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Validation Report

Mitshubishi UFJ Securities Co., Ltd.

VALIDATION OF THE CDM-PROJECT:

Waste Heat Recovery based 15 MW Power
Generation Project at Bestway Cement Limited,
Chakwal, Pakistan

REPORT NO. 600500312

25 March 2010

TÜV SÜD Industrie Service GmbH

Carbon Management Service

Westendstr. 199 - 80686 Munich – GERMANY

Report No.	Date of first issue	Revision No.	Revision Date	Certificate No.
600500312	13-01-2010	1	25-03-2010	-

Subject: Validation of the CDM Project Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal, Pakistan	
Accredited TÜV SÜD Unit: TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany	TÜV SÜD Contract Partner: TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 80686 Munich Germany
Project Participant(s): Bestway Cement Limited (Private Entity) College Road, Bestway Building , F-7 Markaz, Islamabad, Federal Area, 44000, Pakistan Mitsubishi UFJ Securities Co., Ltd., 2 nd Floor, 5-4-9 Toyosu, KR Toyosu Building, Koto-ku, Tokyo, Japan	Project Site(s): The Project activity is located in the Bestway Cement Limited. It is located in Tatral village, 22 km Kallar Kahar – Choa Saiden Shaa Road, Chakwal, Punjab province, Pakistan. Its geographical coordinates are east longitude 72°55'28" and north latitude 32°43'14".
Project Title: Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal, Pakistan	
Applied Methodology / Version: AMS-III.Q / Version 02	Scope(s): 4 Technical Area(s): 4.2
First PDD Version (GSP): Date of issuance: 25-06-2009 Version No.: 01 Starting Date of GSP 14-07-2009	Final PDD version: Date of issuance: 18-03-2010 Version No.: 1.3
Estimated Annual Emission Reduction:	48,060 tCO₂e
Assessment Team Leader: Nikolaus Kröger Assessment Team Members: Robert Mitterwallner (A) Khalid Mahmood (A) Paula Auer (A) Trainees: Georgios Agrafiotis (T)	Veto Person: Responsible Certification Body Members: Rachel Zhang (Deputy Head of Certification Body)

Summary of the Validation Opinion:

- The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence for the determination of the project's fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM. Therefore, TÜV SÜD recommends the project for registration by the CDM Executive Board if the letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.
- The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence for the determination of the project's fulfilment of all stated criteria. Therefore, TÜV SÜD will not recommend the project for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board of this decision.

Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small scale
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CR / CL	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	GreenHouse Gas(es)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
IRR	Internal Rate of Return
KP	Kyoto Protocol
MP	Monitoring Plan
NGO	Non Governmental Organisation
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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1 INTRODUCTION

1.1 Objective

The objective of the validation process is to provide an independent assessment by a third party, a Designated Operational Entity (DOE), of a proposed project activity. The assessment involves the evaluation of the project basis and design identified in the Project Design Document (PDD) using the defined criteria outlined by the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and results in a conclusion by the executing DOE on whether or not a project activity is valid to be submitted for registration to the CDM Executive Board (CDM-EB). The ultimate decision on the registration of a proposed project activity rests with the CDM-EB and the Parties involved.

The project addressed in this validation report has been submitted under the following project title:

Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal, Pakistan

1.2 Scope

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

- The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Decisions and specific guidance outlined by the EB which are published under <http://cdm.unfccc.int>
- Guidelines for Completing the Project Design Document (CDM-PDD) and the Proposed New Baseline and Monitoring Methodology (CDM-NM)
- Baselines and monitoring methodologies (including GHG inventories)
- Management systems and auditing methods
- Environmental issues relevant to the applicable sectoral scope
- Applicable environmental and social impacts and aspects of CDM project activity
- Sector specific technologies and their applications
- Current technical and operational knowledge of the specific sectoral scope and information on best practice

The validation process is not meant to provide any form of consulting for the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

Once TÜV SÜD receives the PDD, it is made publicly available on the UNFCCC website and on TÜV SÜD's website, which initiates a 30 day global stakeholder consultation process (GSP). In spe-



cial circumstances, such as when a project design changes, the GSP may need to be repeated. Information on the PDDs is presented on page 1 of this report.

The purpose of a validation is to demonstrate compliance or non-compliance of the project with all stated and valid CDM requirements. Additionally, the purpose of validation is to enable the registration of CDM projects, which is only a part of the total CDM project cycle. Therefore, TÜV SÜD cannot be held liable by any party for decisions made, or not made, based on the validation opinion that go beyond this purpose.

2 METHODOLOGY

The project assessment is based on the “Clean Development Mechanism Validation and Verification Manual” version 1 and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM project activity are appointed. Once the project is made available for the stakeholder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified, and the preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB “climate and energy” before being submitted to the CDM-EB.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. TÜV SÜD has developed a methodology-specific protocol customized for the project. The protocol demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

The validation protocol serves the following purposes:

- To organize the details and provision of clarifications on the requirements of which a CDM project is expected to meet
- To elucidate how a particular requirement has been validated as well as to document the results of the validation and any adjustments made to the project design document.

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

Validation Protocol Table 1: Conformity of Project Activity and PDD				
Checklist Topic / Question	Reference	Comments	PDD in GSP	Final PDD
<i>The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then sub-</i>	<i>The section gives reference to documents in which the answer to the</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is used to explain the conclusions</i>	<i>The section is used to present conclusions based on the assessment of the first PDD version. The PDD is either acceptable based on evidence provided (☑) or a Corrective Action Request (CAR) is issued due to non-compliance with</i>	<i>Conclusions are presented in the same manner based on the assessment of the final PDD version and further</i>

<i>divided. The lowest level constitutes a checklist question / criterion.</i>	<i>checklist question or item is found in case the comment refers to documents other than the PDD.</i>	<i>reached. In some cases sub-checklists are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column.</i>	<i>the checklist question (See below). Clarification Request (CR) is used when the validation team has identified a need for further clarification. Forward Action Request is issued to highlight issues related to project implementation that require review during the first verification.</i>	<i>documents including assumptions presented in the documentation.</i>
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Validation Protocol Table 2: Compilation and Resolutions of CARs, CRs and FARs			
	Comments and Results	Ref	Conclusion and IRL
Issue	<i>Corrective Action, Clarification or Forward Action Requests.</i>	<i>Reference to the checklist question number in Table 1</i>	<i>Final conclusions and relevant references.</i>
Response	<i>The responses given by the client or other project participants during communication with the validation team.</i>		
Assessment	<i>Summary of the discussion and revision of project documentation together with the validation team's responses</i>		

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

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	Id. of CAR/CR	Explanation of the Conclusion for Denial
<i>Referenced request if final conclusions from table 2 resulted in a denial.</i>	<i>Identifier of the Request.</i>	<i>Detailed explanation of why the project is considered non-compliant with a criterion and a clear reference to the criterion</i>

The completed validation protocol is enclosed in Annex 1.

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy".

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)

- Greenhouse Gas Auditor (GHG-A)
- Greenhouse Gas Auditor Trainee (T)
- Experts (E)

It is required that the sectoral scope(s) and the technical area(s) linked to the methodology and project have to be covered by the assessment team.

Assessment Team:

Name	Qualification	Coverage of scope	Coverage of technical area	Host country experience
Nikolaus Kröger	ATL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Robert Mitterwallner	GHG-A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Khalid Mahmood	GHG-A			<input checked="" type="checkbox"/>
Paula Auer	GHG-A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Georgios Agrafiotis	GHG-T			

Nikolaus Kröger is environmental engineer and expert for emissions monitoring and quality assurance at the department “TÜV SÜD Carbon Management Service”. He is located in the TÜV SÜD Hamburg office and is also engaged as personally accredited verifier in the EU-ETS serving the Northern German market. Being GHG auditor for sectoral scopes 1 to 13 and assessment team leader for CDM and JI projects he has already been involved in several CDM/JI activities with a special focus on industrial non-CO2 projects. Constitutive on 13 years experience at the department “Environmental Service” he verified many metallurgical plants, refineries, chemical plants, waste treatment and power plants and process engineering in many types of facilities. One of his former focal points had been implementation and calibration of complex automatic Environment-Data-Systems. Being Regional Manager he heads and coordinates CDM/JI projects in Middle East.

Robert Mitterwallner is a GHG-Auditor with a background as auditor for environmental management systems, as expert in environmental permit procedures for industrial plants and as expert for environmental impact studies assessment. He is located at TÜV SÜD Industrie Service in Munich since 1990. He has received training in the JI determination as well as CDM validation process and applied successfully as GHG Auditor for the scopes energy industries, manufacturing industries, chemical industries, transport, mining/mineral production, metal production, solvent use and waste handling / disposal.

Khalid Mahmood has an academic background in environmental sciences. He is host country expert for projects in Pakistan at the department “TÜV SÜD Carbon Management Service” and is based in the TÜV SÜD Munich office. He has received extensive training in the CDM validation and verification processes and participated already in several CDM project assessments as auditor, expert and desk reviewer.

Paula Auer is an environmental engineer and auditor for environmental management systems at the department “TÜV Carbon Management Service” located in the head office of TÜV SÜD in Munich. She has received training in the CDM validation and verification process and participated already in several CDM project assessments.

Georgios Agrafiotis is environmental engineer with M.Sc. in Sustainable Resource Management. He has work experience in the field of industrial environmental technology and protection and also in technical environmental projects. As GHG trainee he has been appointed scopes 1, 4, 5 and 13 as

per UNFCCC definition. Currently he is involved in more than 15 on-going validation and verification projects.

2.2 Review of Documents

The PDD for the GSP was submitted to the DOE in July 2009. The PDD and additional background documents related to the project design and baseline have been reviewed to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources (Pakistani web-pages of the cement sector, internal discussions within TÜV SÜD with auditors that had already auditing experiences in CDM projects in Pakistan) has been done as an initial step of the validation process. A complete list of all documents and evidence material reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

On 28-09-2009, TÜV SÜD performed interviews and physical site inspections with project stakeholders to confirm relevant information, and to resolve issues identified in the first document review. The following table provides a list of all persons interviewed in this process.

Persons Interviewed:

Name	Organisation
Akilesh Joshi	Mitsubishi UFJ Securities, CDM Consultant
Matthew Setterfield	Representative of Mitsubishi UFJ Securities
Mahmood Afzal	Bestway Cement Ltd, Director, Works
Ghulam Sarwar Malik	BCL, Director projects
Khurshid Ahmad Assi	BCL, Manager Projects
Hammad Bashir	Techfinity, Manager Business Development, FSR responsible

2.4 Cross-check

During the validation process the team has made reference to available information related to similar projects or technologies as the CDM project activity. Project documentation has also been reviewed against the approved methodology/ies applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD's conclusion on the project design. The CARs and CRs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in the validation protocol in Annex 1.

The final PDD version submitted in March 2010 serves as the basis for the final assessment presented. Additional changes to the project during the validation process are not considered to be sig-



nificant with respect to the main CDM objectives. The two CDM main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

2.6 Internal Quality Control

Internal quality control is the final step of the validation process and is conducted by the CB “climate and energy” who checks the final documentation, which includes the validation report and annexes. The completion of the quality control indicates that each report submitted has been approved either by the head of the CB or the deputy (a veto person is used if necessary). In projects where either the Head of the CB or his/her deputy is part of the assessment team, the approval is given by the one not serving on the project team.

After confirmation by the PP, the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.

3 SUMMARY

The assessment work and the main results are described below in accordance with the VVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2.

3.1 Approval

The project participants are Bestway Cement Limited (Private Entity) of Pakistan and Mitsubishi UFJ Securities Co., Ltd (Private Entity) of Japan. The host Party Pakistan and Japan meet the requirements to participate in the CDM.

The DNA of the Japan issued a LoA (IRL 29) on 10 June 2009 authorizing Bestway Cement Limited as a project participant. The DNA of Japan also issued a LoA (IRL 28) on 26 June 2009 authorizing Mitsubishi UFJ Securities Co., Ltd as a project participant. TÜV SÜD received these letters from the project participants directly and considers the provided letters as authentic.

After checking the provided LoAs, TÜV SÜD confirms that both letters refer to the precise proposed CDM project activity title in line with the title in the PDD “Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal, Pakistan”.

Both letters also indicate that each participating Party is a Party to the Kyoto Protocol, and that the participation in the Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal project is voluntary. The Pakistani LoA also confirms that the proposed CDM project activity contributes to the sustainable development of Pakistan (host country). Based on the information given in these letters, TÜV SÜD considers the approval as unconditional with respect to these items.

Both LoAs have been issued by the respective Party’s DNA – Government of Pakistan, Ministry of Environment, Director General and Government of Japan, Ministry of trade and industry of Japan. The LoAs do not refer to a specific version of the PDD or validation report.

TÜV SÜD considers that the requirements of VVM (§§ 45-48) have been met.

3.2 Participation

The participants of the project activity have been approved by the corresponding Parties, which is confirmed by the issued LoAs.

The means of validation used are similar to the ones described in Section 3.1, specifically in regard to the approval process of the project activity.

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by UNFCCC.

The most recent version of the PDD form was used.

TÜV SÜD considers that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information was provided by the participants in the applicable PDD sections. Completeness was assessed through the protocol included in Annex 1.

3.4 Project description

The following description of the project as per PDD was verified during the on-site audit:

The objective of the project is to generate electricity by using waste heat from two cement lines at the Bestway Cement Limited (BCL) in Punjab province, Pakistan. The waste heat will come from two dry clinker production lines with a capacity of 5,700 tons/day for each line. To utilize the recovered waste heat, the Project activity installs a 15 MW power generator.

The electricity generated by the Project activity will displace the electricity which would have been purchased from the local coal fired electricity grid (WAPDA grid).

The project installed two boilers, one before the cement kiln and one after the kiln. The steam produced by the boilers will be used to power one generator unit with an installed capacity of 15 MW, leading to gross electricity production of 108,000 MWh per year and after deducting auxiliary consumption the expected annual net supply to the cement production facility is 100,080 MWh.

The project will contribute to sustainable development by improving energy efficiency of the cement industry in Punjab province, reducing global emissions of greenhouse gases and creating employment opportunities for local residents.

The information presented in the PDD on the technical design is consistent with the actual planning and implementation of the project activity confirmed in the following ways:

- A review and cross check of data and information (see annex 2).
- An on-site visit with relevant stakeholder and personnel with knowledge of the project in attendance. In case of doubt, further cross checks through additional interviews were conducted.
- A review of information related to similar projects or technologies which have been used to validate the accuracy and completeness of the project description.

In conclusion, TÜV SÜD confirms that the project description, as included in the PDD, is sufficiently accurate and complete in order to comply with the requirements of the CDM.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology AMS-III.Q Version 02 and relevant tools:

- Tool to calculate the emission factor for an electricity system (version 01.1)
- Corresponding section of ACM0012 (version 03.1, to estimate the capping factor)

has been demonstrated. The project uses the waste heat to generate electricity. The recovery of waste heat in the Project activity is an incremental gain in an existing practice which was the use of waste heat to pre-heat the coal and the raw mill material for the clinker production. After the implementation of the WHR project the raw material and the coal will be pre-heated with the waste heat from the WHR.

The assessment was carried out for each applicability criterion and included, among other checks, a compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures. This assessment also included the review of secondary sources to demonstrate the compliance with applicability conditions.

The methodology-specific protocol, included in Annex 1, documents the assessment process. The results of the compliance check as well as relevant evidence are detailed in the protocol and the information reference list.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

Emission sources, not addressed by the applied methodology and expected to contribute more than 1% of the overall expected average annual emission reductions, have not been identified.

3.5.2 Project boundary

The project boundary was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence received on the design of the project.

According to the applied methodology (AMS III.Q version 02) the project boundary is defined as "the physical, geographical site of the facility where the waste heat is produced and transformed into useful energy". The project boundary of the project activity includes Bestway's cement plant where the waste heat is produced as well as electricity is produced using the recovered waste heat.

Relevant documents assessed to confirm the project boundary are the following:

- Initial Environmental Examination (IRL 15)
- Synchronization with grid (IRL 39)
- Land use evidence (IRL 45)
- Whole equipment purchase contract with Kawasaki (IRL 18, 35)

Details and observations are listed in Annex 1.

Therefore, TÜV SÜD confirms that the identified boundary, the selected sources, and gases as documented in the PDD are justified for the project activity and are fully in line with the requirements set by the applied methodology.

3.5.3 Baseline identification

The PDD defines the following baseline scenario:

The baseline scenario equals the scenario prior to the implementation of this project activity. This scenario involves the continued venting into the atmosphere of the waste heat before and after the kilns and the import of electricity from the Pakistani grid, which predominantly uses carbon intensive fossil fuel energy sources. AMS III.Q does not require a detailed analysis and presentation of the possible options. The presented baseline scenario (electricity provided by the grid) is plausible and the only one applicable. During the on-site visit it was checked and confirmed by the audit team that there is no captive power plant.

The information presented in the PDD has been validated by an initial document review of all data. Further confirmation has been made based on the on-site visit and a review of information from similar projects and/or technologies. The sources referenced in the PDD have been quoted correctly. The information was verified against credible sources, such as the following:

- Initial Environmental Examination (IEE) and its approval (IRL 15,16)

TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions used for project activity calculations, TÜV SÜD considers that the identified baseline scenario is reasonable.

Taking the definition of the baseline scenario into account, TÜV SÜD confirms that all relevant CDM requirements, including relevant and/or sectoral policies and circumstances, have been identified correctly in the project PDD.

A verifiable description of the baseline scenario has been included in the PDD.

In regard to item 86 of VVM, TÜV SÜD confirms the following statements:

- (a) All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
- (e) The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario, and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.5.4 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions, leakage, and emission reductions. Corresponding calculations have been carried out based on calculation spreadsheets. The parameters and equations presented in the PDD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology and respective tools. An equation comparison has been made to ensure consistency between all the formulae presented in the calculation files and in the PDD, methodology, and tools.

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked.

Based on the information reviewed it is confirmed that the sources used are correctly quoted and interpreted in the PDD.

The values presented in the PDD are considered reasonable based on the documentation and references reviewed and the results of the interviews.

The baseline methodology has been applied correctly according to requirements.

The estimate of the baseline emissions are considered correct as the calculations have been reproduced by the audit team with the attainment of the same results.

Detailed information on the verification of the parameters used in the equations are found in Annex 1. The algorithms for the determination of the baseline, project, and leakage are discussed in the following sections.

3.5.4.1 Baseline Emissions

According to the methodology baseline emissions for year y are calculated the baseline emissions from electricity ($BE_{elec,y}$) generated by the waste energy (heat in this project case).

The formula is:

$$BE_{elec,y} = f_{cap} \times f_{wcm} \times \sum_j \sum_i (EG_{i,j,y} \times EF_{elec,i,j,y})$$

Where:

$BE_{elec,y}$	Baseline emissions due to displacement of electricity during the year y in tons of CO ₂
$EG_{i,j,y}$	The quantity of electricity supplied to the recipient j by generator, that in the absence of the project activity would have been source from i th source (in the Project activity i is grid) during the year y in MWh
$EF_{elec,i,j,y}$	The CO ₂ emission factor for the electricity source, displaced due to the project activity, during the year y in tons of CO ₂ /MWh
f_{wcm}	Fraction of total electricity generated by the project activity using waste energy. For the Project activity this fraction is 1 because the electricity generation is purely from use of waste energy.
f_{cap}	Capping factor to exclude increased waste energy utilization in the project year y due to increased level of activity of the plant, relative to the level of activity in the base years before the project start. The ratio is 1 if the waste energy generated in the project year y is same or less than generated in base years.

F_{cap} will be estimated according to the corresponding section of ACM0012. Since data for Method-1 (three-year data on production) is not available, Method-2 is used in estimating the cap. As the guideline in ACM0012, the manufacturer's data for BCL's plant is used to estimate the amount of waste energy the BCL generates per unit of production generated by the process that generates waste energy as follows:

$$f_{cap} = \frac{Q_{WCM, BL}}{Q_{WCM, y}}$$

$$Q_{WCM, BL} = Q_{BL, product} \times q_{wcm, product}$$

$Q_{WCM, BL}$	Quantity of waste energy generated prior to the start of the project activity estimated using the second equation above (kg of WECM or other relevant unit)
$Q_{BL, product}$	Production associated with the relevant waste energy generation as it occurs in the baseline scenario. The minimum of the following two figures should be used: (1) average annual historical production data from start-up, if plant operational history is less than three years, of the plant or (2) the most relevant manufacture's data for normal operating conditions. In case of new facilities or where data is not available the manufacture's data for normal operating conditions shall be used.
$q_{wcm, product}$	Amount of waste energy per unit of product generated by the process (that generates waste energy) in the industrial facility

The calculation is correctly done since per methodology AMS III.Q, paragraph 9, if the displaced electricity for recipient is supplied by a connected grid system, the CO₂ emission factor of the electricity $E_{elec,gr,j,y}$ shall be determined following the tool to calculate the emission factor for an electricity system. According to the tool, the first step is to identify the relevant electric power system which is the WAPDA grid.

Regarding the operating margin (OM) emission factor calculation, the simple method is applied and specifically the ex-ante option with a 3-year generation-weighted average, based on the most recent data available at the time of submission of the PDD to TÜV SÜD for validation. The PDD was submitted to the DOE on June 2009 and the most recent complete yearly data were from 2006, 2007 and 2008. These data have been cross checked by TÜV SÜD before and during on-site audit.

- Pakistan energy yearbook 2006, 2007, 2008 (IRL 54)
- Emissions Reduction Calculation (ER calculation), (IRL 32)

According to the above mentioned and validated sources, low-cost/must-run resources constitute less than 50% of the total grid generation.

The OM emission factor is finally calculated to be 0.6562 tCO₂/MWh.

Regarding the build margin (BM) emission factor calculation it is conducted based on the set of power capacity additions in the electricity system that comprise 20% of the system generation (in MWh) and that have been built most recently. In total ten power generation facilities are taken under consideration, the oldest was installed in year 2000. The total power generation of these ten facilities sums up to 16,438.62 MWh for 2008 while the total power generation by WAPDA grid for 2008 was 82,193.09 MWh. The database that has been validated is Pakistan energy yearbook 2006, 2007, 2008 (IRL 54).

The BM is finally calculated to be 0.3043 tCO₂/MWh for 2008.

The value for the combined margin emission factor (EF_{cm}) of 0.48022 tCO₂/MWh was determined using the weighted average of the EF_{OM} and EF_{BM} by applying the default factors as described in the tool (i.e. 0.5 for waste heat projects).

3.5.5 Project emissions

The Project activity does not combust any auxiliary fuel. Also the Project activity does not consume electricity imported from the grid. Therefore, there are no project emissions due to the Project activity. (PE = 0)

3.5.6 Leakage

There is no leakage by the Project activity. (LE = 0)

3.5.7 Emission Reductions

In summary, the calculation of the baseline emissions, project emissions, leakage, and the emission reductions are considered correct.

3.6 Additionality

The additionality of the project has been presented in the PDD using following approach:

Since the project is small scale the UNFCCC guidance regarding the ways to prove the additionality are applicable. According to EB 35 Annex 34, the third barrier that can be referred to is "Barrier due to prevailing practise". According to EB 34, Annex 10, a project can be characterized as "first-of-its-kind" if it can be proved that there is no other similar project in the applicable geographical area (by default the host country), and in the similar technology.

The project owner has delivered to TÜV SÜD one letter from the Association of cement industries of Pakistan, that states that Bestway WHR plant is the only WHR that has been commissioned in Pakistan as of 18/09/2009. Furthermore the PP has delivered a letter from the Ministry of Environment of Pakistan that confirms that Best way WHR plant is the only WHR that has been commissioned in Pakistan until 18/09/2009. The proposed project was also the first WHR in Pakistan to get published on the UNFCCC website for GSP.

Hence, TÜV SÜD considers the approach correct and in accordance with the CDM regulations.

The approach used in the PDD has been assessed initially through the document review, during which the following documents were reviewed:

- UNFCCC guidance 'First of its kind' (IRL 62)
- UNFCCC Additionality guidance for small scale projects EB 35 Annex 34 (IRL 63)
- Cement association of Pakistan, Official statement regarding 'first of its kind assessment' (IRL 52)
- Ministry of Environment of Pakistan: Statement regarding 'first of its kind' (IRL 53)
- Email from CDM authority of Pakistan confirming that WHR in the cement industry is not common practice (IRL 31)

On site, the additionality was discussed principally with Mr. Khurshid Ahmad Assi (Bestway Cement Ltd.) and documents have been reviewed on-site (see Annex 2).

Finally, the data, rationales, assumptions, justifications, and documentation provided have been verified using local knowledge as well as sectoral and financial expertise. This information was also confirmed through the following documentation:

- The financial calculation that was conducted on behalf of the project owner has been also provided to and checked internally by the audit team of TÜV SÜD and found to be reasonable and conservative. Still, the IRR calculation is not part of the validation report and protocol (see Annex 1), since it is not required by the EB regulations.

Based on the aforementioned approach, TÜV SÜD confirms that the documentation provided is appropriate for this project.

3.6.1 Prior consideration of the clean development mechanism

The starting date of the project activity is determined by the day when the agreement for the equipment purchase is finalized between BCL and Toyota Tsusho Corporation. In order to corroborate this information, the assessment team has reviewed the

- Agreement with equipment supplier (IRL 18)

and has verified this information

The starting date of the project activity is determined to be the 02/08/2007, which is before 02 August 2008, as well as prior to the GSP.

The original documents presented have been reviewed and verified based on interviews with Mr. Mahmood Afzal (Director of works, BCL).

Therefore, the documents that are stated in the following table are considered appropriate to confirm the prior consideration of CDM. Additionally, in order to confirm that the PPs have taken real actions

to continue the activity as CDM, activities have been reviewed against the documents provided to the DOE and a timeline of events is shown in the table below

Timeline of Project Activity

Activity	Document (All below mentioned documents carry official seals and are signed by the responsible people).	Auditor conclusion
Feasibility study (22/11/2006)	Pre FSR for Bestway Cement Plant Waste Heat Recovery Project (IRL 12)	The project participant has the idea to invest in a waste heat recovery project and wants to have a financial analysis about the feasibility of the proposed project.
Decision to proceed with the project as CDM (29/11/2006)	Early CDM consideration-Board resolution (IRL 17)	The project was deemed for the very beginning to be without doubt additional since it was first-of-its-kind. The board of Bestway Cement Ltd. (BCL) decided to apply for the CDM registration.
Kawasaki submits to BCL a technical offer for the WHR equipment (May 2007)	15 MW offer from M/s Kawasaki Plant Systems (IRL 35)	Further real action takes place, when Kawasaki company upon request from BCL submits a technical offer.
Beginning of negotiations with MUS for CDM Consulting Services (27/07/2007)		The process of choosing a suitable CDM consulting partner has already started and Mitsubishi UFJ Securities appears to be a serious potential CDM partner.
Agreement for the equipment purchase (02/08/2007)	Equipment purchase contract with Kawasaki (IRL 18,35)	An agreement for the equipment purchase is finalized between BCL and Toyota Tsusho Corporation. This is considered as the Starting Date of the Project.
A construction agreement is finalized and the construction start is defined (01/02/2008)	Proof of start of construction 01 February 2008 (IRL 37)	The construction of the project begins, this is further real action.
An agreement between BCL and Mitsubishi US consulting services is signed (31/05/2008)	Contract with Mitsubishi UFJ (IRL 36)	CDM consulting services are officially set and signed on 31/05/2008, between Mitsubishi UFJ Securities and BCL.



Global Stakeholder Process begins (14/07/2009)	See TÜV SÜD net inform web-page and link in this report in chapter 4.	
On-site audit (28/09/2009)		

This confirms that the project complies with the requirements to demonstrate the prior consideration of the CDM.

3.6.2 Identifications of alternatives

The output of the project is electricity.

The list of alternatives to supply the above mentioned outputs presented in the PDD includes the implementation of the project activity without registration as a CDM project. The remaining alternatives presented include all plausible scenarios taking into account the local and sectoral situations for the mentioned outputs. The list of alternatives is considered complete.

3.6.3 Investment analysis

The PP uses the ‘first of its kind’ approach for small scale projects and not investment analysis to demonstrate the additionality.

3.6.4 Barrier analysis

This step of the additionality tool is also not applicable.

3.6.5 Common practice analysis

This step of the additionality tool is also not applicable.

3.7 Monitoring plan

The monitoring plan presented in the PDD complies with the requirements of the applicable methodology. The assessment team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found.

The procedures have been reviewed by the assessment team through document review and interviews with the relevant personnel. The information provided and a physical inspection has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the PPs. Specifically; these points include the location of meters, data management, and the quality assurance and quality control procedures to be implemented in the context of the project.

The project will measure the electricity supplied by the project activity and the amount of electricity consumed by the project itself. Electricity meters will undergo maintenance/ calibration as per manufacturer standards but at least once in 3 years. The accuracy class of the meters is 1.0% (IRL 69).

The quantity also of waste heat generated in the kilns will be measured. A flue gas meter will measure quantitative and qualitative (% vol of oxygen, CO₂, N₂, CO) and also after the kiln (% Vol O₂, Ar-

gon, N₂, CO₂). That way it will be possible to calculate the quantity of waste energy before and after the kiln in kg as required by ACM0012 v.3 for f_{cap} .

Therefore, the PPs will be able to implement the monitoring plan and the achieved emission reductions can be reported ex-post and verified.

3.8 Sustainable development

The LoA of the host country presented a statement that the project contributes to the sustainable development of the host party.

3.9 Local stakeholder consultation

The relevant local stakeholders have been invited via Public invitation to local stakeholder's consultation-Newspapers articles. The evidence of these invitations is given by IRL 19. The assessment team has reviewed the documentation in order to validate the inclusion of relevant stakeholders. Team local expertise has confirmed that the communication method used to invite the stakeholders is appropriate. The summary of comments presented in the PDD has been verified with the documentation of the stakeholder consultation and has been found to be complete.

Comments presented by the local stakeholders have been taken into account by the PP and has been verified with information obtained during interviews.

Hence, the local stakeholder consultation has been performed adequately according to the CDM requirements.

3.10 Environmental impacts

The project participants undertook an initial environmental examination (IEE). The assessment team has reviewed the documentation of the presented information. The IRL 15 Initial Environmental Examination (IEE) and the respective 'Final approval of IEA' (IRL 49) from 21/11/2009 confirm the correctness of the approach used by the PPs. In conclusion, the PPs have followed the requirements of the host country with regards to addressing environmental impacts.



4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on the UNFCCC website and invited comments by affected Parties, stakeholders, and non-governmental organisations during a 30 day period.

All key information gathered is presented in the table bellow

GSP Comments

website: http://www.netinform.de/KE/Wegweiser/Guide2_1.aspx?ID=6199&Ebene1_ID=26&Ebene2_ID=2011&mode=1	
Starting date of the global stakeholder consultation process: 2009-07-14	
Comment submitted by: None	Issues raised: -
Response by TÜV SÜD: -	

5 VALIDATION OPINION

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

Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited,
Chakwal, Pakistan.

Standard auditing techniques have been used for the validation of the project. A methodology-specific protocol for the project has been prepared to conduct the audit in a transparent and comprehensive manner.

The review of the project design documentation, subsequent follow-up interviews, and further verification of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In the opinion of TÜV SÜD, the project meets all relevant UNFCCC requirements for the CDM if the underlying assumptions do not change. TÜV SÜD recommends the project for registration by the CDM Executive Board.

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

The validation is based on the information made available to TÜV SÜD, as well as the engagement conditions detailed in this report. The validation has been performed following the VVM requirements. The single purpose of this report is its use during the registration process as part of the CDM project cycle. TÜV SÜD cannot be held liable by any party for decisions made, or not made, based on the validation opinion beyond this purpose.

Munich, 25-03-2010

Munich, 25-03-2010



Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH
(Rachel Zhang)



Assessment Team Leader
(Nikolaus Kröger)

Validation of the CDM Project:
Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement L
Chakwal, Pakistan



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Annex 1: Validation Protocol

Validation Protocol

Project Title: Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited,
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CAR 1. CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A. General description of small-scale project activity				
A.1. Title of the small-scale project activity				
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	1	Yes, the project title of Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal, Pakistan, enables to identify the unique CDM activity clearly	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.2. Are there any indication concerning the revision number and the date of the revision?	1	Yes, the version number of the PDD is 01, and date 25.06.2009 (This will change in the future)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.1.3. Is this consistent with the time line of the project's history?	1	Yes, it is consistent with the time line of the project's history.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2. Description of the small-scale project activity				
Are all values given in international standards? (1,000 representing one thousand and 1.0 representing one.)				
A.2.1. Is the description delivering a transparent overview of the project activities?	1,12, 13, 14, 18, 22	<p>The project and the project activities have been transparently described. The project possesses two 5,700 t/d cement clinker production lines. The waste heat from the two kilns where clinker for production will be used to heat up water in a boiler and produce electricity by use of a steam turbine. The waste heat after reducing its temperature by contacting the boiler will have the right temperature to pre-heat the raw mill material before it is transported to the kiln for burning. The above procedure has been verified on-site by the audit team.</p> <p>Also the value 5,700 t/d per clinker line is cross-checked against Daily Production Reports. In the present document nothing specific is mentioned.</p>	Open issue, CAR 1	<input checked="" type="checkbox"/>

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CAR 1. CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<p><u>Open issue</u></p> <p>In FSR p.26, it is stated Plant gross capacity 12. 8 MW (in PDD 15 MW), net capacity 11.9 MW (in PDD 100,080 MWh). Please clarify the discrepancy. The submitted PDD should be based on the respective FSR from 22/11/2006, which seems to have different technical data.</p> <p><u>Corrective Action Request 1.</u></p> <p>The statement in the PDD regarding the effective capacity of the project in terms of the second improved offer from Kawasaki has to be justified in more detail in order to provide transparency.</p>		
A.2.2. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	12, 15, 16, 31, 18, 35, 36, 37, 64	<p>The planning is described in the feasibility study. The project activity is the displacement of electricity generated by thermal power plants with electricity generated by Waste Heat Recovery. The following documents are verified on site for the project activity:</p> <ul style="list-style-type: none"> - Feasibility study report 11/2006 (based on offer from 10/2006 from "Technical Consultants" with 12.8 MW) with Chinese technology and including financial section with this capacity - approval of FSR by Best Limited 29.11.2006 with decision to go for CDM by board (see CR 2) - Second offer from "Technical Consultants" (14.9 MW) Japanese technology from 11.5.2007 <u>IRL 34</u>) - 8/2007 agreement for project delivery signed between Best Way and Toyoto (provider is Kawasaki) 	CR 1	<input checked="" type="checkbox"/>

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CAR 1. CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		<ul style="list-style-type: none"> - Construction agreement for civil work 01.02.2008 = project starting date - Start of discussion with Mitsubishi consultant on 20.7.2007; final contract on 31.05.2008 - 16.7.2009 commissioning start of plant by Kawasaki - 15.9.2009 synchronization with local grid - Initial Environmental Examination (IEE) from April 2008 and its preliminary approval from 31.05.2008 under certain conditions that have to fulfilled by the project owner (IEE is already delivered, the final acceptance of the WHR project from local authority will be also the acceptance of the IEE. It is not required a separate document). <p><u>Clarification Request 1.</u> Please provide a justification according to which in Pakistan there is no need to obtain from a local authority an "approval of the FSR"</p>		
A.2.3. Is the information provided by these proofs consistent with the information provided by the PDD?	1,13	Yes, but see A2.1	☑	☑
A.2.4. Is all information presented consistent with details provided by further chapters of the PDD?	1,13	Yes, but see A2.1	☑	☑
A.2.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the green-	1,13	Yes, the project activity comprises the use of waste heat for electricity generation. There is no doubt that this technology will reduce the GHG emissions significantly.	☑	☑

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CAR 1. CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
house gas balance?				
A.2.6. Is a brief summary of section 'A.4. Technical description given? Is a description of the sources and gases included in the project boundary'? Making reference in A.4.3 and B.4.	1,13	Yes, it is clearly described what the baseline emissions source is (fossil fuels for power generation in the grid) and that are no project emissions.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.2.7. Is a description of the scenario existing prior to the implementation of project activity and the baseline scenario given?	1,13	The project activity (WHR plants) will replace electricity from the local electricity grid (WAPDA grid), which is predominated by coal-fired thermal power plants. Thus, GHG emissions will be reduced.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3. Project participants				
A.3.1. Is the form required for the indication of project participants correctly applied?	1,2	The form is correctly applied; Bestway Cement Limited and Mitsubishi UFJ Securities Co., Ltd are the project participants.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	1,2	Yes, LoAs from both Pakistan and Japan have been presented to the DOE.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.3.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	1,2	Yes, all information in the PDD regarding project participants and parties is consistent.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4. Technical description of the small-scale project activity				
<i>A.4.1. Location of the small-scale project activity</i>				
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	1	The Project activity is located in the Bestway Cement Limited. It is located in Tatal village, 22 km Kallar Kahar – Choa Saiden Shaa Road, Chakwal, Punjab province, Pakistan. Its geographical	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CAR 1.	CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
			coordinates are east longitude 72°55'28" and north latitude 32°43'14". It has been cross checked also by use of Google earth.		
A.4.1.2.	How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	1, 42, 18, 35	Ownership of the premises, the cement plant and all several types of licenses for the respective operations have been provided to the DOE during the on-site audit. Important documents are the equipment purchase equipment between Bestway and Toyota/Kawasaki, the official letter of the government of Punjab to Bestway Ltd requiring to clarify environmental issues.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2. Type and category(ies) and technology/measure of the small-scale project activity					
A.4.2.1.	To which type(s) does the project activity belong to? Is the type correctly identified and indicated?	1,2	Type III. Other project activities with emission reductions less than 60 ktCO ₂ /y. The type is correctly identified and indicated in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.2.	To which category (ies) does the project activity belong to? Is the category correctly identified and indicated?	1,2	Category Q: Waste Energy Recovery (gas/heat/pressure) Projects Sectoral Scope 04 – Manufacturing industries The type is correctly identified and indicated in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.3.	Does the technical design of the project activity reflect current good practices?	34	The proposed project is executed based on the technical offer from Kawasaki in year 2007. According to this technical offer the capacity of the project increased from 12.9 to 14.9 MW and corresponds to highest standards of power generation.7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.4.	Does the implementation of the project activity require any technology transfer from Annex-I-countries to the host country (ies)?	34	Yes, the technical design of the project activity reflects current good practice, all the equipment is designed and constructed by Kawasaki in Japan which is Annex 1 country. <u>Clarification Request 2.</u> From the equipment contract there are pages missing, only the first two are available to DOE. Please deliver kindly the rest. The whole equipment purchase contract has been provided. Fur-	CR 2	<input checked="" type="checkbox"/>

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		thermore it has been evaluated by the audit team regarding the high quality applied in this WHR project.		
A.4.2.5. Is the technology implemented by the project activity environmentally safe?	15, 16	As the project activity is the installation of a waste heat recovery reducing the regional air pollution without additional negative side effects the project can be considered to be environmentally safe. There is already a preliminary approval of the IEE from the local authorities which depicts that the project is environmentally safe. Furthermore this approval sets some extra requirements which must be met by the project owner. As soon as the project will be accepted by the local authorities this will mean automatically that all posed environmental requirements are met.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.6. Is the information provided in compliance with actual situation or planning?	1, 18,	During on-site visit it was verified that boiler, turbine and generator were in already in place. <u>Corrective Action Request 2.</u> Please provide in the PDD a more transparent project scheme covering both kilns.	CAR 2	<input checked="" type="checkbox"/>
A.4.2.7. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?	1, 18, 45, 21, 30, 25	The equipment is newly commissioned, it is state of the art manufactured from one of the world's biggest companies in this sector (Kawasaki) and delivered by a major company from Japan, Toyota Tsusho. As stated before, the technical offer from Kawasaki was the second one (the first was from a Chinese company) and was technically superior. The project and its technology improve the common practice in cement industry in Pakistan where the waste heat is normally vented to the air.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.8. Is the project technology likely to be substituted by other or more efficient tech-		It is not expected that there will be a substitution because the project started the construction in 1 st of February 2008. The life	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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nologies within the project period?		time of the project is under normal circumstances longer than the crediting period.		
A.4.2.9. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	45, 55	Training regarding the operation of the equipments has been provided from to Kawasaki to the employees of BCL that were designated to operate the project. This was proven by the training records taken down by Kawasaki company (IRL 49). Training was offered also from senior Bestway employees to younger ones who will be also occupied with the operation of the WHR plant. A list of participants in the training has been provided to the DOE.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.10. Is information available on the demand and requirements for training and maintenance?	45, 55	The effort to train the employees initially and during the operation phase was described by the project owner during the audit and the demand and requirements for training are defined in the equipment purchase contract with Kawasaki.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.2.11. Is a schedule available for the implementation of the project and are there any risks for delays?	22	According to WHR project management schedule the WHR plant should have been delivered to the project owner on June 2009. The commissioning started from Kawasaki on 16th July 2009 and the power generator was synchronised with the grid on 15 th September 2009.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3. Technology to be employed by the project activity				
A.4.3.1. Is a detailed description of the scenario existing prior to the start of the project activity, with a list of the equipment and system in operation at that time, given?	1	According to the scenario prior to the project activity, waste heat was released to the atmosphere without being used. For this scenario there was no equipment.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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CAR 1. CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.2. Is a detailed description of scope of activities/measures that are being implemented within project activity given? Is a list of equipments and systems included?	1	Yes, all equipment that is used for the WHR project is listed and the respective technical characteristics of each piece of equipment are also clearly mentioned. <u>Corrective Action Request 3.</u> a. Please elaborate in chapter A.4.2 and explain what purpose each equipment serves in the context of WHR. b. Are there monitoring devices in the project boundary? How is the generated electricity going to be metered? See B.7 and Annex 3. A new updated PDD will be delivered with more information.	CAR 3	<input checked="" type="checkbox"/>
A.4.3.3. Is a detailed description of the baseline scenario, with an indicative list of equipment(s) and systems that would have been in place in the absence of the project activity given? If the baseline scenario is the same with A.4.3.1, an indication is enough.	1	See A.4.3.1.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.3.4. Does the description include a list of the main manufacturing/production technologies, systems and equipments involved? Does the description include information about the age and average lifetime of the equipments based on manufacturer's specifications and industry standards? Are existing and forecast installed capacities, load factors and efficiencies given? The monitoring equipments and their location in the systems is of particular interest.	1,12	Yes, all equipment that is used for the WHR project is listed and the respective technical characteristics of each piece of equipment are also clearly mentioned. <u>Corrective Action Request 4.</u> a. Please add the estimated lifetime of each equipment according to the manufacturer's specifications in the respective tables. b. Load factor of the project to be calculated and stated in the PDD according to EB 48, Annex 11.	CAR 4	<input checked="" type="checkbox"/>

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CAR 1.	CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
A.4.3.5.	Does the scenario include the emissions sources and the greenhouse gases involved in the project activity? Are existing and forecast energy and mass flows, balances of the systems and equipments included in the project activity?	1,12	On the project diagram there are mentioned basic mass flows and temperatures. There are no project emissions. <u>Corrective Action Request 5.</u> Please add on diagram the estimated amount of steam that is generated from the two PH Heat exchangers and is lead to the turbine for power generation.	CAR 5	<input checked="" type="checkbox"/>
A.4.3.6.	Does the scenario include the types and levels of services provided by the systems and equipments that are being modified and/or installed under the project activity and their relation?	1,35	This question applies only for the newly installed equipment, since before that there was nothing related to the waste heat. The output of the waste heat exchanger, the turbine and the generator are clearly mentioned in chapter A.4.2 of the PDD and in the contract between Bestway Cement Ltd and Kawasaki.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.4. Estimated amount of emission reductions over the chosen crediting period					
A.4.4.1.	Is the form required for the indication of projected emission reductions correctly applied?	1,2,33	Yes. The form is correctly applied according to version 3 of the PDD template.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.4.2.	Are the figures provided consistent with other data presented in the PDD?	1	Yes, the figures regarding the estimated emission reductions are consistent through-out the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.4.3.	Are the figures consistent with the small-scale criteria for the used Type?	1,2	Yes, the estimated emission reductions are less than 60,000 tCO ₂ per year and as such the criterion for this type of SSC is fulfilled.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A.4.5. Public funding of the small-scale project activity					
A.4.5.1.	Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	1, 56	There is no public funding necessary; all costs are covered by the project owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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A.4.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	1,56	The statements both in this chapter and Annex 2 are consistent.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
A.4.6. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity														
A.4.6.1. Is there a registered small-scale CDM project activity or an application to register another small-scale CDM project activity with the following characteristics:	1,12	<table border="1"> <thead> <tr> <th>Debundling checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>the same project participants?</td> <td>No</td> </tr> <tr> <td>In the same project category and technology/measure?</td> <td>No</td> </tr> <tr> <td>Registered within previous two years? Or in registration process?</td> <td>No</td> </tr> <tr> <td>Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration?</td> <td>No</td> </tr> </tbody> </table>	Debundling checklist	Yes / No	the same project participants?	No	In the same project category and technology/measure?	No	Registered within previous two years? Or in registration process?	No	Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration?	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Debundling checklist	Yes / No													
the same project participants?	No													
In the same project category and technology/measure?	No													
Registered within previous two years? Or in registration process?	No													
Whose boundary is within 1 km of the project boundary of the small scale project activity under consideration?	No													
A.4.6.2. If the answer to all the above question is 'Yes' then: Does the total size of the small scale project activity combined with previously registered small scale CDM project activity exceeds the limits of small scale CDM project activities?	1,12	N/A, The proposed project is not a debundled component of a larger project activity.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
B. Application of a baseline and monitoring methodology														
B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity														
B.1.1.1. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	1,3,6,7	Yes, the applicable Small Scale baseline methodology AMS-III.Q, Waste Energy Recovery (gas/heat/pressure) Projects (version 02) and "Tool to calculate the emission factor for an electricity system"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										

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			(version 01.1) are clearly stated. Also, there is reference to methodology ACM0012 version 3.1 regarding the calculation of capping factor f_{cap} .										
	B.1.1.2. Is the applied version the most recent one and / or is this version still applicable?	1,3	Yes. At the time of GSP uploading, AMS-III.Q (version 2) has been the most recent one.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
B.2. Justification of the choice of the project category													
	B.2.1. Is the applied methodology considered the most appropriate one?	1,3, 12	Yes. The approved methodology AMS.III.Q is applicable for such small scale WHR project.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
Integrate the required amount of sub-checklists on the applicability criteria as given by the applied methodology and comment on at least every line answered with "No";													
	B.2.2. <u>Criterion 1</u> : Does the project use waste gas and/or waste heat at existing facilities as an energy source for: <ul style="list-style-type: none"> Cogeneration Generation of electricity Direct use as process heat For generation of heat in element process (e.g. steam, hot water, hot oil, hot air) For generation of mechanical energy 	1,34, 35, 12	<table border="1"> <thead> <tr> <th>Applicability checklist</th> <th>Yes / No / NA</th> </tr> </thead> <tbody> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </tbody> </table> <p>The proposed project is going to utilize waste heat in cement production for generation of electricity.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA												
Criterion discussed in the PDD?	Yes												
Compliance provable?	Yes												
Compliance verified?	Yes												
	B.2.3. <u>Criterion 2</u> : Does the project use waste pressure to generate electricity at existing facilities?	1,34, 35, 12	<table border="1"> <thead> <tr> <th>Applicability checklist</th> <th>Yes / No / NA</th> </tr> </thead> <tbody> <tr> <td>Criterion discussed in the PDD?</td> <td>N/A</td> </tr> <tr> <td>Compliance provable?</td> <td>N/A</td> </tr> <tr> <td>Compliance verified?</td> <td>N/A</td> </tr> </tbody> </table>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	N/A	Compliance provable?	N/A	Compliance verified?	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA												
Criterion discussed in the PDD?	N/A												
Compliance provable?	N/A												
Compliance verified?	N/A												

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		There is no waste pressure in the proposed project activity.										
B.2.4. <u>Criterion 3</u> : Is the recovery of waste/ heat a new initiative or an incremental gain in an existing practice?	1,12, 34, 35	<table border="1"> <tr> <td>Applicability checklist</td> <td>Yes / No / NA</td> </tr> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </table> <p>The existing practice is release to the atmosphere of a part of the waste heat without any use. The use of the waste heat to produce power for the industry itself is an incremental gain. This criterion is discussed in the PDD and cross-checked during on-site visit. Before the installation of the new facilities there was no other possibility to produce electricity from waste heat. A part of waste heat was used to heat up the raw material (waste heat was cooled down by water-spray in order to have the suitable temperature).</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.5. <u>Criterion 4</u> : In case of an incremental gain: The difference between the technology used before and project activity implementation and the project technology should be clearly shown. It should be demonstrated why there are barriers for the project activity that did not prevent the implementation of the technology used before the project activity implementation.	1,12, 34, 35	<table border="1"> <tr> <td>Applicability checklist</td> <td>Yes / No / NA</td> </tr> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </table> <p>The existing practice is release to the atmosphere of the surplus waste heat without any use. The barriers that prevent the implementation of the WHR are discussed in chapter B.5.</p> <p>Before the project WH was used to used to heat up the raw material (waste heat was cooled down by water-spray in order to have the suitable temperature). The difference is that not the whole amount had to be used. The incremental gain is the power generation.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											

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B.2.6. <u>Criterion 5</u> : Do the emission reduction not increase 60 kt CO ₂ equivalent annually?	1,32	<table border="1"> <tr> <td>Applicability checklist</td> <td>Yes / No / NA</td> </tr> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </table> <p>Ex-ante estimation foresees an emission reduction of 48,060 tCO₂ per year.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.7. <u>Criterion 6</u> : Is the energy produced with the recovered waste gas/ heat or waste pressure measurable?	1	<table border="1"> <tr> <td>Applicability checklist</td> <td>Yes / No / NA</td> </tr> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </table> <p>The produced electricity will be measured by a power meter. See CAR 3.b regarding the power meter on the diagram.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.8. <u>Criterion 7</u> : Is the energy generated in the project activity used within the facility where the waste gas/ heat or waste pressure is produced? Or is the electricity exported to the grid?	1,12,46	<table border="1"> <tr> <td>Applicability checklist</td> <td>Yes / No / NA</td> </tr> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>On-site</td> </tr> <tr> <td>Compliance verified?</td> <td>On-site</td> </tr> </table> <p>Letter from Islamabad Electric Supply Company from 27.06.2009 is available (IRL 46) stating clearly that the power plant of the PP shall have nothing to do with the IESCO = Islamabad Electric Supply Company LTD.</p> <p>NEPRA (National Electric Power Regulatory Authority) issued a letter (6.1.2009) with a certificate signed by PP stating that</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	On-site	Compliance verified?	On-site	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	On-site											
Compliance verified?	On-site											

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		the electricity cannot be sold to any other person. This certificate filled in by BCL is available to the DOE.										
B.2.9. <u>Criterion 8</u> : Would the waste gas/ heat or waste pressure utilized in the project have been flared or released into the atmosphere in the absence of the project activity?	1,47, 51	<table border="1"> <thead> <tr> <th>Applicability checklist</th> <th>Yes / No / NA</th> </tr> </thead> <tbody> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </tbody> </table> <p>In the absence of the project activity a part of the waste heat from the kiln would be vented into the atmosphere unused. In the base-line scenario, heat from the kiln warmed up coal and raw material and then was released into the atmosphere unused. In the project scenario, the waste heat from the kiln will be used for electricity production, then to warm up the coal and raw material and will be released into the atmosphere.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.2.10. <u>Criterion 9</u> : In case 2.9 was answered with yes: Can this be proven by either: <ul style="list-style-type: none"> • Direct measurements of energy content and amount of the waste gas/heat or waste pressure for at least 3 years prior to the start of the project. • Energy balance of relevant sections of the plant to prove that the waste gas/heat or waste pressure was not a source of energy before the implementation of the project activity. 	1,47	<table border="1"> <thead> <tr> <th>Applicability checklist</th> <th>Yes / No / NA</th> </tr> </thead> <tbody> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </tbody> </table> <p>The fact that waste heat was released to the atmosphere unused prior to the project is proved by on-site visit (no other waste heat use apart from raw mill heating and coal mill heating) and technical drawing.</p> <p>No equipment for waste gas recovery and use has been installed prior to the implementation of the project activity based on the onsite check by the DOE.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											

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<ul style="list-style-type: none"> Energy Bills to demonstrate that all the energy required for the process has been procured commercially. Process plant manufacturer's original specification/ information, schemes and diagrams from the construction of the facility could be used as an estimate of quantity and energy content of waste gas/heat produced for rated plant capacity per unit of product produced. 												
B.2.11. <u>Criterion 10</u> : Is the Waste gas/heat/pressure defined as a by-product of machines and technical processes for which no useful application is found in the absence of the project activity. Can it be demonstrated, it has not been used prior to, and would not be used in absence of the CDM project activity.	1,12	<table border="1"> <tr> <td>Applicability checklist</td> <td>Yes / No / NA</td> </tr> <tr> <td>Criterion discussed in the PDD?</td> <td>Yes</td> </tr> <tr> <td>Compliance provable?</td> <td>Yes</td> </tr> <tr> <td>Compliance verified?</td> <td>Yes</td> </tr> </table> <p>See B.2.5 and B.2.9</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											
B.3. Description of the project boundary												
B.3.1. Does the project boundary include physical, geographical site where the project activity takes place?	1	The project boundary of the Project activity includes Bestway's cement plant where the waste heat is produced as well as electricity is produced using the recovered waste heat.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
B.3.2. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD?	1	Yes, it was verified on-site that the project boundary I described in PDD corresponds to the actual situation.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
B.3.3. Is a flow diagram of the project boundary, physically delineating the project activity,	1	Yes, it was verified on-site that the project boundary I described in PDD corresponds to the actual situation.	<input checked="" type="checkbox"/>									

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based on the description provided in section "A.4.3. to be employed by the project activity" presented?				
B.4. Description of baseline and its development				
B.4.1. Have all technically feasible baseline scenario alternatives to the project activity been identified and discussed in the PDD? Why can this list be considered as being complete?	1,3	AMS III.Q does not require a detailed analysis and presentation of the possible options. The presented baseline scenario (electricity provided by the grid) is plausible and the only one applicable. During the on-site visit it was checked and confirmed by the audit team that there is no captive power plant.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.2. Does the project identify correctly and excludes those options not in line with regulatory or legal requirements?	1,3	The presented baseline scenario (electricity provided by the grid) is plausible and the only one applicable.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.3. Have applicable regulatory or legal requirements been identified?	1,3	Receiving electricity from the grid is allowed and common practise. Generating power from waste energy source for own use is also according to the regulations.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.4. Does the PDD identify the most likely baseline scenario in absence of the project activity?	1,3	Yes, baseline scenario is identified as release of waste heat to the atmosphere and generation of power from grid based on fossil fuels.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.5. Is this identification supported by official and/or verifiable documents (e.g. studies, web pages, certificates, etc)?	1,3, 46, 39	The fact that BCL operates on electricity delivered from the grid can be proven by the approval letter of the synchronisation of 14.9 MW WHR plant from Islamabad Electric Supply Company Ltd. Also it can be proven by the letter from Kawasaki to BCL where the synchronisation of the WHR plant with the local grid has been successfully completed.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.4.6. Is the identified baseline scenario in line with regulatory or legal requirements?	1,3	Yes, release of waste heat to the atmosphere is allowed by law and electricity generation from fossil fuels in the grid is standard	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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			practice.		
B.4.7.	Is the identified baseline scenario in accordance with the selected baseline methodology?	1,3	Yes, according to paragraph 9 of AMS III.Q, electricity obtained from the grid can be a baseline scenario.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:					
If the additionality tool has been used please answer B.5.1 to B.5.15					
B.5.1.	Has CDM been considered before the starting date of the project activity? What kind of evidences are available?	1,31, 35	Yes, according to the Bestway Cement board resolution of 29/11/2006 it was then decided to go ahead with the WHR project under the CDM scheme. Furthermore, the project activity starts officially on 02/08/2007 with the irreversible act of signing purchasing contract for project equipment. Both board resolution and equipment purchase contract have been delivered to the DOE.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.2.	In case the project activity started before the validation activity, how is demonstrated that the CDM was seriously taken into account for the decision to start the project?	1,31, 35	The start of the project activity is the 02 February 2007 when equipment purchase agreement was signed. The validation of this WHR project was ordered on 02 nd June 2009. Still the CDM option was considered already before the start of the project. The BCL board decided to go ahead with the project as CDM on 29/11/2006.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Step 1 – Identification of alternatives to the project activity					
B.5.3.	Are alternative scenarios defined that provide outputs or services comparable with the proposed CDM project activity?		Project is considered to be as First of its kind in Pakistan and specifically for cement industry. As such, additionality is strongly supported by this fact.	CAR 6	<input checked="" type="checkbox"/>

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			The validation protocol covers this issue in chapters B.26 and B.27 where common practice analysis is discussed. <u>Corrective Action Request 6.</u> A break-down of the alternatives shall be added to the PDD, according to Step 1 of the Tool for the demonstration and assessment of the additionality.		
B.5.4.	Can be the list of alternatives considered to be complete, why? Is the scenario project activity without being registered as CDM project included?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.5.	In case several different facilities, technologies, outputs or services are present in the project, are separately alternative scenarios for each of them included? Have realistic combinations been considered as project scenario?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.6.	Describe why the alternative scenarios are credible and realistic (technology, practices, services, status of implementation)?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.7.	Do the alternative scenarios comply with mandatory laws and regulations?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.8.	If a scenario does not comply with the mandatory laws and regulations, it is clearly demonstrate that the law and/or regulation is systematically not enforced in the country?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Step 2 – Investment analysis (could be optional if step 3 is used)					

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B.5.9. Is the analysis method identified appropriately?		<u>Corrective Action Request 7.</u> The investment analysis from the Pre-FSR shall be included in the PDD, in order to support the additionality argumentation. The input values that were applied for this investment analysis have to be justified regarding their plausibility and the conservativeness.	CAR 7	<input checked="" type="checkbox"/>
B.5.10. In case of Option I (<u>simple cost analysis</u>): Is it demonstrated that the activity and the alternatives identified in step 1 produce no economic benefits other than CDM income? Is the project activity more costly than at least one alternative?	See B.5.3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.11. In case of Option II (<u>investment comparison analysis</u>): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost) and reflects this indicator no economical and financial attractiveness or feasibility at all?		<u>Corrective Action Request 8.</u> a. Please provide also in electronic form the financial analysis with capacity values exactly like in PDD. b. Please provide an explanation why the board of BCL decided to implement a project that according to the NPV calculation is not profitable even with CER income. c. Please clarify why NPV is presented against 15% interest rate and not against 7.84% (IRR without CERs) and 10.43% (IRR with CERs). Why are NPVs negative at the conclusion of the FSR? In the printed version of financial calculation the NPVs are positive. d. Please clarify if tax is calculated based also on the depreciation or if depreciation "costs" are excluded from the calculation of tax. e. In the summary of each calculation (with and without	CAR 8	<input checked="" type="checkbox"/>

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			CERs) it shall be clearly stated if IRR is project or equity.		
B.5.12.	In case of use of IRR, it is clearly demonstrated why is equity of project IRR used?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.13.	In case of Option III (<u>benchmark analysis</u>): Is the most suitable financial/economic indicator clearly identified (project or equity IRR)?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.14.	How is it demonstrated that the financial/economic analysis (benchmark) represents standard returns in the market, considers the specific risk of the project type, but is not linked to the subjective profitability expectation or risk profile of a particular project developer (Option II and Option III)?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.15.	In case of company internal benchmark, is it clearly demonstrate that there is only one potential project developer and that the benchmark has been consistently used in the past (Option II and Option III)?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.16.	In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives (Option II) and the project activity (Option)?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.5.17.	In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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B.5.18. Are all assumptions and input data clearly presented, documented, evidenced and consistent with the rest of the PDD?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
B.5.19. Does the sensitivity analysis shows that the conclusion of financial/economical attractiveness is robust to reasonable variations in the critical assumptions?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
B.5.20. How is demonstrate that this variations have been adequately taken (range is adequate)?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Step 3 – Barriers analysis (is mandatory if step 2 is not used or does not shows additionality)							
B.5.21. Is a complete list of barriers developed that prevent the implementation of the proposed project and the different alternatives to occur?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
B.5.22. Is transparent and documented evidence provided on the existence and significance of these barriers?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
B.5.23. Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
B.5.24. How is confirmed that the CDM does alleviate the barriers presented?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
B.5.25. Does this list include at least one of the following barriers?		See B.5.3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
		<table border="1"> <thead> <tr> <th>Barrier</th> <th>Discussed?</th> <th>Verifiable?</th> </tr> </thead> <tbody> <tr> <td>Investment</td> <td>No</td> <td>No</td> </tr> </tbody> </table>			Barrier	Discussed?	Verifiable?
Barrier	Discussed?	Verifiable?					
Investment	No	No					

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		Technological	No	No		
		Due to prevailing practice	Yes	Yes		
		Other	No	No		
Step 4 – Common practice analysis (is to complement based on the information given in step1 and reinforce step2 / step3)						
<p>B.5.26. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD?</p>		<p>According to EB meeting 35, Annex 34, the additionality of a small scale CDM project can be also proven based on Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions.</p> <p>Best practice examples include but are not limited to, the demonstration that project is among the first of its kind in terms of technology, geography, sector, type of investment and investor, market etc.</p> <p>This proposed WHR project in the sector of cement industry is first of its kind.</p> <p>To be verified on site.</p> <p><u>Corrective Action Request 9.</u></p> <p>Please add in PDD information regarding the following issues. That way the base of judgement of “first-of-its-kind” is set:</p> <ol style="list-style-type: none"> (1) Provide a definition of the number of similar project activities that may have already been implemented to still regard the project activity as “first-of-its-kind”; (2) Provide a definition of the technologies, for which the barrier “first-of-its-kind” can be used (all technologies or only defined “novel/innovative/brand new” technologies) and a definition of what is regarded as a similar technol- 			<p>CAR 9 CAR 10</p>	<p><input checked="" type="checkbox"/></p>

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			<p><u>ogy or project activity;</u></p> <p>(3) Provide a definition of the geographical area to be used for the assessment of the number of similar project activities that have already been implemented</p> <p>As soon as the base to tackle the issue "First-of-its-kind" is set: <u>Corrective Action Request 10.</u> Please provide:</p> <ol style="list-style-type: none"> A letter from the Pakistani association of cement industries that there are no other WHR projects until now in the cement industry. A letter from the ministry that states the same as above. A copy from the data bank in Pakistan that lists all power generation projects in Pakistan. <p>A letter from the Pakistani association of cement industries that there are no other WHR projects until now in the cement industry is available. The evidence about data bank in Pakistan that lists all power generation projects in Pakistan is covered by it. Additionally, a letter from the DNA that states the same as above is available.</p>		
B.5.27.	If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component?	1,63	N/A. Until now there are not any similar activities in Pakistan.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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B.6. Emissions reductions				
B.6.1. <i>Explanation of methodological choices</i>				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	1,3,4,5,6	<p>The calculation of the emissions reduction, f_{cap} and f_{wcm} is conducted according to the steps described in AMS.III.Q, AMS.I.C, AMS.I.D, ACM0012 and "Tool to calculate the emission factor for an electricity system (version01)".</p> <ul style="list-style-type: none"> - Calculation of the f_{cap} - Calculation of the Operating Margin Emission Factor - Calculation of the Build Margin Emission Factor - Calculation of the Combined Baseline Emission Factor <p><u>Corrective Action Request 11.</u> Please improve the typing quality of the tables in Annex 3 so that they will be easier readable.</p>	CAR 11	<input checked="" type="checkbox"/>
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	1,3,4,5,6	<p><u>Corrective Action Request 12.</u> Regarding the calculation of the OM in chapter B.6.1, the statement that the application of Option B for years 2006 and 2007 leads to a conservative value of EF is misleading. The three options of the tool (A,B, and C) are applicable depending on the availability of data and should lead to the same result.</p> <p>Please remove this statement or revise in a more clear way.</p>	CAR 12	<input checked="" type="checkbox"/>

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B.6.1.3.Determination of project emissions (Comment on any line answered "No")										
B.6.1.4.Component 1: emissions from use of fossil fuel	1,3,33	<table border="1"> <tr> <td>Project emission checklist</td> <td>Yes / No</td> </tr> <tr> <td>Component discussed in the PDD?</td> <td>No</td> </tr> <tr> <td>Formulae correctly applied?</td> <td>No</td> </tr> </table> <p>There are no project emissions from the WHR plant. This is also foreseen by the methodology AMS III.Q.</p>	Project emission checklist	Yes / No	Component discussed in the PDD?	No	Formulae correctly applied?	No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Project emission checklist	Yes / No									
Component discussed in the PDD?	No									
Formulae correctly applied?	No									
B.6.1.5.Are the formulae required for the determination of baseline emissions correctly presented, enabling a complete identification of parameters to be used and / or monitored?	1,3,33	<p>Yes, the calculation is correctly done since per methodology AMS III.Q, paragraph 9, if the displaced electricity for recipient is supplied by a connected grid system, the CO₂ emission factor of the electricity EFelec,gr,j,y shall be determined following the tool to calculate the emission factor for an electricity system.</p> <p><u>Corrective Action Request 13.</u></p> <p>Chapter B.6.1 in PDD, p.18, equation for Option B: according to the tool the first i in the nominator should be m (like in denominator).</p> <p><u>Clarification Request 3.</u></p> <p>Chapter B.6.1, Step 4: a second crediting period is mentioned. According to chapter C.1, there will be only one fixed crediting period of 10 years. Please clarify.</p> <p>Same in the text regarding to build margin.</p> <p>Same in table B.6.2</p>	CAR 13 CR 3	<input checked="" type="checkbox"/>						
B.6.1.6.Are the formulae required for the determination of leakage emissions cor-	1,3,	There are no leakage emissions, thus formula not applicable.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						

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rectly presented, enabling a complete identification of parameter to be used and / or monitored?	33																					
B.6.1.7.Are the formulae required for the determination of emission reductions correctly presented?	1,3,33	Yes, the formulae required for determination of emission reductions are correctly presented.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
B.6.2. Data and parameters that are available at validation																						
B.6.2.1.Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	1,3,6	Yes, the listed parameters to be available at validation is complete and according to the tool to calculate an emissions factor.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																		
B.6.2.2.Comment on any line answered with "No"																						
B.6.2.3. <u>Parameter Title:</u> Annual electricity supplied to the grid prior to retrofit (applicable only for retrofit and modification activities)	1-6	<table border="1"> <thead> <tr> <th>Data Checklist</th> <th>Yes / No / NA</th> </tr> </thead> <tbody> <tr> <td>Title in line with methodology?</td> <td>N/A</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>N/A</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>N/A</td> </tr> <tr> <td>Source clearly referenced?</td> <td>N/A</td> </tr> <tr> <td>Correct value provided?</td> <td>N/A</td> </tr> <tr> <td>Has this value been verified?</td> <td>N/A</td> </tr> <tr> <td>Choice of data correctly justified?</td> <td>N/A</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>N/A</td> </tr> </tbody> </table>	Data Checklist	Yes / No / NA	Title in line with methodology?	N/A	Data unit correctly expressed?	N/A	Appropriate description of parameter?	N/A	Source clearly referenced?	N/A	Correct value provided?	N/A	Has this value been verified?	N/A	Choice of data correctly justified?	N/A	Measurement method correctly described?	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No / NA																					
Title in line with methodology?	N/A																					
Data unit correctly expressed?	N/A																					
Appropriate description of parameter?	N/A																					
Source clearly referenced?	N/A																					
Correct value provided?	N/A																					
Has this value been verified?	N/A																					
Choice of data correctly justified?	N/A																					
Measurement method correctly described?	N/A																					
B.6.2.4. <u>Parameter Title:</u> Emission factor of the grid (CM) Note: CM should be calculated as per	1-6	<table border="1"> <thead> <tr> <th>Data Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Data Checklist	Yes / No			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
Data Checklist	Yes / No																					

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the procedures described in the "Tool to calculate the emission factor for an electricity system"		Title in line with methodology?	Yes																			
		Data unit correctly expressed?	Yes																			
		Appropriate description of parameter?	Yes																			
		Source clearly referenced?	Yes																			
		Correct value provided?	Yes																			
		Has this value been verified?	Yes																			
		Choice of data correctly justified?	Yes																			
		Measurement method correctly described?	Yes																			
B.6.2.5. <u>Parameter Title:</u> Operating margin (OM) emission factor of the grid Note: OM should be calculated as per the procedures described in the "Tool to calculate the emission factor for an electricity system"	1-6	<table border="1"> <thead> <tr> <th>Data Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>Title in line with methodology?</td> <td>Yes</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>Yes</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>Yes</td> </tr> <tr> <td>Source clearly referenced?</td> <td>Yes</td> </tr> <tr> <td>Correct value provided?</td> <td>Yes</td> </tr> <tr> <td>Has this value been verified?</td> <td>Yes</td> </tr> <tr> <td>Choice of data correctly justified?</td> <td>Yes</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>Yes</td> </tr> </tbody> </table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
B.6.2.6. <u>Parameter Title:</u> fuel consumption of each power source	1-6	<table border="1"> <thead> <tr> <th>Data Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Data Checklist	Yes / No			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
Data Checklist	Yes / No																					

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		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
B.6.2.7. <u>Parameter Title:</u> emission coefficient of each fuel	1-6	See CAR 13		☑	☑
		Data Checklist	Yes / No		
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		

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		<table border="1"> <tr> <td>Measurement method correctly described?</td> <td>Yes</td> </tr> </table> <p>See CAR 13</p>	Measurement method correctly described?	Yes																		
Measurement method correctly described?	Yes																					
B.6.2.8. <u>Parameter Title:</u> electricity generation of each power source	1-6	<table border="1"> <thead> <tr> <th>Data Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>Title in line with methodology?</td> <td>Yes</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>Yes</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>Yes</td> </tr> <tr> <td>Source clearly referenced?</td> <td>Yes</td> </tr> <tr> <td>Correct value provided?</td> <td>Yes</td> </tr> <tr> <td>Has this value been verified?</td> <td>Yes</td> </tr> <tr> <td>Choice of data correctly justified?</td> <td>Yes</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>Yes</td> </tr> </tbody> </table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	Yes	Has this value been verified?	Yes	Choice of data correctly justified?	Yes	Measurement method correctly described?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					
Appropriate description of parameter?	Yes																					
Source clearly referenced?	Yes																					
Correct value provided?	Yes																					
Has this value been verified?	Yes																					
Choice of data correctly justified?	Yes																					
Measurement method correctly described?	Yes																					
B.6.2.9. <u>Parameter Title:</u> fraction of time with low costs /must run plant at the margin (for simple adjusted OM only)	1-6	<table border="1"> <thead> <tr> <th>Data Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>Title in line with methodology?</td> <td>N/A</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>N/A</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>N/A</td> </tr> <tr> <td>Source clearly referenced?</td> <td>N/A</td> </tr> </tbody> </table>	Data Checklist	Yes / No	Title in line with methodology?	N/A	Data unit correctly expressed?	N/A	Appropriate description of parameter?	N/A	Source clearly referenced?	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
Data Checklist	Yes / No																					
Title in line with methodology?	N/A																					
Data unit correctly expressed?	N/A																					
Appropriate description of parameter?	N/A																					
Source clearly referenced?	N/A																					

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		<table border="1"> <tr> <td>Correct value provided?</td> <td>N/A</td> </tr> <tr> <td>Has this value been verified?</td> <td>N/A</td> </tr> <tr> <td>Choice of data correctly justified?</td> <td>N/A</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>N/A</td> </tr> </table>	Correct value provided?	N/A	Has this value been verified?	N/A	Choice of data correctly justified?	N/A	Measurement method correctly described?	N/A												
Correct value provided?	N/A																					
Has this value been verified?	N/A																					
Choice of data correctly justified?	N/A																					
Measurement method correctly described?	N/A																					
B.6.2.10. <u>Parameter Title:</u> electricity imports	1-6	<table border="1"> <tr> <td>Data Checklist</td> <td>Yes / No</td> </tr> <tr> <td>Title in line with methodology?</td> <td>N/A</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>N/A</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>N/A</td> </tr> <tr> <td>Source clearly referenced?</td> <td>N/A</td> </tr> <tr> <td>Correct value provided?</td> <td>N/A</td> </tr> <tr> <td>Has this value been verified?</td> <td>N/A</td> </tr> <tr> <td>Choice of data correctly justified?</td> <td>N/A</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>N/A</td> </tr> </table> <p>To be verified on-site</p>	Data Checklist	Yes / No	Title in line with methodology?	N/A	Data unit correctly expressed?	N/A	Appropriate description of parameter?	N/A	Source clearly referenced?	N/A	Correct value provided?	N/A	Has this value been verified?	N/A	Choice of data correctly justified?	N/A	Measurement method correctly described?	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Data Checklist	Yes / No																					
Title in line with methodology?	N/A																					
Data unit correctly expressed?	N/A																					
Appropriate description of parameter?	N/A																					
Source clearly referenced?	N/A																					
Correct value provided?	N/A																					
Has this value been verified?	N/A																					
Choice of data correctly justified?	N/A																					
Measurement method correctly described?	N/A																					
B.6.2.11. <u>Parameter Title:</u> CO ₂ emission coefficient of fuels used in connected grids	1-6	<table border="1"> <tr> <td>Data Checklist</td> <td>Yes / No</td> </tr> <tr> <td>Title in line with methodology?</td> <td>Yes</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>Yes</td> </tr> </table>	Data Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												
Data Checklist	Yes / No																					
Title in line with methodology?	Yes																					
Data unit correctly expressed?	Yes																					

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			Appropriate description of parameter?	Yes		
			Source clearly referenced?	Yes		
			Correct value provided?	Yes		
			Has this value been verified?	Yes		
			Choice of data correctly justified?	Yes		
			Measurement method correctly described?	Yes		
B.6.2.12.	$EG_{i,j,y}$ The quantity of electricity supplied to the recipient j by generator, that in the absence of the project activity would have been sourced from i^{th} source (i can be either grid or identified source) during the year y in MWh,	1-6	Data Checklist	Yes / No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			Title in line with methodology?	N/A		
			Data unit correctly expressed?	N/A		
			Appropriate description of parameter?	N/A		
			Source clearly referenced?	N/A		
			Correct value provided?	N/A		
			Has this value been verified?	N/A		
			Choice of data correctly justified?	N/A		
			Measurement method correctly described?	N/A		
If the baseline generation source is an identified existing plant						
B.6.2.13.	$\eta_{Plant,j}$ the overall efficiency of the existing plant that would be used by j^{th} recipient in the absence of the project	1-6	Data Checklist	Yes / No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			Title in line with methodology?	N/A		

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activity		Data unit correctly expressed?	N/A		
		Appropriate description of parameter?	N/A		
		Source clearly referenced?	N/A		
		Correct value provided?	N/A		
		Has this value been verified?	N/A		
		Choice of data correctly justified?	N/A		
		Measurement method correctly described?	N/A		
B.6.2.14. $EF_{CO_2,i,j}$ the CO ₂ emission factor per unit of energy of the fossil fuel used in the baseline generation source i in (tCO ₂ /TJ), obtained from reliable local or national data if available, otherwise, taken from the country specific IPCC default emission factors	1-6	Data Checklist	Yes / No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Title in line with methodology?	N/A		
		Data unit correctly expressed?	N/A		
		Appropriate description of parameter?	N/A		
		Source clearly referenced?	N/A		
		Correct value provided?	N/A		
		Has this value been verified?	N/A		
		Choice of data correctly justified?	N/A		
		Measurement method correctly described?	N/A		
Baseline emissions from electricity (BE _{elec, y}) to provide mechanical energy generated by waste energy.					
B.6.2.1. $MG_{i,j,y,mot}$ in MWh Mechanical energy supplied to the recipient j by generator that in the absence of the project activity would receive electricity from ith source (electric	1-6	Data Checklist	Yes / No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Title in line with methodology?	N/A		
		Data unit correctly expressed?	N/A		

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	motor) in the year y		Appropriate description of parameter?	N/A		
			Source clearly referenced?	N/A		
			Correct value provided?	N/A		
			Has this value been verified?	N/A		
			Choice of data correctly justified?	N/A		
			Measurement method correctly described?	N/A		
B.6.2.1.	$\eta_{\text{mech,mot}}$, the efficiency of the base-line equipment (electric motor) that would provide mechanical power in the absence of the project activity	1-6	Data Checklist	Yes / No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			Title in line with methodology?	N/A		
			Data unit correctly expressed?	N/A		
			Appropriate description of parameter?	N/A		
			Source clearly referenced?	N/A		
			Correct value provided?	N/A		
			Has this value been verified?	N/A		
			Choice of data correctly justified?	N/A		
			Measurement method correctly described?	N/A		
B.6.2.2.	HG _{j,y} , Net quantity of heat supplied to the recipient plant j	1-6	Data Checklist	Yes / No	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			Title in line with methodology?	N/A		
			Data unit correctly expressed?	N/A		
			Appropriate description of parameter?	N/A		
			Source clearly referenced?	N/A		

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			<table border="1"> <tr> <td>Correct value provided?</td> <td>N/A</td> </tr> <tr> <td>Has this value been verified?</td> <td>N/A</td> </tr> <tr> <td>Choice of data correctly justified?</td> <td>N/A</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>N/A</td> </tr> </table>	Correct value provided?	N/A	Has this value been verified?	N/A	Choice of data correctly justified?	N/A	Measurement method correctly described?	N/A		
Correct value provided?	N/A												
Has this value been verified?	N/A												
Choice of data correctly justified?	N/A												
Measurement method correctly described?	N/A												
B.6.2.3.	What parameters are given to calculate f_{WCM} ?	1-6	For the Project activity this fraction is 1 because the electricity generation is purely from use of waste energy.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
B.6.2.4.	How has f_{WCM} been calculated?	1-6	For the Project activity this fraction is 1 because the electricity generation is purely from use of waste energy.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
B.6.2.5.	What parameters are given to calculate f_{cap} ?		For the ex-ante calculation of baseline emissions, it is assumed that f_{cap} equals to one (1). During the operation of the WHR project the generated quantity of waste energy will be monitored and used for the calculation of f_{cap} .	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
B.6.2.6.	How has f_{cap} been calculated? Is that in line with ACM0012?	1-6	<p>Yes, the ex-ante estimation of f_{cap} is according to ACM0012 version 3.1, method 2.</p> <p><u>Clarification Request 4.</u></p> <p>a. It shall be explained in the PDD why it is planned to measure the waste heat $Q_{WCM,y}$ in Nm^3 (see p.26 of PDD) and not in energy units as J. The same explanations shall be provided for the parameter $q_{WCM,y}$, p.20 in PDD.</p> <p>b. An explanation shall be added to the PDD regarding the reason to measure during the operation of the project the parameters t and p, see p.26 and 27 in PDD.</p>	CR 4	<input checked="" type="checkbox"/>								

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B.6.3. Ex-ante calculation of emission reductions				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	1-6	Yes, the same procedures are used for future monitoring which only considers the baseline emissions, no project emissions and no leakage.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	1-6	$ER_y = BE_y - PE_y - LE_y = 48,060 - 0 - 0 = 48,060 \text{ tCO}_2$	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.3.3. If there is more than one component of the project activity, then, are emission reduction calculations provided separately for each component?	1-6	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.3.4. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	1-6	Yes, the data provided is consistent with data presented in other chapters of the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4. Summary of the ex-ante estimation of emission reductions				
B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	1-6	The project definitely will result in fewer GHG emissions than the baseline scenario.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	1-6	Yes, the form is correctly applied according to the PDD template.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.3. If the project activity involves more than one component, is separate table included for each of the component.	1-6	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.4. Do these values comply with small-scale criteria for every year?	1-6	Yes, since the estimated emission reductions are less than 60,000 tCO ₂ .	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.6.4.5. Is the projection in line with the envi-	1-6	In the table with the ERs, the years during which the ERs will oc-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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	sioned time schedule for the project's implementation and the indicated credit-ing period?		cur are generally stated.																										
	B.6.4.6. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?	1-6	Yes, the data provided is consistent with data presented in other chapters of the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
B.7. Application of the monitoring methodology and description of the monitoring plan																													
B.7.1. Data and parameters monitored																													
	B.7.1.1. Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?		Yes, the list presented is considered to be complete.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
B.7.1.2. Comment on any line answered with "No"																													
	B.7.1.2.1. <u>Parameter Title:</u> Thermal and/or electrical energy produced	1-6	<table border="1"> <thead> <tr> <th>Monitoring Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>Title in line with methodology?</td> <td>Yes</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>Yes</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>Yes</td> </tr> <tr> <td>Source clearly referenced?</td> <td>Yes</td> </tr> <tr> <td>Correct value provided for estimation?</td> <td>Yes</td> </tr> <tr> <td>Has this value been verified?</td> <td>Yes</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>Yes</td> </tr> <tr> <td>Correct reference to standards?</td> <td>Yes</td> </tr> <tr> <td>Indication of accuracy provided?</td> <td>Yes</td> </tr> <tr> <td>QA/QC procedures described?</td> <td>Yes</td> </tr> <tr> <td>QA/QC procedures appropriate?</td> <td>Yes</td> </tr> </tbody> </table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes	CAR 14	<input checked="" type="checkbox"/>
Monitoring Checklist	Yes / No																												
Title in line with methodology?	Yes																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	Yes																												
Source clearly referenced?	Yes																												
Correct value provided for estimation?	Yes																												
Has this value been verified?	Yes																												
Measurement method correctly described?	Yes																												
Correct reference to standards?	Yes																												
Indication of accuracy provided?	Yes																												
QA/QC procedures described?	Yes																												
QA/QC procedures appropriate?	Yes																												

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CAR 1.	CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD																								
			<p><u>Corrective Action Request 14.</u></p> <p>According to information gathered during the audit, two power meters will be used, one for gross power and one for net power. The PDD needs to be amended accordingly. As well the meter standard, calibration frequency needs to be included.</p>																										
B.7.1.2.2.	<p><u>Parameter Title:</u> In case of thermal energy: the enthalpy of the thermal energy output stream like hot water/ steam should be monitored.</p>	1-6	<table border="1"> <thead> <tr> <th>Monitoring Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>Title in line with methodology?</td> <td>N/A</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>N/A</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>N/A</td> </tr> <tr> <td>Source clearly referenced?</td> <td>N/A</td> </tr> <tr> <td>Correct value provided for estimation?</td> <td>N/A</td> </tr> <tr> <td>Has this value been verified?</td> <td>N/A</td> </tr> <tr> <td>Measurement method correctly described?</td> <td>N/A</td> </tr> <tr> <td>Correct reference to standards?</td> <td>N/A</td> </tr> <tr> <td>Indication of accuracy provided?</td> <td>N/A</td> </tr> <tr> <td>QA/QC procedures described?</td> <td>N/A</td> </tr> <tr> <td>QA/QC procedures appropriate?</td> <td>N/A</td> </tr> </tbody> </table>	Monitoring Checklist	Yes / No	Title in line with methodology?	N/A	Data unit correctly expressed?	N/A	Appropriate description of parameter?	N/A	Source clearly referenced?	N/A	Correct value provided for estimation?	N/A	Has this value been verified?	N/A	Measurement method correctly described?	N/A	Correct reference to standards?	N/A	Indication of accuracy provided?	N/A	QA/QC procedures described?	N/A	QA/QC procedures appropriate?	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Monitoring Checklist	Yes / No																												
Title in line with methodology?	N/A																												
Data unit correctly expressed?	N/A																												
Appropriate description of parameter?	N/A																												
Source clearly referenced?	N/A																												
Correct value provided for estimation?	N/A																												
Has this value been verified?	N/A																												
Measurement method correctly described?	N/A																												
Correct reference to standards?	N/A																												
Indication of accuracy provided?	N/A																												
QA/QC procedures described?	N/A																												
QA/QC procedures appropriate?	N/A																												
B.7.1.2.3.	<p><u>Parameter Title:</u> Amount of waste gas or the amount of energy contained in the waste heat or waste pressure</p>	1-6	<table border="1"> <thead> <tr> <th>Monitoring Checklist</th> <th>Yes / No</th> </tr> </thead> <tbody> <tr> <td>Title in line with methodology?</td> <td>Yes</td> </tr> <tr> <td>Data unit correctly expressed?</td> <td>Yes</td> </tr> <tr> <td>Appropriate description of parameter?</td> <td>Yes</td> </tr> <tr> <td>Source clearly referenced?</td> <td>Yes</td> </tr> <tr> <td>Correct value provided for estimation?</td> <td>Yes</td> </tr> <tr> <td>Has this value been verified?</td> <td>Yes</td> </tr> </tbody> </table>	Monitoring Checklist	Yes / No	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	Yes	Has this value been verified?	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
Monitoring Checklist	Yes / No																												
Title in line with methodology?	Yes																												
Data unit correctly expressed?	Yes																												
Appropriate description of parameter?	Yes																												
Source clearly referenced?	Yes																												
Correct value provided for estimation?	Yes																												
Has this value been verified?	Yes																												

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			<table border="1"> <tr> <td>Measurement method correctly described?</td> <td>Yes</td> </tr> <tr> <td>Correct reference to standards?</td> <td>Yes</td> </tr> <tr> <td>Indication of accuracy provided?</td> <td>Yes</td> </tr> <tr> <td>QA/QC procedures described?</td> <td>Yes</td> </tr> <tr> <td>QA/QC procedures appropriate?</td> <td>Yes</td> </tr> </table>	Measurement method correctly described?	Yes	Correct reference to standards?	Yes	Indication of accuracy provided?	Yes	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes		
Measurement method correctly described?	Yes														
Correct reference to standards?	Yes														
Indication of accuracy provided?	Yes														
QA/QC procedures described?	Yes														
QA/QC procedures appropriate?	Yes														
B.7.1.2.4.	<u>Parameter Title:</u> Metering the amount of mechanical energy generated /supplied	1-6	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
B.7.1.2.5.	<u>Parameter Title:</u> Metering the temperature and pressure of WECM	1-6	Yes, temperature and pressure of WECM are listed in the Table with parameters to be monitored.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
B.7.1.2.6.	<u>Parameter Title:</u> f_{cap}	1-6	Yes, f_{cap} will be indirectly monitored since the quantity of waste energy during operation year y will be monitored.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
B.7.2. Description of the monitoring plan															
B.7.2.1.	Is the operational and management structure clearly described and in compliance with the envisioned situation?	1,49, 55	<u>Corrective Action Request 15.</u> Please improve the typing quality of the diagram that describes the responsibilities of the each entity of BCL (in the PDD chapter B.7.1)	CAR 15	<input checked="" type="checkbox"/>										
B.7.2.2.	Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	1,49, 55	Yes, but see CAR 14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
B.7.2.3.	Does the monitoring plan provide current good monitoring practice?	1,49, 55	Yes, the monitoring plan explains in a transparent way the responsibilities and assures high quality of data management. During on-site visit documents were provided to the DOE from the	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										

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			project owner regarding training that was offered from the senior technical manager of the plant to employees of the plant.		
	B.7.2.4.If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1,49,55	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B.8. Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)					
	B.8.1.1.Is there any indication of a date when the baseline was determined?	1,2	The baseline was determined on December,30 th 2008. <u>Corrective Action Request 16.</u> The date is not any more actual and needs to be updated.	CAR 16	<input checked="" type="checkbox"/>
	B.8.1.2.Has dd/mm/yyyy format been used to indicate the date?	1,2	Yes. The correct format has been applied.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	B.8.1.3.Is this consistent with the time line of the PDD history?	1,2	Yes, it is in line with the PDD history. The first version of PDD is from 25/06/2009.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	B.8.1.4.Is the information on the person(s) / entity (ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	1,2	The baseline study was prepared by Clean Energy Finance Committee which is part of Mitsubishi company.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	B.8.1.5.Is information provided whether this person / entity is also considered a project participant?	1,2	Clean Energy Finance Committee is not project participant.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	B.8.1.6.If the CDM-PDD is being submitted by project participants when proposing a new methodology, is the "Source" sec-	1,2	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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tion of the approved methodology based on information included in this section of the draft CDM-PDD?				
C. Duration of the project activity / crediting period				
C.1. Duration of the project activity				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	1,2,3	The starting date of the project activity is the 2 nd of August 2007, which is the day when the agreement for the equipment purchase is finalized between BCL and Toyota Tsusho Corporation was signed.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
C.1.2. How has the starting date of the project activity been defined?	1,2,3	<u>Corrective Action Request 17.</u> Please add in Chapter C.1.1 the irreversible event that defines the start of the project activity.	CAR 17	<input checked="" type="checkbox"/>
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	1,2,3	Fixed crediting period of 10 years is chosen. <u>Corrective Action Request 18.</u> Please revise the beginning of the crediting period. This month might as well have again to be revised depending on the validation process.	CAR 18	<input checked="" type="checkbox"/>
C.2.2. Has dd/mm/yyyy format been used to indicate the start date of the crediting period.	1,2,3	Yes. The correct format is indicated.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D. Environmental impacts				
D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment	1,15,	Yes, there has been conducted an Initial Environmental Examination as it is compulsory by the Pakistani regulations. This exami-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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(EIA), and if yes, has an EIA been approved? If yes answer also D.1.2 to D.1.4	16	nation has been also approved. The respective documents have been provided to the DOE. After final WHR project is approved by the local authorities, this will mean also the approval of the environmental conditions that were posed by the authorities.		
D.1.2. Has the analysis of the environmental impacts of the project activity been sufficiently described?	1,15, 16	Yes. The analysis of the environmental impacts of the project activity has been sufficiently described.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.3. Will the project create any adverse environmental effects?	1,15, 16	Referring to the IEE and its approval, the project will create no negative environmental impacts.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.1.4. Were transboundary environmental impacts identified in the analysis?	1,15, 16	There are no transboundary impacts described neither in the IEE report nor its approval.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party				
D.2.1. Have the identified environmental impacts been addressed in the project design sufficiently?	1,15, 16	Referring to the IEE and its approval, the project will create no negative environmental impacts.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
D.2.2. Does the project comply with environmental legislation in the host country?	1,15, 16	Yes, the project is in conformity with the environmental legislation of Pakistan and the IEE has been approved by the authorized bureau.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E. Stakeholders' comments				
E.1. Brief description how comments by local stakeholders have been invited and compiled				
E.1.1. Have relevant stakeholders been con-	1.59,	A local stakeholder meeting took place on 5 th November 2008, where representatives from BCL, from the local community, gov-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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sulted?	60, 61, 62	ernmental officials and employees were present.		
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	1.59, 60, 61, 62	Yes, Advertisements were placed in the local newspapers. Invitation letters were sent to key stakeholders such as industrialist of local area, professionals, local residents, community leaders, transporters, farmers, officials of Government agencies, WAPDA officials etc. In addition, a notice was placed at the official notice board of the company	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	1.59, 60, 61, 62, 65	Clarification Request 5. Please clarify if a local stakeholder's meeting is foreseen by the Pakistani law.	CR 5	<input checked="" type="checkbox"/>
E.1.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	1.59, 60, 61, 62	Yes.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.2.Summary of the comments received				
E.2.1. Is a summary of the received stakeholder comments provided?	1,59, 60, 61, 62	Yes, the summary of all comments has been delivered to DOE prior to the on-site audit.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
E.3.Report on how due account was taken of any comments received				
E.3.1. Has due account been taken of any	1,59,	Yes, it is described in section E.3 in the PDD.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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stakeholder comments received?	60, 61, 62			
F. Annexes 1 - 4				
F.1. Annex 1: Contact Information				
F.1.1. Is the information provided consistent with the one given under section A.3?	1	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.1.2. Is the information on all private participants and directly involved Parties presented?	1	Yes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.2. Annex 2: Information regarding public funding				
F.2.1. Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1,56	Yes, there is no public funding. (Document IRL 56 still needs to be delivered)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.2.2. If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	1,56	See F.2.1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.3. Annex 3: Baseline information				
F.3.1. If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	1	Yes. The information presented in other sections of the PDD is in consistency with annex 3.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.3.2. Is the data provided verifiable?	1	Yes. The data are consistent with the officially issued data and	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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Has sufficient evidence been provided to the validation team?		have been verified by the audit team. According to the cross-check done for the officially available document from WAPDA, PPIB and Azad Jammu, the data base for OM calculation in PDD Annex 3 as well as excel calculation GEF is deemed to be correct.		
F.3.3. Does the additional information substantiate / support statements given in other sections of the PDD?	1	Yes. The information presented supports the statements given in section B.6.1, B.6.2 and B.6.3.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4. Annex 4: Monitoring information				
F.4.1. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4.2. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	1	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F.4.3. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1	N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Corrective Actions Requests			
<p><u>Open issue</u> In FSR p.26, it is stated Plant gross capacity 12.8 MW (in PDD 15 MW), net capacity 11.9 MW (in PDD 100,080 MWh). Please clarify the discrepancy. The submitted PDD should be based on the respective FSR from 22/11/2006, which seems to have different technical data.</p>	A.2.1	The pre-FSR was based on a technical offer from a Chinese company. Afterwards a second technical offer was issued by Kawasaki and in this technical offer the capacity of the turbine is 15 MW. Based on this offer are estimated the numbers mentioned in the PDD A.2.1.	The technical offer from Kawasaki has been provided to the DOE, it contains exactly the same characteristics like in the PDD.
<p><u>Corrective Action Request 1.</u> The statement in the PDD regarding the effective capacity of the project in terms of the second improved offer from Kawasaki has to be justified in more detail in order to provide transparency.</p>	A.2.1	Regarding the difference between the capacity in the FSR and the PDD, please see above explanation for Open Issue 1. Gross electricity production is estimated to be 108,000 MWh and net generation 100,080 MWh. The difference is due to own consumption.	There is consistency between the technical offer from Kawasaki and the project description in A.2.1 in PDD.
<p><u>Corrective Action Request 2.</u> Please provide in the PDD a more transparent project scheme covering both kilns.</p>	A.4.2.6	The PDD has been updated and contains now a scheme where both kilns can be seen and also their connection to the steam turbine and the generator.	PDD has been revised in a satisfying way. Project description is now detailed. Apart from the scheme there is also a more detailed description of the waste heat treatment.

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<p><u>Corrective Action Request 3.</u> Please elaborate in chapter A.4.2 and explain what purpose each equipment serves in the context of WHR.</p>	A.4.3.2	Chapter A.4.2 has been revised with additional information concerning the process of WHR. The function of the main equipment (heat exchanger, turbine, generator) is presented in a transparent way.	Issue is closed, since the project description has been enhanced with detailed explanation.
<p><u>Corrective Action Request 4.</u></p> <p>a. Please add the estimated lifetime of each equipment according to the manufacturer's specifications in the respective tables.</p> <p>b. Load factor of the project to be calculated and stated in the PDD according to EB 48, Annex 11.</p>	A.4.3.4	<p>a. Manufacturer has not provided any specific lifetime for the major equipments, as it depends on how efficiently project developer can operate and maintain the equipments in good shape in future. We have considered the default figures mentioned in the "Tool to determine the remaining lifetime of equipment" (EB 50, Annex 15). See chapter A.4.2 of PDD.</p> <p>b. The load factor is estimated to be 82.19 %(300 d/ 365d). This is based on 24 hours operation of the plant for 300 days in a year. This is based on the empirical data of the Cement plant according to which the plant operates 300 days/year.</p>	<p>a. According to EB 50, Annex 15, the default technical lifetime of boilers, steam turbines and generators is 25 years, which is longer than the 10 years of crediting period.</p> <p>Issue is closed.</p> <p>b. Issue closed since a plausible load factor has been added to the PDD. The WHR load factor is according to EB Report 48, Annex 11, § 3 because it is the factor that has been applied in the ER calculation and submitted to equity financiers while applying for a credit.</p>
<p><u>Corrective Action Request 5.</u> Please add on diagram the estimated amount of steam that is generated from the two PH Heat exchangers and is lead to the turbine for power generation.</p>	A.4.3.5	The estimated amount of steam is 38.6 t/hr for each kiln line (22.4 t/hr from the pre-heater and 14.5 t/hr from the AQC after the kiln). The total amount of steam going to the turbine is 77.2 t/hr.	The revision of the PDD delivers a transparent description of the technical issue of steam amount for WHR.
<p><u>Corrective Action Request 6.</u></p>	B.5.3	The PDD is updated and break-down of the alternatives	The tool that is applied in

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<p>A break-down of the alternatives shall be added to the PDD, according to Step 1 of the Tool for the demonstration and assessment of the additionality.</p>		<p>were mentioned as per the Attachment A to Appendix B of “Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories” under section B.5 of the PDD.</p>	<p>order to prove the additionality is Attachment A to Appendix of the simplified modalities and procedures for small scale CDM project activities. According to the guidance, it is not required to present alternatives but to prove the additionality against the mentioned barriers.</p>
<p><u>Corrective Action Request 7.</u> The investment analysis from the Pre-FSR shall be included in the PDD, in order to support the additionality argumentation. The input values that were applied for this investment analysis have to be justified regarding their plausibility and the conservativeness.</p>	<p>B.5.9</p>	<p>As per the Attachment A to Appendix B “Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories” the Project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the 4 barriers described in the guideline. We have explained the “First of its kind” barrier in detail in the PDD and substantiated this fact with all the supporting documents as per the requirement of DoE and Executive board. We assume that this barrier is sufficient to justify that Project is additional and hence meets the UNFCCC CDM EB requirement for Additionality analysis. Hence, DOE may rethink on including investment analysis from the Pre-FSR in the PDD. Still, the IRR analysis has been provided to the DOE for internal cross-check of plausibility and conservativeness.</p>	<p>Since the project is small scale the UNFCCC guidance regarding the ways to prove the additionality are applicable. According to EB 35 Annex 34, the third barrier that it can be referred to is “Barrier due to prevailing practise”. According to EB 34, Annex 10, a project can be characterized as “first-of-its-kind” if it can be proved that there is no other similar project in the applicable geographical area (by default the host country), and in the similar technology. The project owner has delivered to TÜV SÜD one letter from the Association of cement industries of Pakistan, that states that Bestway WHR plant is the only WHR</p>

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			<p>that has been commissioned in Pakistan until 18/09/2009. Furthermore the PP has delivered a letter from the Ministry of Environment of Pakistan that confirms that Best way WHR plant is the only WHR that has been commissioned in Pakistan until 18/09/2009.</p> <p>Hence, TÜV SÜD considers the approach correct and according to the CDM regulations.</p>
<p><u>Corrective Action Request 8.</u></p> <p>a. Please provide also in electronic form the financial analysis with capacity values exactly like in PDD.</p> <p>b. Please provide an explanation why the board of BCL decided to implement a project that according to the NPV calculation is not profitable even with CER income.</p> <p>c. Please clarify why NPV is presented against 15% interest rate and not against 7.84% (IRR without CERs) and 10.43% (IRR with CERs). Why are NPVs negative at the conclusion of the FSR? In the printed version of financial calculation the NPVs are positive.</p>	<p>B.5.11</p>	<p>Please refer to the explanation to the CAR 7 for the Same.</p>	<p>All the questions that were raised are not applicable any more since the first-of-its-kind approach has been approved by the DOE.</p>

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<p>d. Please clarify if tax is calculated based also on the depreciation or if depreciation "costs" are excluded from the calculation of tax.</p> <p>In the summary of each calculation (with and without CERs) it shall be clearly stated if IRR is project or equity.</p>			
<p><u>Corrective Action Request 9.</u> Please add in PDD information regarding the following issues. That way the base of judgement of "first-of-its-kind" is set:</p> <p>(1) Provide a definition of the number of <u>similar project</u> activities that may have already been implemented to still regard the project activity as "first-of-its-kind";</p> <p>(2) Provide a definition of the <u>technologies</u>, for which the barrier "first-of-its-kind" can be used (all technologies or only defined "novel/innovative/brand new" technologies) and a definition of what is regarded as a <u>similar technology or project activity</u>;</p> <p>(3) Provide a definition of the <u>geographical area</u> to be used for the assessment of the number of similar project activities that have already been implemented</p>	B.5.26	The PDD is updated accordingly and a definition of similar project, technologies and geographical area is being mentioned in the "First of its kind barrier" under section B.5 of the PDD.	Geographical area where similar projects might be detected is the host country of Pakistan. Applicable technology is waste heat recovery in cement industries. The PDD has been revised and the issue is closed.
<p><u>Corrective Action Request 10.</u></p>	B.5.26	a. A letter from the Pakistani association of cement in-	These two official documents

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<p>Please provide:</p> <ol style="list-style-type: none"> A letter from the Pakistani association of cement industries that there are no other WHR projects until now in the cement industry. A letter from the ministry that states the same as above. A copy from the data bank in Pakistan that lists all power generation projects in Pakistan. 		<p>dustries has been provided to DOE during on-site audit.</p> <ol style="list-style-type: none"> A letter from the Pakistani association of cement industries has been provided to DOE during on-site audit. 	<p>that have been provided prove in a transparent way and according to EB 35, Annex 34 and also to the guidance from MethPanel in EB 34, Annex 10.</p> <p>Regarding point (c) of CAR 10, information was sought from the UDI World Electric Power Plants Database (WEPP) which is a global inventory of electric power generating units. It contains design data for plants of all sizes and technologies operated by regulated utilities, private power companies, and industrial autoproducers (captive power). As explained in the feedback from the association in page 14 (IRL 67,68), there is an inventory of waste heat steam turbines but not specifically used for electricity generation, but for all kinds of industrial purposes. That is why, this way of proving the first-of-its-kind approach was not convenient.</p>
<p><u>Corrective Action Request 11.</u></p>	<p>B.6.1.1</p>	<p>Typing quality of Tables in Annex 3 has been improved.</p>	<p>Issue closed, all information</p>

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<p>Please improve the typing quality of the tables in Annex 3 so that they will be easier readable.</p>			<p>presented in the tables is readable.</p>
<p><u>Corrective Action Request 12.</u> Regarding the calculation of the OM in chapter B.6.1, the statement that the application of Option B for years 2006 and 2007 leads to a conservative value of EF is misleading. The three options of the tool (A,B, and C) are applicable depending on the availability of data and should lead to the same result.</p>	<p>B.6.1.2</p>	<p>PDD has been revised by deleting the statement of conservativeness. The data that has been used for the calculation of OM is the available and according to the Tool to calculate an emissions factor version 1.1.</p>	<p>The factor OM is ex-ante calculated based on the data that is available in Pakistan. The misleading comment of conservative calculation has been removed.</p>
<p><u>Corrective Action Request 13.</u> Chapter B.6.1 in PDD, p.18, equation for Option B: according to the tool the first i in the nominator should be m (like in denominator).</p>	<p>B.6.1.5</p>	<p>The equation in PDD is being corrected accordingly.</p>	<p>Issue closed, PDD has been accordingly revised.</p>
<p><u>Corrective Action Request 14.</u> According to information gathered during the audit, two power meters will be used, one for gross power and one for net power. The PDD needs to be amended accordingly. As well the meter standard, calibration frequency needs to be included.</p>	<p>B.7.1.2.1</p>	<p>Calibration frequency of the power meter is added to the parameters in table in chapter B.7.1</p>	<p>Issue is closed; the calibration frequency has been added to all relevant places in the table with the parameters to be monitored.</p>
<p><u>Corrective Action Request 15.</u> Please improve the typing quality of the diagram that describes the responsibilities of the each entity of BCL (in the PDD chapter B.7.1)</p>	<p>B.7.2.1</p>	<p>Typing quality has been improved; all data can be easily read.</p>	<p>Issue closed.</p>

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<p><u>Corrective Action Request 16.</u> The date is no more actual and needs to be updated.</p>	B.8.1.1	The date of completion of the baseline study has been updated.	Issue closed.
<p><u>Corrective Action Request 17.</u> Please add in Chapter C.1.1 the irreversible event that defines the start of the project activity.</p>	C.1.2	The agreement for the equipment purchase between BCL and Toyota Tsusho Corporation is considered as the start date of project activity.	Issue closed.
<p><u>Corrective Action Request 18.</u> Please revise the beginning of the crediting period. This month might as well have again to be revised depending on the validation process.</p>	C.2.1	Date has been revised to 01/12/2009 or whichever is later.	Issue closed.
Clarification Requests			
<p><u>Clarification Request 1.</u> Please provide a justification according to which in Pakistan there is no need to obtain from a local authority an "approval of the FSR"</p>	A.2.2	As evident from the "Pakistan Environmental Protection Act, 1997", any new project activity in Pakistan does not need any prior approval of FSR from the Local authority. The FSR is only prepared for the company's management reference and discussion (internal procedure of the company).	The relevant proof has been delivered and deemed as sufficient. No FSR is officially required and furthermore an approval.
<p><u>Clarification Request 2.</u> From the equipment contract there are pages missing, only the first two are available to DOE. Please deliver kindly the rest.</p>	A.4.2.4	The whole contract between Bestway Cement Ltd and Mitsubishi has been delivered to the DOE.	Issue closed, the whole equipment purchase contract has been delivered to the DOE, see IRL 35.

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<p><u>Clarification Request 3.</u> Chapter B.6.1, Step 4: a second crediting period is mentioned. According to chapter C.1, there will be only one fixed crediting period of 10 years. Please clarify. Same in the text regarding to build margin. Same in table B.6.2</p>	B.6.1.5	PDD has been revised; there is only one fixed crediting period.	Issue closed, PDD has been revised.
<p><u>Clarification Request 4.</u></p> <p>a. It shall be explained in the PDD why it is planned to measure the waste heat $Q_{WCM,y}$ in Nm^3 (see p.26 of PDD) and not in energy units as J. The same explanations shall be provided for the parameter $q_{WCM,y}$, p.20 in PDD.</p> <p>b. An explanation shall be added to the PDD regarding the reason to measure during the operation of the project the parameters t and p, see p.26 and 27 in PDD.</p>	B.6.2.6	<p>a. As per the definition of $Q_{wcm,y}$ and $q_{WCM,y}$ described in approved methodology ACM0012, it should be presented in Mass unit(kg) or other relevant unit. We have data for WECM in Nm^3 which can be converted into Mass unit using density of the waste gases (Kg/NM^3). The density of waste gases can be computed based on the composition of exhaust gases measured by Flue Gas analyser available with BCL. An excel sheet is being submitted to the DoE for reference which shows the calculation of Density in Kg/NM^3 based on the flue gas composition.</p> <p>b. As mentioned in the Para 17.d (Monitoring) of the AMS III.Q, version 2.; we need to measure temperature and pressure of WECM on continuous basis and these parameters should be included as the monitoring parameters.</p>	<p>a. A flue gas meter will measure quantitative and qualitative (% vol of oxygen, CO_2, N_2, CO) and also after the kiln (% Vol O_2, Argon, N_2, CO_2). That way it will be possible to calculate the quantity of waste energy before and after the kiln in kg as required by ACM0012 v.3 for f_{cap}.</p> <p>b. Parameters temperature and pressure of waste heat are correctly included in the parameters to be monitored.</p>
<p><u>Clarification Request 5</u> Please clarify if a local stakeholder's meeting is foreseen by the Pakistani law.</p>		As evident from the "PAKISTAN ENVIRONMENTAL PROTECTION AGENCY (REVIEW OF IEE AND EIA) REGULATIONS, 2000" the project does not require conducting a local stakeholders meeting for getting an environment approval.	Issue is closed based on the evidence, IRL 65

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

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


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Annex 2: Information Reference List

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
1.	25/06/2009 16/103/2010	PDD "Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal, Pakistan" PDD "Waste Heat Recovery based 15 MW Power Generation Project at Bestway Cement Limited, Chakwal, Pakistan"		PDD for GSP Final PDD
2.		Guidelines for completing the simplified PDD (CDM-SSC-PDD) Verison 05	UNFCCC	
3.		SSC CDM Methodology AMS III.Q version 02	UNFCCC	Basic methodology
4.		SSC CDM Methodology AMS I.C version13	UNFCCC	Supplementary methodology
5.		SSC CDM Methodology AMS I.D version13	UNFCCC	Supplementary methodology
6.		CDM Methodology ACM0012 version 3.1	UNGCCC	Supplementary methodology
7.		Tool to Calculate the Emission Factor for an Electricity System, Version 01	UNFCCC	
8.		Tool to calculate project emissions from electricity consumption version 1	UNFCCC	
9.		Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories	UNFCCC	
10.		Participant's list		
11.		On-site visit took place on 28/09/2009. Participants were: Robert Mitterwallner (TÜV SÜD; GHG Auditor)		

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/ Issuer	Additional Information (Relevance in CDM Context)
		Khalid Mahmood (TÜV SÜD; GHG Auditor) Paula Auer (TÜV SÜD GHG Auditor) Georgios Agrafiotis (TÜV SÜD; GHG Trainee) Akilesh Joshi (Mitsubishi UF J Securities, Project developer) Matthew Setterfield (Representative of Mitsubishi Corp.-Credits buyer) Mahmood Afzal (Bestway Cement Ltd, Director, Works) Ghulam Sarwar Malik (BCL, Director projects) Khurshid Ahmad Assi (BCL, Manager Projects) Hammad Bashir (Techfinity, Manager Business Development, FSR responsible)		
12.	November 2006	Pre FSR for Bestway Cement Plant Waste Heat Recovery Project	Techfinity (Pvt) Ltd	
13.	13/03/2008	Daily production report from 13/03/2008	Bestway Cement Ltd	
14.	24/06/2008	Daily production report from 24/06/2008	Bestway Cement Ltd	
15.	April 2008	Initial Environmental Examination (IEE)	ECTECH-Environment Consultants	
16.	02/06/2008	Letter of Approval of IEE	Government of Punjab, Department of Environmental protection	

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
17.	29/11/2006	Early CDM consideration- Board resolution	Bestway Cement Ltd	
18.	02/08/2007	Agreement with equipment supplier	Bestway Cement Ltd and Toyota	Official start of project activity.
19.	20/10/2008	Public invitation to local stakeholder's consultation-Newspapers articles	Bestway Cement Ltd, "The News"	
20.		Filled feedback forms after local stakeholders' meeting	Bestway Cement Ltd	
21.	02/08/2007	Turbine technical characteristics	Kawasaki offer	
22.		WHR project management schedule	Bestway Cement Ltd	
23.	28/04/2008	BCL request for environment clearance	Bestway Cement Ltd	
24.	May 2009	Study of IPPC (E.U.) on Cement Manufacturing Industries	European Commission	
25.	02/08/2007	Technical characteristics of the generator	Kawasaki offer	
26.	02/08/2007	Proof of guaranteed production of generator	Kawasaki offer	
27.	05/11/2008	Minutes of local stakeholders' meeting	Bestway Cement Ltd	
28.	26/06/2009	LoA Japan	DFP of Japan	
29.	10/06/2009	LoA Pakistan	DNA of Pakistan	
30.	02/08/2007	Technical characteristics of WHR equipment	Kawasaki offer	
31.	13/10/2009	Email from CDM authority of Pakistan confirming that WHR in the cement industry is not common practice.	Pakistani CDM	Additionality proof

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
			authority	
32.		Emissions Reduction Calculation (ER calculation)	Bestway Cement Ltd	
33.		Calculation of EF	Bestway Cement Ltd	
34.	11/05/2007	Technical offer Kawasaki	Kawasaki	
35.	02/08/2007	Equipment purchase contract with Kawasaki (See also IRL 18)	Bestway Cement Ltd and Kawasaki	
36.	31/05/2008	Contract with Mitsubishi UFJ	Bestway Cement Ltd and Mitsubishi UFJ	
37.	01/02/2008	Proof of start of construction 01 February 2008	East-Star Engineering services	
38.	16/07/2009	Start of Commissioning of project from Kawasaki	Kawasaki	
39.	15/09/2009	Synchronization with grid	Kawasaki	
40.	01/07/2006-31/06/2009	3 years Cement Delivery Production Reports	Bestway Cement Ltd	
41.	25/09/2009	Modalities of Communication		
42.	05/08/2009	Proof of ownership of WHR plant from Bestway Cement (see also all other contracts and approvals)	Bestway Cement Ltd	
43.		Electricity demand proof of BCL 55 MW		
44.		Electricity bills and summary June 2006 to June 2009	Bestway Cement Ltd	

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45.	28/07/2004	Land use evidence	Bestway Cement Ltd	
46.	06/01/2009	Certificate that the produced electricity from the WHR project will not be exported to the grid (the document serves also as "Approval local government of operation of WHR by BCL")		
47.		Hard copy: Permission to operate the cement plant-Technical drawing of the cement plant		
48.	23/11/2009	Final approval of IEA.	Environment protection agency	
49.	25/09/2009	Training from Kawasaki was checked during discussion, To be delivered: the first page, training people, participants, schedule	Kawasaki and Bestway Ltd.	
50.		ABB Kawasaki schema		
51.		Energy balance sheet		Baseline definition
52.	18/09/2009	Hard copy: Cement association of Pakistan, Official statement regarding 'first of its kind assessment'	Pakistan Cement Manufacturers Association	Additionality proof
53.	18/09/2009	Hard copy: Ministry of Environment of Pakistan: Statement regarding 'first of its kind'	Government of Pakistan Ministry of Environment	Additionality proof
54.		Pakistan energy yearbook 2006, 2007, 2008		
55.	28/08/2008	Training records for monitoring offered by senior BCL technical manager to employees.	Bestway Cement Ltd	
56.	06/10/2009	Proof from project owner that of no public funding-Confirmation of the bank.		

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
57.		Process flow diagram (one set)	Bestway Cement Ltd	
58.		Process flow diagram (both sets)	Bestway Cement Ltd	
59.	05/11/2008	Attendance sheet	Bestway Cement Ltd	
60.		Absentees list	Bestway Cement Ltd	
61.		Absentees regret letter	Bestway Cement Ltd	
62.		UNFCCC guidance 'First of its kind'	UNFCCC	
63.		UNFCCC Additionality guidance for small scale projects EB 35 Annex 34	UNFCCC	
64.		Pakistan Environmental Protection Act, 1997		
65.		IEE-EIA-approval Regulation 2000	Pakistan Environmental Protection Agency	
66.		IRR calculation as conducted for internal use for the FSR.		
67.	09/12/2009	Email from UDI World Electric Power Plants Database (WEPP),	Tricia Siow, Business Development Manager, Asia Pacific Platts, a division of Mc Graw Hill	

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
			Companies	
68.		Attachment in the above mentioned email (IRL 67)	UDI World Electric Power Plants Database (WEPP)	
69.		Power meter accuracy	Schneider Electric	