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Validation Report

POSCO

VALIDATION OF THE CDM-PROJECT:
USE OF FINEX OFF GAS FOR POWER GENERATION
IN POHANG STEEL WORKS
IN POHANG, REPUBLIC OF KOREA

REPORT NO. 1002771

February 29, 2008

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

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Subject: Validation of a CDM Project			
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 - 80686 Munich Federal Republic of Germany		TÜV SÜD Contract Partner: TÜV SÜD Korea Ltd.. 12F, "KL163 Bldg., #60, Yoido-Dong, Youngdeungpo-Gu, Seoul 150-763 Republic of Korea	
Client: POSCO Headquarters 1, Goedong-dong, Nam-gu, Pohang Gyeongsangbuk-do 790-600 Republic of Korea		Project Site(s): POSCO Pohang Steel Works 5, Dongchon-Dong, Nam-gu, Pohang Gyeongsangbuk-do 790-600 Republic of Korea	
Project Title: Use of FINEX Off Gas for power generation in Pohang Steel Works			
Applied Methodology / Version: AM0004 version 2		Scope(s): 1	
First PDD Version: Date of issuance: 2007-04-02 Version No.: 1.00 Starting Date of GSP: 2007-05-12		Final PDD version: Date of issuance: 2008-02-25 Version No.: 3.0	
Estimated Annual Emission Reduction:		531,697 tons CO ₂ e	
Assesment Team Leader: Werner Betzenbichler		Further Assessment Team Members: Nikolaus Kröger Stefan Reis Yung-Ho Yoon	
Summary of the Validation Opinion:			
<input checked="" type="checkbox"/> The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board in case letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.			
<input type="checkbox"/> The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board on this decision.			

Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
COR	Coke oven gas
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
FINEX	The FINNEX process is a new iron-making process that does not require any preparation stage of the iron ores or other source materials including the cokes and sintering process
FOG	FINEX Off gas
GHG	Greenhouse gas(es)
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

The validation objective is an independent assessment by a Third Party (Designated Operational Entity = DOE) of a proposed project activity against all defined criteria set for the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and will finally result in a conclusion by the executing DOE whether a project activity is valid and should be submitted for registration to the CDM-EB. The ultimate decision on the registration of a proposed project activity rests at the CDM Executive Board and the Parties involved.

The project activity discussed by this validation report has been submitted under the project title:
Use of FINEX Off Gas for power generation in Pohang Steel Works.

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM project activities the scope is set by:

- The Kyoto Protocol, in particular § 12
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Decisions by the EB published under <http://cdm.unfccc.int>
- Specific guidance by the EB published under <http://cdm.unfccc.int>
- Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- The applied approved methodology
- The technical environment of the project (technical scope)
- Internal and national standards on monitoring and QA/QC
- Technical guideline and information on best practice

The validation is not meant to provide any consulting towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

Once TÜV SÜD receives a first PDD version, it is made publicly available on the internet at TÜV SÜD's webpage as well as on the UNFCCC CDM-webpages for starting a 30 day global stakeholder consultation process (GSP). In case of any request a PDD might be revised (under certain conditions the GSP will be repeated) and the final PDD will form the basis for the final evaluation as presented by this report. Information on the first and on the final PDD version is presented at page 1.

The only purpose of a validation is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

2 METHODOLOGY

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual (for further information see www.vvmanual.info), an initiative of Designated and Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customised for the project. TÜV SÜD developed a “cook-book” for methodology-specific checklists and protocol based on the templates presented by the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below.

The completed validation protocol is enclosed in Annex 1 to this report.

Validation Protocol Table 1: Conformity of Project Activity and PDD				
Checklist Topic / Question	Reference	Comments	PDD in GSP	Final PDD
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further subdivided. The lowest level constitutes a checklist question / criterion.	Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column	Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (<input checked="" type="checkbox"/>) or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CR) is used when the validation team has identified a need for further clarification.	Conclusions are presented in the same manner based on the assessment of the final PDD version.

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests			
Clarifications and cor-	Ref. to table 1	Summary of project	Validation team conclu-

rective action re-requests		owner response	sion
<i>If the conclusions from table 1 are either a Corrective Action Request or a Clarification Request, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 1 where the Corrective Action Request or Clarification Request is explained.</i>	<i>The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 1, under "Final PDD".</i>

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action re-requests	Id. of CAR/CR 1	Explanation of the Conclusion for Denial
<i>If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.</i>	<i>Identifier of the Request.</i>	<i>This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.</i>

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body “climate and energy”. The composition of an assessment team has to be approved by the Certification Body ensuring that the required skills are covered by the team. The Certification Body TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)
- Greenhouse Gas Auditor (GHG-A)
- Greenhouse Gas Auditor Trainee (T)
- Experts (E)

It is required that the sectoral scope linked to the methodology has to be covered by the assessment team.

The validation team was consisting of the following experts (the responsible Assessment Team Leader is written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of sectoral expertise	Host country experience
Werner Betzenbichler	ATL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Nikolaus Kröger	GHG-A, E	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Stefan Reis	E			<input checked="" type="checkbox"/>
Jung-Ho Yoon	T			<input checked="" type="checkbox"/>

Werner Betzenbichler is head of the department Carbon Management Service of TÜV SÜD and head of the “Certification Body for Climate and Energy” and expert for conventional energy generation, renewable energy, energy expansion planning and familiar with the recent version of CDM and JI criteria as necessary for the implementation of Art. 6 and Art. 12 of the KP. Since 2000 he has been working in the international climate change and emission trading business as a verifier.

Nikolaus Kröger is environmental engineer and expert for emissions monitoring and quality assurance at the department “TÜV SÜD Carbon Management Service”. He is located in the TÜV SÜD Hamburg office and is also engaged as personally accredited verifier in the EU-ETS serving the Northern German market. Being auditor for CDM projects he has already been involved in several CDM activities with a special focus on industrial non-CO₂ projects. Constitutive on 13 years experience at the department “Environmental Service” he verified many metallurgical plants, refineries, chemical plants, waste treatment and power plants and process engineering in many types of facilities. One of his former focal points had been implementation and calibration of complex automatic Environment-Data-Systems.

Stefan Reis is quality management auditor and heading the branch office of TÜV SÜD Korea Ltd. in Seoul in multiple responsibilities. He is living since more than 13 years in Korea and is familiar with local laws and regulations. Being auditor for CDM projects he has already been involved in several

CDM activities. He assisted Mr Kröger during the on-site inspections by evaluating documents and data records submitting in Korean language.

Jung-Ho Yoon is based in the branch office of TÜV SÜD Korea Ltd. in Seoul. He has an academic background of Engineering in Chemical Technology with a degree as bachelor. He joined the project being a trainee auditor for CDM projects. He assisted Mr Kröger during the on-site inspections by evaluating documents and data records submitted in Korean language.

2.2 Review of Documents

The first PDD version submitted by the client and additional background documents related to the project design and baseline were reviewed as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

In the period of May 15 to 16, 2007 TÜV SÜD performed interviews on-site with project stakeholders to confirm selected information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in the context of this on-site visit.

Name	Organisation
Mr Sungwoo	POSCO
Mr Jung-heon Oh	POSCO
Mr Kyungrak Kwon	Eco-Frontier
Mr Kyung-Ryul Lee	POSCO
Mr Chae Yun Jun	POSCO
Mr Hyoubwoo Kim	POSCO

2.4 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarised in chapter 3 below and documented in more detail in the validation protocol in annex 1.

2.5 Internal Quality Control

As final step of a validation the validation report and the protocol have to undergo an internal quality control procedure by the Certification Body "climate and energy", i.e. each report has to be approved either by the head of the certification body or his deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

It rests at the decision of TÜV SÜD's Certification Body whether a project will be submitted for requesting registration by the EB or not.

3 SUMMARY OF FINDINGS

As informed above all finding are summarized in table 2 of the attached validation protocol. In total the assessment team expressed 13 Clarification Requests and 10 Corrective Action Requests.

The FINEX process is the first of its kind in the world and like that the audit team put a special focus onto technical risks due to the fact that the technology is not widely commercialized yet. Common risks like with any other prototype project such e.g. deviations between process layout and real efficiency or e.g. the possibility that the flow rate and calorific value of FOG might be expected to be unstable than expected had been unfolded and reviewed.

The key findings in the first PDD were related to the standardization of units and the fixed ex-ante estimation throughout the project's lifetime.

In line with this type of aberrations the calculation of project emissions for steam production based on a wrong CO₂ emission coefficient factor of LNG. The relevant factor chosen from IPCC 2006 guideline is 15.3 tC/TJ. The unit for EF_{LNG} was shown correctly in table *Data/Parameter EF_{LNG}* in section B.6.2. but not correctly transformed to table *Calculation of project emission for steam production* in section B.6.3. Here its unit had been adopted wrong as tC/GJ. In series with the mistaken IPCC coefficient resulted an impact of factor 1000 to the fundamental calculation of project emissions for steam. The result of calculation of project emissions for steam will be 14 tCO₂e/year instead of 14,112 tCO₂e/year as shown in first version of PDD. This has been resolved by the final PDD version.

Further on the assessment team started a discussion about the warranty that the FINEX power plant will not be fired with gas from i.e. blast furnace, converter or other gas sharing facilities of POSCO. This warranty that no fuel switch aforementioned in the FINEX process ended in the disclosure that the site layout is designed for only use of mixtures from FOG, COG (and N₂) in different relations. In the moment when the FINEX plant will be shut down for i.e maintenance, emergency etc. the FOG fired associated power plant will stop service too. The linkage of FINEX plant and FINEX power plant is confirmed by analysing the diameters of FOG and COG pipelines. The COG pipeline layout is too small for only use of COG flow for firing the plant. Additional the COG would need an additional larger sized gas cooler for COG since it's mentioned to be quite hot.

During assessment the current status of FOG use before project start had been discussed. POSCO's expected date of construction completion of the FINEX power plant is October 07, 2007. Currently, some FOG is being unsteadily used in the commission process of the plant and the other remaining FOG is flared into the atmosphere.

Further a CR had been risen, because it was not clear why Scenario 6 is not considered being identical with Scenario 2. Finally it became clear, that there was a misunderstanding about the meaning of the continuation of the current situation when the baseline scenario was determined. Since the captive power plant of POSCO has not been always able to meet all the power demand, so far all shortage of the electricity has been purchased from the grid. If FINEX power plant project was not implemented, POSCO would have purchased the power from the grid. Thus, Scenario 6 is identical with Scenario 2. Along with this context, scenario 6 in the PDD had been revised.

Moreover according to the date of the EIA the project planning goes back until 2003, which might be considered as date of project decision. The TÜV SÜD assessment team thought necessary to exclude that the application for approval as CDM activity not had been used as windfall gain for an activity that has been internally approved anyway. POSCO explained in transparent manner the decision making process including time line and reference to CDM. The final investment decision was made after the date of the EIA. All relevant evidences such as final investment decision by the Board, investment decision by the management committee and investment decision by the advisory committee on investment had been reviewed by korean speaking audit team members. The aforementioned evidences are all dated in 2004. The New Technology Development Report of

FINEX had been available in 2003 and the FINEX power plant related Energy Use Planning Report in 2005.

The audit team missed a clear indication in the context of the use of ACM0002, whether the ex-post or the ex-ante option for the determination of the emission factor is applied. POSCO replied that according to ACM0002 ver 6, ex-ante option for the determination of the emission factor was applied.

Finally the measurement method obviously foresees determining the fuel use as share of the overall LNG use for steam generation on the whole steel production site. As it should be indicated how this share will be calculated (e.g. based on enthalpy and records of steam parameter) POSCO had been asked to fix the procedure of monitoring and calculation for LNG consumption as a start up fuel in the FINEX power plant as part of annex 4.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on UNFCCC website by installing a link to TÜV SÜD's own website and invited comments by Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

webpage: http://www.netinform.de/KE/Wegweiser/Guide2.aspx?ID=2149&Ebene1_ID=26&Ebene2_ID=644&mode=1	
Starting date of the global stakeholder consultation process: 2007-05-12	
Comment submitted by: -	Issues raised: -
Response by TÜV SÜD: -	

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM project activity:

Use of FINEX Off Gas for power generation in Pohang Steel Works in Pohang, Republic of Korea.

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Hence TÜV SÜD will recommend the project for registration by the CDM Executive Board.

An analysis as provided by the applied methodology demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2008-02-29



Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Munich, 2008-02-29



Assessment Team Leader

Validation of the CDM Project:
Use of FINEX Off Gas for power generation in Pohang Steel Works in
Pohang, Republic of Korea



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Annex 1: Validation Protocol

Validation Protocol

Project Title: Use of FINEX Off Gas for power generation in Pohang Steel Works in Pohang, Republic of Korea

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PPD in GSP	Final PDD
A. General description of project activity					
A.1. Title of the project activity					
A.1.1.	Does the used project title clearly enable to identify the unique CDM activity?	2, 3, 5	The project title clearly enables the identification of the CDM activity. No second CDM activity exists with a similar title or at the same site	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.2.	Are there any indication concerning the revision number and the date of the revision?	2, 3, 5	The revision number and the date of the issuance of this revision are correctly indicated. The available PDD is indicated as version 1.00 dated April 02, 2007.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.3.	Is this consistent with the time line of the project's history?	2, 3, 5	The given dates are in consistency with the time line of the project development.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2. Description of the project activity					
A.2.1.	Is the description delivering a transparent overview of the project activities?	2, 3, 5	<p>Yes it is. The description of the project activity delivers a transparent overview of the project activities.</p> <p>Technical risks due to the fact that the technology is not widely commercialized are discussed sufficient. Common risks like with any other prototype project such i.e. deviations between process layout and real efficiency are unfolded. Hence the FINEX process is the first of its kind in the world, the flow rate and calorific value of FOG might be expected to be unstable than expected.</p> <p><u>Clarification Request 9:</u></p> <p>No information is provided by the PDD concerning the recent use or treatment of FINEX gas. It is only mentioned that it is combusted. Please provide information on this issue within the PDD</p>	CR9	<input checked="" type="checkbox"/>

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CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PPD in GSP	Final PDD
A.2.2.	What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	2, 3, 5, 6	The project's engineering schedule had been proofed for demonstrating that the project is in compliance with the actual situation. As shown by POSCO the project's pre-set time-frame is adhered. Additional the basal korean governmental letter of approval for construction, submitted June 08, 2005 and the contract between POSCO and the Consortium of Mitsubishi Corporation, submitted March 11, 2005 had been reviewed for validating the compliance with local korean directives, and the unfolded production data and capacity data. The required documents have been delivered during on-site audit and are listed in Annex 2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.3.	Is the information provided by these proofs consistent with the information provided by the PDD?	2, 3, 5, 6	Yes, it is.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.4.	Is all information presented consistent with details provided by further chapters of the PDD?	2, 3, 5, 6	Yes, there are no contradictions in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3. Project participants					
A.3.1.	Is the form required for the indication of project participants correctly applied?	5, 6	The form required for the indication of project participants is correctly applied. The POSCO company is being owner, operator, developer and financier of this CDM project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.2.	Is the participation of the listed entities or Parties confirmed by each one of them?	5, 6	Contact responsible persons of all parties involved are indicated in Annex 1 of PDD. Mr Sungwoo Kim will be POSCO's contact point in the project activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.3.	Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular Annex 1)?	5, 6	The information provided by above proof is consistent with PDD. POSCO is listed in Annex 1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A.4. Technical description of the project activity				
<i>A.4.1. Location of the project activity</i>				
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	5, 6	The project location could be clearly identified according to the PDD. The address of the plant is given as well as corresponding maps. The project activity is located within the Pohang Steel Works, Nam-gu, Pohang city, Republic of Korea. <u>Clarification Request 10:</u> Please provide detailed coordinates (e.g. GPS) on the location within the PDD for easier identification of the project site.	CR10	<input checked="" type="checkbox"/>
A.4.1.2. How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	5, 6, 11, 12, 13	The proposed projects has been on records as unfolded with the basal korean governmental letter of approval for construction, submitted June 08, 2005 and the contract between POSCO and Mitsubishi Corporation, submitted March 11, 2005. An Environmental impact assessment report submitted by POSCO December 2003 had been approved by korean government. The required documents have been delivered during on-site audit and are listed in Annex 2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>A.4.2. Category(ies) of project activity</i>				
A.4.2.1. To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated?	2, 3, 5	According to the methodology used and applicable the project belongs to sectoral scope 1 - Energy industries (renewable/non-renewable), which is correctly indicated.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>A.4.3. Technology to be employed by the project activity</i>				
A.4.3.1. Does the technical design of the project activity reflect current good practices?	2, 3, 5, 6	This project will use FINEX technology the Consortium of Mitsubishi Cooperation. The technical design of the project represents current good practices because it reduces environmental impacts by using FOG instead of common fuel. The project defines the standard of being	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		state of the art as it is the only and first FINEX site in the world.		
A.4.3.2. Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	2, 3, 5, 6	Yes, the project activity comprises the use of FINEX Off gas – so called FOG – for electricity generation. The difference to situation before starting the CDM project and the amount of emissions of traditional blast furnace methods by comparison with FINEX method had been discussed on-site. There is no doubt that this technology will reduce the GHG emissions significantly.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3.3. Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	2, 3, 5, 6	The project activity requires technology transfer from Japan (annex-I-country). The knowledge of process management and site maintenance is developed by POSCO (host country). Like this the technology transfer from Japan needs to be understood in sense of construction knowledge transfer as the fundamental basal process management knowledge is of Korean origin.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3.4. Is the technology implemented by the project activity environmentally safe?	2, 3, 5, 6, 13	Yes. The environmental impacts are discussed in PDD ver1.00 in section D. POSCO submitted December 2003 an EIA, which had been approved by Korean government. The main possible environmental impacts are to atmosphere and aquatic environment. Predict emissions of SOx and NOx gases will be secluded by a dust chamber and SOx and NOx reducing facility. Additional monitoring of atmosphere (SOI2, NOx, CO, TSP), water quality (temperature, pH, COD, SS, N. P, Heavy metals) and aquatic environment (phytoplankton, zooplankton, benthic organism) will be executed and reported in frequency once every 3 months.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3.5. Is the information provided in compliance with actual situation or planning?	2, 3, 5, 6	Yes, it is.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3.6. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the	2, 3, 5, 6	This CDM project uses first time in world the technology FINEX process. Like it is the first of its kind in the world the FINEX technology correspond state of the art. The used technology results in a significantly better performance than commonly used traditional	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
host country?		blast furnace methods in the host country.		
A.4.3.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	2, 3, 5, 6	A replacement of the technology to be installed during the project period is not reasonably.	☑	☑
A.4.3.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	2, 3, 5, 6, 14	Yes. Due to the very brief experience with operating FINEX power plants, no experienced operating staffs are available to the project owner. Operators must be extensively trained before gaining competence with the complexity of the FINEX process and FINEX power plant maintaining.	☑	☑
A.4.3.9. Is information available on the demand and requirements for training and maintenance?	2, 3, 5, 6, 14	Yes, intensive training and maintenance efforts are carried out to enable responsible POSCO employees of FINEX monitoring department and process management to care for all needs. POSCO's GTCCPP Operation Training Schedule have been delivered during on-site audit and are listed in Annex 2.	☑	☑
A.4.3.10. Is a schedule available for the implementation of the project and are there any risks for delays?	2, 3, 5, 6	The equipments are newly commissioned and the risk for delays is very low. A schedule is available for the implementation of all acquired needs. See above at item A.2.2	☑	☑
A.4.4. Estimated amount of emission reductions over the chosen crediting period				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?	2, 3, 5, 6	The PDD uses the correct in chapter A.4.4 in tons of CO2e as required by the most recent version 06.1 of the "Guidelines for Completing the Project Design Document (PDD), and the Proposed New Baseline and Monitoring Methodologies (CDM-NM);	☑	☑
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	2, 3, 5, 6	Yes, they are; The provided figures are consistent with other data presented in the PDD; Note: Nevertheless we see a common danger of miss understandable figures between European, US and Asian standards of using comma or point for decimal digit.	☑	☑

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A.4.5. Public funding of the project activity				
A.4.5.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	5, 6, 15, 16	Yes. According to the statements of the project owner, all costs are covered by private equity. According to POSCO's annual financial report 2005 (IR) dated March 2006 and the actual Business performance report dated March 2007 no public funding is applied to the project. According to POSCO's investment plan for the FINEX CDM project all cost related to this CDM project including facility are borne by POSCO. The required documents have been delivered during on-site audit and are listed in Annex 2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	5, 6	The statements are consistent within the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B. Application of a baseline and monitoring methodology				
B.1. Title and reference of the approved baseline and monitoring methodology				
B.1.1.1. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	2, 3, 5, 6	Approved consolidated baseline methodology ACM0004 (Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation, version 02) and additional ACM0002 (Consolidated baseline methodology for grid connected electricity generation from renewable sources, version 06) are applied to this project activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.1.1.2. Is the applied version the most recent one and / or is this version still applicable?	2, 3, 5, 6	Yes, it is.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.2. Justification of the choice of the methodology and why it is applicable to the project activity				
B.2.1.1. Is the applied methodology considered the most appropriate one?	2, 3, 5, 6	ACM0004 version 02 is solely addressing the use of waste gas and /or heat and/or pressure for power generation. Hence it is considered that ACM0004 version 02 is the appropriate choice for	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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		this project activity.										
Integrate the required amount of sub-checklists on the applicability criteria as given by the applied methodology and comment on at least every line answered with “No”;												
B.2.2. Criterion 1: The applicability is limited to project activities that generates electricity from waste heat, waste pressure or the combustion of waste gases in industrial facilities	2, 3, 5, 6	<table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>The applicability had been assessed on-site. The project activity is a new facility.</p>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.3. Criterion 2: The project activity has to displace electricity generation with fossil fuel in the electricity grid or captive electricity generation from fossil fuels	2, 3, 5, 6	<table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>The project activity displaces electricity generation with fossil fuel in the electricity grid.</p>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.4. Criterion 3: After the implementation of the project activity there has to be done no fuel switch in the process, where the waste heat or pressure or the waste gas is produced.	2, 3, 5, 6	<table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>No</td></tr></table> <p><u>Clarification Request 1:</u> How is ensured that the FINEX power plant will not be fired with gas from i.e. blast furnace, converter or other gas sharing facilities of POSCO?</p>	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	No	GR1 GR2	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Applicability checklist	Yes / No											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	No											

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		<u>Clarification Request 2:</u> As we understand the FINEX CDM project the steam produced from LNG power plant is only used for start up. It's necessary to recheck miss understandable diction used in the PDD.												
B.2.5. Criterion 4: If capacity expansion of an existing facility is planned during the crediting period, the added capacity must be treated as a new facility.	2, 3, 5, 6, 11	<table><tr><td>Applicability checklist</td><td>Yes / No</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> No capacity expansion is planned during the crediting period. Nevertheless any new capacity will be treated as a new facility.	Applicability checklist	Yes / No	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Applicability checklist	Yes / No													
Criterion discussed in the PDD?	Yes													
Compliance provable?	Yes													
Compliance verified?	Yes													
B.3. Description of the sources and gases included in the project boundary														
Integrate the required amount of sub-checklists for sources and gases as given by the methodology applied and comment on at least every line answered with "No"														
B.3.1. Source: Grid electricity generation Gas(es): CO2 Type: Baseline Emissions	2, 3, 5, 6	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table> See Table 1 of ACM0004 ver02 Overview on emissions sources included in or excluded from the project boundary: CO2 included (Main emission source), CH4 excluded, N2O excluded	Boundary checklist	Yes / No	Source and gas(es) discussed in the PDD?	Yes	Inclusion / exclusion justified?	Yes	Explanation / Justification sufficient?	Yes	Consistency with monitoring plan?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Boundary checklist	Yes / No													
Source and gas(es) discussed in the PDD?	Yes													
Inclusion / exclusion justified?	Yes													
Explanation / Justification sufficient?	Yes													
Consistency with monitoring plan?	Yes													
B.3.2. Source: Captive electricity generation Gas(es): CO2 Type: Baseline Emissions	2, 3, 5, 6	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr></table>	Boundary checklist	Yes / No	Source and gas(es) discussed in the PDD?	Yes	Inclusion / exclusion justified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Boundary checklist	Yes / No													
Source and gas(es) discussed in the PDD?	Yes													
Inclusion / exclusion justified?	Yes													

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			<table><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table> <p>See Table 1 of ACM0004 ver02 Overview on emissions sources included in or excluded from the project boundary: CO2 included (Main emission source), CH4 excluded, N2O excluded</p>		Explanation / Justification sufficient?	Yes	Consistency with monitoring plan?	Yes								
Explanation / Justification sufficient?	Yes															
Consistency with monitoring plan?	Yes															
B.3.3.	Source: On-site fossil fuel consumption due to the project activity Gas(es): CO2 Type: Project Emissions	2, 3, 5, 6	<table><tr><td>Boundary checklist</td><td>Yes / No</td></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table> <p>See Table 1 of ACM0004 ver02 Overview on emissions sources included in or excluded from the project boundary: CO2 included (Main emission source from steam production at LNG power plant), CH4 excluded, N2O excluded</p>		Boundary checklist	Yes / No	Source and gas(es) discussed in the PDD?	Yes	Inclusion / exclusion justified?	Yes	Explanation / Justification sufficient?	Yes	Consistency with monitoring plan?	Yes	☑	☑
Boundary checklist	Yes / No															
Source and gas(es) discussed in the PDD?	Yes															
Inclusion / exclusion justified?	Yes															
Explanation / Justification sufficient?	Yes															
Consistency with monitoring plan?	Yes															
B.3.4.	Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD?	2, 3, 5, 6	The spatial and technological boundaries had been verified on-site and had been confirmed to be as shown in figure 3 of PDD ver1.00.		☑	☑										
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario																
The baseline scenario shall be identified using procedure for Identification of the baseline scenario described in the approved consolidated methodology ACM0004 “Consolidated baseline methodology for waste gas and/or heat and/or pressure for power generation” version 02.																
B.4.1.	Have all technically feasible baseline scenario alternatives (a) - (f) to the project activity been identified and discussed by the PDD? Why can this list be considered as being complete?	2, 3, 5, 6	Yes, all technically feasible baseline scenario alternatives (a) - (f) had been identified and discussed. So far we know this list is to be considered being complete. <u>Corrective Action Request 1:</u> The calculation of Scenario 5 and 6 is not added, nor discussed –		CAR1	☑										

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		even if economically useless - why not sense full to calculate in details; Please update in section B.4. table 5 NPV (KRW) for Alternative 5 and 6		
B.4.2. Does the project identifies correctly and excludes those options not in line with regulatory or legal requirements?	2, 3, 5, 6	As known so far now the project identifies and excludes those options not in line with regulatory or legal requirements. <u>Clarification Request 11:</u> It is not clear why Scenario 6 is not considered being identical with Scenario 2. ACM0004 already foresees this possibility. Please clarify why there is an explicit reference to additional power use in future.	CR11	<input checked="" type="checkbox"/>
B.4.3. Have applicable regulatory or legal requirements been identified?	2, 3, 5, 6	Not applicable because in Korea are no limitations of building FINEX plants and/or FINEX power plants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.4. If baseline scenario is captive power generation (Option 1), is the estimated boiler efficiency determined due to Option A or B?	2, 3, 5, 6	Not applicable (because the baseline scenario is grid power import instead of captive power generation)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.5. If the baseline scenario is grid power imports (Option 2), is the Emission Factor calculated as in ACM0002?	2, 3, 5, 6	As known so far the Emission Factor for displaced electricity is calculated as in ACM0002 ver06; As dispatch data of grid in Korea are not available, here simple OM method is selected for calculating emission factor: <u>Operation margin (OM)</u> EF [tCO ₂ /MWh] in 2003 = 0,7369 EF [tCO ₂ /MWh] in 2004 = 0,7097 EF [tCO ₂ /MWh] in 2005 = 0,7114 Average of 2003 to 2005 = 0,7194 <u>Build margin (BM)</u> EF [tCO ₂ /MWh] = 0,3919	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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B.4.6. If the baseline scenario includes both captive and imported power (Option 3), is the emission factor weighted correctly?	2, 3, 5, 6	Not applicable (because we just face imported power)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):				
B.5.1. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?	2, 3, 4, 5, 6	Yes, the benchmark analysis is applied. (See PDD ver1.00 pg15);	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.2. In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income?	2, 3, 4, 5, 6	Option I is not applicable because POSCO used a benchmark analysis (See above item B.5.1);	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.3. In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	2, 3, 4, 5, 6	Option II is not applicable because POSCO used a benchmark analysis (See above item B.5.1);	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.4. In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?	2, 3, 4, 5, 6	<p>The benchmark was selected as POSCO investment decision benchmark in 2006. The result IRR of this project was 6,63%, which is lower than POSCO investment decision benchmark in 2006; After the investment analysis the project IRR was lower than company internal benchmark IRR. Like this the projects additionally is shown.</p> <p><u>Corrective Action Request 7:</u></p> <p>POSCO investment decision benchmark is not provided within the PDD. By this fact it is not possible for readers to evaluate the given figures also in the context of provided sensitivity analysis. The benchmark has to be provided by the PDD.</p>	CAR-7	<input checked="" type="checkbox"/>

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B.5.5. In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?	2, 3, 4, 5, 6, 17	The calculation of financial figures for this indicator is correctly done. The required documents have been delivered during on-site audit and are listed in Annex 2.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.6. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?	2, 3, 4, 5, 6, 17	The analysis presented in a transparent manner including publicly available proofs for the utilized data.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.7. In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	2, 3, 4, 5, 6, 17	Not needed in accordance with ACM0004 ver02 because the PDD already satisfied the needs for investment analysis barrier.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.8. In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?	2, 3, 4, 5, 6	Not applicable (See above item B.5.7.)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.9. In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	2, 3, 4, 5, 6	Not applicable (See above item B.5.7.)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.10. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD (step 4a)?	2, 3, 4, 5, 6	There is no similar project activity anywhere in the world since POSCO's FINEX CDM project is the first and only in the world.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.11. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?	2, 3, 4, 5, 6	No similar activities are occurred. (See above item B.5.11.)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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B.5.12. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers?	2, 3, 4, 5, 6	<u>Clarification Request 12:</u> According to the date of the EIA the project planning goes back until 2003, which might be considered as date of project decision. It is necessary to exclude that the application for approval as CDM activity might be used as windfall gain for an activity that has been internally approved anyway. Hence an explanation of the decision making process including time line and reference to CDM is required.	CR-12	<input checked="" type="checkbox"/>
B.6. Emissions reductions				
<i>B.6.1. Explanation of methodological choices</i>				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	2, 3, 5, 6	Procedures of reviewing and monitoring Project Emission, Base-line Emission and Leakage applies to the methodology ACM0004 ver02 as described in item B.6. PDD ver1.00.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	2, 3, 4, 5, 6	Baseline Emissions => The baseline scenario is grid power import means Option 2. The methodology is correctly justified and this justification is in line with the situation verified on-site. <u>Corrective Action Request 8:</u> There is no clear indication in the context of the use of ACM0002, whether the ex-post or the ex-ante option for the determination of the emission factor is applied. All belonging parameter are inserted in sections B.6.2 and B. 7.1. It is necessary to indicate the chosen option and justify its selection keeping in mind the preferences given by EB decisions.	CAR-8	<input checked="" type="checkbox"/>
B.6.1.3. Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2, 3, 4, 5, 6	The formulae required for the determination of project emissions are correctly presented, enabling a complete identification of parameter to be used and/or monitored.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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tored?														
B.6.1.4. Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2, 3, 4, 5, 6	The formulae required for the determination of baseline emissions are correctly presented, enabling a complete identification of parameter to be used and/or monitored.	☑	☑										
B.6.1.5. Are the formulae required for the determination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?	2, 3, 4, 5, 6	According to ACM0004 ver02 no leakage is considered; Hence the question is not applicable.	☑	☑										
B.6.1.6. Are the formulae required for the determination of emission reductions correctly presented?	2, 3, 4, 5, 6	<u>Corrective Action Request 2:</u> The formulae required for the determination of emission reductions is missing in the PDD; Nevertheless formulae's essence is correctly presented in words (See PDD ver1.00 pg18) Please add formula: $ER_y = BE_y - PE_y$	CAR2	☑										
B.6.2. Data and parameters that are available at validation														
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	5, 6	The list of parameters presented in chapter B.6.2 follows the requirements of the ACM0004 ver02.	☑	☑										
Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with “No”														
B.6.2.2. Parameter Title: EF_i Carbon emissions factor of fuel (estimation of project emissions)	2, 3, 4, 5, 2, 3, 4, 6, 5, 6, 18,	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	No	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	GR3	☑
Data Checklist	Yes / No													
Title in line with methodology?	Yes													
Data unit correctly expressed?	No													
Appropriate description of parameter?	Yes													
Source clearly referenced?	Yes													

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	19, 20, 21	<table><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table> <p>Project emissions are applicable only if auxiliary fuels are fired for generation start up etc. Here: Energy (LNG) consumption in production of steam to be supplied to FINEX power plant;</p> <p>Listed parameters relevant to project emissions are $Q_{LNG} = 335,421,456 \text{ Nm}^3/\text{yr}$, $NCV_{LNG} = 9508.9 \text{ kcal/Nm}^3$, $EF_{LNG} = 15.3 \text{ tC/TJ}$ and $OXID_{LNG} = 99.5\%$.</p> <p>The required documents such as i) data for NCV of LNG in 2006, ii) Design data for auxiliary capacity of FINEX power plant and iii) Energy consumption from LNG power plant have been delivered during on-site audit and are listed in Annex 2.</p> <p><u>Clarification Request 3</u></p> <p>The unit for Q_{LNG} is not correctly expressed in PDD. It had to be Nm^3/yr instead of Nm^3. Please correct the unit.</p>	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes													
Correct value provided?	Yes																						
Has this value been verified?	Yes																						
Choice of data correctly justified?	Yes																						
Measurement method correctly described?	Yes																						
B.6.2.3. Parameter Title: Hr Average plant efficiency	2, 3, 4, 5, 6	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>-</td></tr><tr><td>Data unit correctly expressed?</td><td>-</td></tr><tr><td>Appropriate description of parameter?</td><td>-</td></tr><tr><td>Source clearly referenced?</td><td>-</td></tr><tr><td>Correct value provided?</td><td>-</td></tr><tr><td>Has this value been verified?</td><td>-</td></tr><tr><td>Choice of data correctly justified?</td><td>-</td></tr><tr><td>Measurement method correctly described?</td><td>-</td></tr></table> <p>Not applicable herewith; Hr only should be discussed in accordance to ACM0004 ver02 when the direct measurement of the</p>	Data Checklist	Yes / No	Title in line with methodology?	-	Data unit correctly expressed?	-	Appropriate description of parameter?	-	Source clearly referenced?	-	Correct value provided?	-	Has this value been verified?	-	Choice of data correctly justified?	-	Measurement method correctly described?	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Data Checklist	Yes / No																						
Title in line with methodology?	-																						
Data unit correctly expressed?	-																						
Appropriate description of parameter?	-																						
Source clearly referenced?	-																						
Correct value provided?	-																						
Has this value been verified?	-																						
Choice of data correctly justified?	-																						
Measurement method correctly described?	-																						

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD																		
		electricity generated by using the waste gas I not possible; Here direct measurement is possible!																				
B.6.2.4. Parameter Title: EF _y CO2 emission factor of the grid	2, 3, 4, 5, 6, 22	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table> EF _y = CO2 emission factor of the grid means combined margin (CM) => 0,5556 tCO2/MWh	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
B.6.2.5. Parameter Title: EF _{OM,y} CO2 operating margin emission factor of the grid	2, 3, 4, 5, 6, 22	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table> EF _{OM,y} = CO2 emission factor of the grid means operation margin (OM) => 0,7194 tCO2/MWh	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
B.6.2.6. Parameter Title: EF _{BM,y}	2, 3, 4, 5,	<table><tr><th>Data Checklist</th><th>Yes / No</th></tr></table>	Data Checklist	Yes / No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																
Data Checklist	Yes / No																					

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CO2 build margin emission factor of the grid	6	<table><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table> EF _{BM,y} = CO2 emission factor of the grid means build margin (BM) => 0,3919 tCO2/MWh	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes					
Title in line with methodology?	Yes																						
Data unit correctly expressed?	Yes																						
Appropriate description of parameter?	Yes																						
Source clearly referenced?	Yes																						
Correct value provided?	Yes																						
Has this value been verified?	Yes																						
Choice of data correctly justified?	Yes																						
Measurement method correctly described?	Yes																						
B.6.2.7. Parameter Title: F _{i,j,y} Amount of each fossil fuel consumed by each power source / plant	2, 3, 4, 5, 6	<table><tr><td>Data Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table> See Annex 3 of PDD: KEPCO data (columns: Coal, Heavy oil, Diesel oil, LNG consumption)	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No																						
Title in line with methodology?	Yes																						
Data unit correctly expressed?	Yes																						
Appropriate description of parameter?	Yes																						
Source clearly referenced?	Yes																						
Correct value provided?	Yes																						
Has this value been verified?	Yes																						
Choice of data correctly justified?	Yes																						
Measurement method correctly described?	Yes																						
B.6.2.8. Parameter Title: COEF _{i,k} CO2 emission factor of each fuel type and each power source / plant	2, 3, 4, 5, 6	<table><tr><td>Data Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr></table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
Data Checklist	Yes / No																						
Title in line with methodology?	Yes																						
Data unit correctly expressed?	Yes																						
Appropriate description of parameter?	Yes																						
Source clearly referenced?	Yes																						

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		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
		See Annex 3 of PDD: KEPCO data (column: Emission factor)			
B.6.2.9. Parameter Title: GEN _{j,y} Electricity generation of each power source / plant	2, 3, 4, 5, 6	Data Checklist	Yes / No	☑	☑
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
		See Annex 3 of PDD: KEPCO data (column: Net generation)			
B.6.2.10. Parameter Title: EF _{CO2,i} CO2 emission factor of fuel used for captive power generation	2, 3, 4, 5, 6	Data Checklist	Yes / No	☑	☑
		Title in line with methodology?	-		
		Data unit correctly expressed?	-		
		Appropriate description of parameter?	-		
		Source clearly referenced?	-		
		Correct value provided?	-		
		Has this value been verified?	-		
		Choice of data correctly justified?	-		
		Measurement method correctly described?	-		
		Not applicable; because baseline scenario of this project is not captive power generation;			

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B.6.2.11. Parameter Title: Eff _{captive} Energy efficiency of captive power plant (estimation of baseline emissions factor in case of captive power)	2, 3, 4, 5, 6	<table><thead><tr><th>Data Checklist</th><th>Yes / No</th></tr></thead><tbody><tr><td>Title in line with methodology?</td><td>-</td></tr><tr><td>Data unit correctly expressed?</td><td>-</td></tr><tr><td>Appropriate description of parameter?</td><td>-</td></tr><tr><td>Source clearly referenced?</td><td>-</td></tr><tr><td>Correct value provided?</td><td>-</td></tr><tr><td>Has this value been verified?</td><td>-</td></tr><tr><td>Choice of data correctly justified?</td><td>-</td></tr><tr><td>Measurement method correctly described?</td><td>-</td></tr></tbody></table> Not applicable; because baseline scenario of this project is not captive power generation;		Data Checklist	Yes / No	Title in line with methodology?	-	Data unit correctly expressed?	-	Appropriate description of parameter?	-	Source clearly referenced?	-	Correct value provided?	-	Has this value been verified?	-	Choice of data correctly justified?	-	Measurement method correctly described?	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No																						
Title in line with methodology?	-																						
Data unit correctly expressed?	-																						
Appropriate description of parameter?	-																						
Source clearly referenced?	-																						
Correct value provided?	-																						
Has this value been verified?	-																						
Choice of data correctly justified?	-																						
Measurement method correctly described?	-																						
B.6.3. Ex-ante calculation of emission reductions																							
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	2, 3, 4, 5, 6	Yes, it is. Nevertheless same procedures for future monitoring means calculating EF GRID on KEPCO statistics for last 3 available years; This means that the EF GRID will have to be updated yearly!		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	2, 3, 4, 5, 6	The GHG calculations are documented in a complete and transparent manner.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
B.6.3.3. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	2, 3, 4, 5, 6	The data provided in this section are consistent with data as presented in other chapters of the PDD.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
B.6.4. Summary of the ex-ante estimation of emission reductions																							
B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	2, 3, 4, 5, 6, 21	The project result in fewer GHG emissions than the baseline scenario		<input checked="" type="checkbox"/>																			

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B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	2, 3, 4, 5, 6, 21, 27, 28	<p>The form/table required for the indication of projected emission reductions is not correctly applied.</p> <p><u>Corrective Action Request 3:</u></p> <p>The calculation of project emissions for steam production is based on a wrong CO2 emission coefficient factor of LNG. The relevant factor chosen from IPCC 2006 guideline is 15.3 tC/TJ.</p> <p>The unit for EF LNG is correctly shown in table <i>Data/Parameter EF LNG</i> in section B.6.2. p. 20 of PDD but not correctly transformed to table Calculation of project emission for steam production in section B.6.3 p.24. Here its unit had to be tC/TJ instead of tC/GJ. Please correct the unit in PDD on pg24.</p> <p>In series with the mistaken IPCC coefficient results an impact of factor 1000 to the fundamental calculation of project emissions for steam. The result of calculation of project emissions for steam will be 14 tCO2e/year instead of 14,112 tCO2e/year. Please correct your calculation in PDD on section B.6.3.</p> <p><u>Corrective Action Request 4:</u></p> <p>Adapted from the aforementioned the calculation of summary of the ex-ante estimation of emission reduction in section B.6.4. is not correct.</p>	CAR3 CAR4	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
B.6.4.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	2, 3, 4, 5, 6	Yes, it is. The project will start in January 2008. The first Ex-ante calculation will be during verifying of the credit period January-December 2008 (1 year after start) in beginning of i.e. 2009;	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.4. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	2, 3, 4, 5, 6	The data provided in this section are in consistency with data as presented in other chapters of the PDD;	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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B.7. Application of the monitoring methodology and description of the monitoring plan																												
B.7.1. Data and parameters monitored																												
B.7.1.1. Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?		Yes, the list of parameters presented in chapter B.7.1 considered being complete with regard to the requirements of the applied methodology. <u>Corrective Action Request 10:</u> The emission factors (CM, OM and BM) are indicated in section B 6.4. and B. 7.1 although ex-ante approach is clearly chosen. Hence these tables should be deleted from section B.7.1.	GAR10	☑																								
Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with “No”																												
B.7.1.2. Parameter Title: Q _i Volume of the auxiliary fuel used by project activity (estimation of project emissions)	2, 3, 4, 5, 6	<div>Volume of the auxiliary fuel used by project activity means volume of LNG Q_{LNG}</div> <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> <div>Project emissions are applicable only if auxiliary fuels are fired for generation start up etc. Here: Energy (LNG) consumption in production of steam to be supplied to FINEX power plant;</div>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	No	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	No	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	GR4 GAR9	☑ ☑
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	No																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	Yes																											
Has this value been verified?	Yes																											
Measurement method correctly described?	No																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	Yes																											
QA/QC procedures described?	Yes																											
QA/QC procedures appropriate?	Yes																											

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		<u>Clarification Request 4:</u> The unit for Q _{LNG} is not correctly expressed. It had to be Nm ³ /yr instead of Nm ³ . Please correct the unit. (See additional CR3) <u>Corrective Action Request 9:</u> The measurement method obviously foresees determining the fuel use as share of the overall LNG use for steam generation on the whole steel production site. It should be indicated how this share will be calculated (e.g. based on enthalpy and records of steam parameter). The procedure should be fixed already within this section or as part of annex 4.																										
B.7.1.3. Parameter Title: NCV _f Net Calorific Value of fuel (estimation of project emissions)	2, 3, 4, 5, 6, 18	Net Calorific Value of fuel means NCV _{LNG} <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> NCV _{LNG} = 9508,9 kcal/Nm ³	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	Yes																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	Yes																											
Has this value been verified?	Yes																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	Yes																											
QA/QC procedures described?	Yes																											
QA/QC procedures appropriate?	Yes																											
B.7.1.4. Parameter Title: EG _{Gen} Total electricity generated (estimation of electricity generation by project activity)	2, 3, 4, 5, 6, 19	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	Yes																											

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		<table><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> <p>Note: The estimation of electricity generation by project activity EG_{GEN} means here design data based on plant capacity [MW] x 365d x 24h x plant load factor [%].The required documents have been delivered during on-site audit and are listed in Annex 2.</p>		Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes								
Appropriate description of parameter?	Yes																												
Source clearly referenced?	Yes																												
Correct value provided for estimation?	Yes																												
Has this value been verified?	Yes																												
Measurement method correctly described?	Yes																												
Correct reference to standards?	Yes																												
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												
B.7.1.5. Parameter Title: EG _{AUX} Auxiliary electricity (including electrical energy utilized by the power generating equipment in the project boundary)	2, 3, 4, 5, 6, 19	<table><tr><td>Monitoring Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> <p>EG_{AUX} = 30,016 MWh/yr <u>Corrective Action Request 5:</u> The required share for auxiliary use can not be the same as the</p>		Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	No	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	CAR5	<input checked="" type="checkbox"/>
Monitoring Checklist	Yes / No																												
Title in line with methodology?	Yes																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	Yes																												
Source clearly referenced?	Yes																												
Correct value provided for estimation?	No																												
Has this value been verified?	Yes																												
Measurement method correctly described?	Yes																												
Correct reference to standards?	Yes																												
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												

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		whole plant's capacity. This seems to be a mistake. The correct value for EG AUX should 4,6 MW instead of 145,9 MW.																										
B.7.1.6. Parameter Title: EG _y Net electricity supplied to facility	2, 3, 4, 5, 6	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table> EG _{GEN} = 922,018 MWh/yr	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	N/A	QA/QC procedures appropriate?	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	Yes																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	Yes																											
Has this value been verified?	Yes																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											
Indication of accuracy provided?	Yes																											
QA/QC procedures described?	N/A																											
QA/QC procedures appropriate?	N/A																											
B.7.1.7. Parameter Title: Q _{WG} Flow rate of waste gas	2, 3, 4, 5, 6	<p>Flow rate of waste gas Q_{WG} means i) flow rate of FINEX off gas Q_{FOG} and ii) Flow rate of Coke oven gas Q_{COG}</p> <p>i) Q_{FOG}</p> <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr></table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	No	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	CR5 CR6	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>						
Monitoring Checklist	Yes / No																											
Title in line with methodology?	Yes																											
Data unit correctly expressed?	No																											
Appropriate description of parameter?	Yes																											
Source clearly referenced?	Yes																											
Correct value provided for estimation?	Yes																											
Has this value been verified?	Yes																											
Measurement method correctly described?	Yes																											
Correct reference to standards?	Yes																											

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		<table><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> <p>Q_{FOG} = 184,000 Nm³/yr</p> <p><u>Clarification Request 5:</u></p> <p>The unit for Q_{FOG} is not correctly expressed. It had to be Nm³/yr instead of Nm³. Please correct the unit in PDD.</p> <p>ii) Q_{COG}</p> <table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>No</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> <p>Q_{COG} = 7,400 Nm³/yr</p> <p><u>Clarification Request 6:</u></p> <p>The unit for Q_{COG} is not correctly expressed. It had to be Nm³/yr instead of Nm³/h. Please correct the unit in PDD.</p>	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	No	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes		
Indication of accuracy provided?	Yes																																	
QA/QC procedures described?	Yes																																	
QA/QC procedures appropriate?	Yes																																	
Monitoring Checklist	Yes / No																																	
Title in line with methodology?	Yes																																	
Data unit correctly expressed?	No																																	
Appropriate description of parameter?	Yes																																	
Source clearly referenced?	Yes																																	
Correct value provided for estimation?	Yes																																	
Has this value been verified?	Yes																																	
Measurement method correctly described?	Yes																																	
Correct reference to standards?	Yes																																	
Indication of accuracy provided?	Yes																																	
QA/QC procedures described?	Yes																																	
QA/QC procedures appropriate?	Yes																																	
B.7.1.8. Parameter Title: NCV _{WG} Net Calorific Value of the waste gas	2, 3, 4, 5, 6, 23,	Net Calorific Value of the waste gas NCV _{WG} means i) Net Calorific Value of FINEX off gas NCV _{FOG} and ii) Net Calorific Value of Coke oven gas NCV _{COG} : i) NCV _{FOG}	CR7 CR8	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>																														

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	24	Monitoring Checklist		Yes / No		
		Title in line with methodology?		Yes		
		Data unit correctly expressed?		No		
		Appropriate description of parameter?		Yes		
		Source clearly referenced?		Yes		
		Correct value provided for estimation?		Yes		
		Has this value been verified?		Yes		
		Measurement method correctly described?		Yes		
		Correct reference to standards?		Yes		
		Indication of accuracy provided?		Yes		
		QA/QC procedures described?		Yes		
		QA/QC procedures appropriate?		Yes		
		NCV _{FOG} = 1,350 kcal/Nm ³				
		<u>Clarification Request 7:</u>				
		The unit for NCV _{FOG} is not correctly expressed. It had to be kcal/Nm ³ instead of TJ/MWh. Please correct the unit in PDD.				
		In contrast the required design data for NCV of COG based on performance guarantee as delivered during on-site audit and listed in Annex 2 demonstrates the unit correct.				
		ii) NCV _{COG}				
		Monitoring Checklist		Yes / No		
		Title in line with methodology?		Yes		
		Data unit correctly expressed?		No		
		Appropriate description of parameter?		Yes		
		Source clearly referenced?		Yes		
		Correct value provided for estimation?		Yes		
Has this value been verified?		Yes				
Measurement method correctly described?		Yes				
Correct reference to standards?		Yes				

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS		PPD in GSP	Final PDD																								
		<table><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> <p>NCV_{COG} = 4.400 kcal/Nm³</p> <p><u>Clarification Request 8:</u></p> <p>The unit for NCV_{COG} is not correctly expressed. It had to be kcal/Nm³ instead of TJ/MWh. Please correct the unit in PDD.</p> <p>In contrast the required design data for NCV of COG based on performance guarantee as delivered during on-site audit and listed in Annex 2 demonstrates the unit correct.</p>		Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes																				
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												
B.7.1.9. Parameter Title: Q _i Flow rate of fuel i	2, 3, 4, 5, 6	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>-</td></tr><tr><td>Data unit correctly expressed?</td><td>-</td></tr><tr><td>Appropriate description of parameter?</td><td>-</td></tr><tr><td>Source clearly referenced?</td><td>-</td></tr><tr><td>Correct value provided for estimation?</td><td>-</td></tr><tr><td>Has this value been verified?</td><td>-</td></tr><tr><td>Measurement method correctly described?</td><td>-</td></tr><tr><td>Correct reference to standards?</td><td>-</td></tr><tr><td>Indication of accuracy provided?</td><td>-</td></tr><tr><td>QA/QC procedures described?</td><td>-</td></tr><tr><td>QA/QC procedures appropriate?</td><td>-</td></tr></table> <p>Not applicable as LNG, FOG and COG are already explained and no further fuels will be used;</p>		Monitoring Checklist	Yes / No	Title in line with methodology?	-	Data unit correctly expressed?	-	Appropriate description of parameter?	-	Source clearly referenced?	-	Correct value provided for estimation?	-	Has this value been verified?	-	Measurement method correctly described?	-	Correct reference to standards?	-	Indication of accuracy provided?	-	QA/QC procedures described?	-	QA/QC procedures appropriate?	-	<input checked="" type="checkbox"/>	
Monitoring Checklist	Yes / No																												
Title in line with methodology?	-																												
Data unit correctly expressed?	-																												
Appropriate description of parameter?	-																												
Source clearly referenced?	-																												
Correct value provided for estimation?	-																												
Has this value been verified?	-																												
Measurement method correctly described?	-																												
Correct reference to standards?	-																												
Indication of accuracy provided?	-																												
QA/QC procedures described?	-																												
QA/QC procedures appropriate?	-																												
B.7.1.10. Parameter Title: NCV _i Net calorific value of fuel i	2, 3, 4, 5, 6	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>-</td></tr></table>		Monitoring Checklist	Yes / No	Title in line with methodology?	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																				
Monitoring Checklist	Yes / No																												
Title in line with methodology?	-																												

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		<table><tr><td>Data unit correctly expressed?</td><td>-</td></tr><tr><td>Appropriate description of parameter?</td><td>-</td></tr><tr><td>Source clearly referenced?</td><td>-</td></tr><tr><td>Correct value provided for estimation?</td><td>-</td></tr><tr><td>Has this value been verified?</td><td>-</td></tr><tr><td>Measurement method correctly described?</td><td>-</td></tr><tr><td>Correct reference to standards?</td><td>-</td></tr><tr><td>Indication of accuracy provided?</td><td>-</td></tr><tr><td>QA/QC procedures described?</td><td>-</td></tr><tr><td>QA/QC procedures appropriate?</td><td>-</td></tr></table>	Data unit correctly expressed?	-	Appropriate description of parameter?	-	Source clearly referenced?	-	Correct value provided for estimation?	-	Has this value been verified?	-	Measurement method correctly described?	-	Correct reference to standards?	-	Indication of accuracy provided?	-	QA/QC procedures described?	-	QA/QC procedures appropriate?	-			
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Correct reference to standards?	-																								
Indication of accuracy provided?	-																								
QA/QC procedures described?	-																								
QA/QC procedures appropriate?	-																								
		Not applicable as LNG, FOG and COG are already explained and no further fuels will be used;																							
B.7.1.11. Parameter Title: Use the latest approved version of ACM0002 to calculate the grid emission factor. If the power generation capacity of the project plant is less or equal to 15 MW, project participants may use the average CO2 emission factor of the electricity system, as referred to in option (d) in step 1 of the baseline determination in ACM0002. EF _{grid,y}	2, 3, 4, 5, 6	ACM0002 has to be applied in case of recalculating the build margin (BM) or the operating margin (OM).		☑	☑																				
B.7.2. Description of the monitoring plan																									
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisioned situation?	2, 3, 4, 5, 6	The operational and management structure is clearly described and in compliance with the envisioned situation.		☑	☑																				
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiv-	2, 3, 4, 5,	The operational and management structure is clearly described and in compliance with the envisioned situation.		☑	☑																				

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ing clearly provided?	6			
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	2, 3, 4, 5, 6	The monitoring plan provides current good monitoring practice.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	2, 3, 4, 5, 6	Note: Annex 4 is not applicable and refer to section B.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
B.8.1.1. Is there any indication of a date when the baseline was determined?	2, 3, 4, 5, 6	Yes, the date of completion of baseline was April 02, 2007.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8.1.2. Is this consistent with the time line of the PDD history?	2, 3, 4, 5, 6	Yes, this is consistent with the time line of the PDD history.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8.1.3. Is the information on the person(s) / entity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	2, 3, 4, 5, 6	Yes, all information on the persons and entities that are responsible for the application of the baseline and monitoring methodology are provided consistent with the actual situation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8.1.4. Is information provided whether this person / entity is also considered a project participant?	2, 3, 4, 5, 6	Yes, Mr Kim is responsible contact point at POSCO for project activity. Mr Kwon is employee of Eco-Frontier Co., Ltd. and like this a consultant and no project participants.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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C. Duration of the project activity / crediting period				
C.1. Duration of the project activity				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	5, 6, 10	The expected commercial operation will start July 10, 2007. The project starting date will be 01.01.2008; The operational lifetime will be 25 years.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	5, 6	The fixed crediting period in PDD will be 10 years with no option of renewal;	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D. Environmental impacts				
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
D.1.1. Has the analysis of the environmental impacts of the project activity been sufficiently described?	5, 6	The analysis of the environmental impacts of the project activity been are sufficiently described;	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	5, 6, 13	According to national regulation on environment, transportation and hazards an Environmental Impact Assessment (EIA) has been carried out in December 2003. The required EIA has been delivered during on-site audit and are listed in Annex 2. <u>Corrective Action Request 6:</u> No approval of the EIA has been delivered during on-site audit. Please allocate the approval of EIA i.e. a document of approval by korean authority.	CAR6	<input checked="" type="checkbox"/>
D.1.3. Will the project create any adverse envi-	5, 6,	Referred to the EIA and the approval of EIA no significant nega-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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ronmental effects?		13	tive environmental impact is expected from the project activities.		
D.1.4.	Were trans-boundary environmental impacts identified in the analysis?	5, 6, 13	There is no trans-boundary impact described in EIA report or approval of EIA.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party					
D.2.1.	Have the identified environmental impacts been addressed in the project design sufficiently?	5, 6, 13	The identified environmental impacts had been addressed in the project design sufficiently	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.2.	Does the project comply with environmental legislation in the host country?	5, 6, 13	The project complies with environmental legislation in Korea.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E. Stakeholders' comments					
E.1. Brief description how comments by local stakeholders have been invited and compiled					
E.1.1.	Have relevant stakeholders been consulted?	5, 6, 25	A local stakeholder meeting has been conducted by POSCO on March 08, 2007 at Pohang Technopark building in Pohang City. 30 attendants were present, including residents of Pohang city, labour of POSCO, consultant, NGO and regional officer of environmental and pollution division from Pohang city hall.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.2.	Have appropriate media been used to invite comments by local stakeholders?	5, 6, 25	<p>This meeting was announced before public hearing on March 02, 2007 in the local newspapers Kyungbuk ilbo, Kyungbuk domin ilbo and The Kyungbuk Maeil Shinmun.</p> <p><u>Clarification Request 13:</u> The excerpt of the press information is written in Korean language, while no English translation is available for readers of the</p>	CR-13	<input checked="" type="checkbox"/>

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			PDD. Please provide information on the content of the press information.		
E.1.3.	If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	5, 6	For this kind of project, Korean regulations do not require stakeholder process.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.4.	Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	5, 6	The undertaken process is described in a transparent manner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2. Summary of the comments received					
E.2.1.	Is a summary of the received stakeholder comments provided?	5, 6	A summary of the comments received is provided by the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3. Report on how due account was taken of any comments received					
E.3.1.	Has due account been taken of any stakeholder comments received?	5, 6	No necessity has been reported to launch any action resulting from the stakeholders' comments.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F. Annexes 1 – 4					
F.1. Annex 1: Contact Information					
F.1.1.	Is the information provided consistent with the one given under section A.3?	5	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.2.	Is the information on all private participants and directly involved Parties presented?	5	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.2. Annex 2: Information regarding public funding					
F.2.1.	Is the information provided on the inclu-	5, 6	Yes. There is no public funding necessary. However it is con-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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	sion of public funding (if any) in consistency with the actual situation presented by the project participants?		firmed that all finance is afford by Pohang Steel Works;		
F.2.2.	If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	5,6	Not applicable.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.3. Annex 3: Baseline information					
F.3.1.	If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	5, 6	The provided additional background information is consistent with data presented by other sections of the PDD. Mainly this background information are KEPCO data as listed in Annex 3 of PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.3.2.	Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	5, 6	All provided data are verifiable.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.3.3.	Does the additional information substantiate / support statements given in other sections of the PDD?	5, 6	The additional information support statements given in other sections of the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4. Annex 4: Monitoring information					
F.4.1.	If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	5, 6	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4.2.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	5, 6	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4.3.	Do the additional information and / or documented procedures substantiate /	5, 6	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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support statements given in other sections of the PDD?				

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Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
<u>Corrective Action Request 1:</u> The calculation of Scenario 5 and 6 is not added, nor discussed – even if economically useless - why not sense full to calculate in details; Please update in section B.4. table 5 NPV (KRW) for Alternative 5 and 6	B.4.1.	Because the scenario 5 and 6 are not realistic, POSCO have barriers to implement those options. Thus scenario 5 and 6 are not included in the process of determination of baseline scenario.	The issue has been clarified.
<u>Corrective Action Request 2:</u> The formulae required for the determination of emission reductions is missing in the PDD; Nevertheless formulae's essence is correctly presented in words (See PDD ver1.00 pg18) Please add formula: $ER_y = BE_y - PE_y$	B.6.1.6.	The formula $ER_y = BE_y - PE_y$ will be added in PDD rev1.01	The issue has been clarified.
<u>Corrective Action Request 3</u> The calculation of project emissions for steam production is based on a wrong CO2 emission coefficient factor of LNG. The relevant factor chosen from IPCC 2006 guideline is 15.3 tC/TJ. The unit for EF_{LNG} is correctly shown in table <i>Data/Parameter EF_{LNG}</i> in section B.6.2. pg20 of PDD but not correctly transformed to table Calculation of project emission for steam production in section B.6.3 pg24. Here its unit had to be tC/TJ instead of tC/GJ. Please correct the unit in PDD on pg24.	B.6.4.2.	The emission coefficient factor of LNG had been corrected in PDD rev 1.1. Also the calculation of project emission for steam production had been corrected by using the emission coefficient factor of LNG, 15.3 tC/TJ.	The issue has been clarified.

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In series with the mistaken IPCC coefficient results an impact of factor 1000 to the fundamental calculation of project emissions for steam. The result of calculation of project emissions for steam will be 14 tCO ₂ e/year instead of 14,112 tCO ₂ e/year. Please correct your calculation in PDD on section B.6.3.			
<u>Corrective Action Request 4:</u> Adapted from the aforementioned the calculation of summary of the ex-ante estimation of emission reduction in section B.6.4. is not correct.	B.6.4.2	Because the emission coefficient factor of LNG had been corrected in PDD rev1.1, The summary in total for project activity emissions in 2008-2017(140 tCO ₂ e) and the summary of overall emission reduction in 2008-2017 in PDD rev1.1 was corrected along with revised emission coefficient factor of LNG, 15.3 tC/TJ.	The issue has been clarified.
<u>Corrective Action Request 5:</u> The Auxiliary Electricity EG AUX can not be identical with the plant capacity EG GEN. This seems to be a mistake. The correct value for EG AUX should 4,6 MW instead of 145,9 MW. Please correct in PDD.	B.7.1.5.	The Auxiliary Electricity EG AUX had been corrected in PDD rev1.1	The issue has been clarified.
<u>Corrective Action Request 6:</u> No approval of the EIA has been delivered during on-site audit. Please allocate the approval of EIA i.e. a document of approval by korean authority.	D.1.2	The approval of EIA for this project was delivered to the validator after on-site audit in Pohang city by email on May 21 th , 2007.	The issue has been clarified.
<u>Corrective Action Request 7:</u> POSCO investment decision benchmark is not provided within the PDD. By this fact it is not possible for readers to evaluate the given figures also in the context of provided sensitivity analysis. The benchmark has to be pro-	B.5.4	POSCO investment decision benchmark is provided in the PDD, section B.	The issue has been clarified.

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vided by the PDD.			
<u>Corrective Action Request 8:</u> There is no clear indication in the context of the use of ACM0002, whether the ex-post or the ex-ante option for the determination of the emission factor is applied. All belonging parameter are inserted in sections B.6.2 and B. 7.1. It is necessary to indicate the chosen option and justify its selection keeping in mind the preferences given by EB decisions.	B.6.1.2	According to ACM0002 ver 6, ex-ante option for the determination of the emission factor was applied because the public data of most recent 3 years for the grid are available in Korea.	The issue has been clarified.
<u>Corrective Action Request 9:</u> The measurement method obviously foresees determining the fuel use as share of the overall LNG use for steam generation on the whole steel production site. It should be indicated how this share will be calculated (e.g. based on enthalpy and records of steam parameter). The procedure should be fixed already within this section or as part of annex 4.	B.7.1.2	The monitoring and calculation for LNG consumption as a start up fuel in the FINEX power plant are provided in Annex 4.	The issue has been clarified.
<u>Corrective Action Request 10:</u> The emission factors (CM, OM and BM) are indicated in section B 6.4. and B. 7.1 although ex-ante approach is clearly chosen. Hence these tables should be deleted from section B.7.1.	B.7.1.1	The PDD has been revised accordingly.	The issue has been clarified.
<u>Clarification Request 1:</u> How is ensured that the power plant will not be fired with gas from i.e. blast furnace, converter or other gas sharing facilities of PO-	B.2.4.	There's no fuel switch aforementioned in the FINEX process. The site layout is designed for only use of mixtures from FOG, COG (and N2) in different relations. In the moment when the FINEX plant will be shut down for i.e maintenance, emergency etc. the FOG fired associ-	The issue has been clarified.

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SCO.		<p>ated power plant will stop service too.</p> <p>The linkage of FINEX plant and FINEX power plant is confirmed by analysing the diameters of FOG and COG pipelines. The COG pipeline layout is too small for only use of COG flow for firing the plant. Additional the COG would need an additional larger sized gas cooler for COG since it's mentioned to be quite hot.</p> <p>FOG pipeline diameter: 3,20m; COG pipeline diameter 0,60m;</p>	
<p><u>Clarification Request 2:</u></p> <p>As we understand the FINEX CDM project the steam produced from LNG power plant is only used for start up. And that's it. Please delete from PDD ver1.00 in B3. Apostrophe 4 <i>The steam will be supplied to the FINEX combined cycle power plant at every maintenance and repairing sessions</i> because it might be miss understandable.</p>	B.2.4.	<p>The miss understandable sentence in B3 Apostrophe 4 was deleted with PDD rev1.1</p>	The issue has been clarified.
<p><u>Clarification Request 3:</u></p> <p>The unit for Q_{LNG} is not correctly expressed. It had to be Nm³/yr instead of Nm³. Please correct the unit.</p>	B.6.2.2.	<p>The unit for Q_{LNG} had been corrected in PDD rev1.1</p>	The issue has been clarified.
<p><u>Clarification Request 4:</u></p> <p>The unit for Q_{LNG} is not correctly expressed. It had to be Nm³/yr instead of Nm³. Please correct the unit. (See additional CR5)</p>	B.7.1.2.	<p>The unit for Q_{LNG} had been corrected in PDD rev1.1</p>	The issue has been clarified.
<p><u>Clarification Request 5:</u></p> <p>The unit for Q_{FOG} is not correctly expressed. It had to be Nm³/yr instead of Nm³. Please correct the unit in PDD.</p>	B.7.1.7	<p>The unit for Q_{FOG} had been corrected in PDD rev1.1</p>	The issue has been clarified.

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<p><u>Clarification Request 6:</u> The unit for Q_{COG} is not correctly expressed. It had to be Nm³/yr instead of Nm³/h. Please correct the unit in PDD.</p>	B.7.1.7	The unit for Q _{COG} had been corrected in PDD rev1.1	The issue has been clarified.
<p><u>Clarification Request 7:</u> The unit for NCV_{FOG} is not correctly expressed. It had to be kcal/Nm³ instead of TJ/MWh. Please correct the unit in PDD. In contrast the required design data for NCV of FOG based on performance guarantee as delivered during on-site audit and listed in Annex 2 demonstrates the unit correct.</p>	B.7.1.8	The unit for NCV _{FOG} had been corrected in PDD rev1.1	The issue has been clarified.
<p><u>Clarification Request 8:</u> The unit for NCV_{COG} is not correctly expressed. It had to be kcal/Nm³ instead of TJ/MWh. Please correct the unit in PDD. In contrast the required design data for NCV of COG based on performance guarantee as delivered during on-site audit and listed in Annex 2 demonstrates the unit correct.</p>	B.7.1.8.	The unit for NCV _{COG} had been corrected in PDD rev1.1	The issue has been clarified.
<p><u>Clarification Request 9:</u> No information is provided by the PDD concerning the recent use or treatment of FINEX gas. It is only mentioned that it is combusted. Please provide information on this issue within the PDD</p>	A.2.1	<p>The recent use of FINEX gas is provided in the PDD section A.2.1.</p> <p>Currently, some FINEX gas is being unsteadily used in the commission process of the FINEX power plant and the other remaining FINEX gas is flared into the atmosphere.</p>	The issue has been clarified.
<p><u>Clarification Request 10:</u> Please provide detailed coordinates (e.g. GPS) on the location within the PDD for eas-</p>	A.4.1.1	The detailed coordinates (the longitude and the latitude) are provided in the PDD section A.4.1.4.	The issue has been clarified.

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ier identification of the project site.			
<p><u>Clarification Request 11:</u></p> <p>It is not clear why Scenario 6 is not considered being identical with Scenario 2. ACM0004 already foresees this possibility. Please clarify why there is an explicit reference to additional power use in future.</p>	B.4	<p>There was a misunderstanding about the meaning of the continuation of the current situation when the base-line scenario was determined. Since the captive power plant of POSCO has not been always able to meet all the power demand, so far all shortage of the electricity has been purchased from the grid. If FINEX power plant project was not implemented, POSCO would have purchased the power from the grid. Thus, Scenario 6 is identical with Scenario 2. Along with this context, scenario 6 in the PDD is revised.</p>	The issue has been clarified.
<p><u>Clarification Request 12:</u></p> <p>According to the date of the EIA the project planning goes back until 2003, which might be considered as date of project decision. It is necessary to exclude that the application for approval as CDM activity might be used as windfall gain for an activity that has been internally approved anyway. Hence an explanation of the decision making process including time line and reference to CDM is required.</p>	B.5.12.	<p>POSCO's final investment decision was made after the date of the EIA (See Evidence 1~3). EIA is one of the feasibility review processes prior to internal investment decision (See Evidence 4).</p> <p>This project has been implemented in consideration with environment including CO2 reduction (See Evidence 5~8).</p> <p>All relevant evidences submitted are as below.</p> <p>Evidence 1: Document of final investment decision by the Board on Jul 23rd, 2004</p> <p>Evidence 2: Document of investment decision by the management committee on Jul 22nd, 2004</p> <p>Evidence 3: Document of investment decision by the advisory committee on investment on Jul 19th, 2004</p> <p>Evidence 4: Decision making process of POSCO</p> <p>Evidence 5: New Technology Development Report in 2003</p> <p>Evidence 6: Document of final investment decision by the Board on Jul 23rd, 2004</p>	The issue has been clarified.

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		Evidence 7: Energy Saving Card in 2004 Evidence 8: Energy Use Planning Report in 2005.	
<u>Clarification Request 13:</u> The excerpt of the press information is written in Korean language, while no English translation is available for readers of the PDD. Please provide information on the content of the press information.	E.1.2.	The translation of the newspaper announcement into English was added in section E of PDD ver 1.03	The issue has been clarified.

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)


Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

Validation of the CDM Project:
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Annex 2: Information Reference List

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Reference No.	Document or Type of Information																		
1	UNFCCC homepage http://www.unfccc.int including the CDM section cdm.unfccc.int																		
2	Approved consolidated baseline methodology ACM0004 / Version 02																		
3	Approved consolidated baseline methodology ACM0002 / Version 06																		
4	Tool for the demonstration and assessment of additionality / Version 03																		
5	Project Design Document for CDM project "Use of FINEX Off Gas for power generation in Pohang Steel Works", dated April 02, 2007, as available at cdm.unfccc.int																		
6	<p>On-site interviews conducted on May 15-16, 2007 in Pohang/Korea by auditing team of TÜV SÜD</p> <p><u>Verification team:</u></p> <table> <tr> <td>Nikolaus Kröger</td><td>TÜV SÜD, ghg lead auditor, technical expert</td></tr> <tr> <td>Stefan Reis</td><td>TÜV SÜD Korea Ltd., ghg auditor</td></tr> <tr> <td>Jung-Ho Yoon</td><td>TÜV SÜD Korea Ltd., ghg auditor trainee</td></tr> </table> <p><u>Interviewed persons in Pohang/Korea:</u></p> <table> <tr> <td>Mr Sungwoo Kim</td><td>POSCO manager</td></tr> <tr> <td>Mr Jung-heon Oh</td><td>POSCO assistant manager</td></tr> <tr> <td>Mr Kyungrak Kwon</td><td>Eco-Frontier, consultant</td></tr> <tr> <td>Mr Kyung-Ryul Lee</td><td>POSCO power generation section, mechanical engineer</td></tr> <tr> <td>Mr Chae Yun Jun</td><td>POSCO power generation section, engineer</td></tr> <tr> <td>Mr Hyoubwoo Kim</td><td>POSCO power generation section, engineer</td></tr> </table>	Nikolaus Kröger	TÜV SÜD, ghg lead auditor, technical expert	Stefan Reis	TÜV SÜD Korea Ltd., ghg auditor	Jung-Ho Yoon	TÜV SÜD Korea Ltd., ghg auditor trainee	Mr Sungwoo Kim	POSCO manager	Mr Jung-heon Oh	POSCO assistant manager	Mr Kyungrak Kwon	Eco-Frontier, consultant	Mr Kyung-Ryul Lee	POSCO power generation section, mechanical engineer	Mr Chae Yun Jun	POSCO power generation section, engineer	Mr Hyoubwoo Kim	POSCO power generation section, engineer
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Mr Kyung-Ryul Lee	POSCO power generation section, mechanical engineer																		
Mr Chae Yun Jun	POSCO power generation section, engineer																		
Mr Hyoubwoo Kim	POSCO power generation section, engineer																		
8	POSCO Pohang Steel works homepage http://www.posco.co.kr/homepage/docs/en/company/posco/s91a1010091c.html																		
9	Presentation of Eco-Frontier Co., 11 th Floor, DMC R&D Center, E3-2, Sangam-dong, Mapo-Gu, Seoul, Korea (121-270) about the technical process of the FINEX and the FINEX CDM project																		
10	Engineering schedule 2005-2007 of FINEX project (timeline of project), submitted by POSCO May 15-16, 2007																		
11	Korean governmental letter of approval for construction, submitted June 08, 2005																		
12	Contract for FINEX Power plant at Pohang Works between POSCO, Consortium of Mitsubishi Corporation and POSCO Engineering & Construction Co., Ltd. submitted March 11, 2005																		
13	Environmental impact assessment report (EIA), submitted by POSCO December 2003																		
14	GTCCPP Operation Training Schedule, submitted by POSCO May 15-16, 2007																		

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Reference No.	Document or Type of Information
15	Business performance report, submitted by POSCO May 03, 2007
16	POSCO Annual Report 2005, submitted by POSCO March 2006
17	NPV analysis of alternative scenario, submitted by POSCO May 15-16, 2007
18	Data for NCV of LNG in 2006, submitted by POSCO laboratory May 15-16, 2007
19	Design data for auxiliary capacity of FINEX power plant (Performance guarantee), submitted by POSCO May 15-16, 2007
20	Energy consumption from LNG power plant (Q LNG source of Nm ³ /h), submitted by POSCO May 15-16, 2007
21	Calculation of project emissions from steam consumption (file: Project emission calculation in PDD 1.00.xls), submitted by POSCO and Eco-Frontier May 15-16, 2007
22	Calculation on emission factor (CM OM BM), submitted by POSCO May 15-16, 2007
23	Design data for NCV of COG (Performance guarantee), submitted by POSCO May 15-16, 2007
24	Design data for NCV of FOG (Performance guarantee), submitted by POSCO May 15-16, 2007
25	Announces of public hearing on March 02, 2007 for local stakeholder process in local newspapers Kyungbuk ilbo, Kyungbuk domin ilbo and The Kyungbuk Maeil Shinmun.
26	PrintScreen of DCS-Relation FOG, COG and N2 from control room of FINEX power plant, submitted by POSCO May 16, 2007 as watched personally on-site by TÜV SÜD audit team on May 16, 2007
27	Documents to show that POSCO's final investment decision was made after the date of the EIA. The relevant evidences are submitted by POSCO as listed below: Evidence 1: Document of final investment decision by the Board on Jul 23 rd , 2004 Evidence 2: Document of investment decision by the management committee on Jul 22 nd , 2004 Evidence 3: Document of investment decision by the advisory committee on investment on Jul 19 th , 2004 Evidence 4: Decision making process of POSCO Evidence 5: New Technology Development Report in 2003 Evidence 6: Document of final investment decision by the Board on Jul 23 rd , 2004 Evidence 7: Energy Saving Card in 2004 Evidence 8: Energy Use Planning Report in 2005
28	1996 Revised IPCC Guidelines
29	IPCC Good Practice Guidance and Uncertainty Management 2000
30	Project Design Document for CDM project "Use of FINEX Off Gas for power generation in Pohang Steel Works", dated February 25, 2008

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