



Monitoring report form
(Version 05.1)

Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.

MONITORING REPORT

Title of the project activity	Pasak Jolasid Hydropower Project	
UNFCCC reference number of the project activity	9555	
Version number of the monitoring report	Version 06	
Completion date of the monitoring report	18/04/2017	
Monitoring period number and duration of this monitoring period	Monitoring period 01 and duration of this monitoring period is 01/07/2014-31/12/2014 (first and last days included)	
Project participant(s)	Electricity Generating Authority of Thailand	
Host Party	Thailand	
Sectoral scope(s)	Sectoral Scope 1: Energy industries (renewable sources / non-renewable resources)	
Selected methodology(ies)	Methodology AMS-I.D / Version 17 "Grid connected renewable electricity generation"	
Selected standardized baseline(s)	n/a	
Estimated amount of GHG emission reductions or net GHG removals by sinks for this monitoring period in the registered PDD	18,392 tCO ₂ per year	
Total amount of GHG emission reductions or net GHG removals by sinks achieved in this monitoring period	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	n/a	1,755 tCO ₂

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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Pasak Jolasid hydropower project is a small-scale Greenfield run-of-river hydroelectric power plant with an installed capacity of 6.465 MW at Pasak Jolasid irrigation dam. As it is a Greenfield project, prior to implementation of the project activity there are no any hydro power projects at the project site. The project is implemented on the left bank of the existing Pasak Jolasid irrigation dam by using the by-pass water flow channel to generate the electricity. The by-pass water flow channel was specially constructed for the project activity. The Pasak Jolasid dam was constructed for the purpose of irrigation, flood control and water supply in Saraburi, Ayutthaya and Bangkok provinces. The Electricity Generating Authority of Thailand (herein after as EGAT) is developing this project with the aim of utilising the hydro resources in the province of Lopburi in Thailand.

The project aims to install a generator of 6.465 MW and a 6.7 MW turbine to generate 6.465 MW of electricity at 6.6 kV which will be stepped up to export from the powerhouse to the existing Provincial Electricity Authority (PEA) transmission line. All the net generated electricity will be exported to the PEA. The purpose of the project activity is to generate electricity by using renewable hydro resources. The development of the project activity would reduce GHG emissions produced by the grid which is currently dominated by fossil fuel based power plants. Emission reduction from hydroelectric power projects arise as they replace grid electricity with a zero-emission source of electricity generation.

Relevant dates of the project activity shown in table 1 below;

Table 1: Relevant date for project activity

Event	Date	Evidence
EGAT signed EPC (Engineering Procurement Construction) contract with ST Power Engineering Corp., Ltd.	16/12/2008	EPC contract
EGAT started exporting the electricity to the grid	02/07/2014	EGAT's meeting invitation letter

Total GHG emission reductions achieved in this monitoring period is 1,755 tCO₂

A.2. Location of project activity

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Host Party: Kingdom of Thailand

Region/State/Province: Lopburi Province

City/Town/Community etc.: Phatthananikhom District

Physical/Geographical Location: The project activity is located next to and on the south of Pasak Jolasid irrigation dam in Lopburi Province. Lopburi Province is located in central region of Thailand and far away from Bangkok (capital of Thailand) 160 km.

The geographical coordinates of the project is latitude of 14°51'09.26661"N and longitude of 101°04'45.38686"E. Figure 1 below shows the location of the project.



Figure 1: Location of the project activity

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate whether the Party involved wishes to be considered as project participant (yes/no)
Thailand (host)	Electricity Generating Authority of Thailand (EGAT)	No

A.4. Reference of applied methodology and standardized baseline

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The approved baseline and monitoring methodology used for this project activity is AMS-I.D “Grid connected renewable electricity generation”, version 17¹

Methodology also refers to following tool:

- Version 02.2.1 - Tool to calculate the emission factor for an electricity system (EB 63)²;
- Version 5 - Guidelines on the Assessment of Investment Analysis (EB 62)³

Reference: Guidelines on the Demonstration of Additionality of Small-scale project version 09.0 (EB 68, Annex 27)⁴

A.5. Crediting period of project activity

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Type of crediting period: 7 year renewable crediting period

Starting date of the crediting period: 01/07/2014

Length of the crediting period corresponding to this monitoring period: 7 years and 0 month from 01/07/2014 - 30/06/2021

A.6. Contact information of responsible persons/entities

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Mr. Sarun Sritammaratch

Mr. Chayaphol Aroontheerawong

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Huay Kwang, Bangkok,
Thailand. 10310

E-mail: sarun_s@aep.co.th,
chayaphol_a@aep.co.th

The person/entity is not a project participant as indicated in Appendix 1.

SECTION B. Implementation of project activity**B.1. Description of implemented registered project activity**

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¹ <http://cdm.unfccc.int/methodologies/SSCmethodologies/approved>

² <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v2.2.1.pdf>

³ https://cdm.unfccc.int/Reference/Guidclarif/reg/reg_guid03.pdf

⁴ https://cdm.unfccc.int/Reference/Guidclarif/meth/methSSC_guid05.pdf

The project activity was installed and implemented according to the registered PDD. EGAT signed an EPC agreement to implementation/construction of the project on 16/12/2008. The project activity was constructed and installed and then export the electricity to the grid on 02/07/2014.

Description of installed technology

The project involves the installation of 6.7 MW turbine to produce electricity at 6.6kV which will be stepped up to 22kV to export from the Pasak Jolasid Powerhouse to existing PEA transmission line. The powerhouse is situated at a distance of 1.5 km from the existing PEA transmission line. The project will install a S-type turbine with a design head of 13.5m and design discharge of 55m³/sec. The turbine generator shaft rotates at a speed of 187.5 rpm. Start up electricity for auxiliaries of turbine will be imported from PEA. The backup power supply in the event of power plant shut down (in case of emergency and Power plant maintenance) will be grid supply. All the electricity imported from the grid will be monitored.

The main technical parameters are shown in Table 2 as below:

Table 2: General specification of turbine and generator

Turbine	UNIT I
Type	GZJG502-WZ-275
Rated Power	6.7 MW
Rated Head	13.5 m
Rated Flow	55 m ³ /s
Rated Speed	187.5 r/min
Runaway Speed	534 r/min
Layout Type	Horizontal Axis (S- Type)
Manufacturer	LingLing Heng Yuan Generating Equipment Co., Ltd.

Generator	UNIT I
Type	SFW6465-32/3450
Rated Capacity	7,606 kVA
Rated Power	6,465 kW
Rated Voltage	6,600V
Rated Current	665.34 A
Rated Frequency	50Hz
Manufacturer	LingLing Heng Yuan Generating Equipment Co., Ltd.

There are no events or situations that occurred during the monitoring period that may impact the applicability of the applied methodology AMS-I.D version 17.

The monitoring plans of the project activity are changed as described in section B.2. These changes have been submitted to this monitoring report as they are not required prior approval by the Executive Board as per para 5 in Appendix 1 of Project Standard version 09.0.

The monitoring equipments for the project activity are comprised of 2 electricity meters which are 1 main meter (for parameter EG_{export,y} and EG_{import,y}) and 1 back up meter (for parameter EG_{export,y} and EG_{import,y}) as indicated below;

Table 3

Monitoring equipment	Accuracy class	Location
1. Main electricity meter for parameter $EG_{\text{export},y}$ and $EG_{\text{import},y}$	0.2	The electricity meter is located in the control room
2. Back up electricity meter for parameter $EG_{\text{export},y}$ and $EG_{\text{import},y}$	0.2	The electricity meter is located in the control room

B.2. Post-registration changes

B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

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During this monitoring period, there are no any temporary deviations from registered monitoring plan or applied methodology.

B.2.2. Corrections

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During this monitoring period, there are no any corrections of registered project activity

B.2.3. Changes to start date of crediting period

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Due to the start date of crediting period is 01/01/2014, but the project activity started to export electricity to the grid on 02/07/2014, therefore change of crediting period to the project activity is requested by postponing the start date by 6 months. This change is not required to request prior approval from the Board as per para 279 (b) of Project Standard version 09.0 below;

	As per the registered PDD	As per this monitoring report
Start date of crediting period	01/01/2014	01/07/2014

This change of start date of crediting period has been submitted with this monitoring report

B.2.4. Inclusion of a monitoring plan to the registered PDD that was not included at registration

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During this monitoring period, there is no any inclusion that was not included at registration.

B.2.5. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

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During this monitoring, there are permanent changes from the registered monitoring plan which are submitted with this monitoring report as described below;

The permanent changes are indicated in the revised PDD version 09 (Completion date of the PDD is 09/03/2017) and the PRCV report version 03, dated 18/04/2017 in which the DOE assessment opinion is indicated that the post-registration changes meet all relevant UNFCCC requirements.

EG_{export,y} (B.7.1 of PDD)

Data	Registered monitoring plan	Permanent changed from registered monitoring plan
Source of data	Energy meter reading from plant records	Measured value from electricity meter
Measurement methods and procedures	<p>There will be one meter for the generator (Type code: ZMD 402 CT44 - LANDIS + GYR) with Automated meter reading installed inside EGAT's control room. The meter is two-way meter through which export and import data will be continuously monitored. These data will be printed and recorded on a monthly basis. Additionally, one back up meter will also be installed for the generator.</p> <p>Moreover, a logbook will be maintained on site to record hourly readings from the energy meter. The readings will be taken by the shift supervisor. This hourly data will be signed off at the end of every shift by the engineer in charge of the shift and again at the end of each day by the power plant manager.</p>	Measured continuously by using electricity meter (accuracy class 0.2). There is one main electricity meter and one back up electricity meter installed inside EGAT's control room. Consolidated reading is recorded in monthly basis.
QA/QC procedures	<p>Data measured by meters and recorded in logbook will be cross checked by electricity sales receipt. This will act as a check against the electricity export-import meter readings.</p> <p>The energy meter will be calibrated at least once in two year subject to national standards.</p>	<p>The reading data from the electricity meter is recorded in the monthly report and it will be cross checked against the reading export meter report. The reading export meter report is an official document to confirm the quantity of power supplied as indicated in the PPA.</p> <p>In case of main meter failure, the data from back up meter will be applied in such period. The energy meter will be calibrated at least once in two years subject to national standards.</p>

EG_{import,y} (B.7.1 of PDD)

Data	Registered monitoring plan	Permanent changed from registered monitoring plan
Source of data	Energy meter reading from plant records	Measured value from electricity meter
Measurement methods and procedures	<p>There will be one meter for the generator (Type code: ZMD 402 CT44 - LANDIS + GYR) with Automated meter reading installed inside EGAT's control room. The meter is two-way meter through which export and import data will be continuously monitored. These data will be printed and recorded on a monthly basis. Additionally, one back up meter will also be</p>	Measured continuously by using electricity meter (accuracy class 0.2). There is one main electricity meter and one back up electricity meter installed inside EGAT's control room. Consolidated reading is recorded in monthly basis.

	<p>installed for the generator.</p> <p>Moreover, a logbook will be maintained on site to record hourly readings from the energy meter. The readings will be taken by the shift supervisor. This hourly data will be signed off at the end of every shift by the engineer in charge of the shift and again at the end of each day by the power plant manager.</p>	
QA/QC procedures	<p>Data measured by meters and recorded in logbook will be cross checked against electricity invoice sent by PEA for electricity import. The energy meter will be calibrated at least once in two years subject to national standards.</p>	<p>The reading data from the electricity meter is recorded in the monthly report and it will be cross checked against electricity invoice sent by PEA for electricity import.</p> <p>In case of main meter failure, the data from back up meter will be applied in such period. The energy meter will be calibrated at least once in two years subject to national standards.</p>

EG_{BL,y} (B.7.1 of PDD)

Data	Registered monitoring plan	Permanent changed from registered monitoring plan
Measurement methods and procedures	<p>EG_{BL,y} will be calculated by taking readings from both meter installed in the Control room.</p> <p>EG_{BL,y} is calculated as $(EG_{\text{export},y} - EG_{\text{import},y})$.</p> <p>EG_{export,y} and EG_{import,y} will be monitored continuously by the meter. This reading (export-import) will act as the basis for calculation of emission reductions.</p>	<p>EG_{BL,y} will be calculated by taking readings from the meter installed in the Control room.</p> <p>EG_{BL,y} is calculated as $(EG_{\text{export},y} - EG_{\text{import},y})$.</p> <p>EG_{export,y} and EG_{import,y} will be monitored continuously by the meter. This reading (export-import) will act as the basis for calculation of emission reductions.</p>
QA/QC procedures	<p>This can be cross checked against the electricity invoices. The energy meter will be calibrated at least once in two years subject to national standards.</p>	<p>The meter will be calibrated as described in parameter EG_{export,y} and EG_{import,y}</p>

Monitoring Procedure (B.7.3 of PDD)

Data	Registered monitoring plan	Permanent changed from registered monitoring plan
Monitoring Procedure (B.7.3 of PDD)	<p>There will be three 8 hour shifts and the readings from energy meters will be taken on an hourly basis by the shift supervisor and recorded in logbooks. This hourly data will be signed off at the end of every shift by the engineer in charge of the shift and again at the end of each day by the power plant manager. The power plant manager will analyze the data every month and report to the head office. The data will be archived electronically every</p>	<p>EGAT is well aware of the importance of having a good operational and management team in order to execute a well-defined monitoring plan for the project activity. So, it has an operational and management structure created exclusively for monitoring data. The responsibilities of data monitoring, archiving and analyzing will fall on different members of the monitoring team. This team will be composed of head office, power</p>

	month and invoices of electricity sales will be maintained.	plant manager and shift supervisor. The shift supervisor will record the monitoring data. The power plant manager will cross-check the monitoring data and system to be properly functional and the head office will analyze the power plant performance through the monitoring data.
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B.2.6. Changes to project design of registered project activity

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During this monitoring period, there are two changes of project design of registered project activity as follows;

1. Runaway Speed of turbine

Turbine	Specification in registered PDD	Post registration change
Runaway Speed	536 r/min	534 r/min
Manufacturer	-	LingLing Heng Yuan Generating Equipment Co., Ltd.

2. Rated Capacity and Rated Current of generator

Generator	Specification in registered PDD	Post registration change
Rated Capacity	7,265.9 kVA	7,606 kVA
Rated Current	799 A	665.34 A
Manufacturer	-	LingLing Heng Yuan Generating Equipment Co., Ltd.

These changes of project design are indicated in the revised PDD version 09 (Completion date of the PDD is 09/03/2017) and the PRCV report version 03, dated 18/04/2017 in which the DOE assessment opinion is indicated that the post-registration changes meet all relevant UNFCCC requirements.

These changes of project design do not require prior approval by the Board as it does not adversely impact to a) The applicability and application of the applied methodology and, where applicable, the applied standardized baseline under which the project activity has been registered, b) The additionality of the project activity, c) The scale of the project activity as indicated in Appendix 1 (6) of CDM project standard version 09.0

These changes are submitted with this monitoring report.

B.2.7. Types of changes specific to afforestation or reforestation project activity

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Not applicable

SECTION C. Description of monitoring system

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The readings data from electricity meter will be recorded in monthly basis by shift supervisor. The reading data will be cross-checked by the power plant manager. The power plant manager will

analyze the data every month and report to the head office. The data will be archived electronically every month and invoices of electricity sales will be maintained.

Emergency procedure

In case of emergency that the monitoring equipment has a problem, the shift supervisor/plant manager will inform and request EGAT head office to repair or replace as applicable the meter soonest and then inform PEA to verified the repaired/new meter. During emergency situation, monitoring data from backup meter will be used for calculation of emission reduction. In case loss of monitoring data from both main and backup meter at the same time, the emission reduction will not be claimed during this period

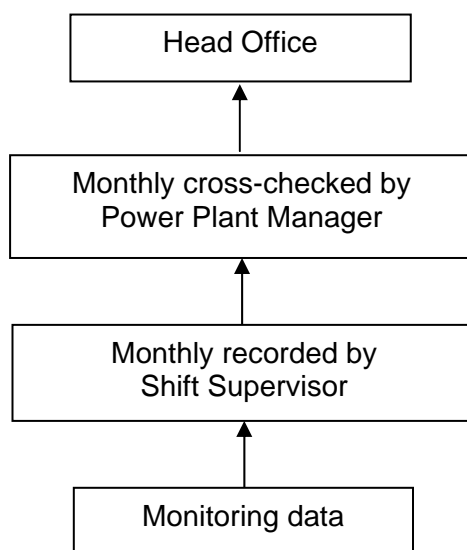


Figure 2: Data flow diagram

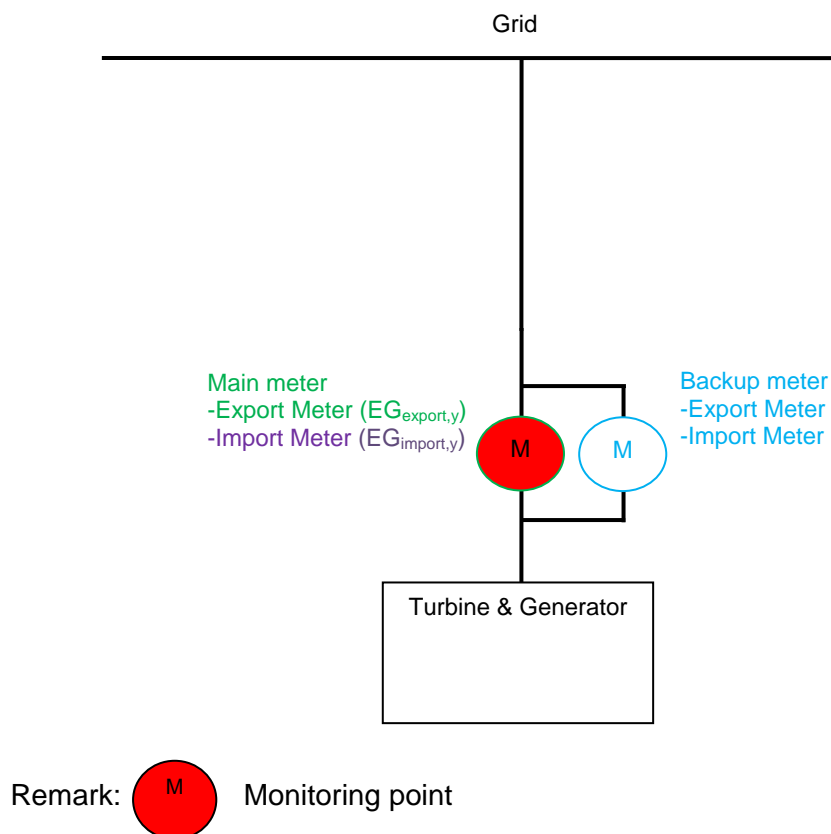


Figure 3: Monitoring diagram

Parameter monitored		
1	$EG_{export,y}$	Power supplied by the project activity to the grid in year y
2	$EG_{import,y}$	Power purchased by the project activity from the Grid in year y
3	$EG_{BL,y}$	Net electricity exported by the project activity in year y

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data/parameter:	$EF_{grid,OM}$
Unit	tCO ₂ /MWh
Description	Simple Operating Margin
Source of data	All data used to calculate the emissions factor is publically available and detailed in Appendix 4 of PDD. Data for electricity production and fuel use of power plant in the Thailand Grid is available from the Thailand Department of Alternative Energy Development and Efficiency(DEDE) for the years 2006, 2007 and 2008. Additional information for Small Power Producer (SPP) plants is available from the Thailand Energy Policy and Planning Office, Ministry of Energy.
Value(s) applied)	0.543
Choice of data or measurement methods and procedures	According to the methodology, the estimation is based on the calculation of - A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in "Tool to calculate the emission factor for an electricity system" For full details of the choice of data and methods applied refer to Appendix 4 of PDD.

Purpose of data	Calculation of baseline emissions
Additional comments	

Data/parameter:	EF_{grid,BM}
Unit	tCO ₂ /MWh
Description	Build Margin
Source of data	All data used to calculate the emissions factor is publically available and detailed in Appendix 4 of PDD. Data for electricity production and fuel use of power plant in the Thailand Grid is available from the Thailand Department of Alternative Energy Development and Efficiency (DEDE) for the years 2006, 2007 and 2008. Additional information for Small Power Producer (SPP) plants is available from the Thailand Energy Policy and Planning Office, Ministry of Energy.
Value(s) applied)	0.569
Choice of data or measurement methods and procedures	According to the methodology, the estimation is based on the calculation of - A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in "Tool to calculate the emission factor for an electricity system" For full details of the choice of data and methods applied refer to Appendix 4 of PDD.
Purpose of data	Calculation of baseline emissions
Additional comments	

Data/parameter:	EF_{grid,CM}
Unit	tCO ₂ /MWh
Description	Carbon emissions factor for the Thailand grid
Source of data	All data used to calculate the emissions factor is publically available and detailed in Appendix 4 of PDD. Data for electricity production and fuel use of power plant in the Thailand Grid is available from the Thailand Department of Alternative Energy Development and Efficiency (DEDE) for the years 2006, 2007 and 2008. Additional information for Small Power Producer (SPP) plants is available from the Thailand Energy Policy and Planning Office, Ministry of Energy.
Value(s) applied)	0.556
Choice of data or measurement methods and procedures	According to the methodology, the estimation is based on the calculation of - A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in "Tool to calculate the emission factor for an electricity system" For full details of the choice of data and methods applied refer to Appendix 4 of PDD.
Purpose of data	Calculation of baseline emissions
Additional comments	

D.2. Data and parameters monitored

Data/parameter:	EG_{export,y}
Unit	MWh/yr
Description	Power supplied by the project activity to the grid in year y
Measured/calculated/default	Measured
Source of data	Electricity meter
Value(s) of monitored parameter	3,314

Monitoring equipment	Main meter	
	Type	Electricity meter
	Manufacturer	EDMI Mk6E
	Serial number	212500666 (02/07/2014-20/05/2015)
	Calibration frequency	At least once in 2 years
	Accuracy class	0.2S
	Calibration year 2014	17/06/2014
	Validity	16/06/2016
	Back up meter	
	Type	Electricity meter
	Manufacturer	EDMI Mk6E
	Serial number	210278028 (02/07/2014-20/05/2015)
	Calibration frequency	At least once in 2 years
	Accuracy class	0.2S
	Calibration year 2014	17/06/2014
Validity	16/06/2016	
Measuring/reading/recording frequency:	Main meter Measuring – Continuously Reading – Continuously Recording frequency - Monthly Backup meter Measuring – Continuously Reading – Continuously Recording frequency - Monthly	
Calculation method (if applicable):	-	
QA/QC procedures:	<p>The reading data from the electricity meter is recorded in the monthly report and it will be cross checked against the reading export meter report. The reading export meter report is an official document to confirm the quantity of power supplied as indicated in the PPA.</p> <p>In case of main meter failure, the data from back up meter will be applied in such period.</p> <p>The energy meter will be calibrated at least once in two year subject to national standards.</p>	
Purpose of data:	Calculation of baseline emissions or baseline net GHG removes by sinks	
Additional comments:	All data will be kept for a minimum of 2 years following issuance of certified emission reductions or the end of the crediting period, whichever is later.	

Data/parameter:	EG_{import,y}
Unit	MWh/yr
Description	Power purchased by the project activity from the Grid in year y
Measured/calculated/default	Measured
Source of data	Electricity meter
Value(s) of monitored parameter	156

Monitoring equipment	Main meter	
	Type	Electricity meter
	Manufacturer	EDMI Mk6E
	Serial number	212500666 (02/07/2014-20/05/2015)
	Calibration frequency	At least once in 2 years
	Accuracy class	0.2S
	Calibration year 2014	17/06/2014
	Validity	16/06/2016
	Back up meter	
	Type	Electricity meter
	Manufacturer	EDMI Mk6E
	Serial number	210278028 (02/07/2014-20/05/2015)
	Calibration frequency	At least once in 2 years
	Accuracy class	0.2S
Calibration year 2014	17/06/2014	
Validity	16/06/2016	
Measuring/reading/recording frequency:	Measuring – Continuously Reading – Continuously Recording frequency - Monthly	
Calculation method (if applicable):	-	
QA/QC procedures:	The reading data from the electricity meter is recorded in the monthly report and it will be cross checked against electricity invoice sent by PEA for electricity import. The energy meter will be calibrated at least once in two years subject to national standards	
Purpose of data:	Calculation of baseline emissions or baseline net GHG removes by sinks	
Additional comments:	All data will be kept for a minimum of 2 years following issuance of certified emission reductions or the end of the crediting period, whichever is later.	

Data/parameter:	EG_{BL,y}
Unit	MWh/yr
Description	Net electricity exported by the project activity in year y
Measured/calculated/default	Calculated
Source of data	Electricity meter (referred to the meters of EG_{export,y} and EG_{import,y})
Value(s) of monitored parameter	3,158
Monitoring equipment	Electricity meter (referred to the meters of EG_{export,y} and EG_{import,y})
Measuring/reading/recording frequency:	EG_{export,y} Measuring – Continuously Reading – Continuously Recording frequency - Monthly EG_{import,y} Measuring – Continuously Reading – Continuously Recording frequency - Monthly

Calculation method (if applicable):	EG_{BL,y} will be calculated by taking readings from the meter installed in the Control room EG_{BL,y} is calculated as (EG_{export,y} – EG_{import,y}). EG_{export,y} and EG_{import,y} will be monitored continuously by the meter. This reading (export-import) will act as the basis for calculation of emission reductions.
QA/QC procedures:	The meters will be calibrated as described in parameter EG _{export,y} and EG _{import,y}
Purpose of data:	Calculation of baseline emissions or baseline net GHG removes by sinks
Additional comments:	All data will be kept for a minimum of 2 years following issuance of certified emission reductions or the end of the crediting period, whichever is later.

D.3. Implementation of sampling plan

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There are no any data and parameter monitored described in section D.2 are determined by a sampling approach. Then this section is not applicable for this project activity.

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

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According to registered PDD, *Ex-post* baseline emission has been demonstrated as formula below;

$$BE_y = EG_{BL,y} \times EF_{CO2,grid,y} = (EG_{export,y} - EG_{import,y}) \times EF_{CO2,grid,y}$$

Baseline emission during period of 01/07/2014 – 31/12/2014:

$BE_y = EG_{BL,y} \times EF_{CO2,grid,y} = (EG_{export,y} - EG_{import,y}) \times EF_{CO2,grid,y}$			
Parameter	Description	Value	Source
BE _y	Baseline emissions in year 'y' (tCO ₂ /yr)	1,755	Calculated
EG _{BL,y}	Net electricity exported by the project activity in year y (MWh/yr)	3,158	Calculated
EF _{CO2,grid,y}	Thai grid CO ₂ Emission Factor in year y, (tCO ₂ /MWh)	0.556	Calculated
EG _{export, y}	Power supplied by the project activity to the grid in year y (MWh/yr)	3,314	Electricity meter
EG _{import, y}	Power purchased by the project activity from the Grid in year y (MWh/yr)	156	Electricity meter

Therefore, total baseline emission during 01/07/2014 – 31/12/2014 is **1,755 tCO₂**

E.2. Calculation of project emissions or actual net GHG removals by sinks

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Accordingly to the methodology AMS-I.D. version 17 para 20, *for most renewable energy activities, P_{Ey} = 0. However, for the following categories of project activities, project emissions have to be considered following the procedure described in the most recent version of ACM002.*

- Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption)
- Emissions from water reservoirs of hydro power plants

The project activity is a hydro power plant and it has no reservoir, hence, does not result in any project emissions. Project emissions, therefore, are zero.

E.3. Calculation of leakage

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The methodology AMS-I.D. version 17 para 22, specifies

If the energy generating equipment is transferred from another activity, leakage is to be considered

No equipment transfer takes place thus no leakage is considered in the project activity.

E.4. Summary of calculation of emission reductions or net GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	GHG emission reductions or net GHG removals by sinks (t CO ₂ e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
Total	1,755	0	0	0	1,755	1,755

E.5. Comparison of actual emission reductions or net GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO ₂ e)	18,392	1,755

E.6. Remarks on difference from estimated value in registered PDD

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The actual figures less than estimated in registered PDD because the water in Pasak Jolasid irrigation dam is low, which then lead to much lower of the operating hour and operating day than the expected at 24 hour/day for 365 day/year as well as the plant operation is not run at full capacity of 6.465 MW. Therefore the power supplied by the project activity to the grid (EG_{export,y}) is 3,314 MWh which is much lower than the expected at 33,080 MWh and the net electricity exported by the project activity (EG_{BL,y}) is 3,158 MWh is much lower than the expected at 33,080 MWh. At the result, the emission reduction in this period is much lower than the expected emission reduction in registered PDD.

Appendix 1. Contact information of project participants and responsible persons/entities

Project participant and/or responsible person/ entity	<input checked="" type="checkbox"/> Project participant <input type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
Organization name	Electricity Generating Authority of Thailand
Street/P.O. Box	53 Moo2, Charansanitwong Road
Building	
City	Bang Kruai, Nonthaburi
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Project participant and/or responsible person/ entity	<input type="checkbox"/> Project participant <input checked="" type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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Project participant and/or responsible person/ entity	<input type="checkbox"/> Project participant <input checked="" type="checkbox"/> Responsible person/ entity for completing the CDM-MR-FORM
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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
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