



VERIFICATION REPORT

- 2ND PERIODIC –

PT MANUNGGALENERGI NUSANTARA

MEN-TANGERANG 13.6MW NATURAL GAS

CO-GENERATION PROJECT

UNFCCC REF. No. : 1313

Monitoring Period: 2008-09-01 to 2009-08-31
(incl. both days)

Report No: 8000380224 – 09/497 V02

Date: 2010-11-29

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Verification Report:	Report No.	Rev. No.	Date of 1st issue:	Date of this rev.
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Project:	Title:	Registration date:	UNFCCC-No.:	
	MEN-Tangerang 13.6MW Natural Gas Co-generation Project	2008-02-26	1313	
Project Participant(s):	Host party: Indonesia	Other involved parties:		
	Indonesia	Japan & United Kingdom		
Applied methodology/ies:	Title:	No.:	Scope:	
	“Natural gas-based package cogeneration”	AM0014 Ver. 03	1 & 4	
Monitoring:	Monitoring period (MP):	No. of days:	MP No.	
	2008-09-01 to 2009-08-31- both days included	365	2	
Monitoring report:	Title:	Draft version:	Final version:	
	MEN-Tangerang 13.6MW Natural Gas Co-generation Project	1.5.0	2.0.1	
Verification team / Technical Review and Final Approval	Verification Team:	Technical review:	Final approval:	
	Cheong, Chun Yuen Simamora, Ellys (Robert) Cheong, Chee Yin (Nicholas)	Lars Kirchner Alexandra Nebel	Winter, Rainer	
Emission reductions: [t CO_{2e}]	Verified amount	As per draft MR:	As per PDD:	
	25,225 t	25,465 t	42,622t /a	
Summary of Verification Opinion:	<p>PT Manunggal Energi Nusantara has commissioned TÜV NORD JI/CDM Certification Program to carry out the 2nd periodic verification of the project: “MEN-Tangerang 13.6MW Natural Gas Co-generation Project”, with regard to the relevant requirements for CDM project activities.</p> <p>PT Manunggal Energi Nusantara has developed a cogeneration plant using natural gas as fuel. The electricity and heat generated has been supplied to a textile manufacturing plant – PT Agro Pantas.</p> <p>The project generates 13.6MW of electricity and 9.5 tons per hour of high quality steam at 8 to 10 bars pressure for industrial user – PT Argo Pantas who previously import electricity from JAMALI grid and generate steam with fuel-mix of higher carbon intensity than natural gas.</p> <p>This verification covers the period from 2008-09-01 to 2009-08-31 (including both days).</p> <p>In the course of the verification 4 Corrective Action Requests (CAR) and 2 Clarification Requests (CR) were raised and successfully closed. Furthermore 3 FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, 1st verification report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.</p> <p>As a result of this verification, the verifier confirms that:</p> <ul style="list-style-type: none">all operations of the project are implemented and installed as planned and described in the validated project design document.the monitoring plan is in accordance with the applied approved CDM methodology , ie. AM0014 Version 03the installed equipment essential for measuring parameters for calculating emission reductions are calibrated appropriately.the monitoring system is in place and functional. The project has generated GHG emission reductions. <p>As the result of the 2nd periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project</p>			



	has achieved emission reductions in the above mentioned reporting period as follows:	
	Emission reductions:	25,225 t CO _{2e}
Document information:	<i>Filename:</i>	<i>No. of pages:</i>
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Abbreviations:

CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
CL	Clarification Request
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
SOP	Standard Operating Procedure
UNFCCC	United Nations Framework Convention on Climate Change
VR	Validation Report
XLS	Emission Reduction Calculation Spread Sheet

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1. INTRODUCTION

PT Manunggal Energi Nusantara has commissioned TÜV NORD JI/CDM Certification Program (CP) to carry out the 2nd periodic verification of the project

”MEN-Tangerang 13.6MW Natural Gas Co-generation Project”

with regard to the relevant requirements for CDM project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered CDM project number 1313¹.

GHG data for the monitoring period covering 2008-09-01 to 2009-08-31 (include both dates) was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Manual ^{/VVM/} of the UNFCCC.

This report summarizes the findings and conclusions of this 2nd periodic verification of the above mentioned UNFCCC registered project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD,
- compliance with applied approved methodology and the provisions of the monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence,
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the validated project design document ^{/PDD/}, the monitoring report ^{/MR/}, emission reduction calculation spread sheet ^{/ERDRII/ERDRIII/}, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 12 of the Kyoto Protocol ^{/KP/},

¹ <http://cdm.unfccc.int/Projects/DB/TUEV-SUED1188296065.92/view>

- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 ^{/MA/}, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Manual ^{/VVM/},
- monitoring plan as given in the registered PDD ^{/PDD/},
- Approved CDM Methodology AM0014 ver.03: "Natural gas-based package cogeneration".

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	MEN-Tangerang 13.6MW Natural Gas Co-generation Project
Project size	<input checked="" type="checkbox"/> Large Scale <input 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 checked="" 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	AM0014 Ver. 03: Natural gas-based package cogeneration
Date of registration	2008-02-26
CDM registration No.	1313
Crediting period	<input checked="" type="checkbox"/> Renewable Crediting Period (7 y) <input type="checkbox"/> Fixed Crediting Period (10 y)
Start of crediting period	2008-02-26

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 Manunggal Energi Nusantara
Other involved party/ies	Japan	Mitsubishi UFJ Securities Co. Ltd.
	United Kingdom	Deutsche Bank AG

2.3. Project Location

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

Table 2-3: Project Location

No.	Project Location
Host Country	Indonesia
Region:	Province of Banten
Project location address:	Jl. MH Thamrin KM4, Cikokol, City of Tangerang
Latitude:	6°12'30.96" S
Longitude:	106°37'35.43" E

2.4. Technical Project Description

PT Manunggal Energi Nusantara has developed a cogeneration plant using natural gas as fuel. The electricity and heat generated are supplied to a textile manufacturing plant – PT Argo Pantes.

The purpose of the project is to generate 13.6MW of electricity and 9.5 tons per hour of high quality steam at 8 to 10 bars pressure for industrial user – PT Argo Pantes who currently used grid electricity and generate of steam with fuel-mix of higher carbon intensity than natural gas.

The key parameters for the project are given in table 2-4:

Table 2-4: Technical data of the plant /TSG/WHRS/

Technical Data of Main Equipments	
Gas Engine	
Manufacturer	GE Jenbacher
Engine Type	J 620-GS-E12
No. of Units	5
Exhaust Gas Temperature at full load	443 °C
Generator	
Manufacturer	AVK
Type	DIG 130 m/4
No. of units	5
Electrical Output at Full Load 100%	2.722MW
Type Rated	3,850 kVA
Rated Voltage	3.3KV
Frequency	50 Hz
Speed	1,500 rpm
EGBWaste Heat Recovery System	

Technical Data of Main Equipments	
Manufacturer	DGA Co., Ltd.
Model	EGB 1.4e
Nominal Evaporation	2,300kg/hr
Max. Allowable Pressure	10 bar

The project activity consists of 5 units of gas engine generator set each with an electrical output capacity of 2.722MW at 100% full load. The total generation capacity of this project activity is 13.6MW.

There are 5 units of waste heat recovery boiler to generate steam. The heat is extracted from the exhaust of the gas engines and feed to the waste heat boiler to produce steam. The maximum pressure of the steam boiler is 10bar.

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report^{/MR/} submitted by the client and additional supporting documents with the use of customised verification protocol^{/CPM/} according to the Validation and Verification Manual^{/VVM/},
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

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

Table 3.1: Verification sequence

Topic	Time
Assignment of verification	2009-11-23
Uploading of Monitoring Report	2009-11-30
On-site visit	2009-12-14 & 2009-12-15
Draft reporting finalised	2009-12-28
Final reporting finalised	2010-01-10
Technical review finalised	2010-02-22
Final Approval for respond to request for review	2010-11-29

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 verification 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 verification team, consistent of one team leader and 3 additional team members, was appointed. Furthermore also the personnel for the technical review and the final approval was determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence	Technical competence ⁴⁾	Host country Competence	Team Leading competence
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Cheong, Chun Yuen (Robert)	TN Malaysia	TL	A	<input checked="" type="checkbox"/>	G	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Cheong, Chee Yin (Nicholas)	TN Malaysia	TM	E	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Simamora, Ellys	TN Indonesia	TM	T	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Lars Kirchner	TUV Nord Cert GmbH	TR ³⁾	E	<input type="checkbox"/>	G	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Alexandra Nebel	TUV NORD Cert GmbH	TR ³⁾	A	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Rainer Winter	TUV NORD Cert GmbH	FA	SA	<input checked="" type="checkbox"/>	G	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

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

³⁾ No team member

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

3.4. Publication of the Monitoring Report

In accordance with the CDM M&P (§ 62) the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the verification activity commenced. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in table 3-2 below.

Table 3-2: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
<i>The following potential risks were identified and divided and structured according to the possible areas of occurrence.</i>	<i>The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks. The following measures are implemented:</i>	<i>Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.</i>	<i>The additional verification testing performed is described. Testing may include:</i> <ul style="list-style-type: none"> - Sample cross checking of manual transfers of data - Recalculation - Spreadsheet 'walk throughs' to check links and equations - Inspection of calibration and maintenance records for key equipment - Check sampling analysis results <i>Discussions with process engineers</i>	<i>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.</i>

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
			<i>who have detailed knowledge of process uncertainty/error bands.</i>	

The completed table A-1 is enclosed in the annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in table 3-3.

Table 3-3: Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	Reference	Verification Team Comments	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-2 are linked to the various requirements the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.</i>	<i>Gives reference to the information source on which the assessment is based on.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verification stage.</i>	<i>In case of a corrective action or a clarification the final assessment at the final verification stage is given.</i>

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in the annex (table A-2) to this report.

3.6. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan^{/PDD/},
- the last revision of the validation report^{/VAL/},
- the 1st verification report^{/VER1/}
- the monitoring report, including the claimed emission reductions for the project^{/MR/},
- the emission reduction calculation spreadsheet^{/ERDRIIC/ERDRIIC/MRII/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the

monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.

The complete verification team attended the site visit.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of PT Manunggal Energi Nusantara and PT Zeus-Innavitas (project consultant) including the operational staff of the plant were interviewed. The main topics of the interviews are summarised in Table 3-4.

Table 3-4: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
<ol style="list-style-type: none"> 1. Management & Operations Personnel, PT Manunggal Energi Nusantara 2. Consultant, PT Zeus-Innavitas 	<ul style="list-style-type: none"> - General aspects of the project - Technical equipment and operation - Changes since validation or 1st Verification - Monitoring and measurement equipment - Remaining issues from validation or 1st verification - Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GHG calculation - Procedural aspects of the verification - Maintenance - Environmental aspect

3.8. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings form the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.9. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is issued if:

- information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

3.10. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive validation opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative validation opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.11. Technical review

Before submission of the final verification report a technical review of the whole verification 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 verification team and thus not involved in the decision making process up to the technical review.

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

3.12. Final approval

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

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report^{/MR/}, the ER calculation spreadsheet^{/ERDRIIC/ERDRIIC/}, PDD^{/PDD/}, the Validation Report^{/VAL/}, 1st Verification Report^{/VER1/} and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
H - Project history	0	0	0
U - Update on Changes and Incidents	0	0	0
R - Monitoring Report – General	4	2	0
P - Monitoring Parameters	0	0	2
C - Emission Reduction Calculation	0	0	0
Q - Quality Management	0	0	1
SUM	4	2	3

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

Finding: Monitoring Report	R1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	CAR.R1: The applied methodology, version and meth tools applicable to the project were not stated in the report.		

Finding: Monitoring Report	R1
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>Applied methodology, version & title are now included in the title page of the Monitoring Report. Calculation of grid emission factors follows the rules in the applied methodology, which refers to ACM0002 and AMS.I-D, and not an independent tool, thus not specified.</p> <p>For areas of which the applied methodology did not specify, for example: treatment of power plants with incomplete information, the latest Tool to Calculate Emission Factor for an Electricity System (Version 02) was adopted.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Amendments had been made in latest revision of monitoring report to include methodology title and version.</p> <p>The emission factor calculation as stated in the methodology is based on the large scale methodology ACM0002 or the small scale project methodology AMS-I.D.</p> <p>The tool as specific above is applied wherever the methodology did not specify for certain information.</p> <p>The methodology title and version have been stated correctly.</p> <p>CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p><input type="checkbox"/> To be checked during the next 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 type="checkbox"/> The project complies with the requirements</p>

Finding: Monitoring Report	R2
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	CAR.R2: Several editorial issues are found and correction required
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>General editorial/grammatical corrections were performed throughout the monitoring report. Some of the more significant aspects are:</p> <p>(a) Correction of name of project participants to ensure correct legal designations of the entities. ^{/MoC/}</p> <p>(b) Inclusion of name of CDM Manager in the Monitoring Team;</p> <p>(d) Correction in some of the values reported under Environmental Performance (Section 5). ^{/ER/}</p>

Finding: Monitoring Report	R2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Several editorial errors have been corrected in latest revised monitoring report that includes the followings:</p> <ol style="list-style-type: none"> 1. Name of project participants have been corrected in accordance to PDD Section A.3 and Annex I. A revised MoC has been submitted to UNFCCC to include the party, Deutsche Bank AG. 2. The CDM Manager name has been included in page 2 of monitoring report. 3. Proposed changes to project activity has been included in section 1.2 sub-section "Other CDM processes". These proposed changes had not been carried out at the time of on-site visit, but will be relevant for the next periodic verification. 4. Correction has been made in section 5, Environmental Performance to include the Ministry of Environment Decree concerning noise level quality. 5. Other minor editing have been made in the monitoring report <p>In conclusion, corrections had been made and CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<p> <input type="checkbox"/> To be checked during the next 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 type="checkbox"/> The project complies with the requirements </p>

Finding: Monitoring Report	R3
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	CAR.R3: Addition of 1 Annex I project participant from United Kingdom was not elaborated clearly.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Activity to update of Modalities of Communication to add Deutsche Bank as a Project Participant is now described in Section 1.2 of Monitoring Report.

Finding: Monitoring Report	R3
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Additional Annex I party, Deutsche Bank AG has been included in monitoring report Section 1.2.</p> <p>A revised MoC annex 2 has been uploaded in UNFCCC website since 2009-07-03. ^{/MoC/}</p> <p>In conclusion, updates had been made in the latest revision of the monitoring report.</p> <p>CAR is closed</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next 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 type="checkbox"/> The project complies with the requirements

Finding: Monitoring Report	R4
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	CAR.R4: The monitoring period date in Section 1.3 in the MR is incorrect.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Correction has been made to the start date of monitoring period in Section 1.3 of Monitoring Report.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>The monitoring period start date in section 1.3 of the latest revision of the monitoring report has been corrected.</p> <p>CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next 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 type="checkbox"/> The project complies with the requirements

Finding: Monitoring Report	R5
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR

Finding: Monitoring Report	R5
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	CL.R5: It is not clear which is the primary electricity meter as indicated at the section 2.5 of MR.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The primary electricity meters has been clarified in Section 2.5 of Monitoring Report as the GE-201 to GE-205 (gross generation from gas engines) and GE-200 (total internal consumptions). This is consistent with PDD which stated that parameter CEO as 'amount of electricity generated by the project net of its parasitic consumption'
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Section 2.5 of latest monitoring report revision has been updated indicating the primary electricity meters are GE-201 to GE-205 which measures the gross electricity generating by each genset. The sum of the electricity generated measured by the 5 meters ^{/IL/} minus the internal auxiliary load measure by meter GE-200, will be the net electricity generated for export to the industrial user, PT Argo Pantas. The net electricity exported is in compliance to the registered PDD monitoring plan ^{/PDD/} parameter CEO which is the amount of electricity generated by the project net of its parasitic consumption. CL is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next 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 type="checkbox"/> The project complies with the requirements

Finding: Monitoring Report	R6
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	CL.R6: Section 5 of MR addresses Environmental Performance. The reference of the applicable standard is not clear.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Specific regulations applicable for the project activity which are stipulated in the Project's environmental reports are now clearly stated in the Monitoring Report.

Finding: Monitoring Report	R6
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Section 5 of latest monitoring report revision has been updated with the respective references for Air Pollution, Odour and Noise level. CL is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next 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 type="checkbox"/> The project complies with the requirements

Finding: Monitoring Parameters	P1
Classification	<input type="checkbox"/> CAR <input type="checkbox"/> CL <input checked="" type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	FAR.P1: The daily report indicates that there are without production due to downtimes for maintenance and servicing. The records need to be improved to include the reasons for the downtimes. This will be checked in the next verification period.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The Project Operator will review its reporting systems to explore possibilities to include reasons of downtime in the CDM reporting.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The reporting system will be reviewed in the next monitoring period to verify downtime will be included in the reporting log sheet.
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding: Monitoring Parameters	P2
Classification	<input type="checkbox"/> CAR <input type="checkbox"/> CL <input checked="" type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	FAR.P2: Although the meters have been calibrated evidenced with certificates that have been issued by PLN Laboratorium Kalibrasi, the calibration stickers were not updated. This will be checked in the next verification period.

Finding: Monitoring Parameters	P2
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The Project Operator will request official from PLN Laboratorium Kalibrasi to update the sticker in the next calibration process, or if not possible, to ensure the validity of the calibration by other means.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	This will be checked during the next verification that proper calibration label stickers are in place on all meters calibrated.
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements

Finding: Quality Management	Q1		
Classification	<input type="checkbox"/> CAR	<input type="checkbox"/> CL	<input checked="" type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	FAR.Q1: Although the data are stored in a dedicated computer and in back-up disk, the level of security need to be upgraded and additional external storage required to ensure data are retrievable in the event of any emergency. This will be check at the next verification.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The Project Proponent will review its data archiving system, and explore practicality and added value of having tighter security, and external storage for its CDM Data. It shall be noted that at present, data is stored electronically in two locations: the main office in Jakarta and the site office in Tangerang. The main office also already implemented regular back-up system to limit possibility of lost information.		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	The security level of the data storage and access will be further checked during the next verification.		
Conclusion <i>Tick the appropriate checkbox</i>	<input checked="" type="checkbox"/> To be checked during the next periodic verification <input type="checkbox"/> Appropriate action was taken <input type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input type="checkbox"/> The project complies with the requirements		

5. SUMMARY OF VERIFICATION ASSESSMENTS

The following paragraphs include the summary of the final verification assessments after all CARs and CLs are closed out. For details of the assessments please refer to the discussion of the verification findings in chapter 4 and the verification protocol (Annex 1).

5.1. Implementation of the project

During the verification a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PDD.

There are no major changes in the key equipment since the 1st verification of the project. The project uses natural gas for electricity generation and waste heat recovered from the exhaust of the gas engines to generate steam and supply to the industrial user, PT Argo Pantes. No change is envisaged. These facts have been verified during site visit.

During the monitoring period covering 2008-09-01 to 2009-08-31 (include both days) the project exported 49,119MWh of net electricity and 153.8TJ of steam to PT Argo Pantes, the industrial user. This was verified by the verification team during the on site visit by checking the recorded generation data^{/ERDRIIC/ERDRIIC/ERDRII/ERDRIII/MRII/}.

All necessary monitoring instruments are installed. The measuring devices were in good condition and found to be accurate, and reliable. All required instruments including secondary are installed and operating procedures for the same have been implemented in an appropriate manner and as described in the registered PDD. For the metering purpose, there are individual sealed (Primary and Secondary) meters which indicate the electricity exported to the industrial user. The meter reading^{/ERDRII/ERDRIII/} is recorded daily and consolidated monthly.

Calibration procedures and test reports of all online energy meters covering the reported monitoring period were verified for their frequency and traceability to industry standards. Calibration records of all installed meters were checked and found satisfactory^{/EMCC, GMCC/}.

The submitted monitoring report which forms the basis of the verification was prepared by summarizing consolidated monthly data over the whole monitoring period in accordance with the monitoring plan of the PDD.

5.2. Project history

During the validation^{/VAL/}, the validating DOE might have raised issues that could not be closed or resolved during the validation stage. For this purpose FARs might have been raised. No such issues were identified for this project.

During the 1st verification period ^{/VER1/}, the verifying DOE might have raised issues that could not be closed or resolved during the verification stage. For this purpose, FARs might have been raised. Reviewing the report, no issues were raised during the monitored period.

Furthermore as this is the 2nd periodic verification no issues from previous verification are found.

5.3. Special events

No special events with effect on the monitoring of the project have been observed during the monitoring period.

5.4. Compliance with the monitoring plan

The monitoring system and all applied procedures are completely in compliance to the registered monitoring plan.

The submitted monitoring report ^{/MR/} which forms the basis of the verification was prepared by summarizing consolidated monthly data over the whole monitoring period in accordance with the monitoring plan of the registered PDD ^{/PDD/}.

During the monitoring period covering 2008-09-01 to 2009-08-31 (include both days), the project exported 49,119 MWh of net electricity and 153.8TJ of steam to PT Argo Pantes, the industrial user. This was verified by the verification team during the on site visit by checking the recorded generation data ^{/ERDRIIC/ERDRIIC/ERDRII/ERDRIII/MRII/}.

5.5. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology (AM0014 Ver: 03).

The monitoring reports ^{/MR/} and emissions reduction calculations ^{/ERDRIIC/ERDRIIC/MRII/} are in line with the requirements of the validated monitoring plan as well as with the applied methodology AM0014 version 03. ^{/AM0014/}.

The reporting procedures reflect the requirements of the monitoring plan ^{/PDD/}. The net electricity exported and steam generated are recorded daily and consolidated once every month ^{/ERDR/ERDR/} by the project owner, PT Manunggal Energi Nusantara. This forms the basis for emission reduction calculation.

5.6. Monitoring parameters

During the verification all relevant monitoring parameters (as listed in section B.7.1 of the registered PDD) have been verified with regard to the appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the project specific verification checklist.

After appropriate corrections were carried out by the project participant it can be confirmed that all monitoring parameters have been measured / determined without

material misstatements and in line with all applicable standards and relevant requirements.

Audit team verified following parameters:

- Gross Electricity Generation (in MWh) and Auxiliary Electricity Consumption;
- Electricity exported to industrial user;
- Steam generated and exported to industrial user;
- Natural Gas consumption;
- NCV of Gas;
- EF for Java-Madura-Bali (JAMALI) grid

All the figures as per the monitoring plan were cross-checked by the verification team against basic monitored data and the calculations were found to be correct.

The key monitoring parameters which influence on the calculation of the emission reductions is the electricity generation in the JAMALI grid.

The electricity exported to industrial user is measured with a high accuracy and duly calibrated class 0.5S meters ^{/EMCC/}.

The steam exported to industrial user is measured with a high accuracy and duly calibrated meter with a steam delivery capability of 13kg/hr ^{/SFMV/}.

The meter readings are carried out daily and consolidated monthly by the plant operators. The records and consolidated data ^{/ERDRII/ERDRIII/MRII/} are the basis for the commercial billing. All relevant evidences were fully checked by the verification team during and after the site-visit. All evidences are clearly identifiable and assessed to be correct.

Natural gas is used to generate the electricity and measured continuously with a meter supplied by the gas supplier and duly calibrated ^{/GMCC/}. The meter is read jointly once monthly with the gas supplier.

All necessary monitoring instruments ^{/IL/} are installed. The measuring devices were in good conditions and found to be accurate, and reliable. All required instruments including secondary are installed and operating procedures for the same have been implemented in an appropriate manner. In order to carry out metering of power generated as required by the methodology, sealed (Primary and Secondary) meters ^{/IL/} are installed in the plant operation room.

Calibration procedures and test reports ^{/EMCC/GMCC/SFMV/} of all online energy, steam and gas meters covering the reported monitoring period were verified for their frequency and traceability to industry standards. Calibration records of all installed electricity and steam meters were checked and found satisfactory.

During the on-site visit, the validation team found the primary (supply) gas meter calibration was delayed by 2 months and 1 week from the due date of 2009-04-28. The last calibration was conducted on 2008-04-28. ^{/GMC2008/}

The project owner PT MEN had notified the gas supplier PT PGN on the calibration delay dated 2009-04-13 and 2009-06-24. The gas supplier responded on 2009-06-25 explaining on the cause of the delay. On 2009-06-26, an agreement was made between project owner and gas supplier for the delay in the meter calibration.
/Memol/Memoll/GMCC/

Subsequently, the meter was calibrated on 2009-07-07 by Direktorat Metrologi and the calibration certificate was issued on 2009-08-03. The certificate states the accuracy of the meter which is within the agreed range between project owner and gas supplier and in accordance to range as stated in the monitoring plan of the registered PDD.
/PDD/GMCC/

In conclusion, the delay in the calibration had not caused any major impact to the accuracy of the metering of the gas supply to determine the project emissions from the combustion of natural gas and the leakage emission from the gas production and transportation. The amount of gas read from the meter is used to calculate these 2 parameters without adjustment made to the accuracy. However, for conservativeness, the project owner had applied the maximum 4% as error for the month of May and June 2009 for calculating the project emissions for usage of natural gas for power generation. Finally, there is no impact to the baseline emissions since it is based on the amount of electricity generated.

Table 5-1: Calibration of the meter

Monitoring Period	01/09/2008 to 31/08/2009			
Meters	Lack	Calibration validity period	Lack	Calibration validity period
NG-100 Gas	0 days	2008-04-28 2009-04-28	2 month 6 days	2009-07-07 2010-07-07
GE-200 Elec	0 days	2007-09-18 2009-03-18	0 days	2009-03-03 2010-09-03
GE-201-205 Elec	Computerized integral monitoring meter - no calibration required.			
H-301 Steam	0 days	2007-02-15 2010-02-15	0 days	2009-08-10 2010-08-10
NG-101-105 Gas	8 days	2008-09-09 2009-09-09	0 days	2009-08-10 2010-08-10
UE-100 Elec	0 days	2007-08-18 2009-03-18	0 days	2009-03-03 2010-09-03

The meters for electricity generation have been calibrated within the allowable timeframe given in the calibration certificates of 1.5 years.
/CCGE2UE1/GMC2008/SFMV/GMCC/

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan ^{/PDD/}. No significant, lack of evidence and missing data were detected during on-site verification.

It could be evidenced that the monitoring system ensures for continuous (except some routine breakdowns or outage) operation.

In the process of this verification, 2 Forward Action Requests (FARs) were raised that will be follow up during the next verification. Further details of FARs raised, refer to section 5.11 below.

5.7. Monitoring report

A draft monitoring report was submitted to the verification team by the project participants. The team has made this report publicly available prior to the start of the verification activities. No comments were received.

During the verification, mistakes and needs for clarification were identified. The PP has carried out the requested corrections so that it can be confirmed that the Monitoring report is complete and transparent and in accordance with the registered PDD and other relevant requirements.

In the process of the verification, 4 CARs and 2 CLs were raised and closed successfully.

The CARs and CLs are described in Section 4 Verification Findings.

5.8. ER Calculation

The electricity supplied to the industrial user is net after deducted the internal auxiliary consumption of the project activity and is the baseline for displacement of grid electricity.

The baseline emission associated with the displacement of electricity is the net electricity supplied to the industrial user multiplied with the weighted average grid emission factor for the year of the power generation in the JAMALI grid.

The weighted average grid emission factor for the year of the power generation is calculated by using data obtained from PLN and IPP power plants connected to JAMALI grid as ex-post data.

ACM0002 version 6 was chosen in the PDD as the tool to calculate the emission factor. ACM0002 version 6 describes how to calculate the emission factor but does not give clear guidance in case data for the year of electricity generation are not available. The project participant decided to seek further guidance from the “Tool to calculate the emission factor”, which was first published on 19th of October 2007 while this project was uploaded for request for registration on 18th of October 2007. The tool gives guidance how to deal with data from y, y-1, y-2. It is further described in the tool that always the same time lag shall be used. This means if in the first MP y-2 data have been used, because they were the latest available, also in the following MPs the same time lag y-2 shall be applied.

For this project activity this implies the following: During the first MP in 2008, latest available data from 2006 were applied (y-2) to calculate the EF, consequently for the second MP (2008-2009) the same time lag y-2 data from 2007 were applied, which are the latest available at time of publishing the MR². Following this guidance the project chose the correct data for EF calculation.

The fuel consumption for the mentioned power plants PT Cikarang Listrindo and PT Indorama were not publicly available except of the electricity generation data. ^{/EFD(9)/}. Similarly, the plant efficiency data were not publicly available for these 2 power plants, therefore, the PP applies the default plant efficiency for gas and coal fired power plant from EB35 Annex 12 version 1.1. ^{/TV1.1/EFJ/}

According to the methodology ACM0002 version 06, footnote 4 priority 3, "calculated, as above, but using estimates such as "technology provider's name plate power plant efficiency or the anticipated energy efficiency documented in official sources (instead of calculating it from fuel consumption and power output). This is likely to be a conservative estimate, because under actual operating conditions plants usually have lower efficiencies and higher emissions than name plate performance would imply".

ACM0002 version 06 does not provide clear guidance therefore the tool is applied since it provides a clearer approach that allows the selection of applicable options to calculate the emission factors in case data are not available.

Therefore, the approach taken to apply the efficiency is considered appropriate and in accordance with the tool and methodology ACM0002. ^{/TV1.1/}

Appropriate calculation methods (i.e. in accordance with tool) are applied to calculate the weighted average emission factor for the JAMALI grid. The grid emission factor of 0.951tCO₂ / MWh for the JAMALI grid has been rightly applied in this monitoring period.

The steam supplied to the industrial user is generated by the waste heat recovery system that replaced the steam generated using residual oil boiler by the industrial user. The energy of the baseline for the thermal generation is the total steam supplied to industrial user divided by efficiency of the displaced residual oil boiler.

The baseline emission associated with displacement of the residual oil is the energy baseline of the residue oil boiler multiple by the sum of the CO₂ and CH₄ emission factor for combustion of residue oil.

Project emission is from the combustion of natural gas for electricity.

Leakage is from the production and distribution of natural gas.

The emissions reduction is the total baseline emissions for displacement of grid electricity and displacement of residue oil minus project emissions from combustion of natural gas and leakage for production and distribution of natural gas.

² <http://www.djlpe.esdm.go.id/modules.php?mod=6&sub=1049>

The accuracy of the measurement is assessed as satisfactory. All measuring devices are duly calibrated, the meters accuracy class is on par with the stipulations in this regard.

A record of generation outages hours (planned and un-planned) is maintained.

Baseline Emissions:

The formulae used for the determination of baseline emissions are consistent with the PDD:

1. Baseline emissions associated with grid power displacement

$$BE_{ELEC} = CEO \times EF_{CM,Y} \text{ (Equation 3 of PDD)}$$

Where:

BE_{ELEC} = Baseline emissions from grid electricity displaced (tCO₂/y)

CEO = Amount of electricity generated by the project net of its parasitic consumption. (MWh/y)

$EF_{CM,Y}$ = Emission factor of grid electricity calculated in year y (tCO₂/MWh)

2. Baseline CO₂ emissions from combustion of baseline fuel for heat supply, BE_R (tCO₂/year):

$$BE_R = ABEC \times \sum_G EF_{G,R} \times GWP_G \text{ (Equation 2 of PDD)}$$

Where:

BE_R = Baseline emissions from combustion of residue oil (from CO₂, CH₄ and N₂O) (tCO₂/y)

$ABEC$ = amount of energy that would have been consumed to generate steam in Argo Pantes boiler (TJ/y)

$EF_{G,R}$ = Emission factor of greenhouse gas g from the combustion of baseline fuel (tG/TJ)

GWP_G = Global warming potential of greenhouse gas G (tCO₂/tG)

3. Determine the annual energy consumption for heat supply at baseline plant, $ABEC$ (GJ/year):

$$ABEC = \frac{CAHO}{E_g} \text{ (Equation 1 of PDD)}$$

Where:

$ABEC$ = Amount of energy that would have been consumed to generate heat in the Industrial user residual oil boiler, without the Project (TJ/y)

$CAHO$ = Annual amount of heat generated by project activity (TJ/y)

E_g = Efficiency of baseline boiler

The baseline emission is calculated as follows:

$$BE = BE_{ELEC} + BE_R$$

The baseline emissions (BE) during the monitoring period are 12 576 tCO₂.

Project Emission:

The project is from the usage natural gas for electricity generation. No any other fossil fuel being used.

The project emission is calculated as:

$$PE_{NG} = AEC_{NG} \times \sum_G EF_{G_NG} \times GWP_G$$

Where $AEC_{NG} = V_{NG} \times D_{NG} \times NCV_{NG}$

Leakage:

Leakage is caused by the methane emission from the production, processing, transmission, storage and distribution to be considered as leakage.

Leakage is calculated using the amount of gas consumed by the project multiplied with the emission factor for each process such as production, processing, transmission and storage and distribution.

$$LE = 10^3 \times GWP_{CH4} \times \left(\frac{AEC_{NG}}{D_{NG} + NCV_{NG}} \right) \times \sum_k MEF_k \text{ (Equation 9 of PDD)}$$

2006 IPCC default values of table 4.2.5 were used in the calculation of the leakage as indicated in the registered PDD.

Emission Reduction:

The emission reduction is calculated:

$$ER = BE_R + BE_{ELEC} - PE_{NG} - LE \text{ (Equation 10 of PDD)}$$

Summary of Emission Reductions using above formula during the monitoring period:

Month	Period		BE _R	BE _{ELEC}	PE _{NG}	LE	ER (tCO _{2e})
	From	To					
Sept 2008	2008-09-01	2008-09-30	5,070.3	1,122.8	2,861.8	840.3	2,491.1
October	2008-10-01	2008-10-31	3,159.5	1,057.8	1,703.5	503.9	2,009.8
Nov	2008-11-01	2008-11-30	4,119.4	1,231.4	2,391.4	711.8	2,247.6
Dec	2008-12-01	2008-12-31	3,214.6	1,160.0	1,986.4	574.1	1,814.0
Jan 2009	2009-01-01	2009-01-31	3,570.2	1,077.5	1,999.6	584.5	2,063.7
Feb	2009-02-01	2009-02-28	3,692.7	963.4	2,076.7	611.0	1,968.3
Total for this period			22,826.7	6,612.9	13,019.7	3,825.6	12,594.4
Total for this period after rounding			22,826	6,612	13,020	3,826	12,592
Mar	2009-03-01	2009-03-31	4,045.6	1,125.7	2,268.0	672.6	2,230.6
Apr	2009-04-01	2009-04-30	3,765.5	1,094.1	2,083.6	619.6	2,154.6
May	2009-05-01	2009-05-31	3,917.5	1,108.0	2,338.7	680.9	2,005.9
Jun	2009-06-01	2009-06-30	4,165.7	1,166.9	2,479.9	720.8	2,131.9
Jul	2009-07-01	2009-07-31	4,093.0	1,197.4	2,366.9	694.2	2,229.3

Aug	2009-08-01	2009-08-31	3,899.9	964.5	2,305.4	679.3	1,879.7
Total for this period			23,887.1	6,656.5	13,842.7	4,067.4	12,633.5
Total for this period after rounding			23,887	6,656	13,843	4,068	12,633
Total for monitoring period after rounding			46,713	13,268	26,863	7,894	25,225

To be conservative, the total Baseline emissions for electricity and heat are round down to the nearest number 1. Project emissions and leakage are round-up to the nearest number 1.

The ER calculations were prepared by the appointed CDM consultant. There are no raised issues, thus it is confirmed that the ER calculations are overall correct. /ERDRIIC/ERDRIIC/MRII/

5.9. Quality Management

Quality Management procedures /SOP/DRF/ for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel in the framework of this CDM project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations thereof have been observed during the verification.

It could be evidenced that the monitoring system ensures tracking of electricity and steam generation on a continuous basis; the generation itself was carried out as a continuous (except for some planned breakdowns or outage) operation.

The electricity and steam readings from the primary and secondary meters are recorded by the project owner. Both the primary and secondary meters are sealed and can be accessed by authorised personnel of the project owner.

The project owner is adhered to calibrating the meters annually. If in case of error during meter testing, the readings as per the secondary meter are considered. Calibration reports for the monitoring period have been submitted and verified and found to be in order. /EMCC/GMCC/SFMV/

From the site visit and interviews conducted, it was clear that the roles and responsibilities of the team tasked in the monitoring of emission reductions are well defined. The shift-in-charge records generation on a daily basis, as also keeps track of and records monthly generation and down-time details. From the interviews, it is also clear that the personnel involved in project activity have been trained and are competent to carry out their respective duties. /TRG/

The verification team checked and found that the daily reports are verified by the Plant Manager. The Plant Manager is responsible for achieving optimum generation for both electricity and steam for supply to the industrial user, calibration of all measuring instruments and submission of monthly records to appointed CDM consultant to prepare the monthly consolidated reports.

The appointed CDM consultants, Zeus Innnavitas, who is responsible for calculating monthly emission reductions, conducting internal audits, calculation of the annual weighted average grid emission factor for JAMALI grid and submitting periodical reports to the Director, who is overall in charge of the entire operations.

All monitored data are archived in physical and electronic form as found during the on-site visit. The data will be kept for the whole crediting period and additional 2 years as given in the PDD.

Nevertheless, FAR.Q1 was raised as regards to level of security for data storage that will be further reviewed in the next verification.

5.10. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are compliant with the UNFCCC criteria and relevant guidance provided by the COP/CMP and the CDM EB (clarifications and/or guidance).

5.11. Hints for next periodic Verification

There are 3 FARs being issued during this monitoring period that will be checked during the next monitoring period.

Below are the FARs issued.

FAR.P1: The daily report indicates there are days where no steam is being generated due to downtime for maintenance and servicing. The records need to be improved to include the downtime.

FAR.P2: Although the meter has been calibrated with a certificate been issued by PLN Laboratorium Kalibrasi, the calibration sticker was not updated. This will be checked in the next verification period.

FAR.Q1: Although the data are stored in a dedicated computer and in back-up disk, the level of security need to be upgraded and additional external storage required to ensure data are retrievable in the event of any emergency. This will be check at the next verification.

6. VERIFICATION OPINION

PT Manunggal Energi Nusantara has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 2nd periodic verification of the project: “MEN-Tangerang 13.6MW Natural Gas Cogeneration”, with regard to the relevant requirements for CDM project activities.

PT Manunggal Energi Nusantara has developed a cogeneration plant using natural gas as fuel. The electricity and heat generated has been supplied to a textile manufacturing plant – PT Argo Pantes.

The purpose of the project is to generate 13.6MW of electricity and 9.5 tons per hour of high quality steam at 8 to 10 bars pressure for industrial user – PT Argo Pantes who previously used grid electricity and generation of steam with fuel-mix of higher carbon intensity than natural gas.

This verification covers the period from 2008-09-01 to 2009-08-31 (including both days).

In the course of the verification 4 Corrective Action Requests (CAR) and 2 Clarification Requests (CL) were raised and successfully closed. Furthermore, 3 FARs are raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, 1st verification report, emission reduction calculation spreadsheets and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology ,i.e., AM0014 Ver. 03
- the installed equipment essential for measuring parameters for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 2nd periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **25,225** t CO_{2e}

Malaysia, 2010-11-29



Cheong, Chun Yuen (Robert)
TÜV NORD JI/CDM Certification Program
Verification Team Leader

Essen, 2010-11-29



Winter, Rainer
TÜV NORD JI/CDM Certification Program
Final Approval

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/PTSE/	Permit to sell electricity issued by Department Mines and Energy of Banten Province dated 2007-01-18
/TRG/	CDM Workshop Training
Reports	
/MR/	<ol style="list-style-type: none"> 1. Draft Monitoring Report Version 1.0.0 dated 2009-11-01 2. Final Monitoring Report Version 2.04 dated 2010-11-05
/ERDRII/	<ol style="list-style-type: none"> 1. Mid Term Report 2. Evaluation of Monitoring System Implementation 3. September 2008 Consolidated Report with supporting documents 4. October 2008 Consolidated Report with supporting documents 5. November 2008 Consolidated Report with supporting documents 6. December 2008 Consolidated Report with supporting documents 7. January 2009 Consolidated Report with supporting documents 8. February 2009 Consolidated Report with supporting documents
/ERDRIII/	<ol style="list-style-type: none"> 1. Mid Term Report 2. Evaluation of Monitoring System Implementation 3. March 2009 Consolidated Report with supporting documents 4. April 2009 Consolidated Report with supporting documents 5. May 2009 Consolidated Report with supporting documents 6. June 2009 Consolidated Report with supporting documents 7. July 2009 Consolidated Report with supporting documents 8. August 2009 Consolidated Report with supporting document
/ERDRIIC/	ERDR II Consolidated Report (XLS) Version 1.5.0
/ERDRIIIC/	ERDR III Consolidated Report (XLS) Version 1.5.0
/ER/	Environmental report Semester II year 2009.dated April 2009
/MRII/	MRII Consolidated Spreadsheet Version 1.7.0
Calibration	
/CCGE2UE1	<ol style="list-style-type: none"> 1. Calibration certificate for GE200 & UE100 issued by Laboratorium

Reference	Document
/	Kalibrasi dated 2007-10-04 2. Calibration certificate for GE200 & UE100 issued by Laboratorium Kalibrasi dated 2009-03-04
/EMCC/	Electricity Meter Calibration Certificate issued by PT PLN Laboratorium Kalibrasi dated 2007-09-18 and 2009-03-04 for meters GE-200, UE-100
/GMCC/	1. Gas Flow Meter Calibration Certificate issued by Direktorat Metrologi dated 2008-09-10 for meters NG-101 to NG-105 2. Gas Flow Meter calibration certificate issued by Balai Pengelola Laboratorium Metrologi dated 2009-08-10 for meters NG-101 to NG-105 3. Gas Flow Meter Calibration Certificate issued by Direktorat Metrologi dated 2009-08-03 for meter NG-100. Calibration has been carried out on 2009-07-07.
/SFMV/	Steam Flow Meter Verification Report for Spirex issued by Balai Pengelola Laboratorium Metrologi dated 2009-08-10 for H-301
/GMC2008/	PGN Gas Meter Calibration Certificate dated 2008-04-28 issued by Direktorat Metrologi
/Memol/	Memo to PT PGN to advice on the calibration due date, dated 2009-04-13
/Memoll/	Memo reminder to PT PGN on the calibration due date is over, dated 2009-06-24
Equipment	
/IL/	Instrument Log dated 2009-07-23 and 2009-10-04
/PTP/	Letter from PT Petrolog for Spirax Sarco Steam meter dated 2009-12-10
/SLD/	Power Generation and Distribution Single Line Diagram
/SS/	Specification of Spirax Sarco steam flow metering system
/TSG/	Technical Specifications for GE Jenbacher Genset
/WHRS/	Waste Heat Recovery System
QA/QC	
/DRF/	Data Recording Form

Reference	Document
/SOP/	Standard Operating Procedures Version 2.0.0 dated 2008-11-19
External Document	
/ASTM/	ASTM Standard D3588-98 (2003) for gas calculation
/EFD/	Emission Factors Support Documents <ol style="list-style-type: none"> 1. PT PJB Statistics Book year 2007 dated 2009-04-07 2. Tanjung Jati B Fuel Consumption dated 2009-04-22 3. PT SSP Fuel Consumption dated 2009-05-20 4. PT KDL Fuel Consumption 5. PT KDL Fuel conversion 6. PLN Electricity and Energy statistics 2007 7. JAMALI Grid Data of 2002 to 2006 8. Statistics report of Indonesia Power (2007) 9. Statistics report of Distribution and Load Control Center (2007) 10. Corporate statistics PT PJB of 2003 to 2007 11. Mining, Coal and Geothermal Statics 2008 12. Geochemistry of selected coal samples from USGS 13. Letter for coal consumption data from Paiton Energy 14. Paiton private project Phase II coal consumption 2006 15. Table of electricity production realization of IPP 2006 (GWh) 16. Pertamina Fuel Properties
/EFJ/	EF JAMALI excel spreadsheet.
/IGC/	Indonesia 7 Grid Connections
/MoC/	Annex 2 of Modalities of Communications dated 2007-07-02
/SSA/	Supervisory Support Agreement by Navigat dated 2008-10-01

Table 7-2: Background investigation and assessment documents

Reference	Document
/AM0014/	Approved CDM Methodology AM0014, version 03: "Natural gas-based package cogeneration"
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/IPCC/	2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book

Reference	Document
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/PDD/	Project Design Document for CDM project: “ <i>MEN-Tangerang 13.6MW Natural Gas Cogeneration Project</i> ” version 6.1.3, dated 2007-10-18

/TV1.1/	Tool to calculate the emission factor of an electricity system” Version 1.1, EB 35 Annex 21
/VAL/	Validation Report for CDM project “ <i>MEN-Tangerang 13.6MW Natural Gas Cogeneration Project</i> ” version 04, dated 2008-02-18
/VER1/	1 st Verification Report Issue 3 dated 2009-01-23
/VVM/	UNFCCC Validation and Verification Manual (Version as per EB 51)

Table 7-3: Websites used

Reference	Link	Organisation
/dna-HP/	http://dna-cdm.menlh.go.id	DNA of Indonesia
/dna-SP1/	http://www.meti.go.jp/english/index.html	DNA of Japan
/dnaSP2/	http://www.decc.gov.uk	DNA of United Kingdom
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	P.K Gaur	PT Manunggal Energi Nusantara / Plant Manager
/IM02/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	H. Soeyoto	PT Manunggal Energi Nusantara / Director
/IM03/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Kresnadi	PT Manunggal Energi Nusantara / Technical Support
/IM04/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Cynthia Hendrayani	PT Zeus Innavitas / Consultant
/IM05/	V	<input type="checkbox"/> Mr.	Fenika Sutopo	PT Zeus Innavitas / Consultant



Reference	Mol ¹		Name	Organisation / Function
		<input checked="" type="checkbox"/> Ms.		
/IM06/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Saktiyo T. Nugroho	PT Zeus Innavitas / Consultant
/IM07/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> M	Irene Silaban	PT Zeus Innavitas / Consultant
/IM08/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> M	Y. Soesanto	PT Argo Pantes / Director

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Verification Protocol
- A2:** Appointment / Authorisation
statements

ANNEX 1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
Raw data generation				
<ul style="list-style-type: none"> • Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of 	<ul style="list-style-type: none"> • Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspections of installed equipment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is 	<ul style="list-style-type: none"> • Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures • Insufficient accuracy 	<ul style="list-style-type: none"> • Site – visit (maintenance dept., gas supplier) • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of CDM management system 	<ul style="list-style-type: none"> • See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> technology Accuracy of values supplied by Third Parties 	<ul style="list-style-type: none"> organized Training Internal audit procedures Internal check of QA/QC measures of involved Third Parties 	<ul style="list-style-type: none"> Inappropriate QA/QC measures of Third Parties 	<ul style="list-style-type: none"> Check of CDM related procedures Application of CDM management system procedures Check of trainings Check of responsibilities Check of QA/QC documentation / evidences of involved Third Parties 	
Raw data collection and data aggregation				
<ul style="list-style-type: none"> Wrong data transfer from raw data to daily and monthly aggregated reporting forms IT Systems Spread sheet programming Manual data transmission 	<ul style="list-style-type: none"> Cross-check of data Plausibility checks of various parameters. Appropriate archiving system Clear allocation of responsibilities Application of CDM Management system procedures 	<ul style="list-style-type: none"> Unintended usage of old data that has been revised Incomplete documentation Ex-post corrections of records Ambiguous sources of information Non-application of management system procedures 	<ul style="list-style-type: none"> Check of data aggregation steps Counter-calculation Data integrity checks by means of graphical data analysis and calculation of specific performance figures Check of management system certification 	<ul style="list-style-type: none"> See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Data protection Responsibilities 	<ul style="list-style-type: none"> Usage of standard software solutions (Spreadsheets) Limited access to IT systems Data protection procedures 	<ul style="list-style-type: none"> Manual data transfer mistakes Unintended change of spread sheet programming or data base entries Problems caused by updating/upgrading or change of applied software 	<ul style="list-style-type: none"> Check of data archiving system Check of application of Management system procedures 	
Other calculation parameters				
<ul style="list-style-type: none"> Emission factors, oxidation factors, coefficients 	<ul style="list-style-type: none"> The values and data sources applied are defined in the PDD and monitoring plan 	<ul style="list-style-type: none"> Unintended or intended Modification of calculation parameters Wrong application of values Misinterpretations of the applied methodology and/ or the PDD Missing update of applicable regulatory framework (e.g. IPCC values) 	<ul style="list-style-type: none"> Update-check of regulatory framework Countercheck of the applied MP in the MR against the methodology and the PDD 	<ul style="list-style-type: none"> See Table A-2
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Applied formulae Miscalculation Mistakes in spread-sheet calculation 	<ul style="list-style-type: none"> Advanced calculation and reporting tools A CDM coordinator is in charge of the CDM related calculations Usage of tested / counterchecked Excel spreadsheets Involvement of external consultants 	<ul style="list-style-type: none"> The danger of miscalculation can only be minimized. 	<ul style="list-style-type: none"> Countercheck on the basis of own calculation. Spread sheet walk-through. Plausibility checks Check of plots 	<ul style="list-style-type: none"> See Table A-2
Monitoring reporting				
<ul style="list-style-type: none"> Data transfer to the author of the monitoring report Data transfer to the monitoring report Unintended use of outdated versions 	<ul style="list-style-type: none"> An experienced CDM consultant is responsible for monitoring reporting. CDM QMS procedures are defined 	<ul style="list-style-type: none"> The danger of data transfer mistakes can only be minimized Inappropriate application of QMS procedures 	<ul style="list-style-type: none"> Counter check with evidences provided. Audit of procedure application 	<ul style="list-style-type: none"> See Table A-2

Table A-2: (Project specific) Periodic Verification Checklist

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
1. Project history				
1.1 Open issues from validation (EB 51 Annex 3 §§ 175, 182 (c)) <i>Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?</i>	/VAL/	<i>Description:</i> Not Applicable as this is the 2 nd monitoring period <i>Justification of evidences:</i> <i>Conclusion:</i>	OK	OK
1.2 Open issues from previous verification (EB 51 Annex 3 § 212 (g)) <i>Check in case of further periodic verifications whether there are any open issues indicated in previous verification (FAR)?</i>	/VER1/ /IM/	<i>Description:</i> This is the 2 nd monitoring period and there are no open issues from the 1 st verification report. <i>Justification of evidences:</i> The verification team has reviewed the 1 st verification report to confirm there are no open issues (FAR) raised. <i>Conclusion:</i> The team confirms no open issues reported during the 1 st verification period.	OK	OK
1.3 Requests for Deviations / Revisions of MP (EB 51 Annex 3, §§ 195, 206) <i>Check if there have been any requests for deviations from the registered monitoring plan or requests for revisions of the monitoring plan. If any, make sure that the monitoring report reflects the application of the approved guidance from the CDM EB regarding the Rfdev. and that those issues are subject to</i>	/unfccc/ /IM/ /VER1/	<i>Description:</i> There are no requests for deviation during the 1 st monitoring period. There is also no request for deviation for this 2 nd monitoring period. <i>Justification of evidences:</i> The team has checked UNFCCC website and interview the project developer to confirm there are no request for deviations or revision of MP raised	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
verification?		during the 1 st verification. <i>Conclusion:</i> No request for deviations or revision of MP has been submitted to UNFCCC.		
1.4 Initial verification <i>In case an initial verification has been carried out, check if all FARs, recommendations etc. have been addressed appropriately.</i>	/IM/	<i>Description:</i> Not applicable. This is the 2 nd monitoring period. <i>Justification of evidences:</i> <i>Conclusion:</i>	OK	OK-
1.5 Initial project implementation (EB 51 Annex 3, §§ 176 b (i), 187 – 189 195) <i>In case of first periodic verification: Assess whether the project has been implemented and operated as per the registered PDD and are all physical features of the project in place? Further focus on the potential phase wise implementation and report on the corresponding statuses and starting dates accordingly.</i> <i>In case of further periodic verifications: Go to next chapter.</i>	/IM/ /PDD/ /ERDRII/ /ERDRIII/	<i>Description:</i> There are no major changes in the key equipment since the 1 st verification of the project. The project uses natural gas for electricity generation and waste heat recovered from the exhaust of the gas engines to generate steam and supply to the industrial user, PT Argo Pantes. No change is envisaged. These facts have been verified during site visit. All necessary monitoring instruments are installed. The measuring devices were in good condition and found to be accurate, and reliable. All required instruments including secondary are installed and operating procedures for the same have been implemented in an appropriate manner and as described in the registered PDD. For the metering purpose, there are individual sealed (Primary and Secondary) meters which indicate the electricity exported	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>to the industrial user. The meter reading is recorded daily and consolidated monthly.</p> <p><i>Justification of evidences:</i> During the on-site, the installed equipment, instruments and meters are verified and compared with the registered PDD.</p> <p><i>Conclusion:</i> The project has been implemented in accordance to the registered PDD.</p>		
2. Update on Changes and Incidents (during the Monitoring Period)				
1.1 Technical equipment (EB 51 Annex 3, § 181) <p><i>Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period.</i></p> <p><i>Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.</i></p> <p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i></p>	/IM/ /VER1/ /PDD/	<p><i>Description:</i> There are no changes or modification to technical equipment during this monitoring period.</p> <p><i>Justification of evidences:</i> During the on-site visit, the validation team conduct a check on the installed equipment, instrument and operational records that there are no changes and still in line with the registered PDD.</p> <p>In addition, the operational personnel were interviewed to confirm that no changes or modification to the equipment and instruments after the 1st verification period have been conducted.</p> <p><i>Conclusion:</i> There are no changes or modification to equipment and instrument during this 2nd monitoring period.</p>	OK	OK
1.2 Operation modes	/IM/	<i>Description:</i> The mode of operation for the project activity	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>(EB 51 Annex 3, §§ 181, 189)</p> <p><i>Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.</i></p> <p><i>Consider e.g. interviews with operational personnel, operation log sheets, data management system records.</i></p> <p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i></p>	/VER1/ /PDD/	<p>have not been changed or modified during this 2nd monitoring period.</p> <p><i>Justification of evidences:</i> Interview of operation personnel, review of log sheets and data management records during the on-site visit to confirm there are no changes or modification undertaken during this 2nd monitoring period.</p> <p><i>Conclusion:</i> There are no changes for the mode of operation of the project activity during this monitoring period.</p>		
<p>2.3 Incidents</p> <p>(EB 51 Annex 3, § 181)</p> <p><i>Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?</i></p> <p><i>Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.</i></p>	/IM/	<p><i>Description:</i> Several downtimes occurred during this monitoring period mainly for schedule maintenance of gas engines and heat recovery system.</p> <p><i>Justification of evidences:</i> Maintenance schedule and downtime records have been reviewed to check the type of incidents occurred during this monitoring period.</p> <p><i>Conclusion:</i> Downtime for incidents and maintenance are recorded.</p>	OK	OK
<p>2.4 Personnel</p> <p><i>Identify, if relevant personnel w.r.t. monitoring has been exchanged?</i></p> <p><i>In case of changes, assure that the implemented monitoring procedures have not been affected.</i></p>	/IM/	<p><i>Description:</i> There are no changes of personnel w.r.t monitoring of project activity during this 2nd monitoring period.</p> <p><i>Justification of evidences:</i> The Plant Manager had been interviewed during the on-site visit to confirm on any</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		change of personnel. <i>Conclusion:</i> No change of personnel during this 2 nd monitoring period.		
2.5 Legislation Find out whether relevant legislation with effect on the project activity in the host country has been changed.	/IM/	<i>Description:</i> The project activity is generating power and steam supplying to industrial user. There are no relevant legislations from host country affecting the business operations of the project activity since the implementation. <i>Justification of evidences:</i> The verification team has reviewed the business licence and relevant legislation related to the project activity. <i>Conclusion:</i> There are no relevant legislations affecting the project activity.	OK	OK
3. Monitoring Report – General				
3.1 Monitoring period Check if the monitoring period is in line with a) the crediting period and/or b) previous monitoring periods?	/unfccc/ /PDD/ /VER1/	<i>Description:</i> This monitoring period is the 2 nd period. The 1 st monitoring period was from 2008-02-28 to 2008-08-31 and CERs have been issued. <i>Justification of evidences:</i> The verification team has reviewed this reporting period dates and confirmed by a search of the UNFCCC website that the reporting period date is correct. <i>Conclusion:</i> This monitoring period is from 2008-09-01 to 2009-08-31. Both days are included.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
3.2 Publication of the Monitoring Report (EB 51 Annex 3, § 169 (i)) <i>Check if the monitoring report has been made publicly available on the UNFCCC website before the verification commenced.</i>	/unfccc/ /MR/	<i>Description:</i> The draft monitoring report submitted by project owner had been made publicly available on the UNFCCC website as from 2009-11-30. <i>Justification of evidences:</i> The verification team has checked on the UNFCCC website to confirm the report is publicly available for comments. <i>Conclusion:</i> The draft monitoring report, as been received from the project participants, has been made publicly available prior to the start of the verification activities. No comments have been received.	OK	OK
3.3 References <i>Check if the monitoring report provides the correct references, in detail: project title, UNFCCC registration No., applied methodology/ies, meth tools.</i>	/MR/ /IM/ /PDD/	<i>Description:</i> The project title, UNFCCC registration No., and date of registration are stated in the section of the Project Details. <i>Justification of evidences:</i> The report has been reviewed prior to on-site visit and discussions have been carried out with the project owner and consultant to confirm the project title, registration date and last monitoring period. <i>Conclusion:</i> CAR.R1: The applied methodology, version and meth tools applicable to the project were not stated in the report.	CAR. R1	
3.3 Completeness (EB 51 Annex 3, §§ 176, 189 (c), 196 (b)) <i>Assess if the monitoring report is complete, i.e. have</i>	/MR/ /PDD/	Yes all relevant issues are covered; in detail: <input checked="" type="checkbox"/> (i) Implementation status <input checked="" type="checkbox"/> (ii) Monitoring systems and procedures (esp. QA/QC)		

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>all relevant issues been addressed? The MR shall include: (i) The implementation status of the project during the monitoring period (ii) Monitoring systems and procedures incl. QA/QC system employed (iii) all parameters to be monitored and reported at the intervals required by the MP and the Meth (iv) information on calibration of monitoring instruments (v) Emission factors, IPCC default values etc. (vi) reference to any deviation request approved by the EB, (vii) calculation of ER including reference to formulae and methods used (viii) comparison of the actual ER claimed in the MP with the estimate in the registered PDD and explanation in case of significant increase.</i></p>		<input checked="" type="checkbox"/> (iii) All parameters and corresponding intervals <input checked="" type="checkbox"/> (iv) Information on calibration of monitoring instruments <input checked="" type="checkbox"/> (v) Emission factors, IPCC default values etc. <input type="checkbox"/> (vi) Reference to deviations, if applicable <input checked="" type="checkbox"/> (vii) Calculation of emission reductions <input checked="" type="checkbox"/> (viii) Comparison of ER with PDD estimation		
<p>3.5 Transparency</p> <p><i>Assess if the monitoring report is transparent, i.e. clear and unequivocal in all respect?</i></p>	/MR/	<p><i>Description:</i> The monitoring report is prepared in a transparent manner with clear description and unequivocal in all aspects.</p> <p><i>Justification of evidences:</i> The verification team has reviewed the monitoring report in detail which is clear and understandable.</p> <p><i>Conclusion:</i> The report is transparent and clear.</p>	OK	OK
<p>3.6 Misstatements on general issues</p> <p><i>Assess whether the monitoring report is free of material misstatements regarding issues other than the monitoring parameters.</i></p> <p><i>Discuss the monitoring parameters in detail in chapter</i></p>	/MR/ /PDD/ /unfccc/ /MoC/ /PDD/	<p>The following issues have been identified:</p> <ul style="list-style-type: none"> Several editorial issues are found and correction required Addition of 1 Annex I project participant from United Kingdom was not elaborated clearly. 	CAR. R2	
			CAR. R3	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
"Monitoring Parameters".	/VR/ /VER1/	<ul style="list-style-type: none"> The monitoring period date in Section 1.3 on MR is incorrect. 	CAR.R4	
		<ul style="list-style-type: none"> It is not clear which is the primary electricity meter as indicate at the section 2.5 of MR 	CL.R5	
		<ul style="list-style-type: none"> Section 5 of MR addresses Environmental Performance. It is not clear on the reference of the applicable standards applied. 	CL.R6	
3.7 Deviations from the validated monitoring plan (EB 51 Annex 3, §182) <i>Assess whether the MR is in line with the validated monitoring plan?</i> <i>In case of intended changes: Have they been approved by the UNFCCC?</i>	/MR/ /PDD/ /VER1/	<p><i>Description:</i> There are no deviations from the validated monitoring plan.</p> <p>All data and parameters stated in the validated MP are monitored accordingly. There are no changes occurred after the last monitored period.</p> <p><i>Justification of evidences:</i> Review of the monitoring report and check UNFCCC website whether there is any deviation being submitted.</p> <p><i>Conclusion:</i> There are no deviations from the validated MP and no submission to UNFCCC.</p>	OK	OK
3.8 Deviations from the approved methodology (EB 51 Annex 3, §§ 182, 190, 191) <i>Assess whether the MR in line with the applied monitoring methodology?</i>	/MR/ /AM14/	<p><i>Description:</i> The monitoring report is in line with the applied monitoring methodology of AM0014 Version 03.</p> <p><i>Justification of evidences:</i> Review MR with the methodology to confirm any deviation since the period monitoring period.</p> <p><i>Conclusion:</i> No deviations from the approved methodology</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		had occurred.		
4. Monitoring Parameters , (List all parameters of the PDD chapter B.7.1; pl. copy the 6 lines below for each parameter)				
4.1. MCHO / CAHO		Description:		
a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/IM/ /PDD/ /AM14/ /ERDRII/ /ERDRIII/ /IL/	<p><i>Description:</i> MCHO (monthly)/ CAHO (annual) is the parameter to measure the amount of heat output from the co-generation system. The heat is recovered from the exhaust of power generation gas engines by the project waste heat recovery boiler into steam and supply to industrial user PT Argo Pantes.</p> <p>The parameter is measured by a steam and heat flow measuring device, measuring steam flow, pressure and temperature.</p> <p><i>Justification of evidences:</i> The measuring device was installed since the project begins operations in January 2008 and no changes made since then till now.</p> <p><i>Conclusion:</i> The monitored parameter is in line with registered monitoring plan of the PDD and applied methodology.</p> <p>FAR.P1: The daily report indicates there are days where production due to downtime for maintenance and servicing. The records need to be improved to include the</p>	CAR.P 1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		cause of the downtime.		
b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d)) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/MR/ /ERDRII/ /ERDRIII/ /DRF/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct <i>Description:</i> The value of the parameter monitored stated in MR is correct and sufficiently justified. <i>Justification of evidences:</i> The value is stated in MR has been reviewed during on-site and check with daily data records. <i>Conclusion:</i> The value of the parameter is recorded correctly.	OK	OK
c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/MR/ /SOP/ /DRF/	<i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity. <i>Justification of evidences:</i> The SOP has been reviewed that this is a monitored parameter and how the recording needs to be carry out. The meter needs not to be calibrated for 3 to 5 years as confirmed by the equipment supplier from the date of installation. The project activity starts operations in January 2008 which is already in operation for 24 months. <i>Conclusion:</i> The SOP is the QA/QC procedure developed to ensure that this parameter is included in the monitoring.	OK	OK
d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a))	/MR/ /IL/	<i>Description:</i> This parameter is measured by a steam flow metering system which is continuously recording the amount of steam generated.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>		<p>The meter is a cumulative recording meter.</p> <p>The meter reading is carried out once a day and consolidated weekly and monthly for reporting purposes.</p> <p><i>Justification of evidences:</i> The data recording was reviewed during the on-site visit to check it is done once daily. A random check on the data stored in the metering system was check on the recording on a particular date was correctly entered.</p> <p>The records are checked and signed off by the Plant Manager.</p> <p><i>Conclusion:</i> The inaccuracy for the measurement of this parameter is low since the reading is done daily and checked weekly and monthly by the respective personnel.</p>		
<p>e) Verification</p> <p>(EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b))</p> <p><i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i></p>	<p>/ERDRII/ /ERDRIII/ /MR/</p>	<p><i>Description:</i> Verifying on the data capture for this parameter.</p> <p>This data is capture continuously by a steam flow metering system and recoded on a daily basis.</p> <p>The data records were reviewed, check and signed off by the Plant Manager before submitting for reporting and archiving.</p> <p><i>Justification of evidences:</i> The recorded data are reviewed and checked that the readings are carried out daily.</p> <p>The log sheet was reviewed to check that recording was</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>carried out on a daily basis in accordance to the registered MP of the PDD.</p> <p>Log sheets are available for the whole of this monitoring period.</p> <p><i>Conclusion:</i> The records of this parameter are available for the whole of this monitoring period.</p> <p>All records are stored electronically and hard copies are kept.</p>		
4.2 EF_{OM,y}; EF_{BM,y}; EF_{CM,y}		Description:		
<p>a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197)</p> <p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	/PLN/ /EFJ/ /EF/	<p><i>Description:</i> These parameters are emission factors and ex-post determine. These data are determined using the JAMALI grid 2007 vintage data.</p> <p><i>Justification of evidences:</i> The data for these parameters are obtained externally from the national grid company and independent power producers connected to the JAMALI grid.</p> <p>The data are reviewed and calculations being checked.</p> <p>No measurement is made.</p> <p><i>Conclusion:</i> The determination method is correct.</p>	OK	OK
<p>b) Correctness t (EB 51 Annex 3, §§ 196 (b), 197, 200 (d))</p>	/EFJ/ /EF/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct <p><i>Description:</i> The values applied are the national grid 2007 vintage data.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i></p> <p><i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i></p>		<p><i>Justification of evidences:</i> The values applied in calculating the parameters are reviewed and deemed correct.</p> <p><i>Conclusion:</i> Values stated in MR is correct.</p>		
<p>c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197)</p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i></p>	/SOP/	<p><i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity.</p> <p><i>Justification of evidences:</i> In the SOP, it is stated where are the data be obtained to calculate the ex-post values.</p> <p>The team has checked the website and relevant documents provided to confirm the data source.</p> <p><i>Conclusion:</i> The SOP addresses the source of data for these parameters determination.</p>	OK	OK
<p>d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a))</p> <p><i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	/SOP/ /EFJ/ /EF/ /DRF/	<p><i>Description:</i> The values are not measured but calculated. The accuracy is based on the data available.</p> <p><i>Justification of evidences:</i> The data source have been reviewed and deemed appropriate.</p> <p><i>Conclusion:</i> Conservative assumptions are taken in calculating the values.</p>	OK	OK
<p>e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b))</p> <p><i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies,</i></p>	/MR/ /EFJ/ /EF/	<p><i>Description:</i> The values are externally obtained from the national power generation company PLN and IPPs. The approach to verify the values as describe in the justification of evidences.</p>	OK	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.		<p><i>Justification of evidences:</i> The verification team takes the following approach to verify the values and calculations:</p> <ol style="list-style-type: none"> 1. Review of the spreadsheet and check the data source 2. Review of the data from the IPP and PLN 3. Compared the values of spreadsheet and data from IPP and PLN 4. Check default values applied such as IPCC data or host country data are the most recent and correctly applied. 5. Check the data applied are the most recent. 6. Check the weblink or relevant documents provided where the data are sourced. <p><i>Conclusion:</i> The values applied in the calculation are applied appropriate for this whole monitoring period.</p> <p>All data are the most recent available.</p>		
4.3 $F_{i,j,Y}$; $F_{i,m,Y}$				
<p>a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged</p>	<p>/EFJ/ /EF/</p>	<p><i>Description:</i> These parameters are the fuel consumption or efficiency of the power plants connected in the host country JAMALI grid.</p> <p>j is for group of power plants in JAMALI grid and exclude low cost must run</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>		<p>m is for the 5 most recently build power plants or plant capacities that comprise 20% of the system generation whichever is larger.</p> <p><i>Justification of evidences:</i> The data for these parameters are obtained externally from the national grid company and independent power producers connected to the JAMALI grid.</p> <p>The data are reviewed and calculations being checked.</p> <p>The parameter is not measured and calculated with the input from the power plants connected to the grid either fuel consumption or efficiency of the power plant.</p> <p><i>Conclusion:</i> The determination method is correct.</p>		
<p>b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d))</p> <p><i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i></p> <p><i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i></p>	/EFJ/ EF/ /MR/ /PDD/	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct</p> <p><i>Description:</i> The values applied are the national grid 2007 vintage data.</p> <p><i>Justification of evidences:</i> The values applied in calculating the parameters are reviewed and deemed correct.</p> <p><i>Conclusion:</i> Values stated MR is correct.</p>	OK	OK
<p>c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197)</p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been</i></p>	/SOP/ /DRF/	<p><i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity.</p> <p><i>Justification of evidences:</i> In the SOP, it is stated where are the data be obtained to calculate the ex-post values.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>carried out by competent personnel.</i>		The team has checked the website and relevant documents provided to confirm the data source. <i>Conclusion:</i> The SOP addresses the source of data for these parameters determination.		
d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a)) <i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/EFJ/ /EF/	<i>Description:</i> The values are not measured but calculated. The accuracy is based on the data available. <i>Justification of evidences:</i> The data source have been reviewed and deemed appropriate. <i>Conclusion:</i> The data source is correct and data applied in the calculation is correct.	OK	OK
e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b)) <i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/EFJ/ /EF/ /MR/	<i>Description:</i> The values are externally obtained from the national power generation company PLN and IPPs. The approach to verify the values as describe in the justification of evidences. <i>Justification of evidences:</i> The verification team takes the following approach to verify the values and calculations: 1. Review of the spreadsheet and check the data source 2. Review of the data from the IPP and PLN 3. Compared the values of spreadsheet and data from IPP and PLN 4. Check default values applied such as IPCC data or	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>host country data are the most recent and correctly applied.</p> <p>5. Check the data applied are the most recent.</p> <p>6. Check the weblink or relevant documents provided where the data are source.</p> <p><i>Conclusion:</i> The values applied in the calculation are applied appropriate for this whole monitoring period.</p> <p>All data are the most recent available.</p>		
4.4 $\sum_j \text{GEN}_{j,y}; \sum_m \text{GEN}_{m,y}$				
<p>a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197)</p> <p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/EFJ/ /EF/</p>	<p><i>Description:</i> These parameters are the generation data of power plants from the JAMALI grid where;</p> <p>j represents group of power plants in JAMALI grid that exclude low cost must run</p> <p>m represents 5 most recently build or 20% of the system generation whichever is larger.</p> <p><i>Justification of evidences:</i> Justification of evidences: The data for these parameters are obtained externally from the national grid company and independent power producers connected to the JAMALI grid.</p> <p>The data are reviewed and calculations being checked.</p> <p><i>Conclusion:</i> The determination method is correct. The parameter is not measured.</p>	OK	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d)) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/EFJ/ /EF/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct <i>Description:</i> The values applied are the national grid 2007 vintage data. <i>Justification of evidences:</i> The values applied in calculating the parameters are reviewed and deemed correct. <i>Conclusion:</i> Values stated MR is correct.	OK	OK
c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/SOP/	<i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity. <i>Justification of evidences:</i> In the SOP, it is stated where are the data be obtained to calculate the ex-post values. The team has checked the website and relevant documents provided to confirm the data source. <i>Conclusion:</i> The SOP addresses the source of data for these parameters determination.	OK	OK
d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a)) <i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/SOP/ /EFJ/ /EF/	<i>Description:</i> The values are not measured but calculated. The accuracy is based on the data available. <i>Justification of evidences:</i> The data source have been reviewed and deemed appropriate. <i>Conclusion:</i> Conservative assumptions are taken in calculating the values.	OK	OK
e) Verification	/EFJ/	<i>Description:</i> The values are externally obtained from the	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>(EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b))</p> <p><i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i></p>	/EF/	<p>national power generation company PLN and IPPs. The approach to verify the values as describe in the justification of evidences.</p> <p><i>Justification of evidences:</i> The verification team takes the following approach to verify the values and calculations:</p> <ol style="list-style-type: none"> 1. Review of the spreadsheet and check the data source 2. Review of the data from the IPP and PLN 3. Compared the values of spreadsheet and data from IPP and PLN 4. Check default values applied such as IPCC data or host country data are the most recent and correctly applied. 5. Check the data applied are the most recent. 6. Check the weblink or relevant documents provided where the data are source. <p><i>Conclusion:</i> The values applied in the calculation are applied appropriate for this whole monitoring period.</p> <p>All data are the most recent available.</p>		
4.5 GEN_{IMPORT, i,y}				
<p>a) Measurement / Determination method</p> <p>(EB 51 Annex 3, §§ 178, 179, 196 (c), 197)</p>	<p>/EFJ/</p> <p>/EF/</p>	<p><i>Description:</i> Generation data of power plants in group <i>j</i> in year <i>y</i> where:</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	/IGC/	<p><i>j</i> represent all power plants connected to the exporting grid delivering electricity to JAMALI grid excluding the low-cost must run sources.</p> <p>This parameter is to monitor the amount of power imported from other grids to JAMALI grid. The data is for the purpose to calculate the grid emission factor if there is any power imported from other grids.</p> <p><i>Justification of evidences:</i> Currently there is no power imported from other grids to JAMALI grid.</p> <p>The verification team has checked on national grids of Indonesia whether any of the grids are connected to JAMALI grid.</p> <p>No data and source available for review since there is no other grids connected to JAMALI grid.</p> <p><i>Conclusion:</i> There are no grids connected to JAMALI grid and no data available for this parameter.</p>		
<p>b) Correctness</p> <p>(EB 51 Annex 3, §§ 196 (b), 197, 200 (d))</p> <p><i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i></p> <p><i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i></p>	/IGC/ /EF/	<p><input type="checkbox"/> Correct <input type="checkbox"/> Not correct</p> <p><i>Description:</i> Refer above (a). There is no import of electricity from other grids to JAMALI grid.</p> <p><i>Justification of evidences:</i> No data and source available for review since there is no other grids connected to JAMALI grid.</p> <p><i>Conclusion:</i> No data available for monitoring.</p>	OK	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/SOP/ /EF/ /EFJ/	<i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity. <i>Justification of evidences:</i> In the SOP it is stated where are the data to be obtained for use to monitor the project. <i>Conclusion:</i> The SOP addresses the source where data to be obtained.	OK	OK
d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a)) <i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/EFJ/ /EF/	<i>Description:</i> Refer above (a) & (b) <i>Justification of evidences:</i> Refer to above (a) & (b) <i>Conclusion:</i> Refer to above (a) & (b)	OK	OK
e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b)) <i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/EFJ/ /EF/ /IGC/ /MR/	<i>Description:</i> Refer to above (a) & (b) <i>Justification of evidences:</i> Refer to above (a) & (b) <i>Conclusion:</i> Refer to above (a) & (b)	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
4.6 NCV_i				
a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197) Describe how the monitoring parameter was measured / determined. Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements. Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.	/EFJ/ /EF	Description: Net calorific value of fuel type i for purpose of calculating grid emission factor. Justification of evidences: The data for this parameter is obtained externally from state oil company and national mineral statistics. The data source has been reviewed to check the applied value is correct. Conclusion: The data information source is correct. This parameter is not measured.	OK	OK
b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d)) Determine whether the value given in the monitoring report is correct and sufficiently justified. In case of mistakes pl. provide details and descriptions of the CARs raised.	/EF/ /EFJ/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct Description: The values applied are the national grid 2007 vintage data. Justification of evidences: The values applied in calculating the parameters are reviewed and deemed correct. Conclusion: Values stated MR is correct.	OK	OK
c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197) Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been	/SOP/	Description: A CDM SOP has been developed and implemented to monitor the project activity. Justification of evidences: In the SOP, it is stated where are the data be obtained to calculate the ex-post values.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>carried out by competent personnel.</i>		The team has checked the website and relevant documents provided to confirm the data source. <i>Conclusion:</i> The SOP addresses the source of data for these parameters determination.		
d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a)) <i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/EFJ/ /EF/	<i>Description:</i> The value- is not measured but calculated. The accuracy is based on the data available. <i>Justification of evidences:</i> The data source have been reviewed and deemed appropriate. <i>Conclusion:</i> Conservative assumptions are taken in calculating the values.	OK	OK
e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b)) <i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/EFJ/ /EF/ /MR/	<i>Description:</i> The value is externally obtained from the national power generation company PLN and IPPs. The approach to verify the values as describe in the justification of evidences. <i>Justification of evidences:</i> The verification team takes the following approach to verify the values and calculations: 1. Review of the spreadsheet and check the data source 2. Review of the data from the IPP and PLN 3. Compared the values of spreadsheet and data from IPP and PLN 4. Check default values applied such as IPCC data or	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>host country data are the most recent and correctly applied.</p> <p>5. Check the data applied are the most recent.</p> <p>6. Check the weblink or relevant documents provided where the data are source.</p> <p><i>Conclusion:</i> The values applied in the calculation are applied appropriate for this whole monitoring period.</p> <p>All data are the most recent available.</p>		
4.7 EF_{CO2,i}				
<p>a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197)</p> <p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	/EF/ /EFJ/	<p><i>Description:</i> Net calorific value of fuel type i for power plants in sample group m and j for the purpose of calculating grid emission factors.</p> <p><i>Justification of evidences:</i> The data for this parameter applied is obtained from the 2006 IPCC report Volume 2 Chapter 2 Table 1.4</p> <p>The data are reviewed and calculations being checked.</p> <p><i>Conclusion:</i> The determination method is correct. This parameter is not measured.</p>	OK	OK
<p>b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d))</p>	/EFJ/ /EF/	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct</p> <p><i>Description:</i> The value applied is from the 2006 IPCC report</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i></p> <p><i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i></p>		<p>lower value pf the 95% confidence level. .</p> <p><i>Justification of evidences:</i> The values applied are reviewed and checked from the IPCC reports which are correctly applied.</p> <p><i>Conclusion:</i> Values applied are correct.</p>		
<p>c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197)</p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i></p>	/SOP/	<p><i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity.</p> <p><i>Justification of evidences:</i> In the SOP, it is stated where the data or values to be obtained to calculate the ex-post values.</p> <p>The team has checked relevant documents provided to confirm the data source.</p> <p><i>Conclusion:</i> The SOP addresses the source of data for these parameters determination.</p>	OK	OK
<p>d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a))</p> <p><i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	/EFJ/ /EF/	<p><i>Description:</i> The value is not measured but from reference sources. The accuracy is based on the data available.</p> <p><i>Justification of evidences:</i> The data source have been reviewed and deemed appropriate.</p> <p><i>Conclusion:</i> The data source identified is correct and accurate.</p>	OK	OK
<p>e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199,</p>	/EFJ/	<p><i>Description:</i> The values are applied are from external source of IPCC report. The approach to verify the values</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
200(b)) <i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/EF/	<p>as describe in the justification of evidences.</p> <p><i>Justification of evidences:</i> The verification team takes the following approach to verify the values and calculations:</p> <ol style="list-style-type: none"> 1. Review the data source; 2. Check the correct version of IPCC report is used and the latest available revision; 3. Compared the values applied in the calculation of the grid emission factors; <p><i>Conclusion:</i> The values applied in the calculation are applied appropriate for this whole monitoring period.</p> <p>All data are the most recent available.</p>		
4.8 EF_{CO2, j, IMPORT}				
a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan</i>	/EF/ /IGC/	<p><i>Description:</i> Net calorific value of fuel type i for power plants in the JAMALI grid.</p> <p>The data for this parameter is the power imported from other grids to JAMALI grid. The value is for the purpose to calculate the grid emission factor.</p> <p><i>Justification of evidences:</i> Currently there is no importing of electricity from other grids to JAMALI grid.</p> <p>The verification team has checked on the national grids of Indonesia to confirm there are no other grids connected to JAMALI grid</p>	OK	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>of the PDD and the applied methodology.</i>		<i>Conclusion:</i> There are no grids connected to JAMALI grid and no data available for this parameter..		
b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d)) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/EF/ /IGC/	<input type="checkbox"/> Correct <input type="checkbox"/> Not correct <i>Description:</i> Refer above (a). There is no import of electricity from other grids to JAMALI grid. <i>Justification of evidences:</i> No data and source available for review since there is no other grids connected to JAMALI grid. <i>Conclusion:</i> .No data available for monitoring.	OK	OK
c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>		<i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity. <i>Justification of evidences:</i> In the SOP, it is stated where are the data to be obtained for use to monitor the project. <i>Conclusion:</i> The SOP addresses the source where data to be obtained.	OK	OK
d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a)) <i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/EF/	<i>Description:</i> Refer above (a) & (b) <i>Justification of evidences:</i> Refer to (a) & (b) above <i>Conclusion:</i> Refer to (a) & (b) above	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b)) <i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>	/EF/ /EFJ/	<i>Description:</i> Refer to above (a) & (b) <i>Justification of evidences:</i> Refer to above (a) & (b) <i>Conclusion:</i> Refer to above (a) & (b)	OK	OK
4.9 CEO				
a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/IM/ /PDD/ /AM14/ /ERDRII/ /ERDRIII/ /IL/	<i>Description:</i> The amount of electricity generated by the project net of its internal consumption. The total electricity generated by the 5 gensets minus the internal load consumption will be the amount exported to the industrial user. There are no changes to the meters during this monitoring period. The frequency of measure is continuously and recorded on a daily basis as at 00:00 hour (WIB). <i>Justification of evidences:</i> During the on-site visit, all data and meters recordings were reviewed to confirm the frequency of measurement, recording and reporting are in line with the registered monitoring plan, monitoring report	FAR.P 1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		and SOP. <i>Conclusion:</i> The measurement of this parameter is in line with the registered monitoring plan and applied methodology. Refer to FAR.P1 above		
b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d)) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/MR. /ERDRII/ /ERDRIII/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct <i>Description:</i> The value stated in MR is correct and sufficiently justified. <i>Justification of evidences:</i> The data is reviewed and checked during the on-site visit. The records are reviewed and approved by the plant manager before submitting the CDM team to prepare the monthly report. <i>Conclusion:</i> The records are correct.	OK	OK
c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>	/SOP/ /EMCC/ /DRF/	<i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity. <i>Justification of evidences:</i> The SOP has been reviewed that this parameter is a monitored data and how the recording to be carry out. The meter has been calibrated by authorised organisation. <i>Conclusion:</i> FAR.P2: Although the meters have been calibrated with certificates been issued by PLN	FAR.P 2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		Laboratorium Kalibrasi, the calibration sticker was not updated. This will be checked in the next verification period.		
d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a)) <i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/ MR/ / ERDR II/ / ERDR III/ / SOP/	<i>Description:</i> A meter is used to continuously record this parameter which is the amount of electricity generated. The meter reading is carried out once a day and consolidated weekly and monthly for reporting purposes. <i>Justification of evidences:</i> The data recording was reviewed during the on-site visit to check it is done once daily. A random check on the data stored in the metering system was check on the recording on a particular date was correct entered. The records are checked and signed off by the Plant Manager. <i>Conclusion:</i> The inaccuracy for the measurement of this parameter is low since the reading is done daily and checked weekly and monthly by the operational personnel and approved by the plant manager.	OK	OK
e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b)) <i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility</i>	/ MR. / ERDR II/ / ERDR III/ / IL/ / SOP/	<i>Description:</i> This parameter data is capture continuously by a kWh meter and recoded on a daily basis. The data records were reviewed, checked and signed off by the Plant Manager before submitting for reporting and archiving.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.		<p><i>Justification of evidences:</i> The log sheets that record the data were reviewed and checked that the readings are carried out daily which is in accordance to registered PDD.</p> <p>Log sheets were archived and are available for the whole of this monitoring period.</p> <p><i>Conclusion:</i> The records of this parameter are available in both electronic and hardcopy copy for the whole of this monitoring period.</p>		
4.10 V_{NG}				
<p>a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197)</p> <p>Describe how the monitoring parameter was measured / determined.</p> <p>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</p> <p>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</p>	/PDD/ /MR/	<p><i>Description:</i> The amount of natural gas consumed by the project activity</p> <p>This parameter is measured continuously and recorded on a monthly basis jointly with the gas supplier.</p> <p><i>Justification of evidences:</i> A meter is installed at the gas pipeline located at the meter station provided by the gas supplier, Perusahaan Gas Negara (PGN)</p> <p><i>Conclusion:</i> This parameter is monitored in accordance to registered monitored plan of PDD and applied methodology.</p>	OK	OK
<p>b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d))</p>	/MR/ /ERDRII/ /ERDRIII/	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct</p> <p><i>Description:</i> The data applied in MR is correct and sufficiently justified.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i></p> <p><i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i></p>	/IL/	<p><i>Justification of evidences:</i> The monthly gas meter reading records were reviewed and compared with the values stated in the monitoring report</p> <p>In addition the amount is cross-check with the invoice issued by the gas supplier.</p> <p><i>Conclusion:</i> The values in the monitoring report are stated correctly according to the monthly readings taken.</p>		
<p>c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197)</p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i></p>	/SOP/ /GMCC/	<p><i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity.</p> <p><i>Justification of evidences:</i> The SOP has been reviewed that this parameter is a monitored data and how the recording to be carry out.</p> <p>The meter was calibrated by the national metrology directorate of the department of trade.</p> <p><i>Conclusion:</i> A CDM SOP is available and meter has been calibrated.</p>	OK	OK
<p>d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a))</p> <p><i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	/SOP/ /ERDRII/ /ERDRIII/	<p><i>Description:</i> This parameter is measured by a gas flow which is continuously recording the amount of gas being consumed by the project activity.</p> <p>The meter reading is carried out monthly jointly with the gas supplier for invoicing purposes.</p> <p>In addition there are individual meters at the gas engine to</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>record the amount of gas consumed by each gas engines. The recording is done daily and consolidated monthly to compare with the gas supplier meter readings.</p> <p><i>Justification of evidences:</i> The data recording was reviewed during the on-site visit to check it is done once monthly.</p> <p>The daily record was checked to confirm the daily consumption of gas by each gas engine is recorded.</p> <p>A random check on the data stored in the monitoring system was check on the recording on a particular date was correctly entered.</p> <p>The records were checked and signed off by the Plant Manager.</p> <p><i>Conclusion:</i> The inaccuracy for the measurement of this parameter is low although the reading is done once monthly jointly with the gas supplier.</p>		
<p>e) Verification</p> <p>(EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b))</p> <p><i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms</i></p>	<p>/MR/ /PDD/ /ERDRII/ /ERDRIII/</p>	<p><i>Description:</i> This data is capture continuously by a gas flow meter which is the main meter. The reading of the usage is conducted monthly on a jointly with the gas supplier.</p> <p>Additional flow meters are installed to monitor the amount of gas combusted by each gas engine and recorded on a daily basis that will be consolidated monthly. The total amount will be cross check with the gas supplier meter on the total amount of gas consumed.</p> <p><i>Justification of evidences:</i> The monthly gas usage records</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>of frequency (time period between evidence) and in covering the full monitoring period.</i>		<p>were checked against the invoice from the gas supplier.</p> <p>The daily records for gas consumption for each gas engine was reviewed and checked that the readings are carried out daily and consolidated for the monthly reporting.</p> <p>The log sheet was reviewed to check that recording was carried out on a daily basis in accordance to the registered MP of the PDD.</p> <p>Log sheets are available for the whole of this monitoring period.</p> <p><i>Conclusion:</i> The records of this parameter are available for the whole of this monitoring period.</p>		
4.11 NCV_{NG}				
<p>a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197)</p> <p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/MR/ /ERDRII/ /ERDRIII/ /ASTM/ /IL/</p>	<p><i>Description:</i> Net calorific value of natural gas.</p> <p>The NCV value is calculated using the monthly gas composition analysis provided by gas supplier.</p> <p>The analysis from the gas supplier is multiple with the data obtained from the ASTM standard to derived the gas NCV.</p> <p>There is no measurement required for the parameter by the project owner.</p> <p><i>Justification of evidences:</i> The analysis provided by the gas supplier had been reviewed and deemed correct and appropriate.</p>	OK	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>The applied standard ASTM standard D3566 has been reviewed to confirm the properties of the gas components are applied correctly in the calculation to determine the NCV.</p> <p><i>Conclusion:</i> The analysis is submitted monthly by the gas supplier for use to calculate the NCV value.</p>		
<p>b) Correctness (EB 51 Annex 3, §§ 196 (b), 197, 200 (d)) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i></p>	<p>/IL/ /ERDRII/ /ERDRIII/ /ASTM/</p>	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct</p> <p><i>Description:</i> The value of the parameter stated in MR is correct and sufficiently justified.</p> <p><i>Justification of evidences:</i> The gas analysis report has been reviewed during on-site to confirm the value use to calculate the NCV stated in the MR is correctly calculated.</p> <p><i>Conclusion:</i> The value of the parameter is calculated correctly using the data from the analysis and properties from the ASTM standard.</p>	OK	OK
<p>c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i></p>	<p>/SOP/ /DRF/</p>	<p><i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity.</p> <p><i>Justification of evidences:</i> The SOP has been reviewed that this parameter is a monitored data and how the recording to be carry out.</p> <p>There is no metering required and no calibration is conducted.</p> <p><i>Conclusion:</i> The SOP is the QA/QC procedure developed</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		that this parameter is included in the monitoring report.		
<p>d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a)) <i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	<p>/ERDRII/ /ERDRIII/ /ASTM/</p>	<p><i>Description:</i> This value of this parameter is not measured and calculated using the composite analysis provided by gas supplier on a monthly basis.</p> <p><i>Justification of evidences:</i> The composite analysis data was reviewed during the on-site visit to check it is supplied monthly by the gas supplier.</p> <p>The analysis records are checked and signed off by the Plant Manager.</p> <p><i>Conclusion:</i> The inaccuracy is low since it calculated using the analysis data provided by the gas supplier multiple by the properties stated in the standard.</p>	OK	OK
<p>e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b)) <i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i></p>	<p>/MR/ /ASTM/ /ERDRII /ERDRIII/</p>	<p><i>Description:</i> The value is provided from the gas supplier on a monthly basis</p> <p><i>Justification of evidences:</i> The analysis were reviewed and checked that the calculated values used in the calculation are correct in the MR and spreadsheet.</p> <p><i>Conclusion:</i> The records of this parameter are available for the whole of this monitoring period.</p> <p>All records are stored electronically and hard copies are kept.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
4.12 D_{NG}				
a) Measurement / Determination method (EB 51 Annex 3, §§ 178, 179, 196 (c), 197) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i>	/ERDRII/ /ERDRIII/ /ASTM/ /IL/	<i>Description:</i> Density of natural gas. The value is provided by gas supplier from gas specification analysis on a monthly basis <i>Justification of evidences:</i> There is no measurement required for the parameter internally by project owner. The analysis provided by the gas supplier had been reviewed and deemed correct and appropriate. <i>Conclusion:</i> The analysis is submitted monthly by the gas supplier.	OK	OK
b) Correctness e v (EB 51 Annex 3, §§ 196 (b), 197, 200 (d)) <i>Determine whether the value given in the monitoring report is correct and sufficiently justified.</i> <i>In case of mistakes pl. provide details and descriptions of the CARs raised.</i>	/ERDRII/ /ERDRIII/ /ASTM/	<input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct <i>Description:</i> The value of the parameter stated in MR is correct and sufficiently justified. <i>Justification of evidences:</i> The gas analysis report has been reviewed during on-site to confirm the value stated in the MR is according to the analysis. <i>Conclusion:</i> The value of the parameter is recorded correctly in the MR.	OK	OK
c) QA/QC Procedure (EB 51 Annex 3, §§ 176, 196 (c), 197)	/SOP/ /DRF/ /GMCC/	<i>Description:</i> A CDM SOP has been developed and implemented to monitor the project activity.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration and maintenance of the monitoring equipment has been carried out by competent personnel.</i>		<p><i>Justification of evidences:</i> The SOP has been reviewed that the value for this parameter is obtained from the gas supplier on a monthly basis.</p> <p>There is no metering required and no calibration is conducted.</p> <p><i>Conclusion:</i> The SOP is the QA/QC procedure developed that this parameter is included in the monitoring report.</p>		
<p>d) Accuracy (EB 51 Annex 3, §§196 (c), 197, 200(a))</p> <p><i>In case of measured (or estimated) values, check whether significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	<p>/DRF/ /IL/ /SOP/</p>	<p><i>Description:</i> This value of this parameter is not measured and provided by gas supplier on a monthly basis.</p> <p><i>Justification of evidences:</i> The data was reviewed during the on-site visit to verify the gas supplier submit the data monthly.</p> <p>The analysis records are checked and signed off by the Plant Personnel.</p> <p><i>Conclusion:</i> The inaccuracy is low since the data is provided by the gas supplier.</p>	OK	OK
<p>e) Verification (EB 51 Annex 3, §§ 178 (a), 178 (b), 180, 197, 199, 200(b))</p> <p><i>Describe how the value was verified. Consider the measurement / determination procedure, accuracies, QA/QC procedures. Consider as well plausibility checks as far as possible. Check if the applied value</i></p>	<p>/MR/ /ERDRII/ /ERDRIII/ /DRF/</p>	<p><i>Description:</i> The value is provided from the gas supplier on a monthly basis</p> <p><i>Justification of evidences:</i> The analysis were reviewed and checked that the values is applied correctly in the calculation stated in the MR and spreadsheet.</p> <p><i>Conclusion:</i> The records of this parameter are available for</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>could be backed up by corresponding evidences (external / internal, oral or documented). Further whether sufficient evidence is available, both in terms of frequency (time period between evidence) and in covering the full monitoring period.</i>		the whole of this monitoring period. All records are stored electronically and hard copies are kept.		
1. ER Calculation				
5.1 Traceability (EB 51 Annex 3, §176) <i>Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spreadsheet shall be used. All applied formulae must be visible.</i>	/ERDRII C/ /ERDRIII C/ /PDD/ /AM14/ /MRII/	<i>Description:</i> ER is calculated on a weekly basis and summarised monthly. <i>Justification of evidences:</i> An unprotected spreadsheet is provided for review that shows the linkages on where the data and numbers are derived from. <i>Conclusion:</i> All formulae applied for the calculations are correct and in accordance to methodology and registered PDD.	OK	OK
5.2 Parameter consistency (EB 51 Annex 3, §182 (b)) <i>Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet?</i> <i>Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). The evaluation of the correctness of the parameter values itself should be discussed in the chapter "Monitoring Parameters".</i>	/ERDRII C/ /ERDRIII C/ /ERDRII/ /ERDRIII/ /MR/	<i>Description:</i> Parameters applied for the calculations are consistent in both spreadsheet and MR. <i>Justification of evidences:</i> Parameters from both the spreadsheet and MR are reviewed to compare the consistency of the values and data used in the calculations. <i>Conclusion:</i> Parameters and data in both spreadsheet and MR are consistent.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
5.3 Applied formulae (EB 51 Annex 3, §§ 198, 199(c), 200(c)) <i>Check if the applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan and / or the approved methodology.</i>	/ERDRII C/ /ERDRIII C/ /MR/ /PDD/ /MRII/	<i>Description:</i> All formulae and methods applied for calculating baseline, project and leakage emissions are in line with the applied methodology and registered PDD. <i>Justification of evidences:</i> The MR and spreadsheet are reviewed with the registered PDD and methodology to confirm formulae and methods are applied according the registered PDD and methodology. <i>Conclusion:</i> Applies formulae are clear and in compliance with registered PDD.	OK	OK
5.4 Completeness of calculation (EB 51 Annex 3, § 199 (a)) <i>Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan.</i> <i>Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.</i>	/ERDRII C/ /ERDRIII C/ /MR/ /PDD/	<i>Description:</i> The completeness of the calculation for emission reductions are complete and reflect all requirements of the monitored plan. <i>Justification of evidences:</i> The input values applied in the calculations are checked and reviewed that there are current monitoring period data. No old or previous values are used in the calculations. <i>Conclusion:</i> The calculations are complete and transparent.	OK	OK
2. Quality Management; defined organisational structure, responsibilities and competencies Internal QA/QC and document control				
6.1 Management System (EB 51 Annex 3, §176 a (iii))	/SOP/ /SSA/	<i>Description:</i> A CDM SOP has been developed for monitoring of the project activity.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
Check if the GHG data monitoring system is embedded in a (certified) company quality management system, if so, check if all CDM monitoring procedures been fully integrated in the project participant's quality management system. If not how the GHG management system has been implemented.	/DRF/ /IM/	<p><i>Justification of evidences:</i> The SOP has been reviewed and a copy was provided to the verification team.</p> <p>The SOP covers the following topics but not exhaustive.</p> <ol style="list-style-type: none"> 1. Introduction 2. Equipment 3. Type of meters and instrument 4. Project flow diagram 5. Organisation and reporting chart 6. Monitoring Report and reporting structure 7. Data collection structure and frequency of collection 8. Operators role and responsibilities 9. Preparation and Submission of report 10. Calibration schedule 11. External data and documents (Grid EF data) 12. Internal audit <p><i>Conclusion:</i> The SOP addresses the GHG management system of the project activity.</p>		
<p>6.2 Roles and Positions</p> <p>Check if all roles and positions of each person in the</p>	/SOP/ /IM/	<p><i>Description:</i> The SOP includes an organisation chart that defines clearly on the roles and responsibility of the</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>GHG data management process are clearly defined and implemented, from raw data generation to submission of the final data.</i></p> <p><i>Check further if only duly qualified personnel is involved in the monitoring procedures.</i></p>	/SSA/	<p>respective personnel.</p> <p><i>Justification of evidences:</i> The SOP has been reviewed to confirm the roles and responsibilities for each operation in monitoring of the project activity.</p> <p><i>Conclusion:</i> The SOP has clear information on the roles and positions of each group of personnel involved in the project activity.</p>		
<p>6.3 Trainings</p> <p><i>Check if initial trainings have been carried out, in case deemed necessary.</i></p>	<p>/IM/ /SSA/ /TRG/</p>	<p><i>Description:</i> All personnel involved in the monitoring of the project activity are briefed on the roles and responsibilities. On the job training are provided</p> <p><i>Justification of evidences:</i> The operational personnel were interviewed during the on-site visit to confirm training has been provided for data collection, preparation and reporting in the event of any incidents.</p> <p><i>Conclusion:</i> On the job training and briefing are provided to project personnel to monitor the project activity.</p>	OK	OK
<p>6.4 Troubleshooting procedures</p> <p><i>Assess whether troubleshooting procedures have been implemented.</i></p>	<p>/SSA/ /IM/ /ERDRII/ /ERDRIII/</p>	<p><i>Description:</i> The operation and maintenance of the project activity is sub-contacted to the equipment supplier, Navigat Energy.</p> <p>For the monitoring of the project activity, a SOP has been implemented for troubleshooting on data / parameters monitored.</p> <p><i>Justification of evidences:</i> During the on-site visit, the project</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>plant personnel had been interviewed on the managing the project activity.</p> <p>The verification team has also reviewed the Supervisory Support Agreement on the contractor scope of work that includes troubleshooting for any failure or breakdown.</p> <p><i>Conclusion:</i> Troubleshooting has been address in the scope of work the contractor in the Supervisory support agreement.</p>		
<p>6.5 Maintenance procedures</p> <p>Are appropriate maintenance procedures in place?</p>	<p>/SSA/ /IM/</p>	<p><i>Description:</i> The project activity maintenance program is sub-contract to Navigat Energy. It is the responsibilities of the contractor to ensure operation and maintenance procedures are developed to maintain the equipment and instrument.</p> <p><i>Justification of evidences:</i> The agreement between project owner and contractor had been reviewed (copy provided) states contractor to provide O & M procedures.</p> <p><i>Conclusion:</i> Maintenance procedures are developed and implemented for the project activity.</p>	OK	OK
<p>6.6 Internal QA/QC</p> <p>Assess whether there are any procedures in place on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented? (This might include spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and</p>	<p>/SOP/ /IM/ /DRF/</p>	<p><i>Description:</i> A CDM monitoring Standard Operating Procedure (SOP) has been developed to monitor the project data collection, recording and data transfer and calculation processes including internal audits and handling of data.</p> <p><i>Justification of evidences:</i> The SOP has been reviewed</p>	OK	OK

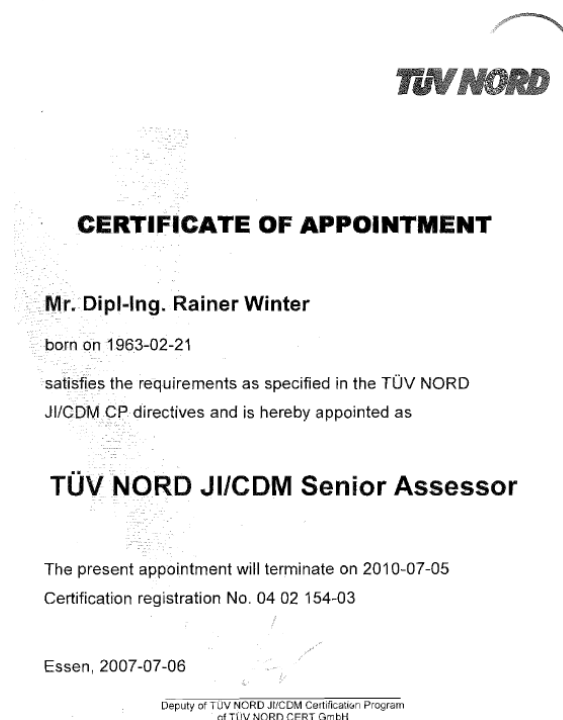
Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>the overall reliability of the calculation processes.)</i>		during on-site and interview of the appointed CDM consultant on the Internal QA/QC work. In addition, an evaluation of the system implementation is conducted biannually to evaluate the performance of the project activity before approving the mid-term ER report. <i>Conclusion:</i> The SOP developed covers the internal QA/QC checks, audits and approval of the reports.		
6.7 Data archive Check whether all records of monitoring parameters are archived according to the monitoring plan.	/MR/ /PDD/ /SOP/ /IM/	<i>Description:</i> All monitored parameters records are archived according to the validated monitoring plan of the registered PDD section B.7.1. <i>Justification of evidences:</i> During the on-site visit, the verification team had conduct interviews and reviewed the records archiving method and procedures for the monitored parameters as stated in the monitoring plan of the registered PDD. <i>Conclusion:</i> There is no deviation in the archiving of records for the monitored parameters.	OK	OK
6.8 Data protection Assess whether appropriate measures have been take in order to avoid unintended or intended manipulation of the measured data.	/PDD/ /IM/ /SOP/	<i>Description:</i> Although there is a dedicated computer server and back-up disk to stored data each member of the CDM monitoring team can access the data to prepare the weekly, monthly and annual reports. <i>Justification of evidences:</i> The verification team has reviewed the computer server and back-up disk to check on the security level to avoid unintended or intended	FAR.Q 1	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>manipulation of measured data stored for each period.</p> <p><i>Conclusion: FAR.Q1: Although the data are stored in a dedicated computer and in back-up disk, the level of security need to be upgraded and additional external storage required to ensure data are retrievable in the event of any emergency. This will be check at the next verification.</i></p>		



ANNEX 2: APPOINTMENT / AUTHORISATION STATEMENTS





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

For the following scopes: 1, 13

The present appointment will terminate on 2012-03-03

Certification registration No. 09 03 02 - 128

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

For the following scopes: 1, 13

The present appointment will terminate on 2012-08-19

Certification registration No. 09 08 01 - 156

Essen, 2009-08-20

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