
VALIDATION OPINION

For Revision of Monitoring Plan (Rev. 3)

**"Gochang Solarpark 14.98MW Photovoltaic Power Plant
Project" in Korea**
(UNFCCC Registration No. : 3009)

Report No. CDM-11-009

KSA KOREAN
STANDARDS
ASSOCIATION

Project No.	Date of first issue :	Revision No.	Revision Date
CDM-11-009	19 Jan 2012	03	26 Mar 2012
Project Title : Gochang Solarpark 14.98MW Photovoltaic Power Plant Project			

Executive Summary of the Validation Opinion on a revision in the monitoring plan

Gochang Solarpark Co.,Ltd has commissioned the Korean Standards Association (KSA) to carry out the validation on the revision of monitoring plan according to "Procedures for revising monitoring plans in accordance with paragraph 57 of the modalities and procedures for the CDM".

The initial monitoring plan was a part of the registered PDD "Gochang Solarpark 14.98MW Photovoltaic Power Plant Project" (UNFCCC reference no. 3009). This revision of the monitoring plan covers the change of measurement method and QA/QC procedures and the supplement of monitoring point.

The applied requirements for validation on a revision in the monitoring plan depend on "the CDM modalities and procedures" and "the subsequent decisions by the CDM Executive Board". A risk based approach was taken to conduct the validation and corrective action request and clarifications were raised for relevant actions by the project participant.

The review of the proposed revision of the monitoring plan and the subsequent follow-up interviews have provided KSA with sufficient objective evidence to determine the fulfillment of the stated criteria.

In summary, it is that KSA's opinion on the proposed revision of monitoring plan meets all relevant UNFCCC requirements for the monitoring plan and correctly applied the monitoring methodology AMS-I.D (version 13). Hence, KSA requests the revision of the monitoring plan for the "Gochang Solarpark 14.98MW Photovoltaic Power Plant Project"

Project Participant: Gochang Solarpark Co.,Ltd		Applied Methodology/Version : AMS-I.D. version 13
		Scope(s) : 1 Technical Area(s) : 1.2
Team Leader Seungkeun Choi Team Member Kyoo-II Sohn Kyoo-II Kim	Management of DOE : Yong-Hwan Kim	Initial Version of PDD Date of issuance: N/A Version No. : N/A
		Final Version of PDD Date of issuance: N/A Version No. : N/A

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Appendix A Validation Protocol for the revision of monitoring report.

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CL	Clarification Request
CO₂	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
KEPCO	Korea Electric Power Corporation
KPX	Korea Power Exchange
KSA	Korean Standards Association
MP	Monitoring Plan
PDD	Project Design Document
PP	Project Participants
SSC	Small-scale
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

1. INTRODUCTION

1.1. Objective

During verification activity for 1st crediting period of "Gochang Solarpark 14.98MW Photovoltaic Power Plant Project" in Korea (hereafter the project), KSA verification team found followings that shows monitoring plan in the registered PDD is not consistently/completely described:

- (i) PDD B.7.1 shows that the PP declared the variable EG_y (net electricity generation) would be measured by reading watt-hour meter, which means a bi-directional meter would be installed. But, B.7.2 described that separate meters would be installed to measure import power. Furthermore, as per the worksheet attached to the monitoring report, the PP calculated the value EG_y , not measured as addressed in B.7.1.
- (ii) The PP stated in B.7.1 that allowance margin of measurement error would be controlled within $\pm 0.5\%$. During on-site assessment, verification team identified accuracy of the import power meter was 1.0s, which has $\pm 1.0\%$ error.
- (iii) The PP addressed in the PDD that monitoring data would be kept for 2 years after crediting period on page 25, and for 2 + 20 (operational lifetime) years on page 26. verification team raised issue that this conflict information should be corrected.
- (iv) On page 25 in the registered PDD, the PP said that monitoring data will be measured hourly, and recorded monthly. At the same time, on page 26, paragraph 2-2, the PP mentioned that measured data shall be collected daily, weekly, and monthly and archived electronically. But, during on-site assessment, verification team found that measurement data have been archived daily by downloading from KPX website, not in accordance with prior descriptions.

In this reason, verification team could not proceed further verification activity, as paragraph 201 of VVM clearly requires, and concluded that the project was required to revise monitoring plan to enhance consistency and accuracy of information and to ensure completeness of monitoring plan prior to proceeding remaining verification process.

Korean Standards Association (KSA) has made additional contract with Gochang Solarpark Co.,Ltd to carry out validation for the revision of registered monitoring plan according to "Procedures for revising monitoring plans in accordance with paragraph 57 of the modalities and procedures for the CDM(EB49 Annex28, version 02)" from the project. The purpose of this validation is to have an independent third party assessment for the revision of registered monitoring plan, and of the conformity with the approved monitoring methodology applied to the project activity.

1.2. Scope

The scope of the validation of the revision of the registered monitoring plan is defined as an independent and objective review of the monitoring plan and the relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules, approved methodology and associated interpretations. The validation team has based on the recommendations in the Validation and Verification Manual /2-01/, and employed a risk-based approach, focusing on the identification of significant reporting risks. The validation is no meant to provide any consulting toward the project participants. However, the corrective action requests (CARs) and clarifications (CL) may have provided input for improvement of the project design.

1.3. Description of the Project Activity

Gochang Solarpark 14.98MW Photovoltaic Power Plant Project (hereafter called "project") has been registered as a CDM project activity on 01 Mar. 2010 under CDM methodology AMS-I.D version 13. Description of the project activity are as shown in the Table 1.

Table 1 Description of the project activity.

Project (Host) Parties:	Republic of Korea
Title of project activity:	Gochang Solarpark 14.98MW Photovoltaic Power Plant Project
Project Size :	Small Scale
Applied Methodology	AMS-I.D (Version 13, dated 14 December 2007)
UNFCCC registration No.:	3009
Project Entity:	Gochang Solarpark Co.,Ltd #100, Chiryong-Ri, Heungdeuk-Myeun, Gochang-Gun, Jeollabuk-Do, Korea
Location of the Project Activity:	The project activity are located at #100, Chiryong-Ri, Heungdeuk-Myeun, Gochang-Gun, Jeollabuk-Do, Korea
CDM Project Registration date	01 March 2010
Project's crediting period:	01 March 2010 to 28 February 2020 (fixed)

1.4. Validation Team

The validation team consists of the following personnel:

<i>Role/Qualification</i>	<i>Name</i>	<i>Document Review</i>	<i>Site Visit</i>	<i>Follow-up Actions</i>	<i>Reporting</i>	<i>Technical Review</i>
Team leader CDM Validator	Mr Seung-Keun Choi	✓	✓	✓	✓	
Team Member CDM Validator	Mr Kyoo-II Sohn	✓	✓	✓	✓	
Team Member Technical Expert	Mr. Kyoo-II Kim	✓		✓		
Technical Reviewer	Mr. Seong-Yong Park					✓

2. VALIDATION METHODOLOGY

2.1. Desk Review

The following documents are primarily reviewed to validate the revision of monitoring plan as follows:

- Registered project design document (version 7, dated 04 Jan. 2010) /1-01/
- Revised Monitoring Plan (clean version) /1-02/
- Revised Monitoring Plan (track change version) /1-03/
- the validation report /2-02/
- the applied approved methodology (AMS-I.D. version 13) /1-04/
- the relevant EB Guidance and meeting report

2.2. Site Visits

On-site assessment was carried out on 12 August 2011 and assessed followings:

- to verify the actual implementation and operation of the monitoring as described in the revised monitoring plan.
- to check the instruments used for monitoring in the locations and the related calibration certificates.
- to verify QA/QC activity in accordance with proposed revision of registered PDD
- etc.

During the site visit, the KSA validation team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

2.3. Reporting of Findings

As the result of the validation process, the validation team has raised Corrective Action Requests (CARs) and Clarification Requests (CLs) and any other outstanding issues that needed to be clarified for KSA's positive conclusion on a revision in the monitoring plan. CARs and CLs require the project participants to modify the revised monitoring plan 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 Manual (EB 55 Annex 1) /2-03/".

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, or if the evidence provided to prove conformity is insufficient.
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or the previous verification to be verified during verification 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 validation process, the concerns raised are documented in more detail in the validation protocol in the Appendix A. Table 2 Resolution of Corrective Action and Clarification Requests.

2.4. Internal Technical Review

The final validation opinion including the validation findings were reviewed by a technical verifier (Mr. SeongYong Park) prior to the submission of the validation opinion to the project participant and prior to requesting the revision of the monitoring plan of the CDM project activity. Also the technical verifier is qualified by KSA's qualification scheme for CDM validation and verification.

3. VALIDATION FINDINGS

In the following sections the findings of the validation are stated. The Corrective Action Requests (CARs), the Clarification Requests (CLs) and Forward Action Requests (FARs) are stated, where applicable, in the following section and are further documented in the Validation Protocol in the Appendix A.

3.1. Proposed Revision on B.7.1

(a) Data and parameters monitored

The only datum the project shall monitor is net electricity generation (EGy). PP proposed revision of definition datum monitored below.

Data / Parameter:	Electricity Quantity, EGy
Data unit:	MWh
Description:	Net electricity supplied to the grid by renewable technology in the year y
Source of data to be used:	<u>Exported data will be sourced from the watt-hour meter. Double checked by receipt of sales from the KPX. Imported data will be sourced from the bill issued by KEPCO(Korea Electricity Power Corporation).</u>
Value of data	22,183MWh
Description of measurement methods and procedures to be applied:	Read from watt-hour meter.The net(Export – Import) electricity would be calculated based on Export & Import data. * EGy = Export electricity - Import electricity All electricity measuring meters are watt-hour meter type and the metersconsists of five watt-hour meter to grid and one watt-hour meter from grid. Exported electricity means only electricity quantity supplied to the grid. Import electricity means only auxiliary consumption supplied from the grid. Import electricity will be checked by KEPCO’S bill
QA/QC procedures to be applied:	- QA/QC procedure is prepared - Watt-hour meters with $\pm 0.5\%$ error will be installed for electricity export, and $\pm 1.0\%$ for import. - According to SSC CDM, meter (import, export) will be re-calibrated within 3years.
Any Comments:	- The export electricity will be continuously monitored and every five minutes recorded. - Data will be measured hourly and recorded monthly. - Data will be kept for two years after the last issuance of CERs for this project activity.-Data will be kept for two years after the last issuance of CERs for this project activity

- **Source of data to be used:** Proposed revision of PDD clearly demonstrates that electricity exported to the grid and auxiliary power consumption supplied from the grid are individually monitored by watt-hour meter, while previous version stated that the datum can be measured.
- **Description of measurement methods and procedures to be applied:** Proposed revision described that EGy would be calculated by difference between electricity supplied to the grid generated by photovoltaic power plants and auxiliary power consumption supplied from the grid. Registered PDD demonstrated that it can be read from watt-hour meter. Validation team has confirmed 5 watt-hour meters for electricity export (production) and 1 watt-hour meter for electricity import (auxiliary power consumption) have been installed. Especially, watt-hour meter for electricity import is controlled by KEPCO, not the PPs. In this reason, electricity import (auxiliary power consumption) is sourced by bill issued by KEPCO.
- **QA/QC procedures to be applied:** Proposed revision corrected information for the level of error with actual situation of project implementation which was not lined with the registered PDD. error level of meters for power generation has not been changed. But for auxiliary power consumption, actual value of $\pm 1.0\%$ is described instead of previous value $\pm 0.5\%$. But, refer to the appendix 7 of "Act on operation of electricity market" /1-07/, the PP is required to install a watt-hour meter with at least $\pm 0.5\%$ of error for electricity export and at least $\pm 2.0\%$ for import. In this reason, validation team has concluded that this change still ensure level of accuracy.
- **Any Comments:** PP has consistently demonstrated that monitoring data will be kept until two years after last issuance of CER. This is longer than two years after the end of crediting period, as required by "General Guideline to SSC CDM methodologies (EB61, annex21)".

(b) Quality Control and Quality Assurance Procedures

description in the registered PDD	Proposed revision
<p>1. Monitoring equipment</p> <p>1-1. Electricity measuring meters shall be set up transparently in accordance with “Laws regarding measurement” and “Act on operation of the electricity market” and shall be sealed after receiving the affirmation of Korea Power Exchange.</p> <p>1-2. The meters shall be calibrated when they are installed, after which recalibration should be made when necessitated by abnormal conditions.</p>	<p>1. Monitoring equipment</p> <p>1-1. Electricity measuring meters shall be set up transparently in accordance with "Measures Act" and "Act on operation of the electricity market" and shall be sealed after receiving the affirmation of Korea Power Exchange.</p> <p>1-2. <u>Calibration shall be performed at the first installation, and re-calibration shall be done at least once in three years for the meter in accordance with the General guideline to SSC CDM methodologies.</u></p>

- While the registered PDD described that recalibration of meters would be made only when abnormal condition occurs, revision stated that calibration shall be carried out at least once in every three years, as required by paragraph 17.(c) of "General Guideline to SSC CDM methodologies (EB61, Annex21)"
- "Law regarding measurement" has been changed to "Measures Act", which is official title of the law.

description in the registered PDD	Proposed revision
<p>2. The amount of electricity monitoring</p> <p>2-1. The amount of electricity transmitted to the grid shall be measured automatically by the established meter. The measured data will be simultaneously transferred to the central control system of the Korea Power Exchange.</p> <p>2-2. The measured amount of electricity in the field shall be collected daily, weekly, and monthly and shall be archived electronically</p> <p>2-3. The collected data in article 2-2. shall be compared with that of the Korea Power Exchange.</p> <p>2-4. If the two sets of data compared in article 2-3 differ from expected values, the operational status of the electricity meters and other equipment shall be examined. In the event that the meters are being operated improperly, an internal investigation and correction procedure shall be followed and certified by the final decision maker and the Korea Power Exchange.</p>	<p>2. The amount of electricity monitoring</p> <p>2-1. <u>Gochang solarpark's watt-hour meters continuously monitor electricity power production, record the amount every five minutes, and the data collected by watt-hour meter is transferred to KPX at 24:00 in order that KPX publishes the data to have been transferred on their homepage every day</u></p> <p>2-2. <u>Meanwhile, The person in charge of monitoring shall download recorded data from watt-hour meters on-site every day, and make comparison with data to have been published on homepage of KPX.</u></p> <p>2.3. <u>If the data are not identical, the problem shall be solved by immediate action of contacting KPX for seeking causes. If the data are not identical after the confirmation, a conservative value will be utilized to calculate reduction amount.</u></p>

- Verification team has found that actual situation of project implementation for monitoring frequency, data flow, and responsibility of monitoring was not in accordance with the registered PDD. In this reason, proposed revision of this section is focused on ensure accuracy of information as required by paragraph 9.(a) of "Procedures for Revising Monitoring Plans in accordance with paragraph 57 of the Modalities and Procedures for the CDM (version 02, EB49 annex 28)". Proposed revision of this section reflected accurate procedure to measure, archive, and record monitoring data as required by internal procedure for CDM monitoring /1-05/. Although the latest version of AMS-I.D. (version 17) /2-03/ includes requirements about minimum frequency for measurement and record, applied approved methodology only requires that monitoring shall consist of metering the electricity generated by the renewable technology (paragraph 13 of AMS-I.D. version 13). Furthermore, proposed revision also conformed with latest version of AMS-I.D. which requires continuous monitoring, hourly measurement, and at least monthly recording. In this reason, validation team accepted this section of proposed revision.

description in the registered PDD	Proposed revision
<p>3. Manager of monitoring and electricity safety</p> <p>3-1. The person in charge of monitoring and electricity safety shall attend the following courses once a year.</p> <ul style="list-style-type: none"> - Course on "Laws regarding measurement" - Course on "Act on operation of electricity market" - Course on Electricity safety <p>3-2. In the event that the responsible person is absent, a second responsible person shall be selected.</p> <p>3-3. If the responsibility for monitoring and electricity safety is transferred to another person, it must first be approved by the final decision-maker. The monitored data will be archived for 20 (operational lifetime) + 2 years.</p>	<p>3. <u>Manager of monitoring and electricity safety</u></p> <p><u>Gochang Solarpark Co.,Ltd has two teams related to the project activity. One is an operating team, the other is a maintenance & management team, shown as following diagram.</u></p> <p><i>/diagram omitted/</i></p> <p>3-1. The person in charge of monitoring shall attend the following courses <u>once in three years. In case of replacement of a person in charge, related education shall be done in order not to cause problems on data collecting and QA/QC.</u></p> <ul style="list-style-type: none"> - Course on Electricity safety. <p>3-2. The person in charge of monitoring is regularly educated once a year with company's internal contents below:</p> <ul style="list-style-type: none"> - Course on 'Measures Act' - Course on 'Act on operation of electricity market' <p>3-3. In the event that the responsible person is absent, a second responsible person shall be selected.</p> <p>3-4. If the responsibility for monitoring and electricity safety is transferred to another person, it must first be approved by the final decision-maker.</p> <p>3-5. Data will be kept <u>until two years after last issuance of CERs.</u></p>

- Proposed revision describes organizational structure of the PP to show operating and management departments are separated. Validation team confirmed it by cross-check with internal procedure for CDM monitoring /1-05/.

- While the registered PDD stated that responsible person shall take three training course for every year, proposed revision eases to take course on electricity safety for every three year. To assess this easing requirement, validation team reviewed related national law "enforcement rule for electric utility act" /1-06/ and then found that the person in charge of electricity safety at the project site met the competence requirements¹⁾. Moreover, the rule requires the person designated to the electricity safety manager to take educational course at least every three year after designation. Taking into account these regulatory situation, validation team concluded that this easing still ensure the level of QA/QC.

1) one of the options is the person who holds electricity safety engineer's license

- Course on "Law regarding measurement" has been changed to course on "Measures Act". This is just correction to official name of the law.
- The registered PDD has inconsistent information related to data keeping period - (i) two years after last issuance of CERs, and (ii) operational lifetime (20 years) + 2 years. This is consistently corrected to two years after last issuance of CERs throughout the revision.

3.2. Proposed Revision on B.7.2

During verification activity, verification team raised issue that section B.7.2 of the registered PDD does not have clear description about monitoring plan. So, proposed revision is focused on the accuracy and completeness of information reflecting actual operating system.

- (a) To assess completeness of monitoring plan, verification team reviewed single line diagram /1-08/, and found followings:
 - (i) All electricity generated by project activity is supplied to the grid without internal consumption. There are five watt-hour meters for electricity export to the grid which have $\pm 0.5\%$ of error level;
 - (ii) Auxiliary power is supplied from the grid. There is one watt-hour meter for electricity import (source of auxiliary power) from the grid with $\pm 1.0\%$ of error level, and;
 - (iii) Single line diagram /1-08/ provided from the PP shows that monitoring points can cover all electricity flow.
- (b) This section of the proposed revision described that net electricity generation can be calculated by difference between total electricity supplied to the grid measured by five watt-hour meters and auxiliary power supplied from the grid. Validation team confirmed the way to download exported electricity data from KPX website by interview relevant personnel, as describe section B.7.1 of the proposed revision. In addition, validation team confirmed that auxiliary power consumption can be checked from the bills issued by KEPCO, and billing period is from the first day to the last day of each month.

With these information, validation team concluded that proposed revision can assure level of completeness and accuracy as required by CDM requirements.

4. VALIDATION OPINION

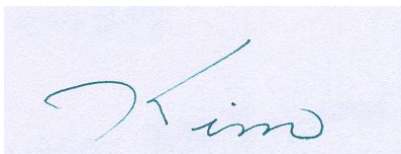
Korean Standards Association (KSA) has performed the validation of the revision of monitoring plan for registered project "Gochang Solarpark 14.98MW Photovoltaic Power Plant Project (UNFCCC reference no.: 3009)". This validation has performed on the basis of the UNFCCC criteria, the approved methodology and the relevant EB guidance and meeting reports.

The review of the revised monitoring plan and the subsequent follow-up interviews have provided Korean Standard Association (KSA) with sufficient evidence to determine the fulfillment of stated criteria. The proposed revision of the monitoring plan can reflect the accuracy and completeness of the project information in the PDD. Furthermore, KSA can confirm the followings;

- The proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as the result of this revision.
- The proposed revision of the monitoring plan is in accordance with the applied approved monitoring methodology AMS-I.D version 13.

In KSA's opinion, the revision of the monitoring plan meets the UNFCCC criteria, the applied approved monitoring methodology and the relevant EB guidance and meeting reports. Hence, KSA requests the revision of the monitoring plan for the registered project "Gochang Solarpark 14.98MW Photovoltaic Power Plant Project (reference no: 3009)".

March 26th, 2012



Yong-Hwan Kim

**Director
International Certification Division
Korean Standards Association**



SeungKeun Choi

Validation Team Leader

5. REFERENCES

Category 1 Documents:

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

- 1 - 01 The registered CDM Project Design Document : Gochang Solarpark 14.98MW Photovoltaic Power Plant Project, (version 07, dated 04/01/2010)
- 1 - 02 Revised Monitoring Plan (clean version)
- 1 - 03 Revised Monitoring Plan (track change version)
- 1 - 04 AMS-I.D (version 13), applied methodology for the registered PDD
- 1 - 05 Quality and Environmental Management Procedure (revision 01)
- 1 - 06 Enforcement rule for electricity utility act (19 Oct, 2011)
- 1 - 07 Act on operation of electricity market
- 1 - 08 Single line diagram for Gochang Solarpark (document# E1-01, Dow Corporation)

Category 2 Documents:

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

- 2 - 01 CDM Validation and Verification Manual (Version 01.2, EB 55 Annex 1)
- 2 - 02 Validation Report for Gochang Solarpark 14.98MW Photovoltaic Power Plant Project (report number: GHGCC(A)-08-021, revision 04)
- 2 - 03 AMS-I.D. version 17
- 2 - 04 Modalities and procedures for a clean development mechanism (decision 3/CMP.1)
- 2 - 05 Procedures for revising monitoring plans in accordance with paragraph 57 of the modalities and procedures for the CDM (version 02, EB 49 Annex 28)

APPENDIX A

VALIDATION PROTOCOL FOR REVISION OF MONITORING PLAN

Table 1. Requirements Checklist

Table 2 Resolution of Corrective Action and Clarification Requests

Table 1. Requirements Checklist

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
Part 1: Preparation					
1. Does PP submit the revised monitoring plan in clean and track change versions including supplemental documentation ?	/EB 49 Report Annex 28/	DR	PP has submitted all documents required by relevant guideline (EB49 annex28). But, version of applied methodology is not addressed in the draft revision (CL) . Refer to the table 2 below.	CL 01	OK
Part 2: Conformity with the Applied Monitoring Methodology(EB49 Annex28, 9(b))					
2. Does the revised monitoring plan comply with the approved methodology ?	/VVM/ 123	DR, I	Yes, net electricity generation can be measured in accordance with applied monitoring methodology. Demonstrated electricity diagram in B.7.2 clearly shows completeness of monitoring points, and verification team confirmed it during on-site assessment.	OK	OK
(a) All parameters required by the selected approved baseline methodology are identified ?	/VVM/ 123 (a) (i)	DR, I	Yes. all parameters have already been identified during validation activity. no inclusion and exclusion of parameters has been occurred in the revision	OK	OK
Does the revised monitoring plan contain all necessary parameters ?	/VVM/ 123 (a) (ii)	DR, I	YES. see above	OK	OK
Does the means of monitoring described in the plan comply with the requirements of the methodology ?	/VVM/ 123 (a) (ii)	DR, I	Yes. revised plan demonstrated monitoring parameter EGy will be calculated by differences between sum of electricity export and electricity import. This is confirmed during on-site assessment by reviewing electricity line diagram designed by constructor	OK	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
(b) Are the monitoring arrangements described in the monitoring plan feasible within the project design ?	/VVM/ 123 (b) (i)	DR, I	Yes. revision of MP has been started after the project had been implemented. So, validation team could confirm actual status of the project at the site. monitoring equipments are located at correct position - between inverters and grid.	OK	OK
- Are the means of implementation of the monitoring plan, including the data arrangement and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by requesting from the proposed CDM project can be reported ex post and verified ?	/VVM/ 123 (b) (ii)	DR, I	<p>Information related QA/QC in the revision is not consistently described. So, after resolution of CAR-01 and 02, assessment of this criteria can be conducted. See CAR-01 and CAR-02 in the table 2 below</p> <p>The PP revised QA/QC procedures and described in the revised PDD (version 9).</p> <ul style="list-style-type: none"> - error level of meters are consistently and accurately described: $\pm 0.5\%$ for export, $\pm 1.0\%$ for import - Conservative approach for abnormal condition is applied. If two sets of monitored data are different, conservative value will be used. - All monitoring equipments will be calibrated in every 3 years - Relevant employees will be trained as required by national standard - All data will be kept at least for two years after last issuance of CERs 	PENDING	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
Part 3: Level of Assurance (EB49 Annex28, 9(a))					
Does proposed revision of monitoring plan ensure the level of accuracy?	EB49 Annex28 9(a)	DR	<p>CAR 01 compare to the registered PDD, proposed revision of monitoring plan cannot ensure the level of accuracy</p> <p>-internal procedure stated training requirements including 3 specific courses responsible personnel should be attended every year. but, the proposed revision requires only one for every 3 years. PP should justify this simplification does not impact on the level of QA/QC.</p> <p>-pp stated on revised draft(dated on 23/11/2011) that quantity of exported(produced) electricity would be cross-checked by two sources of record. but, PP should clearly demonstrate how PP can ensure level of accuracy if KPX data shall be used when two sets of data are different.</p> <p>See table 2 below for resolution of this CAR</p>	CAR-01	OK
Does proposed revision of monitoring plan ensure the level of completeness?	EB49 Annex28 9(a)	DR	<p>CAR 02 compare to the registered PDD, proposed revision of monitoring plan cannot ensure the level of completeness. some information in the proposed revision is different from actual implementation condition of the project.</p> <p>-frequency and procedure of measuring power generation is not lined with internal procedure</p> <p>-internal procedure requires to keep monitored data until 2</p>	CAR-02	OK

Checklist Question	Ref.	MoV	Comments	Draft Concl.	Final Concl.
			years after project lifetime(02/2020), but proposed revision requires 2 years after last issuance of CER. See table 2 below for resolution of this CAR		

Table 2 Resolution of Corrective Action and Clarification Requests

No. of CAR/CL	Description of the CAR/CL	Ref.	Comments/Response from project proponent	Conclusions
CAR 01	<p>compare to the registered PDD, proposed revision of monitoring plan cannot ensure the level of accuracy</p> <p>-internal procedure stated training requirements including 3 specific courses responsible personnel should be attended every year. but, the proposed revision requires only one for every 3 years. PP should justify this simplification does not impact on the level of QA/QC.</p> <p>-pp stated on revised draft(dated on 23/11/2011) that quantity of exported(produced) electricity would be cross-checked by two sources of record. but, PP should clearly demonstrate how PP can ensure level of accuracy if KPX data shall be used when two sets of data are different.</p>	EB49 Annex 28 para. 9(a)	<p>Though courses on 'Laws regarding measurement' and 'Act on operation of electricity market' are being conducted once a year, course on "Course on Electricity safety" is conducted once in every three years. In case of replacement of a person in charge, related education shall be done in order not to cause problems on data collecting and QA/QC.</p> <p>The person in charge at Gochang solarpark checks if downloaded data from KPX homepage and data of watt meter are identical. If the data are not identical, the problem shall be solved by immediate action of contacting KPX for seeking causes. If the data are not identical after the confirmation, a conservative value will be utilized to calculate reduction amount.</p>	OK

No. of CAR/CL	Description of the CAR/CL	Ref.	Comments/Response from project proponent	Conclusions
CAR 02	<p>compare to the registered PDD, proposed revision of monitoring plan cannot ensure the level of completeness. some information in the proposed revision is different from actual implementation condition of the project.</p> <p>-frequency and procedure of measuring power generation is not lined with internal procedure</p> <p>-internal procedure requires to keep monitored data until 2 years after project lifetime(02/2020), but proposed revision requires 2 years after last issuance of CER.</p>	EB49 Annex 28 para. 9(a)	<p>Gochang solarpark's watt-hour meter measures data for electricity amount every five minutes and the data collected by watt meter is transferred to KPX at 24:00 In order that KPX publishes the data to have been transferred on their homepage every day. Meanwhile, The person in charge of monitoring shall download electricity amount data from watt meter on-site every day, and make comparison with data to have been published on homepage of KPX.</p> <p>Data will be kept for two years after the last issuance of CERs for this project activity.</p>	OK
CL 01	state exact version of applied approved methodology in the draft revised PDD.		version 13 of applied methodology (AMS-I.D.) has been addressed	OK