
VALIDATION OPINION FOR POST-REGISTRATION CHANGES (rev.1.1)

**"Korea South-East Power Co. (KOSEP) small-scale
hydroelectric power plants project (the Samchonpo Thermal
Power Plant and Younghung Thermal Power Plant
small-scale hydroelectric power plants construction project)"**

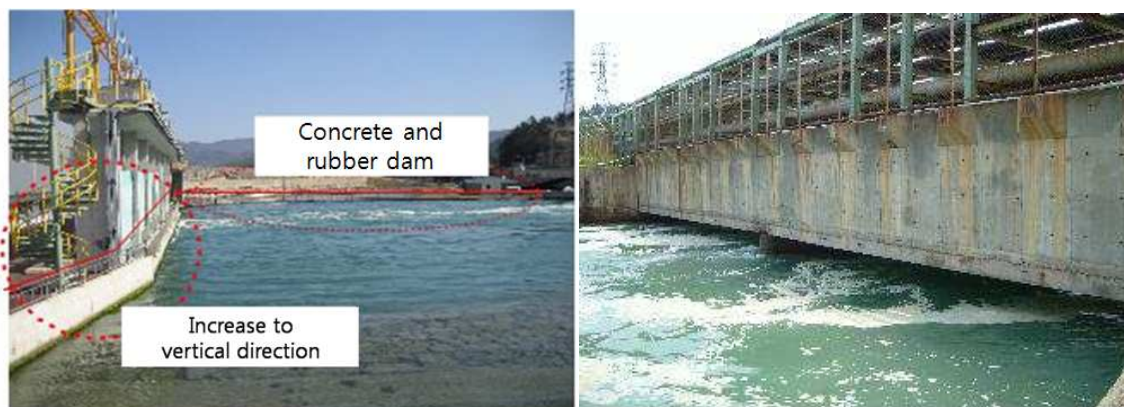
REPORT No. : 2012-04B

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1. INTRODUCTION

Korean Standards Association (KSA) has been commissioned by Korea South-East Power Corporation (KOSEP) to carry out verification and certification of emission reductions reported from "Korea South-East Power Co. (KOSEP) small-scale hydroelectric power plants project (the Samchonpo Thermal Power Plant and Younghung Thermal Power Plant small-scale hydroelectric power plants construction project)" in Korea (hereafter the project) for the monitoring period from 01/01/2009 to 31/12/2011. However, verification team found an FAR that has not been resolved during previous verification process conducted by TUV SUD. The issue is that height of dam at Samchonpo site has been increased up to 0.8m, which resulted in the increase of output capacity of Samchonpo hydro power plant.



To reflect this changes into the project design, the PP prepared draft revision of the PDD /1/, and KSA has carried out assessment for this post-registration change. KSA validation team has reviewed revised PDD /1/, and conducted on-site assessment on 02/07/2012, simultaneously with verification activity for the 2nd monitoring period (from 01/01/2009 to 31/12/2011).

1.1 Objective

Objective of this validation is to determine whether the actual changes would adversely affect the conclusion of the validation report /4/ of the registered PDD /2/ and/or approved revised PDD /3/.

According to paragraph 273 of Validation and Verification Standard (ver.02.0) /8/ and paragraph 6 of Appendix 1 in the Project Standard /9/, KSA validation team has assessed if the change impacts on (i) additionality of the project, (ii) scale of the project, (iii) applicability of applied methodology, or (iv) compliance of monitoring plan.

1.2 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 Verifier	Mr. Seung-Keun Choi	✓	✓	✓	✓	
Team Member CDM Verifier	Mr. Kyoo-II Sohn	✓	✓	✓		
Technical Expert	Mr. Woo-Jin Park	✓	✓	✓		
Technical Reviewer CDM Verifier	Mr. Seong-Yong Park					✓
Technical Reviewer Technical Expert	Mr. Kyu-II Kim					✓

2. VALIDATION FINDINGS

In this section the findings of the assessment are stated.

2.1 Assessment of Changes

After the project activity has been registered as a CDM project on 23/03/2007, 1st monitoring period has been started on 01/11/2007, one day later than expected starting date of commercial operation at Samchonpo site 31/10/2007. "General Planning for Capacity Increase" /12/, the plan for capacity increase has been approved by director on 05/11/2007, after CDM registration date. According to the plan /12/, the changes have been limited to increase of dam height without facility changes. The PP expected that increased height of dam would result in annual 5,595 MWh of additional electricity generation.

2.2 Impact on the Additionality of the Project Activity

To demonstrate additionality, the PP applied investment analysis at validation stage. According to paragraph 274 (a) of VVS, the PP has modified key parameters in the original spreadsheet /11/. The parameters that has been modified due to the change are listed below:

- (i) Expected annual electricity generation has been increased from 22,728 MWh to 28,323 MWh (5,595 MWh increase)
- (ii) Additional construction cost was estimated as 1,100 million KRW at the time of decision making

These changes have been validated by reviewing following documents:

- General Planning for Capacity Increase (05/11/2007) /12/

- Estimates for Capacity Increase, by Halla Energy and Environment /13/

As a result of modification of key parameters, the project has still not been financially profitable, with 2.54% of IRR /10/, while applied benchmark is 6.0% in the original calculation.

As a cross-check, validation team has reviewed "Request for Completion upon Construction" /14/ and actual operation data /15//16/, and found followings:

- Construction has been started on 10/10/2008, and finished on 09/02/2009
- The annual amount of discharged cooling water from Samchonpo thermal power plant does not show considerable change after increase of dam height.
- The amount of annual electricity generated by the project has been increased about 4,000 MWh after the increase of dam height.

As a result of the cross-check, validation team has concluded that modified input values in the revised investment analysis spreadsheet are appropriate.

In summary, the increase of dam height does not impact on the additionality of the registered project activity.

2.3 Impact on the Scale of the Project

According to the "General Planning for Capacity Increase" /12/, output capacity of Samchonpo hydro power plant has been increased from 2,965 kW to 3,695 kW. In addition, during on-site assessment, validation team confirmed that capacity for facilities including wheels and generators had not been changed from registered PDD. Considering 15 MW of threshold for SSC CDM project activity, the post registration change does not impact on the scale of the project activity.

2.4 Impact on the Applicability of Applied Methodology

As a result of increase of dam height, the PP can utilize more volume of cooling water discharged from Samchonpo thermal power plant. By on-site assessment, validation team confirms that no facilities have been changed. In conclusion, validation team confirms that the applicability and application of selected methodology AMS-I.D. (ver.09) /7/ have not been changed by the post registration change.

2.5 Impact on the Monitoring Plan

The increase of dam height does not result in changes on power generation mechanism. By

review of the "General Planning for Capacity Increase" /12/ and on-site assessment including interviews with operators, validation team confirmed that no other changes by the increase of dam height have been made.

According to the applied monitoring methodology AMS-I.D. (ver.09) /7/, monitoring shall consist of metering the electricity generation. Validation team states that monitoring features of the project activity have not been changed.

3. CONCLUSION

Korean Standards Association (KSA) has conducted assessment for the post registration changes of the registered project "Korea South-East Power Co. (KOSEP) small-scale hydroelectric power plants project (the Samchonpo Thermal Power Plant and Younghung Thermal Power Plant small-scale hydroelectric power plants construction project)" (reference no. 788).

In accordance with Appendix 1 of Clean Development Mechanism Project Standard (ver.01), validation team has assessed whether the changes impact on applicability conditions of applied methodology AMS-I.D.(ver.09), additionality of the project, scale of the project activity, and monitoring plan described in the registered PDD.

Assessment has been conducted by review of documents, and on-site assessment including physical inspection and interviews with relevant personnel. Validation team has confirmed that all data and information in the revised PDD and revised investment analysis worksheet are correctly modified, and the change does not impact on the additionality, applicability, scale, and monitoring plan of the project activity.

In conclusion, the proposed revision of the PP still ensure level of accuracy, completeness of monitoring, and conservativeness in the monitoring and verification process. Thus, KSA recommends CDM EB to approve the proposed revision.

Oct 31st, 2012



Mr. Jin-su Chun

*Director
International Certification Division
Korean Standards Association*



Mr. Seung-Keun Choi

Validation Team Leader

4. REFERENCES

List of documents validation team has reviewed:

- /1/ Draft Revised PDD, reflecting the increase of dam height. version 3.0
- /2/ Initially Registered PDD,
<http://cdm.unfccc.int/UserManagement/FileStorage/5GR3BGFGKHZU9YQHUR89GEGJN15W9N>
- /3/ Approved Revised PDD, version 2.1, 14/02/2011 (accepted by EB on 19/07/2011)
- /4/ Validation Report, issued by KEMCO (report no. AT201-200602, rev.4)
- /5/ Validation Opinion for approved revised PDD, by TUV SUD (report no.600500266)
- /6/ Previous Verification Report for 1st monitoring period, by TUV SUD (report no.600500266)
- /7/ Applied Methodology AMS-I.D. (ver.09)
- /8/ Validation and Verification Standard (ver.02, EB65 Annex4)
- /9/ CDM Project Standard (ver.01, EB65 Annex5)
- /10/ Revised Investment Analysis Spreadsheet
- /11/ Original Investment Analysis Spreadsheet
- /12/ General Planning for Capacity Increase, 05/11/2007, Renewable Energy Team, Samchonpo Power Plant, KOSEP (Document no: 61201-51040000-1098)
- /13/ Estimates for Capacity Increase, 10/07/2007, Halla Energy & Environment Co., Ltd.
- /14/ Request for Certification on Completion, 09/02/2009, Hwacheon Plant Co., Ltd.
- /15/ Spreadsheet for amount of discharged cooling water (2005-2011), KOSEP
- /16/ Spreadsheet for amount of electricity trade (2008-2011), KOSEP

APPENDIX B

CERTIFICATE OF COMPETENCE

KSA

CDM 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 as a technical expert for CDM validation and verification activities.

VALID FROM

2011.01.21

VALID UNTIL

2014.01.20

PRESIDENT OF KSA



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GHG 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

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Technical Expert Certificate

Woo-Jin Park

Certificate No. : CDM-019

Technical Area : 1.2, 2.1, 2.2, 3.1

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2013.09.19

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KSA

CDM Validator/Verifier Certificate

Seong-Yong Park

Certificate No. : CDM-014

Technical Area : -

Korean Standards Association hereby certifies that the above person is qualified by KSA's Qualification requirements as a technical expert for CDM validation and verification activities.

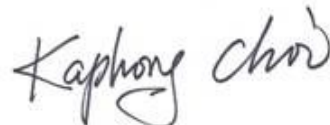
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Kyu-Il Kim

Certificate No. : CDM-018

Technical Area : 1.2, 2.1, 2.2, 3.1

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2010.09.20

VALID UNTIL

2013.09.19

PRESIDENT OF KSA

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