



# VERIFICATION REPORT

for the CDM Project Activity

## Lebong Hydroelectric Power Plant

In  
Indonesia

Report No. 01 997 9105078269  
Version 03, 21-04-2015

Designated Operational Entity (DOE)

### TÜV Rheinland (China) Ltd

Unit 707, AVIC Building, No. 10B, Central Road, East 3<sup>rd</sup> Ring Road,  
Chaoyang District, Beijing 100022,  
People's Republic of China.  
Tel.: +86 10 65 66 66 60 (ext.169)  
FAX: +86 1065 66 66 67  
E-mail: doe@chn.tuv.com

**I. Project data:**

<b>Project title:</b>	<b>LEBONG HYDROELECTRIC POWER PLANT</b>		<b>Report No.: 01 997 9105078269</b>
<b>Registration No. / Date:</b>	8488 / 14-12-2012		<b>Current version No.: 03</b>
<b>Monitoring period:</b>	14-12-2012 — 31-12-2013		<b>Date of current version: 21-04-2015</b>
<b>Methodology:</b>	ACM0002 version 13.0.0		<b>Date of first issue: 2014-10-09</b>
<b>Publication of MR:</b>	The monitoring report (version 01, 10-01-2014) was published at UNFCCC website on 29-01-2014.		
<b>Average emission reductions:</b>	Estimated :	59,486 tCO <sub>2</sub> e/yr It is estimated based on 56,691 tCO <sub>2</sub> e of annual emission reductions as indicated in the registered PDD (Version 3.1, 23/11/2012), and the monitoring period 14 December 2012 - 31 December 2013, including both days.	Verified for CP1: 941 tCO <sub>2</sub> e from 14-12-2012 to 31-12-2012 including both days
			Verified for CP2: 53,234 tCO <sub>2</sub> e from 01-01-2013 to 31-12-2013 including both days
<b>GHG reducing measure/technology:</b>	Electricity generation by renewable hydro energy resource to supply to public electricity grid		

Party	Project participants	Party considered a project participant	Contract party
Indonesia (Host)	Private Entity: PT Mega Power Mandiri	No	<input checked="" type="checkbox"/>
Sweden	Public Entity: Nordic Environment Finance Corporation NEFCO in its capacity as Fund Manager to the NEFCO Carbon Fund (NeCF)	No	<input type="checkbox"/>

**II. Verification Team and Technical Reviewer:**

Verification Team			Role						
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Team leader	Acting Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting Tech. Expert	Trainee Auditor
Nelly Yong Tau Lan	Malaysia	1, 5, 11, 12, 13	X						
Azizan Zakaria	Malaysia	5, 11, 12				X			
Ramaiyer Ramachandran	Indonesia	-			X				

Technical Reviewer			Role		
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Technical Reviewer	Expert to TR	Trainee TR
Dr. Lixin Li	China	1, 2, 3, 4	X		

Verification Phases	Verification Status
<input type="checkbox"/> Desk Review <input type="checkbox"/> Follow up interviews <input checked="" type="checkbox"/> Resolution of outstanding issues	<input type="checkbox"/> Corrective Actions / Clarifications Requested <input checked="" type="checkbox"/> Full Approval and Submission for Issuance <input type="checkbox"/> Rejected

### III. Verification Report:

Final approval	Released	Distribution
<input checked="" type="checkbox"/> Date: 21-04-2015	By: Mr. Henri Phan	<input type="checkbox"/> No distribution without permission from the Client or responsible organizational unit <input checked="" type="checkbox"/> Unrestricted distribution

**Abbreviations**

CAR	Corrective Action Request
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	CDM Validation and Verification Standard
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CH <sub>4</sub>	Methane
CL	Clarification request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2e</sub>	Carbon dioxide equivalent
CP	Commitment Period
DNA	Designated National Authority
DOE	Designated Operational Entity
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
NEFCO	Nordic Environment Finance Corporation
NeCF	NEFCO Carbon Fund
N <sub>2</sub> O	Nitrous oxide
PDD	Project Design Document
PP	Project Participant
TUV R	TUV Rheinland (China) Ltd
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation And Verification Standard

## Verification opinion — summary

The verification team assigned by the DOE (TÜV Rheinland (China) Ltd.) concludes that the CDM Project Activity “Lebong Hydroelectric Power Plant” in Indonesia, as described in the **revised** registered PDD (**Version 3.2, 06-04-2015**) and monitoring report (**Version 02, 02-04-2015**), meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) project activities including carbon dioxide capture and storage in geological formation and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification is conducted in-line with the VVS requirements.

### Verification methodology and process

The verification has been performed as described in the VVS version 07.0 and constitutes the following steps:

- Publication of the MR on the UNFCCC website
- Desk review of the MR and the relevant documents
- On-site assessment (01-03-2014 to 02-03-2014)
- Issue of the draft validation protocol with corrective action requests (CARs) and clarification requests (CLs)
- Resolving all of outstanding questions
- Desk review of revised Monitoring Report (Version 02, 02-04-2015)
- Issue of the final verification report & protocol

The project activity was correctly implemented according to selected monitoring methodology (ies) and monitoring plan. The monitoring equipment was installed, calibrated and maintained in a proper manner, while collected monitoring data allowed verifying the amount of achieved GHG emission reductions. The DOE therefore is pleased to issue a positive verification opinion expressed in the attached Certification statement.

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## 1. Introduction

PT Mega Power Mandiri has commissioned the DOE TÜV Rheinland (China) Ltd. to perform a verification of the CDM Project Activity “Lebong Hydroelectric Power Plant” in Indonesia (hereafter “project activity”). This report summarises the findings of the verification of the project, performed on the basis of paragraph 62 of the CDM modalities and procedures, as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the CDM Executive Board. Verification is required for all registered CDM project activities intending to confirm their achieved emission reductions and proceed with request for issuance of CERs. This report contains the findings from the verification and a certification statement for the certified emission reductions.

### 1.1 Objective

Verification is the periodic independent review and *ex post* determination of both quantitative and qualitative information by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period.

Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and certify emission reductions reported for the “Lebong Hydroelectric Power Plant” in country “Indonesia” for the period 14-12-2012 to 31-12-2013.

The purpose of verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner.

In particular, monitoring plan, monitoring report and the project's compliance with relevant UNFCCC and host Party criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented. And also if the monitoring plan is in compliance with the registered PDD and approved monitoring methodology.

### 1.2 Scope

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- Where sampling is involved, sampling guidelines are applied to ensure the adequate sampling and survey method is followed in reaching professional judgements.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified.

The verification comprises a review of the monitoring report over the monitoring period from 14-12-2012 to 31-12-2013. Based on registered PDD in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participant.

On-site visit and stakeholders interviews are also performed as part of the verification process.

## 2. Methodology

The verification consists of the following four phases:

1. Completeness check and webhost of the Monitoring report for UNFCCC public commenting;
2. Desk review of the monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the frequency of measurements, quality of metering equipment's including calibration requirements, QA/QC procedures and other relevant documents;
3. On-site visit (including follow-up interviews with project stakeholders, when deemed necessary). The on-site assignment includes the following;
  - An assignment of implementation and operation of project activity with respect to registered PDD or approved revised PDD;
  - Review of information flows for generating, aggregating and reporting the monitoring parameters;
  - Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the PDD;
  - Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources;
  - Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and PDD;
  - Review of assumptions made in calculating the emission reduction;
  - Implementation of QA/QC procedure in-line with the PDD and methodology requirement.
4. Resolution of outstanding issues and the issuance of the final Verification report and Certification statement.

The following sections outline each step in more detail.

### 2.1 Desk review

The following table outlines the documentation reviewed during the verification:

Ref no.	Reference Document
/1/	Webhosted Monitoring report, version 01, 10-01-2014
/2/	Final Monitoring report, version 02, 02-04-2015
/3/	Registered PDD, registration no. 8488, 23-11-2012
/4/	CAR 10.Emission reduction calculation_Lebong_revised_141114
/5/	Approved monitoring methodology: ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 13.0.0
/6/	Standard monitoring report format issued by EB (version 05.0)
/7/	Clean Development Mechanism Validation and Verification Standard (version 09.0)
/8/	Clean Development Mechanism Project Cycle Procedure (version 09.0)
/9/	Clean Development Mechanism Project Standard (version 09.0)
/10/	Guidelines on the application of Materiality in Verifications (version 01.0)
/11/	Construction agreement (start date: 28-01-2008)
/12/	Monthly Minutes of Power Meter Purchase Records and Monthly Minutes of Electricity Production and related invoices for the following periods <ol style="list-style-type: none"> <li>1) 14 December 2012 to 18 February 2013</li> <li>2) 19 February 2013 to 26 March 2013 to 1 July 2012</li> <li>3) July - August 2013</li> <li>4) 1 August – 1 September 2013</li> </ol>



	5) 1 September 2013 – 1 October 2013 6) 1 October – 1 November 2013 7) 1 November – 1 December 2013 8) 1 December 2013 - 1 January 2014
/13/	Revised PDD, registration no. 8488, 06-04-2015
/14/	Standard PDD format issued by EB (version 06.0)
/15/	Project drawings – actual: 15.1 Weir & intake Section 1.0 dated 23-09-2011 15.2 Weir Section 1.1 dated 23-09-2011 15.3 Longitudinal Section 2 dated 23-09-2011 15.4 Plan Head Pond dated 23-09-2011 15.5 Head Pond Section 1.1 dated 23-09-2011 15.6 Plan Penstock-1 dated 05-10-2011 15.7 Longitudinal Section Penstock-1 dated 05-10-2011 15.8 Plan Penstock-2 dated 05-10-2011 15.9 Longitudinal Section Penstock-2 dated 05-10-2011 15.10 Longitudinal Section 6 & 7 dated 23-09-2011
/16/	Validation Report, LRQA Reference: A20250-M, Version 04.1, dated 25-11-2012
/17/	MEMR 37-2008 Peraturan Menteri Energi dan Sumber Daya Mineral, Nomor 37 Tahun 2008 Aturan Jaringan Sistem Tenaga Listrik Sumatera (Ministry of Energy & Mineral Resources, Number 37 Year 2008, Rules Electric Power System Network Sumatra)
/18/	UNFCCC website: Registered CDM project information #8488 <a href="https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1354267102.4/view">https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1354267102.4/view</a>
/19/	Glossary of CDM Terms, Version 07.0
/20/	CDM Monitoring Manual, dated 12-12-2012
/21/	ACE SL 7000 Industrial & Substation Electricity Meter Range equipment catalogue & specification, undated
/22/	Calibration Certificate for power meter, dated 21-06-2012, serial number 53111994 Calibration Certificate for power meter, dated 21-06-2012, serial number 53112670
/23/	Recommendation letter from PT PLN (PERSERO) to PT. Mega Power Mandiri (MPM) for equipment calibration, dated 28-1-2014
/24/	Technical agreement between PT MPM and Wide Easy Engineering Company – Item 2 and nameplates of turbine and generator installed in the plant. Generator Technical Data

## 2.2 On-site visit and follow-up interviews with project stakeholders

TÜV Rheinland verification team carried out an on-site visit dated (01/03/2014-02/03/2014) and performed interviews with the project representatives and stakeholders.

Prior to the interview salient points to be discussed were planned. Date of interview, interviewee and points discussed are given in the following table.

	Date	Name	Organization	Topic
<b>/ii/</b>	01-03-2014	Yana Suryana	Pt Mega Power Mandiri	Brief project description (by the project proponent) Overview: <ul style="list-style-type: none"> <li>▪ Project implementation status</li> <li>▪ Project facilities and equipment</li> <li>▪ Project design and technology used</li> <li>▪ Followup on NOC 1st Verification Plant Tour</li> </ul>
		Nicholas Simanjuntak	Blue World Carbon	
		T. Briyadi Iskandar	Pt Mega Power Mandiri	
		Deni Riyanto	Pt Mega Power Mandiri	
<b>/iii/</b>	02-03-2014	Yana Suryana	Pt Mega Power Mandiri	<ul style="list-style-type: none"> <li>▪ Project implementation status cross checking</li> <li>▪ Project facilities and equipment check</li> <li>▪ Project design and technology used</li> </ul> Project implementation <ul style="list-style-type: none"> <li>▪ Information flow for monitoring presentation</li> <li>▪ CDM monitoring procedures</li> <li>▪ Data collection procedures</li> <li>▪ QA/QC procedures</li> <li>▪ Monitoring Report Discussion:               <ul style="list-style-type: none"> <li>▪ Original data check and data trail till the reported values</li> </ul> </li> <li>▪ GHG emission reductions calculation</li> <li>▪ Monitoring data compilation</li> <li>▪ Online data storage system maintenance &amp; control</li> <li>▪ Reporting &amp; data integrity check</li> <li>▪ Document Check:               <ul style="list-style-type: none"> <li>▪ Manuals, procedures, records, certificates, calibration reports, and other relevant documents.</li> </ul> </li> <li>▪ Cross checking management &amp; operation system maintenance in relation to monitoring plan</li> <li>▪ Document Check:               <ul style="list-style-type: none"> <li>▪ Manuals, procedures, records, certificates, calibration reports,</li> </ul> </li> </ul>
		Nicholas Simanjuntak	Blue World Carbon	
		T. Briyadi Iskandar	Pt Mega Power Mandiri	
		Deni Riyanto	Pt Mega Power Mandiri	
		Ullu Suryaniyati	Pt Mega Power Mandiri	
		Srininarko	Pt Mega Power Mandiri	
		Yoga	OP. PH	
		Prajiwa Susanto	Pt Mega Power Mandiri	
		Fitryadi Iskandar	Pt Mega Power Mandiri	
		Martin K.	Weir Operator	
		Romi	Weir Operator	

Verification Team along with onsite observation, objective evidence collections, data generation and recording analysis also considered the views obtained in these interviews while arriving at Verification Opinion.

### 2.3 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which have to be clarified prior to final DOE's conclusions on the project implementation, monitoring practices and achieved emission reductions. In order to ensure transparency a verification protocol is completed for the project activity. The protocol shows in transparent manner criteria (requirements), means of verification and resulting statements on verification actual project activity against identified criteria.

The verification protocol serves the following purposes:

- It organises in a table form, details and clarifies the requirements, which CDM project is expected to meet CDM requirements;
- It ensures a transparent verification process where the DOE will document how a particular requirement has been verified and the result of the verification.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the project activity.

The verification protocol consists of three tables. Table 1 reflects the verification requirements and reference to the materials used to verify the project activity against those requirements, as well as means of verification, reference to Table 2 and preliminary and final opinion of the DOE on every particular requirement. Table 3 reflects the carry forward actions initiated by the verification team if the monitoring and reporting require attention and/or adjustment for the next verification period. The completed verification protocol for this project is enclosed in Appendix A to this report.

Findings during the verification can be interpreted as a non-compliance with CDM criteria or a risk to the compliance. Corrective action requests (CARs) are raised, in case:

- (a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- (b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- (d) Issues identified in a FAR during validation/previous verification(s) that are not been resolved by the project participant(s) to be verified during current verification.

Requests for clarification (CLs) are raised, if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during verification to highlight issues related to project implementation/monitoring that require review during the subsequent verification of the project activity. FARs shall not relate to the CDM requirements for issuance.

## **2.4 Internal quality control**

The draft verification report including the initial verification findings was submitted to the project participants. The final verification report underwent a technical review by a qualified independent reviewer before requesting issuance of the project activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification that meets the criteria of EB guidelines for qualification.

## **2.5 Verification Team and Technical Reviewer**

Before the assessment begins, members of the verification team are ensured to cover the technical area(s), sectoral scope(s) and relevant host country experience including local language ability for evaluating the CDM verification activity. The qualification of the team is as per the criteria defined by the EB guidelines for qualification.

Verification Team			Type of Involvement					
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Supervising the work	Desk review	Site Visit + Interview	Report and protocol Writing	Technical Expert Input	Reporting Support
Nelly Yong Tau Lan	Malaysia	1, 5, 11, 12, 13	X	X	X	X		
Azizan Zakaria	Malaysia	5, 11, 12				X		
Ramaiyer Ramachandran	Indonesia	-			X		X	

Technical Reviewer			Type of Involvement		
Full name	Affiliation TÜV Rheinland	Appointed for Sectoral Scopes (Technical Areas)	Technical Reviewer	Expert to Technical Reviewer	Trainee TR
Dr. Lixin Li	China	1, 2, 3, 4	X		

### 3. Verification findings

The findings of the verification are described in the following sections. The verification criteria (requirements), the means of verification and the results of verification are documented in detail in the verification protocol in Appendix A.

#### 3.1 Project implementation

##### 3.1.1 The implementation of the project activity

<b>Project Participants:</b>	PT Mega Power Mandiri
<b>Project Parties:</b>	Nordic Environment Finance Corporation (NEFCO) in its capacity as Fund Manager to the NEFCO Carbon Fund (NeCF)
<b>Title of project activity:</b>	Lebong Hydroelectric Power Plant
<b>UNFCCC registration No:</b>	8488
<b>Baseline and monitoring methodology:</b>	ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (version 13.0.0)
<b>Project Type:</b>	Energy industries (renewable - / non-renewable sources)
<b>Project Scale:</b>	Large Scale
<b>Location of the project activity:</b>	<p>During on site visit, the verification team was able to confirm that the project site is located as follows:</p> <p>(a) Host Party(ies): Indonesia</p> <p>(b) Region/ State/ Province, etc.: Sumatra Island, Bengkulu province</p> <p>(c) City/ Town/ Community, etc.: Lebong district, Lalang Turan Village</p> <p>(d) Physical/ Geographical location:</p> <p><i>According to the registered PDD /3/, Section A.4.1.4, the project will be located on the Ketahun River with the following coordinates: 3° 10' 10" S &amp; 102° 17'10" E, converted to decimal GPS location to be: 3.1694 S &amp; 102.2861 E</i></p> <p><i>This coordinates were taken from reference source i.e. Feasibility</i></p>

	<p><i>Study Report as quoted in the registered PDD document page 4</i></p> <p>However, during the on site visit by the verification team, the verification team was able to confirm that the project site is located as follows:</p> <p>Located on the Ketahun River with the following coordinates:  Weir: 3° 12.130" S &amp; 102° 18.861" E, converted to decimal GPS location to be: 3.2022 S &amp; 102.3144 E  Power house: 3° 11.446" S &amp; 102° 18.340" E, converted to decimal GPS location to be: 3.1908 S &amp; 102.3057E  This was measured using GPS meter by the verification team during the on site visit, directly at the power house &amp; weir location together with the project participants  The registered PDD /3/, Section A.4.1.4 did not specify clearly the specific coordinates for Weir &amp; Power house, hence the corrected specific coordinates are reported in the final monitoring report /2/ &amp; the revised PDD /13/</p> <p><b>Conclusion:</b>  The verification team confirms this is a correction to the missing information and without actual change in the project's location &amp; project design of the project activity. This is in line with the Appendix 1 of Clean Development Mechanism Project Standard /9/, Changes that do not require prior approval by the board, Paragraph 1.  Therefore, this change does not require prior approval from UNFCCC and is provided within Section A.2.4 of the revised PDD /13/</p>
<b>Project's crediting period:</b>	01-12-2012 to 30-11-2019
<b>Total Duration of the project:</b>	3 x 7 years renewal crediting period
<b>Period verified in this verification:</b>	14-12-2012 to 31-12-2013

Project activity physical features	<p>○ <b>Technology</b></p> <p>The project activity involves the construction and operation of the Lebong hydroelectric power plant located near the Lalang Turan village in Lebong district, Bengkulu province, Sumatera Island, Indonesia.</p> <p>The hydroelectric power plant is a run-of-the-river project with a run-of-river reservoir. The hydro power plant is operated and owned by PT Mega Power Mandiri and has a total installed capacity of 12 MW.</p> <p>The project design consists of a run-of-the-river hydro power station with a weir, water intake, waterway, penstock, power house and an on-site transformer station. The net annual power supply is 76,300 MWh.</p> <p>○ <b>Project equipment</b></p> <p>The verification team has conducted desk review of the registered PDD &amp; cross checked the actual physical features implemented at the project site during on site visit</p> <p>The following are the summary of the observed implemented physical features as proposed in the registered PDD during the onsite visit:</p> <ol style="list-style-type: none"> <li>1) Weir</li> <li>2) Head pond</li> <li>3) Penstock</li> <li>4) Power house</li> <li>5) 3 Turbine / generator units, consist of horizontal shaft Francis turbines and</li> </ol>
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generator

During the on site visit & desk review, the verification team discovered that the dimensions & measurements of several project items including the project equipment are inconsistent with the registered PDD /3/ Section A.4.3

According to the registered PDD /3/ Section A.4.3:

*“The weir is 3 meters in height with a maximum elevation of 492.5 m. The weir can take a maximum debit of 1133 m<sup>3</sup> in case of flooding. Through a double intake the river water flows into the 960 m long waterway. At the end of the waterway is the headpond that with a diameter of 35 m and an overflow of 5 m. From the headpond the water enters the 605 m long penstock. Overflowing water from the headpond is released to the river again..... The project will involve a water head of 45 m of which 37.67 m will effectively be employed. Figure A.4.3.1 presents the layout of the proposed project activity.”*

**Table A.4.3.1. Turbine specifics<sup>1</sup>**

Parameter	Value
Type	Francis turbine, horizontal
Type no	HLA551C-WJ-110
Rated Speed [r/min]	500
Rated flow [m <sup>3</sup> /s]	10.15
Rated head [m]	45
Efficiency [%]	93
Overhaul interval	5 years

**Table A.4.3.2. Generator specifics<sup>2</sup>**

Parameter	Value
Type	SFW – J4000-12/2150
Rated output [kW]	4000
Rated Voltage [V]	6300
Rated Current [A]	458.2
Frequency [Hz]	50
Rated Power Factor	0.8
Rated Speed [r/min]	500
Efficiency [%]	96.76
Overhaul interval	5 years

However, the actual dimensions & measurements of the project items were found as follows (cross checking the actual project drawings / diagrams /15/):

The weir is 5.5 meters in height with a maximum elevation of 498 m. The weir can take a maximum debit of 240 m<sup>3</sup> in case of flooding. Through a double intake the river water flows into the 990 m long waterway. At the end of the waterway is the headpond that with a rectangular of 80m x 24m and an overflow of 17 m. From the headpond the water enters the 620.124m long pipe 1 and 613.085 m long pipe 2 of penstock. Overflowing water from the headpond is released to the river again.

The project will involve a water head of 62.679 m of which 60 m will effectively be employed.

The verification team also found the actual project equipments used i.e. turbine / generator units varied slightly in terms of the specification values as listed below (IN BOLD) & corrected in the revised PDD /13/ Section A.3:

<sup>1</sup> Source: Feasibility Study Report 2007

<sup>2</sup> Technical agreement between PT MPM and Wide Easy Engineering Company – Item 2

**Table A.4.3.1. Turbine specifics<sup>3</sup>**

Parameter	Value
Type	Francis turbine, horizontal
Type no	<b>HLA616-WJ-110</b>
Rated Power [kW]	4639
Rated Speed [r/min]	500
Rated discharge [m <sup>3</sup> /s]	<b>8.66</b>
Rated head [m]	<b>60</b>
Rated Efficiency [%]	<b>92.93</b>
Overhaul interval	5 years

**Table A.4.3.2. Generator specifics<sup>4</sup>**

Parameter	Value
Type	SFW – J4000-12/2150
Rated Power [kW]	4000
Rated Voltage [V]	6300
Rated Current [A]	<b>458</b>
Rated Frequency [Hz]	50
Power Factor	0.8
Rated Speed [r/min]	500
Efficiency [%]	96.76
Overhaul interval	5 years

There is no change in the band & type of the turbines & generator used for the project, as confirmed via equipment specification documents /24/ review during the on site visit.

The verification team cross checked also whether this changes would impact on the plant load factor achievement compared to the value estimated during the feasibility study. According to the registered PDD /3/, the plant load factor of the project activity (as per feasibility study report) is 73%. Actual plan load factor calculated for this project /4/ is 69.36% & hence it does not impact to the project activity

The verification concluded that despite there are corrections made to the project technology descriptions in the revised PDD /13/ Section A.3, after having reviewed the applicable additionality & methodological requirements (i.e. ACM 0002 /5/), these changes as described above does not adversely impact the conclusions of the validation report of the registered PDD /16/ with regard to:

- (a) Additionality of the project activity;
- (b) Scale of the project activity;
- (c) Applicability and application of the approved baseline methodology and, where applicable, the approved standardized baseline under which the project activity has been registered; or
- (d) The compliance of the monitoring plan with the applied monitoring methodology and, where applicable, the applied standardized baseline.
- (e) The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.

The verification team also confirmed that the changes would not have been known prior to registration of the project activity since the information were initially sourced & referenced from the feasibility study report.

**Conclusion:**

**The verification team confirms this is a correction to the project technology**

<sup>3</sup> Technical agreement between PT MPM and Wide Easy Engineering Company – Item 2 and nameplates of turbine and generator installed in the plant.

<sup>4</sup> Generator Technical Data



	<p>information as verified in actual on site by the verification team and without actual change in the project design of the project activity. This is in line with the Appendix 1 of Clean Development Mechanism Project Standard /9/, Changes that do not require prior approval by the board, Paragraph 6. Therefore, this change does not require prior approval from UNFCCC and is provided within Section A.3 of the revised PDD /13/</p> <p>○ <b>Monitoring &amp; metering equipment</b></p> <p>During the on site visit &amp; desk review, the verification team discovered that the following corrections to the monitoring equipment used in the project activity &amp; also the implementation of monitoring plan are inconsistent with the registered PDD /3/.</p> <p>Details regarding the changes &amp; inconsistencies of the monitoring plan implementation – see Section 3.2 of this report for further details</p> <p>The monitoring equipment which is affected by the corrections are described as follows:</p> <p>According to the registered PDD /3/ Section B.7.2 page 35:</p> <p>"○ <i>Grid company: The grid company will meter the power supply also at the high voltage side of the on-site transformer station with its own metering equipment. The meter will be located at the TES Substation owned and operated by the state utility. The regulations of the grid company require annual calibrations of both metering instruments.</i></p> <p>○ <i>Calibration: Calibrations are carried out by the grid company or by a certified company. If there are any substantial discrepancies between the readings of the metering instruments throughout the year, both instruments will be recalibrated.</i></p> <p><b>Power received through back-up power lines:</b></p> <p>As indicated in Figure B.7.2.1 the project may be connected by a back-up emergency power line (indicated in dotted green straight line) which delivers power from the grid to the project in case of emergencies or when the turbines of the proposed project activity are not in operation. Net power received from the grid is metered as below:</p> <p>○ <i>Grid company:</i> The grid company will meter the power supplied to the project with its own metering equipment in accordance with national regulations.</p> <p>○ <i>Calibration:</i> Calibrations are carried out by the grid company or by a certified company.</p> <p>The project entity will collect the sales receipts for power supplied to the grid and billing receipts for power received from the grid as evidence. The net supply (i.e. gross supply minus supply by the grid to the project) will be used in the calculations. In case of discrepancies between the metering instruments of the grid company and the project entity, the readings of the grid company will prevail. All records of power delivered to the grid, sales receipts and the results of calibration will be collated in a central place by the project entity."</p> <p>The registered PDD /3/ Section B.7.2 further defined the accuracy level of the meters to be used as 1% or more accurate.</p> <p><b>However, in actual during on site verification by the verification team, it was found that:</b></p> <ul style="list-style-type: none"> <li>▪ <b>The back-up electricity meter (M1) is not located at the TES substation &amp; in actual is located at the power house of Lebong Hydropower Plant. The verification team did not see any impact to the project activity monitoring plan &amp; compliance with the approved methodology ACM0002 /5/ since only the location of the metering was changed but the monitoring requirements remained unchanged</b></li> <li>▪ <b>Electricity meter (M2), the primary meter is confirmed during on site visit,</b></li> </ul>
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	<p>located at the power house of Lebong Hydropower Plant.</p> <ul style="list-style-type: none"><li>Electricity meter M3 as shown in the registered PDD /3/ Section B.7.2 Figure B.7.2.1 – in actual, it does not exist at the project site. During the site visit, via desk review &amp; interview the project participant (plant manager &amp; site engineers), it was confirmed that there will be no back-up power received through meter M3. According to the plant manager, the project activity will use the backup diesel generator instead for auxiliary maintenance activities such as welding, repairing &amp; not for internal power generation purpose. This was verified on site by the verification team &amp; accepted. Furthermore the approved methodology ACM0002 /5/ also stated that <i>“The use of fossil fuels for the back up or emergency purposes (e.g. diesel generators) can be neglected”</i>. Hence, this is accepted by the verification team</li><li>Actual accuracy class of the electricity meters used are as follows: M1: 0.5S (kWh-active); 2 (kVArh- reactive) M2: 0.2S (kWh-active );2 (kVArh- reactive) This was verified &amp; sighted at the project site by the verification team. The corrections of the accuracy of the meters are accepted by the verification team since it complies with the national requirements as defined in the MEMR 37-2008 /17/. Furthermore, this is also in line with VVS requirement /7/ paragraph 326 (a) which states the proposed revisions ensure that the level of accuracy and completeness in the monitoring and verification process is not reduced as a result of the revision. The details about the verification outcome for the equipment’s calibration, accuracy, quality assurance &amp; quality control procedures are discussed in this report Section 3.3 Hence, these changes &amp; corrections have been reflected in revised PDD /13/ Section B.7.3</li><li>The type of electricity meters used for the project activity has been verified during on site visit as one directional meters instead of bi-directional meters as stated in the registered PDD /3/ Section B.7.1, parameter EG<sub>facility,y</sub> Hence the description of measurement methods and procedures to be applied in PDD has been updated to reflect this changes, in revised PDD /12/. See Section B.7.1</li></ul> <p><b>Conclusion:</b> The verification team confirms this is a correction &amp; permanent changes to the project monitoring plan description information as verified in actual on site by the verification team and without actual change in the project design of the project activity. This is in line with the Appendix 1 of Clean Development Mechanism Project Standard /9/, Changes that do not require prior approval by the board, Paragraph 5. Therefore, this change does not require prior approval from UNFCC and is provided within Section B.7.3 of the revised PDD /13/</p>									
Starting date of crediting period of the project & the crediting period for the 1 <sup>st</sup> periodic verification	<p>The verification team cross checked the registered PDD /3/, UNFCCC website /18/ &amp; Monitoring Report /2/ &amp; the summary of the review are as follows:</p> <table><tr><th>No.</th><th>Document</th><th>Crediting Period</th></tr><tr><td>1</td><td>Registered PDD /3/</td><td>Section C.2.1.1 indicated the starting date of the crediting period is start operation of the project activity on 01-12-2012 or date of registration whichever is later</td></tr><tr><td>2</td><td>UNFCCC website /18/</td><td>The project was registered on 14-12-2012 &amp; the crediting period is 14-12-2012 to 13-12-2019</td></tr></table>	No.	Document	Crediting Period	1	Registered PDD /3/	Section C.2.1.1 indicated the starting date of the crediting period is start operation of the project activity on 01-12-2012 or date of registration whichever is later	2	UNFCCC website /18/	The project was registered on 14-12-2012 & the crediting period is 14-12-2012 to 13-12-2019
No.	Document	Crediting Period								
1	Registered PDD /3/	Section C.2.1.1 indicated the starting date of the crediting period is start operation of the project activity on 01-12-2012 or date of registration whichever is later								
2	UNFCCC website /18/	The project was registered on 14-12-2012 & the crediting period is 14-12-2012 to 13-12-2019								

	<table><tr><td>3</td><td>Monitoring Report /2/</td><td>The monitoring report Section A.5 has indicated the monitoring period as 14-12-2012 – 31-12-2013</td></tr></table>	3	Monitoring Report /2/	The monitoring report Section A.5 has indicated the monitoring period as 14-12-2012 – 31-12-2013
3	Monitoring Report /2/	The monitoring report Section A.5 has indicated the monitoring period as 14-12-2012 – 31-12-2013		
	<p>Hence, this in line with the Glossary of CDM Terms (previous version 04) which states that “The crediting period may only start after the date of registration of the proposed activity as a CDM project activity.” The definition for crediting period has now been modified in the Glossary of CDM Terms latest version 07.0 /19/ which states that “<i>The period in which verified and certified GHG emission reductions or removals by sinks attributable to a CDM project activity or CPA, as applicable, can result in the issuance of CERs, ICERs or tCERs, as applicable, from that CDM project activity or CPA. The time period that applies to a crediting period for a CDM project activity or CPA, and whether the crediting period is renewable or fixed, is determined in accordance with the CDM rules and requirements</i>”</p>			
Consistency with PDD & Diversions from original plan	<p>During the 1<sup>st</sup> monitoring period, the verification team had identified the following inconsistencies with PDD &amp; diversions from the original plan and these has been described throughout this verification report. In summary:</p> <ul style="list-style-type: none"><li>1) Implementation of project activity – see Section 3.1.1 above for the verification details &amp; conclusions</li><li>2) Permanent changes from registered monitoring plan – see Section 3.2 &amp; 3.3 below for the verification details &amp; conclusions</li></ul>			

As part of the site visit the verification team was able to confirm that the project implementation is in accordance with the project description contained in revised PDD /13/. The verification took cognizance of § 243, 244 & 245 of CDM Project Standard.

During the first monitoring period 14-12-2012 to 31-12-2013, the project has resulted in emission reductions of 54,175 tCO<sub>2</sub>e.

Herewith, the Verification Team summarizes *major* changes between webhosted Monitoring Report and final version of Monitoring Report for submission as follows:

Subject	Webhosted Monitoring Report (MR)	Correction to webhosted MR in the final MR submission for issuance with DOE assessment and reason of acceptance.
<b>Consistency</b>		
MR (project title / participants involved/ project location / reference numbers / report date and version etc.)	Lebong Hydroelectric Power Plant	No changes
Methodologies (title and version numbers) PDD and its version	ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (version 13.0.0)	No changes
CER calculations (formula applied/ amount of emission reduction)	54,175 tCO <sub>2</sub> e.	No changes
Registration date, consistent/logical sign-off dates	14-12-2012	No changes

Monitoring (period dates / parameters / frequency )	1st Monitoring Period 14-12-2012 to 31-12-2013	No changes
Crediting period ( type / start date)	A 3 x 7 year renewable crediting period	No changes
<p>Please refer to Appendix A of this report for details of each change between webhosted MR and the final MR for submission. The Verification Team has carried out the verification process based on the Webhosted MR and raised CARs/CLs against the project by issuing the verification protocol.</p> <p>With the updated information and corrections done on final MR, the PP has addressed all the CARs /CLs that were raised by the Verification Team.</p> <p>It is concluded that the Verification Team has reviewed the project in line with the VVS (version 07.0) and all the evidence, corrections, justifications and updating done on the final MR with respect to CARs /CLs raised are accepted and closed by the Verification Team, issuing the positive verification opinion for project registration.</p>		

Herewith, the Verification Team summarizes *major* changes between Registered PDD /3/ and final version of revised PDD /13/ for submission as follows:

Subject	Registered PDD /3/	Correction / Revision to registered PDD for issuance with DOE assessment and reason of acceptance.
<b>Consistency</b>		
Project physical location	<p>Registered PDD /3/, Section A.4.1.4</p> <p>Located on the Ketahun River with the following coordinates: 3° 10' 10" S &amp; 102° 17'10" E, converted to decimal GPS location to be: 3.1694 S &amp; 102.2861 E</p> <p>This coordinates were taken from reference source i.e. Feasibility Study Report as quoted in the registered PDD document page 4</p>	<p>Revised PDD /13/ Section A.2.4</p> <p>Located on the Ketahun River with the following coordinates: Weir: 3° 12.130" S &amp; 102° 18.861" E, converted to decimal GPS location to be: 3.2022 S &amp; 102.3144 E</p> <p>Power house: 3° 11.446" S &amp; 102° 18.340" E, converted to decimal GPS location to be: 3.1908 S &amp; 102.3057E</p> <p>Reasons for acceptance: See Section 3.1.1 page 12 – 13 for detailed explanation</p>
Technology to be employed by the project activity	<p>Registered PDD /3/ Section A.4.3:</p> <p>"The weir is 3 meters in height with a maximum elevation of 492.5 m. The weir can take a maximum debit of 1133 m<sup>3</sup> in case of flooding. Through a double intake the river water flows into the 960 m long waterway. At the end of the waterway is the headpond that with a diameter of 35 m and an overflow of 5 m. From the headpond the water enters the 605 m long penstock. Overflowing water from the headpond is released to the river again..... The project will involve a water head of 45 m of which 37.67 m will effectively be employed. Figure A.4.3.1 presents the layout of the proposed project activity."</p>	<p>Revised PDD /13/ Section A.3</p> <p>The weir is 5.5 meters in height with a maximum elevation of 498 m. The weir can take a maximum debit of 240 m<sup>3</sup> in case of flooding. Through a double intake the river water flows into the 990 m long waterway. At the end of the waterway is the headpond that with a rectangular of 80m x 24m and an overflow of 17 m. From the headpond the water enters the 620.124m long pipe 1 and 613.085 m long pipe 2 of penstock. Overflowing water from the headpond is released to the river again..... The project will involve a water head of 62.679 m of which 60 m will effectively be employed.</p> <p>The verification team also found the actual project equipments used i.e. turbine /</p>

	<div>generator units varied slightly in terms of the specification values as listed below (IN BOLD) &amp; corrected in the revised PDD /13/ Section A.3:</div> <div>Table A.4.3.1. Turbine specifics<sup>5</sup><table><tr><th>Parameter</th><th>Value</th></tr><tr><td>Type</td><td>Francis turbine, horizontal</td></tr><tr><td>Type no</td><td>HLA551C-WJ-110</td></tr><tr><td>Rated Speed [r/min]</td><td>500</td></tr><tr><td>Rated flow [m<sup>3</sup>/s]</td><td>10.15</td></tr><tr><td>Rated head [m]</td><td>45</td></tr><tr><td>Efficiency [%]</td><td>93</td></tr><tr><td>Overhaul interval</td><td>5 years</td></tr></table></div> <div>Table A.4.3.2. Generator specifics<sup>6</sup><table><tr><th>Parameter</th><th>Value</th></tr><tr><td>Type</td><td>SFW – J4000-12/2150</td></tr><tr><td>Rated output [kW]</td><td>4000</td></tr><tr><td>Rated Voltage [V]</td><td>6300</td></tr><tr><td>Rated Current [A]</td><td>458.2</td></tr><tr><td>Frequency [Hz]</td><td>50</td></tr><tr><td>Rated Power Factor</td><td>0.8</td></tr><tr><td>Rated Speed [r/min]</td><td>500</td></tr><tr><td>Efficiency [%]</td><td>96.76</td></tr><tr><td>Overhaul interval</td><td>5 years</td></tr></table></div>	Parameter	Value	Type	Francis turbine, horizontal	Type no	HLA551C-WJ-110	Rated Speed [r/min]	500	Rated flow [m <sup>3</sup> /s]	10.15	Rated head [m]	45	Efficiency [%]	93	Overhaul interval	5 years	Parameter	Value	Type	SFW – J4000-12/2150	Rated output [kW]	4000	Rated Voltage [V]	6300	Rated Current [A]	458.2	Frequency [Hz]	50	Rated Power Factor	0.8	Rated Speed [r/min]	500	Efficiency [%]	96.76	Overhaul interval	5 years	<div>Table A.4.3.1. Turbine specifics<sup>7</sup><table><tr><th>Parameter</th><th>Value</th></tr><tr><td>Type</td><td>Francis turbine, horizontal</td></tr><tr><td>Type no</td><td><b>HLA616-WJ-110</b></td></tr><tr><td><b>Rated Power [kW]</b></td><td><b>4639</b></td></tr><tr><td>Rated Speed [r/min]</td><td>500</td></tr><tr><td><b>Rated discharge [m<sup>3</sup>/s]</b></td><td><b>8.66</b></td></tr><tr><td><b>Rated head [m]</b></td><td><b>60</b></td></tr><tr><td><b>Rated Efficiency [%]</b></td><td><b>92.93</b></td></tr><tr><td>Overhaul interval</td><td>5 years</td></tr></table></div> <div>Table A.4.3.2. Generator specifics<sup>8</sup><table><tr><th>Parameter</th><th>Value</th></tr><tr><td>Type</td><td>SFW – J4000-12/2150</td></tr><tr><td>Rated Power [kW]</td><td>4000</td></tr><tr><td>Rated Voltage [V]</td><td>6300</td></tr><tr><td>Rated Current [A]</td><td>458</td></tr><tr><td>Rated Frequency [Hz]</td><td>50</td></tr><tr><td>Power Factor</td><td>0.8</td></tr><tr><td>Rated Speed [r/min]</td><td>500</td></tr><tr><td>Efficiency [%]</td><td>96.76</td></tr><tr><td>Overhaul interval</td><td>5 years</td></tr></table></div> <div>Reasons for acceptance: See Section 3.1.1 page 15 – 16 for detailed explanation</div>	Parameter	Value	Type	Francis turbine, horizontal	Type no	<b>HLA616-WJ-110</b>	<b>Rated Power [kW]</b>	<b>4639</b>	Rated Speed [r/min]	500	<b>Rated discharge [m<sup>3</sup>/s]</b>	<b>8.66</b>	<b>Rated head [m]</b>	<b>60</b>	<b>Rated Efficiency [%]</b>	<b>92.93</b>	Overhaul interval	5 years	Parameter	Value	Type	SFW – J4000-12/2150	Rated Power [kW]	4000	Rated Voltage [V]	6300	Rated Current [A]	458	Rated Frequency [Hz]	50	Power Factor	0.8	Rated Speed [r/min]	500	Efficiency [%]	96.76	Overhaul interval	5 years
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Description of monitoring plan	<div>of</div> <div>Registered PDD /3/ Section B.7.2 page 35: "o <i>Grid company: The grid company will meter the power supply also at the high voltage side of the on-site transformer station with its own metering equipment. The meter will be located at the TES Substation owned and operated by the state utility. The regulations of the grid company require annual calibrations of both metering instruments.</i> o <i>Calibration: Calibrations are carried out by the grid company or by a certified company. If there are any substantial discrepancies</i></div> <div>Revised PDD /13/ Section B.7.3<ul style="list-style-type: none"><li>o <u>Grid company:</u> The grid company will join with the project entity to meter the power supply to the Grid with its own metering equipment. M2 (primary meter) is owned and operated by the project entity while the M1 (comparison meter or backup meter) belongs to the Grid Company. Both the meters will be located at the power house. The national regulation (i.e. MEMR 37-2008) requires every 05 year calibrations of both metering instruments.</li><li>o <u>Calibration:</u> Calibrations are carried out by the grid company or by a certified company every 05 years. If there are any</li></ul></div>																																																																											

<sup>5</sup> Source: Feasibility Study Report 2007

<sup>6</sup> Technical agreement between PT MPM and Wide Easy Engineering Company – Item 2

<sup>7</sup> Technical agreement between PT MPM and Wide Easy Engineering Company – Item 2 and nameplates of turbine and generator installed in the plant.

<sup>8</sup> Generator Technical Data

	<p><i>between the readings of the metering instruments throughout the year, both instruments will be recalibrated.</i></p> <p><b>Power received through back-up power lines:</b>  <i>As indicated in Figure B.7.2.1 the project may be connected by a back-up emergency power line (indicated in dotted green straight line) which delivers power from the grid to the project in case of emergencies or when the turbines of the proposed project activity are not in operation. Net power received from the grid is metered as below:</i></p> <p><i>o Grid company:</i>  <i>The grid company will meter the power supplied to the project with its own metering equipment in accordance with national regulations.</i></p> <p><i>o Calibration:</i>  <i>Calibrations are carried out by the grid company or by a certified company.</i></p> <p>The registered PDD /3/ Section B.7.2 further defined the accuracy level of the meters to be used as 1% or more accurate.</p>	<p>substantial discrepancies between the readings of the metering instruments throughout the year, the error instrument(s) will be recalibrated.</p> <p>There is no electricity imported from the Grid in the project boundary. In emergency cases, the project will use a small backup diesel generator instead for auxiliary maintenance activities such as welding, repairing etc., but not for generating power for internal using purposes.</p> <ul style="list-style-type: none"> <li>Actual accuracy class of the electricity meters used are as follows:  M1: 0.5S (kWh-active); 2 (kVArh- reactive)  M2: 0.2S (kWh-active );2 (kVArh- reactive)</li> </ul> <p>Reasons for acceptance: See Section 3.1.1 page 16 – 17 for detailed explanation</p>
<p>Data and parameters to be monitored  QA/QC procedures to be applied</p> <p>Parameter:</p> <ul style="list-style-type: none"> <li>EG<sub>facility,y</sub></li> </ul>	<p>Registered PDD /3/ Section B.7.1 page 32:</p> <p>Description of measurement methods and procedures to be applied:  <i>"This value will be calculated based on the reading on bi-directional energy meters that measure the value of export and import electricity. The value will be monitored every hour and recorded in a log book.. The measurement of electricity will be in accordance with the PPA. The metering instruments will be calibrated annually. The net amount of power supplied to the grid by the project will be continuously measured and recorded monthly"</i></p> <p>QA/ QC procedures to be applied:  <i>"The amount from primary meter (PLN) is cross-checked with the second meter (PO). In case of inconsistencies between these meters, a Commissions appointed by PLN and PO will determine the</i></p>	<p>Revised PDD /13/ Section B.7.1 page 28:</p> <p>Measurement methods and procedures:  "This value will be calculated based on the reading on one directional energy meters that measure the value of export electricity. The value will be monitored every hour and recorded in a log book. . The measurement of electricity will be in accordance with the PPA. The metering instruments will be calibrated every 05 years. The net amount of power supplied to the grid by the project will be continuously measured and recorded monthly".</p> <p>QA/QC procedures:  "The amount from primary meter (PO) can be cross-checked with the comparison meter (PLN). In case of inconsistencies between these meters, a Commissions appointed by PLN and PO will determine the amount of power supplied to the grid. This is in line with the procedure to determine power sales as PPA. The one directional meters have registered accuracy class of 0.2S or 0.5S IEC 687 and/or 2 IEC 1268 that complies with Indonesian Standard"</p>



	<p><i>amount of power supplied to the grid. This is in line with the procedure to determine power sales as PPA. The bi-directional meters have registered accuracy class of 0.5S IEC 687 that complies to Indonesian Standard."</i></p>	<p>Reasons for acceptance: The revision is necessary to indicate the actual electricity meter used which is one directional and minor revisions to the accuracy class of the meter used (see Section 3.1.1 page 17 for detailed explanation)</p> <p><b>Conclusion:</b> The verification team confirms this is a correction &amp; permanent changes to the project monitoring plan description information as verified in actual on site by the verification team and without actual change in the project design of the project activity. This is in line with the Appendix 1 of Clean Development Mechanism Project Standard /9/, Changes that do not require prior approval by the board, Paragraph 5. Therefore, this change does not require prior approval from UNFCC and is provided within Section B.7.1 of the revised PDD /13/</p>
Please refer to Appendix A of this report for details of each change between the registered PDD and the final revised PDD for submission.		

TÜV Rheinland verification team considers the project description of the project contained in the revised registered PDD to be complete and accurate. The PDD complies with the relevant methodology, tools, forms and guidance at the time of PDD submission for registration.

### 3.1.2 The actual operation of the CDM project activity

The followings are the means of verification & the conclusion of the assessment conducted by the verification team:

<b>Project physical features (technology, project equipment, monitoring and metering equipment)</b>	See details in Section 3.1.1 above	
<b>Any Project Design Change been sought and approved by EB for the project?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>See detailed descriptions in Section 3.1.1 of this report</p> <p>Corrections have been requested for the project technology &amp; project monitoring plan descriptions.</p> <p>The verification team confirmed that there are corrections to the project technology information as verified in actual on site by the verification team and without actual change in the project design of the project activity. This is in line with the Appendix 1 of Clean Development Mechanism Project Standard /9/, Changes that do not require prior approval by the board, Paragraph 6.</p> <p>Therefore, this change does not require prior approval from UNFCC and is provided within Section A.3 of the revised PDD /13/</p>
<b>Any Revision in Monitoring plan is sought and approved by EB for the project?</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<p>See detailed descriptions in Section 3.1.1 of this report</p> <p>The verification team confirms there are corrections &amp; permanent changes to the project monitoring plan description information as verified in actual on site by the verification team and without actual change in the project design of the project activity. This is in line with the Appendix 1 of Clean</p>

		Development Mechanism Project Standard /9/, Changes that do not require prior approval by the board, Paragraph 5. Therefore, this change does not require prior approval from UNFCCC and is provided within Section B.7.3 of the revised PDD /13/
<b>Does the monitoring report provide line diagram showing all relevant monitoring points?</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	See detailed descriptions in Section 3.1.1 of this report The verification team has verified the same on the site visit and confirms that the monitoring points are implemented in accordance to the diagram and is adequate to ensure the actual emission reduction.

The timeline of the project's implementation is as follow:

Milestone of the project activity	Timeline	Assessment by the verification team
Starting date of operation (Construction start date)	28-01-2008	Verified from Construction Agreement /11/
Registration of the project activity	14-12-2012	Verified against UNFCCC website: <a href="http://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1354267102.4/view">http://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1354267102.4/view</a>
<b>Crediting period</b>		
1 <sup>st</sup> monitoring period	14-12-2012 - 31-12-2013	Verified against UNFCCC website: <a href="http://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1354267102.4/view">http://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1354267102.4/view</a>

In summary, the monitoring period is reasonable and the actual implementation of the project activity is appropriate to its CDM development. The verification took cognizance of § 240, 241 and 242 of CDM Project Standard.

### 3.2 Compliance of the monitoring plan with the monitoring methodology including applicable tool(s)

The verification team determined against all the information provided in MR, whether in-line with the applied monitoring methodology.

Determination Requirements	Criteria fulfilled	Determination and reporting by the verification team
Any Deviation been sought and approved by EB for the project.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	No deviation sought by the EB for the project
Is complete set of data for the specified monitoring period is available	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Yes, the verification team has confirmed that complete set of data for the specific monitoring period from 14-12-2012 till 31-12-2013 are available.
Is the required information provided in the monitoring report has been cross-checked with other sources (ex – plant logbooks, inventories, purchase records, laboratory analysis)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	All of the monitoring parameters as listed in the revised PDD /13/ & Monitoring Report /2/ have been measured & monitored according to the defined measurement frequency & sampling plan / point, using the correct monitoring & measuring equipment's & recorded according to the defined documented QA / QC procedures (monitoring procedures) i.e. CDM Monitoring Manual /20/.  The monitoring & measuring equipments have been also calibrated according to the defined procedure mentioned in the revised registered PDD /13/ & Monitoring

Determination Requirements	Criteria fulfilled	Determination and reporting by the verification team
		Report /2/
Is the calculation of baseline emissions and project activity emissions and leakage been in accordance with the formulae and methods described in monitoring plan and the applied methodology?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>The verification team was able to verify all of the GHG data monitored &amp; collected during the monitoring period to be traceable from the emission reduction calculation spread sheet /4/ to the intermediate reports which summarizes the data collected prepared by the project participants till the raw data reference sources such as Monthly Minutes of Power Meter Purchase Records and Monthly Minutes of Electricity Production and related invoices /12/</p> <p>See details in Section 3.3</p>
Is all assumptions used for emission calculation have been justified	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<p>Monitoring of reductions in GHG emissions to result from the project activity had been implemented in accordance with the monitoring plan contained in the revised registered PDD /13/ &amp; the accepted revised monitoring plan. The verification team had cross checked the details of the monitoring plan described in the monitoring report /2/ &amp; revised registered PDD /13/ versus the actual compliance of the monitoring plan during on site visit observation, interviews of monitoring personnel, review of monitoring records &amp; the calculated values in the ER spread sheet /4/. The details of the compliance status of the monitoring with PDD &amp; monitoring plan are described in Section 3.3.1 below</p> <p>Besides the monitoring parameter, the verification team also verified the list of parameters not monitored by comparing the lists in the monitoring report Section D.1 /2/ versus revised registered PDD /13/ Section B.6.2. The verification team confirmed they are consistent &amp; reflected clearly in the ER calculation spread sheet /4/</p>
Is appropriate emission factors, IPCC default values and other reference values have been correctly applied	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Yes, all emission factors, IPCC default values and other reference values have been correctly applied

The DOE verification team is able to confirm that the monitoring plan contained in the revised registered PDD /13/ is in accordance with the approved methodology applied by the project activity, i.e. ACM0002 /5/



### 3.3 Compliance of the Actual monitoring with monitoring plan in the PDD

The monitoring has been carried out in accordance to the revised monitoring plan contained in the revised registered PDD /13/

Monitoring of reductions in GHG emissions to result from the proposed CDM project activity was implemented in accordance with the monitoring plan contained in the accepted revised monitoring plan.

#### 3.3.1 Monitored parameters

The verification of the parameters required by the monitoring plan is provided as follows:

##### Ex-Post Parameters:

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter: (as in monitoring plan of PDD):	EG <sub>facility,y</sub>
Measuring frequency/Time Interval:	This is being measured as a continuous measurement and at least monthly recording, in line with the revised registered PDD /13/.
Reporting frequency:	Monthly, in line with the revised registered PDD /13/.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Primary power meter (M2) & Back-up power meter (M1), Type SMART Commercial and Industrial Meter, in line with the revised registered PDD /13/.
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	<p>Accuracy range:            Primary power meter (M2) - 0.2S (kWh-active); 2 (kVArh- reactive)            Back-up power meter (M1) - 0.5S (kWh-active); 2 (kVArh- reactive)</p> <p>The accuracy class specified in the revised registered PDD /13/: 0.2S or 0.5S IEC 687 and/or 2 IEC 1268 that complies with Indonesian Standard</p> <p>The verification team considered the accuracy class applied in the monitoring plan is of high accuracy &amp; it is consistent with the equipment manufacturer's specification as shown in the equipment specification catalogue /21/</p>
Calibration frequency /interval: Is it Board guidance / local or national standards / manufacturers specification	<p>According to monitoring plan /2/, the power meter will be calibrated &amp; re-calibrated, at appropriate intervals (if required) by qualified party according to the national standards and reference points or IEC standards</p> <p>During the verification process, the verification team cross checked the equipment calibration frequency implemented for the power meter &amp; found that the actual practice was to calibrate according to MEMR 37-2008, Ministry of Energy &amp; Mineral Resources, Number 37 Year 2008, Rules Electric Power System Network Sumatra) /17/ national regulation requirements, interval 5 years.</p>
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the	Yes, the calibration interval in line with the monitoring plan of the PDD

<p>frequency of calibration, does the selected frequency represent good monitoring practise?</p>	<p>This complies with Clean Development Mechanism Validation and Verification Standard /7/ paragraph 399 which states that:</p> <p><i>“399. In cases where neither the applied monitoring methodology, where applicable, the applied standardized baseline nor the registered monitoring plan specify any requirements for calibration frequency for measuring equipment, the DOE shall determine whether the equipment is calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer’s specification. If neither local/national standards nor the manufacturer’s specification are available, international standards may be used. Refer to the appendix below for an illustrative example to apply the above requirements”</i></p> <p>Remarks:</p> <p>During the on site visit, the verification team found that there are corrections requested for the calibration descriptions in the registered PDD Section B.7.2, as follows:</p> <p>Registered PDD /3/ Section B.7.2, page 35:</p> <p><i>“Calibration: Calibrations are carried out by the grid company or by a certified company. If there are any substantial discrepancies between the readings of the metering instruments throughout the year, both instruments will be recalibrated.”</i></p> <p>Revised PDD /13/ Section B.7.3, page 30 :</p> <p><i>“Calibration: Calibrations are carried out by the grid company or by a certified company every 05 years. If there are any substantial discrepancies between the readings of the metering instruments throughout the year, the error instrument(s) will be recalibrated.”</i></p> <p>This is in line with the Appendix 1 of Clean Development Mechanism Project Standard /9/, Changes that do not require prior approval by the board, Paragraph 5. Therefore, this change does not require prior approval from UNFCCC and is provided within Section B.7.3 of the revised PDD /13/</p>
<p>Company performing the calibration:</p>	<p>The verification team verified the calibration certificates /22/ &amp; it was confirmed that the power meter calibration is carried out by the calibration lab, Balai Kemetrologian Karawang which is approved the the national power utility company, PT PLN (PERSERO)</p> <p>Reviewed the Recommendation letter from PT PLN (PERSERO) to PT. Mega Power Mandiri (MPM) for equipment calibration /23/ &amp; PLN has recommended Balai Kemetrologian Karawang to PT. Mega Power Mandiri (MPM) as a qualified party to conduct the calibration for meters SN 53111994 and 53112670 of Lebong Hydroelectric plant. This also means that the lab is indeed not a lab accredited, however accepted by PLN for the calibration purpose. The verification team had verified &amp; confirmed that the calibration had been conducted in accordance with the MEMR 37-2008, Ministry of Energy &amp; Mineral Resources, Number 37 Year 2008, Rules Electric Power System Network Sumatra) /17/ national regulation requirements</p>

	<p>This complies with Clean Development Mechanism Validation and Verification Standard /7/ paragraph 399 which states that:</p> <p><i>“399. In cases where neither the applied monitoring methodology, where applicable, the applied standardized baseline nor the registered monitoring plan specify any requirements for calibration frequency for measuring equipment, the DOE shall determine whether the equipment is calibrated either in accordance with the specifications of the local/national standards, or as per the manufacturer’s specification. If neither local/national standards nor the manufacturer’s specification are available, international standards may be used. Refer to the appendix below for an illustrative example to apply the above requirements”</i></p>
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Yes
Is (are) calibration(s) valid for the whole reporting period?	<p>Based on the cross checking of the calibration certificates /22/ versus physical checking of the equipment calibration status and monitoring plan /2/, the verification team could confirmed that the monitoring equipment used i.e power flow meters are still valid within the specified calibration interval.</p> <p>Details of the calibration as below:  Serial No: 53111994, 53112670  Calibration date: 21-06-2012  Expiry date: 20-06-2022  Validity: 5 years</p> <p>Remarks: Although the expiry date of the calibration is indicated as 10 years later (21-06-2012 till 20-06-2022), the PP will recalibrate the meter every 5 years, as their prescribed calibration frequency  This is in line with the MEMR 37-2008, Ministry of Energy &amp; Mineral Resources, Number 37 Year 2008, Rules Electric Power System Network Sumatra) /17/ national regulation requirements, which specified the calibration interval as 5 years.</p>
If applicable, has the reported data been cross-checked with other available data?	The value reported had been cross checked for its accuracy via review of the raw data records, ER spreadsheet /4/ & the verification team confirmed the data reported are consistent & correct
How were the values in the monitoring report verified?	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of data on site & off site including the corresponding records (obtained from the project activity location) & observation of the information flow process applicable for determination of $EG_{facility,y}$
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The value reported had been cross checked for its accuracy via review of the raw data records, ER spreadsheet /4/ & the verification team confirmed the data reported are consistent & correct
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered	During the on site visit, the verification team utilized various auditing techniques such as conducting series of interviews with the monitoring personnel, verification of

monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	data on site & off site including the corresponding records (obtained from the project activity location) & observation of the information flow process applicable for determination of EG <sub>facility,y</sub>
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Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter: (as in monitoring plan of PDD):	CAP <sub>PJ</sub>
Measuring frequency/Time Interval:	This is being measured yearly, in line with the revised registered PDD /13/.
Reporting frequency:	This is being recorded yearly, in line with the revised registered PDD /13/.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Nameplates
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	Since the installed capacity shall be based on generator nameplates, hence accuracy requirements are not applicable for this case
Calibration frequency /interval: Is it Board guidance / local or national standards / manufacturers specification	Not applicable
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not applicable
Company performing the calibration:	Not applicable
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Not applicable
Is (are) calibration(s) valid for the whole reporting period?	Not applicable
If applicable, has the reported data been cross-checked with other available data?	Not applicable
How were the values in the monitoring report verified?	Verified on-site from the actual generator nameplates used
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable as the installed capacity is fixed

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter: (as in monitoring plan of PDD):	A <sub>PJ</sub>
Measuring frequency/Time Interval:	This is being measured yearly, in line with the revised registered PDD /13/.
Reporting frequency:	This is being recorded yearly, in line with the revised registered PDD /13/.

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	Topographical surveys, maps, satellite pictures, et
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	The PDD does not specify the accuracy of the methods used. The monitoring method used does represent good monitoring practice.
Calibration frequency /interval: Is it Board guidance / local or national standards / manufacturers specification	Not applicable
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	Not applicable
Company performing the calibration:	Not applicable
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	Not applicable
Is (are) calibration(s) valid for the whole reporting period?	Not applicable
If applicable, has the reported data been cross-checked with other available data?	Not applicable
How were the values in the monitoring report verified?	Verified from maps of project site
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	Not applicable

In summary, verification team confirmed that all the ex-post parameters are monitored in accordance to the approved monitoring plan and applied methodology. The verification took cognizance of § 244, 245 and 246 of CDM Project Standard.

### Ex-Ante Parameters:

Default values used:	Data/Parameter: $EF_{CM,grid,y}$ Value applied: 0.743 Unit: tCO <sub>2</sub> /MWh
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $EF_{grid, OMsimple,,y}$ Value applied: 0.906 Unit: tCO <sub>2</sub> /MWh
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $FC_{OM,i,y}$ Value applied: As per Annex 3 of registered PDD

	Unit: Mass or volume unit
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $EG_{OM,y}$ Value applied: As per Annex 3 of registered PDD Unit: MWh
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $NCV_{i,y}$ Value applied: As per Annex 3 of registered PDD Unit: GJ/mass or volume unit
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $EF_{CO_2,i,y}$ Value applied: As per Annex 3 of registered PDD Unit: $tCO_2/GJ$
Source and Verification of the source:	Source: Data used are IPCC default values at the lower limit of the uncertainty at a 95% confidence interval. See 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 1, Volume 2 (Energy), Table 1.4. Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $EF_{grid,BM,y}$ Value applied: 0.581 Unit: $tCO_2e/MWh$
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $FC_{BM,i,y}$ Value applied: As per Annex 3 of registered PDD Unit: Mass or volume unit
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $EG_{BM,y}$ Value applied: As per Annex 3 of registered PDD Unit: MWh
Source and Verification of the source:	Source: Calculated ex-ante based on BPPT data Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $Cap_{BL}$ Value applied: For new hydro power plants, this value is zero Unit: W
Source and Verification of the source:	Source: Project site



	Verification: The validation team concluded that the values applied is valid
Default values used:	Data/Parameter: $A_{BL}$ Value applied: For new hydro power plants, this value is zero Unit: W
Source and Verification of the source:	Source: Project site Verification: The validation team concluded that the values applied is valid

Verification team confirms that ex-ante parameters claimed are in accordance to the approved monitoring plan and applied methodology.

### 3.3.2 Monitoring responsibility

Management and operational system: the responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan  
See details in Appendix A, Section 3.6

### 3.3.3 Accuracy of equipment

See details for each monitoring parameters described in Section 3.3.1 above, which includes verification opinion for accuracy of equipment

In summary, the verification team is able to verify that the accuracy the monitoring equipment's were set according to the registered monitoring plan and relevant sectoral standard of Indonesia / technical specification. Furthermore, all calibration procedures were carried out according to the monitoring plan and /or manufacturer specifications. Therefore, accuracy of monitoring equipment's is assured.

### 3.3.4 Deviation from and/or Revision of the registered monitoring plan

N/A. No revision or deviation from the monitoring plan is identified by the verification team.

## 3.4 Assessment of data and calculation of greenhouse gas emission reductions

According to the applied methodology ACM0002, /5/ and the revised registered monitoring plan /2/, the emission reductions were calculated as:

$$ER_y = BE_y - PE_y - L_y$$

As no project emission or leakage effect needs to be accounted for this proposed project.

$$PE_y = 0, L_y = 0$$

$$ER_y = BE_y = EG_{\text{facility},y} * EF_{\text{grid},CM,y}$$

$EF_{\text{grid},CM,y}$  is determined in the registered PDD /3/ as 0.743tCO<sub>2</sub>e/MWh

A complete set of data was presented to the verification team during onsite visit. The verification team has verified the data in the ER reduction calculation spread sheet /4/ against the raw data /12/ and all related documents /12/.

Hence, based on the equation above, the total emission reductions claimed for the 1st monitoring period i.e. from 14-12-2012 to 31-12-2013 is rounded to 54,175 tCO<sub>2</sub>e

DOE has verified that all parameters are used correctly in the calculations, all results are verifiable and transparent, all assumptions are described and based on verifiable evidence and calculations are done in accordance with the pre-defined formulae from registered PDD.

The verification team confirmed that all reported data are authentic and traceable. The verification team confirmed that no overlapped reading within this monitoring period is count thus no overestimation of the total emission reductions is achieved by the project; calculation has been carried out according to the formulas in the registered monitoring plan /2/ and confirmed that no material errors, omissions or misstatements were detected. The competence of the personnel assigned to carry out monitoring and accuracy of measuring equipment used also are ensured & qualified.

The verification team could confirmed that the report data is verifiable and the calculations are done in accordance with the pre-defined formulae from registered PDD /3/

Against the Guidelines on the Applicability of Materiality in Verifications, version 01.0, the verification team further assessed the materiality in verification on the project activity and interpreted as follows:

Reference	Requirement	Verification team assessment
<b>VVS 9.2.1</b>	<p>The CMP materiality decision prescribes the thresholds for the application of materiality in verifications, by defining that information is material if it might lead, at an aggregated level, to an overestimation of the total emission reductions or removals achieved by a CDM project activity equal to or higher than:</p> <p>(a) 0.5 per cent of the emission reductions or removals for project activities achieving a total emission reduction or removal of equal to or more than 500,000 tons of carbon dioxide equivalent per year;</p> <p>(b) 1 per cent of the emission reductions or removals for project activities achieving a total emission reduction or removal between 300,000 and 500,000 tons of carbon dioxide equivalent per year;</p> <p>(c) 2 per cent of the emission reductions or removals for large-scale project activities achieving a total emission reduction or removal of 300,000 tons of carbon dioxide equivalent per year or less;</p> <p>(d) 5 per cent of the emission reductions or removals for small-scale project activities other than project activities covered under subparagraph (e) below;</p> <p>(e) 10 per cent of the emission reductions or removals for the type of project activities referred to in decision 3/CMP.6, paragraph 38 (referred to as microscale project activities).</p>	<p>(c) 2 per cent of the emission reductions or removals for large-scale project activities achieving a total emission reduction or removal of 300,000 tons of carbon dioxide equivalent per year or less;</p> <p>→ this paragraph is applicable for this project activity since the project activity only generates 54,175 tCO<sub>2</sub>e during the 1<sup>st</sup> monitoring period i.e. from 14-12-2012 to 31-12-2013</p>
<b>VVS 9.2.1</b>	The DOE should describe in its certification/certification report the risks, the risk assessment undertaken and how the verification and sampling plans were	Material information including data process, system and related controls has been verified. The risk assessment has been undertaken by the verification team



	designed to respond to these risks and ensure that all material errors, omissions or misstatements were detected.	by means of onsite physical inspection, stakeholders' interview and document review to all the raw data /12/. For details please refer to section 3.5 of this report. No sampling plan is required in the registered monitoring plan /3/. The verification team is able to confirm that all parameters are properly monitored by the main meter automatically, the accuracy and the calibration of the meters is assured, all the data reported in the ER spread sheet /4/ has been completely verified against the raw data /12/, and the conservative value is adopted for emission reduction calculation. It is confirmed that the data management system and QA/QC process is carried out appropriately. Thus it can be confirmed that no material errors, omissions or misstatements were detected by the verification team during the risk assessment.
<b>VVS 9.2.1</b>	The DOE should also describe whether and how the verification and sampling plans were revised to take into account the need for further audit procedures due to the nature/type of errors, omissions or misstatements detected.	N/A, no sampling plan is required in the registered monitoring plan /3/
<b>VVS 9.2.1</b>	The DOE should also document how materiality was applied in determining whether a detected error, omission or misstatement was material or immaterial either individually or in aggregate.	N/A, as verified before, no material errors, omissions or misstatements were detected by the verification team during the risk assessment.
<b>VVS 9.2.1</b>	The DOE should state in its certification/certification opinion that the claimed emission reductions or removals are free from material errors, omissions or misstatements, with a reasonable level of assurance.	Refer to Certification statement of this report.

### 3.4.1 Assessment of actual emission reductions with the estimate emission reductions in PDD

Taken into account, this first verification covers the monitoring period of 383 days and the emission reduction claimed during this period is 54,175 tCO<sub>2</sub>e , which is lower than the estimated in PDD of 59,486 tCO<sub>2</sub>e.

<b>Estimated Emission Reduction as per Registered/Approved PDD:</b>	59,486 tCO <sub>2</sub> e
<b>Actual Emission Reduction for the Monitoring Period</b>	54,175 tCO <sub>2</sub> e
<b>Is any increase of CER's occurred?</b>	No
<b>Reason for Increase of CER's</b>	Not applicable

In summary, verification team confirms that actual emission reduction is lower than the estimate of the registered/approved PDD for the current monitoring period. The verification took cognizance of § 257 & 258 of CDM Project Standard.

### **3.5 Issues remaining from the validation/previous verification period**

This is the first time of verification of the proposed project. The verification team confirms that no FAR was issued in the Validation Report.

## **Appendix A**

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### **CDM Verification protocol**

Lebong Hydroelectric Power Plant in Indonesia

to Report No. 01 997 9105078269

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>1. Implementation</b>					
1.1 Have all physical features proposed in the registered PDD been implemented at the project site? § 239 of CDM Project Standard	/1//2/ & /3/	DR, I & OSV	An on-site visit was conducted for the project on 01/03/2014. The Project is a hydro power project, which utilizes the renewable hydro resource to produce electricity. It is located in Lalang Turan village in Lebong district, Bengkulu province, Sumatera Island, Indonesia. The hydroelectric power plant is a run-of-the-river project with a run-of-river reservoir. The hydro power plant is operated and owned by PT Mega Power Mandiri and has a total installed capacity of 12 MW.	<del>CAR-3</del>	OK
1.2 Has the project activity been operated in accordance with the project scenario described in the registered PDD and relevant guidance? Reference: < <a href="http://cdm.unfccc.int/EB/033/eb33rep.pdf">http://cdm.unfccc.int/EB/033/eb33rep.pdf</a> >, §75 § 237 of CDM Project Standard	/1//2/ & /3/	DR, I & OSV	Yes, the project activity been operated in accordance with the project scenario described in the registered PDD and relevant guidance	<del>CAR-3</del>	OK
1.3 If the project activity is implemented on a number of different locations, has the Monitoring report provided the verifiable starting dates for each site? § 240 of CDM Project Standard	/1//2/ & /3/	DR, I & OSV	N/A. By onsite inspection, the verification team confirmed the project activity is implemented on a unique location.	OK	OK

<sup>9</sup> MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search, OSV = On-Site Visit

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1.4 Is the start date of monitoring period consistent?	/1//2/ & /3/	DR	This is the 1st verification of the project, the start date of this monitoring period is 14/12/2012, which is consistent with the crediting period start date. The entire 1 <sup>st</sup> monitoring period covers from 14/12/2012 to 31/12/2013, 383 days in total.	OK	OK
1.5 Is the monitoring report consistently filled with respect to all sections as required by its guideline of filling the monitoring report?	/1//2/ & /6/	DR	Yes	OK	OK
1.6 Does the CER's obtained for the monitoring period within the limit of estimate in the registered PDD?	/1//2//3/ & /4/	DR	Yes. This first verification covers the monitoring period of 383 days and the emission reduction claimed during this period is 54,175 tCO <sub>2</sub> e, which is lower than the estimated in PDD of 59,496 tCO <sub>2</sub> e.	OK	OK
1.7 Is the monitoring system provided in line diagrams showing all relevant monitoring points?	/1//2/ and /3/	DR	Yes, the monitoring system is provided in line diagrams showing all relevant monitoring points	<del>CAR-5</del>	OK
<b>2. Monitoring plan and methodology</b>					
2.1 Is the monitoring plan established in accordance with the monitoring methodology? § 238 of CDM Project Standard	/1//2//3/ and /5/	DR	Yes, the monitoring plan has been established in accordance with the monitoring methodology.	OK	OK
2.2 In case the implemented monitoring plan defers from the monitoring methodology, has any requests for revision to or deviation from the monitoring methodology been officially communicated to the CDM EB? Reference: § 272, 273, 274 of CDM Project Standard (for	/1//2//3/ and /5/	DR	N/A	OK	OK

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
temporary deviation) § 275, 276 of CDM Project Standard (for permanent change)					
2.2.1 Have the above changes to the monitoring plan been approved by the CDM EB?	/1//2//3/ and /5/	DR	N/A	OK	OK
<b>3. Monitoring and the monitoring plan</b>					
3.1 Is monitoring established in full compliance with the monitoring plan, contained in the registered PDD (or new monitoring plan approved by the CDM EB)? § 386 of CDM Validation and Verification Standard	/1//2//3/ and /5/	DR, I and OSV	Yes, the monitoring established in full compliance with the monitoring plan, contained in the revised registered PDD	<del>CAR-5</del> <del>CAR-6</del>	OK
3.2 Are all baseline emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/1//2//3/ and /5/	DR, I and OSV	Yes, all baseline emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions	<del>CAR-5</del> <del>CAR-6</del>	OK
3.2.1 Was the monitoring equipment for baseline emission parameters controlled and monitoring results recorded as per approved frequency?	/1//2//3/ and /5/	DR, I and OSV	Yes, the monitoring equipment for baseline emission parameters controlled and monitoring results recorded as per approved frequency	<del>CAR-5</del> <del>CAR-6</del>	OK
3.2.2 Was the monitoring equipment for baseline emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/1//2//3/ and /5/	DR, I and OSV	Yes, the monitoring equipment for baseline emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan	<del>CAR-5</del> <del>CAR-6</del>	OK
3.3 Are all project emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/1//2//3/ and /5/	DR, I and OSV	Yes, all project emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions	<del>CAR-5</del> <del>CAR-6</del>	OK

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.3.1 Was the monitoring equipment for project emission parameters controlled and monitoring results recorded as per approved frequency?	/1//2//3/ and /5/	DR, I and OSV	Yes, the monitoring equipment for project emission parameters controlled and monitoring results recorded as per approved frequency	<del>CAR-5</del> CAR-6	OK
3.3.2 Was the monitoring equipment for project emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/1//2//3/ and /5/	DR, I and OSV	Yes, the monitoring equipment for project emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan	<del>CAR-5</del> CAR-6	OK
3.4 Are all leakage emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/1//2//3/ and /5/	DR	N/A, in accordance with ACM0002, Ver 13.0.0 and the PDD, the leakage of the Project is not considered.	OK	OK
3.4.1 Was the monitoring equipment for leakage emission parameters controlled and monitoring results recorded as per approved frequency?	/1//2//3/ and /5/	DR	N/A	OK	OK
3.4.2 Was the monitoring equipment for leakage emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/1//2//3/ and /5/	DR	N/A	OK	OK
3.5 Were all monitoring parameters available and verifiable through the whole monitoring period?	/1//2//3//4/ and /12/	DR	Yes, all monitoring parameters available and verifiable through the whole monitoring period	<del>CAR-8</del> CAR-9	OK
3.5.1 In case, only partial monitoring data is available and PP(s) provide estimations or assumptions for the rest of data, was it possible to verify those estimations and assumptions? Reference: < <a href="http://cdm.unfccc.int/EB/026/eb26rep.pdf">http://cdm.unfccc.int/EB/026/eb26rep.pdf</a> >,	/1//2//3//4/ and /12/	DR	Not applicable	OK	OK

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.6 Was management and operation system established and operated in accordance with the monitoring plan?	/1//2//3/ and /5/	DR, I and OSV	Yes, the management and operation system established and operated in accordance with the monitoring plan	<del>CAR-5</del> CAR-6	OK
3.7 Was is it possible to verify that involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals?	/1//2//3/ and /5/	DR, I and OSV	Yes, the involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals	CAR-7	OK
3.8 Does the monitoring system provide organizational structure, role and responsibilities, emergency procedures?	/1//2//3/ and /5/	DR, I and OSV	Yes, the monitoring system provide organizational structure, role and responsibilities, emergency procedures	<del>CAR-4</del> CAR-7	OK
3.9 Does any uncertainties identified and addressed?	/1//2//3/ and /5/	DR, I and OSV	Yes, uncertainties are identified and addressed	<del>CAR-4</del>	OK
<b>4. Parameters</b>					
<b>4.1 Monitored parameter</b> Title: EG <sub>facility,y</sub> Indication: Quantity of net electricity generation supplied by the project plant to the grid in year y Units: MWh/year Estimated value ( <i>ex-ante</i> ): 76,300 MWh Measured value ( <i>ex-post</i> ): 72,914.68 MWh	/1//2//3/ and /5/; 3.3.1	DR, I and OSV	Refer to Section 3.3.1 See CAR 6 and CAR 11	<del>CAR-6</del> CAR-11	OK



Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
Title: CAP <sub>PJ</sub> Indication: Installed capacity of the hydro power plant after the implementation of the project activity Units: W Estimated value (ex-ante): 3 x 4,000,000 W Measured value (ex-post): 12,000,000 W	/1//2//3/ and /5/; 3.3.1	DR, I and OSV	Verified from the installed generator nameplates For details, refer to Section 3.3.1	OK	OK
Title: A <sub>PJ</sub> Indication: Area of the run of river reservoir measured in the surface of the water, after the implementation of the project activity, when the run of river reservoir is full Units: m <sup>2</sup> Estimated value (ex-ante): 20,052 m <sup>2</sup> Measured value (ex-post): 19.939.5 m <sup>2</sup>	/1//2//3/ and /5/; 3.3.1	DR, I and OSV	See CAR 9.5 For details, refer to Section 3.3.1	<del>CAR 9.5</del>	OK
<b>4.2 Default parameter</b> Title: EF <sub>CM,grid,y</sub> Indication: Combined Margin Grid Emission Factor Units: tCO <sub>2</sub> /MWh Default/Used value: 0.743	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK
<b>Default parameter</b> Title: EF <sub>grid,OMsimple,y</sub> Indication: Simple Operating Margin CO <sub>2</sub> Emission Factor in year y Units: tCO <sub>2</sub> /MWh Default/Used value: 0.906	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>Default parameter</b> Title: <b>FC<sub>OM,i,y</sub></b> Indication: Amount of fossil fuel type i consumed in year y Units: Mass or volume unit Default/Used value: See the Annex 3 of registered PDD for more details	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK
<b>Default parameter</b> Title: <b>EG<sub>OM,y</sub></b> Indication: Net electricity generated in year y Units: MWh Default/Used value: See the Annex 3 of registered PDD for more details	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK
<b>Default parameter</b> Title: <b>NCV<sub>i,y</sub></b> Indication: Net calorific value (energy content) of fossil fuel type i in year y Units: GJ/mass or volume unit Default/Used value: See the Annex 3 of registered PDD for more details	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>Default parameter</b> Title: $EF_{CO_2,i,y}$ Indication: CO2 emission factor of fossil fuel type $i$ used in power unit $m$ in year $y$ . Units: tCO2/GJ Default/Used value: See the Annex 3 of registered PDD for more details	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK
<b>Default parameter</b> Title: $EF_{grid,BM,y}$ Indication: Build Margin Grid Emission Factor Units: tCO2e/MWh Default/Used value: 0.581	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK
<b>Default parameter</b> Title: $FC_{BM,i,y}$ Indication: Amount of fossil fuel type $i$ consumed in year $y$ by selection of recently build power plants Units: Mass or volume unit Default/Used value: See the Annex 3 of registered PDD for more details	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>Default parameter</b> Title: <b>EG<sub>BM,y</sub></b> Indication: Net electricity generated in year y by selection of recently build power plants Units: MWh Default/Used value: See the Annex 3 of registered PDD for more details	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK
<b>Default parameter</b> Title: <b>Cap<sub>BL</sub></b> Indication: Installed capacity of the hydro power plant before the implementation of the project activity Units: W Default/Used value: For new hydro power plants, this value is zero	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK
<b>Default parameter</b> Title: <b>A<sub>BL</sub></b> Indication: Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full (m <sup>2</sup> ). Units: m <sup>2</sup> Default/Used value: For new hydro power plants, this value is zero	/1//2//3/ and /5/; 3.3.1	DR, and I	Default parameters were correctly applied For details, refer to Section 3.3.1	OK	OK

Checklist question	Ref.	MoV <sup>9</sup>	Findings, comments, references, data sources	Draft conclusion	Final conclusion
<b>5. Calculations</b>					
5.1 Have all the calculations related to the baseline emissions been carried according to the formulae and methods described in the registered PDD and applied methodology? § 246 of CDM Project Standard	/1//2//3//4/ and /5/; 3.4	DR and I	Yes. All the calculations related to the baseline emissions have been carried out according to the formulae and methods described in the PDD and applied methodology. See CAR 10	<del>CAR 10</del>	OK
5.2 Have all the calculations related to the project emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	/1//2//3//4/ and /5/; 3.4	DR and I	Yes. All the calculations related to the project emissions have been carried out according to the formulae and methods described in the PDD and applied methodology. Project emissions are confirmed to be zero.	OK	OK
5.3 Have all the calculations related to the leakage emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	/1//2//3//4/ and /5/; 3.4	DR and I	N/A. No calculation is needed for the leakage emission according to registered PDD and adopted methodologies	OK	OK

**Table 2: List of Requests for Corrective Action (CAR) and Clarification**

No.	Type of request	Observation	Reference (Table 1)	Summary of project owner response	Verification team conclusion
1.	CAR 1	MR Section A.1 1.1 Relevant dates for the project activity as listed in the table in this MR section are not substantiated / referenced to the applicable supporting evidences		<p>Response No. 1 Evidences for those dates have been submitted to DOE.</p> <p>Response No. 2 The MR has been updated accordingly</p>	<p>Response No. 1 Reviewed the Construction agreement document dated 28-1-2008 (for project starting date); operational acceptance certificates for 3 units of turbine / generators 4 MW (for approval obtained from PT PLN Persero); news event report showing evidence of the starting date when the electricity was generated on 14-12-2012, further substantiated with invoice which also stated the same date However, the evidences provided are not yet referenced clearly in the MR Section A.1</p> <p>Response No. 2 Kindly submit "Minutes of meeting between PT. PLN Persero and PT. Mega Power Mandiri about the COD start for Lebong HPP dated 25/06/2013" for review → OK, the minutes</p>

					<p>has been reviewed &amp; confirmed the Final Approval of official Commercial Operation is dated 25-6-2013</p> <p>CAR 1.1 is resolved &amp; closed</p>
		<p>a. Relevant dates for the project activity listed are incomplete – construction date? Commissioning date? Operational date?</p>		<p>Response No. 1 The revisions are made together with supporting documents.</p> <p>Response No. 2 The MR has been updated accordingly</p>	<p>Response No. 1 Construction date &amp; operational date are not stated yet in the MR Section A.1</p> <p>Response No. 2 OK, the missing dates are stated clearly, verified &amp; accepted by the verification team</p> <p>CAR 1.2 is resolved &amp; closed</p>
		<p>b. Noted that the commercial operation date is the date when PT Mega Power Mandiri started to sell electricity to PLN – However, supporting evidences are not yet submitted (invoice, log sheet, “Berita Acara” (minutes of meeting)</p>		<p>Response No. 1 The supporting documents required have been submitted to DOE for review.</p> <p>Response No. 2 The MR has been updated accordingly</p>	<p>Response No. 1 OK, See Response Item 1.1. The evidences submitted are accepted, however this were not reflected in the MR Section A.1</p> <p>Response No. 2 OK, the evidences are stated clearly, verified &amp; accepted by the verification</p>



					team  CAR 1.3 is resolved & closed
2.	CAR 2	<p>MR Section A.2 2.1 According to MR, the physical / geographical location coordinates are "3° 10' 10" S &amp; 102° 17'10" E, converted to decimal GPS location to be: 3.1694 S &amp; 102.2861". Noted this is consistent with the coordinates stated in the registered PDD Section A.4.1.4 (which also makes reference to Feasibility Study Report as the reference source) However, during the on site visit, the verification took measurements of the actual coordinates as follows:</p> <p>Weir: 3° 12.130" S &amp; 102° 18.861" E, converted to decimal GPS location to be: 3.2022 S &amp; 102.3144</p> <p>Power house: 3° 11.446" S &amp; 102° 18.340" E, converted to decimal GPS location to be: 3.1908 S &amp; 102.3057</p> <p>This is inconsistent with the MR / registered PDD.</p>		<p>Response No. 1 The corrections have been made in the revised PDD &amp; monitoring report.</p> <p>Response No. 2 The coordinates in registered PDD as well as in the MR were from the FSR dated 22/01/2007 conducted by the technical consultant. And the update coordinates were taken by the DOE during verification site visit lately. That's why they are inconsistent. Since the update coordinates have been taken and verified by the DOE hence both the PDD and MR has been revised accordingly.</p>	<p>Response No. 1 Please clarify why the coordinates are inconsistent with the registered PDD?</p> <p>Response No. 2 The justifications are accepted &amp; confirmed by the verification team during on site visit</p> <p>CAR 2.1 is resolved &amp; closed</p>
		<p>MR Section A.2 a. Figure A.2.1 The map displayed is not fully legible</p>		<p>Response No. 1 The map has been replaced by the new one more legible.</p>	<p>Response No. 1 OK, this is updated &amp; accepted by the verification team</p>

					CAR 2.2 is resolved & closed
3.	CAR 3	<p>MR Section B.1 3.1 It is stated in the MR that “The project activity employs no reservoir”.</p> <p>However this is contradicting with the registered validation report which stated that the project will result in a single new reservoir with power density 598 W/m<sup>2</sup> Registered PDD Section A.2 also stated that the “The hydroelectric power plant is a run-of-the-the-river project with a run-of-river reservoir”</p>		<p>Response No. 1 The corrections have been made in the revised MR.</p> <p>Response No. 2 The MR has been updated accordingly</p>	<p>Response No. 1 The corrections in the MR does not state anymore whether the project implemented employs reservoir or no reservoirs? Please clarify</p> <p>Response No. 2 OK, this is stated clearly now in the updated MR</p> <p>CAR 3.1 is resolved &amp; closed</p>
		3.2 Description of the implemented registered project activity are inaccurate – explanations are merely stating the project design descriptions rather than describing the “actual implemented project activity”		<p>Response No. 1 The corrections have been made in the revised MR</p> <p>Response No. 2 The MR has been updated accordingly.</p>	<p>Response No. 1 OK, corrections are accepted, however see CAR 3.1 above</p> <p>Response No. 2 OK, CAR 3.1 is resolved &amp; closed. Hence CAR 3.2 is also closed</p> <p>CAR 3.2 is resolved &amp; closed</p>
		3.3 Referring to registered PDD Section A.4.3, Technology to be employed by the project activity, the verification team was		<p>Response No. 1 The corresponding supporting documents have been submitted</p>	<p>Response No. 1 a) OK, verified the supporting drawings &amp;</p>

	<p>unable to verify objective evidences to verify the actual implementation of the technology as described in the PDD. Please submit the corresponding supporting documents for verification</p> <p>a) <i>"The weir is 3 meters in height with a maximum elevation of 492.5 m. The weir can take a maximum debit of 1133 m<sup>3</sup> in case of flooding. Through a double intake the river water flows into the 960 m long waterway. At the end of the waterway is the headpond that with a diameter of 35 m and an overflow of 5 m. From the headpond the water enters the 605 m long penstock. Overflowing water from the headpond is released to the river again"</i></p> <p>b) <i>"The operational lifetime of the project activity is 25 years"</i></p> <p>c) <i>"The project will involve a water head of 45 m of which 37.67 m will effectively be employed"</i></p>		<p>to DOE for verification.</p> <p>a) &amp; c) Design drawings of the project.</p> <p>b) Page 28 of PPA signed.</p> <p>Response No.2</p> <p>a) The drawings showed the detailed technical parameters of the project as below:</p> <ul style="list-style-type: none"> <li>- height of weir = 5.5 m (see section 1-1 bending)</li> <li>- maximum elevation = 498 m &gt;&gt;&gt; see section 1-1 bending drawing</li> <li>- maximum debit is 60 x 1 x 4 = 240 m<sup>3</sup> &gt;&gt;&gt; See attached, drawing 1.0.pdf, 1.1.pdf.</li> <li>- long of waterway = 990 m (see long section) &gt;&gt;&gt; See "Longitudinal section" drawing.</li> <li>- form of head pond rectangular = (80 x 24)m &gt;&gt; see attached, drawing 3.0.pdf, 3.1.pdf)</li> <li>- overflow of 17 m. &gt;&gt; see attached, drawing 4.0.pdf, 4.1.pdf</li> <li>- long of penstock:</li> </ul> <p>Pipe 1 : D 2.5M = 584.335M, D 2M = 35.789M ; Pipe 2 : D 2.5M = 577.296 M, D 2M = 35.789M &gt;&gt; attached, drawing 5.0.pdf, 5.1.pdf, 5.2.pdf, 5.3.pdf</p> <ul style="list-style-type: none"> <li>- water head = 62.679 m &gt;&gt; see attached, drawing 6.0 &amp; 7.0.pdf.</li> <li>- effective head = 60 m.&gt;&gt; attached, drawing 6.0 &amp; 7.0.pdf</li> </ul> <p>b) Please see the confirmation letter from Wide Easy Engineering</p>	<p>confirmed the revised technical information in the updated PDD are correct &amp; consistent. PRC will be raised to address &amp; evaluate the changes</p> <p>b) OK, the verification team reviewed the letter from equipment supplier dated 25 August 2014 &amp; confirmed the operational lifetime is 25 years. However, Wide Easy Engineering Limited is only the equipment seller, not the manufacturer. Hangzhou Changhe Generating Equipment Co. Ltd. is the manufacturer, in contact with the seller for providing the information required</p> <p>c) OK, same as a) above</p>
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				<p>Limited, who is equipment supplier for further review.</p> <p>c) "The project will involve a water head of 62.679 m of which 60 m will effectively be employed"</p> <p>&gt;&gt; see attached, drawing 6.0 &amp; 7.0.pdf.</p> <p>The PDD has been revised and updated accordingly.</p>	
		<p>3.4 What is the actual PLF of the project activity? This is not described in the MR. Supporting evidences needs to be provided</p>		<p>Response No. 1</p> <p>3.4 The actual PLF of the project activity resulted in 69.36% based on the actual electricity generation during the monitoring period. The relevant evidences will be submitted to DOE for verification.</p> <p>Response No.2</p> <p>Please refer to CAR 10 for your review where including all berita acara as the input to calculate the actual electricity generation during the monitoring period which is basis of actual PLF calculation.</p>	<p>Response No. 1</p> <p>Evidences are not yet submitted for verification</p> <p>Response No. 2</p> <p>Please submit the Berita Acara (minutes of meeting) for review – see CAR 10 → verified all Berita Acara documents starting from Jan – Dec 2013 &amp; confirmed the values of the electricity are correct &amp; calculated accurately</p> <p>CAR 3.4 is resolved &amp; closed</p>
		<p>3.5 Registered PDD Section A.4.3 Table A.4.3.1 Turbines specifics</p> <p>The following specifications described in the registered PDD are inconsistent with the actual specification sighted &amp; verified by the verification team</p> <p>3.5.1 Type no (actual is HLA616-WJ-110 instead of HLA551C-WJ-110)</p>		<p>Response No. 1</p> <p>3.5 Due to editorial errors of registered PDD, the corrections have been made in revised PDD and updated MR to be verified by the DOE.</p> <p>Response No.2</p>	<p>Response No. 1</p> <p>The PDD has been revised (in Section A.3 PDD new template version 04.1)</p> <p>However, latest PDD template is version 05.0, 25 June 2014</p>

		<p>3.5.2 Rated flow [m<sup>3</sup>/s] (actual is 8.66 instead of 10.15)</p> <p>3.5.3 Rated head [m] (actual is 60 instead of 45)</p> <p>3.5.4 Rated power = 4.639 MW, but the registered PDD stated as 4 MW</p> <p>3.5.5 Accordingly, the corrections are to be applied in MR Section B.1, Table B.1.1</p> <p>3.5.6 Revised PDD has not been submitted to the verification team</p> <p>Remarks: PRC would be submitted by the verification team upon closure of this CAR</p>		<p>The evidence has been provided to DOE for review. See folder in CAR 3.3</p> <p>Response No.3 The letter from PT MPM No. 018/MPM/VIII/2014 has been provided to DOE for review.</p> <p>Wide Easy Engineering Limited is the equipment seller, not the manufacturer. Hangzhou Changhe Generating Equipment Co. Ltd. is the manufacturer. The fact is both Wide Easy Engineering Limited and Hangzhou Changhe Generating Equipment Co. Ltd. were participated in contract with PT.MPM but Wide Easy Engineering Limited, on behalf of equipment supplier party, would contact with PT. MPM for all related information. Hence, Wide Easy Engineering Limited can be considered as the equipment supplier/manufacturer in this case and their information provided is correct.</p>	<p>The overhaul interval = 5 years for both turbine &amp; generator are not yet substantiated</p> <p>Response No. 2 Latest PDD template version 05.0 has been used OK, verified the letter from Wide Easy Engineering Limited dated 25 August 2014 which confirmed that the overhaul interval for both turbine / generator is 5 years However, please submit the letter from PT MPM, letter no 018/MPM/VIII/2014 for review</p> <p>Besides, please substantiate whether Wide Easy Engineering Limited is the equipment manufacturer for both turbine / generator → noted However, Wide Easy Engineering Limited is only the equipment seller, not the manufacturer. Hangzhou Changhe Generating Equipment Co. Ltd. is the manufacturer, in contact with the seller for providing the information</p>
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					<p>required</p> <p>Response No. 3 OK, verified the letter from PT MPM, letter no 018/MPM/VIII/2014 &amp; confirmed the information concerning the overhaul interval for both turbine / generator is 5 years</p> <p>CAR 3.5 is resolved &amp; closed</p>
4.	CAR 4	<p>MR Section B.2.2, registered PDD Section B.7.1, Section B.7.2</p> <p>4.1 The descriptions regarding the use of only one directional meters instead of bidirectional meters are considered to be a permanent change in the monitoring plan. Hence, it is incorrect to indicate this as "corrections". PRC will be submitted to address the changes</p> <p>Revised PDD Section B.7.1 &amp; Section B.7.2 (clean &amp; tracked changed) are not yet submitted to the verification team for review.</p>		<p>Response No. 1 The revised PDD updated VVS format (clean and track changes) will be submitted to DOE for verification.</p> <p>Response No.2 The evidence has been submitted to DOE for review.</p>	<p>Response No. 1 Revised PDD Section B.7.1 - Parameter EGfacility,y, Measurement methods and procedures descriptions &amp; Section B.7.3 are accepted by the verification team</p> <p>However, please submit evidence for footer 13 "Following MEMR 37-2008"</p> <p>Response No. 2 OK, reviewed evidence for footer 13 "Following MEMR 37-2008" &amp; confirmed the interval for meter calibration as 5 years</p> <p>CAR 4.1 is resolved &amp; closed</p>

		<p>4.2 MR Section B.2.2 stated that  <i>"In case of emergencies, the project will use the power generated from backup diesel generator which is planned to install at the project site next few months"</i></p> <p>Then, in MR Section C, stated that "  <i>In case of emergency, they would install the backup diesel generators in near future"</i></p> <p>Please clarify &amp; confirm when exactly the generator will be installed &amp; clarify also inconsistencies of the statements above</p>		<p>Response No. 1  4.2 Following the methodology ACM0002 version 13.0.0, the use of fossil fuels for the back up or emergency purposes (e.g. diesel generators) can be neglected. Then the statement will be removed from the final MR section B.2.2.</p> <p>Response No.2  Actually a DG has been installed already at the project site at the time of the verification. However, the plant uses that DG for auxiliary maintenance activities such as welding, repairing etc. in emergency cases. Hence the relevant revisions have been made in both revised PDD and MR accordingly.</p> <p>Response No.3  The PP confirmed the response No.2 is correct. The PP actually installed a small DG just for auxiliary maintenance activities such as welding, repairing etc. but not for generating power for internal using purposes. That's why they said to DOE that they don't have backup DG for power generation in emergency cases.</p>	<p>Response No. 1  OK, both revised MR Section B.2.2, Section C &amp; PDD Section B.7.3 have stated clearly that "In emergency cases, the project would use the power from the backup diesel generator instead"</p> <p>For MR, please state clearly the status of backup diesel generator availability at the time of the verification – this was not yet installed &amp; hence the MR has not stated clearly, when this generator would be available (project implementation status)</p> <p>Response No. 2  Please re-confirm with the PP. During on site verification, the verification interviewed the PP &amp; confirmed the generator has not been installed. The response no. 2 contradicts with the findings confirmed on site.</p> <p>Response No. 3  OK, the justifications provided are accepted by the verification team</p>
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					CAR 4.2 is resolved & closed
	CAR 5	<p>5.1 Registered PDD Section B.7.2 Page 35 stated that  <i>"Grid company: The grid company will meter the power supply also at the high voltage side of the on-site transformer station with its own metering equipment. The meter will be located at the TES Substation owned and operated by the state utility."</i></p> <p>During the on site visit, it is confirmed that the meter is located at the power house of PT Mega Power Mandiri, → the back-up meter which belong to PLN (the grid company)  The location has been described correctly in the MR Section C, but not in the registered PDD</p>		<p>Response No. 1  5.1 The corrections have been addressed in the revised PDD.</p>	<p>Response No. 1  OK, the corrections are reflected clearly in the revised PDD Section B.7.3</p> <p>CAR 5.1 is resolved &amp; closed</p>
		<p>5.2 MR Section C Description of monitoring system  Noted during the on site visit, the verification team was informed that in case PT Mega Power Mandiri needs to use electricity supply from PLN (the grid company), this will be purchased separately from PLN's grid line  However, this is not described clearly in the MR Section C &amp; Registered PDD Section B.7.2</p>		<p>Response No. 1  The MPM also confirmed that the electricity imported from the Grid is used for housing activities only, not for project activities. Hence in the project boundary, there is no electricity import from the Grid. In case of emergencies, the project will use power from diesel generator (DG) instead, but just for auxiliary maintenance activities such as weld, repairing, etc., not for generating power for internal</p>	<p>Response No. 1  OK, the corrections are reflected clearly in the revised PDD Section B.7.3 &amp; MR Section C</p> <p>CAR 5.2 is resolved &amp; closed</p>

				using purposes.	
		5.3 MR Section C Table C.1.1 Accuracy value stated in the registered PDD Section B.2.7 Table B.7.2.1 are inconsistent with MR Table C.1.1. Noted the accuracy class of 0.5S stated in the MR matched with the actual meter sighted by the verification team during the site visit		The corrections have been made in revised PDD.	Response No. 1 OK, the corrections are reflected clearly in the revised PDD Section B.7.3  CAR 5.3 is resolved & closed
5.	CAR 6	MR Section C – Calibration 6.1 It is not proven that only 2 electricity meters have been used consistently since the start of the project activity 14-12-2012. Records such as installation record of the meter to prove it was installed & used throughout the monitoring period i.e. from 14-12-2012 till 31-12-2013 (any replacement of the meters? Changed?) are not available at the time of on site visit		Response No. 1 6.1 The installation record of the meter to prove it was installed and used throughout the monitoring period has been provided to DOE for verification.	Response No. 1 Reviewed declaration letters given by PLN for both meters M1 & M2 that the meters have been the same reference meters used since the measurement of electricity started on 14-12-2012 till 31-01-2014 & was never replaced The declaration is accepted by the verification team  CAR 6.1 is resolved & closed
		6.2 Calibration record dated 9-5-2011 shown to the verification team during on site visit are not traceable to the electricity meters sighted i.e. for SN 53111994 (M2)		Response No. 1 6.2. The latest calibration records dated 21/06/2012 which are traceable to the electricity meters owned by MPM (i.e. meter SN 53111994 or M2) and PLN, (i.e. meter SN 53112670 or M1) have been provided to the DOE for verifying.	Response No. 1 Please submit the complete calibration records showing the calibration results. The calibration records submitted is incomplete Sighted in the certificate, the owner of the equipment is PT Meccoindo Itron, type

				<p><b>Response No.2</b> It is confirmed that the calibration records submitted to DOE are indeed for the metering equipment SN 53111994. The information indicted in the MR i.e. SMART commercial and Industrial meter is more detailed description of the meter. The color scan of calibration record has been provided to the DOE for verifying.</p> <p><b>Response No.3.</b> The calibration records included the test results have been provided to DOE for review.</p> <p><b>Response No.4</b> The MR indicated the date of calibration as 21/06/2012 is correct. Please see the cover page of calibration record where indicated the same date of calibrating. And 25/06/2012 is the date to release the calibration record.</p>	<p>is Itron, this is not the same as the type specified in the MR i.e, SMART Commercial and Industrial Meter Kindly confirm if the calibration records submitted are indeed for this equipment serial number SN 53111994 Kindly submit the record in colour scan to verify the authenticity of the record</p> <p><b>Response No. 2</b> The results of calibrations for the electricity meter is not yet submitted</p> <p><b>Response No. 3</b> OK, the calibration records received, reviewed &amp; traceable by the serial number as verified on site. The results of calibration showed that the error is within the limit MR indicated the date of calibration as 21-6-2012 but the calibration record indicated calibration date as 25-06-2012.Please clarify</p> <p><b>Response No. 4</b> OK, the clarifies the</p>
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					<p>confusions about the calibration date &amp; is accepted</p> <p>CAR 6.2 is resolved &amp; closed</p>
		6.3 Calibration record is not available for review for electricity meter M1, SN 53112670		<p>Response No. 1 6.3 Calibration record of electricity meter M1, SN 53112760 has been attached with this answer providing to DOE for review.</p> <p>Response No.2 It is confirmed that the calibration records submitted to DOE are indeed for the metering equipment SN 53112670. The information indicted in the MR i.e. SMART commercial and Industrial meter is more detailed description of the meter. The color scan of calibration record has been provided to the DOE for verifying.</p> <p>Response No.3. The calibration records included the test results have been provided to DOE for review.</p> <p>Response No.4 The MR indicated the date of calibration as 21/06/2012 is correct. Please see the cover page of calibration record where indicated the same date of</p>	<p>Response No. 1 Please submit the complete calibration records showing the calibration results. The calibration records submitted is incomplete Sighted in the certificate, the owner of the equipment is PT Mecoindo ltron, type is ltron, this is not the same as the type specified in the MR i.e, SMART Commercial and Industrial Meter Kindly confirm if the calibration records submitted are indeed for this equipment serial number SN 531112670 Kindly submit the record in colour scan to verify the authenticity of the record</p> <p>Response No. 2 The results of calibrations for the electricity meter is not yet submitted</p> <p>Response No. 3</p>

				<p>calibrating. And 25/06/2012 is the date to release the calibration record.</p>	<p>OK, the calibration records received, reviewed &amp; traceable by the serial number as verified on site. The results of calibration showed that the error is within the limit MR indicated the date of calibration as 21-6-2012 but the calibration record indicated calibration date as 25-06-2012. Please clarify</p> <p>Response No. 4 OK, the clarifies the confusions about the calibration date &amp; is accepted</p> <p>CAR 6.3 is resolved &amp; closed</p>
		<p>6.4 Noted the MR also stated the meters have been calibrated by PT PLN on 01-07-2013, however please see CAR 6.2, 6.3 above Verification team reviewed the "calibration record" dated 01-07-2013 &amp; found this is not the evidence of equipment calibration. In actual, this record only showed verification of the electricity meters (M1 VS M2)</p>		<p>Response No. 1 6.4 Calibration frequency of electricity meter is every 05 years following the national standard, MEMR 37-2008, pages 130-132. Therefore, the calibration records dated 21/06/2012 are still valid for both meters. Then, the document on 01/07/2013 is unnecessary in this case.</p> <p>Response No.2 Please refer the answer in CAR</p>	<p>Response No. OK, see CAR 6.2, CAR 6.3 This CAR will be closed once CAR 6.2 &amp; 6.3 are closed</p> <p>Response No. 2 OK, CAR 6.2 &amp; 6.3 are closed &amp; the evidence of calibration records are accepted by the verification team</p>

				6.2 and 6.3 above.	CAR 6.4 is resolved & closed
		6.5 Please submit calibration records for both electricity meters used / replaced / changed during the monitoring period: 14-12-2012 till 31-12-2013.		<p>Response No. 1 6.5. Calibration records for both electricity meters used during the monitoring period have been submitted to DOE for review together with this answer. There is no replacement or change of meters during the monitoring period.</p>	<p>Response No. 1 Ok, see CAR 6 which is resolved &amp; closed No electricity meters have been replaced / damaged / changed during the monitoring period from 14-12-2012 till 31-12-2013</p> <p>CAR 6.5 is resolved &amp; closed</p>
		6.6 3rd party lab accreditation including laboratory master scope list are not yet available for review		<p>Response No. 1 6.6 The evidence showing relevant qualification of 3<sup>rd</sup> party lab has been attached with this table.</p> <p>Response No.2 From the document in this folder we can see that the PLN has recommended Balai Kemetrolagian Karawang to PT. Mega Power Mandiri (MPM) as a qualified party to conduct the calibration for meters SN 53111994 and 53112670 of Lebong Hydroelectric plant. So it can be said that the Balai Kemetrolagian Karawang is able to do calibration of power meters.</p>	<p>Response No. 1 The evidence submitted is incorrect &amp; not able to substantiate that the lab is indeed accredited to perform equipment calibrations. Laboratory scope master list is also not yet submitted</p> <p>Response No. 2 OK, verified the recommendation letter from PLN &amp; confirmed that Balai Kemetrolagian Karawang can performed the calibration of the electricity meters. This also means that the lab is indeed not a lab accredited, however accepted by PLN for the</p>

					calibration purpose  CAR 6.6 is resolved & closed
		6.7 List of all the measuring instruments and their specifications listed, in MR are not yet available for review - Back-up power meter (M1) - Primary power meter (M2)		<p>Response No. 1 6.7 Letter from PLN to confirm that the meter was used since the COD until now and mentioned also the specification and serial numbers.</p> <p>Response No.2 Please refer to the documents from PLN.</p> <p>Response No.3 The catalogue of meters provided by the manufacturer - Itron has been submitted to DOE for review.</p>	<p>Response No. 1 Kindly submit the specification documents for the meters for review. This is not sighted during on site verification</p> <p>Response No. 2 Kindly submit the <b>specification documents for the meters</b> for review.</p> <p>Response No. 3 OK, the specification documents have been reviewed &amp; accepted by the verification team</p> <p>CAR 6.7 is resolved &amp; closed</p>
6.	CAR 7	MR Section C 7.1 Training records (OJT etc) & training evaluation records (to evaluate the monitoring personnel competency) are not fully available for monitoring personnel		<p>Response No. 1 7.1 Evaluation from manager to their staffs.</p>	<p>Response No. 1 Verified the certificate of competency for the operators working at weir, head pond &amp; power house &amp; these are accepted by the verification team</p> <p>CAR 7 is resolved &amp; closed</p>



		<p>7.2 Registered PDD Section B.7.2 page 37 Operational And Management Structure for Monitoring</p> <p>The descriptions are inconsistent with actual implementation as described in the MR Section C</p>		<p>Response No. 1</p> <p>7.2 Section B.7.2 has been revised in the revised PDD as corrections of PRC.</p>	<p>Response No. 1</p> <p>OK. The revised PDD Section B.7.3 is now consistent with the actual implementation as described in MR Section C</p> <p>CAR 7.2 is resolved &amp; closed</p>
		<p>7.3 Record of review and sign off for MR, guide for monitoring, CER, internal audit implementation etc as in MR page 10 are not yet available for review</p>		<p>Response No. 1</p> <p>7.3 The documents have been provided to DOE together with this table.</p> <p>Response No.2</p> <p>Please refer to document submitted with this table for review.</p>	<p>Response No. 1</p> <p>Reviewed the approval letter submitted by PT Mega Power Mandiri dated 13 January 2014 &amp; confirmed that the MR has been approved by the PP. However, evidence of internal audit implementation are not yet submitted for review by the verification team</p> <p>Response No. 2</p> <p>Minutes of internal audit dated 2-12-2013 has been reviewed &amp; sighted points of improvements highlighted in the minutes. No major issues were highlighted during the internal audit</p> <p>CAR 7.3 is resolved &amp; closed</p>

7.	CAR 8	MR Section D.1 Unit & description for parameter $A_{BL}$ are incorrect		Response No. 1 Unit & description for parameter $A_{BL}$ are corrected in the updated MR.	Response No. 1 OK, the corrections have been reflected in the revised MR  CAR 8 is resolved & closed
8.	CAR 9	MR Section D.2 9.1 Unit for parameter $EG_{facility,y}$ is incorrect		Response No. 1 9.1 Unit for parameter $EG_{facility,y}$ is corrected	Response No. 1 OK, the corrections have been reflected in the revised MR  CAR 9 is resolved & closed
		9.2 For the same parameter above, the date of calibration stated for monitoring equipment i.e. 01/07/2013 does not represent the applicability & validity of the meters during the monitoring period from 14-12-2012 till 31-12-2013 See CAR 6		Response No. 1 9.2 The corrections have been made in updated MR accordingly.  Response No.2 Please refer to CAR 6.2 & CAR 6.3 above.	Response No. 1 See CAR 6.2 & CAR 6.3  Response No. 2 OK, CAR 6.2 & 6.3 are closed & the evidence of calibration records are accepted by the verification team  CAR 9.2 is resolved & closed
		9.3 For the same parameter above, "additional comment" description = NA is inconsistent with the description in the registered PDD Section B.7.1		Response No. 1 9.3 The updated MR has been corrected following the registered PDD.	Response No. 1 The corrections are reflected in the revised MR & accepted  CAR 9.3 is resolved & closed
		9.4 Parameter $CAP_{PJ}$		Response No. 1	Response No. 1

		QA/QC procedure descriptions are incorrect		9.4 The updated MR has been corrected following the registered PDD.	The corrections are reflected in the revised MR & accepted  CAR 9.4 is resolved & closed
		9.5 Parameter $A_{PJ}$ No actual values available & measured yet during the monitoring period from 14-12-2012 till 31-12-2013. The value reported i.e. 20,052m <sup>2</sup> are taken from the registered PDD		<p>Response No. 1 9.5 The calculation to measure <math>A_{PJ}</math> prepared by the FSR consultant will be submitted to DOE for review. This method will be used to monitor the parameter <math>A_{PJ}</math> onwards.</p> <p>Response No.2 The average of monthly records throughout the monitoring period has been used to calculate the power density of the project.</p>	<p>Response No. 1 Verified the surface area of reservoir monitoring report prepared by PT Wahana Adya &amp; the results for <math>A_{PJ}</math> are available for Dec 2012 till Dec 2013. However, the results stated in the MR is not updated – to decide which value to be used since the methodology requires to record the data yearly</p> <p>Response No. 2 OK, the calculated average value = 19,939.5 m<sup>2</sup> is correct &amp; updated in the MR Section D.2</p> <p>CAR 9.5 is resolved &amp; closed</p>
9.	CAR 10	ER Spreadsheet 10.1 Data for electricity exported in spreadsheet is not yet referenced to the raw data value (sourced from Berita Acara → separate worksheet & linked formulae to the reference source value are not in place		<p>Response No. 1 The ER spreadsheet together with supporting documents has been provided to DOE for review.</p> <p>Response No.2 The ER spreadsheet has been updated accordingly.</p>	<p>Response No. 1 The ER spreadsheet is not yet revised as per comment in CAR 10</p> <p>Response No. 2 Please submit all Berita Acara (minutes of meeting)</p>

				<p>Response No.3 The correction has been done as per request.</p>	<p>referenced in the ER spreadsheets for review → verified all Berita Acara documents starting from Jan – Dec 2013 &amp; confirmed the values of the electricity are correct &amp; calculated accurately Cell D27 – what is “603” in the formula? As discussed, the calculation using tariff is not needed since the electricity data is readily available in the Berita Acara</p> <p>Response No. 3 OK, the corrections checked &amp; confirmed to be corrected</p> <p>CAR 10 is resolved &amp; closed</p>
10.	CL 1	<p>MR Section E.2 Please state clearly the correct methodology version used ACM0002 version 13? See MR page 15 &amp; 16</p>		<p>Response No. 1 Yes. The version of ACM0002 applied for the project is 13.0.0.</p>	<p>Response No. 1 OK, MR Section E.2 has been revised &amp; updated</p> <p>CL 1 is resolved &amp; closed</p>
11.	CL 2	<p>Six monthly environment management &amp; monitoring report, submitted to local Dept. of Environment (district level) if applicable Laporan Pemantauan Pelaksanaan - Rencana Pengelolaan Lingkungan (RKL), Rencana Pemantauan Lingkungan (RPL) or UKL / UPL reports)</p>		<p>Response No. 1 The report has been provided to DOE together with this answer.</p> <p>Response No.2 Report for Jul-Dec 2012 period has been submitted to DOE for</p>	<p>Response No. 1 Received for Jan – June 2013, July – Dec 2013. However for <b>July – Dec 2012 period</b>, not yet submitted for review</p>

		→ Signed for Jan – June 2013, July – Dec 2013. However for July – Dec 2012 period, not yet available for review		review.	Response No. 2 OK, reviewed the report for July – Dec 2012 & found no major issues raised in the report CL 2 is resolved & closed
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Table 3: List of forward action requests (FARs)

FAR number	Observation	Reference	Summary of project participants' response	Verification team conclusion
N/A	N/A	N/A	N/A	N/A

## **Appendix B**

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Certification statement  
to the Verification Report 01 997 9105078269



## Certification statement

TUV Rheinland (China) Ltd., the DOE, has performed the verification of the registered CDM project activity “UNFCCC Registration No. 8488”, “Lebong Hydroelectric Power Plant” in Indonesia. The project activity is designed to generate emission reductions by generation of a renewable energy from a hydroelectric power plant and supply this to the public electricity grid.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project. It is DOE's responsibility to express an independent verification statement on the reported GHG emission reductions from the project. The DOE does not express any opinion on the selected baseline scenario or on the validated and registered PDD. The verification is carried out in-line with the VVS requirements.

The verification was performed to identify the compliance of the project activity with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions, through obtaining evidence and information on-site that included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied, ii) the collection of evidence supporting the reported data and iii) emission reductions that are claimed is free from material errors, omissions or misstatements.

The verification is based on:

- PDD version 3.1, registered with the CDM Executive Board on 23-11-2012 and its monitoring plan;
- Revised PDD, registration no. 8488, 06-04-2015
- Webhosted Monitoring report, version 01, 10-01-2014
- Final Monitoring report, version 02, 02-04-2015
- Approved monitoring methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” Version 13.0.0
- Approved Validation Report, LRQA Reference: A20250-M, Version 04.1, dated 25-11-2012;

This statement covers verification period of 383 days between 14-12-2012 and 31-12-2013.

The DOE has raised 2 clarification and 10 corrective action requests, all of which have been successfully resolved by PPs. No Forward action requests are raised during this 1<sup>st</sup> verification

The DOE considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the revised monitoring plan contained in the revised approved PDD are fairly stated.

The breakdown of the emission reductions for the monitoring period has also been clearly demonstrated, with emission reduction for second commitment period calculated using the latest GWPs and the following is verified to be correct :

Actual emission reduction for the monitoring period up to (and including) 31 December 2012	941 tCO <sub>2</sub> e
Actual emission reduction for the monitoring period from (and including) 1 January 2013	53,234 tCO <sub>2</sub> e

The DOE , hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 54,175 tCO<sub>2</sub> equivalent and all monitoring requirements have been fulfilled.

The DOE states that the Claimed emission reductions are free from material errors, omissions and misstatements with a reasonable level of assurance.

21-04-2015

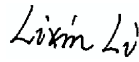
Date



Mr. Henri Phan  
DOE Manager  
TUV Rheinland (China) Ltd.

20-04-2015

Date



Dr. Lixin Li  
Technical Reviewer  
TUV Rheinland (China) Ltd.

13-04-2015

Date



Nelly Yong  
Team Leader  
TUV Rheinland Malaysia Sdn.  
Bhd.

## **Appendix C**

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### **CERTIFICATES OF COMPETENCE**

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## Qualification

Yong, Tau Lan (Nelly) /

## Emission Trading

### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ yes

Qualification Level:  
(Qualifikationsstufe)

Lead Auditor

External:  
(Externer)

☐ yes

Add. reviewer:  
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:  
(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)  
CDM 05 - Chemical industry  
CDM 11 - Fugitive emissions from production and consumption of  
halocarbons and sulphur hexafluoride  
CDM 12 - Solvents use  
CDM 13 - Waste handling and disposal

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

10/28/2010

Valid to:  
(Gültig bis)

10/27/2016

Remarks:

TA 1.2 - renewable energies  
TA 5.1 / 11.1 / 12.1 - Chemical Industries  
TA 13.1 - Waste handling and disposal

Languages:

English  
malay  
Indonesian  
Mandarin

## Experience Exchange

Date

Location

Remarks

Accreditation(s)

## Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date:  
Change:  
By:  
Reason:

Date:  
Change:  
By:  
Reason:

Date: 2010-10-31  
Change: EAC CDM, CDM, CDM, CDM added  
By: Manfred Brinkmann  
Reason: TA 1.2 - renewable energies

## History

Created:	10/26/2007 10:43:44 PM	Nelly Yong/MY/TUV
Modified:	12/03/2013 03:29:12 PM	Raveenthiran Lingappan/MY/TUV
	12/03/2013 03:28:38 PM	Nelly Yong/MY/TUV
	04/27/2011 11:52:48 AM	Manfred Brinkmann/Jpn/TUV
	11/23/2010 03:40:13 PM ZE9	
	11/16/2010 02:20:46 PM ZE9	
	11/04/2010 08:57:58 AM ZE9	
	10/31/2010 09:23:50 PM ZE9	
	10/31/2010 09:23:41 PM ZE9	
	10/26/2007 10:44:04 PM	

## Export to ICMS

Last Export:

**Qualification**

Li, Lixin /

**Emission Trading****United Nations Framework Convention on Climate Change**Auditor No.:  
(AuditorenRegNr)Appointed:  
(Zugelassen)

ja

Qualification Level:  
(Qualifikationsstufe)

Lead Auditor

External:  
(Externer)

ja

Add. reviewer:  
(Zusätzlicher Prüfer)☒ yesEAC Scopes:  
(EAC Branchen)CDM 01 - Energy industries (renewable - / non-renewable sources)  
CDM 03 - Energy demand  
CDM 02 - Energy distribution  
CDM 04 - Manufacturing industriesAdd. qualification:  
(zus. Qualifikation)First Appointment:  
(Erstberufung)

06/09/2013

Valid to:  
(Gültig bis)

05/09/2016

Remarks:

Appointed as Technical Reviewer for TA 1.1, 1.2, 2.1, 2.2, 3.1  
TA 4.5

Languages:

**Experience Exchange**

Date

Location

Remarks

Accreditation(s)

2010-12-21 Beijing GC CDM Auditor Experience Exchange, Beijing, 2010-12-21to23  
United Nations Framework Convention on Climate Change**Monitoring**Latest Monitoring:  
(letzte Beurteilung)Next Monitoring:  
(nächste Beurteilung)

Remarks:

### History of scope allocation

Date: 2012-03-10  
Change: EAC CDM, CDM added  
By: Praveen Urs  
Reason:

Date:  
Change:  
By:  
Reason:

Date:  
Change:  
By:  
Reason:

Date: 2010-11-08  
Change: EAC CDM, CDM added  
By: Manfred Brinkmann  
Reason: Appointed as Technical Reviewer for

### History

Created:	08/13/2010 11:09:24 AM	Lixin Li/Bj/Chn/TUV
Modified:	07/02/2014 04:11:27 PM	Lixin Li/Chn/TUV
	12/11/2013 05:38:34 PM	Henri Phan/Chn/TUV
	07/06/2012 04:55:01 PM	Lixin Li/Bj/Chn/TUV
	03/10/2012 08:33:44 PM	
	02/12/2012 06:12:39 PM	
	11/15/2010 04:02:03 PM	
	11/15/2010 04:01:56 PM	
	11/08/2010 09:36:09 AM ZE9	
	11/08/2010 09:28:17 AM ZE9	
	11/08/2010 09:28:07 AM ZE9	
	11/08/2010 09:27:39 AM ZE9	
	08/13/2010 11:09:41 AM	

### Export to ICMS

Last Export:



## Qualification

Zakaria, Azizan /

## Emission Trading

### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:  
(Zugelassen)

☒ ja

Qualification Level:  
(Qualifikationsstufe)

Lead Auditor

External:  
(Externer)

☐ ja

Add. reviewer:  
(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:  
(EAC Branchen)

CDM 05 - Chemical industry  
CDM 11 - Fugitive emissions from production and consumption of  
halocarbons and sulphur hexafluoride  
CDM 12 - Solvents use  
CDM 13 - Waste handling and disposal

Add. qualification:  
(zus. Qualifikation)

First Appointment:  
(Erstberufung)

09/25/2014

Valid to:  
(Gültig bis)

09/24/2017

Remarks:

Valid for TA 5.1/11.1/12.1  
TA 13.1

Languages:

## Experience Exchange

Date

Location

Remarks

Accreditation(s)

## Monitoring

Latest Monitoring:  
(letzte Beurteilung)

Next Monitoring:  
(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date: 2012-03-29  
Change: EAC CDM added  
By: Praveen Urs  
Reason:  
  
Date: 2011-09-26  
Change: EAC CDM, CDM, CDM added  
By: Manfred Brinkmann  
Reason: Valid for TA 5.1/11.1/12.1

## History

Created:	08/24/2011 11:42:34 AM	Azizan bin Zakaria/MY/TUV
Modified:	05/26/2015 10:35:03 AM	Henri Phan/Chn/TUV
	04/03/2015 06:00:03 PM	Azizan bin Zakaria/MY/TUV
	03/29/2012 07:50:57 PM	Praveen Urs/Chn/TUV
	09/26/2011 11:50:36 AM ZE9	
	08/24/2011 11:42:54 AM	

## Export to ICMS

Last Export:

## Qualification

Ramachandran, Ramaiyer /

## Emission Trading

### United Nations Framework Convention on Climate Change

Auditor No.:

(AuditorenRegNr)

Appointed:

(Zugelassen)

☒ ja

Qualification Level:

(Qualifikationsstufe)

Trainee

External:

(Externer)

☐ ja

Add. reviewer:

(Zusätzlicher Prüfer)

☐ yes

EAC Scopes:

(EAC Branchen)

CDM 01 - Energy industries (renewable - / non-renewable sources)

CDM 03 - Energy demand

Add. qualification:

(zus. Qualifikation)

First Appointment:

(Erstberufung)

01/11/2015

Valid to:

(Gültig bis)

10/31/2018

Remarks:

TA 1.1, 3.1

Languages:

English

Tamil

Hindi

Indian

Indonesian

## Experience Exchange

Date

Location

Remarks

Accreditation(s)

## Monitoring

Latest Monitoring:

(letzte Beurteilung)

Next Monitoring:

(nächste Beurteilung)

Remarks:

[View / Edit Monitoring](#)

## History of scope allocation

Date: 2012-09-07  
Change: EAC CDM, CDM, CDM added  
By: Praveen Urs  
Reason:

## History

Created:	09/05/2012 02:53:34 PM ZE7	Ramaiyer Ramachandran/Idn/TUV
Modified:	03/20/2015 01:40:36 PM	Henri Phan/Chn/TUV
	03/20/2015 01:40:24 PM	Henri Phan/Chn/TUV
	09/07/2012 04:30:21 PM	Ramaiyer Ramachandran/Idn/TUV
	09/05/2012 02:53:50 PM ZE7	

## Export to ICMS

Last Export: