VERIFICATION/CERTIFICATION REPORT (Rev. 2.31)

- the 5th Periodic -

"Sihwa Tidal Power Plant CDM Project" in Korea

UNFCCC Registration No. : 0349

Report No. CDM-2014-001

MONITORING PERIOD: 01/10/2013 to 31/03/2014

KSA KOREAN STANDARDS ASSOCIATION

VERIFICATION/CERTIFICATION REPORT

KSA

Project No.	Date of first issue :	Revision No.	Revision Date
CDM-2014-001	15/06/2014	2.31	04/09/2014
Project Title : Sihwa Tidal Power Plant CDM Project			

Executive Summary

Korea Water Resources Corporation (K-water) has commissioned Korean Standards Association (KSA) to carry out the 5th periodic verification and certification of emission reductions generated by the "Sihwa Tidal Power Plant CDM Project" in Korea, for the period from 01/10/2013 to 31/03/2014.

This verification is based on the draft Monitoring Report (ver. 01, dated on 22/05/2014), the final Monitoring Report (ver. 02, dated on 03/07/2014), monitoring plan as described in the registered PDD, Validation Report, emission calculation spreadsheet and supporting documents made available to KSA by the project participants.

As a results of the verification, KSA confirms that;

- all operations of the project are implemented and installed as planned in the registered PDD.
- the installed equipments essential for generating emission reduction run reliable and are calibrated appropriately.
- monitoring systems are in place and functional.

In KSA's opinion, the project's reported GHG emission reduction for the period from 01/10/2013 to 31/03/2014, as reported in the Monitoring Report (version 02, 03/07/2014) for the project , is fairly stated.

The GHG emission reduction has been correctly calculated without material misstatements on the basis of the approved monitoring methodology ACM0002 (Version 04) and the monitoring plan and formulae given in the registered PDD. The project was registered as a CDM project on 18/06/2006 under UNFCCC with the registration number 0349.

Korean Standards Association (KSA) is able to certify that the project has achieved emission reduction in the above mentioned reporting period, amount 159,785 tons of CO_2 equivalents.

Project Participant: Korea Water Resources Corporation (K-water).	**Applied Methodology/Version :** ACM0002 /version 04
	Scope(s) : 1 **Technical Area(s)** : 1.2

Team Leader Kyoo-Il Sohn **Team Member** Won-Cheol Han Chung-Kook Lee (TE) **Observer**	**Responsible Certification Body Member :** Jae-Woo Park	**First Monitoring Report Version** Date of issuance: 22/05/2014 Version No. :01 **Final Monitoring Report Version** Date of issuance: 03/07/2014 Version No. : 02

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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CL	Clarification Request
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
KPX	Korea Power Exchange
KSA	Korean Standards Association
K-water	Korea Water Resources Corporation (K-water).
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participants
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
XLS	Emission Reduction Calculation Spread Sheet

0. CERTIFICATION STATEMENT

Korean Standards Association (KSA) has performed the verification of the registered CDM project "Sihwa Tidal Power Plant CDM Project (UNFCCC reference No.: 0349)" for the 5th monitoring period from 01/10/2013 to 31/03/2014.

The verification consisted of the following three phases; i) desk review of the project design and baseline and monitoring plan; ii) follow-up on-site visit and interviews with the project stakeholder; iii) resolution of outstanding issues and the issuance of the final verification report and statements.

The management of “Sihwa Tidal Power Plant CDM Project” is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions on the basis set out within the monitoring plan indicated in the registered PDD.

This verification is based on the draft Monitoring Report dated 22/05/2014, the final Monitoring Report (version 02) dated 03/07/2014, monitoring plan as described in the validated and registered PDD, Validation Report, emission calculation spreadsheet and supporting documents made available to KSA by the project participants.

The GHG emission reductions were correctly calculated without material misstatements based on the approved monitoring methodology ACM0002 (Version 04) and the monitoring plan contained in the registered and approved PDD. Hence, Korean Standards Association certifies that the reported emission reductions from the project equated to 159,785tCO_{2eq}.

July 20, 2014

Mr. Jae-Woo Park

Director
International Certification Division
Korean Standards Association

Mr. Kyoo-Il Sohn

Verification Team Leader

1. INTRODUCTION

Korean Standards Association (KSA) has been commissioned by Korea Water Resources Corporation (K-water). to carry out the verification and the certification of emission reductions reported from "Sihwa Tidal Power Plant CDM Project" in Korea (hereafter the project) for the period from 01/10/2013 to 31/03/2014. This report contains the findings from this verification assignment and a certification statement for the certified emission reductions.

1.1 Objective

Verification is the periodic independent review and ex-post determination by the Designated Operational Entity (DOE) of the monitored reduction in GHG emissions that have occurred as a result of the registered CDM project activity during a defined verification period.

The objective of this verification work is to comply with the requirements of paragraph 62 of the CDM Modalities and Procedures.

Certification is the written assurance by the DOE that, during a specified time period, a proposed CDM project activity achieved/resulted in the emission reductions in anthropogenic by sources of GHG's as verified.

1.2 Scope

Based on the applicable requirements of paragraph 62 of the CDM Modalities and Procedures, KSA shall;

(a) Ensure that the project activity has been implemented and operated as per the approved and registered PDD "Sihwa Tidal Power Plant CDM Project" version 03; 29/05/2012, and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;

(b) Ensure that the published monitoring report and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of CERs and verifiable and in accordance with applicable CDM requirements.

(c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;

(d) Evaluate the data recorded and stored as per the monitoring methodology.

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

The verification team has based on the recommendations in the CDM Validation and Verification Standard (VVS)/2-5/, and employed a risk-based approach, focusing on the identification of significant reporting risks.

1.3 Description of the Project Activity

Project (Host) Parties	Republic of Korea
Title of project activity	Sihwa Tidal Power Plant CDM Project
Project Size :	Large Scale
Applied Methodology	ACM0002 (Version 04)
Registration No.	0349
Project Entity:	Korea Water Resources Corporation (K-water).
Location of the Project Activity	Address: Daebudong-dong, Danwon-gu, Ansan-city, Republic of Korea GPS Coordination Latitude 37°18'46"<37.312778°>N, Longitude 126°36'36"<126.610000>E
Registration date	18/06/2006
Crediting period	01/07/2011 to 30/06/2018
Monitoring period for this Verification	01/10/2013 to 31/03/2014

1.4 Verification/Certification Team

The verification team consists of the following personnel:

Role/Qualification	Name	Document Review	Site Visit	Follow-up Actions	Reporting	Technical Review
Team leader CDM Verifier	Mr Kyoo-Il Sohn	✓	✓	✓	✓	
Team Member CDM Verifier	Mr Won-Cheol Han	✓	✓	✓		
Technical Expert	Mr Chung-Kook Lee	✓	✓	✓	✓	
Technical Reviewer CDM Verifier	Mr Seung-Keun Choi					✓
Technical Reviewer Technical Expert	Mr Chan-Sik Yun					✓

1.5 Internal Quality Control

The final verification report including the verification findings were reviewed by a technical review team(Mr. Seung-Keun Choi, Mr. Chan-Sik Yun) prior to the submission of the verification report to the project participant and prior to requesting the issuance of the project activity during the period from 15/07/2014 to 20/07/2014. Also the technical verifier is qualified by KSA's qualification scheme for CDM validation and verification. As a result of the internal technical review process, the verification opinion and the topic specific assessments as prepared by the verification team leader may be confirmed or revised. Furthermore reporting improvement might be achieved.

2. METHODOLOGY

The verification of this project was carried out from May 2014 to Jul 2014 as follows:

- Preparations (Desk Review) : 28/05/2014 to 14/06/2014
- On site verification : 16/06/2014
- Follow-up Action : 17/06/2014 to 03/07/2014
- Final reporting : 04/07/2014 to 15/07/2014

The verification consisted of the following steps:

- A desk review of monitoring report /1-1/, the emission reduction spreadsheet/1-3/, and additional supporting documents (project design document – approved and registered PDD /1-2/ and Validation Report /2-1/ which were submitted by clients).

  KSA CDM Manual /2-8/, the monitoring plan and CDM Validation and Verification Standard /2-5/ are used.
- On site assessment.
- Follow-up action, background investigation and interview with the related personnel of the project participant.

To ensure a transparency, verification process was guided by the checklist.

2.1 Review of Documents

The reviewed documents were as follows:

- The monitoring report /1-1/ (initial version 01 dated 22/05/2014 and final version 02 dated 03/07/2014).
- Registered project design document (version 04, dated 31/01/2013) (Approved by EB on 03/05/2013).
- ACM0002 (ver. 4) - Consolidated baseline methodology for grid-connected electricity generation from renewable sources"/2-4/
- Guideline for completing the monitoring report form/2-6/
- Emission reduction Spreadsheet /1-3/ (initial version 01 dated 22/05/2014 and final version 02, 03/07//2014)
- Build Margin (BM) emission factor for 2012 /1-4/
- Validation report /2-1/
- The 4th verification report.

2.2 Site Visits

On-site visit was carried out on 16/06/2014 and assessed for followings:

- to verify the actual implementation and operation of the project as described in the PDD
- to check the instruments used for monitoring in the locations and the related calibration certificates.
- to check the compliance of monitoring with the monitoring plan.
- to verify the evidence for the reported emission reductions.
- to verify the QA/QC activity for the proposed project activity.
- etc.

During the site visit, the KSA verification team has performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review. The following program was used at the on site visit:

16/06/2014 Project site :Ansan-city, Republic of Korea

Latitude 37°18'46"<37.312778°>N, Longitude 126°36'36"<126.610000>E
Auditor : Mr. Kyoo-Il Sohn, Mr. Won-Cheol Han and Mr. Chung-Kook Lee

The list of person interviewed is included in the reference. The main topics of the interviews are summarized as belows;

Organization	Interview topics
▪ Sihwa Tidal Power Plant - Operation manager - Electric Manager	▪ Implementation and operation of the proposed CDM project activity including the project boundary. ▪ The operation and data collection procedures ▪ Monitoring source data related to the project activity. ▪ Monitoring equipment including calibration performance and observations of monitoring practices. ▪ Data uncertainty and residual risks (QA/QC) ▪ Compliance with the National laws and regulations such as "Rules on the operation of

	electric utility market"/1-20/ including the monitoring plan. ▪ The capacity of tidal power generator ▪ The results for maintenance. ▪ operation data related to the tidal power plant ▪ Monitoring plan and management procedures ▪ Monitored data and Monitoring Report ▪ GHG calculations. ▪ The electricity amount of exported to grid and imported from grid during monitoring period (from 01/10/2013 to 31/03/2014)

2.3 Assessment

The data and information described in the monitoring plan were assessed as follows:

- Review of the detailed project documentation
- Interview with Operation and Maintenance personnel.
- Collection of measurement data
- Established monitoring and reporting system
- Observation of established monitoring and reporting practices
- Assessment of the reliability of monitoring equipments

Those have enabled the verification team to access the accuracy and completeness of reported monitoring results and to verify the correct application of the approved monitoring methodology /2-4/. Moreover, the e-power market system (http://www.kpx.or.kr) by KPX (Korea Power exchange)/1-23/, ERP (K-water's integrated generation information system) /1-17/ and electricity generation data/1-17/ were cross checked and the management system was assessed during the site visit.

2.4 Reporting of Findings

As the result of the verification process, the verification team can raise Corrective Action Request (CAR) and Clarification (CL) and any other outstanding issues that needed to be clarified for KSA's positive conclusion on the GHG emission reduction calculation. CARs and CLs require the project participants to modify the monitoring report or to provide adequate additional explanations or evidence. Criteria for CARs, CLs and FARs are as follows and are based on the "Clean Development Mechanism Validation and Verification Standard (Version 7.0) /2-5/".

Corrective Action Request (CAR) is issued where one of following occurs;

- 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.
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants.
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification (CL) is issued if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A Forward Action Requests (FAR) may be issued for action if the monitoring and reporting requires attention and/or adjustment for the next verification period.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification protocol in the Appendix A. Table 2 Resolution of Corrective Action and Clarification Requests

3. VERIFICATION FINDINGS

In the following sections the findings of the verification are stated. The findings from the desk review of the monitoring report and from interviews during the follow-up on-site visit are documented in more detail in the verification protocols given in Appendix A.

The Corrective Action Requests (CARs), the Clarifications (CLs) and Forward Action requests (FARs) are stated, where applicable, in the following section and are further documented in the Verification Protocol in the Appendix A. The verification of this project activity resulted in 1 Corrective Action Requests (CARs) and 6 Clarifications (CLs) has been successfully closed.

3.1 Remaining issues, CARs, CLs, FARs from Previous Validation or Verification

All raised CARs and CLs in the previous verification were successfully closed during the 4th monitoring period (Refer to the 4th Verification report /2-01/) and no FARs were issued.

3.2 Compliance of the Project Implementation with the registered PDD

(1) Project Implementation and Operation

Verification team has assessed the project implementation to verify the confirmity of the actual project activity and its operation in accordance with the description contained in the registered PDD.

▪ Review of documents provided by the PPs

- Monitoring Reports /1-1/
- Approved and registered PDD /1-2/
- Certificate for inspection prior to use (Generator No. 1 ~ No. 10) /1-5/
- Completion Report for Sihwa tidal power plant /1-8/
- Start up business notification to the government (Ministry of Trade, Industry and Energy) /1-14/
- Survey Report on the Post Environmental Impacts /1-25/
- Electric Utility Act /1-21/
- Validation Report for the proposed project activity /2-1/
- ACM0002 ; Consolidated methodology for grid-connected electricity generation from renewable sources (version 4) /2-4/

• On-site assessment has been performed including interviews with relevant personnels.

The project generates the electricity using tidal power and the electricity generated by the project is supplied to the KEPCO grid that is or would have been supplied by at least one fossil fuel fired

generating unit.

Applied technologies to the project based on the document review and on-site assessment are as below table 3-1 and table 3-2. The total installed capacity of the project is 254 MW.

Table 3-1 Technical Description for tidal power plant

Items	Specifications	Remarks
Generator	25.4MW X 10 Units	Total Capacity - 254 MW
Bulb Diameter	8.2m	
Runner Diameter	7.5m	
Rated head Drop	5.82m (max. 7.5m, min. 1.0m)	
Velocity	64.29 rpm	

Table 3-2 Relevant dates for Sihwa tidal power plant

Items	Relevant dates	Remarks
Construction Period	31/12/2004 - 14/11/2011	
Commissioning Date	28/03/2011 - 29/02/2012	
Started Continued Operation	13/04/2011 – Present	
1st Monitoring Period	01/07/2011 – 31/03/2012	
2nd Monitoring Period	01/04/2012 – 31/10/2012	
3rd Monitoring Period	01/11/2012 – 31/03/2013	
4th Monitoring Period	01/04/2013 – 30/09/2013	
5th Monitoring Period	01/10/2013 – 31/03/2014	

Thus KSA confirmed the followings

- The operators have experienced in operating the tidal power plant and also were trained by internal education program /1-15/.
- The monitoring period is reasonable.
- Actual implementation of project activity and its operation has been conducted in accordance with the described in the registered PDD.
- There is no change in the effective output capacity due to increased installed capacity or

increased number of units, or installation of units, with lower capacity or units with a technology which is less advanced than that described in the registered PDD.

- There is no addition of component or extension of technology.

(2) Project Boundaries

The electricity generated by the project activity is connected to the KEPCO grid. The export watt-hour meters from project and import watt-hour meter from grid are installed.

Thus, the spatial extent of the project boundary includes the project activity and KEPCO grid.

As see above, KSA confirms through the desk review and on-site inspection that the registered CDM project has been implemented and operated as per the registred PDD and during the 5th monitoring period.

3.3 Compliance of Monitoring Plan with the Monitoring Methodology

The monitoring mechanism is in accordance with the approved monitoring methodology (ACM0002. version 04)[1] /2-4/ applied by the registered PDD. The monitoring parameters EG_y, $EF_{BM,y}$ which are required by ACM0002 are included in the monitoring plan. EG_y is continuously monitored and hourly recorded, while $EF_{BM,y}$ is calculated using over recently built power plants defined in the option 2 of baseline methodology. The monitoring procedures reflect the content of the monitoring plan. The monitoring methodologies and sustaining records are sufficient to enable verification of emission reductions.

During on-site assessment, verification team has confirmed that all measuring equipments have been installed complying with the local regulation “Rules on the operation of electricity utility market”[2]/1-20/ and “Measures Act”[3]. Accuracy and frequency of measurement described in the registered PDD have been satisfied.

Thus, KSA verification team confirm that the monitoring plan is in accordance with the approved methodology (ACM0002, version 04) /2-4/ applied by the project activity.

3.4 Compliance of Monitoring Activities with the Registered Monitoring Plan

3.4.1 Monitoring Parameters and Procedures

1) Version 03 was specified in the registered PDD, but it was described version 04 in the VR and CDM website. Thus, version 04 was applied to the project activity.
2) In the registered PDD, “Act on operation of electricity market” has been marked, but official notation is applied in this report.
3) “Law regarding measurement” has been citied in the PDD, but “Measures Act” is official notation.

According to the methodology ACM0002 (version 04) /2-4/ and monitoring plan in the registered PDD, the required monitoring parameters are EG_y^* and $EF_{BM,y}$ for determining the emission reduction of the project activity as belows.

- EG_y^* is the net electricity generation supplied to the grid.
- $EF_{BM,y}$ is the build margin emission factor.

According to monitoring plan, the net electricity generation supplied to the grid(EG_y) is described as belows;

① The parameter, EG_y^*, required by the monitoring plan:

EG_y^* : Net electricity amount supplied to the grid by the project activity in y year.

($EG_y^* = EG_y - EI_y$)

EG_y : Electricity exported to the KEPCO grid by the project activity in y year

EG_y = M1 + M3 + M5

Monitoring Point : M1, M3 and M5 (M2, M4 and M6 are sub meter)

EI_y : Electricity imported from the KEPCO grid in y year

EI_y = M7 + M8 + M9 + M10

Monitoring Point : M7, M8 and M9 (M10 is the meter for back-up power)

The amount of electricity transmitted to the KEPCO grid (M1, M3 and M5) are continuously measured by the watt-hour meter and archived in the e-power market (http://www.kpx.or.kr) by KPX (Korea Power exchange) and ERP(K-water's integrated generation information system) system/1-24/.

The measured data are simultaneously transferred to KPX and K-water's ERP. The collected data were compared with those of KPX's data.

The amount of electricity imported from the KEPCO grid (M7, M8, M9 and M10) are continuously measured by the watt-hour meter under KEPCO's control (grid company) and charged for the amount to the project participant monthly.

During the on-site visits, KSA verification team have checked the location of all the meters against the installation of the meters of the project activity and found satisfactory.

KSA verification team has also verified the value data provided in the monitoring report against the relevant documented evidence such as the reading record, electronic data and storage device and cross checked with KPX's data (e-power market)/1-23/ and found that they were consistent with the evidence.

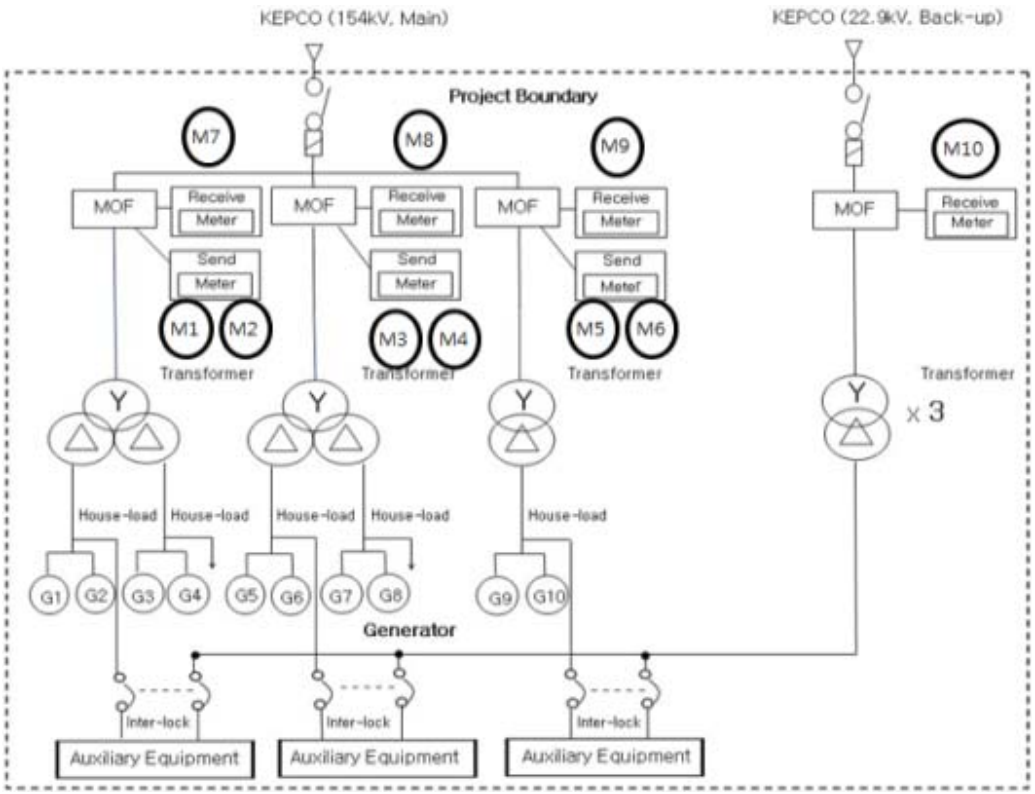


Figure 3-1 Location of monitoring points for Sihwa Tidal Power Plant

② The parameter, $EF_{BM,y}$, required by the monitoring plan is calculated using over recently built power plants defined in the option 2 of the baseline methodology, ACM 0002 (version 04).

(Refer to the section 3.6.1 of this report)

According to the methodology ACM0002 (version 04) /2-4/ and monitoring plan in the registered PDD, the required monitoring parameters are EG_y^* and $EF_{BM,y}$ for determining the emission reduction of the project activity.

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD /1-2/. All parameters stated in the monitoring plan of the registered PDD /1-2/ have been sufficiently monitored and correctly listed.

Thus, KSA verification team confirm that the monitored data for each required parameters are complete and consistent by checking the whole procedures for information management.

3.4.2 Monitoring Equipments

All the monitoring equipments required in the monitoring activity are installed in accordance with the monitoring plan in the registered PDD. The type, serial number, accuracy class and

manufacturer of all watt-hour meters are checked by KSA through the on-site inspection. The relevant information is summarized in Table 3-3 Specification of watt-hour meters

Table 3-3 Specification of watt-hour meters

Meters		Serial No.	Accuracy	Manufacturer
Send (main)	M1	PT-0909A408-01	±0.2%	Seochang Electric Communication Co., Ltd. (http://www.scec.co.kr)
	M3	PT-0909A407-01		
	M5	PT-0909A409-01		
Send (sub)	M2	53048163	±0.5%	
	M4	53048164		
	M6	53048162		
Receive (main)	M7	9000071	±0.5%	Namjun Co., Ltd (http://www.namjeon.co.kr)
	M8	9000072		
	M9	9000073		
Receive (back-up)	M10	25102001711	±0.5%	Hansan AMS Tech Co., Ltd.

The export watt-hour meters under KPX with allowable error of ± 0.2% (sub meter ±0.5%) are installed as per the national law -"Rules on the operation of electricity utility market" /1-20/ and also sealed after affirmation of KPX (http://www.kpx.or.kr) (Korea Power Exchange).

The power plant operator cannot open the security seal that protect the meter unless person of KPX is in the event. The main watt-hour meters are cross-checked with the sub-meters.

Thus, KSA validation team concluded that information provided in the monitoring report /1-01/ and the implementation of the project activity is in accordance with the registered PDD/1-02/.

3.4.3 Management System and Quality Assurance

Monitoring and reporting of electricity generation is part of normal operation for tidal power plant. The quality of the meter reading is assured through the calibration of watt-hour meters and through cross checking the measured amount of electricity with those of KPX. According to monitoring plan, the parameter has to be collected is the net electricity generation.

The amount of electricity transmitted to the grid is continuously measured by watt-hour meter.

The measured data is simultaneously transferred to KPX (Korea Power exchange) and K-water's ERP (K-water's integrated generation information system) system. The collected data are cross-checked with each other. The operation of tidal power plant is operated and maintained by the trained personnel /1-15/.

3.5 Compliance with the calibration frequency requirements for measuring instruments

The monitoring plan stipulates that the watt-hour meters will be calibrated within two years for the send watt-hour meter and within 7 years for the receive watt-hour meter. KSA has checked the calibration information of the watt-hour meters through the review of the calibration records /1-16/ as summarized in Table 3-4.

Table 3-4 Calibration Information of watt-hour meters

Meters		Frequency	Calibration Status			Remarks
			Last	Scheduled	Actual	
Send (main)	M1	2 years	01/11/2011	31/10/2013	25/11/2013	Calibration for send watt-hour meters have been delayed from 31/10/2013 to 24/11/2013
	M3		01/11/2011	31/10/2013	25/11/2013	
	M5		01/11/2011	31/10/2013	25/11/2013	
Send (sub)	M2	2 years	01/11/2011	31/10/2013	25/11/2013	
	M4		01/11/2011	31/10/2013	25/11/2013	
	M6		01/11/2011	31/10/2013	25/11/2013	
Receive (main)	M7	7 years	Oct 2010	Sep 2017		Receive watt-hour meters were manufactured on Oct 2010 and managed under KEPCO control.
	M8		Oct 2010	Sep 2017		
	M9		Oct 2010	Sep 2017		
Receive (back-up)	M10	7 years	Nov 2010	Oct 2017		

The calibration for send watt-hour meters have been delayed from 01/11/2013 to 24/11/2013.

The period for the adjusted measured values of the delayed calibration is from 31/10/2013 to 24/11/2013 during this monitoring period. Thus, the emission reduction were deducted by 0.2% measurement equipment uncertainty for corresponding period. (Please see the CAR 01)

The receive watt-hour meters under KEPCO which were manufactured and calibrated on Oct 2010 are installed as per the national law "Measures Act"/1-22/ and calibration frequency described in the monitoring plan is not passed during this monitoring period.

KSA confirms that the electricity supplied to the grid in the whole monitoring period between 01/10/2013 and 31/03/2014 was fully monitored by these calibrated watt-hour meters.

Thus, KSA confirms through the review of the calibration records, on-site inspection of the monitoring requirements and interview with the operators that all watt-hour meters are appropriately controlled in accordance with the monitoring plan.

3.6 Assessment of Data and Calculation of Emission Reductions

3.6.1 Assessment of Data

① Net electricity (EG_y^*)

Through the desk review and on-site assessment, a complete set of data covering the whole monitoring period and the relevant documentary evidence /1-17/ were provided to KSA.

The amount of monthly electricity export and import based on the monthly electricity data records measured by the main export and import watt-hour meters during the 5th monitoring period are summarized in Table 3-5.

Table 3-5 The net amount of generated electricity and its emission reduction

Project title : Sihwa tidal CDM power plant CDM project					
Emission Factor : 0.65206 2tCO$_2$/MWh					
Section		Produced Electricity (kWh) by the project activity			Emission Reductions (tCO$_2$)
		Electricity			
		Export	Import	Net	
2013	Oct	41,118,618	327,600	40,791,018	
	Nov	39,019,556	317,040	38,702,516	
	Dec	41,716,875	332,640	41,384,235	
2014	Jan	44,079,216	327,600	43,751,616	
	Feb	37,022,482	286,548	36,735,934	
	Mar	44,000,282	317,652	43,682,630	
	TOTAL	246,957,029	1,909,080	245,047,949	159,785

The detail data for the exported and imported electricity are provided ER calculation spreadsheet /1-3/. The electricity exported to the grid and imported from the grid in the whole monitoring period between 01/10/2013 and 31/03/2014 was fully monitored by calibrated watt-hour meters.

KSA confirms that the monthly electricity data in the MR and ER calculation spreadsheet are calculated transparently and correctly.

From the these electricity data verified above, the net electricity (EG_y) supplied to the KEPCO grid by the project activity is calculated to be 245,047.95MWh (246,957.03MWh - 1,909.08MWh) for the 5th periodic monitoring period.

Thus, KSA confirms that the electricity amount of the net electricity (EG_y) are measured during the 5th monitoring period in the MR and ER calculation spreadsheet are correct and conservative.

② Emission Factor

▫ Calculate the Build Margin (BM) emission factor($EF_{BM,y}$);

According to the registered PDD, the Build Margin emission factor ($EF_{BM,y}$) is updated annually ex-post for the year in which actual project generation and associated emission reduction occurs.

According to electricity data (Statistics of electricity power in Korea for 2012 /1-19/) published by KEPCO, it is found that in year 2012 the electricity generation from the 5 power units (0.0004%) that started to supply electricity to the grid most recently, excluding power units registered as CDM project activities, is less than the electricity generation (20.26%) from the set of power unit that started to supply electricity to the grid most recently and comprise 20% of the annual system generation, excluding power units registered as CDM project activities. In addition, none of the power units in the result group started to supply electricity to the grid more than 10 years, therefore the build margin (BM) is calculated from the sample group that started to supply electricity to the grid most recently and comprise 20% of the annual system generation which is deemed as appropriate.

Thus, the build margin (BM) is calculated using data of 2012. BM is calculated as the generation-weighted average emission factor of all generating power plant within KEPCO grid during the most recent year y for which power generation data is available. BM emission factor is determined as per formula 9 of ACM0002 (version 04) as BM = 0.53312 tCO_2/MWh

▫ Calculate the baseline emission factor (EF_y).

According to the Step 3 of ACM0002 (version 04)/2-4/, the weighted average emission factor is calculated as belows;

$EF_y = w_{OM} \cdot EF_{OM,y} + w_{BM} \cdot EF_{BM,y}$

= 0.5 × 0.77100 tCO_2/MWh + 0.5 × 0.53312 tCO_2/MWh

= 0.652061 tCO_2/MWh

≒ 0.65206 tCO_2/MWh

where the weights w_{OM} and w_{BM}, by default, are 50%

$EF_{OM,y}$ is ex-ante at the time of PDD submission for registration (0.77100 tCO_2/MWh)

$EF_{BM,y}$ is updated annually ex-post for the year in which actual project generation and associated emissions reductions occur.(0.53312 tCO_2/MWh)

Thus the baseline emission factor is calculated as 0.65206 $tCO_{2\text{-}eq}$/MWh.

The power sector data used for the calculation has been cross checked as follows;

- Each power plant of the electric generation amount : "Statistics of Electric Power in Korea" for 2012 /1-19/(issued on May 2013) and "The status report of generation facility for 2012 by KPX /1-28/ (issued on Jul 2013).

  "Statistics of Electric Power in Korea for 2012" have been verified with KEPCO website (http://www.kepco.co.kr), i.e. those were issued by KEPCO (Korea Electric Power Corporation).

- Each Fuel of CGVs and NCVs : "The Energy Act" /1-29/ and IPCC guideline on greenhouse gas inventories /2-9/

As above, KSA confirmed that all data used for the calculation are not excessive and appropriate. All the equations involved along with the KEPCO grid power sector data used for calculation were found by KSA to be in line with the ACM0002 (version 04)/2-4/.

3.6.2 Assessment of Calculation of Emission Reductions

According to the methodology ACM0002 (version 04) /2-4/ and the registered PDD /1-2/, the emission reduction resulting from the project activity are calculated as follows;

$ER_y = BE_y - PE_y - LE_y$

Where, ER_y : Emission Reductions in year y (tCO_{2e}/y)

BE_y : Baseline Emissions in year y (tCO_{2e}/y)

PE_y : Project Emissions in year y (tCO_{2e}/y)

LE_y : Leakage Emissions in year y (tCO_{2e}/y)

The baseline emission are the net electricity supplied to the grid (EG_y^*) the baseline emission factor (EF_y). Therefore, $BE_y = EG_y^* \times EF_y$

where; EG_y^*: the net electricity generation supplied to the grid

EF_y: GHG emission factor is calculated ex-post in the monitoring report as 0.652060 tCO_{2e}/MWh

According to ACM0002 (version 04)/2-4/, for the tidal power plant,

PE_y = 0 and LE_y = 0.

The emission reductions (ER_y in tCO_{2e}) are calculated by the net amount of electricity supplied to the grid (EG_y^* in MWh) times the emission factor (EF_y in 0.65206 tCO_{2e}/MWh).

Thus, the baseline emission of project activity are calculated as;

$BE_y = EG_y^* \times EF_y$

= 245,047.95 MWh × 0.65206 tCO_{2e}/MWh

= 159,785.97 tCO_{2e}

According to the ACM0002 /2-4/, no leakage emissions (LE_y) is needed to be considered.

Therefore the emission reductions during this monitoring period from 01/10/2013 to 31/03/2014 are calculated as ;

$ER_y = BE_y - PE_y - LE_y$

= 159,785.97 tCO_{2e} - 0 tCO_{2e} - 0tCO_{2e}

= 159,785.97 tCO_{2e}

≒ 159,785 tCO_{2e}

The net amount of electricity supplied to the grid during the verification period from 01/10/2013 to 31/03/2014 is 245,047.95 MWh (Refer to Table 3-5).

The net electricity generation is the difference between the total quantity of electricity generated by the project activity (tidal power plant) and the auxiliary electricity consumed by project activity. The auxiliary electricity consumed by the project activity are based on the imported electricity from KEPCO. The imported electricity amount from KEPCO are based on the receipts of KEPCO.

Based on this discussion, the emission reductions resulting from the project for 01/10/2013 to 31/03/2014 have been calculated to be 159,785 tCO_{2eq}.

As per registered PDD /1-2/, the estimated annual CER is 157,720 tCO_{2e}. The verified emission reductions is 159,785tCO_{2e} during this monitoring period (6 months), which is slightly higher than the estimated value (157,720 tCO_{2e}). Therefore KSA can conclude that the actual of emission reductions of 159,785tCO_{2e} are deemed reasonable.

Comparing with the expected emission reduction in the registered PDD, the emission reductions have been slightly increased during this monitoring period due to the increase of the BM factor which was expected as see the table 3-6.

Table 3-6 The expected and the actual Emission Reductions (ERs)

Subjects	Emission Reductions (ERs)	Remarks
Expected ERs	157,720 tCO_{2e}	315,440 tCO_{2e}/year × $\frac{6}{12}$ year = 157,720 tCO_{2e} BM = 0.47180 tCO_{2e}/MWh in the registered PDD.
Actual ERs	159,785 tCO_{2e}	New BM = 0.53312 tCO_{2e}/MWh

4. Survey on the Post Environmental Impacts

According to Annex 5 of the registered PDD, the project participants have monitored the post environmental impacts in 2013 in order to prevent the environmental impacts against unexpected

negative impact in accordance with Environmental Impact Assessment Act /1-30/.

KSA has reviewed "the Survey Report on the Post Environmental Impacts for 2013"/1-25/, the survey subjects have covered weather, topography geology, ocean geology, flora fauna, ocean environment and ocean physics which are required to monitor after the completion of construction for Sihwa tidal power plant.

KSA confirms that the project participants have appropriately monitored the post environmental impacts as per plans for survey on the post environmental impacts in the registered PDD and that there are no significant environmental impacts against unexpected negative impacts.

5. Post Registration Changes

5.1 Temporary Deviation from the registered Monitoring Plan and/or Monitoring Methodology

Not Applicable.

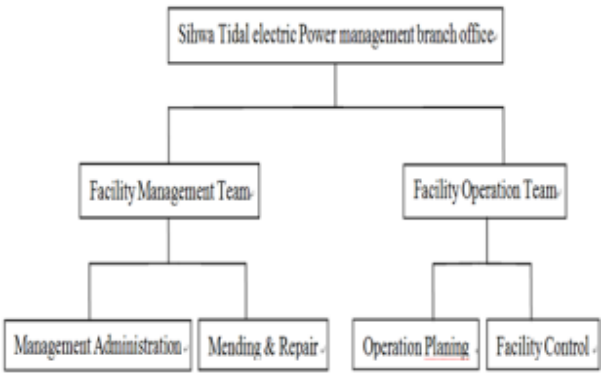
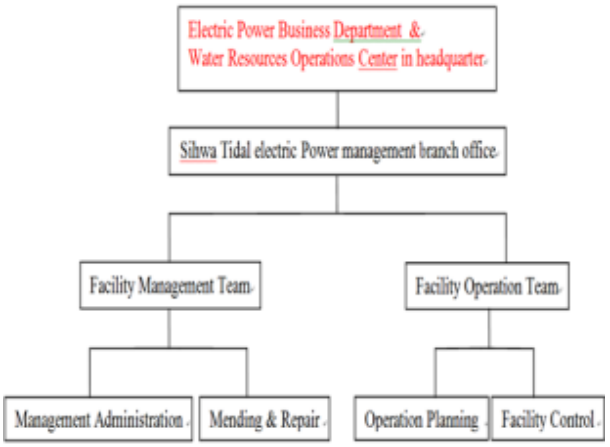
5.2 Corrections

5.2.1 Description of corrections

① Project participant's short name have been changed from "KOWACO" to "K-water" and reflected the relevant parts through the revised PDD.

② Operational and management structure at section D.4 of registered PDD have been changed as belows;

- "Electric Power Business Department & Water Resources Operation Center in headquarter" is added as a main body at <Figure 5> in the registered PDD..

Before correction	After correction
	

■ Responsible department and person for monitoring are revised considering the actual situation as following table.

Before correction	After correction
Responsible monitoring department : Sihwa tidal Electric power management branch office.	- Responsible department to measure the input-output electricity and maintain watt hour meters : Sihwa Tidal Electric power management branch office - Responsible department to collect and record electricity data and to calculate BM emission factor : Electric Power Business Department - Responsible department to check and correct the transmitted electricity by comparing the data of K-water and Korea Power Exchange : Water Resources Operations Center

③ The others

The others are caused by the changes in the VVS version (ver 7.0) of the form from VVM track.

5.2.2 Assessment of corrections

① Change from “KOWACO” to “K-water”

KSA have checked the K-water’s homepage (http://www.kwater.or.kr/1-27/ and the documents related the Register. KSA confirmed that PP is using K-water as an official name.

② Operational and management structure

KSA have checked K-water’s operational and management structure and interviewed the relevant personnel to assess the responsible department for monitoring.

KSA confirms that the corrected responsible department are reflected the actual operational and management structure for monitoring.

KSA confirms that PP’s name change and the correction for responsible department and persons do not affect the design of the project activity.

③ The others

KSA confirms that corrections of the others are caused by the changes in the form of VVS track from VVM track as belows.

VVS track	VVM track	Remarks
Cover	N/A	
A.1	A.2	
A.2.1	A.4.1.1	
A.2.2	A.4.1.2	
A.2.3	A.4.1.3	
A.2.4	A.4.1.4	
A.3	A.4.3, A.4.4.	

VVS track	VVM track	Remarks
A.4	A.3	
B.1	B.1	
B.2	B.1.1	
B.3	B.4	Sources of emissions are added
B.4	B.2	
B.5	B.3	
B.6.1	B.4	
B.6.2	B.2	
B.6.3	B.2, E.1, E.2, E.3, E.4, E.5	
B.6.4	E.6	
B.7.1	D.2.1, D.2.3, D.2.4, D.3	
B.7.2	N/A	
B.7.3	D.4	
B.7.4	B.5	
C.1	C.1.1	
C.2	C.2	
D.1	F.1	
D.2	F.2	
E.1	G.1	
E.2	G.2	
E.3	G.3	
F.	N/A	
Appendix 1	Annex 1	
Appendix 2	Annex 2	
Appendix 3	N/A	
Appendix 4	Annex 3	

5.3 Changes to the start date of the crediting period

Not Applicable.

5.4 Permanent changes from the registered monitoring plan or monitoring methodology

Not Applicable.

5.5 Changes to the project design of a registered project activity

Not Applicable.

6. REFERENCES

Category 1 Documents:

Documents provided by the Client that relate directly to the project.

1 - 01 Monitoring Report: Sihwa Tidal Power Plant CDM Project, first version 01 dated 22/05/2014, final version 02 dated 15/02/2014

1 - 02 The registered CDM Project Design Document: Sihwa Tidal Power Plant CDM Project. (version 04, dated 31/01/2013)

1 - 03 Emission Reduction Spreadsheet: Sihwa Tidal Power Plant CDM Project (first version 01 dated 22/05/2014, final version 02 dated 03/07/2014)

1 - 04 Build Margin (BM) Emission Factor for 2012

1 - 05 Certificate for Inspection prior to use (Generator No. 01 ~ Generator No. 10)

1 - 06 Single line diagram on the Sihwa tidal power plant

1 - 07 Report on the date of commencement of operation (dated 01/03/2012)

1 - 08 Completion Report for Sihwa Tidal Power Plant

1 - 09 Wet test plan on the hydro turbine (Period : from 28/03/2011 to 29/02/2012)

1 - 10 CDM Monitoring Manual (dated 09/11/2012)

1 - 11 Operation procedure on the Sihwa tidal power plant

1 - 12 Emergency Response Procedure on the Sihwa tidal power plant

1 - 13 Designation of CDM monitoring personnel of Sihwa tidal power plant..

1 - 14 Start up business notification to the government (Ministry of Knowledge Economy)

1 - 15 Personnel training records

1 - 16 Calibration Report on the Watt-hour meter for the export
- M1, M3 and M5 : main watt-hour on 01/11/2011
- M2, M4 and M6 : sub watt-hour on 01/11/2011

1 - 17 Exported electricity by Sihwa tidal power plant
17A KPX ERP System (e-power system)
17B Daily exported electricity Record
17C Hourly exported electricity record (raw data) by KPX
17D K-water ERP System
17F Log sheet for Sihwa tidal power plant dated 03/07/2014

1 - 18 Imported electricity by Sihwa tidal power plant
- KEPCO Webpage (http://pccs.kepco.co.kr)
- Electric Bill (from 01/10/2013 to 31/03/2014)

1 - 19 Statistics of Electric Power in Korea for 2012 (issued on May 2013)

1 - 20 Rules on the operation of electric utility market - KPX (http://www.kpx.or.kr)

1 - 21 Electric Utility Act

1 - 22 Measures Act

1 - 23 Korea Power Exchange (http://www.kpx.or.kr)

1 - 24 K-water's Integrated Generation Information System

1 - 25 Survey Report on the Post Environmental Impacts

1 - 26 Certificate of QMS and EMS

1 - 27 K-water's homepage (http://www.kwater.or.kr)

1 - 28 The status report of generation facility for 2012 by KPX (Issued on Jul 2013)

1 - 29 Energy Act

1 - 30 Environmental Impact Assessment Act

Category 2 Documents:

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

2 - 1 Validation Report - DNV: Sihwa Tidal Power Plant CDM Project (version 03), 28/02/2006

2 - 2 Assessment Opinion for Post Registration Changes - KTR : Sihwa Tidal Power Plant CDM Project, 28/06/2012

2 - 3 4th Verification Report - KSA: Sihwa Tidal Power Plant CDM Project

2 - 4 ACM0002 Consolidated methodology for grid-connected electricity generation from renewable sources (version 4)

2 - 5 CDM Validation and Verification Standard (Version 07.0)

2 - 6 Guidelines for completing the monitoring report form (Version 04.0)

2 - 7 Guideline on the application of materiality in verifications(Version 01.0), EB 69 Annex06

2 - 8 KSA CDM Manual

2 - 9 IPCC guideline on greenhouse gas inventories

Persons interviewed during the verification, or persons who contributed with other information that are not included in the documents listed above. The interviewed personnel were as follows:

Name	Organization	Position
Han-Il Kim	Sihwa Tidal Power Plant	Director
Jong-Deug Kim	Operation Team Sihwa Tidal Power Plant	General Manager
Kwang-Suk Ok	Operation Team Sihwa Tidal Power Plant	Manager
Jeong-Ho Kim	Operation Team Sihwa Tidal Power Plant	Assistant Manager
Yong-Ung Yoo	Electric Team Sihwa Tidal Power Plant	Assistant Manager
Deog-Je Kim	Electric Power Business Department	General Manager
Se-Jin Oh	Electric Power Business Department	Assistant Manager

Appendix A. Verification Protocol

Table 1 Verification Requirements Checklist based on the VVS

Table 2 Resolution of Corrective Action and Clarification Requests.

Table 1 Verification Requirements Checklist based on the VVS (Version 07.0)

<table>
<tr><th>Checklist Question</th><th>Ref.</th><th>MoV</th><th>Comments</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td colspan="6">0.1 Monitoring Report</td></tr>
<tr><td>0.1.1 Is each section of the Monitoring Report Form in accordance with the latest template and guidance by the CDM EB?</td><td>EB 75 Annex 7 (ver. 4.0)</td><td>DR</td><td>
<table>
<tr><th>Section</th><th>Compliance</th><th>Section</th><th>Compliance</th></tr>
<tr><td>Cover</td><td>OK</td><td>B.2.6</td><td>OK</td></tr>
<tr><td>A.1</td><td>OK</td><td>C</td><td>OK</td></tr>
<tr><td>A.2</td><td>OK</td><td>D.1</td><td>OK</td></tr>
<tr><td>A.3</td><td>OK</td><td>D.2</td><td>OK</td></tr>
<tr><td>A.4</td><td>OK</td><td>D.3</td><td>OK</td></tr>
<tr><td>A.5</td><td>OK</td><td>E.1</td><td>OK</td></tr>
<tr><td>A.6</td><td>OK</td><td>E.2</td><td>OK</td></tr>
<tr><td>B.1</td><td>OK</td><td>E.3</td><td>OK</td></tr>
<tr><td>B.2.1</td><td>OK</td><td>E.4</td><td>OK</td></tr>
<tr><td>B.2.2</td><td>OK</td><td>E.5</td><td>OK</td></tr>
<tr><td>B.2.3</td><td>OK</td><td>E.6</td><td>OK</td></tr>
<tr><td>B.2.4</td><td>OK</td><td>E.7</td><td>OK</td></tr>
<tr><td>B.2.5</td><td>OK</td><td>-</td><td>-</td></tr>
</table>
CL 01
It is not provided the information on the implementation status of project activity during monitoring period in the section B.1 of MR.

CL 02
Type of the crediting period in the section A.5 of MR are not appropriately addressed.

CL 03</td><td>OK
<s>CL 01</s>

OK
<s>CL 02</s></td><td>OK</td></tr>
</table>

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
			Some Tables in D.2 of MR were modified. Please refer to the para 5 of attachment in Monitoring Report Form (version 04). CL 04 PP is required to provide the explanation about the monitoring points indicated in Fig 2 of MR. CL 05 QA/QC procedures for EI_y in D.2 of MR are not appropriately explained. CL 06 The applied Monitoring Report Form is not the latest version.	OK ~~CL 03~~ OK ~~CL 04~~ OK ~~CL 05~~ OK ~~CL 06~~	
0.1.2 Has the Monitoring Report been made publicly available on UNFCCC CDM website in accordance with Project cycle procedure?	VVS 252, 253	DR	The Monitoring Report for Sihwa Tidal power plant was made available on the UNFCCC websiite on 28/05/2014.	OK	OK
0.2 Remaining Issues. /VVS 258/					
0.2.1 Have FARs identified during validation or previous verification been addressed by the project participants ?	VVS 258	DR	No., there is no FAR during the 4th verification stage and validation.	OK	OK
1. Compliance of the Project Implementation with the registered project design document.					
The DOE shall identify any concerns related to the conformity of the actual project activity and its operation with the registered PDD /VVS 271/					

<table>
<tr><th>Checklist Question</th><th>Ref.</th><th>MoV</th><th>Comments</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td>1.1 Has on-site assessment been conducted ?
If not, justify the rationale of the decision.</td><td>VVS 272</td><td>OSV</td><td>Yes, Please refer to the section 2.2 of this report.</td><td>OK</td><td>OK</td></tr>
<tr><td>1.2 Are all physical features of the project activity in the registered PDD in place ?</td><td>VVS 272</td><td>DR, OSV</td><td>During on site visit, the verification team has checked all physical features of the project activity against the registered PDD.
■ the technical specification of the project activity are as belows;
<table><tr><th>Subjects</th><th>Descriptions</th><th>Remarks</th></tr><tr><td>Rated Output</td><td>25.4MW × 10 Units</td><td>254MW</td></tr><tr><td>Bulb Diameter</td><td>8.2m</td><td></td></tr><tr><td>Runner Diameter</td><td>7.5m</td><td></td></tr><tr><td>Rated head Drop</td><td>5.82m</td><td></td></tr></table>- Actual capacities are based on the "Certificate for inspection prior to operation"/1-5/.
- Specification for technology has been checked by the "nameplate" and "Single line diagram on the Sihwa tidal power plant"/1-6/</td><td>OK
~~Pending~~</td><td>OK</td></tr>
<tr><td>1.3 Have the project participants operated the project activity as per the registered PDD or any approved revised PDD ?</td><td>VVS 272</td><td>DR, OSV</td><td>Yes, the project activity has been operated in accordance with the project activity described in the registered PDD.
■ the status of implementation and stating date of operation</td><td>OK
~~Pending~~</td><td>OK</td></tr>
</table>

<table>
<tr><th>Checklist Question</th><th>Ref.</th><th>MoV</th><th>Comments</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Subjects</th><th>Descriptions</th></tr>
<tr><td>Construction Period</td><td>31/12/2004 ~14/11/2011</td></tr>
<tr><td>Starting date of operation</td><td>13/04/2011</td></tr>
<tr><td>Commissioning period</td><td>28/03/2011 ~ 29/02/2012</td></tr>
<tr><td>Starting date of commercial operation</td><td>01/03/2012</td></tr>
<tr><td>Continued Operation</td><td>13/04/2011</td></tr>
<tr><td>1st monitoring period</td><td>01/07/2011~ 31/03/2012</td></tr>
<tr><td>2nd monitoring period</td><td>01/04/2012 ~31/10/2012</td></tr>
<tr><td>3rd monitoring period</td><td>01/11/2012 – 31/03/2013</td></tr>
<tr><td>4th monitoring period</td><td>01/04/2013 – 30/09/2013</td></tr>
<tr><td>5th monitoring period</td><td>01/10/2013 ~ 31/03/2014</td></tr>
</table>
Following documents are reviewed to check the status of implementation and stating date of operation
- the construction completion report on Sihwa tidal power plant./1-08/
- Report on the date of commencement of operation/1-07/.
- Status board for Sihwa tidal power plant</td><td></td><td></td></tr>
<tr><td>1.4 If the project activity consist of more than one site, has the monitoring report provide the status of implementation and starting date of operation for each site ?</td><td>VVS 273</td><td>DR</td><td>The project activity is only one site.</td><td>OK
~~Pending~~</td><td>OK</td></tr>
</table>

<table>
<tr><th>Checklist Question</th><th>Ref.</th><th>MoV</th><th>Comments</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td colspan="6">2. Compliance of the monitoring plan with the monitoring methodology including applicable tool(s) and the standardized baseline.</td></tr>
<tr><td colspan="6">The DOE shall determine whether the monitoring plan of the project activity is in accordance with the applied methodology including appliable tool(s) and the applied standardized baseline /VVS 274/</td></tr>
<tr><td>2.1 Is it the validated monitoring plan in accordance with the applied methodology including applicable tool(s) and the applied standardized baseline ?</td><td>VVS 274</td><td>DR</td><td>Yes.
The validated monitoring plan in accordance with the approved methodology (ACM0002 version 04)/2-4/ has been applied by this project activity.</td><td>OK
<s>Pending</s></td><td>OK</td></tr>
<tr><td>2.2 Is the project implementation in accordance with the provisions of the registered PDD and/or an approved revised PDD ?</td><td>VVS 275</td><td>DR</td><td>Yes.</td><td>OK</td><td>OK</td></tr>
<tr><td>2.3 List up all monitoring parameters required in the applied methodology and tools.</td><td>VVS 139(a)</td><td>DR</td><td>
<table>
<tr><th rowspan="2">No.</th><th rowspan="2">Parameter in the methodology</th><th rowspan="2">Applicability</th><th colspan="2">Determination</th><th rowspan="2">Remarks</th></tr>
<tr><th>PDD</th><th>MR</th></tr>
<tr><td colspan="6">ACM0002 (version 04) Consolidated methodology for grid-connected electricity generation from renewable.</td></tr>
<tr><td rowspan="2">1</td><td rowspan="2">EG_y</td><td rowspan="2">Measured</td><td rowspan="2">EG_y^*</td><td>EG_y</td><td>Export</td></tr>
<tr><td>EI_y</td><td>Import</td></tr>
<tr><td>2</td><td>EF_y</td><td>Calculated</td><td>EF_y</td><td>EF_y</td><td></td></tr>
<tr><td>3</td><td>$EF_{OM,y}$</td><td>fixed value</td><td>$EF_{OM,y}$</td><td>$EF_{OM,y}$</td><td></td></tr>
<tr><td>4</td><td>$EF_{BM,y}$</td><td>Annual update (option 2)</td><td>$EF_{BM,y}$</td><td>$EF_{BM,y}$</td><td></td></tr>
</table>
EG_y^* in the registered PDD was defined as “Electricity transmission except Electricity consumed in the plant”. But PP has added EI_y in the MR to identify the imported</td><td>OK</td><td>OK</td></tr>
</table>

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
			electricity from the grid. Thus EG_y^* is as below; $EG_y^* = EG_y - EI_y$ Where EG_y^* : the net electricity supplied to the grid by PA EG_y : the electricity supplied to the grid by PA EI_y : the electricity imported from the grid		
2.4 Does the monitoring plan contain all necessary parameters ?	VVS 139(a)	DR	Yes, monitoring plan contained all necessary parameters to calculate the emission reduction.	OK	OK
2.5 To assess the compliance of monitoring plan with monitoring methodology(ies), what documents and evidences have been reviewed ?	VVS 139(a)	DR	Verification team have reviewed the following documents to assess the compliance of monitoring plan. - Applied methodology ACM 0002 (version 04) - Monitoring plan in the registered PDD	OK	OK
2.6 Assess the quality and the appropriateness of the documents and evidences listed above.	VVS 139(a)	DR	OK. - Methodology ACM 0002 : standard level - Monitoring plan in the registered PDD : approved document	OK	OK
2.7 In the applied methodology and/or methodological tools, are there any specific requirements applied to each monitoring parameter ?	VVS 139(a)	DR	Parameter EG_y is commented as below in the methodology, ACM 0002 (version 02) EG_y(electricity supplied to the grid by the project) - hourly measurement and monthly recording - proportion of data monitored : 100% - Electricity supplied by the project activity to the grid. Double check by receipt of sales.	OK	OK
2.8 Are there any applicable requirements in the latest	VVS	DR	No.	OK	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
version of “General guidelines to SSC CDM methodologies”, “CDM project standard“ and other procedures/guidelines ?	159(b)	OSV			
2.9 As a result, does the means of monitoring described in the plan comply with the requirements of the methodology ?	VVS 275	DR	Yes, monitoring plan described in the monitoring report is in accordance with the applied methodology ACM 0002 (ver 04)	OK	OK
2.9 Are there any monitoring aspects that are not specified in the methodology, particularly in the case of small scale methodologies (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)?	VVS 276	DR OSV	The monitoring parameters is specified in the approved methodology and monitoring frequency and calibration frequency is not specified in the applied methodology. But calibration frequency for watt-hour meter are described in the monitoring plan of the registered PDD/1-2/ as bleows. - Monitoring frequency : continuously measured hourly recorded - Calibration frequency: every 2 years for export watt-hour meter	OK ~~Pending~~	OK
▪ If yes, is it brought to the attention of the CDM EB issues which may contribute in enhancing the level of accuracy and completeness of the monitoring plan.	VVS 276	DR	Not applicable.	OK	OK
3. Compliance of the monitoring activities with the registered monitoring plan					
The DOE shall determine whether the monitoring of parameters related to the GHG emissions reductions in the project activity has been implemented in accordance with the monitoring plan contained in the registered PDD or any accepted revised monitoring plan. /VVS 278/					
3.1 Has the monitoring of parameters related to the GHG emissions reductions in the project activity been implemented in accordance with the	VVS 278	DR OSV	Yes, the monitoring parameter is the net electricity produced by the project activity (tidal power plant). It is implemented in accordance with the monitoring plan.	OK	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
monitoring plan contained in the registered PDD or any accepted revised monitoring plan ?					
3.2 Has the monitoring plan been properly implemented and followed by the project participants ?	VVS 279(a)	DR, OSV	Yes, the monitoring plan has been properly implemented and followed by the project activity.	OK	OK
3.3 Have all parameters stated in the monitoring plan and relevant Board decisions been sufficiently monitored and updated as applicable, including ;	VVS 279(b)	DR OSV	See belows	OK ~~Pending~~	OK
▪ Project emission parameters ?	VVS 279(b)	DR	Yes. As per ACM0002 (Version 04)/2-4/, project emissions of the renewable energy (tidal power) project is zero. Thus, PEy = 0 tCO_{2-e}.yr	OK	OK
▪ Baseline emission parameters ?	VVS 279(b)	DR OSV	EG_y^*, the net electricity supplied to the grid by the project activity, is used for the baseline emission calculation. Electricity transmission except electricity consumed in the plant. The parameter to be monitored are EG_y^* (the net electricity supplied to the grid by the project. To check the exported electricity amount, following records have been checked; - KPX ERP System (e-power system) /1-17A/ - Daily exported electricity record /1-17B/ - Hourly exported electricity Record /1-17C/ - K-water ERP System /1-17D/	OK ~~Pending~~	OK OK

<table>
<tr><th>Checklist Question</th><th>Ref.</th><th>MoV</th><th>Comments</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td></td><td></td><td></td><td>
- Excel sheet for Sihwa tidal power plant dated on 03/07/2014 /1-17F/

The imported electricity amount was checked through the electric bill by KEPCO /1-18/ and KEPCO's webpage (http://pccs.kepco.co.kr)

[Table] Electricity generated and imported by project activity
Unit : kWh
<table>
<tr><th>Period</th><th>Exported (EG_y)</th><th>Imported (EI_y)</th><th>Net</th></tr>
<tr><td>Oct 2013</td><td>41,118,618</td><td>327,600</td><td>40,791,018</td></tr>
<tr><td>Nov 2013</td><td>39,019,556</td><td>317,040</td><td>38,702,516</td></tr>
<tr><td>Dec 2013</td><td>41,716,875</td><td>332,640</td><td>41,384,235</td></tr>
<tr><td>Jan 2014</td><td>44,079,216</td><td>327,600</td><td>43,751,616</td></tr>
<tr><td>Feb 2014</td><td>37,022,482</td><td>286,548</td><td>36,735,934</td></tr>
<tr><td>Mar 2014</td><td>44,000,282</td><td>317,652</td><td>43,682,630</td></tr>
<tr><td>Total</td><td>246,957,029</td><td>1,909,080</td><td>245,047,949</td></tr>
</table>
EG_y^* = 245,047.95 MWh
EF_y = 0.65206 $tCO_{2\text{-}e}$/MWh
$BE_y = EG_y^* \times EF_y$
= 245,047.95 MWh × 0.65206 tCO_2/MWh
= 159,785.97 tCO_2
≒ 159,785 tCO_2
</td><td>OK
~~Pending~~</td><td></td></tr>
</table>

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
▪ Leakage parameters ?	VVS 279(b)	DR	Yes. As per ACM0002 (Version 04)/2-4/, leakage emissions are not required to consider these emission sources as leakage in applying ACM 0002 methodology. Thus, LEy = 0 tCO_2.yr	OK	OK
▪ Management and operation system; the responsibility and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the monitoring plan ?	VVS 279(b)	DR OSV	Yes. - To check the management and operation system, the following documents are reviewed. ◦ CDM monitoring manual /1-10/ ◦ Operation procedure on the Sihwa tidal power plant /1-11/ ◦ Emergency response procedure on the Sihwa tidal power plant /1-12/ ◦ Designation of CDM monitoring personnel of Sihwa tidal power plant 1-13/ ◦ Personnel training records /1-15/ - Above mentioned documents have covered the following; ◦ The responsibility and authorities of power plant ◦ Personnel training records /1-15/ for CDM monitoring manager ◦ Procedures on the monitoring and reporting for generated electricity by the project ◦ Data collecting, archiving ◦ Management for watt-hour meter - Monitoring equipments are properly managed as per the relevant requirement, "Measures Act"/1-22/, Electric Utility	OK	OK

<table>
<tr><th>Checklist Question</th><th>Ref.</th><th>MoV</th><th>Comments</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td></td><td></td><td></td><td>Act /1-21/ and "Rules on the operation of electric utility market"/1-20/ - KPX (http://www.kpx.or.kr) in Korea.
- The amount of electricity supplied to the grid by project activity is measured by watt-hour meter and electronically recorded by the PP's ERP system and also simultaneously send to Korea Power Exchange(KPX; http://www.kpx.or.kr).
- The established operation and maintenance system are appropriately implemented by PP.

KSA verified through documents and records and satisfied.</td><td></td><td></td></tr>
<tr><td>3.3.1 Does monitoring report and supplementary documents provide measured values for all monitoring parameters ? Summarize here.</td><td>VVS 281</td><td>DR
OSV</td><td>
<table>
<tr><th>No.</th><th>Parameter</th><th>Monitored value</th><th>Remarks</th></tr>
<tr><td>1</td><td>EG_y^*</td><td>245,047,949kWh</td><td>$EG_y^* = EG_y - EI_y$
(Refer to section 3.3)</td></tr>
<tr><td>1-1</td><td>EG_y</td><td>246,957,029kWh</td><td>Exported electricity
(Refer to section 3.3)</td></tr>
<tr><td>1-2</td><td>EI_y</td><td>1,909,080kWh</td><td>Imported electricity
(Refer to section 3.3)</td></tr>
<tr><td>2</td><td>$EF_{BM,y}$</td><td>0.65206tCO$_2$/MWh</td><td>BM Emission factor
(Refer to section 5.5)</td></tr>
</table>

The documents related to evidence are below;
EG_y: KPX ERP System (e-power system) /1-17A/
EI_y: the electric bill by KEPCO /1-18/
$EF_{BM,y}$: Statistics of electricity power in Korea for 2013 /1-19/</td><td>OK
~~Pending~~</td><td>OK</td></tr>
</table>

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
3.3.2 To assess the suitability and accuracy of monitoring data, what documents and evidences have been reviewed for each parameter ? List them here.	VVS 139(b)	DR OSV	Exported electricity 1. Excel spreadsheet for electricity export which provides the hourly amount of electricity supplied to the grid. 2. Information system for electricity generation Imported electricity 1. iSMART webpage that provided monthly amount of the imported electricity 2. Monthly bills for the imported electricity.	OK ~~Pending~~	OK
3.3.3 In the applied methodology and/or methodological tools, are there any specific requirements applied to each monitoring parameter ?	VVS 139(a)	DR	N/A	OK	OK
3.3.4 Are there any applicable requirements in the latest version of “General guidelines to SSC CDM methodologies”, “CDM project standard” and other procedures/guidelines ?	VVS 159	DR	N/A	OK	OK
3.3.5 As a result, does the means of monitoring described in the plan comply with the requirements of the methodology ?	VVS 278	DR OSV	Yes.	OK ~~Pending~~	OK
3.4.1 Is the equipment used for monitoring in accordance with section 4 ?	VVS 279(c)	DR OSV	Please refer section 4.2	OK ~~Pending~~	OK
3.4.2 Is the equipment used for monitoring controlled and calibrated in accordance with the monitoring plan, the applied methodology, the Board	VVS 279(c)	DR OSV	Yes, watt-hour meters used for monitoring are in accordance with the calibration frequency requirements and controlled and calibrated in accordance with the monitoring plan	OK ~~Pending~~	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
guidance, local/national standards, or as per the manufacturer's specification ?					
3.5 Are monitoring results consistently recorded as per approved frequency ?	VVS 279(d)	DR OSV	▪ The generated electricity by project activity supplied to the grid are continuously measured by watt-hour meter. ▪ The measured data are simultaneously transferred to PP and Korea Power Exchange (KPX) ▪ The measured amount of electricity is collected daily, weekly and monthly archived in the electronic storage systems of Korea electricity generation system.	OK ~~Pending~~	OK
3.6 Have QA/QC been applied in accordance with the monitoring plan or revised monitoring plan ?	VVS 279(e)	DR, OSV	Yes. The QA/QC procedures are established and maintained by the QMS/EMS. /1-26/	OK	OK
4. Compliance with the calibration frequency requirements for measuring instruments					
The DOE shall determine whether the calibration of those measuring equipments that have an impact on the claimed emission reductions is conducted by the project participants at a frequency specified in the applied monitoring methodology and/or the monitoring plan /VVS 237/					
4.1 Have all measuring equipments been correctly calibrated in accordance with registered monitoring plan or revised monitoring plan ?	VVS 282	DR OSV	Yes, Calibration frequency in monitoring plan is specified at the monitoring plan in the registered PDD as below - Export watt-hour meter : every 2 years - Import watt-hour meter : every 7 years The exporting watt-hour meters have not been calibrated within the calibration frequency specified in the monitoring plan.	OK ~~CAR 01~~	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
			CAR 01 The calibration validity period for the exporting watt-hour meter stated in the MR are not effect. And according to the calibration record submitted during site visit, the calibration has been delayed from 31/10/2013 to 24/11/2013. Watt-hour meters for import electricity are not under PP's control but KEPCO's control. And those are managed in accordance with the local act "Measures Act". During on-site assessment, verification team have verified that the serial number of all meters identification to the numbers in the records.		
4.2 If neither the monitoring methodology nor the monitoring plan specify any requirements for calibration frequency for measuring equipments, have measuring equipments been calibrated in accordance with local/national standard or manufacture's specification ? If both are not available, international standard may be sued.	VVS 287	DR	Not applicable. Please refer the section 4.2 above	OK	OK
4.3 In cases where the results of the delayed calibration are not available, or the calibration has not been conducted at the time of verification, prior to finalizing verification, has the project participants been requested to	VVS 285	DR	Not applicable. Please refer the section 4.2 above	OK	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
conduct the required calibration ?					
4.5 In case that it is not possible the project participants to conduct the calibration at a frequency specified by either the applied methodology, guidance provided by the Board, and/or the registered monitoring plan due to reasons beyond the control of project participants, have the requirements for post registration changes in section 9.5 of VVS been followed ?.	VVS 286	DR	Not applicable. Please refer the section 4.2 above	OK	OK
4.6 If the calibration has been delayed and implemented after monitoring period in consideration (i.e. the results of delayed calibration are available), is the conservative approach described below adopted in the calculation of emission reductions?	VVS 283	DR OSV	Please refer the CAR 01. The calibration of the export watt-hour meters were conducted as belows; ① Export Watt-hour meter ▪ Main meter ; S/N : PT-0909A407-01, PT-0909A408-01, PT-0909A409-0 All of three main watt-hour meters have been calibrated on 25/11/2014 were confirmed through the calibration report/1-16/. Sub meter : S/N : 53048162, 53048163, 53048164 All of three sub watt-hour meters have been calibrated on 25/11/2014 were confirmed through the calibration report/1-16/. ▪ Terms of Validity : 01/11/2011 ~ 31/10/2013 ※ Those send watt-hour meters are re-calibrated on 25/11/2013.	OK ~~Pending~~	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
			∴ KSA confirmed that calibration for watt-hour meters were delayed from 31/10/2013 to 24/11/2013 and the generated electricity for the corresponding period were adjusted as per 9.4.4 of VVS. (Refer the CAR 01) ② Import Watt-hour meter ▪ S/N : 9000071, 9000072, 9000073, 2510200171 ▪ Date of Manufacturing : Oct 2010 for first three meters and Nov 2010 for the last one (Terms of Validity : Oct 2010 ~ Sep 2017 for the first three and Nov 2010 ~ Oct 2017 for the last one)		
▪ Applying the maximum permissible error of the instrument to the measured values taken during the period between the scheduled date of calibration and the actual date of calibration, if the results of the delayed calibration do not show any eorrors in the measuring equipment, or if the error is smaller than the maximum permissible error, or	VVS 283(a)		N/A	OK	OK
▪ Applying the error identified in the delayed calibration test, if the error is beyond the maximum permissible error of the measuring equipement.	VVS 283(b)		N/A	OK	OK
4.6 In case of delayed calibration, has the error been applied ? ▪ In a conservative manner, the adjusted measured	VVS 284	DR	Not appliable. Please refer the section 4.2 above	OK	OK

<table>
<tr><th>Checklist Question</th><th>Ref.</th><th>MoV</th><th>Comments</th><th>Draft Concl.</th><th>Final Concl.</th></tr>
<tr><td>values of the delayed calibration shall result in fewer claimed emission reductions.
▪ For all measured values taken during the period between the scheduled date of calibration and the actual date of calibration.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">5. Assessment of data and calculation of emission reductions.</td></tr>
<tr><td colspan="6">The DOE shall assess the data and calculation of GHG emission reductions achieved by/resulting from the project acitivty by the application of the selected approved methodology. /VVS 244/</td></tr>
<tr><td>5.1 Are the data and calculations of GHG emission reductions achieved by/resulting from the project activity by the application of the selected approved methodology assessed ?</td><td>VVS 289</td><td>DR</td><td>Yes.</td><td>OK</td><td>OK</td></tr>
<tr><td>5.2 Is a complete set of data for the specified monitoring period is available ?</td><td>VVS 290(a)</td><td>DR
OSV</td><td>Yes, the complete set of data for this monitoring period is available.
<table>
<tr><th>No.</th><th>Parameter</th><th>Complete or Not</th><th>Remarks</th></tr>
<tr><td>1</td><td>EG_y^*</td><td>complete</td><td>EG_y- EI_y</td></tr>
<tr><td>1-1</td><td>EG_y</td><td>complete</td><td>Export</td></tr>
<tr><td>1-2</td><td>EI_y</td><td>complete</td><td>Import</td></tr>
<tr><td>2</td><td>$EF_{BM,y}$</td><td>complete</td><td>Build Margin Emission factor</td></tr>
</table></td><td>OK
~~Pending~~</td><td>OK</td></tr>
<tr><td>▪ Identify what source of data have been utilized in the emission reduction calculation.</td><td></td><td>DR
OSV</td><td>For the exported electricity, KPX database was used and the PP's ERP system was used for cross-check.
For the imported electricity, KEPCO's record were used and iSMART was cross-check.</td><td>OK
~~Pending~~</td><td>OK</td></tr>
</table>

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
▪ Assess quality and appropriateness of each set of data.		DR OSV	KPX's database is controlled under the Korean government. KEPCO's record is used for electric billing system. Thus both value are reliable.	OK ~~Pending~~	OK
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, either CAR shall be raised for the project participants to comply with the requirements of appendix 1 of the Project standard, or a request for deviation shall be submitted prior to submitting request for issuance.	VVS 290(a)	DR	Not applicable. Please refer the section 5.2 above.	OK	OK
5.3 Has information provided in the monitoring report been cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis ?	VVS 290(b)	DR OSV	Yes, The generated electricity were cross-checked with the electricity sales receipts. Also the electricity sales receipts can be checked on the KPX websites (http://www.kpx.or.kr) The imported electricity were cross-checked with the electric bill of KEPCO. Also the electric bill can be checked on the KEPCO websites (http://www.kepco.co.kr)	OK ~~Pending~~	OK
5.4 Have calculations of baseline emissions, and project activity emissions and leakage, as appropriate, been carried out in accordance with	VVS 290(c)	DR, OSV	As per ACM0002 (Version 04)/2-4/, the baseline emission of project activity are calculated as belows; $BE_y = EG_y \times EF_y$ = 247,049.95 MWh × 0.65206 ton$CO_{2\text{-}e}$/MWh		OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
the formulae and methods described in the monitoring plan and the applied methodology document ?			= 159,785.97 ton$CO_{2\text{-}e}$ ≒ 159,785 ton$CO_{2\text{-}e}$ where, BE_y : Baseline Emissions EG_y: the net amount of electricity supplied to the grid (EG_y in MWh) ※ Export - Import = 246,957.03 MWh - 1,909.08 MWh = 247,049.95 MWh EF_y : the emission factor (EF_y in tCO_{2e}/MWh) EF_y is calculated using OM & BM as 0.65206tCO_{2e}/MWh EF_{OM} is ex-ante in the registered PDD as 0.77100tCO_{2e}/MWh EF_{BM} is calculated as 0.53312 tCO_{2e}/MWh According to ACM0002., for renewable energy (tidal power) project activity, project emissions and leakage emissions are zero. $ER_y = BE_y - PE_y - LE_y = BE_y - 0 - 0 = BE_y$	OK ~~Pending~~	
5.5 Have any assumptions used in emission calculations been justified ?	VVS 290(d)	DR	No. There are no assumptions in emission calculations.	N/A	OK
5.6 Have appropriate emission factors, IPCC default values and other reference values been correctly applied ?	VVS 290(e)	DR	Yes. The baseline emission factor has been calculated as 0.65206tCO_{2e}/MWh and correctly applied.	OK	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
5.6 For a registered CDM project activity using an approved standardized baseline that standardizes baseline emissions, are the standardized value(s) of the parameters applied using the correct version of the applied standardized baseline in accordance with the Project standard.	VVS 290(f)	DR	N/A	OK	OK

Table 2 Resolution of Corrective Action and Clarification Requests

<table>
<tr><th>No. of CAR/CL</th><th>Description of the CAR/CL</th><th>Ref.</th><th>Comments/Response from project proponent</th><th>Conclusions</th></tr>
<tr><td>CAR 01</td><td>The calibration validity period for the exporting watt-hour meter stated in the MR are not effect. And according to the calibration record submitted during site visit, the calibration has been delayed from 31/10/2013 to 24/11/2013.</td><td>4.1</td><td>The watt-hour meters for electricity sent to grid were calibrated 25 days late(from 31/10/2013 to 24/11/2013.
so the net electricity transmitted to the grid was calculated by subtracting the product of original transmitted electricity during the relevant period by maximum allowable error rate of 0.2% from original transmitted electricity
- Net electricity generation : 245,124,220kWh → 245,047,949kWh
- Total GHG emission reduction : 159,835tCO_2e→ 159,785tCO_2e</td><td>Acceptable.
The calibration have been delayed and the results of delayed calibration are available. The errors are smaller than the maximum permissible error (±0.2%). Thus, the emission reductions from 31/10/2013 to 24/11/2013 are adjusted as belows;
① The generated electricity by PA during the delayed period.
Unit: kWh
<table><tr><th>Measured</th><th>Deducted</th><th>Adjusted</th></tr><tr><td>38,135,484</td><td>76,271</td><td>38,059,213</td></tr></table>
② The emission reduction by PA during the delayed period.
Unit: tCO_{2eq}
<table><tr><th>Measured</th><th>Deducted</th><th>Adjusted</th></tr><tr><td>24,866.62</td><td>49.73</td><td>24,816.89</td></tr></table>
③ Total
▪ The generated electricity by PA during monitoring period.
245,124,220 → 245,047,949kWh
▪ The emission reduction by PA during monitoring period.
159,835 → 159,785 tCO_{2eq}
Thus, CAR 01 is checked and satisfied.
CAR 01 is closed.</td></tr>
</table>

No. of CAR/CL	Description of the CAR/CL	Ref.	Comments/Response from project proponent	Conclusions
CL 01	It is not provided the information on the implementation status of project activity during monitoring period in the section B.1 of MR.	0.1.1	PP(Project participant) revised the monitoring report and added the information on the implementation status of project activity during this monitoring period. - The project was under normal and continued operation status.	Acceptable PP has described the information on the implementation status of PA in section B.1 of MR. The descriptions are correct and appropriate. Thus, CL 01 is checked and satisfied. CL 01 is closed.
CL 02	Type of the crediting period in the section A.5 of MR are not appropriately addressed.	0.1.1	PP(Project participant) revised the monitoring report. - Type of the crediting period : Renewable crediting period	Acceptable PP has appropriately revised the type of the crediting period. The results are reflected at section A.5 of MR. Thus, CL 02 is checked and satisfied. CL 02 is closed.
CL 03	Some Tables in D.2 of MR were modified. Please refer to the para 5 of attachment in Monitoring Report Form (version 04).	0.1.1	PP(Project participant) revised the table in D.2.	Acceptable PP has appropriately revised the tables in D.2 of MR. The results are reflected at section D.2 of MR. Thus, CL 03 is checked and satisfied. CL 03 is closed.
CL 04	PP is required to provide the explanation about the monitoring points indicated in Fig 2 of MR.	0.1.1	PP(Project Participant) added the explanation in C. - the number, type and accuracy range of meters	Acceptable PP has appropriately described the monitoring points indicated in Fig 2 of MR. The results are reflected at section C of MR Thus, CL 04 is checked and satisfied. CL 04 is closed.

No. of CAR/CL	Description of the CAR/CL	Ref.	Comments/Response from project proponent	Conclusions
CL 05	QA/QC procedures for EI_y in D.2 of MR are not appropriately explained.	0.1.1	PP(Project participant) revised the monitoring report.	Acceptable PP has appropriately revised the QA/QC procedures for the imported electricity (EI_y). The results are reflected at section D.2 of MR Thus, CL05 is checked and satisfied. CL05 is closed.
CL 06	The applied Monitoring Report Form is not the latest version.	0.1.1		Acceptable PP has applied the latest Monitoring Report Form. Thus, CL06 is checked and satisfied. CL06 is closed.

APPENDIX B

CERTIFICATE OF COMPETENCE

KSA

CDM Validator/Verifier Certificate

Kyoo-Il Sohn

Certificate No. : CDM-001

Technical Area : 13.1

Korean Standards Association hereby certifies that the above person is qualified by KSA's Qualification requirements to conduct validation and verification for CDM and GHG project.

VALID FROM	VALID UNTIL
2014.01.21	2017.01.20

PRESIDENT OF KSA

Chang Ryong Kim

KOREAN STANDARDS ASSOCIATION

13F, Ace High-end Tower 3, 371-50, Gasan-dong, Gwumcheon-gu, Seoul, Korea

KSA

CDM Validator/Verifier Certificate

Won-Cheol Han

Certificate No. : CDM-021

Technical Area : -

Korean Standards Association hereby certifies that the above person is qualified by KSA's Qualification requirements to conduct validation and verification for CDM and GHG project.

VALID FROM	VALID UNTIL
2012.10.02	2015.10.01

PRESIDENT OF KSA

Chang Ryong Kim

KOREAN STANDARDS ASSOCIATION

13F, Ace High-end Tower 3, 371-50, Gasan-dong, Gwumcheon-gu, Seoul, Korea

KSA

Technical Expert Certificate

Chung-kook Lee

Certificate No. : CDM-013

Technical Area : 1.2, 2.1, 2.2, 3.1

Korean Standards Association hereby certifies that the above person is qualified by KSA's Qualification requirements to conduct validation and verification for CDM and GHG project.

VALID FROM	VALID UNTIL
2013.09.20	2016.09.19

PRESIDENT OF KSA

Chang Ryong Kim

KOREAN STANDARDS ASSOCIATION

13F, Ace-Highend Tower 3, Gasan-Dong, Geumcheon-Gu, Seoul, Korea

KSA

GHG Validator/Verifier Certificate

Seung-Keun Choi

Certificate No. : CDM-015

Technical Area : -

Korean Standards Association hereby certifies that the above person is qualified by KSA's Qualification requirements to conduct validation and verification for CDM and GHG project.

VALID FROM	VALID UNTIL
2014.01.21	2017.01.20

PRESIDENT OF KSA

Chang Ryong Kim

KOREAN STANDARDS ASSOCIATION

13F, Ace-Highend Tower 3, Gasan-Dong, Geumcheon-Gu, Seoul, Korea

KSA

CDM Validator/Verifier Certificate

Chan-Sik Yun

Certificate No. : CDM-006

Technical Area : 1.2, 2.1, 2.2, 3.1

Korean Standards Association hereby certifies that the above person is qualified by KSA's Qualification requirements to conduct validation and verification for CDM and GHG project.

VALID FROM	VALID UNTIL
2013.09.20	2016.09.19

PRESIDENT OF KSA

Chang Ryong Kim

KOREAN STANDARDS ASSOCIATION

13F, Ace High-end Tower 3, 371-50, Gasan-dong, Gwumcheon-gu, Seoul, Korea