




**Validation report form for post-registration changes for  
CDM project activities  
(Version 03.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the project activity</b>	Cam Lam VN Solar Power Plant (ref. 10535)
<b>Process track</b>	<input type="checkbox"/> Prior approval <input checked="" type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
<b>Version number of the validation report</b>	1.1
<b>Completion date of the validation report</b>	17/06/2021
<b>Type(s) of PRCs</b>	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan <input checked="" type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents <input type="checkbox"/> Changes to the project design <input type="checkbox"/> Changes specific to afforestation and reforestation project activities
<b>Version number of PDD to which this report applies</b>	3.4
<b>Project participants</b>	Hanwha Energy Corporation Cam Lam Solar Joint Stock Company
<b>Host Party</b>	Viet Nam
<b>Applied methodologies and standardized baselines</b>	ACM0002 ver.19.0
<b>Mandatory sectoral scopes</b>	1 – Energy industry (Renewable/non-renewable)
<b>Conditional sectoral scopes, if applicable</b>	N/A
<b>Name and UNFCCC reference number of the DOE</b>	Korean Standards Association / E-0039
<b>Name, position and signature of the approver of the validation report</b>	JinSeong Park / Director General of Certification Division 

**SECTION A. Executive summary**

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The purpose of the project activity is generating and supplying electricity to the Vietnam national grid from the “Cam Lam VN Solar Power Plant” (Ref. 10535). The actual installed capacity of the plant is 49.62384 MWp with its modules capacity. The annual average of electricity generation and emission reduction over 7 years of crediting period is 78,885 MWh/year and 66,991 tCO<sub>2</sub>. The project is located on Cam Nghia Ward, Cam Ranh city, Khanh Hoa province which is a coastal province in the south of Vietnam.

Korean Standards Association (KSA) has been contracted by Hanwha Energy Corporation to perform the validation of the post-registration change of the project activity. The scope of validation is to assess the claims and assumptions made in the proposed PDD<sup>/2/</sup> against CDM Project Standard for Project Activities (ver.2.0)<sup>/7/</sup>, CDM Validation and Verification Standard for Project Activities (ver.2.0)<sup>/8/</sup>, applied methodology ACM0002 (ver.19.0)<sup>/6/</sup> and other applicable references for CDM project activities. The changes in the proposed PDD<sup>/2/</sup> was assessed via reviewing the submitted evidences by the PPs and other related sources of information.

The proposed post-registration changes include corrections and permanent changes to the registered monitoring plan. As per the section 8.4 and Appendix of CDM Project Standard for Project Activities (ver.2.0)<sup>/7/</sup>, issuance track is concluded to be a suitable approach for proposed changes.

The validation of post-registration change for the proposed PDD<sup>/2/</sup> is an independent assessment and is being submitted as a approval request via issuance track to the CDM EB as per CDM requirements and procedures. The validation team confirms tha the proposed post-registration changes comply with all the relevant CDM requirements of the applied methodology ACM0002 (ver.19) and all other applicable tools and guidance. This report includes KSA's validation opinion on all the changes from the registered PDD<sup>/1/</sup> to the proposed PDD<sup>/2/</sup> for PRC.

**SECTION B. Validation team, technical reviewer and approver**

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**B.1. Validation team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader	ER	Choi	SeungKeun	KSA	√	-	√	√
2.	Validator	ER	Hong	SeungHyeong	KSA	√	-	√	√
3.	Local Expert	ER	Nguyen	Doan Quoc Anh	KSA	√	-	-	-

**B.2. Technical reviewer and approver of the validation report on PRCs**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	ER	Sohn	Kyull	KSA
2.	Approver	IR	Park	JinSeong	KSA

**SECTION C. Means of validation****C.1. Desk/document review**

>> The desk review was conducted primarily as a review of registered PDD (ver.3.3)<sup>/1/</sup> and proposed PDD (ver.3.4)<sup>/2/</sup>. And the supplementary documents were also reviewed to cross-check information provided in the proposed PDD. The details of reviewed documents during the desk review are listed in Appendix 3 of this report. A complete list of supplementary documents reviewed and referenced is listed in 'Appendix 3' of this report.

**C.2. On-site inspection**

As per the decision on EB110th meeting, as a result of the COVID-19 pandemic, taking into account the rules and relevant national and local authorities (local to the DOE offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the DOE and other relevant travel restrictions and guidance (for example, a requirement to self-isolation upon return from specific countries), a DOE may postpone site visits for on-site inspection required by the CDM VVS PA (ver.2.0)<sup>/7/</sup>.

If the site visits cannot be postponed, a proper justification should be provided by the DOE why the site visits cannot be postponed, including the demonstration of a significant impact of delaying the site visits on the DOEs or project participants or coordinating/managing entity (e.g. commitment/timeline as per the validation or verification contract, CER delivery commitment by project participants) reliance on applicable force majeure provisions in the validation or verification contracts, if needed.

For this project activity, one of the PPs, Hanwha Energy Corporation, is an allocated company under Korean Emission Trading Scheme (K-ETS), and requires CERs obtained from this project activity to fulfill their obligation. Hence, the site visit cannot be postponed for this project activity.

Considering the current COVID-19 pandemic situation, site visit is not expected to be available in near future, and thus, KSA has skipped the on-site inspection.

KSA validation team has used following alternative means for its assessment and to justify that they are sufficient for the purpose of validation. The validation team has conducted 'on-line assessment' through the remote meeting platform 'Zoom' along with desk review. The audit techniques KSA conducted are as follows:

- A desk review of the registered PDD (ver.3.3)<sup>/1/</sup> and proposed PDD(ver.3.4)<sup>/2/</sup> as well as all applicable country legal requirement and supportive evidences have been reviewed & checked by the validation team.
- An interview with the PP by means of 'on-line assessment' through 'Zoom' for visual inspection on the actual installation & implementation of the project activity
- Cross-check evaluation for information provided by interviewed personnel to ensure that no relevant information has been omitted.

Duration of on-site inspection: DD/MM/YYYY to DD/MM/YYYY				
No.	Activity performed on-site	Site location	Date	Team member
1.				
...				

### C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Lee	SangWoo	Cam Lam Solar Joint Stock Company	26/05/2021	· Technical information · Electricity metering (Installation, location, calibration, serial number & etc)	SeungKeun Choi, SeugnHyeong Hong
2.	Choi	GaEun	Hanwha Energy Corporation	26/05/2021	· Technical information · Electricity metering (Installation, location, calibration, serial number & etc)	SeungKeun Choi, SeugnHyeong Hong

### C.4. Sampling approach

>> No sampling approach is applied for this validation for PRC

### C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	-	-
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	-	-	-
Corrections	-	-	-
Changes to the start date of the crediting period	-	-	-
Inclusion of a monitoring plan	-	-	-
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents	-	-	-
Changes to the project design	-	-	-
Changes specific to afforestation and reforestation project activities	-	-	-
Others (please specify)	-	-	-
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

## SECTION D. Validation findings

### D.1. Compliance with PDD form

<b>Means of validation</b>	Validation team visited UNFCCC website to check latest version of PDD form, then compared to proposed PDD for PRC <sup>2/</sup> .  Registered PDD was also written on the same version of template, so information in each section is correctly copied.
<b>Findings</b>	Latest version of CDM-PDD-FORM is ver.11.0, which is same with PP utilized.

<b>Conclusion</b>	Validation team concluded that proposed PDD for PRC <sup>/2/</sup> was prepared on appropriate PDD template.
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## D.2. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

<b>Means of validation</b>	N/A
<b>Findings</b>	N/A
<b>Conclusion</b>	N/A

## D.3. Corrections

<b>Means of validation</b>	<p><b>GPS cordination</b> During online interview through ZOOM, validation team requested local staff to check GPS of the site, then checked proposed PDD for PRC<sup>/2/</sup> correctly reflects the GPS cordination.</p> <p><b>BM emission factor</b> Paragraph 72 of TOOL 07- tool to calculate the emission factor for an electricity system (ver.7.0) <sup>/9/</sup> provides two(2) options to calculate BM emission factor, and paragraph 73 clearly requires PP to document which option was chosen.</p> <p>However, B.4 and B.6.2 of registered PDD<sup>/1/</sup> describes that BM emission factor is determined as 0.8961 tCO<sub>2</sub>/MWh, according to the official document No.330 BDKH-GNPT published by host party's DNA. However, registered PDD does not demonstrate which option to decide BM emission factor is selected at validation stage. Despite validation report for registration<sup>/3/</sup> describes that the PPs selected fixed ex ante option, PPs decided to clarify it into the proposed PDD<sup>/2/</sup>. Validation team reviewed proposed PDD for PRC<sup>/2/</sup> to check that the PPs provide additional demonstration to determine BM emission factor is clearly described.</p>
<b>Findings</b>	<p><b>GPS cordination</b> Local staff used GPS application on his smartphone, and figured out GPS of the project site is 11°59'29.6322" N, 109°5'8.31" E</p> <p>As a cross-check method, validation team visited google map, input the GPS, and confirmed the site is same with picture in the registered PDD<sup>/1/</sup>.</p> <p><b>BM emission factor</b> In section B.4 and B.6.2 of proposed PDD<sup>/2/</sup>, PPs describes that option 1 was chosen.</p> <p><b>Others</b> Validation team also found that minor typo corrections were made.</p>
<b>Conclusion</b>	Validation team confirms that corrected information accurately reflects the actual project information, and revised information meets all CDM requirements including applied methodology <sup>/6/</sup> , methodological tool <sup>/9/</sup> , CDM PS-PA <sup>/7/</sup> and VVS-PA <sup>/8/</sup> .

## D.4. Changes to the start date of the crediting period

<b>Means of validation</b>	N/A
<b>Findings</b>	N/A
<b>Conclusion</b>	N/A

## D.5. Inclusion of a monitoring plan

<b>Means of validation</b>	N/A
<b>Findings</b>	N/A
<b>Conclusion</b>	N/A

#### D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents

<b>Means of validation</b>	<p>The only monitoring parameter defined in the registered PDD (ver.3.3) <sup>/1/</sup> is <math>EG_{\text{facility},y}</math>, which is energy generated by the project activity and supplied to the national grid during the year(y). The parameter is described in the applied methodology as quantity of NET electricity generation, but it is not clearly described in the registered PDD <sup>/1/</sup>.</p> <p>Also, the PPs applied 0.99229 of grid loss factor to calculated CERs, based on metering agreement <sup>/10/</sup> between the PPs and EVNEPTC, but the registered PDD does not describes it. If loss factor is applied, claimed emission reductions get decreased, conservative.</p> <p>To assess actual monitoring status, validation team reviewed Single Line Diagram <sup>/12/</sup> and information about measuring equipments <sup>/10/</sup>. Then, validation team checked the equipments are still operating, by online interview. Finally, validation team reviewed actual monitored data recorded in SCADA <sup>/14/</sup>, and electricity bills <sup>/13/</sup> issued by grid operator.</p>
<b>Findings</b>	<p>Description of monitoring parameter <math>EG_{\text{facility},y}</math> is appropriately revised, which means NET electricity generation would be monitored. So, validation team confirmed that the description meets monitoring requirements in the applied methodology.</p> <p>As per grid loss factor, validation team found that amount of electricity export written on electricity bill is decide by multiplying SCADA data <sup>/14/</sup> – amount of actual electricity export- and grid loss factor. So validation team concluded that the proposed PDD for PRC <sup>/2/</sup>:</p> <ol style="list-style-type: none"> <li>1) reflects actual monitoring system;</li> <li>2) does not cause overestimation of emission reductions; and,</li> <li>3) meets requirements in the applied monitoring methodology</li> </ol> <p>In addition, validation team found that during first monitoring period, PPs appropriately calculated net electricity generation by difference between electricity export and import, reflecting loss factor, as described in the proposed PDD <sup>/2/</sup>.</p>
<b>Conclusion</b>	Validation team concluded that PDD for PRC <sup>/2/</sup> comply with relevant requirements and reflects actual monitoring status.

#### D.7. Changes to the project design

<b>Means of validation</b>	N/A
<b>Findings</b>	N/A
<b>Conclusion</b>	N/A

#### D.8. Changes specific to afforestation and reforestation project activities

<b>Means of validation</b>	N/A
<b>Findings</b>	N/A
<b>Conclusion</b>	N/A

### SECTION E. Internal quality control

>> The final validation report including the validation findings were reviewed by a technical reviewer prior to the submission of the validation report to the project participant and prior to requesting the revision of the monitoring plan of the CDM project activity. The technical reviewer is qualified by KSA's qualification scheme for CDM validation and verification and also for the sectoral scope of the project activity, TA 1.2.

As a result of the internal technical review process, the validation report and the topic specific assessments as prepared by the validation team leader may be confirmed or revised. Furthermore reporting improvement might be achieved.

## **SECTION F. Validation opinion**

>>

Korean Standards Association (KSA) has performed the validation of the post registration changes for registered project "Cam Lam VN Solar Power Plant (ref 10535)". This validation has been performed on the basis of the UNFCCC criteria, the approved methodology and the relevant EB guidance and meeting reports.

The review of the revised technical information and monitoring plan, and the subsequent follow-up interviews have provided Korean Standard Association (KSA) with sufficient evidence to determine the fulfillment of stated criteria. As a result of the assessment, KSA can confirm the proposed revised PDD;

- Describes actual information including project location (GPS);
- Provides more clear description how emission reductions are calculated in accordance with applied methodology and methodological tools; and
- Reflects actual monitoring system and it is conservative and still comply with relevant requirements.
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Hence, KSA requests the revision of registered PDD for "Cam Lam VN Solar Power Plant (ref 10535)".

## Appendix 1. Abbreviations

Abbreviations	Full texts
EVNEPTC	VietNam Electricity Electric Power Trading Company
KSA	Korean Standards Association
PA	Project Activities
PDD	Project Design Document
PP	Project Participant
PRC	Post-Registration Change
PS	Clean Development Mechanism Project Standard
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard



## Appendix 2. Competence of team members and technical reviewers

# KSA

## GHG Validator/Verifier Certificate

SeungKeun Choi

Certificate No. : CDM-015

Technical Area : 1.2, 3.1, 13.1, 13.2

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

2021.01.07

VALID UNTIL

2024.01.06

PRESIDENT OF KSA



**KOREAN STANDARDS ASSOCIATION**

Digital Transformation Center, 5, Teheran-ro 69-gil, Gangnam-gu, Seoul, Korea

**KSA**

**CDM Validator/Verifier Certificate**

SeungHyeong Hong

Certificate No. : CDM-032

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

2021.01.07.

VALID UNTIL

2024.01.06.

PRESIDENT OF KSA



**KOREAN STANDARDS ASSOCIATION**

Digital Transformation Center, 5, Teheran-ro 69-gil, Gangnam-gu, Seoul, Korea

# KSA

## CDM Local Expert

Doan Quoc Anh Nguyen

Certificate No. : CDM-L.E.-007

Local Area : Vietnam

Korean Standards Association hereby certifies that the above person is qualified as Local Expert for the area above to conduct validation and verification for CDM project.

VALID FROM

2019. 05. 01

VALID UNTIL

2022. 04. 31.

PRESIDENT OF KSA



**KOREAN STANDARDS ASSOCIATION**

11F, Digital Transformation Center, 5, Teheran-ro 69-gil, Gangnam-gu, Seoul, Korea

**KSA**

**CDM Validator/Verifier Certificate**

Kyull Sohn

Certificate No. : CDM-001

Technical Area : 1.1, 1.2, 2.1, 3.1, 13.1, 13.2

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**

2020.04.01.

**VALID UNTIL**

2023.03.31.

**PRESIDENT OF KSA**



**KOREAN STANDARDS ASSOCIATION**

Digital Transformation Center, 5, Teheran-ro 69-gil, Gangnam-gu, Seoul, Korea

### Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Project participant	Registered PDD	Ver.3.3	Project Participant
2	Project Participant	Proposed PDD for PRC	Ver.3.4	Project Participant
3	KFQ	Validation report	Ver.2.2	Others
4	Project Participant	1 <sup>st</sup> monitoring report (25/11/2019-31/05/2020)	Ver.1.0	Others
5	KSA	Verification report for 1 <sup>st</sup> monitoring period	Ver.1.5	Others
6	UNFCCC	ACM0002	Ver.19.0	Others
7	UNFCCC	CDM Project Standard for Projec Activities	Ver.2.0	Others
8	UNFCCC	CDM Validation and Verification Standard for Project Activities	Ver.2.0	Others
9	UNFCCC	TOOL 07 – tool to calculate the emission factor for an electricity system	Ver.7.0	Others
10	PP	Acceptance of electricity metering system for Cam Lam VN solar power plant	20/06/2019	PP
11	EVNEPTC	Technical Agreement	21/09/2018	PP
12	Hanwha Energy	Single Line Diagram	15/07/2019	PP
13	EVNEPTC	Bills for electricity export		PP
14	Project Participant	SCADA data for 2 <sup>nd</sup> monitoring period		Project Participant

## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	xx	Section no.		Date: DD/MM/YYYY
<b>Description of CL</b>				
<i>No CLs were raised during this validation for PRC</i>				
<b>Project participant response</b>				Date: DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				
Date: DD/MM/YYYY				

Table 2. CARs from this validation

CAR ID	xx	Section no.		Date: DD/MM/YYYY
<b>Description of CAR</b>				
<i>No CARs were raised during this validation for PRC</i>				
<b>Project participant response</b>				Date: DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				
Date: DD/MM/YYYY				

Table 3. FARs from this validation

FAR ID	xx	Section no.		Date: DD/MM/YYYY
<b>Description of FAR</b>				
<i>No FARs were raised during this validation for PRC</i>				
<b>Project participant response</b>				Date: DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				
Date: DD/MM/YYYY				

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"><li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li><li>• Make editorial improvements.</li></ul>
02.0	31 October 2017	Revision to align with the requirements in the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		