VALIDATION REPORT

25.3 MW WHR PROJECT OF ZHEJIANG LEOMAX GROUP IN CHINA

REPORT NO. 2007-1755
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VALIDATION REPORT

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Approved by: Michael Lehmann	Organisational unit: Climate Change Services
Client: Shanghai Chuanji Investment Management Co., Ltd.	Client ref.: Mr. Chen Ximing

Project Name: 25.3 MW WHR Project of Zhejiang Leomax Group
Country: China
Methodology: AM0024
Version: 01
GHG reducing Measure/Technology: Utilization of Waste Heat for Power Generation
ER estimate: 162 203 tCO_2e annually
Size
☒ Large Scale
☐ Small Scale
Validation Phases:
☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues
Validation Status
☐ Corrective Actions Requested
☐ Clarifications Requested
☒ Full Approval and submission for registration
☐ Rejected

In summary, it is DNV's opinion that the *25.3MW WHR Project of Zhejiang Leomax Group* in China, as described in the PDD of 11 March 2009, version 03), meets all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology AM0024, Version 01. DNV thus requests the registration of the project as a CDM project activity.

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25.3 MW WHR Project of Zhejiang Leomax Group

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Abbreviations

AQC	Air Quenching Chamber
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
DRC	Development and Reform Commission
ECPG	East China power grid
FSR	Feasibility Study Report
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LOA	Letter of Approval.
MP	Monitoring Plan
NDRC	National Development and Reform Committee.
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OM	Operating Margin
PDD	Project Design Document
SCE	Standard coal equivalent
SP	Suspension Preheater
UNFCCC	United Nations Framework Convention on Climate Change

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1 EXECUTIVE SUMMARY – VALIDATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a validation of the "25.3 MW WHR Project of Zhejiang Leomax Group" in China. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host Party criteria,as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host Party is China and the Annex I Party is the Netherlands. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants. The DNA of China has confirmed that the project assists in achieving sustainable development. The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards China.

The project correctly applies the approved baseline and monitoring methodology AM0024 version 01: "Baseline methodology for greenhouse gas reductions through waste heat recovery and utilization for power generation at cement plants".

By utilizing waste heat for electricity generation, the project will displace fossil fuel based grid electricity and will result in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project 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.

The total emission reductions from the project are estimated to be on the average 162 203 tCO2e per year over the fixed crediting period of ten years. The emission reduction forecast has been checked, and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate training and monitoring procedures have been implemented.

In summary, it is DNV's opinion that the "25.3 MW WHR Project of Zhejiang Leomax Group" in China as described in the PDD version 03 of 11 March 2009 meet all relevant UNFCCC requirements for the CDM and all relevant host Party criteria and correctly applies the baseline and monitoring methodology AM0024, version 01. DNV thus requests the registration of the "25.3 MW WHR Project of Zhejiang Leomax Group" as a CDM project activity.

2 INTRODUCTION

Shanghai Chuanji Investment Management Co., Ltd. has commissioned Det Norske Veritas Certification AS (DNV) to perform a validation of the "25.3 MW WHR Project of Zhejiang Leomax Group" in China (hereafter called "the Project"). This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM projects, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board.

2.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AM0024. The validation team has, based on the recommendations in the Validation and Verification Manual, employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

3 METHODOLOGY

The validation consisted of the following three phases:

I a desk review of the project design documents

II follow-up interviews with project stakeholders

III the resolution of outstanding issues and the issuance of the final validation report and opinion

3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation assessed during the validation:

/1/ Shanghai Chuanji Investment Management Co., Ltd., Project Design Document for the "25.3 MW WHR Project of Zhejiang Leomax", version 01 of 25 September 2007 and version 02 of 05 January 2008 and version 03 of 11 March 2009.

/2/ Letter of Approval issued by DNA of China on 5 March 2007

/3/ Letter of Approval issued by DNA of the Netherlands on 21 June 2007.

/4/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): Validation and Verification Manual. http://www.vvmanual.info

/5/ CDM Executive Board: Tool for the demonstration and assessment of additionality, version 03, EB 29 meeting.

/6/ CDM Executive Board: AM0024 "Baseline methodology for greenhouse gas reductions through waste heat recovery and utilization for power generation at cement plants" version 01 of 30 September 2005.

/7/ CDM Executive Board: ACM0002 "Consolidated methodology for grid-connected electricity generation from renewable sources" version 06 of 19 May 2006.

/8/ Project feasibility study report for Jiande plant of March 2006, for Guangde plant of December 2005 and for Tonglu plant of December 2006. The approval letter by Zhejiang Economic and Trading Commission for Jiande plant of 18 May 2006 and for Tonglu plant of 9 January 2007 and the approval letter by Anhui Economic and Trading Commission for Guangde plant of 31 August 2006.

/9/ Environmental impact assessment by Zhejiang metallurgy environmental protection design & research Co., Ltd for Jiande plant of December 2005, for Tonglu plant of December 2006 and for Guangde plant of December 2005. The approval letter from the Zhejiang Environmental Protection Bureau for Jiande plant of 9 February 2006 and for Tonglu plant of 30 January 2007, approval from Anhui Environmental Protection Bureau for Guangde plant of 24 February 2006.

/10/ 2006 IPCC Guidelines for National Greenhouse Gas Inventories

/11/ The explanation about the WHR project in Zhejiang province and Anhui province from the cement association of Zhejiang province and Guangde Development and Reform Committee Anhui province of 4 January 2007 and 26 December 2006, respectively.

/12/ CDM Executive Board, Guidance for request for deviation titled "Application of AM0005 and AMS-I.D in China" (http://cdm.unfccc.int/Projects/Deviations)

/13/ The approval letter of applying for grid-connected of electricity from Tonglu waste heat of 28 August 2007and from Jiande plant of 22 June 2007 by Zhejiang province power grid. Guangde plant by Anhui province power grid of 19 January 2007

/14/ Termsheet on sale and purchase of certificated emission reductions between Zhejiang Leomax Group and Essent Energy Trading BV of 14 September 2006.

/15/ The plan for training the personnel of 1 October 2007 and implementation in 2008.

/16/ Project Economic Evaluation Methods and Parameters Version 03.

/17/ Permission letter of starting construction for Jiande Plaant of 30 October 2006, for Guangde Plant of 13 November 2006 and for Tonglu Plant of 26 December 2007.

/18/ The statement about the equity and loan for Guangde project investment of 28 December 2007, for Jiande project of 28 March 2007, for Tonglu project of 26 April 2007.

/19/ Promise letter for Leomax Group in the Jiande Leomax WHR project from Jiande branch, Hangzhou Commercial Bank of 20 August 2006.

/20/ Agreement for CDM development between Zhejiang Leomax Co., Ltd Group and Shanghai Chuanji investment Managerment Co., Ltd of 23 January 2006.

/21/ Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below issued by the General Office of the State Council, decree No. 2002-6.

/22/ The maintenance records of Jiande power plant in 2007.

/23/ Notification on Determining Baseline Emission Factor of China's Grid issued by China's DNA in August 2007 on http://cdm.ccchina.gov.cn.

/24/ China Energy Statistical Yearbook 2004-2006.

/25/ China Electric Power Yearbooks 2000-2006.

/26/ Electricity invoice of Tonglu plant from 2005 to 2007, Jiande Plant in 2007 and Guangde Plant in 2007.

/27/ The announcement of National Bureau of Statistics of China in the period 2002 to 2006.
http://www.stats.gov.cn/tjsj/ndsj/2007/html/I0916e.htm,
http://www.stats.gov.cn/tjsj/ndsj/2007/html/E0522e.htm

/28/ Spreadsheet of IRR and NPV from the fixed input parameters and variable input parameters.

/29/ Power plant production monthly records for Jiande power plant and Guangde power plant in 2007.

/30/ The contract for construction of Jiande power plant between project owner and Zhejiang Xizi united engineering Co., Ltd. For Guangde power plant, the main contracts including boiler and generator ,construction, installation between project owner and Hangzhou boiler group Co., Ltd, Hangzhou Zhongneng turbine dynamics

Co., Ltd, Zhejiang Jianan estate group Co., Ltd and Zhejiang Kaiyuan installation group Co., Ltd.

The main changes between the version of the PDD published for the 30 days stakeholder commenting period and the final version of the PDD submitted for registration are as follows:

- Some default parameters have been revised from IPCC1996 version to IPCC2006 version.

- The starting date has been revised to be the earliest date of construction, implementation and real action.

3.2 Follow-up Interviews with Project Stakeholders

	Date	Name	Organization	Topic
/31/	2007-10-25	Mr Chen Yourong , group Co.,Ltd. general engineer Mr Zhang Songli, vice-general engineer Mr Jiang Yongming, vice-general manager Mr Zhang Dikang, assistant manager Mr Chen Kede, vice-general manager	Zhejiang Leomax group Co.,Ltd. Anhui Guangde Leomax cements Co., Ltd. Zhejiang Jiande Leomax cements Co., Ltd. Zhejiang Tonglu Leomax cement Co., Ltd.	- Project background information. - Project technology, operation, maintenance and monitoring capability. - Project additionality. - Project monitoring and management plan. - Project approval status (incl. EIA approval, CDM project approval status) - Stakeholder consultation process.
/32/	2007-10-25	Mrs. Ma Ranqiu, vice general manager Miss Ma Zhiwei, project manager	Shanghai Chuanji Investment Management Co., Ltd.	- Applicability of selected methodology. - Baseline determination. - Emission reductions calculation. - Monitoring plan.

3.3 Resolution of Outstanding Issues

The objective of this phase of the validation was to resolve any outstanding issues which needed be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a validation protocol was customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification 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 for the *25.3 MW WHR Project of Zhejiang Leomax Group* is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of CDM criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;
ii) CDM and/or methodology specific requirements have not been met; or
iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

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Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities		
Requirement	***Reference***	***Conclusion***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*

Validation Protocol Table 2: Requirement checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.	*Gives reference to documents where the answer to the checklist question or item is found.*	*Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.*	*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.*	*This is either acceptable based on evidence provided (**OK**), or a **corrective action request (CAR)** due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.*

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	***Ref. to checklist question in table 2***	***Summary of project owner response***	***Validation conclusion***
If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the CAR or CL is explained.*	*The responses given by the project participants during the communications with the validation team should be summarised in this section.*	*This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1 Validation protocol tables

3.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.

3.5 Validation Team

Role/Qualification	Last Name	First Name	Country
Team leader/GHG auditor	Cuiping	Deng	China
CDM validator	Shuyong	Sun	China
Sector expert	Michael	Lehmann	Norway
Technical Reviewer	Chandrashekara	Kumaraswamy	India

The qualification of each individual validation team member is detailed in Appendix B to this report.

4 VALIDATION FINDINGS

The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A. The final validation findings relate to the project design as documented and described in the revised and resubmitted project design documentation.

4.1 Participation Requirements

The project participants are Zhejiang Leomax Group Co. Ltd. from China and Essent Energy Trading BV from The Netherlands. The host Party, i.e. China, and the Annex I Party, i.e. the Netherlands, meet all relevant participation requirements.

The letter of approval (LoA) /2/ was issued by the DNA of China on 5 March 2007, authorizing Zhejiang Leomax Group Co. Ltd., as the project participant and confirming that the project assists in achieving sustainable development.

The DNA of the Netherlands has issued a LoA /3/ on 21 June 2007 authorizing Essent Energy Trading BV as the project participant.

The project does not involve public funding, and the validation did not reveal any information that indicates the project can be seen as a diversion of official development assistance (ODA) funding towards China.

4.2 Project Design

The project activity involves the installation of waste heat recovery (WHR) systems to generate electricity for the four clinker production lines of Zhejiang Leomax Group, located in

- Tonglu County, Zhejiang Province (two 2,500 t/d clinker production lines) with an installed capacity of 9MW power plant
- Jiande City, Zhejiang Province (5,000 t/d clinker production line) with an installed capacity of 7.5 MW power plant

- Guangde County, Anhui Province (5,000 t/d clinker production line) with an installed capacity of 8.8 MW power plant

thus totalling 25.3 MW across all the three locations.

By displacing fossil fuel based electricity to the extent of 179 350 MWh annually from the East China power grid (ECPG) which is dominated by electricity generation with fossil fuel, the total expected annual emission reductions are estimated to be 162 203 tCO_2e.

The applied technology has been developed indigenously by Tianjin Cement Industry Design & Research Institute Co., Ltd (TCDRI) and the design engineering reflects current good practices. The installed AQC and SP boiler is manufactured by Hangzhou Boiler Group Co., Ltd and the generators and steam turbines are being supplied by Hangzhou Zhongneng Turbine Power Co., Ltd.

The starting date of this project is on 30 October 2006 which is verified from the permission letter of starting construction/17/. The lifetime of project activity is 20 years and is deemed appropriate/7/. The starting date of the crediting period has been chosen to be 1 September 2008 of the date of registration of the project activity, which ever is later.

4.3 Baseline Determination

The methodology AM0024 (version 01) "Baseline methodology for greenhouse gas reductions through waste heat recovery and utilization for power generation at cement plants" was applied for the baseline determination. The project is deemed applicable as

1. All the electricity consumption at the cement production lines are imported from the ECPG before the project activity and the electricity generated by the project activity will be totally supplied to the cement production line. There is no electricity export to the grid because the electricity generated from the proposed project will replace part of electricity supplied from grid.
2. Electricity generated under the project activity will directly displace electricity imported from the ECPG.
3. The power grid boundaries in China are clearly identified and are managed as six regional power grids of which ECPG is one of them. The information of ECPG is reported annually in the China Electric Power Yearbook.
4. All the recovered waste heat is only to be used in the project activity to generate electricity that will be used in cement production.
5. In the clinker making process, most waste heat is vented to atmosphere and a portion is used to heat up the incoming raw materials and fuel.
6. The current use of waste heat is only used to heat up the incoming raw materials and fuel and was not used outside of the clinker making process.

The project boundary is defined as the waste heat source (rotating kiln generating the waste heat of the project), heat recovery boilers (SP boiler and AQC boiler), waste heat generator units and its auxiliary facilities. The system boundary for the grid electricity system considered for determining a grid emission factor are all power plants which join up with the East China Power Grid.

The emissions sources included in the project boundary is as described in the following table:

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	GHGs involved	*Description*
Baseline emissions	CO_2	*Grid electricity generation*
Project emissions	CO_2	*On-site fossil fuel consumption due to the project activity*
Leakage		*Is negligible*

It has been demonstrated that before the project activity, most of the waste heat from cement production was vented into atmosphere and a small part used for heating the raw materials and fuel. After implementation of the project, all the recovered waste heat is to be used in the project activity to generate electricity that will be used in cement production and for no other uses. Furthermore, before the project, the project owner has imported all of their electricity from the East China Power Grid. After the project activity is implemented, the total electricity consumption will increase but a part of it will be supplied by the project activity and the rest from the ECPG. So, the identified alternatives are:
Alternative 1: The proposed project activity not undertaken as a CDM project activity;
Alternative 2: Continuation of equivalent import of electricity from East China Power Grid;
Alternative 3: Installation of a new thermal power plant.

The alternative 3 is not in compliance with the "Notice on Strictly Prohibiting the Installation of Fuel-fired Generators with the Capacity of 135MW or below"/21/.

Thus, alternative scenarios 1 and 2 are the remaining possible baseline alternatives.

For the comparison of these two alternative scenarios, an appropriate analysis method has been determined. According to "tool for the demonstration and assessment of additionality", if the CDM project activity generates no financial or economic benefits other than CDM related income, the simple cost analysis (Option I) can be applied. Otherwise, the investment comparison analysis (Option II) or the benchmark analysis (Option III) should be used. Since the project will achieve economic benefits from electricity sale other than CDM income, the investment comparison analysis (Option II) and the benchmark analysis (Option III) were selected to confirm the project's additionality. However, the investment comparison analysis (Option II) is only applicable to the project if similar investment alternatives were available. Since this is not the case for the proposed project activity, the benchmark analysis (Option III) was selected to confirm the project's additionality.

For alternative scenario 1, as shown in our validation report, the equity IRRs without CDM revenue are 7.47%（Tonglu Plant）, 8.07% （Jiande Plant）and 7.92 (Guangde Plant), which are all lower than the equity benchmark rate of 12%, and the result is substantiated by the sensitivity analysis. So, alternative scenario1 is financially unattractive.

However, it was mentioned in the EB39 report Annex 35 "Guidance on the assessment of investment analysis" that if the alternative to the project activity is the supply of electricity from a grid, this is not to be considered an investment and a benchmark approach is considered appropriate. Furthermore, in clause 15 of the guidance on the Assessment of Investment Analysis which is from the annex 45 of EB 41# meeting report, it states that "if

the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate."

To further elaborate that import of electricity from the grid is more economically attractive than the proposed project activity not undertaken as a CDM project activity, a comparative NPV calculation /28/ has been conducted by the project proponent and reviewed by DNV. It shows that the NPV for the "continuation of grid electricity imports" is minus 123.24 million RMB for Tonglu, minus 121.41 million RMB for Jiande and minus 112.72 million RMB for Guangde. The NPV for the proposed project activity not undertaken as a CDM project activity is minus 130.45 million RMB for Tonglu, minus 128.44 million RMB for Jiande and minus 122.09 million RMB for Guangde. Thus, it is demonstrated that scenario 1 (the proposed project activity not undertaken as a CDM project activity) is financially less attractive than scenario 2 (import of electricity from the grid). As per methodology AM0024, scenario 2 should consequently be identified as the baseline scenario.

Also, the simplified cash-flow spreadsheet was selected to justify the financial attractiveness of the project activity. The project participant provided a complete NPV analysis and some parameters have been demonstrated. The cash-flow comparison between alternative 1 and alternative 2 for the project activity is shown in the below table:

	Project Activity without CDM (alternative 1)	*Baseline Scenario without Project activity (alternative 2)*
Cash Inflow	CI	CI
Cash Outflow	PC EPA	EPB

According to the investment comparison cash-flow principal, if alternative 1 is much less financial attractive than alternative 2, the net cash-flow for alternative 1 should be lower than the net cashflow for alternative 2, i.e.:

$$CI - (PC + EPA) < CI - EPB,$$

Or

$$PC + EPA > EPB$$

The Electricity Savings = EPB – EPA, this should be lower than PC.

In the project participant's response to the request for review, the simplified comparative analysis for the three factories has been carried out and only cash-out has been considered. However, it is still shown that the conclusion is consistency with the completed comparison method. The results from the three factories are as follows (Unit: RMB million):

	Tonglu	*Jiande*	*Guangde*
Project Cost (Alternative 1)	-130.45	-128.44	-122.01
Electricity Savings (Alternative 2)	-123.24	-121.41	-112.72
Alternative 1-Alternative 2	**-7.21**	**-7.03**	**-9.29**

It is shown that the Project Cost (PC) for the three factories in this project activity is all greater than the Electricity Savings in Alternative 2; therefore, the Project Activity is not financially attractive.

From calculation, it is furthermore shown that the NPV of alternative 2 is higher than that of alternative 1 which means the former is more financially attractive than the later even if the simplified comparision method was used in the response for the request for review. Namely, alternative 2 as baseline is reasonable and feasible.

Therefore, the continuation of import of equivalent electricity from ECPG is justified as the baseline for the proposed project activity.

Input parameter: "other tax":

According to the *"Economic Assessment method and Parameters for Construction Project"* (issued by National Development and Reform Commission of China), the taxes in cash-out should include income tax (in IRR ccalculation spreadsheet, named "revenue tax"), sales tax and extra charges. The "other tax" in the spreadsheet includes sales tax and extra charges.

In general, the sales tax and extra charges are composed of the urban construction and maintenance tax and the additional educational levy. According to the relevant regulations which have been provided in response from the PP of this project and confirmed by DNV, the rate is 7% and 3% of VAT for the urban construction and maintenance tax and the additional educational levy respectively. Therefore, DNV confirms that it is consistent with the relevant regulations and reasonable for investment analysis.

DNV has been verified the input parameters and calculation process for NPV.

In conclusion, for the project proponent the rational decision is the continuation of grid electricity imports, which is reasonably considered as the baseline scenario.

4.4 Additionality

The 'Tool for the Demonstration and Assessment of Additionality' (version 03), has been used to demonstrate the additionality of the project activity.

At the beginning of 2005, the project developer (Shanghai Chuanji Investment Management Co., Ltd) introduced the concept of CDM to the project proponent. Faced by the huge investments for the WHR projects, the project proponent started to consider the help from CDM. In December 2005, the FSR /8/ of the project was finished and demonstrated that the project is not financially attractive. In January 2006, the project proponent signed a contract with a CDM project developer /20/ and signed the term sheet with the buyer in September 2006 /14/. Having known this information, the bank agreed to offer loans in August 2006 /19/. Then the project started on 30 October 2006. This demonstrates that the incentive from CDM was considered prior to the start date of the project activity.

Step 1 Identification of alternatives to the project activity consistent with current laws and regulations

The alternatives to the project activity are the baseline electricity options which are as follows:
Alternative 1: The proposed project activity not undertaken as a CDM project activity;
Alternative 2: Continuation of equivalent import of electricity from East China Power Grid;
Alternative 3: Installation of a new thermal power plant

Alternative 3 does not comply with the legal and regulatory requirements /21/. So alternatives 1and 2 have been analyzed in the next step.

Step 2 Investment analysis
The project applies a benchmark analysis for investment analysis which is consistent with the 'Tool for the Demonstration and Assessment of Additionality /5/. There is only one investor for the project, so the benchmark indicator chosen and applied in the post tax equity IRR. According to "the Project Economic Evaluation Methods and Parameters"/16/, the equity IRR benchmark has been confirmed to be 12% for the cement industry. The waste heat used for the project is from the cement production process and the project is attached to the cement production. As the project activity is intrinsic to the production of cement, the selected benchmark of 12% is deemed reasonable.
The equity IRR of the project has been determined to be lower than the chosen benchmark at 7.47%, 8.07% and 7.92% for Tonglu, Jiande and Guangde locations, respectively, without CDM revenues. However, the equity IRR of the project is 14.34%, 13.73% and 12.08% for Tonglu, Jiande and Guangde, respectively, with the revenue from the CDM. Therefore, this project can be considered financially unattractive. The calculations of IRR and related data sources /8//18//19/ have been checked by DNV.
According to the *guidance of EB38 paragraph 54, as DOE of the project, DNV has validated the input parameters used in the investment analysis and the procedures are as following:*

Step 1: Assess the sources of the input parameters

All input parameters used in the financial analysis of this project in the PDD are taken from the feasibility study report (FSR) for Jiande plant of March 2006, for Guangde plant of December 2005 and for Tonglu plant of December 2006 by Tianjin Cement Industry Design & Research Institute Co., ltd. The approval letter is from Zhejiang Economic and Trading Commission for Jiande plant of 18 May 2006 and for Tonglu plant of 9 January 2007 and from Anhui Economic and Trading Commission for Guangde plant of 31 August 2006. The input parameters used in the financial analysis can thus be considered information provided by an independent and recognized source.

For this project activity, the power generation is aimed to reduce the power purchased and imported from the grid. The power tariff therefore for investment analysis should be the purchase price instead of sale price. As stated in DNV's initial response to the request for review, the evidences for the power tariff are the purchase invoices for Tonglu cement factory from Tonglu Power Supply Bureau, for Jiande cement factory from Jiande Power Supply Bureau and for Guangde cement factory from Guangde Power Supply Co., Ltd. The monthly invoices in 2007 have been provided to DNV previously. DNV has been able to verify these and is able to confirm that the investment analysis applies the purchase price for electricity imported from the grid.

Step 2: Confirm that the values used in the PDD are fully consistent with the FSR

DNV compared the input parameters for the financial analysis included in the PDD with the parameters stated in the FSR and was able to confirm that the values applied are consistent with the value stated in the FSR.

Step 3: Assess the period of time between the finalization of the FSR and the investment decision

The FSR which was approved earliest was the one for Jiande plant in May 2006 which is 5 months pprior to the decision to proceed with the project activity, taken on 30 October 2006. Given this relative short period of time between the finalization of the FSR and decision to proceed with the project activity it is unlikely in the context of the project that the input values would have materially changed and that it is thus reasonable to assume that the FSR has been the basis of the decision to proceed with the investment in the project.

Step 4: Cross-check the parameters used in the financial analysis with the parameters used by other similar projects

The input parameters used in the financial analyses were compared with the data reported for other similar proposed CDM projects in the ECPG, by comparing investment costs per MW, electricity tariff, percentage of O&M costs relative to total investment costs, etc. By in addition applying our sectoral competence, DNV was able to confirm that the input parameters used in the financial analysis are reasonable and adequately represent the economic situation of the project.

Regarding to all input parameters for investment analysis, it is common practice in China to use fixed values. This can be confirmed as follows:

In *Economic Assessment method and Parameters for Construction Project,* it is mentioned that rates for both cash inflows (revenues from electricity generation) and outflows (costs from O&M) should be predicted at the beginning of the operation period and that these predictable rates will be fixed and applied throughout the operation period and in order to comply with the benchmark criteria, "A fixed price should be used in the operation period".

Fixed value: Electricity tariff

The electricity tariff is under strict control by the central government in China, and will not be significantly changed without permission by the central government. In order to ensure price stability for the whole country, the central government controls basic prices such as electricity tariffs and commodity prices. Adjustment of electricity tariffs results from negotiations by several government departments and may even need to be approved by the CPC Central Committee.

If variations in the tariff should be estimated in financial analyses, variations of the O&M costs such as salary, material costs, etc. should be considered accordingly. As this is difficult to do accurately, and the inflation in China is considerably higher than the tariff escalations, thereby tending to cancel out the escalation in the tariffs, a fixed tariff is commonly adopted in the investment analyses in China.

Fixed value: Investment cost

The actual data for Jiande and Guangde are available and evidences for fixed assets investment /30/, power plant production records /29/ and power purchase invoice /26/ have been provided and checked by DNV.

Tonglu plant will finish construction in December 2008, so the actual total investment and power supply are not available. However, the average electricity tariff (excl. VAT) in 2007 is 0.294RMB/KWh /26/ which is from invoice from Tonglu Power Supply Bureau /26/. The

actual tariff is lower than that estimated in the FSR (0.302 RMB/KWh). So the input value of investment analysis can be considered plausible.
This can be summarized as follows:

The key parameters	*Estimated*	*The actual value*
Total investment	Jiande: 52.94 million Guangde: 58.77 million	53 million 58.78 million
Power generation	Jiande: 59880 MWh Guangde: 57540 MWh	59979 MWh 50350 MWh
Power tariff	Tonglu: 0.302 RMB/KWh Jiande: 0.308 RMB/KWh Guangde: 0.297 RMB/KWh	0.294 RMB/KWh 0.301 RMB/KWh 0.295 RMB/KWh

From above comparison, it can be shown that the FSR total fixed asset investment values infor Jiande and Guangde are less different between estimated and lower than the actual values. For the power generation, the actual data inof Guangde is lower than estimated in the PDD. For Jiande, the actual data is only 1.65% higher than the estimated. However, even so, the IRR is still lower than benchmark. For the power tariff, all actual values are lower than the estimated ones. Therefore, the estimated input parameters can be considered as credible and reasonable and rather conservative.

However, an investment analysis using variable input parameters has been conducted as a hypothetical scenario. Based on the data from the National Bureau of Statistics of China in the period from 2002 to 2006 /27/, the electricity tariff, referred as the Price Indices in Production and Supply of Electric Power and Heat Power, showed annual increases ranging from 0.7% to 4.2% for the period. The scenario analysis was based on conservative assumptions with parameters observed from the published government data. It assumes a 4.2% annual tariff increase, the highest from the previous historical numbers while assuming average annual increase in O&M costs.

O&M costs, which generally account for at least 65% of total cash outflows, are mainly composed by the cost of materials, wage and welfare, whereby water supplies in this kind of projects account for over 90% of materials cost. It is then reasonable for water cost to act as the material cost. Furthermore, the increases in water tariffs were much lower than those of wages and welfare from 2002 to 2006 in China. Taking observed rate of increases in water prices as the proxy for O&M cost increase represents therefore again a conservative approach. Based on data from the National Bureau of Statistics of China in the period from 2002 to 2006 /27/, the rise of water prices ranged from 4.0% p.a. to 6.4% p.a. with 5.2% being the average. The combination of the highest annual increase in power tariff (4.2%) with the average annual increase for O&M costs (5.2%) to calculate IRR and NPV carries the analysis in an extremely conservative manner.

The results show that the IRR /28/ is lower than the benchmark with negative NPV /28/. It means that the project activity is still financially unattractive even if the variable parameters were chosen for the investment analysis.

DNV has been able to verify all the data sources and the calculation process and confirms the suitability of assuming fixed tariffs throughout the period of analysis. Nevertheless had increased tariffs been used in the investment analysis, the project activity would still have been financially unattractive.

The sensitivity analysis demonstrates that the IRR of the project crosses the benchmark, if the total investment and the annual O&M costs decrease by 22.65% and 15.48%, respectively; annual electricity supply and grid tariff at least will increase by 10.20%. It is justified that an decrease of total investment and annual O&M costs are not likely based on the Official statistics from the Price Office of NDRC and Ministry of Labor and Social Security which state that the price index of capital goods and the salary to the working staff have increased in recent years. Due to the limitation of annual operation hours, it is not feasible for annual electricity supply to increase by 10.2%. As for the power tariff, an analysis of the power supply/demand situation in recent years and future power development programs in the Zhejiang and Anhui province, shortage of electricity is expected to be mitigated and the power tariff is expected to be kept stable in the future. Therefore, it is reasonable to assume that the grid tariff will be stable in the future and will not rise greatly.

Step 3 Barrier analysis

The investment barrier and technological barrier to this project have been analyzed. The project owner has established several cement production lines in the past which has led to a high debt ratio. And given that the three plants were in the red financially in 2006, there was resistance from the banks to finance the project activity, The bank did not agree to provide a loan to the project entity /19/ until this project applied the project as a CDM project /20/.

The heavy dust content in exit gases from SP can lead to possible and complete choking of the heat exchanger, abrasion of pipelines and boilers. Hence risks such as frequent maintenance and downtime were envisaged. DNV was able to confirm these technological risks through the verification of the downtime data from the maintenance records /22/ and during on-site visit at the Jiande Cement Plant during the test running phase of the WHR system /26/.

Lack of experience in power generation also contributes to increased costs owing to recruiting of skilled labour and training needs. CDM benefits will help to overcome these barriers.

The investment and technological barriers do not apply to the baseline scenario, i.e. the continuation of import of electricity from ECPG.

Step 4 Common practice analyses

By the end of 2006, the statistic shows that there are 237 and 175 PC kiln lines built in Zhejiang province and Anhui province, respectively. But only 9 cement plants have been utilizing waste heat for power generation in Zhejiang province. In terms of the scale and technology, 2 of these 9 cement plants are similar to the proposed project. However, compared to the project activity, the Zhongxinyuan cement plant had got the support of Zhejiang Province saving-energy fund and Zhejiang Shenhe Cement Co. Ltd had the support of Global Environmental Fund (GEF). In Anhui province, there is only 1 WHR project at a cement plant similar to the project -Anhui Ningguo Cement Co. Ltd which is supported by the

government of Japan. Furthermore, 10 projects are applying for CDM project and one of these projects was registered as CDM project. From the above it is demonstrated that the project activity is not common practice and the same has been verified by DNV /11/.

In conclusion, the assessment of the arguments presented above is deemed sufficient to demonstrate that the project is not a likely baseline scenario, and that emission reductions resulting from the project are additional.

4.5 Monitoring

The monitoring methodology AM0024 version 01 is correctly applied.

4.5.1 Parameters determined ex-ante

The following parameters are determined ex-ante and verified by DNV.

Parameters	Unit	Value applied	Source of data used
Operating Margin of Easten China Power Grid (ECPG)	tCO_2e/MWh	0.9416	China Energy Statistical Yearbook 2003-2006. China Electric Power Yearbooks 2000-2006 IPCC2006.
Build Margin of Easten China Power Grid (ECPG)	tCO_2e/MWh	0.8672	China Energy Statistical Yearbook 2003-2006. China Electric Power Yearbooks 2000-2006 IPCC2006.
Emission Factor of Easten China Power Grid (ECPG)	tCO_2e/MWh	0.9044	According to ACM0002

4.5.2 Parameters monitored ex-post

According to AM0024 and ACM0002, the following data and parameters should be monitored:

Parameter	unit	Recording frequency	Data variable
$EG_{CP,Y}$	MWh	Continuously	Quantity of electricity supplied to cement plant。
$NCV_{fuel,y}$	TJ/t. m^3	Monthly	Calorific Value of fuel used in Clinker Production。
$EF_{CO2,fuel,y}$	tCO2/ t. m^3	Monthly	Emission factor of fuel used in Clinker production。

$F_{p.y}$	TJ	Continuously	Annual energy (fuel) consumption of clinker making process after Project implementation.
$O_{clinker,y}$	Ton	Continuously	Annual production of Clinker after implementation of project.

4.5.3 Management system and quality assurance

The following parts have been described in monitoring plan of the PDD:

- Guideline
- Monitoring
- Management system
- Monitoring device and its installation
- Data collection and calculation
- Calibration
- Recording and preservation of relevant data
- Quality control system for monitoring data
- Training of relevant personnel

The detailed contents have been elaborated in PDD /1/. These will be maintained and implemented to enable subsequent verification of emission reductions.

4.6 Estimate of GHG Emissions

The emission reduction, ERy, during a given year y, is given by:

ERy = EBy − PEy

1) Baseline emission

In accordance with AM0024, the baseline emission EBy is the summation of two parts of emission i.e. the emission from the electricity supplied from the project activity to the cement plant and the electricity supplied from the project activity to the grid. The electricity generated from this project activity is only used in-house and hence the baseline emission only includes the emission from the electricity supplied from the project activity to the cement plant. As in the baseline scenario electricity is supplied from the grid, the baseline emissions have therefore been determined based on the approved methodology "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" (ACM0002), i.e. the product of the ex-ante calculated grid emissions factor (EF_y in tCO_2/MWh) times the electricity generated by the project activity (EG_y in MWh).

For the calculation of the OM emission factor, the simple OM calculation method is selected because dispatch data are not available and low-cost-must-run power plants constitute less than 50% of the total grid generation.

Country specific data for net calorific value (NCV_i) of each type of fossil fuel, the IPCC 2006 default values for the oxidation factor of each type of fossil fuel and the total electricity delivered to the ECPG selected are deemed reasonable. Vintage data for the years 2003, 2004

and 2005 are used for operating margin calculation. The OM is determined to be 0.9416tCO$_2$/MWh as a generation-weighted average for the three years.

Because plant specific fuel consumption and electricity generation data is not publicly available in China, the EB guidance on the request for deviation titled "Application of AM0005 and AMS-I.D in China" /12/ has been applied for this project as follows:

- The capacity additions from the years 2003 to 2005 are chosen and reach 21.6% of total installed capacity.
- The weight of installed capacity additions for thermal power plant is accounted for 92.53% of total installed capacity additions.
- The standard coal consumption of 343.33gce/kWh is used to determine the BM emission factor. This standard coal consumptino is defined as the best technology commercially available in China by the DNA of China /23/.
- The IPCC default value of 25.8 tC/TJ for carbon content of the coal and carbon oxidization factor of 100% are used to calculate the BM.
- The BM is calculated as 0.8672 tCO2/MWh.

The weights 0.5 and 0.5 for OM and BM are used to calculate CM as stipulated for t by ACM0002 version 6. The combined margin of 0.9044tCO$_2$/MWh is fixed *ex-ante* for the first crediting period.

The last data used to calculate OM is derived from China Energy Statistical Yearbooks 2004, 2005 and 2006; the BM calculation is derived from China Power Electric Power Yearbooks 2000 to 2006.

TThe baseline emission is electricity supplied by the project activity to the cement plant multiplied by EF_y which equals to 162,203 tCO$_2$.

2) The Project emission

The project emissions (PEy) are the difference in CO_2 emissions from use of fossil fuel in the clinker making process in cement manufacturing unit, where the project is being implemented, before and after the project implementation.

PEy, is determined as following

$$PE_y = (EI_{p,y} - EI_B) \times O_{clin\,ker,y} \times COEF_{fuel,y}$$

The energy used in cement production is primarily electricity and coal. The PP's contention that, as clinker production requires a predetermined blend of raw materials (limestone and coal) to produce a tonne of clinker, the balance of these raw materials can not be adjusted and therefore the coal requirement per tonne of clinker produced does not change is deemed acceptable. Hence, there will be no project emissions from the project activity. As only Jiande line is in operation, the actual electricity consumed is not available and the data from FSR has been used for calculations. As a result, the pre-project and ex-post energy consumption per unit output of clinker has little change. Therefore the ex-ante estimate of PEy is zero and will be monitored in whole fixed crediting period. DNV has been able to confirm the calculation process and the data source.

3) Leakage

According to the methodology (AM0024), the project activity could lead to leakages during

construction and fuel handling, but corresponding emissions are deemed to be negligible.

4.7 Environmental Impacts

According to Chinese law & regulations, the Environmental Impact Assessment (EIA) has been conducted by Zhejiang Mmetallurgy Environmental Protection Design & Research Co.,Ltd for Jiande plant in December 2005, for Guangde plant in December 2005 and for the Tonglu plant in December 2006 /9/. The potential environmental impacts have been sufficiently elaborated in the PDD.

No significant negative environmental impacts are expected from the project activity. The Environmental Protection Bureau of Zhejiang province has approved the project activity for Jiande on 9 February 2006, for Tonglu on 30 January 2007. The Anhui Environmental Protection Bureau has approved Guangde activity on 24 February 2006 /9/. These documents have been verified by DNV.

4.8 Comments by Local Stakeholders

Local stakeholder consultation processes have been carried out as follows:

- Three open conferences held in November 2004, August 2006 and September 2006 comprising of representatives and experts from Trade Committee of Zhejiang Province, Trade Committee of Hangzhou, Anhui development and reform committee, the Electricity Bureau of Zhejiang Province, Environmental Protection Bureau of Zhejiang Province, Tianjin Cement Design and Research Institute, Anhui Electric Design and Research Institute
- Three open conferences held with the local residents and representatives from the company in December 2006, October 2005 and March 2006 respectively.
- A questionnaire survey amongst the local residents near the project activity in April 2005, September 2006 and March 2007 was also conducted.

There were no adverse comments on the project activity and the comments were all supportive of the project.

4.9 Comments by Parties, Stakeholders and NGOs

The PDD of 25 September 2007 was made publicly available on DNV's climate change website* and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 26 September 2007 to 25 October 2007. No comments have been received during this period.

* http://www.dnv.com/focus/climate_change/Projects/ProjectDetails.asp?ProjectId=1473

APPENDIX A

CDM VALIDATION PROTOCOL

Table 1 Mandatory Requirement for Clean Development Mechanism (CDM) Project Activities

Requirement	Reference	Conclusion
About Parties		
The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK
The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK
In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK
Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	OK
The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	OK

Requirement	Reference	Conclusion
About additionality		
Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	OK ~~CL3-CL4~~
About forecast emission reductions and environmental impacts		
The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
For large-scale projects only		
Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	CDM Modalities and Procedures §37c	OK
About stakeholder involvement		
Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	OK
Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
Other		
The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
A baseline shall be established on a project-specific basis, in a transparent manner	CDM Modalities and Procedures §45c,d	OK

Requirement	Reference	Conclusion
and taking into account relevant national and/or sectoral policies and circumstances.		
The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK
Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK

Table 2 Requirements Checklist

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity *The project design is assessed.*					
A1 Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
A1.1 Are the project's spatial boundaries (geographical) clearly defined?	**/1/**	DR I	Yes. The project includes three power generation plants using waste heat from four clinker production lines. The Tonglu plant is located in Yinfangwu, Tonglu County, Hangzhou City, Zhejiang Province, and the coordinates of the project location are 119°30′ east longitude, 29°50′ north latitude. The Jiande plant is located in Huang'ao Village, Jiande City, Zhejiang Province, with east longitude 119°27' and north latitude 29°43'. The Guangde plant is located in Liudong Town, Guangde County, Anhui Province, with east longitude 119°53' and north latitude 31°03'.		OK
A1.2 Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	**/1/**	DR I	Yes. The project boundary comprises the waste heat source (rotating kiln generating the waste heat of the project), heat recovery boilers (SP boiler and AQC boiler), waste heat generator units and its auxiliary facilities		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			and all power plants that join up with the East China Power Grid.		
A2 Participation Requirements *Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.*					
A2.1 Which Parties and project participants are participating in the project?	**/1/**	DR	The project participants are Zhejiang Leomax Group Co. Ltd., China and Essent Energy Trading BV, the Netherlands.		OK
A2.2 Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	**/1/** /2/ /3/	DR	Yes. The letters of approval from the DNA of China and the Netherlands have been received.		OK
A2.3 Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority	**/1/**	DR	China ratified the Kyoto Protocol on 30 August, 2002. The Netherlands ratified the Kyoto Protocol on 31 May 2002. Both Parties participate in the CDM on a voluntary basis. Both Parties involved have appointed Designated National Authorities for the CDM.		OK
A2.4 Potential public funding for the project from Parties in Annex I shall not be a diversion of official development	**/1/**	DR I	The validation did not reveal any information that indicates that the project can be seen as a		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
assistance.			diversion of official development assistance (ODA) funding towards the China.		
A3 Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.*					
A3.1 Does the project design engineering reflect current good practices?	**/1/** /8/	DR I	The project applies waste heat recovery for power generation equipment designed by Tianjing Cement Design and Research Institute and made domestically. The project design engineering reflects current good practices.		OK
A3.2 Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	**/1/** /8/	DR I	The technology used for the project is indigenously developed and is deemed to be state of the art technology.		OK
A3.3 Does the project make provisions for meeting training and maintenance needs?	**/1/**	DR I	Yes. The training plan for Tonglu and the records for Jiande and Guangde units have been checked by DNV during the site interactions. The plan for Tonglu is expected to be implemented before the commissioning of the plant.		OK
A4 Contribution to Sustainable Development *The project's contribution to sustainable development is*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
assessed.					
A4.1 Has the host country confirmed that the project assists it in achieving sustainable development?	**/1/** /2/	DR I	Yes.The letter of approval from the DNA of China has confirmed the project being in line with the sustainable development policies of host country.		OK
A4.2 Will the project create other environmental or social benefits than GHG emission reductions?	**/1/** /9/	DR I	Yes. The project will, among other benefits, create more job opportunities and mitigate local environmental pollution caused by coal-fired power plants.		OK
B. Project Baseline *The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B1 Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B1.1 Does the project apply an approved methodology and the correct version thereof?	**/1/** /6/ /8/	DR	Yes. The project applies AM0024 (version 01) "Baseline methodology for greenhouse gas reductions through waste heat recovery and utilization for power generation at cement plants"		OK
B1.2 Are the applicability criteria in the baseline methodology all fulfilled?	**/1/** /6/ /8/	DR I	Yes. The project activity satisfies the applicability conditions as specified in the methodology AM0024 (version 01). 1 All the electricity requirement at the		

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Tonglu Plant, Jiande Plant and Guangde Plant is currently imported from the ECPG. The electricity generated by the project activity will be totally used in-house, although some will be still imported from the grid. 2 Electricity generated under the project activity will directly displace electricity imported from the ECPG. 3 The grid is clearly identifiable i.e. ECPG. 4 The waste heat is only to be used in the project activity. 5 In the clinker making process, most waste heat is otherwise vented to atmosphere and a portion is re- circulated to heat up the incoming raw materials and fuel- Type 1 Waste Heat Utilization which is included in the baseline. But, from the thermodynamic system of the project activity, it is hard to identify that part of waste gas used for heating up the incoming raw materials and fuel.	~~CL1~~	OK
B2 Baseline Scenario Determination *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.					
B2.1 What is the baseline scenario?	**/1/** /6/	DR	The baseline is determined as import of electricity from the ECPG.		OK
B2.2 What other alternative scenarios have been considered and why is the selected scenario the most likely one?	**/1/** /6/ /7	DR I	Other alternative scenarios considered are as follows, a) The proposed project activity not undertaken as a CDM project activity; b) Import electricity from the ECPG; There are other alternative scenarios which can be selected, please list and explain why they are not the realistic and plausible alternatives. This shall be demonstrated in line with the requirements stipulated in the methodology step 1.A and 1.B, under the selection of the baseline scenario. As per the AM0024, the electricity demand of the cement works and other local loads should include data for at least two years prior to the start date of the project activity. The starting dates was 30 October 2006, hence data shall be line and prior to these dates.	~~CL2~~	OK
B2.3 Has the baseline scenario been determined according to the methodology?	**/1/**	DR	This can be concluded only after CL 2 is clarified.	~~CL 2~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B2.4 Has the baseline scenario been determined using conservative assumptions where possible?	**/1/**	DR	Refer to CL 2	~~CL 2~~	OK
B2.5 Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	**/1/**	DR	Yes. The renewable energy law, sectoral policy and development trends in ECPG have been taken into account.		OK
B2.6 Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	**/1/**	DR	This can be concluded only after the CL2 is clarified.	~~CL2~~	OK
B2.7 Have the major risks to the baseline been identified?	**/1/** /	DR	Yes. The major risk to the baseline is dramatic increase of power generation from renewable sources in future, such as wind and hydro.		OK
B3 Additionality Determination *The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.*					
B3.1 Is the project additionality assessed according to the methodology?	**/1/** /5/ /8/ /11/	DR I	The project's additionality is demonstrated by applying the "Tool for the demonstration and assessment of additionality" version 03. *Step 1: Identification of the alternatives to the project activity consistent with the current laws and regulations.* The alternatives to the project activity have been identified as:		

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			a) The proposed project activity not undertaken as a CDM project activity; b) Import electricity from the ECPG; As to identification of alternatives, please see CL2 The realistic and credible alternative for the project scenario is stated to be continuation of equivalent import of electricity from East China Power Grid; *Step 2: Investment analysis.* Benchmark analysis (Option III) has been chosen to conduct the investment analysis. The benchmark IRR for equity investment for Chinese cement industries at 12 % (after tax) has been selected as the benchmark in the investment analysis which is verified by DNV However, from Table B 5-1 Basic parameters from the feasibility study report, the equity component of the project is not listed. As per the requirement in EB 26 meeting, the detailed information on the IRR calculation has to be either integrated in the PDD or	~~CL 2~~ ~~CL 3~~	OK OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			submitted as annexes to the PDD to make the additionality demonstration transparent. The sensitivity analysis states that if the IRR of the project reach the benchmark, the total investment and the annual O&M costs at least will decrease 22.65% and 15.48% respectively; annual electricity supply and grid tariff at least will all increase 10.20%. it is justified that these scenarios are impossible based on the reference from PDD which have been verified by DNV. Therefore, this project is financially unattractive. The calculations of IRR and related data sources have been checked by DNV. *Step 3: Barrier analysis.* Barrier analysis has been conducted as supplementary to the investment analysis. - Investment barrier: - Technological barrier: But these investment barriers are confronted not only for the proposed project activity but also for the cement industry. Therefore, these can not demonstrate the additionality of the proposed project activity. In PDD it was stated that the advanced foreign technology	~~CL4~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			and equipments have higher generating efficiency, lower operating costs and can run more steadily, please provide evidences. It needs to be clearly demonstrated as to what are the investment and technological barriers / risks specific to the project activity and how they are overcome through CDM. *Step 4: Common practice analysis.* By the end of 2006, the statistic shows that there are 237 and 175 PC kiln lines built in Zhejiang province and Anhui province respectively. But only 9 WHR project from cement plants have been utilized the waste heat for power generation in Zhejiang province. From the scale and technology, 2 of them is the similar to the proposed project and one is Zhongxinyuan Cement Plant which had got the support of Zhejiang Province saving-energy fund and another is Zhejiang Shenhe Cement Co. Ltd which is supported by Global Envionmentl Fund (GEF). In Anhui province, there is only 1 WHR project from cement plant similar to the project -Anhui Ningguo Cement Co. Ltd which is supported by the government of Japan. Furthermore, 10 projects are applying		

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			for CDM project and one of these projects was registered as CDM project. All of the above can be confirmed by DNV from website in PDD and the evidence provided. Therefore, the proposed project activity is not common practice and additional.		
B3.2 Are all assumptions stated in a transparent and conservative manner?	**/1/**	DR I	This can be concluded only after the CL3-CL4 is clarified.	~~CL3-CL4~~	OK
B3.3 Is sufficient evidence provided to support the relevance of the arguments made?	**/1/**	DR I	This can be concluded only after the CL3-CL4 is clarified.	~~CL3-CL4~~	OK
B3.4 If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity?	**/1/** /8/ /14/ /19/ /20/	DR I	At the beginning of 2005, the project developer (Shanghai Chuanji Investment Management Co., Ltd) introduced the concept of CDM to the project proponent. Faced on the huge investments for the WHR projects, the project proponent started to consider the help from CDM. In December 2005, the FSR of the project was finished and demonstrated this project is not attractive financially. In January 2006, the project proponent signed the development contract with the CDM developer and signed the term sheet with the buyer in September 2006. Having known this information, the bank agreed to offer loans in August 2006. Then the project		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			started on 30 October 2006. This demonstrates that the incentive from CDM was considered prior to the start date of the project activity.		
B4 Calculation of GHG Emission Reductions – Project emissions *It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
B4.1 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	**/1/** /6/ /8/	DR	Please explain why the project emission is deemed to be zero and provide the calculation details. Annex 3 of the PDD also indicates that EI (P) will be monitored ex-post!	~~CAR1~~	OK
B4.2 Have conservative assumptions been used when calculating the project emissions?	**/1/**	DR	To see the B4.1	~~CAR1~~	OK
B4.3 Are uncertainties in the project emission estimates properly addressed?	**/1/**	DR	To see the B4.1	~~CAR1~~	OK
B5 Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
– where applicable – is justified.					
B5.1 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	**/1/** /6/ /7/	DR	Yes. Baseline emissions are computed as a function of the baseline emission factor of the east China power grid and the net electricity generated by the project activity which will substitute equivalent amount of power imported from the grid. The grid emission factor is calculated in line with ACM0002 as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM). But the EF of coke and refinery gas was not updated to IPCC 2006 default, so the value of EFy is incorrect.	~~CAR2~~	OK
B5.2 Have conservative assumptions been used when calculating the baseline emissions?	**/1/**	DR	Yes, but subject to the response under CAR 2 of section B.4.1	~~CAR2~~	OK
B5.3 Are uncertainties in the baseline emission estimates properly addressed?	**/1/**	DR	Yes.		OK
B6 Calculation of GHG Emission Reductions – Leakage *It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B6.1 Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	**/1/** /6/	DR	As per methodology, The project activity could lead to leakages in construction and fuel handling, but corresponding emissions are negligible and can therefore be ignored. The description of 'No leakage is applicable under this methodology in PDD is not reasonable and accurate.	~~CL5~~	OK
B7 Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
B7.1 Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	**/1/**	DR	Yes.		OK
B8 Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
B8.1 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	**/1/** /6/ /7/	DR	The monitoring plan is in accordance with the approved monitoring methodology AM0024 (version 01) "Monitoring methodology for greenhouse gas reductions through waste heat recovery and utilization for power generation at cement plants" and is in a complete and transparent manner.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B8.2 Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	**/1/**	DR I	Yes.		OK
B9 Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
B9.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	**/1/** /6/	DR	This can be concluded after CAR1 and CAR2 are clarified.	~~CAR1~~ ~~CAR2~~	OK
B10 Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.*					
B10.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	**/1/** /6/ /7/	DR I	In the project the emission factor of the regional grid is calculated *ex-ante* using the Combined Margin method based on the most recent information available as described in ACM0002. So only the net electricity supplied by the proposed project activity will be monitored.		OK
B10.2 Are the choices of baseline GHG indicators reasonable and conservative?	**/1/**	DR	The choice of baseline indicators is in line with AM0024.		OK
B10.3 Is the measurement *method* clearly stated for each	**/1/**	DR	Yes. The total electricity generated by the		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
baseline indicator to be monitored and also deemed appropriate?		I	proposed project activity and the auxiliary electricity by the proposed project will be measured continuously and recorded daily.		
B10.4 Is the measurement *equipment* described and deemed appropriate?	**/1/**	DR I	The measurement equipment is electricity meter used to measure the Electricity Generated, Auxiliary Electricity by the project and Electricity supplied to cement plant.		OK
B10.5 Is the measurement *accuracy* addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	**/1/**	DR	Yes. The measurement accuracy of the electricity meters is 1.0S which is in line with national standard. Procedures on how to deal with erroneous measurements are stipulated in PDD.		OK
B10.6 Is the measurement *interval* for baseline data identified and deemed appropriate?	**/1/**	DR I	The electricity by the electronic recording should be measured continuously (as required by the methodology) - described in table 7.2.1 of PDD.	~~CL6~~	OK
B10.7 Is the *registration, monitoring, measurement* and *reporting* procedure defined?	**/1/**	DR I	Yes.		OK
B10.8 Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?	**/1/**	DR I	The electricity meters in the three plants will be calibrated by the Bureau of Quality and Technical Supervision in Tonglu County, Jiande County and Guangde County respectively once a year. But the procedures for maintenance of	~~CL7~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			monitoring equipment and installations are not specified.		
B10.9 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	**/1/**	DR	Yes.		OK
B11 Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
B11.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	**/1/** /6/	DR	Project participants do not need to consider leakage in applying this methodology.		OK
B12 Monitoring of Sustainable Development Indicators/ Environmental Impacts *It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.*					
B12.1 Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	**/1/**	DR	DNA of China does not require collection and archiving of data related to environmental, social and economic impacts. The environmental impacts will be monitored by local environmental authority.		OK
B12.2 Does the monitoring plan provides for the collection and B12.3 archiving of relevant data concerning environmental, social and economic impacts?	**/1/**	DR	The indicators of environmental impacts will be stipulated by local environmental authority.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
B12.4 Are the sustainable development indicators in line with stated national priorities in the Host Country?	**/1/**	DR	Yes. This will be on local authority decision.		OK
B13 Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
B13.1 Is the authority and responsibility of overall project management clearly described?	**/1/**	DR	Yes. The authority and responsibility of overall project management is clearly described.		OK
B13.2 Are procedures identified for training of monitoring personnel?	**/1/**	DR	The training plan for Tonglu and record for Jiande and Guangde have been checked by DNV during on site interview and will be carried out before the starting date of the project' operation for Tonglu. But the procedures for monitoring personnel training are not identified in PDD.	~~CL8~~	OK
B13.3 Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	**/1/**	DR	No emergency situation which can cause unintended emissions is expected from the project.		OK
B13.4 Are procedures identified for review of reported results/data?	**/1/**	DR	Yes. The monitored data will be checked weekly by vice chief of the plant.		OK
B13.5 Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	**/1/**	DR	Procedures for corrective actions in order to provide for more accurate future monitoring	~~CL 9~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			and reporting have not been identified.		
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
C1.1 Are the project's starting date and operational lifetime clearly defined and evidenced?	**/1/** /8/ /17/	DR	The starting date for the project activity is on 30 October 2006, which has been verified by DNV. The estimated lifetime of the project is 20 years. It is reasonable.		OK
C2.1 Is the start of the crediting period clearly defined and reasonable?	**/1/** /8/	DR	A fixed crediting period of 10 years is selected starting from 1 June 2008. It is reasonable.		OK
D. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.*					
D1.1 Has an analysis of the environmental impacts of the project activity been sufficiently described?	**/1/** **/5/**	DR	Yes. The environmental impacts are elaborated in the PDD, mainly about impacts on air, water and acoustical environment.		OK
D2.1 Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	**/1/** **/5/**	DR	Yes. The project has been approved by responsible authorized environmental protection bureau.		OK
D3.1 Will the project create any adverse environmental effects?	**/1/** /9/	DR	The proposed project has little impact on surroundings according to the EIA and complies with Chinese environmental rules		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			and laws.		
D4.1 Are transboundary environmental impacts considered in the analysis?	**/1/** /9/	DR	There are no transboundary environmental impacts foreseen for the project.		OK
D5.1 Have identified environmental impacts been addressed in the project design?	**/1/** /9/	DR	Yes.		OK
D6.1 Does the project comply with environmental legislation in the host country?	**/1/** /9/	DR	Yes.		OK
E. Stakeholder Comments *The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*					
E1.1 Have relevant stakeholders been consulted?	**/1/**	DR I	Yes. A stakeholder consultation process has been performed to invite comments on the project.		OK
E2.1 Have appropriate media been used to invite comments by local stakeholders?	**/1/**	DR I	Comments by different stakeholders from the Environmental Protection Bureau of Hangzhou, Electricity Bureau of Zhejiang Province, the Economic and Trade Committee of Zhejiang Province, Tianjin Cement Design and Research Institute, the CDM developer, etc. were invited vide meetings in 2004 and 2006.		OK
E3.1 If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder	**/1/** /9/	DR	Yes. The stakeholder consultation process is in accordance with Chinese EIA regulations.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
consultation process been carried out in accordance with such regulations/laws?					
E4.1 Is a summary of the stakeholder comments received provided?	**/1/**	DR	Yes. A summary of the stakeholder comments received are described in the PDD and has been checked on site.		OK
E5.1 Has due account been taken of any stakeholder comments received?	**/1/**	DR I	No negative comment was received on the project.		OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
CAR 1 Please explain why the project emission is deemed to be zero and provide the calculation details. Annex 3 of the PDD also indicates that EI(P) will be monitored ex-post!	B4,B9.1	The calculating process has been added in the PDD and the explanation has been added in the B6.1 of PDD.	OK. The calculating process and data source have been verified by DNV.
CAR 2 The EF of coke and refinery gas was not updated to IPCC 2006 default, so the value of EF_y is incorrect.	B5.1,B5.2	The EF of coke and refinery has been updated and EF_y has been corrected in the PDD.	OK. Accepted. Revised PDD has been verified. CAR 2 is closed
CL 1 From the thermodynamic system of the project activity, it is hard to identify that the part of waste gas used for heating up the incoming raw materials and fuel	B1.2	The figure of thermodynamic system of the project activity has been modified according to the FSR.	OK. It is confirmed that the figure has been revised in PDD and is in line with the FSR. CL1 is closed.
CL 2 ~~**CL**~~	B2.2-2.4,B2.6, B3.1	These have been added in the B4 of PDD.	OK. Acceptable. The B4 part of updated PDD can be justified and used data is in line with FSR. CL2 is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
There are other alternative scenarios which can be selected, please list and explain why they are not the realistic and plausible alternatives. This shall be demonstrated in line with the requirements stipulated in the methodology step 1.A and 1.B, under the selection of the baseline scenario. As per the AM0024, the electricity demand of the cement works and other local loads should include data for at least two years prior to the start date of the project activity. The starting dates was 30 October 2006, hence data shall be line and prior to these dates.			
CL 3 From Table B 5-1 Basic parameters from the feasibility study report, the equity component of the project is not listed. As per the requirement in EB 26 meeting, the detailed information on the IRR calculation has to be either integrated in the PDD or submitted as annexes to the PDD to make the additionality demonstration transparent..	B3.1	The equity component of the project has been added in the Table B 5-1. The IRR calculation process will be sent to validator.	OK. The evidence of equity component of the project /18/ have been provided and checked. The spreadsheet of IRR has been provided and checked by DNV. The CL3 is closed.
CL 4 But these investment barriers are confronted not only for the proposed project activity but also for the cement industry. Therefore, these can not demonstrate the additionality of the proposed project activity. In PDD it was	B3.1	The part of investment barriers has been modified in step 3 of PDD B5; the evidence of the foreign technology and equipments have higher generating efficiency, lower operating costs and can run more steadily can be seen the	OK. The investment barriers for this project have been highlighted in step 3 of PDD B5; the article about comparing between the foreign technology and local technology has been submitted to DNV and how to overcome these

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
stated that the advanced foreign technology and equipments have higher generating efficiency, lower operating costs and can run more steadily, please provide evidences. It needs to be clearly demonstrated as to what are the investment and technological barriers risks specific to the project activity and how they are overcome through CDM?		reference in step 3 of PDD B5. And how these barriers are overcome through CDM has been added on the end of step 3 of PDD B5.	barriers by incentive from CDM has been stated in step3 of PDD B5. These have been checked by DNV. CL4 is closed.
CL 5 The description of 'No leakage is applicable under this methodology in PDD is not reasonable and accurate.	B6.1	This has been revised in step3of PDD B6.	OK. this has been revised in B6 of PDD and is in line with methodology AM0024. CL5 is closed.
CL 6 The electricity by the electronic recording should be measured continuously (as required by the methodology) - described in table 7.2.1of PDD.	B10.6	The monitoring plan has been modified in table 7.2.1 of PDD.	OK. This has been revised in table 7.2.1 of PDD. CL6 is closed.
CL 7 The procedures for maintenance of monitoring equipment and installations are not specified.	B10.8	It has been added in the B7.2 of PDD.	OK. This has been revised in B 7.2 of PDD. CL7 is closed.
CL 8 The procedures for monitoring personnel training are not identified in PDD.	B13.2	It has been added in the B7.2 of PDD	OK. This has been revised in B 7.2 of PDD and the training plan and implementation records/15/has been checked by DNV on site visit. CL8 is closed.
CL 9	B13.5	It has been added in the B7.2 of PDD	OK. This has been revised in B 7.2 of

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2	Summary of project owner response	Validation team conclusion
Procedures for corrective actions in order to provide for more accurate future monitoring and reporting have not been identified.			PDD. CL9 is closed.

APPENDIX B

CERTIFICATES OF COMPETENCE

CERTIFICATE OF COMPETENCE

Cui Ping Deng

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	--	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 30 October 2007

Michael Lehmann
Technical Director, International Climate Change Service

CERTIFICATE OF COMPETENCE

Shu Yong Sun

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	--	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	--		

Høvik, 12 March 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Michael Lehmann

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	Yes
CDM Verifier:	Yes	***JI Verifier:***	Yes
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 1, 2, 3		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0030*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0031*	Yes
ACM0004, ACM0012	Yes	*AM0032*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0035*	Yes
ACM0007	Yes	*AM0038*	Yes
ACM0008	Yes	*AM0041*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0034*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0043*	
AM0009, AM0037	Yes	*AM0046*	
AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I	Yes	*AM0047*	
AM0014	Yes	*AMS-II.A-F, AM0044*	Yes
AM0017	Yes	*AMS-III.A*	Yes
AM0018	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0020	Yes		
AM0021, AM0028, AM0034, AM0051	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

Einar Telnes
Director, International Climate Change Services

Michael Lehmann
Technical Director

CERTIFICATE OF COMPETENCE

Kumaraswamy Chandrashekara

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJI-i1

GHG Auditor:	Yes		
CDM Validator:	Yes	***JI Validator:***	--
CDM Verifier:	Yes	***JI Verifier:***	--
Industry Sector Expert for Sectoral Scope(s):	Sectoral scope 4 & 5		
Technical Reviewer for (group of) methodologies:			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	*AM0027*	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	*AM0030*	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	*AM0031*	Yes
ACM0004, ACM0012	Yes	*AM0032*	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	*AM0035*	Yes
ACM0007	Yes	*AM0038*	Yes
ACM0008	Yes	*AM0041*	Yes
ACM0009, AM0008, AMS-III.B	Yes	*AM0034*	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	*AM0043*	
AM0009, AM0037	Yes	*AM0046*	
AM0013, AM0022, AM0025, AM0039, AMS-III.H, AMS-III.I	Yes	*AM0047*	
AM0014	Yes	*AMS-II.A-F, AM0044*	Yes
AM0017	Yes	*AMS-III.A*	Yes
AM0018	Yes	*AMS-III.E, AMS-III.F*	Yes
AM0020	Yes		
AM0021, AM0028, AM0034, AM0051	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

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