Report No. AT201-200602, Revision 04

Validation Report

Korea South-East Power Co. (KOSEP)

small scale hydroelectric power plants project

MAR 5, 2007

Korea CDM Certification Office

KOREA ENERGY MANAGEMENT CORPORATION

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Validation Methodology	1. Desk Review 2. On-site Assessment 3. Review of Corrective Actions 4. Special Review		
Project Participants	Korea South-East Power Co. (KOSEP)	**Management Representative**	Jaesoo Jung, CEO, Ecoeye
Project Title	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)		
Main office	Lordland Bldg 607, #153, Gumi-Dong, Bundang-Gu, Seongnam City, Gyeonggi-Do, Republic of Korea	**Tel**	
		FAX	
Project Location	- The Samchonpo thermal power plant small-scale hydroelectric power plant: Gyeongsangnam-do, Sacheon City - The Younghung thermal power plant small-scale hydroelectric power plant: Incheon metropolitan City	**Tel**	
		Fax	
Contact Person	Ahn, Chang-Wuk	**Tel**	+82-31-716-2108
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Category	Energy Industries (renewable energy sources)		
Scope	The validation scope for the proposed CDM project includes: - Physical and geographical boundaries of the proposed project; - Legal, institutional, financial and technological aspects of the project; - GHG sources and types to be included within the boundaries; - Time periods to be covered by the project design; - Baseline scenario established; - Monitoring plan; - Environmental impacts caused by the proposed project; and, - Stakeholders' comments		
Objective	The objective of the validation is to assess whether the proposed CDM project conforms to the requirements for CDM projects including Decision 17/CP.7, Modalities and Procedures for a CDM as defined in Article 12 of the Kyoto Protocol and relevant decisions of the CDM executive board by reviewing the project design documentation.		
Validation Criteria	UNFCCC, Kyoto Protocol, Marrakesh Accords, Decision 3, 4/CMP.1, Relevant CDM EB Decisions		
Validation Date	1. Desk Review: 24 July 2006 ~ 31 July 2006 2. On-site Assessment: 11 August 2006~14 August 2006 3. Review of Corrective Actions: 22 August 2006~11 Sep. 2006 4. Special Review: 12 February 2007~1 March 2007		

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1 Summary of the project activity

The Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project is a project bundling two project activities which are located at Sacheon City and Ongjin Gun, the 2.965MW Samchonpo thermal power plant small-scale hydroelectric power plant project and 3MW Younghung thermal power plant small-scale hydroelectric power plant project, respectively. It is noted that the two projects belong to the same type and category, with identical technologies/measures defined by the Simplified Modalities and Procedures for Small-scale Projects.

The sea water is used as cooling water of Samchonpo and Younghung thermal power plants and the used cooling water makes net head when it is returned to the sea. The small-scale hydroelectric power plants in the Samchonpo thermal power plant and Younghung thermal power plant generates electricity with six 494.2kW turbines and three 1000kW turbines respectively by installing the generation facilities(such as water turbine, generator and translator) at the point where the used cooling water falls down.

The Project is expected to annually generate 38,154 MWh from the Samchonpo(22,728 MWh) and Younghung(15,426 MWh) small-scale hydroelectric power plants thereby reducing 21,189 metric tons CO_2eq / year which would otherwise occur.

The project is expected to significantly contribute to sustainable development in Korea by utilizing renewable and clean energy sources in respect of:

- Reduction of GHG emissions
- Reduces consumption of fossil fuels and decreases imports of fossil fuel
- Increases water access for irrigation and household use
- Promotion of renewable energy use

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Validation Results	**2 Principles** The project design document (PDD) of the Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project is assessed based on the following principles **2.1 Completeness** The completeness of the PDD is ensured by assessing whether the project proponent has identified all greenhouse gases (GHG) sources directly attributable to the proposed project within the project boundary and indirect GHG emissions outside the project boundary **2.2 Consistency** The consistency of the PDD is ensured by assessing whether major factors used in the project plan such as data, formulae/algorithm and assumptions have been uniformly applied: - Among potential baseline scenarios; - Between the project and baseline scenario; and - Between the baseline and monitoring methodology. **2.3 Accuracy** The accuracy of the PDD is ensured by assessing whether any material errors or omissions made in using data and estimating GHG emissions have been corrected, and uncertainties associated with GHG quantification have been minimized to the extent possible. **2.4 Transparency** The transparency of the PDD is ensured by assessing whether all assumptions, choices and procedures are clearly stated and substantiated such that another party may reach the same conclusions	

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2.5 Relevance

The relevancy of the PDD is ensured by assessing whether selection of GHG sources, quantification procedures and potential baselines scenarios have been justified taking into account the requirements for the CDM project and the host country's particular situation.

2.6 Conservativeness

The conservativeness of the PDD is ensured by assessing whether the baseline has been established choosing values of parameters that generate a lower baseline projection and thereby reducing the possibility of over-estimating GHG emission reductions

3 Definitions of non-conformities and observations

3.1 Non-conformities

Non-conformities refer to validation findings that fail to fulfill the validation criteria such as failure to demonstrate additionality, lack of key information and exclusion of significant leakages. Non-conformities are divided into major and minor ones.

- Major non-conformity includes, inter alia:
  - failure to comply with the Modalities and Procedures of CDM projects;
  - occurrence of significant errors in the project baseline and monitoring methodologies
- Minor non-conformity includes, inter alia:
  - unclear descriptions and data sources;
  - minor miscalculation and misstatements

3.2 Observations

Observations include validation findings that are likely to be of non-conformity but with few evidences available at the moment and recommendations for improved documentation, data use, etc.

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4 Desk review

The desk review has been made during the period from 24 July to 31 July by reviewing documents submitted by the project participants including the Project Design Document and supporting documentation in respect of completeness, consistency, accuracy, transparency, relevance, and conservativeness. The Validation Criteria, against which the project documentation is assessed, include the CDM modalities and procedures determined by the Marrakech Accords, Decision 3, 4/CMP.1, and relevant CDM EB decisions, and are specified in the Validation Checklist. The desk review focused mainly on the three aspects below:

- Demonstration of the project additionality;
- Calculation of baseline and project emissions; and
- Coverage of significant factors in the monitoring plan.

The scope of desk review depends primarily on the information provided by the project participants and could be extended by using additional reliable information which the Validation Team obtained from other sources.

4.1 Validation findings

The proposed project applied the approved baseline and monitoring methodologies for small-scale projects. As the project generate electricity utilizing renewable sources and supply it to the grid, Category I.D, Grid-connected renewable electricity generation (ver 09) is applied. Given that the electricity system in Korea comprises nuclear power and renewable-based power as well as fuel oil and diesel fuel, the project adopted as a baseline emission factor the average of the Operating Margin and Build Margin emission factors and accordingly performed calculation using data from official documents such as the 1996 IPCC Guidelines and Electric Power Statistics of KEPCO (Korea Electric Power Corporation). The formulae for the emission factors were consistently used in the monitoring plan.

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Validation Results	In order to demonstrate the project's addtionality, the PDD analyzed investment barriers and showed that the project is not financially attractive under the baseline scenario. As for its environmental impacts on the local area, the project proponents assured that the proposed project would have no negative impacts. In addition, the project proponents mainly used media such as electronic news and newspapers to invite stakeholders' comments and to discuss social and environmental issues. However, several items that need to be further checked have been identified by the desk review as follows: - It is not clearly described how the environmentally friendly technologies would be transferred through the proposed project (see Appendix A-2. A.4.6); - The capacity factors of the small hydroelectric plants should be described in the PDD and their selection properly justified (see Appendix A-2. B.3.2); - The addtionality of the proposed project is weakly justified (see Appendix A-2. B.3.2); - There are some errors in calculating the Build Margin emission factors (see Appendix A-2. E.1.12~13); - It is not clear whether the proposed project has satisfied the requirements of environmental impact analysis to obtain authorization from the relevant authorities. (see Appendix A-2. F, G.).	

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Validation Results	Based on the results of the desk review, the validation team requests the project proponents to provide more documentary evidences and justification in order to ensure the compliance of the PDD with the validation criteria. Additional documents and revised sections of PDD to be submitted prior to on-site assessment (deadline: 14 August 2006) are: 1) The written approval of voluntary participation from the designated national authorities of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development (see Appendix A-2. A.3.3~4) 2) Clarification on transfer of environmentally friendly technology (see Appendix A-2. A.4.6) 3) Description and justification about selection of a capacity factor for the proposed project (see Appendix A-2. B.3.2); 4) Justification for investment barriers in developing the proposed project (see Appendix A-2. B.3.2); 5) Re-calculation of the Build Margin in a transparent and conservative manner (see Appendix A-2. E.1.12~13); 6) Documentary evidences showing that the proposed project has satisfied the requirements of environmental impact analysis to obtain authorization from the relevant authorities, e.g. official (see Appendix A-2. F, G.).	

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5 On-site assessment and interview

On-site assessment has been performed during the period from 11 August to 14 August by making on-site visits and interviewing relevant persons particularly for the purpose of checking the remaining issues identified at the desk review. The on-site assessment focuses mainly on the three aspects below:

1) Capacity factors of the hydro-electric power plants (Samchonpo, Younghung)
2) Environmental impacts by the hydro-electric power plants; and
3) Whether due consideration has been taken of local stakeholders' comments.

The major means of validation is by cross-check between documents and interviews with relevant persons. The key persons interviewed at the on-site assessment are as below:

1) Lim, Kyung Mi, Assistant Manager, Korea South-East Power Co.
2) Kim, Sung Sil, Manager, Gyeongsangnam-do Provincial Office
3) Park, So Hyun, Manager, Masan Regional Maritime Affairs & Fisheries Office

As a result of the on-site assessment, the validation team requests the project entity to take corrective actions against four non-conformities i.e. two Major non-conformities and two Minor non-conformities identified within the deadline, 25 August 2006, as agreed in the Validation Contract.

5.1 On-site assessment findings

Regarding environmental impacts and stakeholders' comments, the project entity has submitted documentary evidences and the Validation Team confirmed those issues by site visits and interviews with relevant officials of local governments. However, such findings should be clearly described in the PDD to clarify any misunderstandings.

The demonstration of project additionality is deemed incomplete and a small number of issues are weakly substantiated. Consequently the Validation Team has issued two Major non-conformities and two Minor non-conformities as identified at the on-site assessment :

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Validation Results	1) Major non-conformity 1: Given the NPV and IRR of the proposed project activity in the PDD, further justifications are required in order to determine that the proposed hydro-electric power project is not financially attractive under the baseline scenario. There is an error in selecting the period to calculate the NPV of the project and depreciation costs and corporate income tax are not properly considered in calculating the NPV and IRR of the proposed hydro-electric power project (see Appendix A-2 Checklist B.3.2); 2) Major non-conformity 2: Further elaborations are needed in the PDD to show that the proposed project has taken due consideration of the analysis of the environmental impacts and local stakeholders' comments (see Appendix A-2 Checklist F. 1.3, G); 3) Minor non-conformity 1: Further elaborations are needed in the PDD in respect of technology transfer (see Appendix A-2 Checklist A.4.6); 4) Minor non-conformity 2: Build Margin should be re-calculated in a transparent and conservative manner (see Appendix A-2 Checklist E.1.12~13); Observations: the project participants have not yet submitted the written approval of voluntary participation from the designated national authorities of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development and private entities participating in the project have not been authorized by the designated national authorities of the Parties. These issues should be further checked prior to preparation of the preliminary Validation Report.	

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6 Review of corrective actions

In response to the request for corrective actions against non-conformities identified, the project proponents submitted the revised project documentation to the validation team, of which the validation team made a thorough review during the period from 22 August to 11 September as follows:

6.1 Corrective actions and conclusions of the validation team

1) Major non-conformity 1: NPV and IRR have been recalculated over the entire period of the project and considering the corrected amount of total project cost.
   A. Conclusions: The corrected NPV and IRR calculation show that the proposed project is not financially attractive.

2) Major non-conformity 2: The revised PDD (Sections F and G) has descriptions on how the proposed project has considered necessary environmental impacts and local stakeholders' comments. The revised Section F describes that the project has satisfied the environmental regulations of relevant authorities. In addition, an internet homepage is created to receive relevant stakeholders' comments. The revised Section has been supplemented by relevant authorization documents and a written consent.
   A. Conclusions: It is concluded that the project proponents have taken due consideration of the environmental impacts and local stakeholders' comments, which is properly addressed in the project documentation.

3) Minor non-conformity 1: The project proponent has made a purchase contract with the turbine manufacturers where technology training and support are part of the contract as stated in the revised Section A.4.2
   A. Conclusions: The revised Section's description on technology transfer is deemed proper for the proposed project.

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4) Minor non-conformity 2: The most recent statistics of electric power in Korea is obtained from the Korea Electric Power Corporation to calculate accurate OM and BM.

A. Conclusions: The recalculated OM and BM are accurate and consistent.

7 Receipt of public comments

In accordance with Paragraph 40(c) of the CDM Modalities and Procedures, the project design document of KOSEP small scale hydroelectric power plants project had been posted on the UNFCCC CDM website for public comments from 25 July 2006 to 23 August 2006. As a result, no comments were received during that period.

8 Issuance of written approvals

The KEMCO validation team has received the written approval from the designated national authority of the Party involved in the Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project (issued on 30 November 2006), which states the following:

1) The Party, Republic of Korea approves that its participation in the Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project is voluntary
2) The Korean government, the host Party of the Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project, confirms the project activity contributes significantly to sustainable development in Korea.
3) The Party, Republic of Korea authorizes the project participant indicated in the PDD to participate in the Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project.

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9 Special Review

In accordance with the clarifications to implement the review process (version 06, adopted by EB28), in response to the request for review raised by the CDM Executive Board, the KEMCO Validation Team has conducted a special review on the Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project from 12 February 2007 to 1 March 2007 as follows:

1) Reason for Request 1:
   A. Responses from Project Participants: the revised PDD shows the rate of must-run and low operating cost sources do not exceed half the total electricity generation by the national grid and thus explains why Simple OM is selected for the proposed project.
   B. Comments: it has been checked that Section B.5.1 of the revised PDD (updated in February 2007) sufficiently justifies why Simple OM is appropriate to the proposed project under project-specific situations by showing that must-run and low operating cost sources account for less than half the total electricity generation by the national grid.

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10 Validation opinion

The KEMCO validation team has performed a validation of KOSEP small scale hydropower plants project which claimed approximately 21,189 CO_2eq ton annually by utilizing small scale hydro resources. To ensure the transparency and integrity of the validation, the validation team first had established the validation checklist taking into account UNFCCC, Kyoto Protocol, Marrakesh Accords, Decision 3, 4/CMP.1, and relevant decisions of the CDM executive board. Based on the checklist the validation of the project activity was undertaken in three stages, i.e. desk review (24 July 2006 ~ 31 July 2006), on-site assessment (11 August 2006~14 August 2006), review of corrective actions (22 August 2006~11 September 2006), and special review (12 February 2007 ~ 1 March 2007).

As a result of the desk review and on-site assessment, the validation team identified two Major non-conformities and two Minor non-conformities and then requested the project proponents to take corrective actions against them. In response to the request, the project proponents submitted the revised project documentation to the validation team, of which the validation team made a thorough review. Then the team fully agreed that all the significant non-conformities issued had been cleared.

In conclusion, the validation team is of the opinion that the KOSEP small scale hydropower plants project is in full compliance with all the major requirements for the CDM by leading to emission reductions additional to what would have otherwise occurred, providing for reliable and measurable emission reductions with the well-established monitoring plan and contributing to sustainable development in Korea through reduction of air pollutants and a decrease in imports of fossil fuel.

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11 References

Documents and electronic files submitted by the Project Entity

1. Ecoeye, KOSEP small scale hydroelectric power plants project, Project Design Document, Updated in February 2007
2. Ecoeye, Financial Analysis Excel Files, Updated in September 2006
3. Gyeongsangnam-do Provincial Office, Permission on electricity generation (Samchonpo), July 2005
4. Masan Regional Maritime Affairs & Fisheries Office, Permission on the use of public waters, November 2005 (in Korean only)
5. Incheon Metropolitan Office, Permission on electricity generation(Younghung), August 2006 (in Korean only)
6. A written consent from the Namdong Fisheries, March 2006 (in Korean only)
7. Korea Electric Power Corporation, Statistics of Electric Power in Korea, 2003~2005 (in excel files)

Documents and websites referred to by KEMCO

8. http://cdm.unfccc.int/DNA
9. http://unfccc.int/files/essential_background/kyoto_protocol/application/pdf/kpstats.pdf
10. http://www.moleg.go.kr (Ministry of Government Legislation, in Korean only)
11. http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html

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	Role	Name	Organization /position	Scope of Validation	Signature
Validation Team	Team Leader, Lead Validator	Woo, Jae Hak	KEMCO	Sustainable Development, Environmental impacts, Stakeholder comments	
	Lead Validator	Kim, Chul-ha	KEMCO	Baseline methodology, Monitoring methodology, Estimation of GHG emissions	

Appendix	A. Validation Criteria B. Validation Checklist C. Review of Corrective Actions D. Special Review E. CVs of Validation Team

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Appendix A

Validation Criteria

(Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project)

REQUIREMENT	Reference	Conclusion	Comments
1. The project shall assist non-Annex I Parties in achieving sustainable development, which shall be confirmed by the host Party in the form of a written approval of voluntary participation.	Kyoto Protocol (KP) Article 12.2, Marrakech Accords(MA) CDM Modalities and Procedures (M&P) paragraph 29	Checked	See Appendix A-2. A.3.3~4
2. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC and lead to real, measurable and give long-term benefits related to the mitigation of climate change.	KP Article 12.2, 5(b)	Checked	See Checklist A.4.6
3. The project shall assist Annex I Parties in achieving compliance with part of their emission reduction commitment under Article 3 of the Kyoto Protocol.	KP Article 12.2	Checked	See Checklist A.4.6
4. Emission reductions attributable to the project shall be additional to any that would occur in the absence of the project activity.	KP Article 12.5(c), MA CDM M&P paragraph 37(d), 43	Checked	See Review of Corrective Actions No.1
5. The project activity should lead to the transfer of environmentally safe and sound technology and know-how.	MA Decision 17/CP.7	Checked	See Review of Corrective Actions No.3
6. Public funding for the project from Annex I Parties shall not result in a diversion of official development assistance	MA Decision 17/CP.7	Checked	See Checklist A.4.7
7. Participation in the CDM shall be voluntary, which shall be approved by each party involved	KP Article 12.5(a), MA CDM M&P paragraph 28, 40(a)	Checked	See Appendix A-2. A.3.3~4
8. Parties participating in the CDM shall designate a national authority for the CDM	MA CDM M&P paragraph 29	Checked	See Checklist A.3.1
9. Parties participating in the CDM shll be a Party to the Kyoto Protocol	MA CDM M&P paragraph 30, 31	Checked	See Checklist A.3.2

REQUIREMENT	Reference	Conclusion	Comments
10. The proposed project activity shall meet the eligibility criteria for small-scale CDM project activities set out in paragraph 6 (c) of decision 17/CP.7	Simplified Modalities and Procedures for Small Scale Projects, paragraph 12a	Checked	See Checklist A.4.2
11. The proposed project activity shall conform to one of the project categories in appendix B to the Simplified Modalities and Procedures for Small Scale Projects	Simplified Modalities and Procedures for Small Scale Projects, paragraph 12b	Checked	See Checklist A.4.3
12. The proposed project activity shall not be a debundled component of a larger project activity, as determined through appendix C to the Simplified Modalities and Procedures for Small Scale Projects	Simplified Modalities and Procedures for Small Scale Projects, paragraph 12c	Checked	See Checklist A.4.10
13. The project design document is in conformance with the Small Scale CDM-PDD format	Simplified Modalities and Procedures for Small Scale Projects, Appendix A	Checked	The PDD of the proposed project was prepared in accordance with UNFCCC Small-scale CDM-PDD Format Version 02
14. The proposed project activity shall use the simplified baseline and monitoring methodologies specified in appendix B to the Simplified Modalities and Procedures for Small Scale Projects for its project category	Simplified Modalities and Procedures for Small Scale Projects, paragraph 14	Checked	See Checklist B.1.1
15. Comments by local stakeholders are invited, a sum mary of these provided and how due account was t aken of any comments received	Simplified Modalities and Procedures for Small Scale Projects, paragraph 22b	Checked	See Review of Corrective Actions No.2
16. An analysis of the environmental impacts of the project activity is carried out and documented if required by the Host Party	Simplified Modalities and Procedures for Small Scale Projects, paragraph 22c	Checked	See Review of Corrective Actions No.2
17. The project activity conforms to all other requirements for CDM project activities in the CDM modalities and procedures that are not replaced by the Simplified Modalities and Procedures for Small Scale Projects	Simplified Modalities and Procedures for Small Scale Projects, paragraph 22f	Checked	

REQUIREMENT	Reference	Conclusion	Comments
18. Parties, stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	Simplified Modalities and Procedures for Small Scale Projects, paragraph 23b,c	Checked	The PDD of the proposed project was posted for 30 days on the CDM website for public comments from 25 July 2006 to 23 August 2006. As a result, no comments were received during that period.
19. Emission reductions attributable to the project shall be adjusted for leakage	Simplified Modalities and Procedures for Small Scale Projects, paragraph 30	Checked	See Checklist E.1.6
20. The project boundary shall encompass all anthropogenic emissions by sources of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the CDM project activity	Simplified Modalities and Procedures for Small Scale Projects, paragraph 31	Checked	See Checklist B.4.1

Appendix B

Validation Checklist

(Korea South-East Power Co. (KOSEP) small scale hydroelectric power plants project)

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
A. General Description of Project Activity *In this section, the project design is assessed including the project purpose, how technology will be transferred and whether public funding from Annex I Parties results in a diversion of official development assistance.*						
A.1. Title of the small-scale project activity *Note:*						
A.1.1. Does the title characterize the project activity clearly and properly?		[1]	Document Review	1. Checked: The project title, Korea South-East Power Co. (KOSEP) small-scale hydroelectric power plants project is clearly described	OK	OK
A.2. Description of the small-scale project activity *Note:*						
A.2.1. Is the purpose of the project activity clearly described?		[1]	Document Review	1. Checked: The proposed project aims to generate electricity utilizing sea-water flow, which is used as cooling water in the thermal power plant, discharging from the hydroelectric dam and feed it into the grid for users.	OK	OK
A.2.2. Is the project in compliance with relevant legislation in the host country?		[3][4][5] [10]	Document Review Interview	1. Checked: During the on-site assessment, the validation team checked the supplementary documents that it conforms to relevant legislations including the Electricity Act, Act on the use of public waters and necessary authorization documents from the local authority.	OK	OK
A.2.3. Does the project contribute to sustainable development of the host country from environmental, social and economic perspectives?		[1]	Document Review	1. Checked: The proposed project is expected to bring the host country and local areas social and environmental benefits including diversification of energy sources, reduction of GHG emissions, and job	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
				creation. However it still needs an approval from the Korean DNA(Designated National Authority)		
A.3. Project Participants *Note:*						
A.3.1.	Have Parties participating in the project designated a national authority for the CDM?	[8]	Document Review	1. Checked: Korea has designated a national authority for the CDM.	OK	OK
A.3.2.	Is the host country a Party to the Kyoto Protocol?	[9]	Document Review	1. Checked: Korea has ratified the Kyoto Protocol	OK	OK
A.3.3.	Have the project received the written approval of voluntary participation from the designated national authorities of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development?			1. To be checked: The project participants have not submitted the written approvals of voluntary participation.	To be checked	OK
A.3.4.	Have a private and/or public entity participating in the project been authorized by the designated national authorities of the Party?			Ditto	To be checked	OK
A.4. Technical description of the small-scale project activity *Note:*						
A.4.1.	Is the location of the project activity clearly described?	[1]	Document Review	1. Checked	OK	OK
A.4.2.	Does the project qualify as a small scale CDM project activity in	[1]	Document Review	1. Checked: The rated power of the proposed project is 5.965MW (Samchonpo: 2.965MW, Younghung:	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	Paragraph 6(c) of decision 17/CP.7 of the Marrakech Accords?			3MW).		
A.4.3.	Does the project activity conform with one of the project categories defined in Appendix B to the simplified M&P for small scale CDM project activities?	[1][11]	Document Review	1. Checked: The proposed project belongs to the category of I.D/version 9, Grid connected renewable electricity generation.	OK	OK
A.4.4.	Is it justified how the project activity conforms to the project categories?	[1][11]	Document Review	1. Checked: The proposed project generates electricity utilizing renewable resources and feed it to the grid	OK	OK
A.4.5.	Does the project design engineering reflect current good practices?	[1]	Document Review	1. Checked: The employed water turbine has high efficiency with low net head in the small amount of water quantity. It is optimistically designed based on various operational conditions.	OK	OK
A.4.6.	Are the environmentally safe and sound technology and know how transferred to the host Party through the project?	[1]	Document Review, Interview	1. Minor non-conformity 1: The PDD provides no description in respect of technology transfer.	Minor NC	OK
A.4.7.	Are the GHGs emissions reductions additional to what would occur in the absence of the project?	[1]	Document Review	1. Major non-conformity 1. See Section B.	Major NC	OK
A.4.8.	Does the project design clearly and consistently indicate the chosen crediting period, the total estimation of emission reductions for the chosen crediting period?	[1]	Document Review	1. Minor non-conformity 2: There are some errors in selecting plants to calculate the Build Margin	Minor NC	OK
A.4.9.	In case public funding from Annex I Parties is involved, does the project provide an affirmation that	[1][2]	Document Review	1. Checked: Public funding from Annex I parties is not included in the project investment	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	such funding does not result in a diversion of official development assistance?					
A.4.10.	Has the confirmation been provided that the project activity is not a debundled component of a larger project activity?	[1]	Document Review	1. Checked: No CDM projects in the same project category have so far been developed near the project site.	OK	OK
B. Application of a Baseline methodology *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*						
B.1.	**Title and reference of the project category applicable to the project activity** *Note:*					
B.1.1.	Has the PDD properly referred to the most recent list of the small scale CDM project activity categories in Appendix B of the simplified M&P for small scale CDM projects?	[1][11]	Document Review	1. Checked: The proposed project belongs to the category of I.D/version 9, Grid connected renewable electricity generation.	OK	OK
B.2.	**Project category applicable to the project activity** *Note:*					
B.2.1.	Has the PDD justified the choice of the applicable baseline calculation for the project category as provided for in Appendix B of the	[1]	Document Review	1. Checked	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	simplified M&P for small scale CDM project activities?					
B.2.2.	Has the PDD described how the baseline methodology is applied in the context of the project activity?	[1]	Document Review	1. Checked: The proposed project belongs to the category of I.D/version 9, Grid connected renewable electricity generation.	OK	OK
B.2.3.	Has the PDD explained the basic assumptions of the baseline methodology in the context of the project activity?	[1]	Document Review	1. Checked	OK	OK
B.2.4.	Has the baseline been determined in a transparent and conservative manner?	[1]	Document Review	1. Minor non-conformity 2: There are some errors in selecting plants to calculate the Build Margin	Minor NC	OK
B.2.5.	Has the PDD provided the key information and data used to determine the baseline scenario (variables, parameters, data sources, etc.)?	[1]	Document Review	1. Minor non-conformity 2: There are some errors in selecting plants to calculate the Build Margin	Minor NC	OK
B.3.	**Description of how the anthropogenic emissions of GHG by sources are reduced below that would have occurred in the absence of the registered CDM project activity** *Note:*					
B.3.1.	Is it justified that the proposed project activity qualifies to use simplified methodologies?	[1][11]	Document Review	1. Checked:	OK	OK
B.3.2.	Is the discussion and demonstration of the additionality of the project activity transparent?	[1][2]	Document Review	1. Major non-conformity 1: There is an error in selecting the period to calculate the NPV of the project (ex: The NPV of the project is calculated over the expected lifetime of the equipment, instead of the	Major NC	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
				crediting period). NPV calculation should also consider other factors such as corporate income tax and depreciation		
B.3.3.	Is it demonstrated that the project activity itself is not a likely baseline scenario (e.g. through demonstrating investment barriers, technology barriers, barriers to prevailing practices, and/or other barriers showing that emissions would have been higher without the project activity)?	[1][2]	Document Review	1. Major non-conformity 1: Demonstration of investment barriers is weakly justified. See Section B.3.2 above.	Major NC	OK
B.3.4.	Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	[1][10]	Document Review	1. Checked: In accordance with the clarification on the treatment of national and/or sectoral policies and regulations provided at the 16th EB meeting, the baseline scenario takes into account mandatory purchase of renewable-based electricity required by the Electricity Act (enacted in February 1999) assuming that the new scheme to compensate renewable projects for the difference between the benchmark value of per kWh costs for renewable energy and the system marginal price of the grid, as required by the Promotion Act for New and Renewable Energy Development, Utilization, & Dissemination (enacted in March 2002) would not be in place.	OK	OK
B.3.5.	Is it showed why the emissions in the baseline scenario would likely exceed emissions in the project scenario by analyzing both	[1]	Document Review	1. Checked: The proposed project is deemed to be zero emission technology	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	scenarios?					
B.4.	**Description of the project boundary for the project activity** *Note:*					
B.4.1.	Is the project boundary clearly defined?	[1]	Document Review	1. Checked	OK	OK
B.4.2.	Is the project boundary consistent with the guidance for the applicable project category in Appendix B of the simplified M&P for small scale CDM project activities?	[1]	Document Review	1. Checked	OK	OK
B.5.	**Details of baseline and its development** *Note:*					
B.5.1.	Has the PDD specified the baseline for the project activity using a methodology specified in the applicable project category in Appendix B of the simplified M&P for small-scale CDM projects?	[1]	Document Review	1. Checked: Operating Margin and Build Margin are specified in Section E of the PDD	OK	OK
B.5.2.	Has the date of completion of the baseline study and the name of person(s)/entity(ies) determining the baseline clearly been stated?	[1]	Document Review	1. Checked	OK	OK
B.5.3.	Is contact information clearly provided and is it indicated that the person/entity is a project participant listed in Annex I?	[1]	Document Review	1. Checked	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
C. Duration of the Project/ Crediting Period *It is assessed whether the temporal boundaries of the project are clearly defined.*						
C.1. Duration of the project activity *Note:*						
C.1.1.	Has the project's starting date been chosen as the date at which the implementation or construction or real action of the project activity begins?	[1]	Document Review	1. Checked: The Samchonpo small-scale hydroelectric power plant starts operation in 31/10/2006 and the Younghung small-scale hydroelectric power plant starts operation in 31/10/2007	OK	OK
C.1.2.	Is the operational lifetime of the project activity clearly defined and reasonable?	[1]	Document Review	1. Checked: The expected operational lifetime of the project activity is 30 years	OK	OK
C.2. Choice of the crediting period and related information *Note:*						
C.2.1.	In the case of the project started between 1 January 2000 and the date of the registration of the first CDM project activity and has been submitted for registration prior to 31 December 2005, has the PDD provided reliable evidence to demonstrate that?	[1]	Document Review	1. Checked: Not Applicable	OK	OK
C.2.2.	Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two times 7 years or fixed crediting period of max. 10 years)?	[1]	Document Review	1. Checked: The crediting period for the proposed project is ten years without renewal	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	C.2.3. Is the assumed crediting time chosen as below the operational lifetime of the project activity?	[1]	Document Review	1. Checked: The crediting period chosen is below the operational life time of the chosen project activity.	OK	OK
	C.2.4. Are the starting date and length of the crediting period clearly and properly stated?	[1]	Document Review	1. Checked: The crediting period starts in November 2007 and lasts over ten years	OK	OK
	D. Application of a monitoring methodology and plan *In this section it is assessed whether the monitoring plan is properly established in accordance with the baseline methodology ensuring reliable emission reductions*					
	D.1. Title and reference of approved monitoring methodology applied to the project activity *Note:*					
	D.1.1. Has the PDD properly referred to the most recent list of the small scale CDM project activity categories in Appendix B of the simplified M&P for small scale CDM projects?	[1][11]	Document Review	1. Checked: Monitoring methodology for Project Activity I.D "Grid connected renewable electricity generation" is referenced	OK	OK
	D.1.2. If a national or international monitoring standard has to be applied to monitor certain aspects of the project activity, has the PDD provided a reference to the source where a detailed description of the standard can be found?	[1][11]	Document Review	1. Checked: The monitoring plan properly considers the Law regarding Measurement and Act on Operation of Electricity Market.	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
D.2.	**Justification of the choice of the methodology and why it is applicable to the project activity** *Note:*					
D.2.1.	Has the PDD justified the choice of the monitoring methodology applicable to the project category as provided for in Appendix B of the simplified M&P for small scale CDM project activities?	[1]	Document Review	1. Checked: The proposed project generates electricity by utilizing small-scale hydroelectric power and the generated electricity is connected to the grid.	OK	OK
D.3.	**Data to be monitored** *Note:*					
D.3.1.	Does the monitoring methodology reflect good monitoring and reporting practices?	[1]	Document Review	1. Checked	OK	OK
D.3.2.	Does the methodology address possible monitoring errors or uncertainties addressed?	[1]	Document Review	1. Checked	OK	OK
D.3.3.	Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	[1]	Document Review	1. Checked: The proposed project generates electricity utilizing renewable resources and thus is deemed to be zero emission technology	OK	OK
D.3.4.	Will it be possible to monitor / measure project emissions as described in the monitoring plan?			Ditto		

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
D.3.5.	Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining the baseline within the project boundary during the crediting period?	[1]	Document Review	1. Checked: Electricity supplied to the grid, the average of Operating Margin and Build Margin will be monitored in order to account for baseline emissions	OK	OK
D.3.6.	Will it be possible to monitor / measure baseline emissions as described in the monitoring plan?	[1]	Document Review	1. Checked	OK	OK
D.3.7.	Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	[1]	Document Review	1. Checked: The proposed project is deemed to lead to no leakages	OK	OK
D.3.8.	Will it be possible to monitor / measure leakage as described in the monitoring plan?	[1]	Document Review	Ditto	OK	OK
D.4.	**Qualitative explanation of how quality control (QC) and quality assurance (QA) procedures undertaken** *Note:*					
D.4.1.	Are procedures identified for monitoring, taking measurements and reporting?	[1]	Document Review	1. Checked: QA/QC procedure is planned and the electricity output from each hydroelectric power plant to the grid will be monitored and recorded electronically.	OK	OK
D.4.2.	Are procedures identified for training of monitoring personnel?	[1]	Document Review	1. Checked: The persons in charge of monitoring and safety shall receive training(three time per year) in courses on ‘Law regarding measurement’, ‘Act on operation of electricity market’ and ‘Electricity safety’.	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
D.4.3.	Are procedures identified for emergency preparedness?	[1]	Document Review	1. Checked: Emergency procedure is established.	OK	OK
D.4.4.	Are procedures identified for calibration of equipment?	[1]	Document Review	1. Checked: A procedure will be established in accordance with 'Law regarding measurement'.	OK	OK
D.4.5.	Are procedures identified for monitoring of maintenance needs for equipment and installations?	[1]	Document Review	1. Checked	OK	OK
D.4.6.	Are procedures identified for review or checks of reported results/data?	[1]	Document Review	1. Checked: Internal investigation and correction procedure shall be followed in case a discrepancy in data measurement occurs.	OK	OK
D.4.7.	Are procedures identified for internal audits to confirm that the project has been monitored as planned?	[1]	Document Review	1. Checked: The measured data is compared with those of Korea Power Exchange and internal investigation and correction procedure shall be followed in case a discrepancy in data measurement occurs.	OK	OK
D.4.8.	Are procedures identified for corrective actions?	[1]	Document Review	1. Checked: A procedure for corrective actions is described in the PDD Section D.4	OK	OK
D.5.	**Operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage effects, generated by the project activity** *Note:*					
D.5.1.	Is the authority and responsibility of project management clearly described?	[1]	Document Review	1. Checked: PDD Section D.5	OK	OK
D.5.2.	Is the authority and responsibility for monitoring, measurement and reporting project emission, baseline emission and leakage	[1]	Document Review	1. Checked: PDD Section D.5	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	data over time clearly described?					
	D.6. Name of person/entity determining the monitoring methodology *Note:*					
	D.6.1. Is contact information provided and is it indicated that the person/entity determining the monitoring methodology is a project participant listed in Annex I?	[1]	Document Review	1. Checked: PDD Section D.5	OK	OK
	E. Estimation of GHG Emissions by Sources *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
	E.1. Formulae used *Note:*					
	E.1.1. Does the PDD clearly describe the formulae used to estimate all significant direct and indirect GHG emissions within the project boundary for each gas, source, formulae/algorithm, emissions in units of CO_2 equivalent?	[1]	Document Review	1. Checked: The proposed project generates electricity utilizing renewable resources and thus is deemed to be zero emission technology	OK	OK
	E.1.2. In the case of direct monitoring of emission reductions, are directly estimated emission reductions provided?	[1]	Document Review	Ditto	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
E.1.3.	Are the project emission calculations documented in a complete and transparent manner?	[1]	Document Review	Ditto	OK	OK
E.1.4.	Have conservative assumptions been used to calculate project emissions?	[1]	Document Review	Ditto	OK	OK
E.1.5.	Are uncertainties in the project emissions estimates properly addressed in the documentation?	[1]	Document Review	Ditto	OK	OK
E.1.6.	Does the PDD clearly describe the formulae used to estimate leakage effects for each gas, source, formulae/algorithm, emissions in units of CO2 equivalent?	[1]	Document Review	1. Checked: The proposed project is deemed to lead to no leakages	OK	OK
E.1.7.	Are the leakage calculations documented in a complete and transparent manner?	[1]	Document Review	Ditto	OK	OK
E.1.8.	Have conservative assumptions been used when calculating leakage?	[1]	Document Review	Ditto	OK	OK
E.1.9.	Are uncertainties in the leakage estimates properly addressed?	[1]	Document Review	Ditto	OK	OK
E.1.10.	Does the sum of estimated GHG emissions within project boundary and estimated leakage clearly represent the emissions attributable to project activity?	[1]	Document Review	1. Checked: The proposed project is deemed to zero emission technology and lead to no leakages	OK	OK
E.1.11.	Does the PDD clearly describe the formulae used to estimate all baseline emissions identified in the	[1][11]	Document Review	1. Checked: Relevant formulae used is accurately described	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	baseline methodology for each gas, source, formulae/algorithm, emissions in units of CO_2 equivalent?					
E.1.12.	Are the baseline emission calculations documented in a complete and transparent manner?	[1][7]	Document Review	1. Minor non-conformity 2: There are some errors in selecting plants to calculate the Build Margin(Plants Yosu#2, Boryeong C/C, KIE#4 are omitted in calculation)	Minor NC	OK
E.1.13.	Have conservative assumptions been used when calculating baseline emissions?	[1][7]	Document Review	1. Minor non-conformity 2: See Section E.1.12 above	Minor NC	OK
E.1.14.	Are uncertainties in the baseline emission estimates properly addressed in the documentation?	[1][7]	Document Review	1. Minor non-conformity 2: See Section E.1.12 and E.1.13 above	Minor NC	OK
E.1.15.	Does difference between emissions from the project activity and baseline emissions clearly represent the emission reductions due to the project activity?	[1][7]	Document Review	1. Minor non-conformity 2: See Section E.1.12 and E.1.13 above	Minor NC	OK
E.2.	**Table providing values obtained when applying formulae above** *Note:*					
E.2.1.	Have all significant values obtained from calculation provided in the Table?	[1][7]	Document Review	1. Checked: PDD Section E.2 Table 18	OK	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*						
F.1. If required by the Host Party, documentation on the analysis of the environmental impacts of the project activity *Note:*						
F.1.1.	Does the project comply with environmental legislation in the host country?	[1][3][4] [5][10]	Document Review Interview	1. Checked: The proposed project is not obligated to conduct environment impact analysis, however, the project proponents have acquired relevant authorizations from local government offices to launch the project, where the authorizations are subject to sound environmental effects.	OK	OK
F.1.2.	Is the project activity likely to create any adverse environmental effects?	[1][3][4] [5][10]	Document Review Interview	Ditto	OK	OK
F.1.3.	Have the environmental impacts identified been properly addressed in the PDD?	[1][3][4] [5][10]	Document Review Interview	1. Major non-conformity 2: Further elaborations are needed in the PDD to show that the proposed project has taken due consideration of the analysis of the environmental impacts and local stakeholders' comments.	Major NC	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
G. Stakeholder Comments *The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.*						
G.1. Brief description how comments by local stakeholders have been invited and compiled *Note:*						
G.1.1.	Is the process clearly described by which comments by local stakeholders have been invited and compiled?	[1][3][4] [5][6]	Document Review Interview	1. Major non-conformity 2: Further elaborations are needed in the PDD to show that the proposed project has taken due consideration of the analysis of the environmental impacts and local stakeholders' comments.	Major NC	OK
G.1.2.	Has an invitation for comments by local stakeholders made in an open transparent manner, in a way that facilitates comments to be received from local stakeholders and allow for a reasonable time for comments to be submitted?	[1]	Document Review	Ditto	Major NC	OK
G.1.3.	Has detailed description been provided to stakeholders in a manner which allows the local stakeholders to understand project activity?	[1]	Document Review	Ditto	Major NC	OK
G.1.4.	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder	[1]	Document Review	Ditto	Major NC	OK

KEMCO	Small Scale Projects Validation Checklist	Ref.	MoV	Comments	Draft Concl.	Final Concl.
	consultation process been carried out in accordance with such regulations/laws?					
G.2. Summary of the comments received *Note:*						
G.2.1.	Have relevant stakeholders been consulted?	[1]	Document Review	Ditto	Major NC	OK
G.2.2.	Is a summary of the comments received provided?	[1]	Document Review	Ditto	Major NC	OK
G.3. Report on how due account was taken of any comments received *Note:*						
G.3.1.	Has due account been taken of any comments received?	[1]	Document Review	Ditto	Major NC	OK

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Appendix C

Review of Corrective Actions

Non-conformities	Reference	Corrective Actions	Comments
1. Major non-conformity 1: Given the NPV and IRR of the proposed project activity in the PDD, further justifications are required in order to determine that the proposed hydro-electric power project is not financially attractive under the baseline scenario. There is an error in selecting the period to calculate the NPV of the project and depreciation costs and corporate income tax are not properly considered in calculating the NPV and IRR of the proposed hydro-electric power project.	Checklist B.3.2	Major non-conformity 1: NPV and IRR have been recalculated over the entire period of the project and considering the corrected amount of total project cost.	The corrected NPV and IRR calculation show that the proposed project is not financially attractive and thus unlikely to occur under the baseline scenario.
2. Major non-conformity 2: Further elaborations are needed in the PDD to show that the proposed project has taken due consideration of the analysis of the environmental impacts and local stakeholders' comments.	Checklist F. 1.3 and G	The revised PDD (Sections F and G) has descriptions on how the proposed project has considered necessary environmental impacts and local stakeholders' comments. The revised Section F describes that the project has satisfied the environmental regulations of relevant authorities. In addition, an internet homepage is created to receive relevant stakeholders' comments. The revised Section has been supplemented by relevant authorization documents and a written consent from a local stakeholder.	It is concluded that the project proponents have taken due consideration of the environmental impacts and local stakeholders' comments, which is properly addressed in the project documentation.
3. Minor non-conformity 1: Further elaborations are needed in the PDD in respect of technology transfer.	Checklist A.4.6	The project proponent has made a purchase contract with the turbine manufacturers where technology training and support are part of the contract as stated in the revised PDD Section A.4.2	The revised Section's description on technology transfer is deemed proper for the proposed project

Non-conformities	Reference	Corrective Actions	Comments
4. Minor non-conformity 2: Build Margin should be re-calculated in a transparent and conservative manner	Checklist E.1.12~13	The most recent statistics of electric power in Korea is obtained from the Korea Electric Power Corporation to calculate accurate OM and BM.	The recalculated OM and BM are accurate and consistent.

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Appendix D

Special Review

Reason for Request	Reference	Responses from Project Participants	Comments
1. The small-scale methodology AMS.1.D is correctly applied, using a combined margin based on the Simple operating margin and a build margin calculated using the most recent 20% of plants constructed. However, it should be provided basic information on the electric grid that the plants are connected to, as well as a justification for using the simple operating margin, that is that low-cost, must-run are less than 50%	Reason for Request 1	The revised PDD shows the rate of must-run and low operating cost sources do not exceed half the total electricity generation by the national grid and thus explains why Simple OM is selected for the proposed project.	It has been checked that Section B.5.1 of the revised PDD (updated in February 2007) sufficiently justifies why Simple OM is appropriate to the proposed project under project-specific situations by showing that must-run and low operating cost sources account for less than half the total electricity generation by the national grid.

Appendix E

CVs of Validation Team

KEMCO

Personal History

Name	Woo, Jaehak (Mr.)		
ID No.	-	Phone No.	(031) 260 – 4831
Date of employment/ Contract date	1990. 01. 04	Scope of Qualification	Sectoral Scope 1~13, 15
Classification	☐ Full-time Validator/verifier ■ Full-time Lead Validator/verifier ☐ Part-time Validator/verifier ☐ Part-time Lead Validator/verifier ☐ Technical Expert ☐ Committee member( ) ☐ Others( )		
Organization	Korea Energy Management Corporation	Position	Team Leader, Korea CDM Certification Office

	Description
Educational background	1) 1982-1986 Seoul National University, College of Engineering, Mining and Petroleum Engineering (Bachelor of Science) 2) 1986-1988 Seoul National University, College of Engineering, Mining and Petroleum Engineering (Candidate Master of Science)
Work experience	1) 2006: Undertook validation of Yangyang Renewable Energy Project (3MW Wind power and 1.4MW Hydroelectric power) and LG Chem Fuel Switching Project 2) 2006–Present: Carrying out Corporate GHG Inventory Verification Prototype Project (LG Chem and SK corp.) 3) 2005-Present: Providing support in implementation of national policies for climate change mitigation 4) 2004: Engaged in establishing the plan on national sustainable development in the energy sector as an expert in the National Sustainable Development Committee 5) 1999-2003: Managed resources technology R&D projects 6) 1993-1998: Managed energy efficient technology R&D projects 7) 1990-1992: Managed new and renewable energy technology R&D projects
Certificate	
Training	Completed training course for GHG auditors - Date: 2 Jan. 2006 ~ 6 Jan. 2006 (44 hours) - Training organization: Korea Energy Management Corporation
Publications	
Linguistic abilities	1) Korean: A 2) English: A

Date of preparation : 28 November 2006

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Personal History

Name	Kim, Chul-Ha (Mr.)		
ID No.	-	Phone No.	(031) 260 – 4506
Date of employment/ Contract date	Nov. 20, 1985	Scope of Qualification	Sectoral Scope 1~4, 6
Classification	☐ Full-time Validator/verifier ■ Full-time Lead Validator/verifier ☐ Part-time Validator/verifier ☐ Part-time Lead Validator/verifier ☐ Technical Expert ☐ Committee member( ) ☐ Others( )		
Organization	Korea Energy Management Corporation	Position	Energy Audit Team Leader, Energy Diagnosis Department

	Description
Educational background	3) 1974-1982 In-ha University, Department of Engineering, Electric Engineering (Bachelor's degree)
Work experience	1) 2005-Present: Conducting electric energy audits 2) 2004 : Carrying out surveys on industrial energy use 3) 2002-2004: Managing R&D projects 4) 1997-2001: Implementing DSM programs - 1997: conducted electric energy audits for 6 sites (LG Electronics Co., Ltd., etc.) - 1998: conducted electric energy audits for 5 sites (Seoul Foundry Co., Ltd., etc.) - 1999: conducted electric energy audits for 3 sites (Geumho Chemicals Co., Ltd., etc.) 5) 1995-1997 Managing Daejeon CHP Plants 6) 1992-1994 Implementing industrial energy management programs 7) 1985-1992 Energy Auditors - 1988: conducted electric energy audits for 11 sites (Incheon Steel Co., Ltd., etc.) - 1989: conducted electric energy audits for 14 sites (Samyang Food Co., Ltd., etc.) - 1990: conducted electric energy audits for 12 sites (Banwol Industrial Complex CHP Plant, etc.)
Certificate	1) Certificate of Electric Engineer (1st) 2) Certificate of Heat System Management Engineer (1st)
Publications	
Linguistic abilities	1) Korean: A 2) English: A

Date of preparation : May 9, 2006