and evidenced in the section B.5 and C.1.1 of the PDD.</p>
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements



General	Finding C2		
<b>Classification</b>	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Although the operational lifetime of the project activity does not influence the financial analysis, however please provide evidence to the validation team on how was the lifetime being defined.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The operational life time of boilers and turbines are updated in revised PDD as per the information provided by supplier. The operational lifetime of equipment is 40 years provided proper operation and maintenance. The same has been updated in revised PDD.  Supporting document will be provided to DOE.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed.  The validation team has reviewed the information which stated by the technology supplier <sup>T13/</sup> .  The operational lifetime is clearly defined and evidenced.		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

General	Finding C3		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The start of the crediting period of the project activity is not reasonable. During the onsite assessment conducted on 2009-10-12 – 2009-10-14, the construction of the refinery plant is still undergoing.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Start date of crediting period has been updated in revised PDD as "The start date of the crediting period is 01/03/2011 or a date not earlier than the date of registration of the small scale project activity".		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Closed.  By means of document review and on site visit it can be confirmed that the revised starting date 01/03/2011 is clearly defined and reasonable.		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

General	Finding D1		
<b>Classification</b>	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
<b>Description of finding</b> <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The UKL and UPL are not yet available during the validation. Please provide such approval of the UKL and UPL during the first verification of the proposed project activity.		
<b>Corrective Action #1</b> <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Copy of UKL and UPL is available and it will be provided to DOE.		
<b>DOE Assessment #1</b> <i>The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Closed.</p> <p>The validation team has reviewed the UKL/UPL.</p> <p>The validation team confirms that the project activity do not required an EIA as the installed capacity of the project activity is less than 10MW.</p> <p>The validation team concluded that the host party requirements on the environmental assessment are met.</p>		
<b>Conclusion</b> <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the first periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

## **5 VALIDATION ASSESSMENT SUMMARY**

### **5.1 General Description of the Project Activity**

#### **5.1.1 Participation**

##### **LOA**

There is only one Letter of Approval issued for this CDM project activity with the project title "Biomass Based Co-Generation Project", as there is one project participant involved. The DNA of Indonesia has issued the Letter of Approval to the project participant on 2010-01-21 with the reference number B001/KNMPB/01/2010.

Through reviewing the LoA issued by the DNA, the validation team can confirmed that the LoA is fully matching with the CDM regulation

The LoAs are assessed to be valid and authentic. The validation team had compared the similar LoAs issued by the same DNA. The LoAs were compared on the alignment, the standard format and signatory of the person who issued the letter

(Please refer to section A.1 of table A-1 of the validation protocol attached in Annex 1 for detail assessment).

##### **Project Participants**

There is only one project participant for this CDM project activity namely from the Republic of Indonesia (afterwards Indonesia) (Host Country). The project participant is PT Pacific Indopalm Industries.

The DOE has the contractual agreement with the project participant PT Pacific Indopalm Industries. The name of the project participant is consistent throughout the PDD (especially in section A.2 and Annex 1 of the PDD). The project participant stated in the PDD is also consistent with the Modalities of Communication (MoC) signed between the project participants.

(Please refer to section A.1 of table A-1 of the validation protocol attached in Annex 1 for detail assessment).

#### **5.1.2 Contribution to Sustainable Development**

The authorized representative of the host country party is the National Committee on CDM (DNA of Indonesia). The DNA of Indonesia has confirmed that this CDM project activity complies with the sustainable development criteria in Indonesia as per Indonesian DNA requirements: social sustainability, economic sustainability, environmental sustainability and technology sustainability (section A.2 PDD) vide Letter of Approval (Ref. B 002KNMPB/01/2010) dated 2010-01-21.

(Please refer to section A.2 of the table A-1of the validation protocol attached in Annex 1for detail assessment).

### 5.1.3 PDD editorial Aspects

The Project Design Document presented by the project participant applied the latest CDM-SSC-PDD template form published on the UNFCCC website version 03 effective from 22 December 2006. The PDD was completed as according to the Guideline for Completing the Simplified Project Design Document (CDM-SSC-PDD) version 05 EB34 Annex 09.

(Please refer to section A.3 and A.5.3 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### 5.1.4 Technology to be employed

The proposed project activity employs a biomass based cogeneration plant in a newly built palm oil refinery. The project activity will generate steam and power (electricity) that will only require by the palm oil refinery (no exporting of steam and/or power). The main equipment involved in the project activity is the biomass based fired boilers, back pressure turbine and full condensing turbine.

The main biomass used by the project activity is mainly residue from agricultural process. The biomass identified by the project activity is palm kernel shell.

The proposed project activity is a new project activity which does not involve any alteration or retrofitting of an existing installation or process. During the onsite assessment the validation team have sighted the construction of the project activity.

The technology/process employed will be environmentally safe and sound despite of the emission from the onsite fossil fuel and electricity consumption (from fossil fuel generator set) and transportation of PKS from more than 200km away from the project location. Such emission had been considered in the project emission calculations.

(Please refer to section A.4 of the table A-1 of the validation protocol attached in Annex 1 and Chapter 2 of this report for detail assessment).

### 5.1.5 Small Scale Projects

The project activity is a Type I SSC-CDM project activity. The total thermal installed capacity of the project activity is 32MW<sub>thermal</sub>. Since the project activity also generates electricity, the install capacity of the electricity component of the project activity 4MW<sub>elec</sub>. As according to paragraph 5(a) of AMS-I.C version 16, the total installed capacity of the project activity is 44MW<sub>thermal</sub>. Hence the project activity had met the threshold of the SSC type project activity.

The project activity had applied correctly the Indicative Simplified baseline and monitoring methodologies of AMS-I.C version 16. The project activity has demonstrated the additionality of the project as according to Attachment A of Appendix B of the simplified modalities and procedures for small scale CDM project

activities. All related tools had been used to calculate the emission reductions of the project activity.

The project activity is not a debundled part of a large scale project. The validation team has interviewed and conducted a search in the UNFCCC website to confirm that the project activity did not involve in any registration of a previous project activity within 2 years and there were no similar project category and technology/measure within 1km of the project boundary of the proposed small-scale activity at the closest point of a larger project activity. The project activity is the first project by the project participant.

(Please refer to section A.5 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

## **5.2 Project Baseline, Additionality and Monitoring Plan**

### **5.2.1 Application of the Methodology**

The project activity applies the valid baseline and monitoring methodology AMS-I.C “Thermal Energy production with or without electricity” version 16.

All applied tools and methodology are valid at the time of submission of the PDD for Global Stakeholder Process (please refer to section E of Annex 1 of this report). All tools applied by the project activity are accordance to the Procedures for the revision of an Approved Baseline or Monitoring Methodology by the Executive Board version 09 (EB35 Annex 13).

During the webhosting of the PDD in the UNFCCC website, the version of the applied methodology is version 14. Due to the expiring of version 14, the project participant has revised the PDD to meet the requirements as according to the version 16 of AMS-I.C

(Please refer to section B.1 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### **5.2.2 Project Boundary**

The PDD correctly describes the project boundary including the physical delineation of the project activity and the description of the emission sources and GHGs that are included in the project boundary for the purpose of calculating project and baseline emissions for this project activity.

The methodology allows for a choice which sources and GHGs to be included in or excluded of the project boundary. It is confirmed that the justification provided by the Project participant is reasonable, based on assessment of supporting documented evidence provided by the Project Participant or by onsite observations.

No emission sources which are impacted by the project activity and are not addressed by the approved methodology are detected during validation.

(Please refer to section B.2 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### 5.2.3 Baseline Identification

The baseline of the project activity was identified as according to the Guidelines to SSC CDM Methodologies version 14. The project activity is a Greenfield project activity where the baseline scenario was not available during the investment decision to proceed with the project activity. Hence the project activity is required to demonstrate the possible baseline scenario as according to clause 19 of the Guidelines to SSC CDM Methodologies version 14.

The identified baseline scenario of the project activity is ***Electricity and thermal energy is produced in a cogeneration unit, using fossil fuel (with a possibility of export of electricity to the grid/other facilities and/or thermal energy to other facilities)***. The alternatives of the baseline scenario identified by the project participant as the following:

1. Electricity is imported from grid and steam is produced using fossil fuel
2. Electricity is produced in an onsite captive power plant (with a possibility of export to the grid) using fossil fuel and thermal energy is produced using fossil fuel
3. Electricity is imported from grid and steam is produced using renewable biomass
4. Electricity is produced in an on-site captive power plant using biomass (with a possibility of export to the grid) and/or imported from the grid; steam/heat is produced using fossil fuel
5. The proposed project activity undertaken without being registered as a CDM project activity

The alternatives identified are compliance with the local regulations. Hence no alternatives have been excluded for further consideration.

The baseline scenario of the project activity was identified through the demonstration investment and operation cost per unit of power generation. The unit cost of the identified baseline scenario is the lowest comparing with the identified alternative.

The fossil fuel identified to be baseline scenario of the project activity is coal. The project participant had demonstrated that the cost to operate and invest in a coal captive power plant is lower than other fossil fuel (e.g. diesel, gas, fuel oil).

The project participant has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the CDM Executive Board.

In summary, the identification of the baseline scenario is reasonably represented on the occurrence if with the absent of the proposed CDM project activity. The baseline scenario is identified in line with the AMS-I.C version 16 and the Guidelines to SSC CDM methodologies categories version 14.

(Please refer to section B.3 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

## 5.2.4 Calculation of GHG Emission Reductions

The PDD applies steps and equations to calculate baseline emissions, project emissions, leakages and emission reductions as per the requirements of the methodology AMS-I.C version 16.

The GHG emission reductions calculation demonstrated in the PDD and the Excel Spreadsheet has reflected the correct equations of methodological and/or applicable tools choices. Furthermore all equations are applied correctly.

For the data and parameters that are not to be monitored throughout the crediting period (i.e. they are determined only once and thus remain fixed throughout the crediting period), it is assessed that all data sources, assumptions and calculations are correct, applicable to the project and contribute to a conservative estimate of the emission reductions.

The following are the parameter which will not be monitored during the crediting period:

Parameter	Description	Applied value	Means of validation
EF <sub>CO2</sub>	CO2 emission factor per unit of energy of coal that would have been used in the baseline in the absence of the project activity.	96.1	The value applied is according to IPCC 2006 value. The national data is not available in the host country. The values that are only available in the host country are Net Calorific Value and Fuel Density. The value applied is correct.
$\eta_{th}$	Efficiency of the baseline coal fired boilers	100%	The value is according to the default value provided in AMS-I.D version 16. The higher the efficiency assume for the baseline, the lower the emission reductions will be. Hence it is more conservative. The value applied is correct.
SEC <sub>j,biomass</sub> y, measured,	Specific Energy Consumption of biomass	1.316 TJ/TJ	The SEC of biomass is calculated as according to paragraph 34 of AMS-I.C version 16. The amount of fuel energy required is calculated with the following parameter i. Steam generation = 40TPH. The



			<p>steam generation is according to the installed capacity of the boiler.</p> <p>ii. Enthalpy of steam = 3290kJ/kg – default value of the steam chart.</p> <p>iii. Enthalpy of feed water = 440.2kJ/kg – default value of steam chart</p> <p>iv. Boiler efficiency = 76%. The boiler efficiency information has been provided by the supplier<sup>/BL8/</sup>.</p> <p>v. Plant operating hours = 7920 hours – base on the assumption of 330 days operation.</p> <p>The amount of energy output of the biomass boiler (project) is calculated according to</p> <p>i. Fuel energy input = 1188TJ/annum</p> <p>ii. Biomass boiler efficiency = 76%. The boiler efficiency information has been provided by the supplier<sup>/BL8/</sup>.</p> <p>The SEC value is applied when the project's boiler co-fired. In the project scenario this would most likely not happening.</p> <p>The value applied is correct</p>
SEC <sub>j,coal,y,</sub> measured,	Specific Energy Consumption of Coal	1.136 TJ/TJ	<p>The SEC of biomass is calculated as according to paragraph 34 of AMS-I.C version 16.</p> <p>The amount of fuel energy required is calculated with the following parameter</p> <p>i. Steam generation = 40TPH. The steam generation is according to the installed capacity of the boiler.</p> <p>ii. Enthalpy of steam = 3290kJ/kg – default value of the steam chart.</p> <p>iii. Enthalpy of feed water = 440.2kJ/kg – default value of steam chart</p> <p>iv. Boiler efficiency = 88%. The boiler efficiency information has been provided by the supplier<sup>/CPC7/</sup>.</p> <p>v. Plant operating hours = 7920 hours – base on the assumption of 330 days operation.</p> <p>The amount of energy output of the biomass boiler (project) is calculated</p>

			<p>according to</p> <p>i. Fuel energy input = 1026TJ/annum</p> <p>ii. Coal boiler efficiency = 88%. The boiler efficiency information has been provided by the supplier<sup>/CPC7/</sup>.</p> <p>The SEC value is applied when the project's boiler co-fired. In the project scenario this would most likely not happening.</p> <p>The value applied is correct</p>
EF <sub>truck</sub>	Emission factor for light duty diesel truck	0.000415	<p>The value applied is according to IPCC 2006 value. The national data is not available in the host country</p> <p>The value applied is correct</p>

The emission reductions (ER<sub>y</sub>) of the project activity are the difference between the baseline emissions (BE<sub>y</sub>), project emissions (PE<sub>y</sub>) and the leakage emissions (L<sub>y</sub>) as follows:

$$ER_y = BE_y - PE_y - L_y$$

**Baseline emission:**

BE<sub>y</sub> is calculated by multiplying the quantity of steam displaced by the project activity (EG<sub>thermal,y</sub>) with the CO<sub>2</sub> emission factor (EF<sub>FF,CO2</sub>) of the fossil fuel (coal) that would have used in the baseline scenario divided by the efficiency (η<sub>BL,thermal</sub>) of the plant using the fossil fuel.

$$BE_{thermal,CO_2,y} = (EG_{thermal,y} / \eta_{BL,thermal}) * EF_{FF,CO_2}$$

The value used for the quantity of steam displaced by the project activity was calculated according to the thermal energy and the electricity energy required by the refinery process. The energy requirement was calculated based on the design capacity of the refinery.

The thermal energy was calculated based on the enthalpy of the saturated steam available from the steam chart. The total steam required by the project activity is 29.1TPH (consist of high pressure and low pressure). The total steam required is estimated according to the refinery design.

The emission factor of the coal was estimated according to the IPCC 2006 default value.

The plant efficiency of the baseline was calculated to be 70%. The plant efficiency was calculated with the assumption of the coal boiler to be 100%. The project participant had taken a conservative approach to assume the boiler efficiency to be 100% (the lower the efficiency, the higher the emissions reductions).

**Project emissions:**

The proposed project activity will utilize fossil fuel during the black start of the boiler. Also during the non-operational hours of the biomass boiler, auxiliary consumption of the biomass boiler will be generated by a MFO boiler. Such usage of fossil fuel will be monitored during the crediting period. The calculation of the project emissions is according to the Tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion version 02. The amount of MFO used will be monitored during the crediting period as stated in section B.7.1 of the PDD.

**Leakages:**

The project participant had demonstrated that the amount of PKS available in the region of Riau and Jambi (the location of the project location) is more than 25%. As according to the General guidance on leakage in biomass project activities version 03, if the availability of PKS (biomass) is more than 25% in the region no leakages shall considered.

The distance of the transportation of the PKS will be monitored during the crediting period as stated in section B.7.1 of the PDD.

**Emission Reductions:**

The annual GHG emission reductions cover the crediting period are estimated ex-ante as 867,600tCO<sub>2</sub>e.

It is confirmed by the DOE by cross-checking the whole calculation process <sup>/XLS/</sup> against all referenced data sources and the requirements of applied methodology and methodological tools that:

- a. All data sources and assumptions used are listed and referenced in the PDD and are appropriate. Calculations are correct, applicable to the proposed CDM project activity and will result in a conservative estimation of the emission reductions;
- b. All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PDD;
- c. All values used in the PDD are considered reasonable in the context of the proposed CDM project activity;
- d. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;

For the data and parameters that are not monitored throughout the crediting period (e.g. they are determined only once and thus remain fixed throughout the crediting period), it is assessed that all data sources, assumptions and calculations are correct, applicable to the project and contribute to a conservative estimate of the emission reductions.

The monitoring data/parameters stated in the PDD are according to the AMS-I.C version 16. The validation team has cross-checked the data/parameters stated in the PDD with the approved methodology. The required data/parameters are all being addressed correctly in the section B.7.1 of the PDD. Hence the estimation of the emission reductions is plausible and conservative.

(Please refer to section B.5-B.6 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

## **5.2.5 Additionality Determination**

### **Consideration of CDM in decision making**

The starting date given in the PDD is before validation start. It is confirmed that this date has been reported in accordance with the CDM glossary of terms. The start date of the project activity was the date where the project participant had entered into the contract of purchasing the boiler dated 2008-12-10.

The CDM was considered before the starting date. This was evident from the investment decision of the BoD of PT Pacific Indopalm Industries. The later event of the project participant was signing an Agreement with CDM consultant.

As according to the Guidance on the demonstration and assessment of prior consideration of the CDM version 01, the project participant is required to submit any notification to the UNFCCC and/or DNA of Indonesia as the start date of the project activity is before 2008-08-02. Since during the implementation of the project activity is prior EB48, the validation team deemed that the notification to the UNFCCC only is correct. The project participant only requires notifying either the secretariat of the UNFCCC or the DNA.

The project participant had notified the UNFCCC on 2008-11-11 prior the start date of the project activity.

The continual action of the CDM project activity to remain its' CDM status after the start date has clearly demonstrated in the PDD. There is no gap which is greater than 2 years from the first documented evidence (date of the offer of the coal boiler) until the contracting of the DOE for the validation of the project activity.

Continual promotional activities that were demonstrated by the project participant include signing the contract for CDM development, correspondence for validation contract with the DOE, local stakeholder consultation and contracting the DOE.

(Please refer to section B.4.2 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### **Application of methodology / methodological tools**

The additionality was justified in accordance with the requirements derived from the applied approved CDM methodology and the applied methodological tools referred to therein. Since the project activity is a small scale project activity, the project participant has demonstrated the additionality of the project activity as accordance to the Attachment A of Appendix B of the simplified modalities and procedures for small scale CDM project activities.

### **Alternatives**

The project activity is a small scale CDM project activity. However due to the project activity has been identified as Greenfield project activity, the alternatives of the baseline scenario was being identified as accordance to the Guidelines to SSC CDM methodologies version 14).

(Please refer to 5.2.3 above for more explanation on the baseline scenario)

### **Investment analysis**

The project participants choose the investment comparison approach to demonstrate the financial barrier. The investment analysis was demonstrated according to the Guidelines on assessment of investment analysis version 03.

The cost of generation per unit of power of the project activity is the highest comparing with the identified baseline scenario and the identified alternatives. With the assistance of CDM the unit cost of generation of the project activity will be lower (comparing with the baseline scenario. The cost associated with CDM project activity and other alternatives has been leveled with quantity of power generated in the project activity for calculation. The unit cost of power generation for the alternative 4 comes out to be the lowest amongst all the alternatives and hence is considered the baseline to the project activity. Hence with the assistance of CDM, the investment of the project activity is more financial feasible and attractive.

As to the accuracy of financial calculations carried out for the investment comparison, the DOE have:

- a. Conducted a thorough assessment of all parameters and assumptions used in calculating the investment comparison. The assessment of accuracy and suitability of these parameters are summarized in Annex A3 using the available evidences and expertise in relevant accounting practices;
- b. Cross-checked the parameters against third-party or publicly available sources, such as governmental statistics and industry yearbook;
- c. Reviewed the feasibility study report, governmental regulations and necessary documents related to the proposed CDM project activity and the project participants;
- d. Assessed the correctness of computations carried out and documented by the project participants by reproducing the IRR and benchmark calculation in accordance with industrial/local regulations;
- e. Assessed the sensitivity analysis to determine under what conditions variations in the result would occur, and the likelihood of these conditions

The project participant has demonstrated the sensitivity analysis of the project activity as accordance to the requirement of the Guidelines on assessment of investment analysis version 03 and to further justified the additionality. The project participant has included the following in the sensitivity analysis:

- Variation in price of biomass
- Variation in price of coal
- Variation of the calorific value of the coal
- Variation of the calorific value of the biomass
- Variation of the coal boiler efficiency
- Variation of the biomass boiler efficiency

### **Financial Indicator for investment comparison**

The proposed project activity is a small scale project activity where the investment barrier was conducted according to Attachment A to Appendix B of simplified modalities and procedures for small scale CDM project activities. Since the project activity is a Greenfield project, the general guidelines to SSC methodologies version 15 were followed to identify the most plausible energy supply source to the project activity. The validation team deemed the approach taken by the project participant is correct.

As stated in the above paragraph, the value applied for the investment comparison is levelized cost of electricity production in \$/kWh. The parameters include project cost, return on equity, cost of fuel (expenses to the project) and cost of O&M (expenses to the project). The comparison made by the project activity is in line with option II in paragraph 3 of page 6 of EB39 Annex 10 (although the project is a small scale project activity). Since the project activity is to compare the electricity production cost, it is not applicable for the project participant to include any revenues generated by the project activity.

Based on the energy demand of the plant the validation team had replicated the data provided by the project participant to estimate the price per unit of energy (\$/GJ) required by the plant. The results of the replication are as follows:

Alternative 1	Alternative 2	Alternative 4	Alternative 5	Alternative 6	Project activity without CDM	Project activity with CDM
9.51 USD/GJ	10.03 USD/GJ	9.36 USD/GJ	10.44 USD/GJ	12.33 USD/GJ	10.60 USD/GJ	7.34 USD/GJ

The validation team had considered the following parameter to replicate the indicator:

1. The default value of 3.6 to convert MWh to GJ.
2. The sum of both power and thermal energy demand has been used to calculate the unit cost of energy generation (in GJ),
3. The energy demand is fixed as according to the required energy (electrical and thermal (steam) energy) by the refinery plant.

The validation team concluded that the financial indicator \$/kWh is suitable to conduct the investment comparison analysis. Furthermore the validation team concluded that using the financial indicator \$/GJ will come to the same result: Alternative four remains to be the baseline alternative and the project activity still requires assistance from the CDM to make the project viable.

An in depth assessment of each parameter is provided in Annex 3 to this report.

(Please refer to section B.4.4 of the table A-1 of the validation protocol attached in Annex 1 and Annex 3 for detail assessment).



## **Barrier analysis**

The project activity had identified the following barriers faces by the project activity:

1. Lower efficiency of the biomass boiler as compare to coal based boiler.
2. Deficiency of power at the project location which the National Utilities could not supply the required electricity of the refinery.

The barriers poses by the project activity has been supported by evidence and substantiated.

(Please refer to section B.4.4 of the table A-1of the validation protocol attached in Annex 1 for detail assessment).

## **Common practice analysis**

The project activity is a small scale CDM project activity. The demonstration of Common practice analysis is not applicable.

## **Summary**

The procedure to justify the additionality of the project activity derived from the methodology or required methodological tools has been applied correctly and transparently documented in the PDD. Considering all statements above, it is confirmed that the project activity is additional because anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the project activity.

### **5.2.6 Monitoring Methodology**

In section B.7.1 of the PDD, the monitoring plan was developed according to the applied methodology AMS-I.C version 16 and the tool applicable to the project activity. The monitoring plan is compliance with the requirements of the methodology and/or tool.

Since the project activity is not a retrofitted project, it is correct that the project participant does not required to monitor the emission reduction achieved by the project activity as the difference between the baseline emission and the sum of the project emission and leakage.

The validation team had compared the monitoring parameters which are required by AMS-I.C version 16 and the Tools applicable to the methodology – tool to calculate project or leakage CO<sub>2</sub> emissions from fossil fuel combustion and tool to calculate baseline, project and/or leakage emissions from electricity consumption. The following are the parameters monitored by the project activity:



Parameter according to AMS-I.C version 16; tool to calculate project or leakage CO <sub>2</sub> emissions from fossil fuel combustion; tool to calculate baseline, project and/or leakage emissions from electricity consumption.	Stipulated in section B.7.1 of the PDD (Yes/No)	Remark
Quantity (flow) of thermal energy (steam) produced by the project activity.	Yes	The project participant will monitor $Q_{\text{steam},a,i}$ and $Q_{\text{steam},b,i}$ .
Temperature of the steam produced in boiler	Yes	The project participant will monitor $T_{\text{steam},a,i}$ and $T_{\text{steam},b,i}$
Pressure of the steam produced in boiler	Yes	The project participant will monitor $P_{\text{steam},a,i}$ and $P_{\text{steam},b,i}$
Recording the number of systems operating	No	The emissions reductions of the project is more than 5tCO <sub>2e</sub> /year
Estimation of annual operation hours of an average system	No	The emissions reductions of the project is more than 5tCO <sub>2e</sub> /year
Annual check of all appliances or a representative sample to ensure the boiler operation	No	The project activity is not household or commercial applications/systems.
Quantity of biomass used (PKS)	Yes	The project participant will monitor $Q_{\text{biomass},y}$
Quantity of fossil fuel used (coal)	Yes	The project participant will monitor $Q_{\text{coal},y}$ Also according to the tool for calculate project or leakage CO <sub>2</sub> emission from fossil fuel combustion ( $FC_{i,i,y}$ )
Quantity of fossil fuel used (fuel oil)	Yes	The project participant will monitor $Q_{\text{FO},y}$ Also according to the tool for calculate project or leakage CO <sub>2</sub> emission from fossil fuel combustion ( $FC_{i,i,y}$ )
Net Calorific Value (biomass)	Yes	The project participant will monitor $NCV_{\text{biomass}}$

Net Calorific Value (coal)	Yes	The project participant will monitor $NCV_{coal}$ Also according to the tool for calculate project or leakage CO2 emission from fossil fuel combustion ( $NCV_{i,y}$ )
Net Calorific Value (FO)	Yes	The project participant will monitor $NCV_{FO}$ Also according to the tool for calculate project or leakage CO2 emission from fossil fuel combustion ( $NCV_{i,y}$ )
Emission factor (coal)	Yes	The project participant will monitor $EF_{coal}$
Emission factor (FO)	Yes	The project participant will monitor $EF_{FO}$
Specific Energy Consumption (biomass)	Yes	The project participant will monitor $SEC_{j,biomass,y, measured}$
Specific Energy Consumption (Coal)	Yes	The project participant will monitor $SEC_{j,coal,y, measured}$
Project emissions from the electricity consumption	No	The project activity will not import any electricity from the grid as the grid could not fulfill the demand of the project activity <sup>/T12/</sup>
Quantity of steam generated from the fossil fuel boiler	No	Even the proposed project activity has a stand by MFO boiler, the energy generated from the MFO boiler is not included in the monitoring plan due to the monitoring system of the MFO boiler is separated from the biomass boiler.  The validation team had reviewed the steam flow diagram <sup>/T11/</sup> to confirm that the installation of the monitoring devices of the biomass boiler and the MFO boiler is separated. Hence it will not cause uncertainty of the emission reductions calculation during the
Temperature of steam generated from the fossil fuel boiler	No	
Pressure of steam generated from the fossil fuel boiler	No	
Enthalpy of the steam generated from the fossil fuel boiler	No	

		crediting period.
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(Please refer to section B.6 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### 5.2.7 Monitoring Plan

The monitoring arrangements are described appropriately in section B.7.1 of the PDD. The monitoring plan covers all monitoring parameter addressed in the methodology AMS-I.C version 16.

The validation team concluded that the monitoring plan to be implemented is feasible and within the project design. Proper descriptions have been provided in section B.7.1 of the PDD to describe the measuring methods and procedures to be applied.

(Please refer to section B.6 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### 5.2.8 Project Management Planning

The technology provider of the project activity will provide the necessary training and maintenance needs to operate the composting plant and the turning machine. This has been verified by means of on-site assessment and interviews with the \ technology provider.

The validation team has also reviewed the proposed organization chart of the project activity. The project participant proposed to assign a designated Project Coordinator who will be responsible for monitoring emission reductions of the project activity. The Project Coordinator will also oversee all staff involved with the collection of data and records.

(Please refer to section B.6 of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### 5.2.9 Crediting Period

The project participant decided to apply fixed crediting period (10 years). The starting date is defined as 2011-03-01 or a date not earlier than the date of registration of the small scale project activity.

(Please refer to section C of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### 5.2.10 Environmental Impacts

According to the Regulation No. 11/2006, the project participant is not requiring to conduct any EIA if the power generating capacity is less than 10MW. However the project participant is required to revise the Environmental Management Effort and

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Environmental Monitoring Effort (UKL/UPL). The project participant had received the approval from the local authority on the UKL/UPL revision.

(Please refer to section D of the table A-1 of the validation protocol attached in Annex 1 for detail assessment).

### **5.2.11 Comments by Local Stakeholders**

During the GSP from 2009-08-22 and 2009-09-20 no comment was received. The local stakeholders' consultation was conducted on 2009-01-02. The stakeholders were invited via invitation letter and public announcement via the local newspaper on 2008-11-08.

The summary of the comments raised during the stakeholders' consultation is addressed in section E.2 of the PDD. The responds from the project participant has also been reflected in section E.2 of the PDD.

There were no negative comments raised during the stakeholders' consultation.

## 6 VALIDATION OPINION

PT Pacific Indopalm Industries has commissioned the TÜV NORD JI/CDM Certification Program (CP) to validate the project: "Biomass based co-generation project" with regard to the relevant requirements of the UNFCCC for CDM project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria include article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakech Accords) and the relevant decisions by COP/MOP and CDM Executive Board

In the course of the validation, 23 Corrective Action Requests (CARs) and 9 Clarification Requests (CLs) were raised and successfully closed. No Forward Action Request (FAR) was raised which should be reviewed during the first verification.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfillment of the stated criteria. In detail the conclusions can be summarized as follows:

- The project is in line with all relevant host country criteria (Indonesia) and all relevant UNFCCC requirements for CDM.
- The project activity approval have been obtained from DNA of Indonesia vide the Letter of Approval (HCA) dated 2010-01-21 (Ref. B001/KNMPB/01/2010). The proposed project activity has one participant from the Host Country and no participants from the Annex 1 Country.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 867,600tCO<sub>2</sub>e are most likely to be achieved within the fixed 10 years crediting period.

The conclusions of this report show, that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

Kuala Lumpur, 2011-05-09

Robert CY Cheong



TÜV NORD JI/CDM CP  
Validation Team Leader

Essen, 2011-05-09

Martin Saalman



TÜV NORD JI/CDM CP  
Final Approval

## 7 REFERENCES

**Table 7-1:** Documents provided by the project participant

Reference	Document
/BA/	Business Approval
/BL/	Baseline Information <ol style="list-style-type: none"> <li>1. Application letter to PT PLN PERSERO for grid connection dated 2008-02-08</li> <li>2. Rejection letter by PT PLN PERSERO for grid connection dated 2009-11-11.</li> <li>3. Coal boiler quotation dated 2008-12-10</li> <li>4. Presentation on "Distributed Small Scale Power Plant (DSSPP) in Indonesia" by Ir. Djuwarno, MM; undated</li> <li>5. On Prospects of Sustainable Energy Sources for Power Generation in Indonesia by Abram Perdana; dated 2008-05-13</li> <li>6. Feasibility Analysis: Biomass Boiler in Food Industry by Anders Evald, Mohammad Iskandar Bin; undated</li> <li>7. Quotation from PT Bina Pitri Jaya dated 9th October 2008</li> <li>8. Quotation for biomass fired boilers, reference no – MIQ/WT149-20/08 R2, dated 2008-10-23</li> </ol>
/CPC/	CDM Project Consideration <ol style="list-style-type: none"> <li>1. Board of Directors decision to implement Biomass based co-generation unit at PT Pacific Indopalm Industires with CDM consideration; dated 2008-10-28.</li> <li>2. Quotation for biomass fired boilers, reference no – MIQ/WT149-20/08 R3, dated 2008-11-14</li> <li>3. Quotation for 2 MW condensing turbine, reference no – DL/0455E/08, dated 2008-10-28</li> <li>4. Quotation for 2 MW back pressure turbine, reference no – DL/0456E/08, dated 2008-10-28</li> <li>5. Notification to the UNFCCC dated 2008-11-08</li> <li>6. Letter to the Head of Sub Region, Dumai dated 2008-11-08</li> <li>7. Quotation for coal fired boilers, reference no – MIQ/WT195-20/08, dated 2008-10-10</li> </ol>
/EA/	Environmental Assessment <ol style="list-style-type: none"> <li>1. Revised UKL/UPL; dated November 2009</li> <li>2. Approval letter from the Environmental Department of Dumai District dated 2009-12-07</li> <li>3. Request to revise the UKL/UPL by the Environmental Department of Dumai District dated 2009-08-27</li> <li>4. EIA regulation; undated.</li> </ol>
/FP/	Fuel price published by Pertamina; dated 2008-10-01

Reference	Document
/HCA/	Host Country Approval from Indonesia DNA
/ICI/	Indonesia Coal Index report published by Argus/Coalindo; dated 2008-08-08
/IRR/	IRR calculation sheet
/MOC/	Modalities of Communication
/OM/	Operation and Maintenance <ol style="list-style-type: none"> <li>1. Letter of confirmation issued by Mackenzie Industries Sdn. Bhd. on training; dated 2009-10-28</li> </ol>
/PDD/	Draft Project Design Document named "Biomass based co-generation project" dated 2009-08-21 version 1.0 (hosted from 2009-08-22 to 2009-09-20) Project Design Document named "Biomass based co-generation project" dated 2011-01-20 version 2.3
/PDD-T/	Project Design Document Form (CDM PDD) - Version 03
/PFS/	Project Funding Source <ol style="list-style-type: none"> <li>1. Foreign Investment approval by the Indonesia Investment Coordinating Board; dated 2004-11-12.</li> <li>2. Non-ODA declaration by the BOD of PT Pacific Indopalm Industries; dated 2009-10-06</li> <li>3. Newspaper report on PT Pacific Indopalm Industries an outfit from Yemen in investing Rp303 Million (USD 27 Million) at Lubuk Gaung; dated 2009-01-23</li> </ol>
/PKS/	<ol style="list-style-type: none"> <li>1. Palm Kernel Shell Supply offer letter dated; 2008-10-15 and 2008-10-08 (Bahasa Indonesia)</li> <li>2. Palm Kernel Shell Supply offer letter dated; 2008-10-15 and 2008-10-08 (English)</li> </ol>
/PSD/	Evidence of Project starting date <ol style="list-style-type: none"> <li>1. Equipment Contract (Back Pressure turbine, Condensing turbine and cooling tower) with Dalex Engineering Sdn. Bhd.; dated 2008-12-10.</li> <li>2. Equipment Contract (Biomass Boiler) with Mackenzie Industries Sdn. Bhd.; dated 2008-12-10.</li> </ol>
/RD/	Reference Document <ol style="list-style-type: none"> <li>1. Biomass - Potential, Research and Development and application in Malaysia dated 2005-12-13</li> <li>2. Indonesia Palm Oil Industry by Derom Bangun; undated</li> <li>3. Consulting Service Report for Improving the efficiency of carbonizing plant for PKS Charcoal in Malaysia; dated March 2010</li> <li>4. Electricity Power Sector in Indonesia; dated 2005-08-11</li> </ol>



Reference	Document
	<ul style="list-style-type: none"> <li>5. Cost and carbon emissions of coal and combined cycle power plants in India: Implications for costs of climate mitigation projects in a nascent market; dated 2004</li> <li>6. Indonesia Overlook Story</li> <li>7. Market Intelligence Report on Palm Oil Industry in Indonesia; dated May 2006</li> <li>8. Process design in degumming and bleaching of palm oil dated November 2006</li> </ul>
/SHCP/	Stakeholder consultation process evidences: <ul style="list-style-type: none"> <li>1. Newspaper advertisement</li> <li>2. Minute of meeting of the stakeholder consultation process</li> <li>3. Attendance list</li> <li>4. Photo</li> </ul>
/SOP/	Standard Operation Procedures
/TI/	Technical Information <ul style="list-style-type: none"> <li>1. Steam flow diagram.</li> <li>2. Letter from PT PLN to reject the Grid connection dated 2009-11-11.</li> <li>3. Expected Boiler lifetime; dated 2010-05-19</li> </ul>
/XLS/	Emission reduction calculation spreadsheet

**Table 7-2:** Background investigation and assessment documents

Reference	Document
/AaAb/	Attachment A to Appendix B of simplified M&P for small-scale CDM project activities.
/Ab/	Appendix B of Simplified Modalities and Procedures for small-scale CDM project activities.
/AMS.IC/	AMS-I.C: Thermal energy production with or without electricity (Version 16)
/BPWER/	BP World Energy Review
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/CTBA/	Combined tool to identify baseline scenario and demonstrate additionality
/EB22-3/	Clarification on the Consideration of National and/or Sectoral Policies and

Reference	Document
	Circumstances in Baseline Scenario.
<b>/EB41-20/</b>	EB 41 Meeting Annex 20 – Indicative Simplified Baseline and Monitoring Methodologies for Selected SSC Project Activity Categories.
<b>/GAIA/</b>	Guidance on the Assessment of Investment Analysis Version 03.1
<b>/GBA/</b>	Guidelines for objective demonstration and assessment of barriers
<b>/GCP/</b>	UNFCCC: Guidelines for completing CDM-SSC-PDD and CDM-SSC-NM version 05
<b>/GPC/</b>	Guidelines on the demonstration and assessment of prior consideration of the CDM.
<b>/GSC/</b>	Guidelines to SSC CDM methodologies version 15
<b>/IPCC-GP/</b>	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
<b>/IPPC-RM/</b>	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
<b>/KP/</b>	Kyoto Protocol (1997)
<b>/MA/</b>	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
<b>/R/</b>	Reference <ol style="list-style-type: none"> <li>1. Efficiency of Biomass Boiler; dated July 2006</li> <li>2. Boilers, boiler fuel and boiler efficiency by A Wienese; dated 2001</li> <li>3. Powering Asia – Renewable Energy in Asia – from Rice Fields to Palm Oil Plantations; dated 2002-11-21</li> <li>4. Industrial Combustion Boilers; dated May 2010</li> <li>5. Estimated Capital Cost of Power Generating Plant Technologies</li> </ol>
<b>/VVM/</b>	Validation and Verification Manual (Version 1.2, Annex 1; EB 55)

**Table 7-3: Websites used**

Reference	Link	Organisation
/BN/	<a href="http://www.bluenext.eu/">http://www.bluenext.eu/</a>	Bluenext
/cd4cdm/	<a href="http://www.cd4cdm.org">www.cd4cdm.org</a>	UNEP Riso Centre
/cf1/	<a href="http://www.efunda.com/materials/water/steamtable_sat.cfm">http://www.efunda.com/materials/water/steamtable_sat.cfm</a>	Conversion factor for steam enthalpy
/cf2/	<a href="http://www.spiraxsarco.com/resources/steam-tables/saturated-steam.asp">http://www.spiraxsarco.com/resources/steam-tables/saturated-steam.asp</a>	Conversion factor for steam enthalpy
/dna/	<a href="http://dna-cdm.menlh.go.id/en/">http://dna-cdm.menlh.go.id/en/</a>	National Commission – Clean Development Mechanism (DNA of Indonesia)
/ec/	<a href="http://finance.yahoo.com/currency-converter/">http://finance.yahoo.com/currency-converter/</a>	Exchange rate converter
/ET/	<a href="http://www.aesieap.org/goldbook2008/s4/Indonesia.pdf">http://www.aesieap.org/goldbook2008/s4/Indonesia.pdf</a>	Association of the electricity supply industry of East Asian and the Western Pacific for electricity tariff
/GC/	<a href="http://www.pln.co.id/PelayananPelanggan/NewInstallation/tabid/62/Default.aspx">http://www.pln.co.id/PelayananPelanggan/NewInstallation/tabid/62/Default.aspx</a>	PT PLN for Grid Connection
/ifc/	<a href="http://www.ifc.org/ifcext/spiwebsite1.nsf/1ca07340e47a35cd85256efb00700cee/7168BA33536CB36185256E7E00509516">http://www.ifc.org/ifcext/spiwebsite1.nsf/1ca07340e47a35cd85256efb00700cee/7168BA33536CB36185256E7E00509516</a>	International Finance Corporation on costs for complete Coal CPP.
/ipcc/	<a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>	IPCC publications
/unfccc/	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNFCCC

**Table 7-4:** List of interviewed persons

Reference	Mol <sup>1</sup>		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Arvind Johar	PT Pacific Indopalm Industries / Country Manager
/IM02/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Ferdinando W	PT Pacific Indopalm Industries / Government Relation Manager
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Ali Saleh Sulaiman	PT Pacific Indopalm Industries / General Manager
/IM04/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Pradhal Mulick	PT Pacific Indopalm Industries / Senior Business Development Manager
/IM05/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Salah Saeed	PT Pacific Indopalm Industries / Managing Director
/IM06/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Ankur Kansal	Emergent Ventures India Pte. Ltd. / Country Manager
/IM07/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Sunil Kumar Sharma	Emergent Ventures India Pte. Ltd. / Senior Consultant
/IM08/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Francis Lee	Industrial Power Technology Pte. Ltd.
/IM09/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Eddie Lee	Petra Boilers Sdn. Bhd.
/IM10/	T	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Richard Gui	TSH Bioenergy / Plant Manager

CL.Means of Interview: (Telephone, E-Mail, Visit)

# ANNEX

- A1:** Validation Protocol
- A2:** Assessment of Baseline Identification
- A3:** Assessment of Financial Parameters
- A4:** Assessment of Barrier analysis
- A5:** Outcome of the GSCP
- A6:** Appointment certificates of the team members

## ANNEX 1: VALIDATION PROTOCOL

**Table A-1: Requirements Checklist**

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<b>A. General Description of Project Activity</b>				
<b>A.1. Approval</b> <i>The written approval of the parties involved is a mandatory requirement</i>				
A.1.1. Has the project provided written approvals of all parties involved? (EB 55 Annex 1, § 44) <i>Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.</i> <i>Indicate whether this letter was provided to the DOE by the project participants or directly by the DNA</i>	<p><i>Description:</i></p> <p>The host country of the project activity is Indonesia.</p> <p><i>Justification of evidences:</i></p> <p>The letter of approval from the DNA of Indonesia is not available during the validation.</p> <p><i>Conclusion:</i></p> <p><b>CAR.A1:</b> The project participation of the project participant stated in section A.3 of the PDD has not been approved / issued by the Host Party. The host country of the proposed project activity is Indonesia.</p>	/PDD/ /LOA/	<del>CAR.A1</del>	OK
A.1.2. Are the approvals issued from organisations listed as DNAs on the UNFCCC CDM	<p><i>Description:</i></p> <p>The party involved in the project activity is Indonesia. The host</p>	/PDD/	<del>CAR.A1</del>	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>website?</p> <p>(EB 55 Annex 1, §§ 44, 47, 48, 49 (b), 49 (c), 53)</p> <p><i>Indicate the means of validation employed to assess the authenticity, i.e. in case of doubt whether LoA has been verified with the DNA. Further describe which entity submitted the LoA for validation.</i></p>	<p>country allows unilateral project activity as accordance to the host country requirements.</p> <p>As accordance to the UNFCCC website, the DNA of Indonesia is National Commission on CDM (KOMNAS MPB).</p> <p><i>Justification of evidences:</i></p> <p>The letter of approval from the DNA of Indonesia is not available during the validation</p> <p><i>Conclusion:</i></p> <p>Further assessment is to be conducted to confirm the LoA is issued by the DNA listed on the UNFCCC CDM website after receiving the LoA from the host party. Please refer to A.1.1</p>	<p>/LOA/ /unfccc/</p>		
<p>A.1.3. Do the written approvals confirm that the corresponding party is a Party to the Kyoto Protocol? (EB 55 Annex 1, § 45(a))</p>	<p><i>Description:</i></p> <p>As accordance to the UNFCCC website, Indonesia has ratified the Kyoto Protocol on 2004-12-03</p> <p><i>Justification of evidences:</i></p> <p>The letter of approval from the DNA of Indonesia is not available during the validation</p> <p><i>Conclusion:</i></p> <p>Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1</p>	<p>/PDD/ /LOA/ /unfccc/</p>	<p><del>CAR-A1</del></p>	<p>OK</p>
<p>A.1.4. Do the written approvals confirm that the participation is voluntary?</p> <p>(EB 55 Annex 1, § 45(b))</p>	<p><i>Description:</i></p> <p>The host country of the project activity is Indonesia.</p> <p><i>Justification of evidences:</i></p> <p>The letter of approval from the DNA of Indonesia is not available</p>	<p>/PDD/ /LOA/</p>	<p><del>CAR-A1</del></p>	<p>OK</p>



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	during the validation <i>Conclusion:</i> Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1			
A.1.5. Does the written approval from the host country confirm that the project contributes to the sustainable development in the country? (EB 55 Annex 1, § 45(c))	<i>Description:</i> The host country of the project activity is Indonesia. <i>Justification of evidences:</i> The letter of approval from the DNA of Indonesia is not available during the validation <i>Conclusion:</i> Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1	/PDD/ /LOA/ /unfccc/	<del>CAR-A1</del>	OK
A.1.6. Do the written approvals refer to the precise project title in the PDD submitted for registration or an additional specification of the project activity, e.g. PDD version number? ((EB 55 Annex 1, § 45(d), 50)	<i>Description:</i> The host country of the project activity is Indonesia. <i>Justification of evidences:</i> The letter of approval from the DNA of Indonesia is not available during the validation <i>Conclusion:</i> Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1	/PDD/ /LOA/ /unfccc/	<del>CAR-A1</del>	OK
A.1.7. Are the written approvals unconditional with regard to A.1.3 to A.1.6? (EB 55 Annex 1, § 46)	<i>Description:</i> The host country of the project activity is Indonesia. <i>Justification of evidences:</i>	/PDD/ /LOA/	<del>CAR-A1</del>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>The letter of approval from the DNA of Indonesia is not available during the validation</p> <p><i>Conclusion:</i></p> <p>Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1</p>	/unfccc/		
<p>A.1.8. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other?</p> <p>(EB 55 Annex 1, § 51)</p>	<p><i>Description:</i></p> <p>The information of the project participants stated in section A3 of the PDD and Annex 1 of the PDD is consistent</p> <p><i>Justification of evidences:</i></p> <p>The project participant of the proposed CDM project activity is PT Pacific Indopalm Industries.</p> <p>The validation team has reviewed made comparison of the two information of the two section of the PDD&gt;</p> <p>The validation team has reviewed the Business License of the project participant to further confirm the information of the PDD.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the information provided in section A.3 and Annex 1 of the PDD is consistent and correct according to the business license.</p>	<p>/PDD/</p> <p>/BA/</p>	OK	OK
<p>A.1.9. Are all project participants listed in the PDD approved at least by one Party involved?</p> <p>(EB 55 Annex 1, § 51)</p> <p><i>Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.</i></p>	<p><i>Description:</i></p> <p>The host country of the project activity is Indonesia.</p> <p><i>Justification of evidences:</i></p> <p>The letter of approval from the DNA of Indonesia is not available during the validation</p>	<p>/PDD/</p> <p>/LOA/</p>	CAR-A1	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>Describe the means of validation employed to draw this conclusion.</i>	<p><i>Conclusion:</i></p> <p>Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1</p>			
A.1.10.Are any other project participants approved but not listed in the PDD? (EB 55 Annex 1, § 52)	<p><i>Description:</i></p> <p>The host country of the project activity is Indonesia.</p> <p><i>Justification of evidences:</i></p> <p>The letter of approval from the DNA of Indonesia is not available during the validation</p> <p><i>Conclusion:</i></p> <p>Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1</p>	<p>/PDD/ /LOA/</p>	CAR.A1	OK
<p>A.1.11.Does the DoE have a direct contractual relationship with the PP? (EB 55 Annex 1, § 51; EB 50 Annex 48, §§ 7–9)</p> <p><i>Check whether the PPs listed in the published PDD are still listed in the PDD going to be submitted to request for registration.</i></p>	<p><i>Description:</i></p> <p>The DOE has a contractual relationship with the Host country project participant. The project participant is PT Pacific Indopalm Industries.</p> <p>International Limited.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed the contract agreement with TÜV Nord Cert GmbH and PT Pacific Indopalm Industries.</p> <p>The name of the Host Country project participant stated in the contract agreement is consistent with section A.3 and Annex 1 of the PDD.</p>	<p>/PDD/ /CR/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<b>A.2. Contribution to Sustainable Development</b>  <i>The project's contribution to sustainable development is assessed.</i>				
<b>A.2.1. Has the host country confirmed that the project assists it in achieving sustainable development?</b>  (EB 55 Annex 1, §§ 125–127)  <i>Contains a statement confirming whether the letter of approval by the DNA of the host party confirmed the contribution of the project to the sustainable development of the Host Party.</i>	<i>Description:</i> The host country of the project activity is Indonesia.  <i>Justification of evidences:</i> The letter of approval from the DNA of Indonesia is not available during the validation  <i>Conclusion:</i> Further assessment is to be conducted after receiving the LoA from the party. Please refer to A.1.1	/PDD/ /LOA/	CAR.A1	OK
<b>A.2.2. Will the project create other environmental or social benefits than GHG emission reductions?</b>  (EB 55 Annex 1, §§ 125–127) <i>Describe the other positive aspects not related to GHG emission reduction on the environment.</i>	<i>Description:</i> The proposed project activity will provide economics opportunity for biomass suppliers, contractors and local population.  The proposed project activity will reduce the dependency of depleting fossil fuel usage for power generation.  The proposed project activity will provide employment opportunity to the local residents during the project's period.  The proposed project activity will be able to provide technology transfer knowledge to the local employed residents on the usage of biomass boilers at Edible Oil refinery.  <i>Justification of evidences:</i>	/PDD/ /BPWER/	CL.A2	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<ol style="list-style-type: none"> <li>1. The project activity can enhance the supplier chain effect. With the demand from the project activity, the supplier of the raw materials and equipments could be expanded.</li> <li>2. With the usage of biomass fuel as power generation, the dependency on fossil fuel usage can be reduced. With the current rate of usage of 24billion barrel a year, the world will run out of oil by 2047. According to BP World Energy Review, the amounts of proved oil reserves are 1.24 trillion barrels.</li> <li>3. During the on-site assessment, the validation team has cited that local residents are part of the employees in constructing the project activity.</li> <li>4. The project activity will implement a biomass boiler at an Edible Oil refinery. At the normal practice of an oil refinery, grid electricity and self generation are used to support the necessary steam generation. The parameter for steam is one of the major parameter. Any vast fluctuation of the steam, it will cause the oil to be deteriorated. Hence in order to reduce such risk, training are provided and technology knowledge transfer is important to develop the local residents to involved in such employment.</li> </ol> <p><i>Conclusion:</i></p> <p>The validation team concluded that the project creates other environmental or social benefits than GHG emission reductions.</p> <p><b>CL.A2:</b> The project activity is expected to combust biomass to generate heat and hence steam. As stated in the PDD section A.2, the project activity will result in lower GHG emissions. Please provide explanation, since there are possibilities of environmental impacts (e.g. particulates that are produced from biomass</p>			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	combustion), how could the explanation in section A.2 of the PDD contribute towards healthier local environment.			
<b>A.3. PDD editorial aspects</b> <i>The PDD used as a basis for validation shall be prepared in accordance with the latest template and guidance from the CDM Executive Board available on the UNFCCC CDM website.</i>				
A.3.1. Has the latest version of the PDD form been applied? (EB 55 Annex 1, § 55)	<p><i>Description:</i></p> <p>The PDD form applied is version 03 dated 2006-12-22 approved at EB 28 meeting on 2006-12-15</p> <p><i>Justification of evidences:</i></p> <p>The validation team has cross-checked in the UNFCCC website.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that from the cross-checked with the UNFCCC website and the latest available PDD form, the PDD form applied is the latest version</p>	/PDD/	OK	OK
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)? (EB 55 Annex 1, §§ 56–57)	<p><i>Description:</i></p> <p>The PDD has been duly filled in accordance to the latest Guidance for Completing the CDM-SSC-PDD version 05 EB 34 Annex 9 except the following CARs raised.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has cross-checked the guidance requirement against the PDD. The validation team has also cross-checked the PDD against the Validation and Verification Manual version 01.2</p>	<p>/PDD/</p> <p>/GCP/</p>	<p><del>CAR-A3</del></p> <p><del>CAR-A4</del></p>	OK

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	<p>Annex 1 EB55.</p> <p><i>Conclusion:</i></p> <p><b>CAR.A3:</b> The PDD did not demonstrate the sink of GHG emissions occurring within the proposed project activity boundary. Please refer to VVM version 01 paragraph 79.</p> <p><b>CAR.A4:</b> The date format stated in the PDD (e.g. section B.8 and C) is not according to the Guidance for Completing the CDM-SSC-PDD version 05 EB 34 Annex 9.</p>			
<p><b>A.4. Technology to be employed</b></p> <p><i>Validation of project technology focuses on the project engineering, choice of technology and competence/maintenance needs. The DOE should ensure that environmentally safe and sound technology and know-how is used.</i></p>				
<p>A.4.1. Does the PDD contain a clear, accurate and complete project description?</p> <p>(EB 55 Annex 1, §§ 58–59)</p> <p><i>The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation.</i></p> <p><i>Pl. consider esp. chapters A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.</i></p> <p><i>Describe the process undertaken to validate the accuracy and completeness of the project description.</i></p>	<p><i>Description:</i></p> <p>The description of the project activity is stated in the section A.2 and A.4.2 of the PDD. The proposed project activity is a small scale CDM project which generates steam from a newly constructed biomass plant located in a newly constructed palm oil refinery.</p> <p>The project is a fuel switch power generation which falls under the Scope 1-Energy Industries (renewable -/non-renewable).</p> <p>The proposed project is a Greenfield project activity.</p> <p><i>Justification of evidences:</i></p> <p>The PDD has provided the description to the key parameters (e.g.</p>	/PDD/	CAR.A5 <del>GL.A6</del>	OK



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>Contain the DOE's opinion on the accuracy and completeness of the project description.</i>	<p>capacity of the turbine, steam pressure, steam flow, and exhaust pressure) of the equipment to be implemented.</p> <p>The PDD had included the technical description of the biomass power plant which includes the following:</p> <ol style="list-style-type: none"> <li>1. 2 units of 20TPH (tonnes per hour) Bi-drum water tube boiler.</li> <li>2. 1 unit of 2MW back pressure turbine</li> <li>3. 1 unit of 2MW condensing turbine</li> <li>4. Auxiliary equipment which includes blower system; fire protection system; water treatment facilities; wastewater treatment facilities; and environmental protection equipment.</li> </ol> <p>There is an standby MFO boiler installed at the project location.</p> <p><i>Conclusion:</i></p> <p><b>CAR.A5:</b> During the on-site assessment, the validation team has found that the project activity will include installation of a MFO boiler and a diesel generator set. The PDD of the project activity did not include such description as such usage of equipment will cause project emissions which are directly affect the emission reductions of the proposed project activity.</p> <p><b>CL.A6:</b> The PDD did not provide sufficient information on the total power (electricity) and total steam requirements of the whole refinery plant that would be supplied by the project activity or otherwise the baseline scenario.</p>			
A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description	<p><i>Description:</i></p> <p>The proposed project activity is a Greenfield project activity. During the onsite assessment, the validation team could sight part of the construction and equipment installation.</p>	/PDD/	CAR.A5  CL.A6	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
	<p><i>Justification of evidences:</i></p> <p>The validation team has conducted interviews with the project developer and the technical engineer of the project developer.</p> <p>The validation team had compared the installation information provided in the PDD with the UKL/UPL submitted and approved by the Department of Environmental of Kota Damai.</p> <p>The validation team had compared the available equipment installed sighted during onsite assessment with the information provided in the PDD.</p> <p><i>Conclusion:</i></p> <p>Please refer to CAR.A5 and CL.A6.</p>			
<p>A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? (EB 55 Annex 1, §§ 63–64)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i></p> <p>The project activity is a Greenfield project activity.</p> <p><i>Justification of evidences:</i></p> <ol style="list-style-type: none"> <li>1. During the on-site assessment, the validation team has sighted the construction of the Crude Oil Refinery.</li> <li>2. The project activity has defined the baseline scenario with elimination of alternatives derived from the baseline scenario of the approved AMS-I.C version 16.</li> </ol> <p><i>Conclusion:</i></p> <p>The validation team concluded that the proposed project activity does not involved alteration of any existing installation or process.</p>	<p>/PDD/ /AMS.IC/</p>	<p>OK</p>	<p>OK</p>
<p>A.4.4. Does the project design engineering reflect current good practices?</p>	<p><i>Description:</i></p> <p>The proposed project activity reflects a current good practice to</p>	<p>/PDD/</p>	<p>OK</p>	<p>OK</p>

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p><i>Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.</i></p>	<p>the possible defined baseline scenario where the required energy for a Crude Palm Oil Refinery is generated from fossil fuel and / or usage of grid electricity. The engineering design of the project activity is to generate energy using biomass.</p> <p><i>Justification of evidences:</i></p> <p>The possible defined baseline scenario of the project activity is the usage of fossil fuel for energy generation. The proposed project activity will displace the usage of fossil fuel with biomass fuel to generate energy required by the palm oil refinery.</p> <p>According to the approved UKL/UPL, the proposed project activity will not cause much impact socially and environmentally. The project participant is required to control the particle from the combustion chamber and chimney to meet the local requirements.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the project design reflects a better practice in generation power with renewable energy, hence reduces carbon emissions.</p>	/EA1/		
<p>A.4.5. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?</p> <p><i>Describe the process undertaken to assess the state of the art technology.</i></p>	<p><i>Description:</i></p> <p>The proposed project activity will result a significant better source of energy generation in the palm oil refinery process with renewable sources as compare to the defined possible baseline scenario.</p> <p><i>Justification of evidences:</i></p> <p>In the baseline scenario, oil refineries highly depend on fossil fuel to generate constant steam supply to cater for the sensitive refinery process. In the scenario of the neighboring country which is also a leading country in palm oil export (e.g. Malaysia), oil</p>	/PDD/ /BL2/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>refineries in Malaysia also depend on fossil fuel and Grid connection for supply of energy.</p> <p>The possible defined baseline scenario of the project activity is to displace the usage of fossil fuel for energy generation.</p> <p>The proposed project activity is able to displace the usage of fossil fuel for energy generation for palm oil refinery process.</p> <p>The proposed project activity does not have the privilege to connect to the Grid as there is shortage of power in Dumai area.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the project would result in a significant better performance than the common energy generation technologies in palm oil refinery.</p>			
<p>A.4.6. Does the project make provisions for meeting training and maintenance needs?</p> <p><i>Describe the process undertaken to assess the maintenance and training needs.</i></p>	<p><i>Description:</i></p> <p>The project has make provisions to provide necessary training and maintenance needs to operate the project activity.</p> <p><i>Justification of evidences:</i></p> <p>The power plant supplier is contracted to provide training of the power plant operation personnel of PT Pacific Indopalm Industries. The validation team has reviewed the contract agreed between PT Pacific Indopalm Industries and Mackenzie Industries Sdn. Bhd.</p> <p>The power plant supplier is also contracted to supervise and check the installation, settings, adjustments, tuning commissioning and synchronization of the power.</p> <p>The draft standard operation procedure had included the provisions of training and maintenance required by the operators of the project activity.</p>	<p>/PDD/ /PSD/ /SOP/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Conclusion:</i></p> <p>The validation team concluded that with the training provided by the power plant supplier (as according to contract), it will meet the training and maintenance needs.</p>			
<p><b>A.5. Small scale project activity</b></p> <p><i>It is assessed whether the project qualifies as small-scale CDM project activity</i></p>				
<p>A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II?</p> <p>(EB 55 Annex 1, §§ 135–136 (a))</p>	<p><i>Description:</i></p> <p>The project activity is a Type 1 project activity. The project activity has qualified as a small scale CDM project activity as defined as EB41 Annex20.</p> <p><i>Justification of evidences:</i></p> <p>The project activity has an installed thermal capacity of 32MWth.</p> <p>The project activity has an installed thermal capacity of 4MW which is equivalent to 12MWth as accordance to the conversion factor stated in paragraph 5(a) of AMS-I.C version 16.</p> <p>Therefore the total capacity of the proposed project activity is 44Mwth.</p> <p>The validation team has confirmed the installed thermal capacity of the project activity using the following equation to determine the possible thermal energy that can be generated by the 2X20 TPH boilers: Mass_flow * Enthalpy_difference.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the proposed project activity is</p>	<p>/PDD/</p> <p>/VVM/</p> <p>/AMS.IC/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	below the threshold of a SSC project activity as accordance to the definition on EB41 Annex 20 and EB44 Annex 3 § 134 (a).			
<p>A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? (EB 55 Annex 1, § 136 (b))</p> <p><i>Check, if applicable the expiry dates of the applied methodology. Further, take into consideration the general guidance to the methodologies<sup>5</sup>, which provide guidance on equipment capacity, equipment performance, sampling and other monitoring related issues.</i></p>	<p><i>Description:</i></p> <p>The project applies AMS-I.C. Thermal energy production with or without electricity (version 16).</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed the PDD in section A.4.2 and B.4 which have indicated the methodology and the tools applied.</p> <p>The validation team has reviewed the applicability of AMS-I.D against the project activity.</p> <p>During the webhosting of the project activity on the UNFCCC website, all tools and methodology applied were still valid. The validation team has performed a check on the UNFCCC website to confirm the validity.</p> <p>The proposed project activity is a Greenfield project activity.</p> <p><i>Conclusion:</i></p> <p><b>CAR.A7:</b> The project activity is a Greenfield project activity. As accordance to the EB55 Annex 35, the project activity shall demonstrate that the possible baseline scenario which include the assessment of alternatives. For this purpose, the project participant may apply Step 1 to 4 of the latest version of Guidelines to SSC CDM methodologies.</p> <p><b>CAR.A8:</b> The General Guidance on leakage in biomass project activities (Attachment C to Appendix B) was not applied as</p>	<p>/PDD/ /Ab/ /EB41-20/ /GSC/</p>	<p><del>CAR.A7</del> <del>CAR.A8</del></p>	OK

<sup>5</sup> <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	required by the methodology			
<p>A.5.3. Is the small scale project activity not a debundled component of a larger project activity? (EB 55 Annex 1, § 136 (c))</p> <p><i>Describe the steps taken to validate this issue. Pl refer to the Compendium of guidance on debundling (EB 36, Annex 27).</i></p>	<p><i>Description:</i></p> <p>The project activity is not a debundled component of a larger project activity.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has interview the Managing Director of PT Pacific Indopalm Industries to obtained information that there is no other similar project which has been developed by the project developer. This project activity is the first project committed.</p> <p>The validation team also could not find any other small scale CDM project activity within the next 1KM from the project site.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the project activity is not possible a debundled component of a larger project activity.</p>	<p>/PDD/ /IM05/</p>	OK	OK
<p>A.5.4. Is an assessment of the environmental impacts of the proposed SSC CDM project activity required by the host Party?</p> <p>(EB 55 Annex 1, § 136 (d))</p>	<p><i>Description:</i></p> <p>The project activity does not require an EIA.</p> <p><i>Justification of evidences:</i></p> <p>The PDD had indicated that the project participant is not required to conduct an EIA since the installed capacity of the power plant is less than 10MW. However the project participant is required to conduct the UKL/UPL.</p> <p>The validation team had reviewed the approval issued by the local authority on the UKL/UPL that the project activity had fulfilled its environmental requirements.</p> <p><i>Conclusion:</i></p>	<p>/PDD/ /EA4/ /EA2/</p>	CL.A9	OK



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<b>CL.A9:</b> Please provide the local regulation that indicated EIA is not required for any installation of power plant which has the installed capacity of less than 10MW. Since the project activity is a combination of thermal and electricity energy, does the regulation include any appropriate equivalent?			
<b>B. Project Baseline, Additionality and Monitoring Plan</b>				
<b>B.1. Application of the Methodology</b>				
<p>B.1.1. Does the project apply an approved and applicable CDM methodology and a valid version thereof?</p> <p>(EB 55 Annex 1, § 65)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i></p> <p>The project applies AMS-I.C. Thermal energy production with or without electricity (version 16) which was approved during the EB51.</p> <p><i>Justification of evidences:</i></p> <ol style="list-style-type: none"> <li>1) The validation team has checked the UNFCCC website that the AMS-I.C (version 16) methodology was approved by the EB on its 51 meeting dated 2009-07-17. The current version of the methodology is the latest version.</li> <li>2) The validation team has assessed the applicability of the project activity with the applicability criteria stated in the AMS-I.C version 16 during the on-site assessment desk review.</li> <li>3) The applicability criteria qualified by the project activity as was further confirmed during the onsite assessment on 2009-10-12 – 2009-10-14.</li> </ol>	<p>/PDD/ /AMS.IC/ /unfccc/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Conclusion:</i></p> <p>The validation team concluded that the project activity correctly apply to an approved and applicable CDM methodology with the valid version.</p>			
<p>B.1.2. Is the applied CDM methodology identical with the version available on the UNFCCC website?</p> <p>(EB 55 Annex 1, §§ 65, 70)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i></p> <p>The applied version of the approved methodology is identical with the version stated on the UNFCCC website.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has made a comparison at the UNFCCC website with the information stated in the PDD.</p> <p>The project participant had revised the version of the methodology in the PDD from version 14 (during the web hosting) to version 16 during the validation.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the methodology is identical with the UNFCCC website.</p>	<p>/PDD/ /AMS.IC/ /unfccc/</p>	OK	OK
<p>B.1.3. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled?</p> <p>(EB 55 Annex 1, §§ 66(a)–(b), 68, 71, 76)</p> <p><i>Describe for each applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.</i></p>	<p><i>Description:</i></p> <p>The project activity has fulfilled the following criteria stated in the by the approved methodology AMS-I.C version 16:</p> <ol style="list-style-type: none"> <li>1. The project activity is a renewable biomass technology that supplies thermal energy that displaces fossil fuel at a Palm Oil Refinery.</li> <li>2. The project activity is a biomass based cogeneration project</li> </ol>	<p>/PDD/ /AMS.IC/ /IM04/</p>	<p><del>CAR.A5</del> <del>CL.A6</del></p>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>activity which generates electricity and thermal energy for on-site consumption.</p> <p>3. The total installed/rated thermal energy generation capacity of the project activity is 32MWth which is generated by 2X20TPH biomass boiler.</p> <p>4. The project activity does not expect to use any fossil fuel to generate energy. Please refer to A.4.1.</p> <p>5. The total capacity of co-generation of the project activity is 44MW with an electricity installed capacity of 4Mwe.</p> <p>6. The energy generated by the project activity will be utilized on-site and no sale will be involved.</p> <p>7. The project activity is neither a retrofit nor addition of renewable energy unit project activity.</p> <p>8. The project activity is not a charcoal based biomass energy generation project activity.</p> <p><i>Justification of evidences:</i></p> <p>1) During the onsite assessment, the validation team has sighted that the project activity is a biomass power electricity generation project activity that supplies energy back to the Palm Oil Refinery plant which belongs to the project participant.</p> <p>2) The Palm oil refinery process requires constant steam. The validation team has interviewed the project manager of the project activity that the power house will generated steam and electricity to support all energy required by the oil refinery.</p> <p>3) The validation team has reviewed the purchasing contract of</p>			

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	<p>the biomass boilers which indicated the contract includes 2 units of 20MT/hr Bi-Drum Water Tube Boilers with working pressure of 67Barg, 450°C ± 10°C.</p> <p>4) Please refer to A.4.1</p> <p>5) The total installed electricity capacity is 4MW. The validation team has reviewed the purchasing contract which stated that the supplier will supply 1 unit of 2000KW Hangzhou Back Pressure Steam Turbo Alternator and 1 unit of 2000KW Hangzhou Full condensing stream turbo alternator. The total equivalent thermal energy generated is 12MWth (according to AMS-I.C, the conversion factor for converting electricity to thermal energy shall be 1:3.</p> <p>6) Please refer to A.4.1</p> <p>7) During the onsite assessment, the validation team has able to site that the palm oil refinery is under construction. Hence there is no possible of retrofitting or additional of renewable energy.</p> <p>8) The project activity is producing thermal and electricity energy for on-site consumption. Hence there is not production of charcoal.</p> <p><i>Conclusion:</i></p> <p>The project participant had demonstrated the applicability of the project activity in the PDD. Proper justification had been provided however please refer to A.4.1.</p>			
B.1.4. Is the project in accordance to every other stipulation or requirement mentioned in all sections of the methodology?	<p><i>Description:</i></p> <p>The project meets all limitation as stated in the non-applicability for the type of project of the methodology.</p>	/PDD/ /AMS.IC/	OK	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>(EB 55 Annex 1, §§ 72–75)</p> <p><i>Describe the steps taken to check whether the proposed project activity meets all the other possible stipulations and /or limitations mentioned in all sections of the approved methodology selected.</i></p>	<p><i>Justification of evidences:</i></p> <p>There is no restriction for implementation of biomass based co-generation project in the methodology. The validation team has reviewed the AMS-I.C to confirm that there is no such restriction. However to comply with the threshold of SSC project activity please refer to A.5.1.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the project fulfils all stipulations mentioned in the methodology.</p>			
<p>B.1.5. Is the project in accordance with every other stipulation or requirement mentioned in all sections of the methodology and in guidances for approved methodologies provided by the CDM EB?</p> <p>(EB 55 Annex 1, § 69, 71)</p> <p><i>Describe the steps taken to check whether the proposed project activity meets all the other possible stipulations and /or limitations mentioned in all sections of the approved methodology selected.</i></p>	<p><i>Description:</i></p> <p>The project meets all limitation as stated in the non-applicability for the type of project of the methodology.</p> <p><i>Justification of evidences:</i></p> <p>The methodology AMS-I.C version 16 does not have any limitation. The project activity is only required to meet the baseline scenario stated in paragraph 12.</p> <p><i>Conclusion:</i></p> <p>The proposed project activity is a Greenfield project activity. As according to EB55 Annex 35, the project participant is required to demonstrate the baseline alternatives. Please refer to A.5.2</p>	<p>/PDD/ /AMS.IC/</p>	<p>CAR.A7</p>	<p>OK</p>
<p><b>B.2. Project Boundaries</b></p> <p><i>Project Boundaries are the limits and borders defining the GHG emission reduction project</i></p>				
<p>B.2.1. Are the project's spatial boundaries (geographical) clearly defined?</p>	<p><i>Description:</i></p> <p>The geographical location mentioned in GPS coordinated in</p>	<p>/PDD/ /IM04/</p>	<p>OK</p>	<p>OK</p>

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<p>(EB 55 Annex 1, §§ 67(a), 78–80)</p> <p><i>Provide information on how the validation of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i></p>	<p>section A.4.1 in the PDD is 001°41'00" North / 101°27'00" East.</p> <p>The project spatial boundaries includes the energy/power generation facilities of the palm oil refinery, the palm oil refinery which uses the energy generated, the storage of the biomass, and the monitoring of total biomass usage per year.</p> <p>The project boundary has been clearly illustrated in the PDD.</p> <p><i>Justification of evidences:</i></p> <p>The validation team had compared the boundaries stated in the PDD with AMS-I.C version 16. The project boundary of the project activity is the site of the project equipment producing the renewable energy where the energy is utilized onsite by the edible oil refinery.</p> <p>The validation team has checked and confirmed the GPS coordinates stated in the PDD by using an online GPS unit during the on-site assessment at the location of the proposed project activity.</p> <p>The validation team has able to cite the construction site where the plan of the equipment installation. The layout plan of the project activity was reviewed during the on-site assessment.</p> <p>During the on-site assessment the validation team has interviewed the project manager as regard to the equipments. At current the equipments is at the port waiting to be transported to the project location.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the boundaries of the project activity are clearly defined in the PDD.</p>	/AMS.IC/		

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>B.2.2. Are all sources and GHGs included in the project boundary as required in the applied methodology?</p> <p>(EB 55 Annex 1, §§ 67(a), 78–80)</p> <p><i>Provide information on how the validation of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.</i></p>	<p><i>Description:</i> The proposed project activity will generate renewable energy utilizing biomass (palm oil waste). The project activity is expected to have the following project GHG:</p> <ol style="list-style-type: none"> <li>1. Usage of fossil fuel during the start-up of the biomass boiler.</li> <li>2. Leakage emission from the transportation of the biomass waste if the distance is more than 200km.</li> </ol> <p><i>Justification of evidences:</i></p> <p>As according to the project participant, the proposed project activity will not expect to have any storage of the biomass.</p> <p>The proposed project activity requires 81,080MT of biomass (PKS) per year. The validation had checked on the assured supply for the demand of the project activity. According to the quotations provided by the PKS suppliers, the total available PKS per year is 94,800MT/year. Since there is sufficient availability of PKS, it is logic that the project participant does not store the biomass as storing the biomass will increase the stock cost which will lower the operational costs mobility.</p> <p>The expected project/leakage emissions have been stated in section B.6.1 of the PDD.</p> <p>As according to paragraph 77 and 81 of the VVM ver1.2, the GHG emissions occurring by the proposed CDM project activity and in the absence of the project activity shall be addressed.</p> <p><i>Conclusion:</i></p>	<p>/PDD/ /AMS.IC/ /BL7/</p>	<p>CAR-A3</p>	<p>OK</p>



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	The PDD of the project activity did not illustrate the actual GHG that maybe occurring during the project activity. Please refer to A.3.2			
<p>B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified? (EB 55 Annex 1, §§ 67(a), 78–80)</p> <p><i>Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.</i></p>	<p><i>Description:</i></p> <p>As according to the methodology the following are the choice of baseline emission allowed by the methodology:</p> <ol style="list-style-type: none"> <li>1. Baseline emission from electricity displaced by the project activity.</li> <li>2. Baseline emission from steam/heat displaced by the project activity.</li> <li>3. Baseline emission from electricity and thermal energy (produced in a cogeneration unit) displaced by the project activity.</li> <li>4. Baseline emission from thermal and/or electricity displaced by the project activity.</li> <li>5. Baseline emission from incremental thermal energy supplied due to retrofit.</li> </ol> <p>As according to the methodology the following are the choice of project emissions allowed by the methodology:</p> <ol style="list-style-type: none"> <li>1. CO<sub>2</sub> emission from on-site consumption of fossil fuel due to project activity.</li> <li>2. CO<sub>2</sub> emission from electricity consumption by the project</li> </ol>	<p>/PDD/  /AMS.IC/</p>	<p><del>CAR.A3</del></p>	<p>OK</p>

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
	<p>activity.</p> <p>3. Significant emissions associated with the project activity.</p> <p>4. Fugitive emissions of carbon dioxide and methane due to release of non-condensable gases from produced steam; and carbon dioxide emissions resulting from combustion of fossil fuels related to the operation of geothermal power plant.</p> <p>As according to the methodology the following are the choice of leakage emissions allowed by the methodology:</p> <p>1. Generating equipment utilized by the project activity is transferred from outside the boundary of the project activity (old equipment).</p> <p>2. CO<sub>2</sub> from the collection/processing/transportation of biomass residues is outside the boundary</p> <p>The project activity had chosen “baseline emission from electricity and thermal energy (produced in a cogeneration unit) displaced by the project activity” as the baseline source.</p> <p>The project activity had chosen “CO<sub>2</sub> emission from on-site consumption of fossil fuel due to project activity” as the project emission source.</p> <p>The project activity has chosen “CO<sub>2</sub> from the collection/processing/transportation of biomass residues is outside the boundary” as the leakage emission source.</p> <p><i>Justification of evidences:</i></p> <p>The proposed project activity is a Greenfield which install biomass boiler to generate steam/heat displacing the fossil fuel used in the baseline scenario.</p>			

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>The project participant had not included the calculation in ex-ante for any project emissions that occur during the project operation for the fossil fuel usage due to the project activity. As according to the project description the project will required fossil fuel during the start-up of the biomass boiler and any other vehicle used in transporting the biomass within the project location. These usages will be monitored and accounted for project emissions during the crediting period.</p> <p>The project participant will acquired PKS from the palm oil mill within 200km from the project location. The validation team had checked the address of the quotation provided by the PKS suppliers to the project participant to confirm distance.</p> <p>The project activity is located in Riau. Riau is the largest palm oil producing province in Sumatera Island, Indonesia. However the transportation of the biomass will be monitored during the crediting period to ensure that there is no transportation more than 200km.</p> <p><i>Conclusion:</i></p> <p>The PDD has illustrated the source and/or gas to be included in. However please refer to A.3.2</p>			
<b>B.3. Baseline Identification</b>  <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>				
B.3.1. What possible baseline scenarios have been	<i>Description:</i>	/PDD/	<del>CAR.A7</del>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>considered? (EB 55 Annex 1, §§ 67(b), 83) <i>Fill in all alternatives in table A-2</i></p>	<p>The possible baseline scenario identified by the project participant is baseline emission from electricity and thermal energy (produced in a cogeneration unit).</p> <p>The baseline scenarios have been considered according to the most economical baseline alternative for per unit of energy costs (e.g. USD/MWh).</p> <p><i>Justification of evidences:</i></p> <p>As according to AMS-I.C version 16 (footnote 6), the project activity is required to demonstrate the Greenfield project requirement as according to the General Guidelines to SSC CDM methodologies version 15.</p> <p>The project participant is required to demonstrate the baseline scenario according to the step wise approached stated in paragraph 19 of the General Guidelines to SSC CDM methodologies version 15.</p> <p><i>Conclusion:</i></p> <p>Please refer to A.5.2</p> <p><b>CL.B1:</b> During the onsite assessment the validation team has found that there is a possibility of grid connection to the project activity. The National grid of Sumatera lies in front of the project location. Hence please provide justification on why there is no possibility that the proposed palm oil refinery would not import any electricity from grid as part of the energy requirement if with the absent of the project activity (baseline scenario).</p>		CL.B1	
<p>B.3.2. Is the list of alternatives complete? (EB 55 Annex 1, §§ 67(b), 83)</p>	<p><input type="checkbox"/> All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review and site visit, it has been validated</p>	<p>/PDD/ /AMS.IC/</p>	<p>CAR.A7 CL.B1</p>	<p>OK</p>

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration</i>	<p>that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted.</p> <p><input checked="" type="checkbox"/> The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued</p> <p>The project activity has determined its' alternatives by the list of baseline scenario identified in the approved methodology AMS.IC. However, clarification has been raised in the baseline scenario demonstrated in the PDD. Please see A.5.2 and B.3.1</p>	/GSC/		
<p><b>B.3.3. What has been identified as the baseline scenario? (EB 55 Annex 1, §§ 81–82, 86)</b></p> <p><i>Describe the chosen BL scenario, taking into consideration the technology that would be employed and / or the activities that would take place in the absence of the proposed CDM project activity.</i></p>	<p><i>Description:</i></p> <p>The following has been identified as the baseline alternatives scenario:</p> <ol style="list-style-type: none"> <li>1. Electricity is imported from the grid and thermal energy is produced using fossil fuel.</li> <li>2. Electricity is produced in an onsite captive power plant (with a possibility of export to the grid) using fossil fuel and thermal energy is produced fossil fuel.</li> <li>3. Combination of (1) and (2).</li> <li>4. Electricity and thermal energy are produced in a cogeneration unit, using fossil fuel (with possibility of export of electricity to the grid/other facilities and/or thermal energy to other facilities).</li> <li>5. Electricity is imported from the grid and/or produced in an on-site captive power plant using fossil fuel (with a possibility of export to the grid); steam/heat is produced from biomass.</li> <li>6. Electricity is produced in an on-site captive power plant using</li> </ol>	/PDD/	CAR.A7 <del>CL.B1</del>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>biomass (with a possibility of export to the grid) and/or imported from the grid; steam/heat is produced using fossil fuel;</p> <p>7. Electricity and/or thermal energy produced in a co-fired system.</p> <p>The baseline alternative scenario has been identified to be "Electricity and thermal energy are produced in a cogeneration unit, using fossil fuel (with possibility of export of electricity to the grid/other facilities and/or thermal energy to other facilities)".</p> <p><i>Justification of evidences:</i></p> <p>The alternative baseline scenario has been identified according to the most economically method to generate electricity and/or thermal required for a oil refinery (captive power).</p> <p>The project participant had identified that in the baseline scenario of an edible oil refinery, the required electricity and thermal energy using will be generated using fossil fuel cogeneration. The alternative has been identified in such that the unit cost of the energy is the most economical comparing with the other alternatives.</p> <p>The validation team had interviewed the edible oil refinery located next to the project location. According to the owner, the major source of energy source is captive generation using fossil fuel.</p> <p>Please refer to Annex 2 of this report for further assessment on the alternative baseline scenario.</p> <p><i>Conclusion:</i></p> <p>Please refer to B.3.2</p>			
B.3.4. Has the baseline scenario been determined according to the methodology?	<p>For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2.</p> <p><input type="checkbox"/> The determination has been carried out as per the procedure</p>	/PDD/ /GSC/	CAR.A7	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
(EB 55 Annex 1, §§ 82, 87(e)) <i>Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.</i>	contained in the applied methodology. <input checked="" type="checkbox"/> The following CARs / CLs have been identified with respect to the selection of the baseline scenario:  The proposed project activity is identified to be Greenfield. The demonstration of the baseline scenario is not accordance to the requirement of the General Guidelines to SSC CDM methodologies. Please refer to A.5.2.			
B.3.5. Has any plausible alternative scenario been excluded? (EB 55 Annex 1, § 83) <i>Describe how it is validated that no plausible alternative scenario has been excluded.</i>	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to table A-2. <input type="checkbox"/> No plausible baseline scenario has been excluded. <input checked="" type="checkbox"/> The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued:  Please refer to B.3.3	/PDD/  /AMS.IC/  /GSC/	CAR.A7  <del>CL.B1</del>	OK
B.3.6. Is the identified baseline scenario reasonable and has the baseline scenario been determined using conservative assumptions where possible, including relevant references and sources? (EB 55 Annex 1, §§ 84–86(a)–(c)) <i>Describe whether the choice of the identified baseline scenario is reasonable by validating the <u>key assumptions</u>, <u>calculations</u> and <u>rationales</u> used in the PDD. Describe whether these are listed, relevant and <u>conservatively interpreted</u> in the PDD.</i>	<input type="checkbox"/> The baseline scenario is reasonable and has been determined using conservative assumptions where possible. Please refer to comments in table A-2 and sections B.3.2 to B.3.5 above. <input checked="" type="checkbox"/> The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative  The PDD has identified the baseline scenario of the project activity. However the validation team is not convinced with the assumptions. Please refer to B.3.1.  The demonstration of the baseline scenario is also not according to the General Guidelines to SSC CDM methodologies (version 15). Please refer to A.5.2	/PDD/  /GSC/	CAR.A7  <del>CL.B1</del>	OK



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations? (EB 55 Annex 1, §§ 85, 87(d))</p> <p><i>Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).</i></p>	<p><i>Description:</i></p> <p>The proposed project activity is required to perform the UKL/UPL (Environmental Management Effort / Environmental Monitoring Effort).</p> <p>The project activity is not a power generation project activity that is connected/exporting electricity to the National Grid.</p> <p><i>Justification of evidences:</i></p> <p>Other than the required assessment of the UKL/UPL, the PDD did not indicate other policies that would be applicable to the project activity.</p> <p>The project activity is power generation related although it is not Grid connected.</p> <p><i>Conclusion:</i></p> <p><b>CAR.B2:</b> As accordance to EB22 Annex 3 – Clarification on the Consideration of national and/or Sectoral Policies and Circumstances in Baseline Scenarios, the establishment of the baseline scenario shall take national and/or sectoral policies and circumstances into account, without creating perverse incentives that may impact host Parties' contributions to the ultimate objective of the Convention.</p>	<p>/PDD/ /EB22-3/</p>	<p><del>CAR.B2</del></p>	<p>OK</p>
<p>B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?</p> <p>(EB 55 Annex 1, § 87(a)–(c))</p> <p><i>Describe whether the documents and sources referred to in</i></p>	<p><i>Description:</i></p> <p>The baseline scenario is determined by cost comparison of the same technical assumption.</p> <p>Please refer to B.3.2.</p> <p><i>Justification of evidences:</i></p>	<p>/PDD/</p>	<p><del>CAR.B3</del></p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>the PDD are correctly quoted and clearly referenced.</i>	<p>The assumptions are supported by available information from the equipment supplier. Furthermore, the demonstration of the cost has use general assumption of information (applied same to the 3 defined alternatives).</p> <p><i>Conclusion:</i></p> <p><b>CAR.B3:</b> The elimination of the defined alternatives is not clearly referenced with either literatures or other sources.</p>			
<p>B.3.9. Does the PDD contain a <i>verifiable</i> description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity.</p> <p>(EB 55 Annex 1, § 86)</p>	<p><i>Description:</i></p> <p>The proposed project activity is a renewable source captive generation. The project aims to generated steam/thermal energy with biomass (palm kernel shell)</p> <p>The thermal energy generated from the project activity will be utilized onsite at the Edible oil Refinery plant.</p> <p>With the absence of the proposed CDM project activity, the amount of thermal energy will be generated by the by coal boiler.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has made comparison of the description in the PDD with the followings:</p> <ol style="list-style-type: none"> <li>1. Quotation on the boilers.</li> <li>2. Supporting document provided by the project participant</li> </ol> <p><i>Conclusion:</i></p> <p>Please refer to B.3.1</p>	<p>/PDD/ /BL/ /CPC/ /PSD/</p>	CL.B1	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<b>B.4. Additionality Determination</b> <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>				
<b>B.4.1. Methodology</b>				
<b>B.4.1.1.</b> Does the PDD describe the how the project is additional and does the additionality justification follow the requirements of the applied methodology and/or methodological tools?  (EB 55 Annex 1, §§ 67(d), 94–95) <i>Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools. Further focus your assessment on the reliability and credibility of data, rationales and assumptions, justifications and documentations provided by the PP.</i>	<i>Description:</i> The project activity is described to be additional with Attachment A to Appendix B of the Simplified modalities and procedures for CDM small-scale project activities. The project activity has performed the additional analysis with the four barriers (investment, technology, prevailing and other) as accordance to the Attachment of Appendix B of the Simplified modalities and procedures for CDM small-scale project activities.  <i>Justification of evidences:</i> Investment Barrier <ul style="list-style-type: none"> <li>- The project participant has made a cost comparison of the proposed project activity against the baseline scenario.</li> <li>- The cost of the both baseline scenario and the proposed project activity was determined from the estimation price provided by the technology provider.</li> <li>- The cost included in the comparison includes debt and equity ratio, depreciation, non-cash item, fuel cost, O&amp;M cost, other variable cost, and the revenue generated by the baseline scenario and the proposed project activity.</li> <li>- Further sensitivity analysis has been conducted on a <math>\pm 10\%</math> of</li> </ul>	/PDD/ /AaAb/ /GBA/	<del>CAR.B4</del> <del>CAR.B5</del>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>the biomass fuel price.</p> <ul style="list-style-type: none"> <li>Please refer to Annex 3 for further validation evidences.</li> </ul> <p>Technology Barrier</p> <ul style="list-style-type: none"> <li>The project participant has described the proposed project activity poses technology barrier due to Low efficiency, feeding problem, High alkaline salt content, moisture content of the palm kernel shell, and impurities of the biomass.</li> </ul> <p>Other Barrier</p> <ul style="list-style-type: none"> <li>The proposed project activity has identified the managerial resources of the biomass which include transportation, storage, collection and price.</li> </ul> <p><i>Conclusion:</i></p> <p><b>CAR.B4:</b> The PDD has described the possible technology barriers are due to the biomass fuel which can consider as a technology risks. However please demonstrate to the validation team to further convince that the project activity has non-availability of human capacity to operate and maintain the technology, lack of infrastructure to utilize the technology and unavailability of the technology. Please also consider the latest requirements of EB50 Annex 13.</p> <p><b>CAR.B5:</b> As according to Attachment A Appendix B, please describe the practice of the proposed project activity is first-of-its-kind in terms of technology, geography and sector type of investment, investors and market.</p>			
<b>B.4.2. Consideration of CDM before project start</b>				
B.4.2.1. Is the project starting date reported in	<i>Description:</i>	/PDD/	<del>CAR.B6</del>	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>accordance with the CDM glossary of terms?</p> <p>(EB 55 Annex 1, § 104(a))</p> <p><i>Assess why the chosen starting date can be considered as the earliest date at which either the implementation or construction or real action of a project has begun or will begin.</i></p> <p><i>Check that no other activities related to the project that happened before the identified start date can be considered as start date. In this context please also take into consideration infrastructural expenses if they are relevant (in terms of costs and importance for the project implementation) in the specific context of the project activity.</i></p>	<p>The start date of the project activity has been identified to be the day of the investment decision (2008-10-24). <i>Justification of evidences:</i></p> <p>According to the CDM glossary of terms (version 05) and EB41 paragraph 67, the start date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins.</p> <p><i>Conclusion:</i></p> <p><b>CAR.B6:</b> The starting of the project activity as accordance to EB 41, the start date of the project activity the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity The proposed project activity has considered the day of the investment decision of the project participant is start date of project activity.</p>	/EB41/		
<p>B.4.2.2. In case the project start date is on or after 2<sup>nd</sup> August 2008 has the PP informed the DNA and UNFCCC about the intension to seek CDM status?</p> <p>(EB 55 Annex 1, §§ 99–10)</p> <p><i>Describe whether such a notification has been provided by the project participants within six months of the project activity start date; if NOT it shall be determined that the CDM was not seriously considered.</i></p>	<p><i>Description:</i></p> <p>The start date of the proposed project activity is not according to the CDM glossary of terms (EB41). Please refer to B.4.2.1.</p> <p><i>Justification of evidences:</i></p> <p>The start date of the project activity has been identified as the date where the project participant had made the investment decision.</p> <p><i>Conclusion:</i></p> <p>Please refer to B.4.2.1.</p>	/PDD/ /EB41/	CAR.B6	OK
<p>B.4.2.3. In case the project start date is before commencing of validation and 2<sup>nd</sup> August</p>	<p><i>Description:</i></p> <p>The start date of the proposed project activity is not according to</p>	/PDD/ /EB41/	CAR.B6	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>2008, was the incentive from the CDM seriously considered and are details given in the PDD?</p> <p>(EB 55 Annex 1, §§ 100, 102)</p> <p><i>Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.</i></p>	<p>the CDM glossary of terms (EB41). Please refer to B.4.2.1.</p> <p><i>Justification of evidences:</i></p> <p>The start date of the project activity has been identified as the date where the project participant had made the investment decision.</p> <p><i>Conclusion:</i></p> <p>Please refer to B.4.2.1</p>			
<p>B.4.2.4. How and when was the decision to proceed with the project taken?</p> <p><i>Describe the steps taken to validate the starting date.</i></p>	<p><i>Description:</i></p> <p>The decision to proceed with the project was taken by the Board of Directors of PT Pacific Indopalm Industries on 2008-10-24.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed the Board of directors' decision in the meeting minutes which was held on 2008-10-24. The directors have considered that with the assistance of CDM revenue from the project activity can achieve long term sustenance.</p> <p>According to the minutes of the meeting, the need of CDM assistance has been identified as one of the factors for the long term sustenance of the project activity. The revenue from the carbon credits will reduce the unit costs of the energy generation that will make the project activity more attractive to be invested and with the company's direction that would like to move towards long term sustainability together with environmental protection, the project activity is a choice of the project participant.</p> <p>The validation team has checked the investment analysis calculation; with the assistance of carbon credits, the unit cost of the project activity is more economic as comparing to the identified</p>	<p>/PDD/ /CPC1/ /IM05/ /CPC2/ /CPC3/ /CPC4/ /CPC7/</p>	<p>OK</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>baseline scenario.</p> <p>The validation team has interviewed the Managing Director of the company to confirm the minutes of the meeting held. The managing director responded that without the CDM revenue, the ROI of the project activity is very low and not attractive.</p> <p>The decisive factor of the investment decision is the revenue from carbon credits could assist the biomass based boiler cogeneration achieve long term sustenance<sup>6</sup>.</p> <p>The validation team had reviewed the quotation provided by the boiler (biomass and fossil fuel) and other equipment (includes condensing turbine, back pressure turbine) supplier. The quotation was provided as part of the feasibility study result to the Chairman for the decision making.</p> <p>The validation team had checked the quotation provided by the suppliers and the date of the issuance of the quotation was before the date of the investment decision.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that proper decision was made by the project participant to proceed with the project activity.</p>			
<p>B.4.2.5. Is the project start date consistent with the available evidences? (EB 55 Annex 1, § 102)</p> <p><i>Describe the evidence assessed regarding the prior consideration of the CDM (if necessary). Describe whether</i></p>	<p><i>Description:</i></p> <p>The start date of the proposed project activity is not according to the CDM glossary of terms (EB41). Please refer to B.4.2.1.</p> <p><i>Justification of evidences:</i></p>	<p>/PDD/ /EB41/</p>	<p>CAR.B6</p>	<p>OK</p>

<sup>6</sup> The definition of sustenance is to achieve economic, social and environmental development. In the project activity case, it needs to achieve the economy development else it is not viable to be invested by any entity.



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>the evidence to support such consideration is adequately and transparently described in the PDD.</i>	<p>The start date of the project activity has been identified as the date where the project participant had made the investment decision.</p> <p><i>Conclusion:</i></p> <p>Please refer to B.4.2.1</p>			
<p>B.4.2.6. Was the decision to proceed with the project taken by a person which has the authority to do so? (EB 55 Annex 1, § 102(a))</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i></p> <p>The decision to proceed with the proposed project activity was made by the Board of Directors of PT Pacific Indopalm Industries.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed the Board of directors' decision in the meeting minutes which was held on 2008-10-24.</p> <p>The validation team has interviewed the Managing Director of the company to confirm that the meeting was held and decision was made by the Directors.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the decision to proceed with the project activity was made by the highest authority of the company.</p>	<p>/PDD/ /CPC/ /IM05/ /CPC2/ /CPC3/ /CPC4/ /CPC7/</p>	<p>OK</p>	<p>OK</p>
<p>B.4.2.7. How was the CDM involved in the decision making process? (EB 55 Annex 1, § 102)</p> <p><i>Describe why CDM was a decisive factor in the decision making process.</i></p>	<p><i>Description:</i></p> <p>The CDM decision was made by the main Chairman of PT Pacific Indopalm Industries. The decision was made based on the preliminary feasibility study (with quotation attached). The BoD meeting was conducted on 2008-10-24.</p> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.2.4.</p>	<p>/PDD/ /CPC1/ /IM05/ /CPC2/ /CPC3/ /CPC4/</p>	<p>OK</p>	<p>OK</p>

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	<p>The validation team had reviewed the minute of the board meeting which indicated the investment decision that confirmed the project participant will seek CDM assistance to benefit the implementation of the project activity.</p> <p>The validation team had reviewed the quotations provided by the equipment and boiler supplier,</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the decisive factor in the decision making process of the project activity is sufficient to demonstrate the needs of CDM assistance to promote the viability of the project activity.</p>	/CPC7/		
<p>B.4.2.8. Do the evidences provided doubtlessly prove that continuous and real actions were taken in order to secure the CDM status?</p> <p>(EB 55 Annex 1, § 102; EB 49 Annex 22 § 7)</p>	<p><i>Description:</i></p> <p>The project participant has demonstrated the continual of CDM activity prior to the submission of the PDD to the UNFCCC website for global stakeholder process. However the following CAR was raised.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed the documents listed in the PDD to confirm the information in the PDD.</p> <p>The validation team has considered that the timeline of the proposed project activity is real as accordance to the latest requirement of Guidelines on the demonstration and assessment of prior consideration of the CDM version 03 EB48 Annex 22. There is no any 2 years gap between the documented evidence.</p> <p>The proposed project activity was reported in a newspaper report dated 2009-01-23 that the construction of the project will be</p>	/PDD/ /CPC5/ /CPC6/ /GPC/	CAR.B7	OK

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	<p>expected to start in February 2009. However there were more than 4 years from the day the project participant receive the Investment License of the company. The validation team was convinced that time was required to receive all necessary local authorization to precede with starting the project. This was confirmed by the local competence of the validation team.</p> <p><i>Conclusion:</i></p> <p><b>CAR.B7:</b> The dates of the continuous promotional CDM activities are not consistence with document reviewed by the validation team during the on-site assessment. The dates have mainly editing errors.</p> <p>Since the consideration of the CDM project activity can be considered from the BOD of PT Pacific Indopalm Industries' meeting decision, the project activity has possibly proven the continuous and real action has been taken to secure the proposed project as a CDM project activity.</p>			
<p>B.4.2.9. Is the gap of documented evidences to secure the CDM status less than 3 years and are the evidences relevant for substantiating the action taken, credible, reliable and complete?</p> <p>(EB 49 Annex 22, §8)</p>	<p><i>Description:</i></p> <p>Please refer to B.4.2.8</p> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.2.8</p> <p><i>Conclusion:</i></p> <p>Please refer to CAR.B7</p>	<p>/PDD/ /CPC/ /GPC/</p>	<p><del>CAR.B7</del></p>	<p>OK</p>
<p>B.4.2.10. Did implementation of the project ceased after its commencement and did implementation recommence after consideration of the CDM?</p>	<p><i>Description:</i></p> <p>The project activity is a Greenfield project activity.</p> <p><i>Justification of evidences:</i></p>	<p>/PDD/</p>	<p>OK</p>	<p>OK</p>

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
(EB 51 Annex 58, §7) <i>Describe the reasons for ceasing the project and explain why the incentive from CDM was necessary to recommence the implementation.</i>	During the onsite assessment, the validation team could observe the ongoing construction works.  The validation team had also reviewed the proposed construction schedule by the project developer. This could confirm that there is no construction that had been started before the start date of the project activity.  <i>Conclusion:</i>  The validation team concluded that the project activity has not been ceased after its commencement.			
B.4.2.11. Can the CDM involvement in the decision assessed as serious? <i>Describe whether or not the project would have been undertaken without the incentive of the CDM.</i> (EB 55 Annex 1, § 104(b)–(c))	<i>Description:</i> The decision of the project participants on the CDM involvement was made with the expectation of CERs revenue assistance to raise the attractiveness of the project activity.  <i>Justification of evidences:</i> The decision of implementing the project activity with CDM involvement was made by the BoD of the project participants. The validation team had reviewed the resolution of the Board meeting to decide the needs of CDM to make the project more attractive to be invested.  <i>Conclusion</i> The validation team concluded that the decision taken by the project participant is serious.	/PDD/ /CPC1/	OK	OK
<b>B.4.3. Identification of alternatives Step 1</b> (in case of SSC projects pl. Skip steps 1 and 2)				

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<p>B.4.3.1. Does the list of alternatives contain the status-quo situation, the project not undertaken as a CDM project as well as all other viable means of supplying the outputs or services that are to be supplied by the proposed CDM project activity?</p> <p>(EB 55 Annex 1, §§ 105–107)</p> <p><i>Describe the steps taken to validate this issue on the basis of your local and sectoral knowledge.</i></p>	<p><i>Description:</i></p> <p>The proposed project activity is a Greenfield project activity which is required to demonstrate the baseline scenario as according to the General Guidelines to the SSC CDM methodologies.</p> <p>Please refer to B.3.3 and Annex 2 for the identified alternatives.</p> <p><i>Justification of evidences:</i></p> <p>The alternative provided by the project participant is possible. The demand of electricity in Riau is higher than the available supply. According to the rejection from PT PLN, the area of the project location is in power shortage where PT PLN is not able to supply any electricity to the project participant. Hence the project participant is required to source for alternative resources to meet the energy demand of the oil refinery.</p> <p>The cost of a conventional fossil fuel cogeneration power unit is cheaper than a biomass boiler cogeneration especially in the sensitive refinery process. Constant steam is required by the process and hence, more complex installation is required for a biomass boiler to ensure the steam required is constantly met.</p> <p>Furthermore, Indonesia as a country which produces coal, the fuel source can be easily available.</p> <p><i>Conclusion:</i></p> <p>The project participant had demonstrated the possible alternatives for the project activity. However, due to the project activity is a Greenfield project activity, the General Guidelines to the SSC</p>	<p>/PDD/</p> <p>/Ab/</p> <p>/EB41-20/</p> <p>/BL2/</p>	<p><del>CAR.A7</del></p> <p><del>CL.B1</del></p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	CDM methodologies is required to by followed. Please refer to B.3.3.			
<p>B.4.3.2. Have all realistic alternatives been identified to the project? (EB 55 Annex 1, §§ 105–107)</p> <p><i>Describe whether the list of alternatives is complete. Describe how it is validated that the alternatives are realistic.</i></p>	<p><i>Description:</i></p> <p>Please refer to B.3.3 and/or Annex 2 for list of alternative identified for the project activity. <i>Justification of evidences:</i></p> <p>The project participant had identified the list of alternatives to the project activity base on the baseline scenario provided by the methodology.</p> <p>The project participant had made the investment comparison for all scenarios to demonstrate the most realistic alternative to the project activity.</p> <p><i>Conclusion:</i></p> <p>Base on the local and sectoral knowledge, the validation team concluded that the list of alternatives provided by the project (as according to the methodology) is realistic and representative of the edible oil refinery industry. However, due to the project activity is a Greenfield project activity, the General Guidelines to the SSC CDM methodologies is required to by followed. Please refer to B.3.3.</p>	<p>/PDD/ /Ab/ /EB41-20/ /BL2/</p>	<p><del>CAR-A7</del> <del>CL-B1</del></p>	<p>OK</p>
<p>B.4.3.3. Do all identified alternatives comply with enforced legislations? (EB 55 Annex 1, §§ 106(c))</p> <p><i>Describe the steps taken to validate this issue. Refer to the legislations.</i></p>	<p><i>Description:</i></p> <p>The alternatives are identified as according to the methodology.</p> <p><i>Justification of evidences:</i></p> <p>According to the alternatives, the baseline scenario is either captive generation or electricity export/import to/from the national Grid. Base on the local and sectoral knowledge of the validation team, there is no specific regulation for generating captive power</p>	<p>/PDD/ /Ab/ /EB41-20/ /BL2/ /EA2/</p>	<p>OK</p>	<p>OK</p>

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	<p>in Indonesia.</p> <p>For alternative which export electricity to the National Grid, the project participant is required to obtain the Permission to Generate electricity for Public Benefits issued by the Ministry of Energy and Natural Resources and Mineral, Indonesia.</p> <p>The project participant is required to submit an application for any Grid connection. The project participant had made an application but has been rejected by PT PLN.</p> <p>The project participant had conducted the UKL/UPL which is part of the requirement for the project activity to address the impact and effort of the project participant to generate power for the edible oil refinery.</p> <p>There is no regulation which disallowed captive generation or Grid export generation using fossil fuel. According to the US Energy Information Administration (<a href="http://www.eia.doe.gov/cabs/Indonesia/Electricity.html">http://www.eia.doe.gov/cabs/Indonesia/Electricity.html</a>), the Indonesia government plans to install a total of 10,000MW thermal power of new capacity by 2010 known as the "10,000 MW Acceleration Program". Hence this shows that fossil fuel is still highly a choice for the government in power generation. <i>Conclusion:</i></p> <p>The validation team concluded that all alternatives identified by the project activity is complying with the regulation of the Host Country.</p>			
<b>B.4.4. Investment analysis Step 2</b>  <i>In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 "Assessment of Financial Parameters" has to be used to provide</i>				



Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>additonal details of the the calculation parameters..</i>				
<p>B.4.4.1. Does the PDD provide evidence that the project would not be the most economically or financially attractive alternative or economically / financially feasible without the revenues from the sale of CERs?</p> <p>(EB 55 Annex 1, § 108)</p>	<p><i>Description:</i></p> <p>The PDD has demonstrated the cost of the project activity would not be economically attractive to invest as compare to the baseline scenario.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed the values inputs to determine the CAPEX and expected O&amp;M cost of both the baseline and the project activity scenario.</p> <p>The values inputs are according to quotation provided by the equipment supplier of the project participant.</p> <p>The validation team has interviewed an independent (no related to the proposed project activity) equipment suppliers that have confirmed the possible cost provided by the project participant</p> <p><i>Conclusion:</i></p> <p><b>CL.B8:</b> The information in the PDD could not replicate or demonstrate, if with the CERs revenues, would the investment be possible lower than the defined baseline scenario.</p>	<p>/PDD/ /XLS/ /IM08/ /IM09/</p>	CL.B8	OK
<p>B.4.4.2. Is an appropriate analysis method chosen for the project (simple cost analysis, investment comparison analysis or benchmark analysis)?</p> <p>EB 55 Annex 1, § 108; EB 39 Annex 10)</p> <p><i>Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available</i></p>	<p><i>Description:</i></p> <p>The investment analysis was demonstrated with investment comparison of the baseline scenario and the project activity scenario.</p> <p><i>Justification of evidences:</i></p> <p>The values inputs to determine the comparison of the baseline scenario and project activity scenario are the same. The value</p>	<p>/PDD/ /XLS/</p>	CAR.B9	OK

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<i>benchmark values.</i>	<p>inputs includes:</p> <ul style="list-style-type: none"> <li>- Project cost</li> <li>- Fixed cost</li> <li>- Cost of equity</li> <li>- Cost of debt</li> <li>- Depreciation cost</li> <li>- Insurance cost</li> <li>- Total fixed cost</li> <li>- Fuel cost</li> <li>- O&amp;M cost</li> </ul> <p><i>Conclusion:</i></p> <p><b>CAR.9:</b> The comparison inputs are consistent for both the project scenario and the baseline scenario. However, values inputs needs to be substantiated. The validation team could not obtain any evidence to substantiate the values of the following:</p> <ul style="list-style-type: none"> <li>- O&amp;M cost</li> <li>- Insurance cost</li> </ul>			
<p>B.4.4.3. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation? (EB 55 Annex 1, § 110; EB 51, Annex 58, §8)</p> <p><i>Describe the steps taken to validate this issue.</i></p>	<p><i>Description:</i></p> <p>The excel spreadsheet is unprotected and viewable.</p> <p><i>Justification of evidences:</i></p> <p>1. The validation team has checked each of the link and formulas used in the Excel sheet.</p>	<p>/PDD/ /XLS/</p>	<p><del>CAR.B1</del> Ø <del>CL.B11</del></p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>2. The links of the formulas were able to be traceable.</p> <p><i>Conclusion:</i></p> <p><b>CAR.B10:</b> The final “unit cost of power generation #” is not consistent with the available excel spreadsheet.</p> <p><b>CL.B11:</b> Please provide explanation to the validation team on the following values inputted to the excel calculation:</p> <ul style="list-style-type: none"> <li>- “Project cost” sheet, cell D4 where indicate 13,000,000</li> <li>- “Project cost” sheet, cell D16 where indicate 12,200,000</li> </ul>			
<p>B.4.4.4. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity’s assets at the end of the investment analysis period (as a cash inflow) included?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58 § 3 – 4)</p> <p><i>Describe how the technical lifetime / period chosen for calculating financial parameter(s) is reviewed and which documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.</i></p>	<p><i>Description:</i></p> <p>The financial analysis of the proposed project activity is completed with investment comparison. There for since the comparison is only investment cost, such period does not reflects to the proposed project activity.</p> <p><i>Justification of evidences:</i></p> <p>Please refer to explanation in B.4.2.</p> <p><i>Conclusion:</i></p> <p>The analysis is not applicable to the proposed project activity.</p>	<p>/PDD/ /XLS/</p>	OK	OK
<p>B.4.4.5. Is the (remaining) technical lifetime of existing or project equipment defined in accordance with the guidance of the <i>Tool to determine the remaining lifetime of</i></p>	<p><i>Description:</i></p> <p>The proposed project activity is a Greenfield project activity.</p> <p><i>Justification of evidences:</i></p>	<p>/PDD/ /TRLE/</p>	OK	OK

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<i>equipment?</i> (EB 50 Annex 15)	<p>During the onsite assessment, the validation team has found that there was no construction of the power house and water intake yet.</p> <p>As in accordance with the tool, the scope and applicability of the tool is used for project activities which involve the replacement of existing equipment with new equipment or which retrofit existing equipment as part of energy efficiency improvement activities.</p> <p><i>Conclusion:</i></p> <p>Therefore, the tool is not applicable to this project activity.</p>			
<p>B.4.4.6. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 4)</p> <p><i>State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.</i></p>	<p><i>Description:</i></p> <p>The project activity had taken the approach of investment comparison to demonstrate the financial analysis</p> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.4.2</p> <p><i>Conclusion:</i></p> <p>This is not applicable for investment comparison.</p>	/PDD/ /XLS/	OK	OK
<p>B.4.4.7. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 4)</p>	<p><i>Description:</i></p> <p>The project activity had taken the approach of investment comparison to demonstrate the financial analysis</p> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.4.2</p> <p><i>Conclusion:</i></p> <p>This is not applicable for investment comparison.</p>	/PDD/ /XLS/	OK	OK

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<p>B.4.4.8. Are depreciation and other non-cash related items added back to net profits for the purpose to calculate the financial indicator?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 5)</p>	<p><i>Description:</i></p> <p>The project activity had taken the approach of investment comparison to demonstrate the financial analysis</p> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.4.2</p> <p><i>Conclusion:</i></p> <p>This is not applicable for investment comparison.</p>	<p>/PDD/ /XLS/</p>	<p>OK</p>	<p>OK</p>
<p>B.4.4.9. Is taxation excluded in the investment analysis or is the benchmark intended for post tax comparisons?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 5)</p>	<p><i>Description:</i></p> <p>The project activity had taken the approach of investment comparison to demonstrate the financial analysis</p> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.4.2</p> <p><i>Conclusion:</i></p> <p>This is not applicable for investment comparison.</p>	<p>/PDD/ /XLS/</p>	<p>OK</p>	<p>OK</p>
<p>B.4.4.10. Were the input values used in the investment analysis valid and applicable at the time of the investment decision?</p> <p>(EB 55 Annex 1, § 109,112; EB 51 Annex 58, § 6)</p> <p><i>In case the basis for input values is a Feasibility Study Report (FSR) describe how it has been ensured that the period in time between the finalisation of the FSR and the investment decision is sufficiently short so that it is unlikely that input values would have materially changed.</i></p>	<p><i>Description:</i></p> <p>The investment decision was made on 2008-10-24. <i>Justification of evidences:</i></p> <p>The value input for the investment comparison was based on the quotation provided by the supplier of the boiler and the auxiliary equipment.</p> <p>The validation team had reviewed the quotation provided and the date stated in the quotation is before the investment decision date.</p> <p>The validation team had compare the value with the excel spread</p>	<p>/PDD/ /XLS/ /CPC2/ /CPC3/ /CPC4/ /CPC7/</p>	<p>OK</p>	<p>OK</p>

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	<p>sheet and values are consistent.</p> <p>The investment decision was made at a relatively short period from the quotation of the equipment and boiler. Hence the value input is the most valid value at the time of the investment decision.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the input values used in the investment analysis is valid and applicable at the time of the investment decision. .</p>			
<p>B.4.4.11. Is the plant load factor (PLF) chosen in a conservative manner, taking into account that the PLF may be different in the framework of demonstrating additionality and calculating the ex-ante ER?</p> <p>(EB 48, Annex 11)</p>	<p><i>Description:</i></p> <p>The proposed project activity is a Greenfield project</p> <p><i>Justification of evidences:</i></p> <p>The project activity had estimated the calculation according to the installed capacity of the thermal biomass boiler.</p> <p>The installed capacity of the thermal boiler has been estimated according to the refinery plant design.</p> <p>The assumption of the thermal boiler efficiency of a coal base is 100% (to be conservative)</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the PLF is not applicable to the project activity.</p>	<p>/PDD/</p>	<p>OK</p>	<p>OK</p>
<p>B.4.4.12. In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR?</p>	<p><i>Description:</i></p> <p>The project activity had taken the approach of investment comparison to demonstrate the financial analysis</p> <p><i>Justification of evidences:</i></p>	<p>/PDD/ /XLS/</p>	<p>OK</p>	<p>OK</p>

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(EB 55 Annex 1, § 109; EB 51 Annex 58, § 9)	Please refer to B.4.4.2 <i>Conclusion:</i> This is not applicable for investment comparison.			
B.4.4.13. In cases where a post-tax benchmark is applied please ensure that actual interest payable is taken into account in the calculation of income tax.  (EB 51 Annex 58, § 11) <i>As per the guidance it is recommended to select a pre tax benchmark in order to Describe the steps taken in assessing this requirement.</i>	<i>Description:</i> The project activity had taken the approach of investment comparison to demonstrate the financial analysis <i>Justification of evidences:</i> Please refer to B.4.4.2 <i>Conclusion:</i> This is not applicable for investment comparison.	/PDD/ /XLS/	OK	OK
B.4.4.14. In case of equity IRR: Is the part of the investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow?  (EB 55 Annex 1, § 109; EB 51 Annex 58, § 10)	<i>Description:</i> The project activity had taken the approach of investment comparison to demonstrate the financial analysis <i>Justification of evidences:</i> Please refer to B.4.4.2 <i>Conclusion:</i> This is not applicable for investment comparison.	/PDD/ /XLS/	OK	OK
B.4.4.15. Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on	<i>Description:</i> The project activity had taken the approach of investment comparison to demonstrate the financial analysis <i>Justification of evidences:</i> Please refer to B.4.4.2	/PDD/ /XLS/	OK	OK



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
equity for equity IRR)?  (EB 55 Annex 1, § 111; EB 51 Annex 58, §§12 – 15) <i>In case risk premiums are applied precisely describe its suitability to reflect the risks associated with the project activity, considering the project type and market situation</i>	<i>Conclusion:</i>  This is not applicable for investment comparison.			
B.4.4.16. Is the benchmark value suitable for the project activity and is it reasonable to assume that no investment would be made at a rate of a lower return than the benchmark?  (EB 55 Annex 1, § 109; EB 41 Annex 45 §12 – 14) <i>Describe whether it is reasonable to assume that a lower rate of return would consequently result in the baseline scenario.</i>	<i>Description:</i>  The project activity had taken the approach of investment comparison to demonstrate the financial analysis  <i>Justification of evidences:</i> Please refer to B.4.4.2  <i>Conclusion:</i>  This is not applicable for investment comparison.	/PDD/ /XLS/	OK	OK
B.4.4.17. Is it ensured that the project cannot be developed by other developers than the PP?  (EB 55 Annex 1 § 109; EB 51 Annex 58, §§ 13 – 14) <i>Describe why the benchmark does not include the subjective profitability expectations or risk profile of the project developer. If applicable assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.</i>	<i>Description:</i>  The project activity had taken the approach of investment comparison to demonstrate the financial analysis  <i>Justification of evidences:</i> Please refer to B.4.4.2  <i>Conclusion:</i>  This is not applicable for investment comparison.	/PDD/ /XLS/	OK	OK
B.4.4.18. Was the benchmark consistently used in the past for similar projects with similar risks?	<i>Description:</i>  The project activity had taken the approach of investment comparison to demonstrate the financial analysis  <i>Justification of evidences:</i>	/PDD/ /XLS/	OK	OK

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(EB 55 Annex 1, § 112(c))	Please refer to B.4.4.2 <i>Conclusion:</i> This is not applicable for investment comparison.			
<p>B.4.4.19. Does the PDD and related spreadsheets contain a sensitivity analysis and does the same contain variation of parameters which may vary throughout the project lifetime,</p> <p>(EB 55 Annex 1, §§ 109–110(e); EB 51 Annex 58, § 17–18)</p> <p><i>Describe relevance of parameters used in the sensitivity analysis as well as their likeliness to vary during the project's lifetime. Parameters which are fixed on the basis of contracts, PPAs etc. may not be subject to variation and not adequate.</i></p>	<p><i>Description:</i></p> <p>The PDD and the excel spreadsheet has demonstrated the sensitivity analysis to the proposed project activity.</p> <p><i>Justification of evidences:</i></p> <p>The project participant has demonstrated the following sensitive analysis:</p> <ol style="list-style-type: none"> <li>1. 10% variant of the biomass price/value</li> <li>2. 10% variant of the coal price/value</li> <li>3. 10% variant of the coal net calorific value</li> <li>4. 10% variant of the biomass net calorific value</li> <li>5. 10% variant of the coal boiler efficiency</li> <li>6. 10% variant of the biomass boiler efficiency</li> </ol> <p>The investment analysis is an investment comparison approach. The value applied for the investment comparison is based on one year basis (without inflation). The investment comparison approached applied only made comparison on the total cost against the total power generated. Hence one year value is sufficiently to represent the assumption of the cost.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the PDD and related spreadsheets that contain the sensitivity analysis contain the same variation of parameters which may vary throughout the</p>	/PDD/ /XLS/	OK	OK

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	project lifetime.			
<p>B.4.4.20. Were only variables that constitute more than 20% of either total project costs or total project revenues subjected to reasonable variation?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 17)</p>	<p><i>Description:</i></p> <p>The project participant has demonstrated the following sensitive analysis:</p> <ol style="list-style-type: none"> <li>1. 10% variant of the biomass price/value</li> <li>2. 10% variant of the coal price/value</li> <li>3. 10% variant of the coal net calorific value</li> <li>4. 10% variant of the biomass net calorific value</li> <li>5. 10% variant of the coal boiler efficiency</li> <li>6. 10% variant of the biomass boiler efficiency</li> </ol> <p>All the parameters which are included in the sensitivity analysis have a material impact on the financial analysis.</p> <p><i>Justification of evidences:</i></p> <p>The biomass fuel price/value is 84% of the total project cost.</p> <p>The coal fuel price/value is 74.7% of the total project cost.</p> <p>The net calorific value of the coal and biomass will determine the amount of fuel required to generate 1 unit of energy. Hence the deference in NCV will affect the total fuel cost. The efficiency of the boiler will determine the amount of fuel combusted to generate 1 unit of energy. Hence the deference of the fuel combusted in the boiler will affect the fuel cost.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that only variables that constitute more than 20% of either total project costs or total project</p>	<p>/PDD/ /XLS/</p>	<p>OK</p>	<p>OK</p>

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	revenues were subjected to reasonable variation.			
<p>B.4.4.21. Have parameters, constituting less than 20% of total project costs or revenues, been identified with potential material impact on the financial parameter?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 17)</p> <p><i>Describe whether those parameters are considered in the sensitivity analysis?</i></p>	<p><i>Description:</i></p> <p>The project participant had included the following for sensitive analysis which does not directly contribute to 20% of total project costs or revenues:</p> <ol style="list-style-type: none"> <li>1. 10% variant of the coal net calorific value</li> <li>2. 10% variant of the biomass net calorific value</li> <li>3. 10% variant of the coal boiler efficiency</li> <li>4. 10% variant of the biomass boiler efficiency</li> </ol> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.4.20. <i>Conclusion:</i></p> <p>The validation team concluded that the demonstration of including non-direct parameter which could cause a material impact to the project activity had been included in the sensitivity analysis. The approach taken by the project participant is conservative.</p>	<p>/PDD/ /XLS/</p>	OK	OK
<p>B.4.4.22. Is the range of variation reasonable in the specific context of the project activity, taking into consideration historic trends in the business sector?</p> <p>(EB 55 Annex 1, § 109; EB 51 Annex 58, § 18)</p> <p><i>Describe whether the range of variation is appropriate with focus on historic developments, e.g. price of oil / labour etc., energy potential in the region in question.</i></p>	<p><i>Description:</i></p> <p>The range of the variation applied by the project participant to demonstrate the sensitivity analysis is 10%.</p> <p><i>Justification of evidences:</i></p> <p>The project participant has applied the range of 10% as a general point of departure variations as in accordance with the Guideline on assessment of investment analysis.</p> <p>No past trends have been considered.</p>	<p>/PDD/ /XLS/</p>	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Conclusion:</i></p> <p>The validation team concluded that the range of variation is reasonable in the specific context of the project activity</p>			
<b>B.4.5. Barrier analysis Step 3 or SSC additionality assessment</b>				
<p>B.4.5.1. Are there any barriers given which have a clear and direct impact on the financial returns of the project? (EB 55 Annex 1, §§ 115, 134, 137)</p> <p><i>In case of LSC projects those issues cannot be considered as barriers and shall be assessed in the investment analysis. In case of SSC projects the same fundamentals as for LSC projects shall apply, i.e. the assessment of the investment barrier according to EB 41, Annex 45.</i></p>	<p><i>Description:</i></p> <p>The proposed project activity has determined technology barrier as one of the barrier to implement the project activity. The project participant has establish the following technology barrier:</p> <ul style="list-style-type: none"> <li>- Lower efficiency of the boiler which combust biomass as compared to a fossil fuelled boiler.</li> <li>- The difficulty of feeding the biomass into the boiler.</li> <li>- High alkaline salt content of the biomass which will creates clinker in the boiler.</li> <li>- The relatively high moisture in biomass.</li> <li>- The impurities of the biomass.</li> </ul> <p>The technology barrier identified has linkage to the investment obstacle. For example, the impurities of the biomass may cause the project participant to pay more to get one tonne of biomass.</p> <p>The proposed project activity has also identified the prevailing practices of energy generation in Indonesia.</p> <p>The project participant has identified that the biomass availability is a barrier of the proposed project activity.</p> <p>This is a small scale project activity. Please refer to section B.4.4</p>	/PDD/	OK	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
	on the validation of investment barrier.  <i>Justification of evidences:</i>  The validation team has reviewed the financial analysis of the proposed project activity. Please refer to B.4.4 onwards.  <i>Conclusion:</i>  Please refer from B.4.4 onwards.			
<p>B.4.5.2. Are the barriers described risk related (e.g technology failure, other performance related risks) or has the unavailability of sources of finance for the proeject been described and adequately substantiated?</p> <p>(EB 55 Annex 1, §§ 116, 134, 137)</p> <p><i>Are there other barriers or barriers due to prevailing practice existent which would have led to higher emissions?</i></p>	<p><i>Description:</i></p> <p>Please refer to B.4.5.1.</p> <p><i>Justification of evidences:</i></p> <p>The project participant had demonstrated the following technological failure to the project activity:</p> <ol style="list-style-type: none"> <li>1. The expected efficiency of biomass boiler would be lower than the conventional coal boiler.</li> <li>2. Technical constraint for the biomass fuel feeding which will cause choking of the boiler.</li> <li>3. Formation of clinker for the high alkaline content in the biomass fuel.</li> <li>4. The uncertainty of the biomass moisture content that would cause inefficiency combusting and fuel handling.</li> </ol> <p>The project participant had demonstrated the following barrier due to prevailing practice to the project activity:</p> <ol style="list-style-type: none"> <li>1. The energy generation pattern in Indonesia is still highly dependent on fossil fuel. This pattern has cause the</li> </ol>	<p>/PDD/</p> <p>/AaAb/</p>	<p><del>CAR.B1</del> 2</p> <p><del>CAR.B1</del> 3</p> <p><del>CAR.B1</del> 4</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>conventional method of energy generation to be easy and had produces sufficient skilled labor to operate the system.</p> <p>2. Installing a biomass boiler at a private facility is not a prevailing practice.</p> <p>The project participant had demonstrated the following other barrier practice to the project activity:</p> <p>1. Collection, transporting and the price of the biomass fuel.</p> <p>2. Biomass storage and handling.</p> <p><i>Conclusion:</i></p> <p><b>CAR.12:</b> The PDD has provided explanation on the possible technology risk which may be face by the implementation. However the failure of the proposed project activity which may due to operation and maintenance of the project, the availability of human capacity to operate &amp; maintain the plant and lack of infrastructure to utilize the technology has not been identified as suggested in the Attachment A of Appendix B of the Simplified modalities and procedures for small scale CDM project activities.</p> <p><b>CAR.B13:</b> The PDD has demonstrated that the prevailing practice of the energy generation sector in Indonesia is very much dependent on fossil fuel. However it is not compared with the palm oil refinery sector.</p> <p><b>CAR.B14:</b> The identification of the other barrier are not substantiated and merely quantitative statement</p>			
B.4.5.3. Has the unavailability of means of finance for the project been described and adequately substantiated? Do evidences	<p><i>Description:</i></p> <p>The proposed project activity is a small scale project activity. The project activity has demonstrated the barrier of the project activity</p>	/PDD/ /AaAb/	CAR.B1 2 CAR.B1	OK



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>doubtlessly prove that the financing of the project was assured only due to the benefit of the CDM?</p> <p>(EB 55 Annex 1, §§ 116, 137, EB 50 Annex 13, §9)</p>	<p>as according to the Investment Analysis (please see section B.4.4.1 – B.4.4.22 above.</p> <p><i>Justification of evidences:</i></p> <p>As according to the Non-binding best practice examples to demonstrate additionality of SSC project activities (EB35 Annex 34), the project participants are only required to demonstrate at least one of the barriers.</p> <p>The proposed project activity has also demonstrated technology barrier, barrier due to prevailing practice and other barrier.</p> <p><i>Conclusion:</i></p> <p>The additionality of the SSC project activity has been demonstrated with the financial analysis.</p> <p>Please refer to B.4.5.2</p>		<p>3</p> <p><del>CAR.B1</del></p> <p>4</p>	
<p>B.4.5.4. How is it justified and evidenced that the barriers given in the PDD are real?</p> <p>(EB 55 Annex 1, § 116(a))</p>	<p><i>Description:</i></p> <p>The following are the barrier given in the PDD:</p> <ol style="list-style-type: none"> <li>1. Technological barrier</li> <li>2. Barriers due to prevailing practice</li> <li>3. Other barrier</li> </ol> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.5.2</p> <p><i>Conclusion:</i></p> <p>The validation team could not conclude if the barrier provided by</p>	<p>/PDD/</p> <p>/AaAb/</p>	<p><del>CAR.B1</del></p> <p>2</p> <p><del>CAR.B1</del></p> <p>3</p> <p><del>CAR.B1</del></p> <p>4</p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	the project participant is real. Please refer to B.4.5.2.			
B.4.5.5. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity and do not prevent the implementation of at least one of the alternatives? (EB 55 Annex 1, § 116(b))	<p><i>Description:</i></p> <p>The project activity had demonstrated the additionality of the project activity by financial indicator IRR. The IRR demonstrated in the investment analysis falls below the applied benchmark if the project activity does not implement with CDM assistance.</p> <p>The project participant has further demonstrated that the implementation of the project activity faces barriers. The barriers faced are:</p> <ol style="list-style-type: none"> <li>1. Technological barrier</li> <li>2. Barriers due to prevailing practice</li> <li>3. Other barrier</li> </ol> <p><i>Justification of evidences:</i></p> <p>Please refer to B.4.5.1 and B.4.5.2</p> <p><i>Conclusion:</i></p> <p>Please refer to B.4.5.1 and B.4.5.2</p>	/PDD/ /AaAb/	CAR.B1 2 CAR.B1 3 CAR.B1 4	OK
B.4.5.6. Does the review of relevant background information on the nature of the company(ies) and entity(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real? (EB 50 Annex 13, § 4)	<p><i>Description:</i></p> <p>Please refer to B.4.5.1</p> <p>The project activity did not identify investment barrier as a barrier. The project activity has demonstrated Investment analysis (investment comparison) to demonstrate the additionality.</p> <p><i>Justification of evidences:</i></p> <p>N/A</p>	/PDD/ /AaAb/	OK	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<i>Conclusion:</i> N/A			
B.4.5.7. Has it been demonstrated in an objective way how the CDM alleviates each of the identified barriers to a level that the project is not prevented anymore from occurring by any of the barriers?  (EB 50 Annex 13, § 5)	<i>Description:</i> The project participant had demonstrated that with the CDM revenues, the unit cost of the project activity is lower against the baseline scenario and the baseline alternatives.  <i>Justification of evidences:</i> The unit cost of the project activity with CDM benefits is 167USD/MWh while the baseline scenario is 213USD/MWh.  The following are the unit cost of the baseline alternatives: 1. Electricity is imported from grid and steam is produced using fossil fuel = 216USD/MWh. 2. Electricity is produced in an onsite captive power plant (with a possibility of export to the grid) using fossil fuel and thermal energy is produced using fossil fuel = 228USD/MWh 3. Electricity is imported from grid and steam is produced using renewable biomass = 237USD/MWh 4. Electricity is produced in an on-site captive power plant using biomass (with a possibility of export to the grid) and/or imported from the grid; steam/heat is produced using fossil fuel = 280USD/MWh.  With the assistance of CDM revenues, the project participant had decided to invest in the biomass boiler energy generation to displace the norm baseline (of fossil fuel usage) to generate energy n edible oil refinery.	/PDD/ /AaAb/	<del>CAR.B1</del> 2 <del>CAR.B1</del> 3 <del>CAR.B1</del> 4	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>The project participant had demonstrated technological barrier, barrier due to prevailing practice and other barrier to further demonstrate the needs of CDM for the project activity.</p> <p><i>Conclusion:</i></p> <p>Please refer to B.4.5.2 on the finding on barriers demonstrated in the PDD.</p>			
<p>B.4.5.8. Would provision of additional financial means lead to the mitigation of the barrier(s) demonstrated?</p> <p>(EB 50 Annex 13, § 7)</p> <p><i>Describe why provision of additional financial means would not lead to mitigation of the barrier(s) demonstrated and hence analysing the project's additionality within the framework of an investment analysis is inappropriate. .</i></p>	<p><i>Description:</i></p> <p>Please refer to B.4.5.2</p> <p>The project activity did not identified financial availability as a barrier. The project activity has demonstrated Investment analysis to demonstrate the additionality.</p> <p><i>Justification of evidences:</i></p> <p>N/A</p> <p><i>Conclusion:</i></p> <p>N/A</p>	<p>/PDD/ /AaAb/</p>	<p><del>CAR.B1</del> 2 <del>CAR.B1</del> 3 <del>CAR.B1</del> 4</p>	OK
<p><b>B.4.6. Common practice analysis Step 4</b> (in case of SSC projects skip this step)</p>				
<p>B.4.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type?</p> <p>(EB 55 Annex 1, § 120(a))</p>	<p><i>Description:</i></p> <p>The project activity is a small scale CDM project</p> <p><i>Justification of evidences:</i></p> <p>The project is applying AMS-I.C version 16</p>			

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>Describe why the project activity is not common practice in a transparent and unambiguous manner. If a region other than the entire host country is chosen, describe why this region is more appropriate.</i>	<i>Conclusion:</i> Not applicable as this is a small scale project activity.			
B.4.6.2. To what extent similar projects have been undertaken in the relevant region? (EB 55 Annex 1, § 120(b))	<i>Description:</i> The project activity is a small scale CDM project <i>Justification of evidences:</i> The project is applying AMS-I.C version 16 <i>Conclusion:</i> Not applicable as this is a small scale project activity.			
B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed? (EB 55 Annex 1, § 120(c))	<i>Description:</i> The project activity is a small scale CDM project <i>Justification of evidences:</i> The project is applying AMS-I.C version 16 <i>Conclusion:</i> Not applicable as this is a small scale project activity.			

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<b>B.5. Ex-Ante Calculation of GHG Emission Reductions</b>  <i>It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.</i>				
<p>B.5.1. Are the equations applied correctly according to the applied approved methodology?</p> <p>(EB 55 Annex 1, §§ 67(c), 89–90, 92)</p> <p><i>Describe clearly the steps taken to assess whether the methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. Further take into consideration that all estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.</i></p>	<p><input checked="" type="checkbox"/> The equations applied for calculation are correctly applied according to the approved methodology.</p> <p><input type="checkbox"/> The following mistakes have been identified in this context:</p> <p><i>Description:</i></p> <p>The equation applied for the calculation in the PDD and the excel spread sheet is correct.</p> <p><i>Justification of evidences:</i></p> <p>Due to the findings CL.B1, the validation team cannot confirm the correctness of the calculation as accordance to AMS-I.C version 16.</p> <p><i>Conclusion:</i></p> <p>The validation team will reconfirm the correctness after the closure of CL.B1.</p> <p>Please refer to CL.B1.</p>	<p>/PDD/ /AMS.IC/</p>	<p>CL.B1</p>	<p>OK</p>

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)?</p> <p>(EB 55 Annex 1, §§ 90–91)</p> <p><i>Assess the correct selection and application of methodological choices. Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.</i></p>	<p><i>Description:</i></p> <p>The proposed project activity has applied the possible baseline scenario of “Electricity and thermal energy (steam/heat) are produced in a co-generation unit using fossil fuel (with a possibility of export of electricity to the grid/other facilities and/or thermal energy to other facilities). Therefore the application of equation is correct. As accordance to the equation, there is no other different methodological choice are given.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed and cross checked that the equation applied is correct with the methodology AMS-I.C. However, the project participant has demonstrated the amount of electricity supplied by the project activity during year y in TJ/MWh.</p> <p>The validation team has replicated the calculation with TJ/GWh. The result is the same as demonstrated by the project participant.</p> <p>The validation team deemed that the demonstration of the electricity supplied by the project activity during year y in TJ/MWh is correct due to the consideration of just a unit conversion.</p> <p><i>Conclusion:</i></p> <p>Please refer to B.5.1.</p> <p><b>CAR.B15:</b> According to the methodology, the efficiency of the boiler shall be determined according to:</p> <ol style="list-style-type: none"> <li>Highest measured operational efficiency over the full range of operating conditions of a unit with similar specifications, using baseline fuel. The efficiency tests shall be conducted following the guidance provided in relevant national / international standards.</li> </ol>	<p>/PDD/ /AMS.IC/</p>	<p><del>CL.B1</del> <del>CAR.B1</del> 5</p>	<p>OK</p>



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
	b. Highest of the efficiency values provided by two or more manufacturers for units with similar specifications, using the baseline fuel c. Default efficiency of 100% Since the boiler efficiency is estimated according to manufacture (based on the excel sheet), it is required to use information which is provided two or more manufactures for units with similar specifications which use the baseline fuel.			
<p>B.5.3. Have conservative assumptions been used when calculating the project emissions?</p> <p>(EB 55 Annex 1, §§ 90–91)</p> <p><i>Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.</i></p>	<p><i>Description:</i></p> <p>The project activity is expected to have the following project emissions during the crediting period (ex-post):</p> <ol style="list-style-type: none"> <li>1. Fossil fuel usage within the project location for biomass handling.</li> <li>2. Fossil fuel use during the start-up of the biomass boiler.</li> </ol> <p>The project participant will monitor the source of the biomass to monitor the transportation leakage. There will be no leakage in case the source of biomass is with 200km from the project location.</p> <p><i>Justification of evidences:</i></p> <p>The expected operation of the project activity will determine the emission reductions of the project activity (baseline and project emissions).</p> <p>The project participant had assume zero for the project emissions and leakage. Since the project activity is a Greenfield project, the assumption of zero emission for the fossil fuel usage (biomass handling and start-up of biomass boiler) is appropriate.</p> <p><i>Conclusion:</i></p>	/PDD/ /XLS/	GL-B16	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<b>CL.B16:</b> The refinery plant is expected to operate at 7920 hours per year. How was the estimation of the operating days being determined?			
B.5.4. Does the implementation of the project activity lead to GHG emissions within the project boundary which are expected to contribute more than 1% of the overall expected average annual emission reductions, which are not addressed by the methodology?  (EB 55 Annex 1, § 77)	<p><i>Description:</i> Please refer to A.4.1.</p> <p><i>Justification of evidences:</i> Please refer to A.4.1.</p> <p><i>Conclusion:</i> <b>CAR.B17:</b> The PDD of the proposed project activity did not demonstrate the project emission which will be expected from the CO<sub>2</sub> emissions through the collection/processing/transportation of the biomass residues to the project site.</p>	/PDD/ /XLS/	<del>CAR.A5</del> <del>CAR.B1</del> 7	OK
B.5.4.1. Has a plant load factor (PLF) been defined ex-ante and considered for determination of baseline emissions?  (EB 48 Annex 11, §§ 1, 3–4)  <i>Describe why the PLF is conservative in the framework of calculating emissions reductions and whether the PLF is the same in the framework of demonstrating additionality by applying the investment analysis. Note, in order to be conservative in both cases the PLF may be different.</i>	<p><i>Description:</i> Please refer to B.4.4.11</p> <p><i>Justification of evidences:</i> Please refer to B.4.4.11</p> <p><i>Conclusion:</i> Please refer to B.4.4.11</p>	/PDD/	OK	OK
B.5.5. Are all data and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission	<p><i>Description:</i> The data which remain unchanged throughout the crediting period are as follows: a. The emission factor of coal which would have been used</p>	/PDD/ /AMS.IC/	<del>CAR.B1</del> 5 <del>CL.B1</del>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p>reductions?</p> <p>(EB 55 Annex 1, § 91)</p> <p><i>Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.</i></p>	<p>in the defined baseline scenario.</p> <p>b. The boiler efficiency</p> <p>c. Specific energy consumption of coal</p> <p>d. Specific energy consumption of coal</p> <p><i>Justification of evidences:</i></p> <p>The validation team confirms that the default value used to determine the ex-ante value is accordance to IPCC 2006 version and the methodology AMS-I.C by cross checking the information stated in the PDD with the IPCC 2006 Guidelines and AMS-I.C.</p> <p><i>Conclusion:</i></p> <p>Please refer to B.5.2.</p> <p>The correctness of the parameter cannot be confirmed due to the CL.B1 raised. Please refer to B.3.1</p>			
<p>B.5.6. Are all ex-ante calculation values for monitoring parameters (as defined as per chapter B.7.1) reasonable?</p> <p>(EB 55 Annex 1, § 91)</p> <p><i>Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity</i></p>	<p><input type="checkbox"/> All "Values of data to be applied for the purpose of calculating expected emissions reductions" are considered to be reasonable, applicable and conservative.</p> <p><input checked="" type="checkbox"/> The following mistakes have been identified in this context:</p> <p>The correctness of the parameter cannot be confirmed due to the CL.B1 raised. Please refer to B.3.1.</p>		CL.B1	OK
<p>B.5.7. Are the emission reductions real, measurable and give long-term benefits related to the</p>	<p><i>Description:</i></p>	/PDD/	CL.B1	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
mitigation of climate change. <i>Describe the steps taken to validate this issue.</i>	The proposed project activity aims to reduce the emission reduction from the energy generation through replacement of fossil fuel generation with biomass fuel. The project activity will give long term benefits and able to mitigate the climate change.  <i>Justification of evidences:</i>  Please refer to B.3.1.  <i>Conclusion:</i> The correctness of the emission reductions cannot be confirmed due to the CL.B1 raised.	/AMS.IC/		
<b>B.6. Monitoring of Emission Reductions</b> <i>It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.</i>				
B.6.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan?  (EB 55 Annex 1, §§ 67 (e), 121, 123 (a), 124) <i>Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.</i>  <i>Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.</i>  <i>In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is</i>	<i>Description:</i> The correctness of the monitoring parameters cannot be confirmed due to the CL.B1 raised.  <i>Justification of evidences:</i> Please refer to B.3.1.  <i>Conclusion:</i> <b>CL.B18:</b> As stated in the monitoring plan, $SEC_{j,biomass,y, measured}$ and $SEC_{j,coal,y, measured}$ is calculated according to paragraph 32. However as accordance to paragraph 32 of AMS-I.C, there is no specific equation to determine the energy.	/PDD/ /AMS.IC/	<del>CL.B18</del> <del>CL.B1</del>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<i>justified and correct.</i>				
<p>B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan feasible and in accordance with the requirements of the applied methodology? (EB 55 Annex 1, § 123 (a), 123 (b), 124)</p> <p><i>Assess whether the provided information for all parameters w.r.t.</i></p> <ul style="list-style-type: none"> <li>a) <i>Label (name of the data / parameter)</i></li> <li>b) <i>data unit</i></li> <li>c) <i>description</i></li> <li>d) <i>source of data</i></li> <li>e) <i>measurement equipment / method / procedure</i></li> <li>f) <i>monitoring frequency</i></li> <li>g) <i>QA/QC procedures</i></li> </ul> <p><i>are appropriately described and in compliance with the requirements of the methodology..</i></p>	<p><i>Description:</i> Please refer to B.6.1.</p> <p><i>Justification of evidences:</i> Please refer to B.6.1.</p> <p><i>Conclusion:</i> This will be reassessed after the closure of finding CL.B1 and CL.19.</p>	<p>/PDD/ /AMS.IC/</p>	<p><del>CL.B18</del> <del>CL.B1</del></p>	OK
<p>B.6.3. Have all means of implementing the monitoring plan, e.g. equations necessary for ex-post emission reduction calculation, been described clearly and in line with the methodology? (EB 55 Annex 1, §123 (b), 124)</p>	<p><i>Description:</i> Please refer to B.6.1.</p> <p><i>Justification of evidences:</i> Please refer to B.6.1.</p> <p><i>Conclusion:</i></p>	<p>/PDD/ /AMS.IC/</p>	<p><del>CL.B18</del> <del>CL.B1</del></p>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
<p><i>Check whether all necessary equations have been provided in the PDD. Pl. consider that ex-post and ex-ante calculations might be different.</i></p> <p><i>Please consider that additional equations might be necessary to calculate auxiliary parameters.</i></p>	This will be reassessed after the closure of finding CL.B1 and CL.19.			
<p>B.6.4. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity?</p> <p>(EB 55 Annex 1, §124 (c))</p> <p><i>Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.</i></p>	<p><i>Description:</i></p> <p>Please refer to B.6.1.</p> <p><i>Justification of evidences:</i></p> <p>Please refer to B.6.1.</p> <p><i>Conclusion:</i></p> <p>This will be reassessed after the closure of finding CL.B1 and CL.19.</p>	<p>/PDD/ /AMS.IC/</p>	<p>CL.B18 CL.B1</p>	OK
<p>B.6.5. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions achieved from the project activity can be reported ex-post and verified?</p> <p>(EB 55 Annex 1, §124 (b))</p> <p><i>Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review procedures.</i></p>	<p><i>Description:</i></p> <p>The QA/QC procedures are described in the PDD to ensure the emission reductions achieved from the project activity can be reported ex-post.</p> <p><i>Justification of evidences:</i></p> <ol style="list-style-type: none"> <li>1. The QA/QC procedures stated in the PDD includes:The method of measuring the parameters</li> <li>2. The frequency of monitoring the parameters</li> <li>3. The frequency of calibrating/verifying the monitoring devices.</li> <li>4. Cross-check method of the parameters</li> </ol>	/PDD/	<p>CL.B1 9</p>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p><i>Conclusion:</i></p> <p><b>CAR.B19:</b> The descriptions of the QA/QC procedures of the monitoring parameters are rather ambiguous. E.g. How would the NCV analysis being conducted without any procedures? What are the standard that are most likely to be followed while calibrating the temperature gauge of the boiler?</p>			
<p>B.6.6. Are procedures identified for data management?</p> <p>(EB 55 Annex 1, §124 (b))</p> <p><i>Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation</i></p> <p><i>Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.</i></p>	<p><i>Description:</i></p> <p>The data parameter will be collected by the shift-in-charge and will be maintained daily. Records and data will be checked by the Plant-in-charge. Daily logs will be filled in and made available on-site. The data and records will be kept for at least 2 years after the crediting period or from the last issuance of CERs.</p> <p><i>Justification of evidences:</i></p> <p>The validation team has reviewed the draft SOP of the plant operation.</p> <p>The validation team has made interviewed to the plant manager on the expected data management. The information is consistent with the PDD.</p> <p><i>Conclusion:</i></p> <p>The validation team has concluded that the PDD fulfils the requirements</p>	<p>/PDD/ /IM01/ /IM03/</p>	OK	OK
<p><b>C. Duration of the Project/ Crediting Period</b></p> <p><i>It is assessed whether the temporary boundaries of the project are clearly defined.</i></p>				



<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>C.1. Is the project's starting date clearly defined and evidenced? (EB 55 Annex 1, §99)</p> <p><i>Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of CDM terms".</i></p>	<p><i>Description:</i></p> <p>The start date of the project activity is 2008-10-24</p> <p><i>Justification of evidences:</i></p> <p>The proposed project activity has identified that the start date of the project activity is the day the Board of Directors of PT Pacific Indopalm Industries decides to proceed with the investment in the installation of the biomass based co-generation.</p> <p><i>Conclusion:</i></p> <p><b>CAR.C1:</b> The defined start date of the project activity is not accordance to the glossary of terms as stated in the EB41 meeting report.</p>	<p>/PDD/ /EB41/</p>	<p><del>CAR.C1</del></p>	<p>OK</p>
<p>C.2. Is the project's operational lifetime clearly defined and evidenced?</p> <p><i>Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the additionality tool).</i></p> <p><i>Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.</i></p>	<p><i>Description:</i></p> <p>The operational lifetime of the project activity is defined to be 16 years.</p> <p><i>Justification of evidences:</i></p> <p>The PDD did not illustrate any confirmation provided by the supplier to confirm the expected operational lifetime of the project activity.</p> <p><i>Conclusion:</i></p> <p><b>CL.C2:</b> Although the operational lifetime of the project activity does not influence the financial analysis, however please provided evidence to the validation team on how was the lifetime being defined.</p>	<p>/PDD/</p>	<p><del>CAR.C2</del></p>	<p>OK</p>
<p>C.3. Is the start of the crediting period clearly</p>	<p><i>Description:</i></p>	<p>/PDD/</p>	<p><del>CAR.C3</del></p>	<p>OK</p>

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
defined and reasonable?  <i>Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for validation and registration.</i>	The start date of the crediting period stated in the PDD is 2009-10-01  <i>Justification of evidences:</i>  The onsite assessment of the project activity started on 2009-10-12.  <i>Conclusion:</i>  <b>CAR.C3:</b> The start of the crediting period of the project activity is not reasonable. During the onsite assessment conducted on 2009-10-12 – 2009-10-14, the construction of the refinery plant is still undergoing.			
<b>D. Environmental Impacts</b>  <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the DOE.</i>				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? (EB 55 Annex 1, §§ 131 – 133) <i>Check the host party regulations, regarding EIA.</i>	<i>Description:</i>  The project activity does not require conducting any EIA.  <i>Justification of evidences:</i>  Since the project activity has an energy generation which is less than 10MW, by regulation of the host country, there are no requirements in conducting any EIA.  The validation team has reviewed the regulation. However the project participant is required to conduct an Environment Monitoring Procedures (UPL) and Environment Management Procedures (UKL).	/PDD/  /EA/	<del>CAR.D1</del>	OK

Checklist Item (incl. guidance for the validation team)	Validation Team Comments (justification and substantiation of information, data and evidences)	Ref.	Draft Concl.	Final Concl.
	<p>The project participant is now current revising the UKL and UPL of the project activity. The validation team has reviewed a letter issued by the Department of Environmental of Kota Dumai that the project participant is conducting the UKL and UPL.</p> <p><i>Conclusion:</i></p> <p><b>CAR.D1:</b> The UKL and UPL are not yet available during the validation. Please provide such approval of the UKL and UPL during the first verification of the proposed project activity.</p>			
<p>D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applicable duly approved?</p> <p>(EB 55 Annex 1, §§ 131 – 133)</p> <p><i>Check the EIA and its approval, if applicable.</i></p>	<p><i>Description:</i></p> <p>Please refer to D.1.1</p> <p><i>Justification of evidences:</i></p> <p>Please refer to D.1.1</p> <p><i>Conclusion:</i></p> <p>Please refer to D.1.1</p>	<p>/PDD/ /EA/</p>	CAR.D1	OK
<p>D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation?</p> <p>(EB 55 Annex 1, §§ 131 – 133)</p> <p><i>Check the PDD (section D). Check whether the project will create any adverse environmental effects.</i></p> <p><i>Check the relevant national environmental legislation.</i></p>	<p><i>Description:</i></p> <p>Please refer to D.1.1</p> <p><i>Justification of evidences:</i></p> <p>Please refer to D.1.1</p> <p><i>Conclusion:</i></p> <p>Please refer to D.1.1</p>	<p>/PDD/ /EA/</p>	CAR.D1	OK
D.1.4. Are transboundary environmental impacts	<i>Description:</i>	/PDD/	OK	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p>considered in the analysis?</p> <p>(EB 55 Annex 1, §§ 131 – 133)</p> <p><i>Check the documents and local official sources / expertise regarding transboundary environmental impacts.</i></p>	<p>There is no consideration of the transboundary environmental impacts.</p> <p><i>Justification of evidences:</i></p> <p>Although the proposed project activity is located at the shore, there will be no such transboundary issue. The proposed project activity will not have any wastewater discharged from the boiler to the sea. This is because the proposed project activity will install a wastewater treatment system which will recycle the water from the boiler for usage in the refinery.</p> <p>The project location is also located in the Sumatera Island of Indonesia where there is not land border with another country.</p> <p><i>Conclusion:</i></p> <p>The validation team has concluded that there is no possible of transboundary environmental impacts.</p>	/IM05/		
<p><b>E. Stakeholder Comments</b></p> <p><i>The DOE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i></p>				
<p>E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD?</p> <p>(EB 55 Annex 1, §128)</p> <p><i>Check by means of document review and interviews with</i></p>	<p><i>Description:</i></p> <p>Yes, the local stakeholders have been invited to consultation prior the publication of the PDD.</p> <p><i>Justification of evidences:</i></p> <p>1. The local stakeholder meeting was conducted on 2009-01-22.</p>	/ PDD / / SHCP /	OK	OK

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<i>local stakeholders if and when a local stakeholder consultation process has been carried out.</i>	<ol style="list-style-type: none"> <li>2. The stakeholder was being invited via local newspaper. The validation team has reviewed the original newspaper advertisement.</li> <li>3. The project developer has also send invitation letter to the respective local authorities.</li> <li>4. A total of 35 participants attended the consultation. The validation team has reviewed the original attendance sheet of the consultation. The stakeholders includes residents nearby to the project activity, local authorities and the representative of the community</li> <li>5. The photographs taken during the stakeholder consultation was also reviewed by the validation team.</li> </ol> <p><i>Conclusion:</i></p> <p>The validation team concluded that the stakeholder process was conducted correctly with the invitation to the relevant stakeholder to the project activity prior the publication of the PDD in the UNFCCC website.</p>			
<p>E.2. Can the local stakeholder consultation process be assessed as adequate? (EB 55 Annex 1, § 129 (a) – 129 (c))</p> <p><i>Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.</i></p> <p><i>Please consider the following requirements in this context:</i></p> <p><i>(a) Comments by local stakeholders that can reasonably be</i></p>	<p><i>Description:</i></p> <p>The comments raised by the stakeholder are being illustrated in section E.2 of the PDD. There were no negative comments have been received.</p> <p>The project developer has responded the comments by the stakeholder as illustrated in section E.3 of the PDD.</p> <p><i>Justification of evidences:</i></p> <ol style="list-style-type: none"> <li>1. The validation team has reviewed the stakeholder consultation report and verified that the major topics (like the CDM,</li> </ol>	<p>/PDD/ /SHCP/</p>	<p>OK</p>	<p>OK</p>

<b>Checklist Item</b> (incl. guidance for the validation team)	<b>Validation Team Comments</b> (justification and substantiation of information, data and evidences)	<b>Ref.</b>	<b>Draft Concl.</b>	<b>Final Concl.</b>
<p><i>considered relevant for the proposed CDM project activity, have been invited;</i></p> <p><i>(b) The summary of the comments received as provided in the PDD is complete;</i></p> <p><i>(c) The project participants have taken due account of any comments received and have described this process in the PDD.</i></p>	<p>technology, impact on environment) are being discussed in the consultation.</p> <p>2. The validation team has reviewed the presentation material by the CDM project consultant which explains the CDM.</p> <p>3. The validation team has verified the language used to conduct the consultation is the local language (Bahasa Indonesia) through reviewing of the presentation slides.</p> <p>4. The validation team has reviewed the comments by the stakeholder and confirmed that there is no objection to the project activity.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the local stakeholder consultation process is adequate.</p>			

## ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

**Table A-2:** Assessment of Baseline Identification

<input type="checkbox"/>	Baseline is not identified
<input checked="" type="checkbox"/>	Assessment of baseline see below

Baseline Alternatives identified	Inline with the Methodology?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evidence used	DOE Assessment	
					Appropriateness of elimination	Assessment of validation team (results and means of assessment)
Electricity is imported from grid and steam is produced using fossil fuel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The unit cost of generation is higher than the identified baseline scenario. PT PLN is not able to supply the demand of the project participant due to deficit power capacity of the Grid	/XLS/ /TI2/ /GC/ /CPC7/	<input checked="" type="checkbox"/>	The validation team had reviewed the value inputs in the investment comparison. The operation cost of alternative 1 is higher compare to the identified baseline due to there is a cost for importing electricity.  Considering if the tariff is lower, the unit cost of generating would be lower than the identified baseline. However due to the rejection of PT PLN to connect the project activity to the Grid, the alternative is not possible and it has been eliminated correctly.
Electricity is produced in an onsite captive power plant (with a possibility of export to the grid) using fossil fuel and thermal energy is produced using fossil fuel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The unit cost of generation is higher than the identified baseline scenario.	/XLS/ /ifc/ /CPC7/	<input checked="" type="checkbox"/>	The validation team had reviewed the reference provided by the project participant to demonstrate the cost to install a CPP (coal power plant) in Indonesia.  According to US Energy Information Administration (EIA), the cost to installed a coal boiler is USD1,290/kW (USD1,290,000/MW). Hence the information provided by the project participant is conservative and plausible.



Combination of alternative 1 & 2 (Electricity is imported from grid and steam is produced using fossil fuel + Electricity is produced in an onsite captive power plant (with a possibility of export to the grid) using fossil fuel and thermal energy is produced using fossil fuel)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	PT PLN is not able to supply the demand of the project participant due to deficit power capacity of the Grid.	/TI2/	<input checked="" type="checkbox"/>	The validation team had reviewed the letter issued by PT PLN to confirm that PT PLN could not supply the required electricity for the project activity as there is deficit of power capacity of the Grid.  Hence this is not considered as baseline alternative.
Electricity and thermal energy are produced in a cogeneration unit, using fossil fuel (with a possibility of export of electricity to the grid/other facilities and/or thermal energy to other facilities)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	This alternative is not eliminated and it is identified to be the baseline scenario.	/IRR/ /CPC7/ /PSD1/	<input type="checkbox"/>	The unit cost of generation of this alternative is the lowest compare to all identified alternatives. The unit cost identified for this alternatives is 213USD/MWh.
Electricity is imported from grid and steam is produced using renewable biomass	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The unit cost of generation is higher than the identified baseline scenario.  PT PLN is not able to supply the demand of the project participant due to deficit power capacity of the Grid	/IRR/ /TI2/ /GC/ /CPC7/	<input checked="" type="checkbox"/>	The validation team had reviewed the value inputs in the investment comparison. The operation cost of alternative 5 is higher compare to the identified baseline due to there is a cost for importing electricity.  Considering if the tariff is lower, the unit cost of generating would be lower than the identified baseline. However due to the rejection of PT PLN to connect the project activity to the Grid, the alternative is not possible and it has been eliminated correctly.

Electricity is produced in an on-site captive power plant using biomass (with a possibility of export to the grid) and/or imported from the grid; steam/heat is produced using fossil fuel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The unit cost of generation is higher than the identified baseline scenario.	/IRR/ /CPC7/ /BL4/ /T12/	<input checked="" type="checkbox"/>	<p>The validation team had reviewed the value inputs in the investment comparison. The capital investment of alternative 6 is higher compare to the identified baseline.</p> <p>The validation team had reviewed the cost and estimation of the investment cost for a biomass boiler and coal boiler. The validation team had compared the value provided by the project participant with the US Energy Information Administration (EIA). According to EIA, the cost to installed a coal boiler is USD1,290/kW (USD1,290,000/MW) while for biomass boiler is USD1,869/kW (USD1,869,000/MW).</p> <p>Due to the deficit of electricity capacity of the Grid, the project participant would not be connected to the National Grid. The PT PLN had rejected the application of the project participant.</p>
Electricity and thermal energy (steam/heat) are produced in a biomass fired cogeneration unit (without a possibility of export of electricity either to the grid or to other facilities and without a possibility of export of thermal energy to other facilities)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>The proposed project activity is a green field project activity.</p> <p>The proposed project activity is not a Grid connected project activity.</p>	/PDD/	<input checked="" type="checkbox"/>	<p>This alternative is not considered as an alternative due to the project activity is Greenfield.</p> <p>During the onsite assessment, the validation team had sighted the on-going construction. This has proved that the project activity is a Greenfield project.</p>

Electricity and/or thermal energy produced in a co-fired system	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The cost of power generation from biomass is higher compared to coal. Hence use of biomass whether singularly or in a co-fired system would not be economical.	/PDD/	<input checked="" type="checkbox"/>	<p>The generation cost of a biomass plant is higher compare to coal due to the reason of the lower calorific value of PKS. The lower the calorific value, the more fuel is required to achieve the energy requirements.</p> <p>The cost of fuel is one of the parameter which will be considered by any project investor. Since the fuel cost of biomass is higher, it is logic a project investor would prefer to generate energy with a fuel which has lover cost. Furthermore in refinery process, where constant steam is required, a project investor would rather use a fuel which is more stable and able to produce constant energy.</p> <p>It is not logic for an investor to invest a co-fired power plant if they would able to purchase constant supply of fossil fuel (e.g. coal – as Indonesia is one of the top producers of coal).</p> <p>The project activity is a Greenfield project which the baseline scenario could not be identified as co-fired system. Hence exclusion of this alternative is possible.</p>
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### ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

**Table A-3:** Assessment of Financial Parameters

<input type="checkbox"/>	No financial parameters are used for additionality justification						
<input checked="" type="checkbox"/>	Assessment of all financial parameters see below						
Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	DOE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
Project cost (project activity)	5,960,800	USD	<p>Equipment Contract (Back Pressure turbine, Condensing turbine and cooling tower) with Dalex Engineering Sdn. Bhd.; dated 2008-12-10.</p> <p>Equipment Contract (Biomass Boiler) with Mackenzie Industries Sdn. Bhd.; dated 2008-12-10.</p> <p>Quotation for biomass fired boilers, reference no – MIQ/WT149-20/08 R3, dated 2008-11-14</p>	<p>/PSD1/ /PSD2/ /CPC2/ /CPC3/ /CPC4/ /R5/</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> The total project cost of the project activity is derived from the quotation provided by the supplier.</p> <p><i>Justification:</i> The validation team had reviewed the quotation provided to the project participant by Mackenzie Industries Sdn. Bhd. and Dalex Engineering Sdn. Bhd.</p> <p>The validation team had reviewed the contracted price and the price is consistent with the quotation issued by the supplier.</p> <p>The cost of the project activity per kW hour is USD1490/kW<sup>7</sup>. According to the US Energy Administration (EIA), the estimated cost to</p>

<sup>7</sup> The project cost is USD5,960,800. The project is expected to generated 4MW of electricity. Hence the investment cost per kW = 5,960,800/4/1000 = USD1490/kW.

			<p>Quotation for 2 MW condensing turbine, reference no – DL/0455E/08, dated 2008-10-28</p> <p>Quotation for 2 MW back pressure turbine, reference no – DL/0456E/08, dated 2008-10-28</p> <p>Estimated Capital Cost of Power Generating Plant Technologies</p>				<p>install a biomass power plant is USD1869/kW. The estimation provided by the EIA is based on the United States where plant equipment is more likely to be sourced and have unit size of generating units are relatively bigger than other smaller countries. EIA expected that the cost will be higher in other countries outside of the US and Europe.</p> <p><i>Conclusion:</i> The validation team concluded the project cost is plausible.</p>
Project cost (baseline scenario)	5,739,520	USD	<p>Equipment Contract (Back Pressure turbine, Condensing turbine and cooling tower) with Dalex Engineering Sdn. Bhd.; dated 2008-12-10.</p> <p>Quotation for 2 MW condensing turbine, reference no – DL/0455E/08, dated 2008-10-28</p> <p>Quotation for 2 MW back pressure turbine, reference no – DL/0456E/08, dated 2008-10-28</p> <p>Estimated Capital Cost of Power Generating Plant Technologies</p>	/PSD1/ /CPC7/ /CPC3/ /CPC4/ /R5/	☒	☒	<p><i>Description:</i> The total project cost of the baseline scenario is derived from the quotation provided by the supplier.</p> <p><i>Justification:</i> The validation team had reviewed the quotation provided to the project participant by Mackenzie Industries Sdn. Bhd. and Dalex Engineering Sdn. Bhd.</p> <p>The validation team had reviewed the contracted price and the price is consistent with the quotation issued by the supplier.</p> <p><i>Conclusion:</i> The validation team concluded the project cost is plausible.</p>

			Quotation for coal fired boilers, reference no – MIQ/WT195-20/08, dated 2008-10-10				
Return on equity / Total Fixed costs (project activity)	1,430,592	USD	Renewable Energy and Energy Efficiency in Indonesia; dated 2009-03-26 – page 3	/RD6/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> The return on equity was calculated based on 24% of the total project cost.</p> <p><i>Justification:</i> The validation team had reviewed the document provided by the project participant to demonstrate the applicability of 24%. The report had indicated the average Return on Equity in Indonesia is 24%.</p> <p>The validation team had considered the value applied is correct and consistent. The project participant had applied the same percentage to all the alternatives and the identified baseline scenario to conduct the investment comparison.</p> <p>The validation team had considered that all the alternatives and baseline scenario are classified as power generation and the risk is similar. Hence even the usage of 24% is a general market return, the applicability is still valid as the profile of the alternative, baseline scenario and the project activity is the same</p> <p><i>Conclusion:</i> The validation team concluded that the return of equity applied is consistent and plausible.</p>
Return on equity / Total Fixed costs (Baseline scenario)	1,377,485	USD	Renewable Energy and Energy Efficiency in Indonesia; dated 2009-	/RD6/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> The return on equity was calculated based on 24% of the total project cost.</p>

			03-26 – page 3				<p><i>Justification:</i> The validation team had reviewed the document provided by the project participant to demonstrate the applicability of 24%. The report had indicated the average Return on Equity in Indonesia is 24%.</p> <p>The validation team had considered the value applied is correct and consistent. The project participant had applied the same percentage to all the alternatives and the identified baseline scenario to conduct the investment comparison.</p> <p>The validation team had considered that all the alternatives and baseline scenario are classified as power generation and the risk is similar. Hence even the usage of 24% is a general market return, the applicability is still valid as the profile of the alternative, baseline scenario and the project activity is the same</p> <p><i>Conclusion:</i> The validation team concluded that the return of equity applied is consistent and plausible.</p>
Cost of fuel (project activity)	5,010,775	USD	<p>Quotation from PT Bina Pitri Jaya dated 9th October 2008</p> <p>Quotation for biomass fired boilers, reference no – MIQ/WT149-20/08 R2, dated 2008-10-23</p>	/BL7/ /BL8/ /cf1/ /cf2/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> The cost of fuel was calculated based on the required biomass fuel multiply by the biomass fuel price.</p> <p><i>Justification:</i> The validation team had reviewed all the supporting documents to calculate the cost of fuel.</p> <p>The cost of the biomass fuel and the net caloric value of the biomass fuel were provided</p>



							<p>by supplier.</p> <p>The efficiency of the boiler is according to the quotation of the biomass boiler provided to the project participant. According to /R1/, the efficiency of the a biomass boiler is less than 80%.</p> <p>The value on the Enthalpy is based on steam chart.</p> <p>The operating hours is estimated for 330days per year. The remaining non-operational days is due to national holiday observed by the project participant and annual shut down for preventive maintenance.</p> <p><i>Conclusion:</i> The validation team concluded that the cost of fuel applied is consistent and plausible.</p>
Cost of fuel (project activity)	4,287,994	USD	<p>Indonesian coal index report, Weekly average ICI prices, Issue 032, date 08 August 2008</p> <p>Quotation for coal fired boilers, reference no – MIQ/WT195-20/08, dated 2008-10-10</p> <p>Industrial Combustion Boilers; dated May 2010</p>	/ICI/ /CPC7/ /R4/	☒	☒	<p><i>Description:</i> The cost of fuel was calculated based on the required coal multiply by the coal price.</p> <p><i>Justification:</i> The validation team had reviewed all the supporting documents to calculate the cost of fuel.</p> <p>The cost of the coal and the net caloric value of the coal was assume base on the Indonesia Coal Index (a publically available document).</p> <p>The efficiency of the boiler is according to the quotation of the biomass boiler provided to the project participant.</p> <p>According to /R4/, the efficiency of a coal boiler</p>

							<p>is 85%.</p> <p>The value on the Enthalpy is based on steam chart.</p> <p>The operating hours is estimated for 330days per year. The remaining non-operational days are due to national holiday observed by the project participant and annual shut down for preventive maintenance.</p> <p><i>Conclusion:</i> The validation team concluded that the cost of fuel applied is consistent and plausible.</p>
O&M costs (project activity)	298,040	USD	Feasibility Analysis: Biomass Boiler in Food Industry by Anders Evald, Mohammad Iskandar Bin	/BL6/	☒	☒	<p><i>Description:</i> The O&amp;M costs were calculated based on 5% of the total project cost.</p> <p><i>Justification:</i> The validation team had reviewed the supporting documents to calculate the O&amp;M costs.</p> <p>The project participant had assumed all the alternatives, baseline scenario and the project activity to have the same O&amp;M costs. The validation team deemed this is appropriate and conservative as the operational maintenance cost of a biomass boiler is higher. One of the reason of higher O&amp;M costs is frequent cleaning of the boiler is required due to formation of clinker affected by the high silica of the biomass fuel.</p> <p>According to the sectoral experience of the validation team, generally, an O&amp;M cost of power plant is approximately 1-5%.</p>

							<p><i>Conclusion:</i> The validation team concluded that the O&amp;M costs applied is consistent and plausible.</p>
O&M costs (baseline scenario)	286,976	USD	Feasibility Analysis: Biomass Boiler in Food Industry by Anders Evald, Mohammad Iskandar Bin	/BL6/	☒	☒	<p><i>Description:</i> The O&amp;M costs were calculated based on 5% of the total project cost.</p> <p><i>Justification:</i> The validation team had reviewed the supporting documents to calculate the O&amp;M costs.</p> <p>The project participant had assumed all the alternatives, baseline scenario and the project activity to have the same O&amp;M costs. As compared with the biomass power plant, the O&amp;M cost of a conventional thermal power plant (or cogeneration) is lower due to the lesser breakdown of a thermal plant.</p> <p>A thermal power plant operates in a more stable and consistent manner which able to reduce the breakdown.</p> <p><i>Conclusion:</i> The validation team concluded that the O&amp;M costs applied is consistent and plausible.</p>
Total Steam generation	316,800	Tonnes/year	Equipment Contract (Biomass Boiler) with Mackenzie Industries Sdn. Bhd.; dated 2008-12-10 Quotation for biomass fired boilers, reference no – MIQ/WT149-20/08 R3, dated 2008-11-14	/PSD2/ /CPC2/	☒	☒	<p><i>Description:</i> The total steam generated was calculated based on the installed capacity of the biomass boiler multiply by the expected operating hours of the refinery.</p> <p><i>Justification:</i> The validation team had reviewed the supporting documents to calculate the total steam generation. The capacity of the boiler is</p>

							<p>stated consistently between the quotation and the contract.</p> <p>The operating hours is estimated for 330days per year. The remaining non-operational days are due to national holiday observed by the project participant and annual shut down for preventive maintenance.</p> <p><i>Conclusion:</i> The validation team concluded that the steam generation assumption is correct.</p>
Power generation	27,989	MWh/year	<p>Equipment Contract (Back Pressure turbine, Condensing turbine and cooling tower) with Dalex Engineering Sdn. Bhd.; dated 2008-12-10.</p> <p>Quotation for 2 MW back pressure turbine, reference no – DL/0456E/08, dated 2008-10-28</p> <p>Quotation for 2 MW condensing turbine, reference no – DL/0455E/08, dated 2008-10-28</p>	/PSD1/ /CPC2/ /CPC4/	☒	☒	<p><i>Description:</i> The power (electricity) generated was calculated based on the installed capacity of the turbines multiply by the expected operating hours of the refinery.</p> <p><i>Justification:</i> The validation team had reviewed the supporting documents to calculate the total steam generation. The capacity of the turbines is stated consistently between the quotation and the contract.</p> <p>The operating hours is estimated for 330days per year. The remaining non-operational days are due to national holiday observed by the project participant and annual shut down for preventive maintenance.</p> <p><i>Conclusion:</i> The validation team concluded that the Power generation assumption is correct.</p>
Net Calorific Value of Biomass	3,500	kcal/kg	Quotation from PT Bina Pitri Jaya dated 9th October 2008	/BL7/	☒	☒	<p><i>Description:</i> The NCV of the biomass will determine the fuel cost of the project activity.</p>

							<p>The moisture content of the PKS is 20% according to the quotation.</p> <p><i>Justification:</i></p> <p>The validation team had reviewed the quotation provided by the project participant. The value applied in the excel sheet is consistent with the available quotation.</p> <p>The NCV of the PKS depends on the moisture content. The longer the PKS is stored (at the supplier) the higher the NCV. However due to burning effectiveness, the PKS could not be too dry, else it will be incinerated rather than burn for heat.</p> <p>According to West Bio Fuel Italia (<a href="http://www.palmkernelshell.com/characteristics.html">http://www.palmkernelshell.com/characteristics.html</a>), the NCV of the PKS is 3,800kcal/kg with moisture content of 15%. This value is line with the NCV of 3,500kcal/kg and a moisture content of 20%.</p> <p>To check the influence of the NCV on the costs the sensitivity analysis considers a higher NCV of 10%. The unit cost per unit of energy calculated as 225USD/MWh is still higher than the unit costs calculated in the baseline scenario.</p> <p><i>Conclusion:</i></p> <p>The validation team concluded that the biomass NCV is appropriate and plausible.</p>
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Net Calorific Value of coal	5,000	kcal/kg	Indonesia Coal Index report published by Argus/Coalindo; dated 2008-08-08	/ICI/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> The NCV of the coal will determine the fuel cost of the project activity.</p> <p><i>Justification:</i> The validation team had reviewed the publically available Coal Index. The value applied in the excel sheet is consistent with the available data.</p> <p>The project participant reduces 10% of the NCV of the coal for the sensitivity analysis. The unit cost per unit of energy is 230USD/MWh which is lower than the project activity.</p> <p><i>Conclusion:</i> The validation team concluded that the NCV of the coal applied is appropriate as it is according to public available data.</p>
Biomass efficiency boiler	76	%	Quotation for biomass fired boilers, reference no – MIQ/WT149-20/08 R2, dated Efficiency of Biomass Boiler; dated July 2006 Industrial Combustion Boilers; dated May 2010	/BL8/ /R4/ /R1/	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p><i>Description:</i> The biomass boiler efficiency has been provided by the supplier. The efficiency of the boiler will determine the amount of fuel required.</p> <p><i>Justification:</i> The validation team had reviewed the available quotation. The value applied in the excel sheet is consistent with the available quotation.</p> <p>According to Energy Technology Systems Analysis Programme<sup>/R4/</sup>, new boilers running on coal, oil, natural gas and biomass can reach efficiencies of 85%, 80%, 75% and 70% respectively.</p> <p>According to expert Omori<sup>/R1/</sup>, the efficiency of</p>

							<p>a biomass water-tube boiler is less than 80%. Through the experience of the validation team, the efficiency of a biomass boiler is lower due to the net calorific value of the biomass fuel (this cause lower combustion)</p> <p>The sensitivity analysis considers a 10 % higher biomass boiler efficiency. The unit cost per unit of energy is 225USD/MWh and therefore the unit cost is still lower than in the project activity.</p> <p><i>Conclusion:</i> The validation team concluded that the biomass boiler efficiency applied is appropriate as it is according to public data.</p>
Coal boiler efficiency	88	%	<p>Quotation for coal fired boilers, reference no – MIQ/WT195-20/08, dated 2008-10-10</p> <p>Industrial Combustion Boilers; dated May 2010</p> <p>Boilers, boiler fuel and boiler efficiency by A Wienese; dated 2001</p>	/CPC7/ /R2/ /R4/	☒	☒	<p><i>Description:</i> The coal boiler efficiency has been provided by the supplier. The efficiency of the boiler will determine the amount of fuel required.</p> <p><i>Justification:</i> The validation team had reviewed the available quotation. The value applied in the excel sheet is consistent with the available quotation.</p> <p>According to Energy Technology Systems Analysis Programme<sup>/R4/</sup>, new boilers running on coal, oil, natural gas and biomass can reach efficiencies of 85%, 80%, 75% and 70% respectively.</p> <p>According to Wienese<sup>/R2/</sup>, the efficiency of a coal boiler is approximately 85%.</p> <p>The project participant reduces 10% of the coal boiler efficiency of the coal for the sensitivity analysis. The unit cost per unit of</p>

							energy is 230USD/MWh which is lower than the project activity.  <i>Conclusion:</i> The validation team concluded that the coal boiler efficiency applied is appropriate and conservative
Grid connection cost (one-time fee)	15,000	USD	<a href="http://www.pln.co.id/PelayananPelanggan/NewInstallation/tabid/62/Default.aspx">http://www.pln.co.id/PelayananPelanggan/NewInstallation/tabid/62/Default.aspx</a>		☒	☒	<i>Description:</i> The grid connection fee is a standard fee charged by the national utility company of Indonesia to connect new electricity connection to National Grid.  <i>Justification:</i> The validation team reviewed the public web domain by PT PLN to confirm the cost applied for the electricity connection.  Since the project activity is a new industry complex and its consumption would be relatively high the national utility company is required to provide high voltage connection.  <i>Conclusion:</i> The validation team concluded the one time connection fee stated in alternative 1 and alternative 5 is plausible and correct according to the direct public information provided by PT PLN.
Cost for coal captive power plant with steam generation	7,374,520	USD	Quotation for coal fired boilers, reference no – MIQ/WT195-20/08, dated 2008-10-10  <a href="http://www.ifc.org/ifcext/spiwebsite1.nsf/0/78BED5CB654D713D852576">http://www.ifc.org/ifcext/spiwebsite1.nsf/0/78BED5CB654D713D852576</a>	/CPC7/ /CPC3/ /CPC4/	☒	☒	<i>Description:</i> The cost to build the coal based captive power plant with steam generation has been derived both from the information provided on the public website and the quotation provided to the project participant by suppliers.  <i>Justification:</i>



			<p><a href="http://www.ifc.org/ifcext/spiwebsite1.nsf/1ca07340e47a35cd85256efb00700cee/7168BA33536CB36185256E7E00509516">BA000E2601</a> - (previously was  <a href="http://www.ifc.org/ifcext/spiwebsite1.nsf/1ca07340e47a35cd85256efb00700cee/7168BA33536CB36185256E7E00509516">http://www.ifc.org/ifcext/spiwebsite1.nsf/1ca07340e47a35cd85256efb00700cee/7168BA33536CB36185256E7E00509516</a> ) Quotation for 2 MW condensing turbine, reference no – DL/0455E/08, dated 2008-10-28</p> <p>Quotation for 2 MW back pressure turbine, reference no – DL/0456E/08, dated 2008-10-28</p>			<p>The validation team reviewed the evidence provided during the validation. The values are consistent applied.</p> <p>The proposed project activity is required to generate 4MW of electricity and 29tonnes of steam. Hence in order to set up 4MW of captive power plant, 4.000.000 USD is required as stated by the literature reference, the price to set up a coal based CPP is equal to 1 million USD/MW. In order to generate the required steam, additional steam boilers are required to be installed. The cost of the boilers (USD3,374,520) has been provided by the boiler supplier<sup>CPC7/</sup>.</p> <p>The validation team replicated the value provided by the project participant. Considering the project activity requires 4MW of electricity and 29tonnes of steam; to generate the energies, it is required to install 2X2MW of turbines, additional of 20tonnes boiler (for steam to operate the captive power plant) and 2x20tonnes boiler (for steam to operate the refinery). With such installation the total cost is USD6,583,150. By replicating this value, the baseline scenario is still alternative 4 where the cost of per unit of electricity generated is lowest.</p> <p>The validation team had considered that the installation of 2x20tonnes boilers is logic due to the reason that the each of the boiler has a certain efficiency. As according to the quotation provided by the technology supplier the efficiency of the boiler is expected to be 88%. This means the 2X20tonnes boilers can</p>
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						<p>only generate approximately 35.2tonnes which the refinery process requires 29tonnes. The validation team deemed it is precise to install 2X20tonnes boilers to generate 29tonnes of steam. In case where the project participant would to purchase a boiler which generate the exact amount of steam required, the project participant would be at risk in case the boiler would not be able to operate at is efficiency. Hence the project participant would cater for some tolerance by purchasing a higher specification boiler.</p> <p><i>Conclusion:</i> The validation team concluded that the value applied for alternative 2 is plausible.</p>
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## ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

**Table A-4:** Assessment of Barrier Analysis

<input type="checkbox"/>	No barrier parameters are used for additionality justification			
<input checked="" type="checkbox"/>	Assessment of barriers see below			
Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of validation team	
			Appropriateness of information source	Explanation of final result

Technology	The efficiency of the biomass boiler (76%) is lower than the efficiency of coal boiler (88%). The difference of the consumption rate of the boilers will affect the amount of required fuel. Hence it could increase the cost of the project activity	/CPC7/ /R1/ /R2/ /R4/	<input checked="" type="checkbox"/>	<p>The validation team had reviewed the quotation provided by the project participant on the efficiency of both the biomass and coal boiler.</p> <p>According to expert Omori <sup>/R1/</sup>, the efficiency of a biomass water-tube boiler is less than 80%. Through the experience of the validation team, the efficiency of a biomass boiler is lower due to the net calorific value of the biomass fuel (this causes lower combustion). This is supported by A Wienes <sup>/R2/</sup>. According to Wienes, the NCV is related to the higher moisture content in biomass fuel. Also, according to Wienes, the efficiency of a coal boiler is approximately 85%.</p> <p>According to Energy Technology Systems Analysis Programme <sup>/R4/</sup>, new boilers running on coal, oil, natural gas and biomass can reach efficiencies of 85%, 80%, 75% and 70% respectively.</p> <p>An assessment of sensitivity analysis on the boiler efficiency has been conducted to confirm its barrier towards the project activity. This barrier due to efficiency of boiler is inter-connected between investment barrier and technology barrier.</p> <p>The validation team concluded that the project activity will have technology barrier due to the lower efficiency of a biomass boiler. In refinery process, steam is a crucial parameter. If the efficiency of the boiler is not achieved, the amount of energy required could not be generated, hence affects the refinery process.</p> <p>The validation team had considered the technology barrier stated in the PDD as a supplementary to the argument of the additionality as the additionality of the project activity has been proven by the financial barrier (analysis).</p>
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Prevailing	The project will use Biomass Fired High Pressure system which is amongst the first few of its kind in Edible Oil Refinery sector in Indonesia.	/PDD/ /RD8/	<input checked="" type="checkbox"/>	<p>The first-off-its-kind of the prevailing practices could not be substantiated. This is due to the lack of availability of literature and reference. However, with the sectoral and local expert of the validation team, it is the validation team's judgment that the project activity is the first few of its kind in Edible Oil Refinery in Indonesia. The reason of the validation team judgment:</p> <ol style="list-style-type: none"> <li>1. Based on the knowledge and sector experience of the validation team, a refinery is a sensitive process which requires constant steam and energy to maintain all process control. Hence most of the refinery would not risk such energy production. Most of the refinery would prefer fossil fuel base boiler to enable to achieve constant energy generation.</li> <li>2. As according to the understanding of the research conducted by the University Technology of Malaysia<sup>/RD8/</sup>, temperature control is an important parameter in palm oil refining process especially in the degumming and bleaching process.</li> </ol> <p>Hence, the validation team concluded that the non-consideration of the barrier due to prevailing practice is correct and the removal is accordance to paragraph 117(a) of the VVM version 1.2.</p> <p>Although prevailing barrier is stated in the PDD as a supplementary to the argument of the additionality, the validation team concludes the additionality of the project activity has been proven by the financial barrier (analysis).</p>
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Other	The deficit in power capacity in PLN, the local grid is unable to provide power to the project proponent	/BL2/ /PSD1/	<input checked="" type="checkbox"/>	<p>The validation team had reviewed the letter of rejection by PT PLN to the project participant. Due to the deficit of power capacity of the Grid, the National Grid operator could not supply the required energy of the project activity.</p> <p>In order to operate the Refinery, the project participant will pose barrier due to the non-availability of electricity. Given an example, the project activity will require 4MW of electricity to perform it refinery process. In case the Grid could not support the needs, the project participant is required to install turbines which will be connected to the boiler. In regardless if there is Grid connection, the project still requires a boiler to generate steam for the refinery process. Hence as cost comparison, in order to install a turbine, the cost is approximately USD2,365,000 while the one time grid connection fee is USD150,000. This has clear show that additional costs is required to be invested for captive generation (project activity is the choice as with the assistance of CERs, the unit cost of generation is lower than fossil fuel (coal) unit cost of generation).</p> <p>The validation team had reviewed the cost of the turbine which has been provided by the technology supplier. The validation team had reviewed the connection cost to the National grid via a public web domain by the national utility company of Indonesia – PT PLN (<a href="http://www.pln.co.id/PelayananPelanggan/NewInstallation/tabid/62/Default.aspx">http://www.pln.co.id/PelayananPelanggan/NewInstallation/tabid/62/Default.aspx</a>).</p> <p>The validation team had considered the other barrier stated in the PDD as a supplementary to the argument of the additionality as the additionality of the project activity has been proven by the financial barrier (analysis).</p>
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## ANNEX 5: OUTCOME OF THE GSCP

**Table A-5:** Outcome of the Global Stakeholder Consultation Process

(§§ 40-42, VVM Version 1.2)

<input checked="" type="checkbox"/>	No comments were received during the global stakeholder consultation period					
<input type="checkbox"/>	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the validation team are presented below:					
Comment No.:	Comment by:	Inserted on:	Subject	Comment <sup>*)</sup>	Action taken by the validation team to take due account on the comment <sup>*)</sup>	Conclusion (incl. CARs CLs or FARs)
					Further clarification has been / has not been requested from the entity providing the comment because the comment was / was not sufficiently substantiated due to ...	

<sup>\*)</sup> In case clarifications have been requested by the validation team corresponding rows shall be added

## ANNEX 6: APPOINTMENT CERTIFICATES OF TEAM MEMBERS



### CERTIFICATE OF APPOINTMENT

**Mr. Robert Chun Yuen Cheong**

born on 1952-02-28

satisfies the requirements as specified in the TÜV NORD  
JI/CDM CP directives and is hereby appointed as

**TÜV NORD CDM Assessor**

The present appointment will terminate on 2012-03-03  
Certification registration No. 09 03 02 – 128 rev01

Essen, 2009-03-04

  
Head of TÜV NORD JI/CDM Certification Program  
of TÜV NORD CERT GmbH

### CERTIFICATE OF APPOINTMENT

**Mr. Nicholas Chee Yin Cheong**

born on 1983-03-21

satisfies the requirements as specified in the TÜV NORD  
JI/CDM CP directives and is hereby appointed as

**TÜV NORD CDM Expert**

The present appointment will terminate on 2012-08-19  
Certification registration No. 09 08 01 – 158 rev.01

Essen, 2009-08-20

  
Head of TÜV NORD JI/CDM Certification Program  
of TÜV NORD CERT GmbH

### CERTIFICATE OF APPOINTMENT

**Mr. Dr. Jochen Schubert**

born on 1970-12-24

satisfies the requirements as specified in the TÜV NORD  
JI/CDM CP directives and is hereby appointed as

**TÜV NORD CDM Assessor**

The present appointment will terminate on 2013-06-02  
Certification registration No. 10 06 03 – 56

Essen, 2010-06-03

  
Head of TÜV NORD JI/CDM Certification Program  
of TÜV NORD CERT GmbH





### CERTIFICATE OF APPOINTMENT

**Mr. Martin Saalmann**

born on 1976-02-23

satisfies the requirements as specified in the TÜV NORD  
JI/CDM CP directives and is hereby appointed as

**TÜV NORD JI/CDM Senior Assessor**

The present appointment will terminate on 2013-03-31  
Certification registration No. 10 04 01 – 22

Essen, 2010-04-01

  
Head of TÜV NORD JI/CDM Certification Program  
of TÜV NORD CERT GmbH



### CERTIFICATE OF APPOINTMENT

**Mr. Hoo Boon Han**

born on 1983-10-22

satisfies the requirements as specified in the TÜV NORD  
JI/CDM CP directives and is hereby appointed as

**TÜV NORD CDM Trainee**

The present appointment will terminate on 2013-09-07  
Certification registration No. 10 09 02 – 198

Essen, 2010-09-08

  
Head of TÜV NORD JI/CDM Certification Program  
of TÜV NORD CERT GmbH



### CERTIFICATE OF APPOINTMENT

**Ms. Ellys Simamora**

born on 1975-10-01

satisfies the requirements as specified in the TÜV NORD  
JI/CDM CP directives and is hereby appointed as

**TÜV NORD CDM Expert**

The present appointment will terminate on 2013-06-13  
Certification registration No. 10 06 03 – 111

Essen, 2010-06-14

  
Head of TÜV NORD JI/CDM Certification Program  
of TÜV NORD CERT GmbH