
VALIDATION REPORT

Visa Steel Limited

GHG emission reductions through waste gas based power generation at Visa Steel Limited

SGS Climate Change Programme

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Summary:			
<p>Visa Steel Limited has commissioned SGS to perform the validation of the project: GHG emission reductions through waste gas based power generation at Visa Steel Limited.</p> <p>Methodology used: ACM0012</p> <p>Version and Date: Version 2, valid from 2nd November, 2007.</p> <p>The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.</p> <p>The report is based on the findings of document reviews, the stakeholder consultation process and responses from the project participants to the findings raised in this report.</p> <p>The report and the annexed validation describes a total of 23 findings which include:</p> <ul style="list-style-type: none"> • 12 Corrective Action Requests; • 11 New Information Requests and 1 Observation; <p>All findings have been closed out satisfactorily and the project will be recommended to the CDM Executive Board with a request for registration.</p>			
Subject: CDM Validation			
Validation Team:			
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Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reductions
CO ₂	Carbon Dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
DRI	Direct Reduction Iron
EIA	Environment Impact Assessment
GHG	Greenhouse Gas(es)
I	Interview
IPCC	Intergovernmental Panel on Climate Change
ISHC	International Stakeholder Consultation
MWh	Mega Watt hour
MoEF	Ministry of Environment and Forest, Govt. of India
MoU	Memorandum of Understanding
MoV	Means of Verification
MP	Monitoring Plan
MT	Metric Tonne
NIR	New Information Request
OPCB	Orissa Pollution Control Board
PDD	Project Design Document
REIA	Rapid Environmental Impact Assessment
SPM	Suspended Particulate Matter
t	Tonne
UNFCCC	United Nations Framework Convention for Climate Change
WHRB	Waste Heat Recovery Boiler

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1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Visa Steel Limited to perform a validation of the project: GHG emission reductions through waste gas based power generation at Visa Steel Limited.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism (CDM) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

SGS reviewed of the project design documentation, using a risk based approach and conducted follow-up interviews.

By GHG emission reductions through waste gas based power generation at Visa Steel Limited which involves utilization of waste heat content of the by-product gasses emanating out of the process by installing Waste heat recovery boilers to generate steam and subsequently power, the project activity will result in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project correctly applies methodology ACM0012 version 2 valid from 2nd November 2007. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 3410770 tCO₂e over a 10 year crediting period, averaging **341077** tCO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory



Signature:

Name: Siddharth Yadav

Date: 29th January 2009

2. Introduction

2.1 Objective

Visa Steel Limited has commissioned SGS to perform the validation of the project: GHG emission reductions through waste gas based power generation at Visa Steel Limited with regard to the relevant requirements for CDM project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of Certified Emission Reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

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

2.3 GHG Project Description

The project activity is waste heat recovery based captive power generation to meet the partial requirement of electricity in the Integrated Iron and Steel Plant of Visa Steel Limited at Kalinganagar in Orissa. The project involves installation of waste heat recovery based boilers to recover and utilize the sensible heat content of the waste gases/ by-product gases generated from the two DRI kilns, one mini blast furnace and eight coke oven batteries installed at the integrated iron and steel plant. The project activity involves the generation of electrical power through the steam produced by seven numbers of waste heat recovery boilers. The proposed project activity involves installation of four WHRBs of capacity 24.5 TPH each for the non recovery type coke oven batteries, one WHRB of capacity 30 TPH for the mini blast furnace and two WHRBs for the DRI kilns operating at 67 ksca and 490°C. The steam generated from all the WHRBs would be fed to three turbines of 25MW capacity each via common steam header for generation of power. The project activity is expected to generate 43.7 MW of electrical energy utilising sensible heat content of the waste gases.

The overall power requirement of the Integrated iron and steel plant would be partially met from the project activity. In absence of the project activity the equivalent quantum of power would have been generated from a carbon intensive source most likely a coal based captive power plant. Further in absence of the project activity the DRI Kiln gas and the coke oven gas would have been released in the atmosphere after complete combustion and the blast furnace gas would have been flared into the atmosphere leading to wastage of the heat energy content of the by-product gasses. Thus the project activity results in prevention of wastage of useful energy followed by effective utilization of the available source of energy along with the overall reduction of Green house gas emissions.

2.4 The Names and Roles of the Validation Team Members

Name	Role	Affiliate
Ajoy Gupta	Lead Assessor	SGS India
Sanjay Banerjee	Local Assessor	SGS India
Nikunj Agarwal	Expert	SGS India

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

A site visit is usually required to verify assumptions in the baseline. Additional information can be required to complete the validation, which may be obtained from public sources or through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate. The results of this local assessment are summarized in Annex 1 to this report

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

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

Checklist Question	Ref ID	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). New Information Request (NIR) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex A.1 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- mistakes have been made with a direct influence on project results;
- validation protocol requirements have not been met; or

- III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may also lead to a CAR.

Observations may be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.2). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team.

4. Validation Findings

4.1 Participation Requirements

The host Party for this project is India. India has ratified the Kyoto protocol on 26th August 2002. A Letter of Approval from Host Country was not available during initial PDD review, so CAR 1 was raised. A copy of the letter dated 23rd January 2008; issued by the Indian DNA (Reference number 4/24/2007-CCC) has been provided by the project proponent which was verified from the original copy. The participation requirements to the Kyoto Protocol and contribution to the sustainable development of the host country are confirmed from the Host Country Approval letter for the current project activity. The project title as mentioned in the HCA letter was found to be in line with the title mentioned under section A1 of the PDD web hosted for global stake holder's comments towards the CDM project activity. Hence CAR 1 was closed out.

No Annex I Party has been identified in the PDD and the same also has been verified by cross checking the project investment details and the project proponent also submitted the declaration on non-involvement of ODA (dated 30.08.2008) therefore no further Letter of Approval was available. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex I Party being involved at the stage of registration although it should be noted that before CER can be transferred to an Annex I Party, a Letter of Approval will need to be submitted.

CAR 2 was raised for obtaining the Modalities of Communication by the Participants with the CDM-EB and the UNFCCC Secretariat which is a mandatory requirement for submission of the Project activity to the CDM-EB for a request for registration. The Project Participants have provided the same which was found to be in line with the information regarding the particulars provided in the Annex 1 of the Project Design Document leading to a closure of the issue.

4.2 Project Design

The Project Design Document (PDD) for the project activity was developed on the PDD template version 3 of the PDD of large scale project activity and designed as per version 7 of the guidelines laid for preparing the project design document (CDM-PDD) this was checked and found in line.

The project activity is waste heat recovery based captive power generation to meet the partial requirement of electricity in the Integrated Iron and Steel Plant of Visa Steel Limited at Kalinganagar in Orissa, India. The project involves installation of waste heat recovery based boilers to recover and utilize the sensible heat content of the waste gases/ by-product gases generated from the two DRI kilns, one mini blast furnace and eight coke oven batteries installed at the integrated iron and steel plant. The project activity involves the generation of electrical power through the steam produced by seven numbers of waste heat recovery boilers. The proposed project activity involves installation of four WHRBs of capacity 24.5 TPH each for the non recovery type coke oven batteries, one WHRB of capacity 30 TPH for the mini blast furnace and two WHRBs for the DRI kilns operating at 67 ksca and 490°C. The steam generated from all the WHRBs would be fed to three turbines of 25MW capacity each via common steam header for generation of power. The project activity is expected to generate 43.7 MW of electrical energy utilising sensible heat content of the waste gases.

The project activity description as mentioned in the PDD sufficiently covers all relevant elements which provide clear understanding of the nature of the proposed CDM project activity. The detail technical description of the project activity as mentioned, was cross checked with reference to the Purchase Orders along with technical specifications of the respective project equipments such as WHRBs, steam turbo generators etc. as provided in the contract documents and letter of intents issued to the project equipment suppliers i.e. Thermal Systems (Hyderabad) and Bharat Heavy Electrical Ltd (Ref. no. /13/, /14/, /15/, /16/ and /17/) and found consistent. During validation site visit the project facility was found under construction phase.

The relevant Consents, Approvals and Clearances issued by the statutory bodies such as Orissa State Pollution Control Board (Ref. no. /6/ and /7/), Ministry of Environment and Forests (Ref. no. /8/), Department of Water Resources (Ref. no. /9/), Directorate of factories and Boilers (Ref. no. /10/) was checked and

verified during the validation site visit and found evident towards ownership, allowance, implementation and operation of the project activity at that project site.

The initial PDD did not mention anything with regard to the possibility of the project technology likely to be substituted by other or more efficient technologies within the project period. Thus NIR 3 was raised to get a clarification in this regard. An Undertaking provided by the proponent signed by the Deputy General Manager, Visa Steel Limited, dated 20/10/2008 towards no Technology Substitution through out the entire crediting period was considered acceptable leading to the closure of the NIR 3.

The requirement of an extensive initial training and maintenance efforts in order to work as presumed during the project period, was checked and verified while carrying out the validation site visit by conducting interviews and discussions with the operating personnel at the power plant site and was found to have knowledge, qualification and prior experience in the said field along with a one day training session held at the power plant on the operation and maintenance procedures. An internal communication of GM-Power Plant to the DGM- HR providing information on the training was checked and considered acceptable.

The project being a greenfield project activity to be implemented in a phase wise manner, there exists an element of risk leading to delay. Thus NIR 4 was raised to obtain information on the implementation schedule of the project activity and to get a clarification on the probable risk of delay for the project implementation and its impact on emission reduction projections by the changed timelines. The coke oven boilers being operational was checked referring to the communication made by Visa Steel Limited to the Bombay Stock Exchange Limited dated 30 July 2007. The DRI kiln-1 & 2 along with the mini blast furnace as per the commissioning schedule submitted by the Project proponent is expected to be operational by December 2008 end and the emission reduction as mentioned in the PDD is from January 2009 seems to be justified. The actual implementation status of the project activity was also verified during the validation site visit and the envisaged timeline for the power plant to be operational seems to be rational. Thus NIR 4 was closed out.

The project funding for the current activity has not involved any ODA utilization. This was discussed with the Project participant during validation site visit and the project proponent has submitted a self declaration on no ODA utilization has been involved in the project funding. Furthermore, the loan documents from State Bank of India (Ref. no. 28) and Oriental Bank of Commerce (Ref. no. 29) towards the cost of the project was checked and found satisfactory. Thus it is evident that there has been no ODA utilisation or public funding from Annex I country is involved during project registration phase.

4.3 Baseline Selection and Additionality

The project activity has been designed on the basis of the approved baseline and monitoring methodology ACM0012: "Consolidated baseline methodology for GHG emission reductions for waste gas or heat or pressure based energy system" version 2. Section B.1 of the PDD, provides the complete reference and currently valid version number of the approved methodology as applicable – ACM0012, version 2.

The baseline methodology as selected for the project activity (ACM0012 version 2) is deemed most applicable for the project activity, as the project activity involves utilization of the heat content of the by-product waste gas of the Direct Reduced Iron (DRI) kilns, mini blast furnace and coke oven as an energy source for generation of electricity.

The applicability criteria of the current project activity with reference to the applied methodology have been described under Section B.2 of the PDD. The project activity is a part of the green field integrated iron and steel plant of Visa Steel Limited and the commercial production has not yet begun at the time of validation. The validation site visit during 10/09/2008 to 11/09/2008 revealed that the project is in the state of implementation and the different units were in the construction stage and awaiting commissioning. As the project activity is not at an existing facility and being installed parallel at the new integrated iron and steel plant of Visa Steel Limited, thus the waste gas flaring or being released in the atmosphere, in absence of the project activity is not relevant in this case, hence this option has not been considered for this project activity. The justification towards all the applicability criteria has been cross checked with the requirement of ACM0012 version 2 and found justified.

The integrated iron and steel plant of Visa steel limited involves installation of a coal fired CFBC also along with the WHRBs. The description towards the project boundary was not clear and further information was

required to confirm why the CFBC boiler which is meant for supplying steam through the common steam header to the turbine has not been included within the project boundary. Hence CAR 6 was raised to obtain a clarification.

The PP has provided information on the project boundary referring to the approved consolidated methodology (ACM0012/version 2) applied that the waste gas generation source for the project activity under consideration included the outlet of the After Burning Chambers (ABC) of the DRI kilns, the Mini Blast Furnace and the Coke Oven batteries of Visa Steel Limited and the ducting system for transportation of waste gases from the respective emission sources to the power plant. Further the Waste gas utilization facility where electricity is generated and electricity consumption facilities have been included in the project boundary which is as per the approved methodology. The same has been checked and verified in the project boundary depicted in the PDD version 3 dated 13/12/2008. The CFBC has not been considered in the project boundary and requirement of the steam generated in the CFBC and its respective monitoring for the purpose of arriving at the baseline emission and the emission reduction for the project activity is justified and hence accepted. Thus CAR 6 was closed out.

The overview of emission sources included in or excluded from the project boundary as provided in the table includes the summary of gasses and sources for the baseline scenario and the project scenario as per the Approved consolidated baseline and monitoring methodology applied. The description towards all emission sources and gasses related to the baseline scenario, project scenario has been described under Section B.3 of the PDD. However the consideration of sources of GHG emissions due to "Supplemental electricity consumption" for the project activity was not clear as in the PDD it has been mentioned that Power consumption under emergency situation by the power plant equipments will anyway be accounted as auxiliary consumption. Thus CAR 5 was raised to obtain a clarification on the same.

The proponent has provided information that the GHG emission source due to supplemental electricity consumption for the proposed project activity has been excluded as the electricity for the auxiliary consumption under normal operational condition would be sourced from the project activity power plant and/or from the grid. The electricity supplied by the project activity power plant includes the auxiliary electricity requirement as well and in case of emergency due to non availability of power both from the project activity power plant and the relevant grid, DG sets would provide the auxiliary power requirement of the power plant equipments and the same would be monitored and deducted as project emission which is considered acceptable leading to the closure of the CAR 5.

The project activity has applied the most likely baseline scenario as mentioned in the large scale methodology ACM0012 version 2 valid from 2nd November 2007. The installation of a coal based captive power plant for generating power was selected as the most plausible baseline scenario for the project activity. The application towards selection of most plausible scenario considers all potential realistic and credible baseline scenarios as provided under ACM0012 version 2.

As detailed in the final PDD, section B.4, in the absence of the project the most likely baseline scenario is generating power in a coal based captive power plant as it was found to be the most economically attractive option available to the project proponent To arrive at the plausible baseline scenario for the generation of electricity using the baseline options and combinations for the project activity has been carried out as per the guidelines provided in the ACM0012 version 2 applied.

Out of the realistic and credible baseline alternatives available for the use of waste gas, W2 which states that the waste gas is released in the atmosphere after incineration or waste gas is released to the atmosphere (waste pressure energy is not utilized) is found to be most appropriately considered in relation to the project activity.

Similarly for power generation amongst the realistic and credible baseline alternative(s) provided by the methodology applied, P4 which is the option for on-site or off-site existing/ new fossil fuel based existing captive or identified plants and P6 which is the source Grid connected power plants have been considered to arrive at the baseline scenario.

Thus the potential baseline alternatives available to the Proponent in absence of the project activity are either of the combination of waste gas and power W2/P4 or W2/P6 as per ACM0012 version 2.

With respect to the identification of the baseline scenario CAR 7 was raised where the selection of the most plausible and conservative baseline scenario as mentioned in the PDD was required to be further substantiated on the basis of following issues:

- Non availability of natural gas distribution network in eastern region of the country.
- All the assumptions used to arrive at the unit cost of power generation for the selected baseline scenarios, i.e.; grid power, power generation from coal based captive power plant along with traceable reference.
- To confirm whether or not the coal based CFBC boiler meant for supplying steam to the same turbine through a common steam header would have been installed in the absence of this CDM project activity.

The availability of the natural gas in the country region wise has been cross checked referring to the web site of Ministry of Petroleum and Natural Gas, Government of India, made publicly available, last accessed on 14 December 2008. Web link: <http://petroleum.nic.in/ng.htm>. The web link clearly mentions the predominant availability of the natural gas which is in the western and north eastern parts of the country. It does not mention the availability of natural gas in the eastern part of India. Hence the non availability of natural gas in the eastern part is justified and considered acceptable.

The unit power cost for the baseline alternatives have been computed by M/s Development Consultants Private Limited, a third party power plant consultant on behalf of the Proponent. The letter Ref No.DCPL-01105/PC-7/CHEM/5273A dated 15th June 2005 has been provided by the proponent which contains the abstract of the computation of the unit power cost of generation which was checked and verified. The key assumptions and the critical parameters adopted to arrive at the unit power cost of generation was cross checked and verified referring to the following documents/ web sites –

1. The Auxiliary consumption has been considered 10% adopted from the Central Electricity Authority data. (Performance Review of Thermal Power Stations 2001-02 & 2003-04, Section-11 PAGE NO 11. 1 available at web link http://www.cea.nic.in/god/opm/Thermal_Performance_Review/0102/Sec11%20fin_lo777.pdf ; http://cea.nic.in/god/opm/Thermal_Performance_Review/0304/sec11%7E2.pdf), which provides data on auxiliary power consumption in thermal power stations.
2. The efficiency of the power plant considered 30% (adopted as the higher value between 28% and 30%, data provided by the third party power plant consultants M/s DCPL & Desein Private Limited) was checked and verified against a Central Electricity Authority document made publicly available as per the web link: http://cea.nic.in/god/opm/Thermal_Performance_Review/0203/sec-13_sush.pdf
3. The calorific values of coal fines, coal char and coal are 3600, 2000 and 3200 kCal/kg adopted based on the Test certificates from the NABL accredited Laboratory Inspectorate, Griffith India Private Limited, Bhubaneswar [Test Report No. IGI/BBSR/TC/08-09/SUM/003(C&C) dated 13/11/2008 & IGI/BBSR/TC/08-09/SUM/004 (C&C) dated 13/11/2008.] and found correct.
4. Coal fine cost value has been referred as the E-Grade coal ex-mine cost which was checked and verified against the information provided by Coal India Limited, Ministry of Coal, Government of India, against the web link: <http://www.coalindia.nic.in/pricing.htm> , last accessed on 14 December 2008.
5. Coal Char Cost was not considered as generated in-house is accepted.
6. Coal Cost considered as INR 1153/- was checked from the web link of coal India Limited: <http://www.coalindia.nic.in/pricing.htm> as INR 440/- administered price for F-Grade coal from MCL and other related taxes and duties as applicable comes out to be INR 553/- and the transportation cost INR 600/-, approximately considered which was checked against the transportation cost provided by the Truck Owner's association dated 13-06/2008 and found justified.
7. Total utility cost (water and chemicals) as INR 0.05/kWh adopted was checked against a calculation provided by the proponent dated 21/11/2008 and seems to be justified.
8. The total cost per MW in a thermal power plant has been adopted as 4 Crore, was checked against a web link made available publicly in the web site of the News Daily Hindu on 05 August 2003

(<http://www.hinduonnet.com/businessline/2003/08/05/stories/2003080501650200.htm>, last accessed on 14 December 2008) and found correct.

9. Debt: Equity as 70:30 considered against the guidelines provided by the Central Electricity Regulatory Commission (No. L-7/25(5)/2003-CERC 26th March 2004 accessible through the web link: http://www.cercind.gov.in/28032004/finalregulations_terms&condition.pdf, last accessed on 14 December 2008 and found correct.
10. Interest on Loan has been taken as average from Oriental Bank of Commerce and State Bank of India which is 12.25% & 8% respectively, was checked and verified against the hard copy documents dated 21/07/2005 and CAG.CAL/AMT-I/827 dated February 15, 2005 respectively, provided and found correct.
11. The Return on Equity has been considered 12% approximately as per SBI PLR of 10.25% plus country risk premium of 3.75%, source: <http://www.hindu.com/2003/12/30/stories/2003123003331800.htm> & http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html which was checked through the web link last accessed on 14 December 2008 and found acceptable.
12. Depreciation value of Factory Buildings as 3.34% and Plant and Machinery as 5.28% has been adopted from the Company's act schedule was checked and verified against the document made publicly available through the web link (http://www.mca.gov.in/MinistryWebsite/dca/actsbills/pdf/Companies_Act_1956_Part_2.pdf; last accessed on 14 December 2008) and found correct.
13. Operation & Maintenance cost has been considered 2.5% of the Total project cost which is approximately equal to that provided in the Central Electricity Regulatory Commission guidelines (available online at http://www.cercind.gov.in/28032004/finalregulations_terms&condition.pdf) was checked and found correct.

Thus the assumptions along with the values considered by the third party power plant consultant to arrive at the unit power cost of generation in case of a coal based captive power plant as INR 2.09 was found to be justified and hence accepted.

The assumption regarding the Grid Power Cost per unit as INR 3.20 has been cross verified against the invoice raised by North Eastern Electric Supply CO. of Orissa to Visa during the construction phase of the project activity, and found appropriate.

All the assumptions and data used in the identification of the baseline scenario are justified appropriately supported by evidence and can be deemed reasonable.

Based on the out come of the unit cost comparison of both the alternatives considered to arrive at the baseline scenario, generation of power by implementing a coal based captive power plant is found to be the least cost option and hence the combination W2/P4 was accepted as the most plausible baseline scenario for the project activity.

In the absence of the CDM project activity the three power generation options (i.e. coal based captive power plant, grid power and a combination of waste heat based power generation, coal based captive power generation along with rest amount of power from the grid system) considered on the way to opt for the current project activity to cater to the partial power requirement for the integrated iron and steel plant of M/s Visa Steel limited. Out of the three options available based on the least cost option for unit power generation, installation of a coal based captive power plant as the most plausible baseline scenario is considered acceptable. Thus it was accepted that the installation of CFBC boiler is not the part of the current project activity under consideration and that would have installed anyway even in absence of the project activity. The evidences provided in support of the same are the Extracts of the Minutes of the Forty Third Meeting of the Board of Directors of Visa Steel Limited held at Visa House on 25 June 2005, extracts of the unit power cost computation sheet by the third party power plant Consultants (Ref No.DCPL-01105/PC-7/CHEM/5273A) dated 15 June 2005 was checked and found reasonable. Hence CAR (07) was closed out.

The approved baseline methodology i.e. ACM0012 version 02 has been correctly applied to identify the most reasonable baseline scenario and the identified baseline alternative reasonable represents what would occur in the absence of the proposed CDM project activity.

The project proponent has applied the methodological tool “Tool for the demonstration and assessment of additionality” version 5.2 to demonstrate the additionality for the project activity. The project design document has provided a step-wise approach to demonstrate and assess the additionality as per the guidelines provided by the methodological tool. The proponent has carried out an Investment Analysis to determine that the project activity is financially or economically less attractive in comparison to the other baseline alternatives as identified. The investment comparison analysis has been adopted wherein the unit power cost has been used as the financial indicator for the project investment analysis, this was found appropriate.

The identified baseline alternatives for power generations and the project scenario has been compared with reference to the unit cost of power generation computed by the M/s Development Consultants Private Limited, a third party power plant consultant. The detail computation sheet for the unit cost of power generation along with the assumptions considered to arrive at the unit cost as the baseline alternatives was checked against traceable documents/ web links as discussed above in the baseline scenario selection.

The project activity involves generation of power by installation of waste heat recovery boilers which as per the analysis carried out by the third party consultant. The letter provided by the third party consultant, M/s development Consultants Private Limited, (Ref No.DCPL-01105/PC-7/CHEM/5273A dated 15 June 2005) contains the computation of the unit power cost of generation for the project case. The same was checked and verified along with the key assumptions towards the computation referring to the following documents/ web sites -

1. The waste heat recovery based power plant cost per KW as mentioned in the computation sheet to arrive at the unit power cost of generation was checked against the information provided through the web link http://www.wowenergies.com/images/IETC_May_2007.pdf (last accessed on 14 December 2008) and found appropriate.
2. All the other assumptions considered in computing the unit power cost of generation in the project case along with the data source and its traceability such as Debt-Equity ratio, Interest on loan, return on equity, depreciation, and O&M expenses, total utility cost (water & chemicals) have also been cross checked and discussed above while cross checking the unit power cost of generation for the baseline alternatives and found appropriate.

Thus the assumptions along with the values considered by the third party power plant consultant to arrive at the unit power cost of generation in the project case as INR 2.27 was found to be justified and hence accepted.

With reference to the above discussion it was found that the unit power cost of generation for the identified alternatives computed by the third party power plant consultant, which was cross checked and found that the unit power cost of generation for the project case is not the least cost option.

The calculation procedure and basis of chosen variations used for sensitivity analysis as mentioned in the initial PDD was not clear, thus CAR 9 was raised to obtain further justification.

In response to CAR 9 the proponent has submitted detailed sensitivity analysis calculation work sheet. The variables chosen for the sensitivity analysis were Coal price (+10%, -10%), Grid power purchase cost (+10%, -10%) and net power generated with waste gases (+5%, -5%) and inter combinations among the three variables against the unit power cost of generation which was checked in the excel sheet provided by the proponent. The range chosen along with the different combinations were found to be as per the Guidance on the Assessment of Investment Analysis as per the EB 41, Annex 45. The outcome of the sensitivity analysis is found to be robust against the unit power cost of generation for the project case subject to the said variables and variation range and thus accepted. Thus CAR 9 was closed out.

The common practice analysis was carried out for the project activity as per the “Tools for demonstration and assessment of additionality” version 5.2. The proponent has mentioned in the PDD that the project activity is not a common practice and provided information on the total number of integrated iron and steel plant in the nation, their power generation scenario and that the power generated in such integrated iron and steel plants with installation of waste heat recovery boilers is only with the consideration of revenue from the sale of carbon credits. However the claim was not properly substantiated in the PDD and hence CAR (10) was raised to obtain clarification towards such claim.

The facts and figures used for common practice analysis related to other activities implemented previously or currently underway similar to the proposed project activities in the context of national and State (Orissa) scenario with or without CDM was checked against the following information –

- i) Annual Report for the year 2006-2007 published by the Ministry of Steel, Government of India, (available online at [http://steel.nic.in/Annual%20Report%20\(2006-07\)/English/Annual%20Report%20\(2006-07\).pdf](http://steel.nic.in/Annual%20Report%20(2006-07)/English/Annual%20Report%20(2006-07).pdf); last accessed on 14 December 2008), The annual report for the year 2006-2007, published by the Ministry of Steel, Government of India has provided information on the total number of integrated iron and plants both under Steel Authority of India-Government of India Enterprise and the private sector which was checked and found correct.
- ii) The integrated iron and steel plants of the Steel Authority of India Limited has been utilizing the non coking coal for the generation of power was checked through the web link: <http://www.sail.co.in/aboutus.php?tag=company-energy>. (Last accessed on 14 December 2008) and found correct.
- iii) The LD gas recovery based power recovery project implemented in Rourkela steel plant has got registered with the CDM-EB was checked and verified against the official web link (<http://cdm.unfccc.int/UserManagement/FileStorage/D0YOKH0N9YHKRWDM SX7I67L0UA9XXW>), last accessed on 14 December 2008) of the UNFCCC made publicly available, and found correct.
- iv) The power requirement of JSW Steel Limited and Jindal Steel & Power Limited is met respectively from a 'Blast Furnace Gas and Corex Gas based power generation system' and 'Coke Oven Gas based power generation system' which have got registered as CDM projects as per the web links (<http://cdm.unfccc.int/UserManagement/FileStorage/5K5XJ3GMSTGYQE2KT3IL1NP0RGLSVK> and <http://cdm.unfccc.int/UserManagement/FileStorage/XQKW19L92IAYD0XP1QP8YRQIU3ZL8I>) last accessed on 14 December 2008) and found correct.
- v) Essar Steel in the process of setting up a 350 MW natural gas based power generation facility to meet their power demand was checked and verified referring to the web site <http://www.projectsmonitor.com/detailnews.asp?newsid=10794> (last accessed on 14 December 2008) and found correct.

UN reference for the similar registered projects has been mentioned in the PDD version 02 dated 21/11/2008. The 3 plants (namely, Rourkela Steel Plant (RSP) of Steel Authority of India Limited (SAIL), JSW Steel Limited and Jindal Steel & Power Limited) have already got their projects registered with UNFCCC was checked and found correct.

Out of the five integrated Iron and Steel plants in India which have implemented waste gas based power generation facility to cater to their power requirement i.e. similar to the project activity under consideration three plants have already got their projects registered with UNFCCC, was checked and verified against the web links provided below last accessed on 14 December 2008 and found correct:

- i) <http://cdm.unfccc.int/UserManagement/FileStorage/D0YOKH0N9YHKRWDM SX7I67L0UA9XXW>.
- ii) <http://cdm.unfccc.int/UserManagement/FileStorage/5K5XJ3GMSTGYQE2KT3IL1NP0RGLSVK>
- iii) <http://cdm.unfccc.int/UserManagement/FileStorage/XQKW19L92IAYD0XP1QP8YRQIU3ZL8I>

The remaining two plants namely Tata Steel Limited and Adhunik Metaliks Limited are in the stage of CDM validation and the same has been cross verified with reference to the following UNFCCC web links –

<http://cdm.unfccc.int/Projects/Validation/DB/ZJPUUUHM7IA8AF8P2PWM24OQGWGSC8/view.html> and <http://cdm.unfccc.int/UserManagement/FileStorage/IYZ32UCOLFQMW7K5DS8RVXJP46EG91>.

Based on the out come of the common practice analysis it was found during validation that there are twelve integrated iron and steel plants operational in India excluding Visa Steel Limited, and out them five integrated iron and steel plants have implemented waste heat recovery projects to generate power to cater to their electricity requirements taking into consideration of CDM revenues (three of them being already registered with the UNFCCC CDM-EB and two in the process of validation) was checked and verified against the web links provided and found correct.

Hence the common practice in the integrated iron and steel plants in India for generating power is installation of a coal base captive power plant and installation of waste heat recovery boilers to generate power has only been taken up considering the revenue from the sale of carbon credits is evident. Thus the project case of generating power by installation of a waste heat recovery based power plant is accepted and the CAR (10) was closed out.

The starting date of the project activity has been demonstrated as the date of issue of the Letter of Intent to the project equipment supplier Bharat Heavy Electricals Limited (Ref. No. - VISA/PUR/PP-1 (E-01)/ 2726 dated 28th March 2006) which was checked as the earliest project initiative and found in line with the CDM project start date definition as provided in the "Glossary of CDM terms", version 3 and EB 41 meeting report paragraph 67, hence accepted.

The consistency of the project start date with the discussion of the project additionality was not transparent. Further how and when the CDM was taken into serious consideration as per EB 41 Annex 46 guideline in the decision to go ahead with the project activity along with the detail CDM project milestone activities was also not clear. Thus CAR 8 was raised to have clarification from PP along with reliable evidences indicating that the Proponent had prior knowledge about CDM modalities before they have considered the CDM revenues and a consistent approach was made to secure CDM revenue for the project activity. In response to this PP provided the reliable evidence against prior knowledge of CDM modalities and CDM consideration for the project activity (pls. refer table below). This is found acceptable thus CAR 8 was closed.

The prior CDM knowledge of the Project Proponent was checked and found that they have acquired the requisite initial information regarding CDM modalities through attending CDM workshop/seminar. The fact has been verified against the invitation letter dated 4th March 2005 issued by the Indian Chamber Of Commerce (ICC) related to the CDM workshop and a subsequent acknowledgement letter dated 21st March, 2005 issued by ICC-Calcutta mentioning the receipt of participation fees towards the Workshop organized by the Indian Chamber of Commerce-Calcutta on 29th March 2005. Further to this the Event calendar of ICC-Calcutta available at their official portal (<http://www.indianchamber.net/events/eventArchive.asp?cid=7#>; last accessed on 14th December 2008) was also cross checked for the authenticity of the timeline and scheduling of the mentioned CDM awareness workshop and found transparent.

The early CDM consideration prior to the start date of the project activity was checked against The 'Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited', dated 25th June 2005, where the project activity in spite of being a costlier option for power generation along with the associated risks was approved with CDM revenue consideration by the Board and found acceptable.

The CDM project chronology and supporting documentary evidences have been reviewed and prior CDM knowledge and serious CDM consideration for the proposed project activity has been demonstrated in the following milestone activities –

Timeline	Project Milestone activities	Documentary evidences reviewed
29/03/2005	Prior CDM knowledge: Project proponent attended the CDM awareness workshop organized by Indian Chamber of Commerce-Calcutta.	-Invitation letter dated 04 March 2005 issued by the Indian Chamber Of Commerce (ICC). -Acknowledgement letter dated 21 March, 2005 issued by ICC-Calcutta -Event calendar of ICC-Calcutta available at their official portal (http://www.indianchamber.net/events/eventArchive.asp?cid=7# ;
19/05/2005	Enquiry sent to the power plant consultant M/s Development Consultant Private Limited to compute the unit cost of power for all the options identified.	Enquiry letter issued to Development Consultants Private Limited dated 19 May 2005.
15/06/2005	M/s Development Consultants Private Limited provided the Computation of the unit power cost of generation for all the	Copy of the computation sheet provided by M/s Development Consultants Private Limited (Letter Ref No. DCPL-01105/PC-7/CHEM/5273A dated 15 June, 2005)

	options identified to the Proponent.	
25/06/2005	CDM revenue consideration for the project activity	The 'Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited', dated 25 th June 2005.
July 2005 – November 2005.	Interactions with leading consultants in India who were providing consultancy services under the Clean Development Mechanism to Indian projects.	-Email communication from- PriceWaterhouse Coopers Private Limited to the Visa Group, on 17 October 2005 -Copy of Work Order issued to Ernst & Young Letter ref no. VSL/CDM/LOA/08 & 09 dated 03 November 2005.
03/11/2005	Appointment of the CDM consultant (Ernst & Young) to provide CDM consultancy services for the project activity.	Copy of CDM consultancy services awarded to Ernst & Young (Letter ref no. VSL/CDM/LOA/08 & 09 dated 03 November 2005).
28/03/2006	Project start date: Issue of Letter of Intent to the project equipment supplier (Bharat Heavy Electricals Limited)	Letter of intent issued by Visa Steel Limited to Bharat Heavy Electricals Limited, dated 28/03/2006
08/05/2006	Submission of New methodology (NM 0179-Waste Heat recovery based steam and power generation) in Round 15 by the appointed CDM consultant.	Email communication dated 20.01.2006 regarding the non availability of the approved methodology and process of developing new methodology Available at the UNFCCC Web link: http://cdm.unfccc.int/methodologies/PAmethodologies/publicview.html?meth_ref=NM0179
13/03/2007	Requesting quotations for validation of the projects against methodology ACM0004 from DOE.	Email Communication to SGS inviting quotations dated 13/03/2007.
06/07/2007	Approval of NM0179 as ACM0012 version 1.	Available at UNFCCC website: http://cdm.unfccc.int/methodologies/DB/3YL5T8ATMB8N_TD9HEBU42EP6OJLAY4/view.html
27/09/2007	Requesting revised quotations for validation of the project against methodology ACM0012 from DOE.	Copy of Email communication to SGS on 27/09/2007.
23/10/2007	Submission of PDD to the Ministry of Environment and Forests.	Forwarding letter to MoEF, Govt of India.
03/12/2007	Appointment of DOE.	Signed validation contract with SGS UK Limited
23/01/2008	Receipt of Host Country Approval letter.	Host Country Approval Letter (Ref. No.- 4/24/2007-CCC dated 23 January 2008.
7-11 April 2008.	Clarification provided by the Meth panel against clarification sought by M/s SGS	Available at UNFCCC website: http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_GU59XMVIK6RS6RXDL25B0HBHWHAP30
07 August 2008 – 05 September 2008.	Publication of PDD for Global Stake holders Consultation.	Available at UNFCCC website: http://cdm.unfccc.int/Projects/Validation/DB/PCMDYRFPJ_5J3KOU53BOX14JT43AMWK/view.html

With reference to the above mentioned chronology of the project milestone activities and the supporting documents, it has been found justified that CDM revenue was considered in the decision to implement the

project activity and project participant has demonstrated continued and real actions were taken to secure CDM status for the project in parallel with its implementation as per guidelines set in EB41 Annex 46. Therefore with reference to the above mentioned discussions, the serious prior consideration of the CDM revenue for the project activity has been found evident. Therefore CAR 08 was closed out.

4.4 Application of Baseline Methodology and Calculation of Emission Factors

The proposed CDM project activity is power generation using waste heat and uses baseline methodology as described under ACM0012 version 2 dated 2nd November, 2007.

The project activity involves generation of electricity (no thermal generation) utilising sensible heat content of waste gases such as DRI kiln gas, Blast Furnace Gas and Coke Oven Gas. Thus the methodological choice for the project activity has been determined based on Baseline emissions for *Scenario 1*, Calculation of the energy generated (electricity and/or steam) in units supplied by waste gas/heat and other fuels adopting *Situation 2* and Capping of baseline emissions following *Method 2* as per the requirement of ACM0012 version 2. The determination of methodological choice is completely justified and in accordance with the applied methodology.

Q_{WG,y} (Quantity of waste gases used for energy generation during year y): The parameter will be monitored continuously with flow meters. The same will also be available in the power plant Distributed Control System (DCS).

ST_{whr,y} (Energy content of the steam generated in Waste Heat Recovery Boilers of DRI kiln gas and Coke Oven Gas and BFG Boiler and fed to turbine via common steam header) : This parameter depends on the following factors-

- (i) Steam flow from the Waste Heat Recovery Boilers: The parameter will be monitored with flow meters and will be available in the power plant Distributed Control System (DCS).
- (ii) Enthalpy of steam generated: The parameter will be determined based on temperature and pressure of steam generated from the Waste Heat Recovery Boilers of DRI kiln gas and Coke Oven Gas and BFG Boiler. The temperature of steam generated will be monitored with temperature gauges and the pressure of steam generated will be monitored with pressure gauges.

ST_{other,y} (Energy content of steam generated in other boilers and fed to turbine via common steam header): This parameter will be determined based on

- i) Steam flow from the other boilers: The parameter will be monitored with flow meters and will be available in the power plant Distributed Control System (DCS).
- ii) Enthalpy of steam generated: The parameter will be determined based on temperature and pressure of steam generated from other boilers using Steam Tables. The temperature of steam generated will be monitored with temperature gauges and the pressure of steam generated will be monitored with pressure gauges.

f_{WG} (Fraction of total electricity generated by the project activity using waste gases) :This parameter will be calculated based on the value of ST_{whr,y} and ST_{other,y} monitored as mentioned above.

EG_{i,j,y} (Quantity of electricity supplied to the recipient *j* by generator which in the absence of the project activity would have been sourced from the *ith* source (*i.e.* the coal based captive power plant) during the year *y*) : The parameter will be measured continuously (online measurement) with energy meter and the same will be available in the plant's Distributed Control System (DCS).

EF_{elec,i,j,y} (CO₂ emission for the electricity source *i* (*i.e.* the coal based captive power plant), displaced due to the project activity during the year *y*) is a calculated parameter based on the factors

EF_{CO2,is,j} (CO₂ emission factor per unit of energy of the fossil fuel (coal) used in the baseline generation source *i*) The parameter will be determined following the standard testing practice. In absence of plant specific data, country specific data or IPCC default values will be used, and

FF_i (Quantity of fossil fuel type *i* combusted to supplement waste gases in the project activity during the year *y*) The parameter will be measured continuously (*i.e.* whenever auxiliary fuel will be consumed) with a properly calibrated flow meter/weighing system.

NCV_i (Net calorific value of the fossil fuel type *i* combusted as supplementary fuel): The parameter will be determined following the standard testing practice. In absence of plant specific data, country specific data or IPCC default values will be used.

$\eta_{Plant,j}$ (Overall efficiency of the existing plant that would be used by j^{th} recipient in the absence of the project activity): Efficiency of the power plant will be determined as the highest of the efficiency values provided by two or more manufacturers for power plants with specifications similar to that which would have been required to supply the recipient with electricity that it receives from the project activity.

The initial PDD has used the equations, steps/calculations in accordance with ACM0012 version 2 during determination of baseline emissions, but the following issues were not clear –

- (i) Consideration of Efficiency of the power plant as mentioned in the PDD is not justified as it seems like calculated by the project proponent, how the option (ii) mentioned under ACM0012 version 2 has been applied for the same needs to be clarified.
- (ii) During baseline emissions calculation how the “Capping of baseline emissions” has been considered following Method-2 of ACM0012 version 2 is not transparent.
- (iii) In the PDD version 1, the value of the $q_{wg, product}$ has not been specified whereas the value of f_{cap} in the Annex 3 has been mentioned as 1. The PP would have to clarify the same.
- (iv) The value of the parameter mentioned with respect to $Q_{WG, y}$ needs to be clarified by the PP.

Hence CAR 11 was raised to obtain a clarification on how the approved methodology been applied correctly for determining baseline emissions.

The Efficiency of power plant was considered 30% being the highest of the two separate set of combinations as per the methodological requirement has been applied in calculating the baseline emission and emission reduction thereafter which is conservative and in accordance with Option (ii) and hence justified. The same was cross checked against the document provided by the power plant consultant, emission reduction excel spread sheet and the final version of the PDD and found appropriately applied.

The capping of baseline emissions has been applied in accordance with the Approved Consolidated Methodology-ACM0012/ Version 2, following the Method 2 by the project proponent as the project activity caters to implementation in a new facility. The selection of Method – 2 for capping of baseline emissions and adopting manufacturer's data for calculation of the same is also in line with the requirement of the further revisions of applied methodology, i.e. ACM0012 version 03, the same was confirmed with the clarification approved by the meth panel (AM_CLA_0071) http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_GU59XMVIK6RS6RXDL25B0HBHWHAP30 and thus it is accepted. The values of $Q_{BL, product}$ and $q_{wg, product}$ was taken from the manufacturers data for DRI Kiln, Coke oven batteries and mini blast furnace. These values have been applied for the Emission reduction calculation which was cross checked with the manufacturers data provided and in the detail ER computation excel sheet and found in line. The value of $Q_{WG, y}$ was taken as the same value as of $Q_{WG, BL}$, hence value of f_{cap} is unity which is as per the methodology for the Method - 2 adopted. Both the parameters $Q_{BL, product}$ and $q_{wg, product}$ was considered from the manufacturers specification for production output of the individual operational facilities which was cross checked in the PDD and found appropriate.

Value of $Q_{WG, y}$ which is the quantity of waste gases used for energy generation during year *y* could be either equal to or less than the value of $Q_{WG, BL}$ and could not be greater in any way. The integrated iron and steel plant along with current WHRB power plant is being developed in parallel basis. The $Q_{WG, BL}$ value has been cross checked on the basis of the designed data provided by the respective manufacturer of the project equipments. Considering the project as a green field activity, in case the quantity of waste gas used for energy generation during year *y* ($Q_{WG, y}$) value is equal to the value of the quantity of waste gases generated prior to the start of the project activity ($Q_{WG, BL}$) the value of f_{cap} equals to 1 and similarly when the value is less than that of the quantity of waste gas generated prior to the start of the project activity the value of f_{cap} becomes greater than one. As per the methodological option for the purpose of conservativeness the value has been opted as the same as that of $Q_{WG, BL}$. Hence the calculated value of f_{cap} is thus 1, which is a conservative figure as on *ex-ante* basis considering the project will be commissioned during end of December 2008. The proponent would monitor the same *ex-post* during the crediting period is hereby accepted. Thus the CAR 11 was closed out.

NIR 12 was raised to obtain proper documentary evidence towards source data (manufacturer's specification) for Specific waste gas production per unit of $q_{wg, Product}$. The manufacturers' data in this regard was provided as documentary evidence towards the DRI kiln, coke oven batteries and mini blast furnace. These values for all the components were cross checked against the manufacturer's specifications provided and found to have been appropriately applied in the calculation of emission reduction leading to a closure of the NIR 12.

The current version of the PDD has used the ACM0012 version 2 during determination of *ex-ante* emission reductions. But the application of the methodology was not clear as the input factors used and sources of the input factors used towards *ex-ante* emission reductions calculations was not clearly provided.

The excel sheet for calculation of emission reductions was not available during initial review, which was also required to be submitted along with evidences for the assumptions used. Hence CAR 13 was raised.

In response to the CAR 13, the detail excel sheet provided by the proponent has been checked and found satisfactory.

The baseline emission is calculated as per the following equation:

$$BE_{En,y} = BE_{Elec,y} = f_{cap} \times f_{wg} \times \sum_j \sum_i (EG_{i,j,y} \times EF_{Elec,i,j,y})$$

The input factors for the calculation of baseline emission depends on the above mentioned equation parameters.

i) $f_{cap} = \frac{Q_{WG,BL}}{Q_{WG,y}}$ and $Q_{WG,BL} = Q_{BL,product} \times q_{wg,product}$ - All the parameters have been cross checked with

the manufacturers specification of the respective equipments/installations that is DRI Kiln, Coke oven batteries and mini blast furnace.

ii) $f_{wg} = \frac{ST_{whr,y}}{ST_{whr,y} + ST_{other,y}}$, where $ST_{whr,y}$ and $ST_{other,y}$ are the calculated figures from the parameters

(steam flow rate, steam temperature and steam pressure) to be monitored *ex-post*. The same has been checked and verified with the final version of the PDD dated 13/12/2008 and found satisfactory.

iii) $EG_{i,j,y}$ = Quantity of electricity supplied to the recipient j by generator which in the absence of the project activity would have been sourced from the i^{th} source (*i.e.* the coal based captive power plant) during the year y (in MWh) which is a monitored parameter *ex-post*.

iv) $EF_{Elec,i,j,y} = \frac{EF_{CO2,is,j}}{n_{Plant,j}} \times 3.6 \times 10^{-3}$,

where $EF_{CO2,is,j}$ (CO₂ emission factor per unit of energy of the fossil fuel (coal) used in the baseline generation source i (in tCO₂ / TJ), obtained from reliable local or national data if available, otherwise, taken from the country specific IPCC default emission factors which was checked against the "2006 IPCC Guidelines for National Greenhouse Gas Inventories" and

$n_{Plant,j}$ which is the overall efficiency of the existing plant that would be used by j^{th} recipient in the absence of the project activity has been applied as per option (ii) of the methodology ACM0012 version 02 correctly as proponent has chosen the highest value (30%) from two different manufacturers data (Case1: Turbine Supplier: Bharat Heavy Electricals Ltd., Boiler Supplier: IJT; efficiency: 30% and Case2: Turbine Supplier: Greensol, Boiler Supplier: Thermal System; efficiency: 29.2%) which were cross checked with the overall power plant efficiency calculation worksheet along with the supportive documents provided and found satisfactory.

The equations and parameters mentioned in the PDD have been correctly applied as per the approved methodology ACM0012 version 2. All the above mentioned parameters to be monitored to calculate and arrive at the emission reduction as mentioned in the final version of the PDD was cross checked with the detail Emission reduction calculation excel spread sheet and found correct. Thus CAR 13 was closed out.

The final version of the PDD has used the ACM0012 version 2 during determination of project emissions, according to the PDD, Project emissions due to combustion of auxiliary fuels used to supplement the waste gas and Project emissions due to electricity consumption of gas cleaning equipment has not been considered, as in the project activity, no auxiliary fuel is used to supplement waste gas and hence there would be no emissions from combustion of auxiliary fuels for supplementing the waste gas. Further the gas is not cleaned before its use in generating electricity and therefore there are no related emissions due to electricity consumption for cleaning of gas.

How ever provisions have been kept open in case of any consumption of auxiliary fuel for supplementing the heat content of the waste gases, emissions for the same would be accounted for during the computation of the emission reduction annually on an *ex-post* basis.

No leakage effect has been considered for the project activity as no leakage is applicable under ACM0012, thus it was accepted.

4.5 Application of Monitoring Methodology and Monitoring Plan

The Monitoring Methodology and Monitoring Plan has been developed as per the Approved consolidated baseline and monitoring methodology ACM0012 version 2 in a project specific manner. The description towards the data/ parameters monitored under section B.7.1 of the PDD has been provided in project specific customized manner correlating with ACM0012 version 2.

The selection of data undergoing quality control and quality assurance procedures in the Project design document was not clearly provided in the initial PDD. Hence CAR 14 was raised to obtain information on the complete procedure ensuring the selection of data undergoing quality control and quality assurance procedures in a comprehensive manner. In response the proponent has provided information on the selection of data undergoing a thorough quality control and quality assurance procedure which was cross checked and verified in the revised version of the PDD against each parameter monitored and found satisfactory leading to the closure of the CAR 14.

The monitoring approach seems to deliver data with reliable and acceptable accuracy as the monitoring of the parameters would be carried out through calibrated instruments and DCS for registration would be in practice. The data recorded would further be reviewed by designated personnel with assigned roles and responsibilities.

CAR 15, NIR 16, NIR 17 and NIR 18 was raised to obtain proper information on whether the monitoring plan provide information on

- monitoring equipment and respective positioning in order to safeguard a proper installation,
- the procedures identified for maintenance of monitoring equipment and installations and for day-to-day records handling, and procedures identified for dealing with possible monitoring data adjustments and
- missing data allowing redundant reconstruction of data in case of monitoring problems.

The project activity is a Greenfield project activity and in the stage of phase wise implementation. The electricity distribution line diagram specifying the on-site energy meter location, the steam metering system specifying the location of the steam flow meters, temperature and pressure gauges provided by the proponent was checked and found acceptable.

Information on the maintenance of monitoring equipments and installations along with the calibration of the equipments to be carried out at frequency specified as per the manufacturer's recommendations and standard industry norms periodically was considered acceptable.

Information on day to day record handling and the procedures towards dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems was checked in the revised version of the PDD and found appropriately incorporated.

Thus CAR 15, NIR 16, NIR 17 and NIR 18 that had been raised were closed out.

The monitoring plan describes the data capturing, recording and review procedures, calibration procedure for the monitoring equipments, procedures towards emergency preparedness, modalities & procedures

towards periodic training of the monitoring personnel and procedures towards annual CDM internal audit, which ensures the data quality.

The monitoring methodology and the monitoring plan developed for the proposed project activity ensuring the data quality is found to be in accordance with the Approved methodology ACM0012 version 2 applied; in a project specific manner to arrive at the emission reductions is adequate and hence accepted.

4.6 Choice of the Crediting Period

The proposed CDM project activity has selected a 10 years fixed crediting period. As per the PDD the starting date of the project activity is 28th March 2006 and expected operational lifetime of the project activity is 25 years which were required to be substantiated further. Thus NIR 19 was raised to have adequate documentary evidence regarding the starting date of the project activity and the expected operational life of the project activity.

The starting date of the project activity has been demonstrated as the date of issue of the Letter of Intent to the project equipment supplier Bharat Heavy Electricals Limited (Ref. No. - VISA/PUR/PP-1 (E-01)/ 2726 dated 28th March 2006) which was checked as the earliest project initiative and found in line with the CDM project start date definition as provided in the "Glossary of CDM terms", version 3, hence accepted.

The Proponent has provided information on the operational life time of the project activity as 25 years referring to the web site of Central Electricity Regulatory Commission, Government of India, made publicly available. The information provided has been cross checked by accessing the Web link: http://www.cercind.gov.in/070104/appendix_2.doc, last accessed on 14th December 2008 and found correct. Hence NIR 19 was closed.

NIR 20 was raised to ascertain that the crediting period will start only after the date of registration of the proposed activity as a CDM project activity with the Executive Board. An Undertaking dated 30/08/2008 signed by the Deputy General Manager, Visa Steel Limited in the said regard has been provided by the proponent. The document was checked and considered acceptable leading to the closure of the NIR 20.

4.7 Environmental Impacts

The project proponent has carried out an environmental impact assessment study for the current project activity as required by the host Party in accordance with procedures as required by the host Party. The environmental impacts have been identified and a Rapid Environmental Impact Assessment (REIA) study has been conducted which has an Environmental Management Plan, to take care of the adverse environmental impacts. The Impact study has been carried out in three distinct phases of its implementation as Impacts during Construction, Operational Phase and Maintenance phase which was required to be further substantiated against documentary evidence. Thus NIR (21) was raised to obtain information on the analysis of environmental impact of the project activity. The Rapid Environmental Impact Assessment (REIA) along with the EMP carried out by Global Experts was checked and found in line with the information provided in the PDD. The Letter Of Intent (VIL/GM/ENVI/LOI0034 dated March 18, 2004) issued to M/s Global Experts by Visa Industries Limited was also checked and considered acceptable. No significant negative environmental impact has been identified. Thus NIR (21) was closed out.

The relevant Consents, Approvals and Clearances issued by the statutory bodies such as Orissa State Pollution Control Board (Ref. no. /6/ and /7/), Ministry of Environment and Forests, Govt. of India (Ref. no. /8/), Department of Water Resources (Ref. no. /9/), Directorate of factories and Boilers (Ref. no. /10/) was checked and verified during the validation site visit. Thus it has been accepted that the current project activity is in compliance with the applicable host country environmental legislative requirement. However, during validation the application for Consent to Operate (Ref. No.-VSL/ENV/CONSENT/298 dated 20th February 2008) to State Pollution Control Board has been observed. As the Consent to Operate for the project activity was pending from State Pollution Control Board, thus Observation 24 was raised. The appropriate Consent to Operate for the project activity needs to be produced by the project proponent during *ex-post* verification stage.

Observation: The appropriate Consent to Operate for the project activity needs to be produced by the project proponent during *ex-post* verification stage.

4.8 Local Stakeholder Comments

NIR 22 and NIR 23 were raised to get a justification towards the local stakeholder consultation process as to how the above mentioned stake holders have been consulted for the said project activity, information regarding the verbal communications made for the project activity inviting their comments and feedbacks, and has there been a meeting arranged for the same, which is not clearly mentioned in the PDD. The involvement of media for the purpose has also not being categorically mentioned.

The Proponent has provided the written communication letters issued to the local stakeholders to the project activity informing them regarding the project activity. The following documents have been checked and verified during the validation site visit as well and considered acceptable;

- Invitation letter dated 21/08/2008 to Kalinga Nagar Mazdoor Union & Maa Tarini Rural Development Agency,
- Invitation letter to Thermal Systems (Hyderabad) Pvt. Ltd. dated 9/10/2007,
- Letter to Panchayat Pradhan dated 27/12/2007, and
- Letter to R. Singh & Associates (P) Ltd dated 1/07/2008.

The positive comments and feedback provided by the local stake holders regarding the project activity to be set up by Visa Steel Limited was checked and verified against the following documents;

- Letter from Maa Tarini Rural Development Agency dated 28.08.2008.
- Letter from Kalinga Nagar Mazdoor Union dated 28.08.2008.
- Letter from the Thermal Systems (Hyderabad) Pvt. Ltd dated 29th December 2007.
- Letter from the Panchayat Pradhan dated 28.12.2008.
- Letter from R. Singh & Associates (P) Ltd. dated 26/08/2008.
- Letter from Employee Representatives dated 29/12/2007.

The documentary evidence subject to checking and verification was considered acceptable leading to the closure of the NIR 22 and NIR 23.

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of How and When the PDD was Made Publicly Available

The Project Design Document for this project was made available on the UNFCCC website and was open for comments from 07-08-2008 until 05-09-2008. Comments were invited through the UNFCCC CDM homepage

<http://cdm.unfccc.int/Projects/Validation/DB/PCMDYRFPJ5J3KOU53BOX14JT43AMWK/view.html>

5.2 Compilation of all Comments Received

No comments received during global stakeholder consultation procedure.

Comment Number	Date Received	Submitter	Comment
NA	NA	NA	NA

5.3 Explanation of How Comments Have Been Taken into Account

No comments received during global stakeholder consultation procedure.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
10.09.2008	G. Narayanan	DGM-Power Plant	Project proponents view on CDM project activity and project design and monitoring plan.
10.09.2008	Manoj Digga	CFO	Project Financials
10.09.2008	Arun Kumar	Engineer-Power Plant	Technical description of the project activity.
10.09.2008	Arun Kumar, Er-Power Plant Arun Pandey,	Engineer-Power Plant Dy Manager-Electrical	Assessment of Project Boundary (Site)/ Interviews about the project activity and project technology
10.09.2008	Ankit Chhabra	Sr. Officer	Awareness towards the project activity and type and extent of socio- economic and environmental well being by the project activity.
10.09.2008	Probal Sengupta	DGM-Marketing	Local stakeholder consultation process, environmental and socio-economic well being aspects of the project activity.
11.09.2008	B.K.Birtia	Sr. Manager-Electrical	Baseline and data monitoring for project activity, Board Minutes.
11.09.2008	B.K.Birtia, Vidhyadhar Swain Arun Kumar	Sr. Manager-Electrical Asst Engineer-Power Plant (MRSS) Engineer-Power Plant	Monitoring plan and reporting procedure.
11.09.2008	S.K.Singh,	Sr. GM- (E & I)	Project instrumentation and monitoring equipment details.
11.09.2008	Saunak Saha Yubaraj Sengupta	CDM-Consultant CDM-Consultant	Baseline and Additionality

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

- /1/ PDD version 1 dated 31/07/2008 (submitted for international stake holder's comments)
- /2/ PDD version 2 dated 21/11/2008 (Intermediate)
- /3/ PDD version 3 dated 30/12/2008 (Final)
- /4/ Host Country Approval, (Ref. No.- 4/24/2007-CCC dated 23 January 2008).
- /5/ Modalities of Communication dated 29.12.2008
- /6/ Board Note-CDM Consideration dated 25.06.2005.
- /7/ Emission reduction calculation worksheet, version 01.
- /8/ Emission reduction calculation worksheet, version 02

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

- /9/ Unit Power Cost Computation (DCPL)-Ref No.DCPL-01105/PC-7/CHEM/5273A dated 15 June 2005.
- /10/ Sensitivity calculation worksheet
- /11/ Overall power plant efficiency calculation worksheet
- /12/ Consent to Establish -OPCB (Ref. No. - 29888/Ind-II-NOC-4232 dated 6th December 2006)
- /13/ Consent to Operate – Application(Ref. No.-VSL/ENV/CONSENT/298 dated 20th February 2008)
- /14/ Environmental Clearance (Ref. No.-F. No. J-11011/33/2007-IA II (I) dated 12th June 2007)
- /15/ Approval- Department of Water Resources, Govt Of Orissa (Ref.No.-4268/WR,Irr-II-WRC-24/06 dated 7th February 2006)
- /16/ Factory Licence-Directorate of factories and Boilers, Orissa (Ref. No.-8448-IVB.JJ.10/06 dated 21st May 2008)
- /17/ Approval Orissa Power Transmission Corporation Limited Letter Ref. No. -SO-PSI-2/2005/2764 dated 16th August 2007
- /18/ Approval Orissa Power Transmission Corporation Limited Letter Ref. No. –SO-PSI-2/2005/3398 dated 16th October 2007
- /19/ Contract-Visa Steel Limited and Thermal Systems (Hyderabad) Contract No.-45006006 dated 10th July 2006
- /20/ Contract-Visa Steel Limited and Bharat Heavy Electrical Ltd Contract No.-45006016 dated 20th July 2006
- /21/ Contract-Visa Steel Limited and Bharat Heavy Electrical Ltd Contract No.-45006017 dated 20th July 2006
- /22/ Letter of Intent to Bharat Heavy Electrical Ltd Ref. No.- VISA/PUR/PP-1 (E-01)/ 2726 dated 28th March 2006
- /23/ Letter of Intent to Bharat Heavy Electrical Ltd Ref. No.- VISA/PUR/PP-1(E-01)/2729 dated 29th March 2006
- /24/ Undertaking - No Technology Substitution dated 20/10/2008
- /25/ Internal communication dated 10 October 2008
- /26/ Commissioning Schedule of CPP (3 x 25 MW) dated 11/11/2008
- /27/ Communication- Bombay Stock Exchange Limited dated 30 July 2007
- /28/ Term loan sanction letter from State Bank of India (Ref. CAG.CAL/AMT-I/827; dated 15.02.2005
- /29/ Term loan sanction letter from Oriental bank of Commerce, dated 21.07.2005
- /30/ Visa Steel Limited Letter dated 19/05/2005, regarding communication on behalf of Visa Steel Ltd. to DCPL for computation of unit power cost of the project activity.
- /31/ EB Guidance on the Assessment of Investment Analysis (version 02)
http://cdm.unfccc.int/EB/041/eb41_repan45.pdf
- /32/ http://www.energymanagertraining.com/iron_steel/pdf/industry%20overview%20-%20steel.pdf

- /33/ [http://steel.nic.in/Annual%20Report%20\(2006-07\)/English/Annual%20Report%20\(2006-07\).pdf](http://steel.nic.in/Annual%20Report%20(2006-07)/English/Annual%20Report%20(2006-07).pdf)
- /34/ <http://www.sail.co.in/aboutus.php?tag=company-energy>
- /35/ <http://cdm.unfccc.int/UserManagement/FileStorage/D0YOKH0N9YHKRWDMSX7I67L0UA9XXW>
- /36/ <http://cdm.unfccc.int/UserManagement/FileStorage/5K5XJ3GMSTGYQE2KT3IL1NP0RGLSVK>
- /37/ <http://cdm.unfccc.int/UserManagement/FileStorage/XQKW19L92IAYD0XP1QP8YRQIU3ZL8I>
- /38/ <http://www.projectsmonitor.com/detailnews.asp?newsid=10794>
- /39/ <http://cdm.unfccc.int/UserManagement/FileStorage/D0YOKH0N9YHKRWDMSX7I67L0UA9XXW>
- /40/ <http://cdm.unfccc.int/UserManagement/FileStorage/5K5XJ3GMSTGYQE2KT3IL1NP0RGLSVK>
- /41/ <http://cdm.unfccc.int/UserManagement/FileStorage/XQKW19L92IAYD0XP1QP8YRQIU3ZL8I>
- /42/ <http://cdm.unfccc.int/Projects/Validation/DB/ZJPUUHM7IA8AF8P2PWM24OQGWGSC8/view.html>
- /43/ <http://cdm.unfccc.int/UserManagement/FileStorage/IY32UCOLFQMW7K5DS8RVXJP46EG91>
- /44/ Visa Steel Limited -Electricity distribution line Diagram
- /45/ http://www.cercind.gov.in/070104/appendix_2.doc
- /46/ Undertaking from Visa Steel Ltd. regarding no retroactive credits, dated 30/08/2008
- /47/ Rapid Environmental Management Plan by Global Experts dated October 2005.
- /48/ Letter of Intent (Ref No.VIL/GM/ENVI/LOI0034 dated March 18, 2004), issued to M/s Global Experts for REIA study.
- /49/ Invitation letter dated 21/08/2008 to Kalinga Nagar Mazdoor Union
- /50/ Invitation letter dated 21/08/2008 to Maa Tarini Rural Development Agency for local stakeholder consultation process.
- /51/ Invitation letter to Thermal Systems (Hyderabad) Pvt. Ltd. dated 9/10/2007 for local stakeholder consultation process
- /52/ Letter to Panchayat Pradhan dated 27/12/2007 for local stakeholder consultation process.
- /53/ Letter to R. Singh & Associates (P) Ltd dated 1/07/2008 for local stakeholder consultation process
- /54/ Letter form Maa Tarini Rural Development Agency dated 28.08.2008 for local stakeholder consultation feedback.
- /55/ Letter from Kalinga Nagar Mazdoor Union dated 28.08.2008, for local stakeholder consultation feedback.
- /56/ Letter from the Thermal Systems (Hyderabad) Pvt. Ltd dated 29th December'07, for local stakeholder consultation feedback.
- /57/ Letter from the Panchayat Pradhan dated 28.12.2008, for local stakeholder consultation feedback.
- /58/ Letter from R. Singh & Associates (P) Ltd. dated 26/08/2008, for local stakeholder consultation feedback..
- /59/ Letter from Employee Representatives dated 29/12/2007, for local stakeholder consultation feedback.

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for GHG emission reductions through waste gas based power generation at Visa Steel Limited.

It serves as a “**reality check**” on the project that is completed by a local assessor from SGS IN

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
Host Country Approval letter ensuring the participation requirements being met by the project activity.	Host Country Approval from the Ministry of Environment & Forests (Indian DNA) was provided in original which was checked and verified during the validation site visit and found acceptable.	HCA Letter Ref. No. - 4/24/2007-CCC dated 23 January 2008.	Not required.
The appropriate Modalities of Communication for the project activity have to be submitted by the Project participant before submitting a request for registration.	The letter on the Modalities of Communication with the Executive Board and the UNFCCC Secretariat signed by the project participant could not be provided by the PP during the document review process of the validation site visit at Kalinganagar, Orissa. Hence the correctness of the contact information PP as provided in the PDD Annex 1 could not be checked. A CAR has been raised.	The modalities of Communication was not provided during the validation site visit, hence CAR 02 was raised.	CAR 02 raised. CAR 02 closed out.

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
<p>Actual situation or planning for the project activity needs to be cross checked.</p> <p>Project's spatial boundaries and the system boundaries</p>	<p>The project activity is a waste heat recovery based captive power plant to meet the partial in-house requirement of electricity of the Integrated iron and steel plant of Visa steel limited at Kalinganagar, Orissa. The captive power plant involves utilization of the heat content from the waste gasses generated as a process by-product from two DRI Kilns, eight coke oven batteries and a mini blast furnace. The project is in the stage wise, phase wise implementation stage. The technical description, detail project planning, site plan etc as described in the PDD are found consistent. During site visit civil construction has been observed at the demarcated project site.</p> <p>The description towards the project boundary was not clear and further information was required to confirm why the CFBC boiler which is meant for supplying steam through the common steam header to the turbine has not been included within the project boundary. Hence CAR (06) was raised to obtain a clarification.</p>	<p>The actual situation and planning was checked and verified during the CDM validation site visit at the demarcated project site of the integrated iron and steel plant of Visa Steel Limited at Kalinganagar, Orissa. On site interview of project proponent followed by Onsite physical verification was carried out and found satisfactory.</p>	<p>CAR 06 raised.</p> <p>CAR 06 closed out.</p>

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
The appropriate project ownership and requisite approval/ license required for establishment of the project activity at the mentioned geographical location needs to be checked.	The project participants have the necessary licenses as the project activity is well within the premises of the project boundary indicated.	<p>The documents were provided in original during the validation site visit which was checked and verified and found satisfactory.</p> <p>-Consent to Establish from State Pollution Control Board, Orissa (Ref. No.- 29888/Ind-II-NOC-4232 dated 6th December 2006)</p> <p>-Application for Consent to Operate to State Pollution Control Board, Orissa (Ref. No.-VSL/ENV/CONSENT/298 dated 20th February 2008)</p> <p>-Environmental Clearance from Ministry of Environment and Forests, Government of India (Ref. No.-F. No. J-11011/33/2007-IA II (I) dated 12th June 2007)</p> <p>-Approval from Orissa Power Transmission Corporation Limited for drawl of power (Ref. No.-SO-PSI-2/2005/2764 dated 16th August 2007 and Ref. No.-SO-PSI-2/2005/3398 dated 16th October 2007)</p> <p>-Approval from Department of Water Resources, Government of Orissa for drawl of water (Ref. No.-4268/WR,Irr-II-WRC-24/06 dated 7th February 2006)</p> <p>"Registration and License to Work a Factory" from Directorate of factories and Boilers, Orissa (Ref. No.-8448-IVB.JJ.10/06 dated 21st May 2008).</p>	As the Consent to Operate for the project activity was pending from State Pollution Control Board, thus Observation 24 was raised. The appropriate Consent to Operate for the project activity needs to be produced by the project proponent during <i>ex-post</i> verification stage.

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
The Purchase Orders along with technical specification of the respective project equipments installed/ to be procured for this proposed project activity needs to be checked during site visit.	Project technical description has been reviewed through the signed contract and interviewing the PP and Project contractor. The technical description provided in the PDD is found consistent with the actual scenario.	Review of the following documents: - Contract between Visa Steel Limited and Thermal Systems (Hyderabad) Pvt. Ltd. - Contract between Visa Steel Limited and Bharat Heavy Electrical Ltd. - Letter of Intent for 2 x 25 MW STG issued to Bharat Heavy Electrical Ltd. - Letter of Intent for 1 x 25 MW STG with HP Heater issued to Bharat Heavy Electrical Ltd.	Not required.
Detail documentary description and record of initial extensive training programme conducted for the project personnel needs to be checked during site visit.	During site visit, it has been verified that the project personnel involved in running the power plant are technically well qualified and trained in the relevant field with adequate experience. As required the Shift operators will be provided extensive on-the-job training including plant operation, data monitoring and report generation under the guidance of the Shift In charge. This has been found in line with the information provided in the PDD.	-Onsite interview with the designated Officials and project staff in the project site. - Internal communication dated 10 October 2008	Not required.

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
The information on public funding involvement for the project activity financing needs to be checked during the site visit and PP should provide proper substantiation for the same.	The project funding for the current activity has not involved any ODA utilization. This was discussed with the Project participant and the loan documents from State Bank Of India and Oriental Bank of Commerce towards the project funding were made available for review.	Self declaration submitted by the project proponent dated 30/08/2008. Loan sanction letter from Oriental Bank of Commerce to M/s Visa Steel Limited dated 21.07.05. Loan sanction from State Bank of India (Ref No. CAG.CAL/AMT-I/827 dated February 15, 2005)	Not required.
Whether the power plant is grid connected needs to be ascertained during the site visit.	The project activity is not grid connected. The captive power plant to be implemented stage wise and phase wise would cater to the partial in-house electricity demand of the integrated iron and steel plant.	Onsite interview and physical verification.	Not required.

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
The modalities followed for Local Stakeholder Consultation procedure needs to be checked.	The stake holders being informed regarding the project activity and requested to express their views and provide their feedback on the same. The Proponent has provided the written communication letters issued to the local stakeholders to the project activity informing them regarding the project activity to be set up and the time, date and venue of the interactive session organized for the same requesting them to join and provide their feedbacks.	Document review for the following was carried out: Invitation letter dated 1/08/2008 to -Kalinga Nagar Mazdoor Union. -Maa Tarini Rural Development Agency. -Invitation letter to Thermal Systems (Hyderabad) Pvt. Ltd. dated 9/10/2007. -Letter to Panchayat Pradhan dated 27/12/2007. -Letter to R. Singh & Associates (P) Ltd dated 1/07/2008.	Not required.

Issue	Findings	Source/Mean of Verification	Further Action / Clarification / Information Required?
The local stakeholders' feedback regarding the project activity needs to be cross checked during the site visit.	The positive comments and feedback provided by the local stake holders regarding the project activity to be set up by Visa Steel Limited have been reviewed and discussed during the validation site visit by on-site interviews, and no negative comments towards the project activity has been observed.	Feedback letters/ email communications from local stakeholders such as: -Letter form Maa Tarini Rural Development Agency dated 28.08.2008. -Letter from Kalinga Nagar Mazdoor Union dated 28.08.2008. -Letter from the Thermal Systems (Hyderabad) Pvt. Ltd dated 29 th December'07. -Letter from the Panchayat Pradhan dated 28.12.2008. -Letter from R. Singh & Associates (P) Ltd. dated 26/08/2008. -Letter from Employee Representatives dated 29/12/2007	Not required.

A.2 Annex 2: Validation Protocol

Table 1 Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference	Comments	Conclusion
1. All Parties (listed in Section A3 of the PDD) have ratified the Kyoto protocol and are allowed to participate in CDM projects	Marrakech Accords, CDM Modalities §30	The party listed in the Section A3 of the PDD is India (Host Country). India has ratified the protocol on 26 th August 2002 and is allowed to participate. The weblink is as follows: http://unfccc.int/parties_and_observers/parties/items/2352.php http://maindb.unfccc.int/public/country.pl?country=IN	Y
2. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3 and be entered into voluntarily.	Marrakech Accords, CDM Modalities §29 and §30	No Annex 1 party / entity is involved or identified as a project participant in this project activity as per the PDD. The Project can proceed as unilateral project.	Y
3. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	The Host Country Approval letter from the Indian DNA (Ministry of Environment and Forest) consistent with the requirements of the EB is to be submitted by the project proponent.	CAR 01. CAR 01 Closed out.

Requirement	Reference	Comments	Conclusion
4. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available	Marrakech Accords, CDM Modalities, §40	Parties, Stakeholders and UNFCCC accredited NGOs have been invited to comment on the validation requirements for minimum 30 days Web site: http://cdm.unfccc.int/Projects/Validation/D/B/PCMDYRFPJ5J3KOU53BOX14JT43A/MWK/view.html The PDD was web hosted as per schedule: Starting date: 07/08/2008 Closing date: 05/09/2008. Number of comments received: 0	Y
5. The project design document shall be in conformance with the UNFCCC CDM-PDD format	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	The Project has used version 03 of PDD and followed the current guidelines, except pending closure of the CARs / NIRs.	Pending
6. The project participants shall submit a letter on the modalities of communication (MoC) before submitting a request for registration	EB-09 F_CDM_REG form	The letter on the Modalities of communication signed by the project participant mentioned in section A3 of the PDD has to be submitted.	CAR 02. CAR 02 closed out
7. For AR projects, the host country shall have issued a communication providing a single definition of minimum tree cover, minimum land area value and minimum tree height. Has such a letter been issued and are the definitions consistently applied throughout the PDD?		The project activity is not an AR project.	NA

Table 2 PDD

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A. General Description of Project Activity					
A.1. Project Title					
A.1.1. Does the used project title clearly enable to identify the unique CDM activity?	01	DR	The project title of the project activity “GHG emission reductions through waste gas based power generation at Visa Steel Limited” clearly identifies the Sectoral scope wise unique CDM project activity.	Y	Y
A.1.2. Are there an indication of a revision number and the date of the revision?	01	DR	The PDD under section A.1 mentions the particulars as follows: Version: 01 Date: 31/07/2008.	Y	Y
A.1.3. Is this in consistency with the time line of the project's history?	01	DR	The PDD version 01 has been completed on 31/07/2008 and the starting date of the project activity mentioned in the PDD version 01 under section C.1.1 is 28/03/2006 which is consistent with the time line of the project's history.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.2. Description of the Project Activity					
A.2.1. Is the description delivering a transparent overview of the project activities?	01	DR	The PDD under section A2 has precisely described the project activity in a comprehensive manner. The PDD clearly projects information on the Purpose of the project activity, type of technology used and the projects contribution to the sustainable development. It further explains how the basic four elements of sustainable development are met with.	Y	Y
A.2.2. Is all information provided in compliance with actual situation or planning?	01	DR/site visit.	The same has to be checked and verified during the validation site visit.	Pending site visit.	Y
A.2.3. Is all information provided consistent with details provided in further chapters of the PDD?	01	DR	Pending closure of the CARs and NIRs.	Pending.	Y
A.3. Project Participants					
A.3.1. Is the table required for the indication of project participants correctly applied?	01	DR	The Table required for the indication of the project participants in the section A3 of the PDD version 01 has been applied correctly.	Y	Y
A.3.2. Is all information provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	01	DR	All the information regarding project participants is consistent with details provided by further chapters of the PDD (in particular annex 1: contact information on participants in the project activity).	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4. Technical Description of the Project Activity					
A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)	01	DR	The information provided in the PDD version 01 under the section A.4.1.4 on the location of the project activity is clear. The project activity is located in the industrial complex of Duburi of Jajpur District, Orissa The project site is located at a latitude of 20°51'N and Longitude 86°20'E.	Y	Y
A.4.2. Do the project participants possess ownership or licenses which will allow the implementation of the project at that site / those sites?	01	DR	The documentary evidence regarding ownership or licenses which will allow the implementation of the project at that site has to be submitted by the PP and the same would have to be checked and verified during the validation site visit.	Pending site visit.	Y
A.4.3. Is the category(ies) of the project activity correctly identified?	01	DR	The project activity is an electricity generation project utilizing waste heat of by-product gases generated from the operations of DRI kilns, Mini blast furnace and coke ovens to meet the electricity requirement of the integrated iron and Steel plant partially. The industry refers to steel manufacturing industry and the CDM project activity comes under the Sectoral scope 01 & 04 as per the CDM scopes available on the UNFCCC website. The category of the project activity is correctly identified under section B.1 of the PDD.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.4. Does the project design engineering reflect current good practices?	01	DR	<p>The project activity does not involve any technology transfer from Annex I country; however, as per the project design engineering mentioned in the PDD would recover the thermal energy content of the waste gases generated from the DRI kilns, mini blast furnace and coke oven using WHRB to generate cleaner power. Thus it reflects current good engineering practices. The said CDM project activity ensures transfer of environmentally safe and sound technology thereby would achieve improvement of local environment and technological up gradation.</p> <p>The Purchase Orders along with technical specification of the respective project equipments such as WHRBs, steam turbo generators etc. installed/ to be procured for this proposed project activity has to be provided by the PP which has to be checked during the validation site visit.</p>	Pending site visit.	Y
A.4.5. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance and is the explanation how the project will reduce greenhouse gas emission transparent and suitable?	01	DR	The description of the technology to be applied provides information towards the explanation how the project will reduce greenhouse gas emissions related to the baseline scenario, project scenario has been provided under current version of the PDD.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.6. Is all information provided in compliance with actual situation or planning as available by the project participants?	01	DR	<p>The actual situation of the project installation and the following permits/clearances needs to be checked during site visit.</p> <ul style="list-style-type: none"> • NOC, Consent to Establish and Consent to Operate from Orissa Pollution Control Board, Environment Clearance from MoEF. • Factory License. • Boiler license and testing certificate for the WHRB. • Clearance from Department of Irrigation. <p>Pending site visit..</p>	Pending site visit.	Y
A.4.7. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	01	DR	<p>According to the project technical description provided under PDD, the project activity does not implement any state of the art technology; however the project technology description reveals the use of improved technology.</p>	Y	Y
A.4.8. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	01	DR	<p>Whether the project technology likely to be substituted by other or more efficient technologies within the project period is not clear, the same needs to be substantiated by the project proponent.</p>	NIR 03.	NIR 03 closed out.

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.4.9. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	01	DR	<p>The PDD version 01 does not state anything regarding initial extensive training and maintenance efforts required for functional operation of the project activity. However the PDD has mentioned that the Shift operators will be provided extensive on-the-job training including plant operation, data monitoring and report generation under the guidance of the Shift In charge</p> <p>Detail documentary description and record of initial extensive training programme conducted for the project personnel needs to be provided by the project proponent which is to be checked during the validation site visit.</p>	Pending site visit.	Y
A.4.10. Does the project make provisions for meeting training and maintenance needs?	01	DR	Pending site visit.	Pending.	Y
A.4.11. Is a schedule available on the implementation of the project and are there any risks for delays?	01	DR	The project activity is an integrated iron and steel plant which is in the process of setting up at Kalinganagar in Orissa. The PDD does not mention specifically the project implementation plan. The PP is required to provide information on the schedule on the implementation of the project activity and clarify the probable risk of delay for the project implementation and its impact on emission reduction projections by the reasonably changed timelines.	NIR 04.	Y
A.4.12. Is the table required for the indication of projected emission reductions correctly applied?	01	DR	The PDD under section A.4.4 has correctly applied the table required indicating the projected emission reductions.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
A.5. Public Funding					
A.5.1. Does the information on public funding provided conform with the actual situation or planning as presented by the project participants?	01	DR	The PDD states that no public funding will be invested in the project activity. The same should be checked during the site visit and PP should provide proper substantiation for the same.	Pending site visit	Y
A.5.2. Is all information provided consist with details provided by further chapters of the PDD (in particular annex 2)?	01	DR	All information regarding Public Funding provided under PDD is consistent with details provided by further chapters of the PDD.	Y	Y
A.5.3. In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	01	DR	As per PDD no public funding from Annex I party has been identified for the project activity. Please refer section A.5.1 above.	Pending.	Y
B. Baseline and Monitoring Methodology					
B.1. Choice and Applicability					
B.1.1. Is the baseline methodology previously approved by the CDM Methodology Panel?	01, 02.	DR	Section B.1 of the PDD, provides the complete reference and currently valid version number of the approved methodology as applicable – ACM0012: “Consolidated baseline methodology for GHG emission reductions for waste gas or heat or pressure based energy system” version 02.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.1.2. Is the baseline methodology the one deemed most applicable for this project?	01, 02.	DR	The baseline methodology as selected for the project activity (ACM0012 version 2) is deemed most applicable for the project activity, as the project activity involves utilization of the heat content of the bye-product waste gas of the Direct Reduced Iron (DRI) kilns, mini blast furnace and coke oven as an energy source for generation of electricity.	Y	Y
B.1.3. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology?	01, 02.	DR	The applicability criteria of ACM0012 ver. 02 with the project activity has been described under Section B.2 of the PDD. The justification towards all the applicability criteria of ACM0012 ver02 seems to be transparent as per the PDD. The project activity is a part of the green field integrated iron and steel plant and the commercial production has not yet begun at the time when the Project Activity is submitted for validation.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.2. Project Boundary					
B.2.1. Are all emission sources and gasses related to the baseline scenario, project scenario and leakage clearly identified and described in a complete manner?	01, 02.	DR	<p>The description towards all emission sources and gasses related to the baseline scenario, project scenario has been described under Section B.3 of the PDD.</p> <p>The PP would have to further substantiate the following:</p> <p>Proposed project activity</p> <p>Consideration of sources of GHG emissions due to "Supplemental electricity consumption" for the project activity is not clear, as under Section B.3 Table-B.1 of the PDD, it has been mentioned that "Power consumption under emergency situation by the power plant equipments will anyway be accounted as auxiliary consumption."</p>	CAR 05	CAR 05 Closed out
B.2.2. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?	01, 02.	DR	The project activity is not grid connected. However the same will be verified during site visit.	Pending site visit.	Y
B.2.3. Are the project's spatial boundaries (geographical) and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	01, 02.	DR/site visit.	Description towards the project boundary is not clear, further information is required to confirm why the CFBC boiler which is supplying steam through the common steam header to the turbine has not been included in the project boundary.	CAR 06	CAR 06 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.3. Identification of the Baseline Scenario					
B.3.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology and is the application of the methodology and the discussion and determination of the chosen baseline transparent?	01, 02.	DR	<p>The current version of the PDD under Section B.4 provides the description towards identification of the most likely baseline scenario in accordance with the Step 1 to Step 4 for identification of baseline scenario as mentioned under ACM0012 version 02. However, the selection of the most plausible and conservative baseline scenario needs to be further substantiated on the basis of following issues –</p> <ul style="list-style-type: none"> • Non availability of natural gas distribution network in eastern region of the country needs to be further substantiated with traceable references. • All the assumptions used (cost of grid power, cost of power generation from coal based power plant as estimated by VSL) towards capital cost investment and cost of power generation for the project activity needs to be further substantiated with traceable references. • Further information and substantiation are required to confirm whether or not the CFBC boiler which is supplying steam to the same turbine through the common steam header would have been installed in the absence of this CDM project activity. 	CAR07	CAR07 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.3.2. Does the application consider all potential realistic and credible baseline scenarios in the discussion taking into account relevant national and/or sectoral policies, macro-economic trends and political aspirations??	01, 02.	DR	The application towards selection of most plausible scenario considers all potential realistic and credible baseline scenarios as provided under ACM0012 version 02.	Y	Y
B.3.3. Is the choice of the baseline compatible with the available data?	01, 02.	DR	Pending closure of CAR 07	Pending	Y
B.3.4. Is conservativeness addressed in the way of identifying the baseline?	01, 02.	DR	Pending closure of CAR 07	Pending	Y
B.3.5. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	01, 02.	DR	Selection of most likely scenario among other possible and/or discussed scenarios needs to be further substantiated. Pending closure of CAR 07	Pending	Y
B.4. Additionality					
B.4.1. Does the PDD clearly demonstrate the additionality using the approach as given by the methodology and by following all the required steps?	01,02 & 03	DR	The additionality of the project activity has been described with reference to the 'Tool for the demonstration and assessment of additionality', version 5.2, for detail discussion on additionality check. Please refer B.4.2.	Y	Y
B.4.2. In case of using the additionality tool: Is the 'Additionality Tool' used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	01,02 & 03	DR	According to the version 01 of the PDD, the project additionality has been discussed with reference to the "Tools for the demonstration and assessment of additionality" (version 5.2). All the steps of additionality tool have been followed, but the facts described towards step 2: Investment Analysis and step 3: Barrier analysis are not clear. Pending closure of CAR 07	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.3. Is the discussion on additionality and the evidence provided consistent with the starting date of the project If the project has started before the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	01,02 & 03	DR	<p>The starting date of the project activity as per the PDD version 01 is 23/03/2006 which is considered as the placement of purchase order.</p> <p>However the consistency of the project start date with the discussion of the project additionality is not transparent.</p> <p>How and when the CDM was taken into serious consideration in the decision to go ahead with the project activity is not clear and the same has to be properly substantiated.</p> <p>Project proponent needs to substantiate along with reliable evidences that they had prior knowledge about CDM modalities before they have considered the CDM revenue to mitigate the project risk.</p> <p>Please explain how the benefits of the CDM were considered as a decisive factor in the decision to proceed with the project.</p>	CAR 08.	CAR 08 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.4. Is the discussion on additionality consistent with the identification all potential realistic and credible baseline scenarios	01,02 & 03	DR	<p>Response to B.4.4-</p> <p>All the plausible and credible alternatives to the project as per the requirement of ACM 0012 version 02 have been discussed in section B.4 of the PDD version 01. The alternatives to the project activity have been evaluated based on Steps 1 to 4 using Additionality Tool version 05, as required by the ACM0012 version 02. Based on (a) fuel choice and availability, (b) taking into account national and/or Sectoral policies, the most plausible baseline alternative has been chosen.</p> <p>How ever pending closure of CAR 07.</p>	Pending	Y
B.4.5. If an investment analysis has been used, has it been shown that the proposed project activity is economically or financially less attractive than at least one other alternative without the revenue from the sale of CERs?	01,02 & 03	DR	<p>Please provide the documentary evidence for the assessment of all parameters and assumptions used in the calculation of the relevant financial indicator. Please substantiate the suitability of such parameters which have been used in the investment comparison analysis procedure.</p> <p>Project proponent is requested to provide third party or publicly available sources to cross check the parameters used in the investment analysis procedure.</p> <p>Pending closure of CAR 07.</p> <p>Please provide the Investment comparison analysis calculation sheet as well as sensitivity analysis calculation procedure with clarification of chosen variation.</p>	CAR 09.	CAR 09 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.6. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	01,02 & 03	DR	<ul style="list-style-type: none"> Provide further evidence to support the conclusion that the fossil fuel CFBC boiler would have been installed without the development of the waste heat recovery boilers. The barrier analysis listed in the PDD are supported by the investment comparison analysis which is not transparent with respect to the total cost of power generation and unit cost of power generation, as well as the sources of values used in the analysis method need to be substantiated. <p>Pending closure of CAR 07.</p>	Pending.	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.4.7. Has it been shown that the project is not common practice?	01,02 & 03	DR	<ul style="list-style-type: none"> The analysis of the other activities implemented previously or currently underway similar to the proposed project activities in the context of national and State (Orissa) scenario without CDM modalities needs to be substantiated more clearly with proper direct traceable references. The UN reference number of similar Registered CDM project activity needs to be provided by the project proponent for transparent traceability of the fact. The similar activities are required to be identified properly and the project proponent needs to demonstrate why the existence of those identified activities does not contradict the claim that the proposed project activity is financially unattractive or subject to barriers. 	CAR 10	CAR 10 Closed Out
B.4.8. Is it demonstrated/justified that the project activity itself is not a likely baseline scenario	01,02 & 03	DR	Pending closure of above additionality CAR07. CAR08, CAR09& CAR 10.	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.5. Application of the Baseline Methodology					
B.5.1. Has the approved methodology been applied correctly for determining baseline emissions ?	01,02	DR	<p>The current version of the PDD has used the equations, steps/calculations in accordance with ACM0012 version 02 during determination of baseline emissions, however the following issues are not clear –</p> <ul style="list-style-type: none"> • Consideration of Efficiency of the power plant as mentioned in the PDD is not justified as it seems like calculated by the project proponent, how the option (ii) mentioned under ACM0012 version 02 has been applied for the same needs to be clarified. • During baseline emissions calculation how the “Capping of baseline emissions” has been considered following Method-2 of ACM0012 version 02 is not transparent. • In the PDD version 01, the value of the $q_{wg, product}$ has not been specified whereas the value of f_{cap} in the Annex 3 has been mentioned as 1. The PP would have to clarify the same. • The value of the parameter mentioned with respect to $Q_{wg, Y}$ needs to be clarified by the PP. 	CAR 11	CAR 11 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.5.2. Has the approved methodology been applied correctly for determining project emissions ?	01,02	DR	<p>The current version of the PDD has used the ACM0012 version 02 during determination of project emissions, according to the PDD, Project emissions due to combustion of auxiliary fuels used to supplement the waste gas and Project emissions due to electricity consumption of gas cleaning equipment has not been considered, as in the project activity, no auxiliary fuel is used to supplement waste gas and hence there would be no emissions from combustion of auxiliary fuels for supplementing the waste gas. Further the gas is not cleaned before its use in generating electricity and therefore there are no related emissions due to electricity consumption for cleaning of gas.</p> <p>However provisions have been kept open in case of any consumption of auxiliary fuel for supplementing the heat content of the waste gases, emissions for the same would be accounted for during the computation of the emission reduction annually on an ex-post basis.</p>	Y	Y
B.5.3. Has the approved methodology been applied correctly for determining leakage ?	01,02	DR	No leakage effect has been considered for the project activity as no leakage is applicable under ACM0012.	Y	Y
B.5.4. Where applicable, has the approved methodology been applied correctly for the direct calculation of emission reductions	01,02	DR	Pending closure of CAR11	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.5.5. Have all the methodological choices been explained, have they been properly justified and are they correct	01,02	DR	The methodological choice towards the baseline and project emission calculation has represented and explained under PDD, with reference to ACM0012 version 02, which is justified, however consideration of Efficiency of the power plant and Capping of baseline emissions is not clear. Pending closure of CAR 11	Pending	Y
B.5.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	01,02	DR	No such information regarding uncertainties in the calculations, data sources or assumptions been discussed under PDD. Pending closure of CAR 11	Pending	Y
B.6. Ex-ante Data and Parameters Used					
B.6.1. Are the data provided in compliance with the methodology?	01,02	DR	Pending closure of CAR 11	Pending	Y
B.6.2. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	01,02	DR	<ul style="list-style-type: none"> Proper documentary evidence towards source data (manufacturer's specification) for Quantity of waste gas generated prior to the start of the project activity - $Q_{WG,BL}$ needs to be provided by the project proponent. Proper documentary evidence towards source data (manufacturer's specification) for Specific waste gas production per unit of sponge iron - $q_{wg, Product}$ needs to be provided by the project proponent. 	NIR12	NIR12 Closed Out
B.6.3. Is the vintage of the baseline data correct?	01,02	DR	Pending closure of CAR11 & NIR 12	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.7. Calculation of Emissions Reductions					
B.7.1. Has the approved methodology been applied correctly for determining emission reductions ?	01,02	DR	<p>The current version of the PDD has used the ACM0012 version 2 during determination of ex-ante emission reductions.</p> <p>But the application of the methodology is not clear –</p> <ul style="list-style-type: none"> Consideration of “Baseline efficiency of the captive power plant”, “baseline cap for the project activity” towards determination of emission reductions are not transparent, the correlation of the same with requirement of ACM0012 version 2 needs to be further substantiated. The input factors used and sources of the input factors used towards ex-ante emission reductions calculations are not clearly provided. <p>The excel sheet for calculation of emission reductions is required to be submitted along with evidences for the assumptions used.</p>	CAR 13	CAR 13 Closed out
B.7.2. Are the emission reduction calculations documented in a complete and transparent manner?	01,02	DR	Pending closure of CAR 13	Pending	Y
B.7.3. Have conservative assumptions been used to calculate emission reductions?	01,02	DR	Pending closure of CAR 13	Pending	Y
B.7.4. Is the projection based on provable input parameter?	01,02	DR	Pending closure of CAR 13	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.7.5. Is the projection based on same procedures as used for later monitoring or acceptable alternative models?	01,02	DR	The ex-ante projection is based on same procedures as used for ex-post monitoring, following ACM012 version02.	Y	Y
B.7.6. Is the calculation of the emission reduction correct?	01,02	DR	Pending closure of CAR13	Pending	Y
B.8. Emission Reductions					
B.8.1. Will the project result in fewer GHG emissions than the baseline scenario?	01,02	DR	Pending closure of CAR13	Pending	Y
B.8.2. Is the form/table required for the indication of projected emission reductions correctly applied?	01,02	DR	The table at section A.4.4 and B.6.4 required for the indication of projected emission reductions has been applied correctly in accordance with the Guidelines for completing the project design document (CDM-PDD) version 6.2, as the description of the crediting period years are clear.	Y	Y
B.8.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	01	DR	According to the current version of the PDD, The project activity has not yet been implemented and start date of 10 years fixed crediting period mentioned would be 01/04/2009 or subsequent to the date of registration of the project, which ever is later, which is a future date, however representation of emission reduction projections during the 10 years fixed crediting period has been properly described as per the yearly milestone. The projection seems to be in line with the envisioned time schedule for the project's implementation and the indicated crediting period.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.9. Monitoring Methodology					
<p>B.9.1. Does the monitoring methodology provide a consistent approach in the context of all parameter to be monitored and further information provided by the PDD?</p> <p>Are all parameters and data that is available at validation consistent with the approved methodology</p>	01,02	DR	<p>The description towards the data/ parameters monitored under section B.7.1 of the PDD has been provided in project specific customized manner correlating with ACM0012 version 2, however the description towards monitoring methodology is not entirely transparent..</p> <p>However pending closure of CAR 13.</p>	Pending.	Y
<p>B.9.2. Does the monitoring methodology apply consistently the choice of the option selected for monitoring both of project and baseline emissions?</p>	01,02	DR	<p>According to the PDD the monitoring methodology towards Baseline emissions and Project emissions has been described in accordance with ACM0012 version 02, however the description towards monitoring methodology is not entirely transparent.</p> <p>However pending closure of CAR 13.</p>	Pending	Y
B.10. Data and Parameters Monitored					
<p>B.10.1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?</p>	01,02	DR	<p>According to the PDD version 01, under section B.7.2 the parameters related to computation of f_{WG} is not transparent because Steam flow, Steam temperature and Steam pressure from WHRBs and other boilers should be measured separately to calculate the Energy content of the steam generated in WHRBs and other boilers.</p> <p>However pending closure of CAR 13.</p>	Pending.	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10.2. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	01,02	DR	According to the PDD the monitoring methodology towards Baseline emissions and Project emissions has been described in accordance with ACM0012 version 02, however the description towards monitoring methodology is not entirely transparent. Pending closure of CAR 13.	Pending	Y
B.10.3. Will it be possible to determine the specified project GHG indicators?	01,02	DR	According to the description towards the monitoring plan provided under PDD, the GHG indicators will be possible to determine, as the monitoring plan does not involve any critical parameter to be monitored or any critical monitoring equipment to be used. However the project specific description towards the monitoring plan for the project activity is not fully transparent. Pending closure of CAR 13.	Pending	Y
B.10.4. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	01,02	DR	Pending closure of CAR 13	Pending	Y
B.10.5. Is the information given for each monitoring variable by the presented table sufficient to ensure the delivery of high quality data free of potential for biases or intended or unintended changes in data records?	01,02	DR	The QA-QC procedure for all the data and parameters monitored have not been described adequately under the monitoring plan and some of the issues are not fully transparent under monitoring plan. Pending closure of CAR 14.	Pending	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.10.6. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	01,02	DR	The monitoring approach seems to deliver data with reliable and acceptable accuracy as the monitoring of the parameters would be carried out through calibrated instruments and DCS for registration would be in practice. The data recorded would further be reviewed by designated personnel with assigned roles and responsibilities. Pending closure of CAR 14.	Pending.	Y
B.10.7. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	01,02	DR	The formulae used to determine the project emission have been clearly indicated and is in compliance with the monitoring methodology.	Y	Y
B.11. Quality Control (QC) and Quality Assurance (QA) Procedures					
B.11.1. Is the selection of data undergoing quality control and quality assurance procedures complete?	01	DR	The selected data/parameters meeting the reliable QA-QC procedure through regular calibration of monitoring equipments and responsibility towards the same to be borne by the Head (Mechanical & Maintenance) is not adequately defining a thorough QA/QC process. The PP would have to define the complete procedure ensuring the selection of data undergoing quality control and quality assurance procedures in a comprehensive manner.	CAR 14.	CAR 14. Closed Out
B.11.2. Is the belonging determination of uncertainty levels done correctly for each ID in a correct and reliable manner?	01	DR	The uncertainty levels for each ID have been determined in reliable manner.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.11.3. Are quality control procedures and quality assurance procedures sufficiently described to ensure the delivery of high quality data?	01	DR	Please refer Section B.11.1. Pending closure of CAR 14.	Pending.	Y
B.11.4. Is it ensured that data will be bound to national or internal reference standards?	01	DR	The monitoring data will be clearly reproducible and comparable and will not be dependent on site-specific adjustments. How ever pending closure of CAR 14.	Pending	Y
B.11.5. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	01	DR	As per the PDD, the DCS is implemented and the dedicated CDM team developed would be involved in monitoring, reporting, and verification of the GHG performance related parameters. The Management Representatives would be evaluating the GHG performance of the project activity. How ever pending closure of CAR 14.	Pending	Y
B.12. Operational and Management Structure					
B.12.1. Is the authority and responsibility of project management clearly described?	01	DR	According to the Annex-4 of the PDD version 01, the CDM team would be overall responsible for the monitoring, reporting, performance and overall GHG calculation of the power plant.	Y	Y
B.12.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	01	DR	In the Annex-4 of the PDD the hierarchy of job responsibility for registration, monitoring, measurement and reporting is provided clearly.	Y	Y
B.12.3. Are procedures identified for training of monitoring personnel?	01	DR	The same would have to be discussed during the validation site visit.	Pending.	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13. Monitoring Plan (Annex 4)					
B.13.1. Is the monitoring plan developed in a project specific manner clearly addressing the unique features of the CDM activity?	01	DR	The monitoring plan has been developed in a project specific manner, however pending closure of CAR 14.	Pending	Y
B.13.2. Does the monitoring plan completely describes all measures to be implemented for monitoring all parameter required, including measures to be implemented for ensuring data quality?	01	DR	The monitoring plan describes the data capturing, recording and review procedures, calibration procedure for the monitoring equipments, procedures towards emergency preparedness, modalities & procedures towards periodic training of the monitoring personnel and procedures towards annual CDM internal audit, which ensures the data quality.	Y	Y
B.13.3. Does the monitoring plan provide information on monitoring equipment and respective positioning in order to safeguard a proper installation?	01	DR	According to the PDD, the monitoring plan towards the project activity provides the information regarding the Distributed control system but does not provide detailed information regarding the on site energy meters, steam flow meters, thermocouple for steam temperature and feed water temperature monitoring and pressure gauges for steam pressure monitoring, however the respective position of the respective monitoring equipments has not been mentioned. The PP would have to provide the information in the said regard.	CAR 15	CAR 15 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.13.4. Are procedures identified for calibration of monitoring equipment?	01	DR	The procedures towards periodic calibration of the monitoring equipments have been described under Section B.7.1 and Annex 4 of the PDD in a subjective manner. Pending closure of CAR 14.	Pending.	Y
B.13.5. Are procedures identified for maintenance of monitoring equipment and installations?	01	DR	No such information regarding maintenance of monitoring equipment and installations has been provided under Monitoring Plan of the PDD.	NIR 16	NIR 16 Closed Out
B.13.6. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	01	DR	The procedure identified for day to day records handling and the related performance documentation needs to be further substantiated.	NIR 17.	NIR 17 Closed Out
B.13.7. Are procedures identified for dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems??	01	DR	No such procedures towards dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems has been described under monitoring plan of the PDD.	NIR18.	NIR 18 Closed Out
B.13.8. Are procedures identified for internal audits of GHG project compliance with operational requirements where applicable?	01	DR	The procedures towards annual CDM internal Audit has been provided under Annex 4 of the PDD.	Y	Y
B.13.9. Are procedures identified for project performance reviews before data is submitted for verification, internally or externally?	01	DR	The Annex 4 of the PDD has mentioned regarding the roles and responsibilities of the designated constituents of the CDM team involved in reviewing of the GHG performance related parameters from the point of generation of data by the Shift In charge, Plant Managers and Management Representatives.	Y	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
B.14. Baseline Details					
B.14.1. Is there any indication of a date when determine the baseline?	01	DR	As per the final version of the PDD the date of completion of the application of the baseline study is 30/12/2008 mentioned under the section B.8. The baseline study has been done by Visa Steel Limited.	Y	Y
B.14.2. Is this in consistency with the time line of the PDD history?	01	DR	It seems to be consistent with the time line of the PDD history as completion date for baseline study and PDD Version 01 is 31/07/2008.	Y	Y
B.14.3. Is all data required provided in a complete manner by annex 3 of the PDD?	01	DR	Pending closure of CAR 13.	Y	Y
C. Duration of the Project / Crediting Period					
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	01	DR	The starting date of the project activity is mentioned as 28/03/2006. The expected operational lifetime of the project activity mentioned in the PDD is 25 years 0 months. Adequate documentary evidence regarding the starting date of the project activity and the expected operational life of the project activity is to be provided by the PP.	NIR 19.	NIR 19 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
C.1.2. 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)?	01	DR	As per the PDD the PP has opted for a fixed crediting period of 10 years. The expected operational lifetime of the project as mentioned in the PDD is 25 years. The starting date of the fixed crediting period has been stated as 01/01/2009 or up on registration of the project activity with the EB. The crediting period will start only after the date of registration of the proposed activity as a CDM project activity has to be ascertained by the PP.	NIR 20	NIR 20 Closed Out
C.1.3. Does the project's operational lifetime exceed the crediting period	01	DR	The expected operational lifetime of the project activity is 25 years against the fixed crediting period of 10 years opted by the PP. The starting date of the fixed crediting period has been stated as 01/04/2009. The life time of the project well exceeds the crediting period.	Y	Y
D. Environmental Impacts					
D.1.1. Does the project comply with environmental legislation in the host country?	01	DR	To be verified with the Clearances and NOCs from State Pollution Control Board, Factory License, Boiler license & Certificates, approvals for Captive Power Plant, Clearances from the Department of Irrigation. All the documents related to NOC/ Consent to operate/ approvals for operation of the plant at that project site needs to be verified during the validation site visit. Pending site visit.	Pending.	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
D.1.2. Has an analysis of the environmental impacts of the project activity been sufficiently described?	01	DR	<p>The PDD mentions the projects Impacts on the local environment and on the society as the key element of the project. The environmental impacts have been identified. As per the PDD a Rapid Environmental Impact Assessment (REIA) study has been conducted which has an Environmental Management Plan, to take care of the adverse environmental impacts. The Impact study has been carried out in three distinct phases of its implementation as Impacts during Construction, Operational Phase and Maintenance phase.</p> <p>The copy of REIA along with the EMP would have to be provided by the PP. The same would have to be verified during the site visit also.</p>	NIR 21	NIR 21 Closed Out
D.1.3. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	01	DR	Pending closure of NIR 21.	Pending.	Y
D.1.4. Will the project create any adverse environmental effects?	01	DR	<p>According to the PDD the project activity does not have any adverse environmental impacts. Consent to establish and consent to operate from the state Pollution Control Board would have to be provided by the PP during the validation site visit.</p> <p>Pending closure of NIR 21</p>	Pending.	Y
D.1.5. Are transboundary environmental impacts considered in the analysis?	01	DR	No transboundary environmental impact identified from project activity. To be verified during site visit.	Pending	Y



Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
D.1.6. Have identified environmental impacts been addressed in the project design?	01	DR	The environmental impacts have been identified and addressed in the project design. It is to be verified during the site visit.	Pending.	Y

* MoV = Means of Verification, DR= Document Review, I= Interview



Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E. Stakeholder Comments					

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E.1.1. Have relevant stakeholders been consulted?	01	DR	<p>The stake holders identified for the project activity as per the PDD are as follows:</p> <ul style="list-style-type: none"> • Village Panchayat. • Employees of VSL. • Consultants. • Equipment suppliers. • Non-Governmental Organizations (NGO). • Orissa Pollution Control Board (OPCB). • Environment Department, Govt. of Orissa. • Orissa Electricity Regulatory Commission (OERC) • Ministry of Environment and Forest (MoEF), Govt. of India. <p>The PP would have to provide information on how the above mentioned stake holders have been consulted for the said project activity. The project participants need to provide further information regarding the verbal communications made for the project activity inviting their comments and feedbacks and has there been a meeting arranged for the same, which is not clearly mentioned in the PDD. In case of appropriate media being involved to invite comments and a meeting had been organized the MoM of the LSC meeting is to be provided by the Project Proponent.</p>	NIR 22.	NIR 22 Closed Out

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	01	DR	As per the PDD the local stake holders identified have been shared with the information regarding the salient features of the project activity. The PP has explained the probable socio economic and environmental impacts of the project activity on the locality and encouraged them to provide their feedback regarding the same. The PDD has not mentioned anything regarding the mode of communication to the local stake holders inviting them for providing comments. Further the PP would have to clarify whether media was made involved for the said purpose. How ever pending closure of NIR22.	Pending.	Y
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?	01	DR	Stakeholder consultation process is not required as per regulation/laws in host country. However the project participant has consulted the local stakeholders as a significant requirement for CDM project activity. MoM of the LSC meeting is to be provided by the Project Proponent. Pending closure of NIR22.	Pending	Y
E.1.4. Is the undertaken stakeholder process described in a complete and transparent manner?	01	DR/site visit.	The same will have to be checked against proper supportive documentary evidences followed by verification during the validation site visit. How ever pending closure of NIR 22.	Pending	Y
E.1.5. Is a summary of the stakeholder comments received provided?	01	DR	The detail of comments received during local stakeholder consultation process, to be provided by the PP. The summary of stake holder comments received has been provided in the PDD.	NIR 23.	Y

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
E.1.6. Has due account been taken of any stakeholder comments received?	01	DR	As per the information provided in the PDD no negative comments were reported from the stake holders on the proposed CDM project activity. The documentary evidence in support of the claim needs to be provided. Pending closure of NIR 23.	Pending.	Y

Table 3 Additional Requirements for AR Projects

Checklist Question	Ref. ID	MoV*	Comments	Draft Concl	Final Concl
3.1 Does the PDD specifically consider impacts on biodiversity and natural ecosystems, in addition to socio-economic and environmental impacts?	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.2 Are management activities, including harvesting cycles and verification programmes chosen to avoid a systemic verification of peaks in carbon stocks?	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.3 Have the project participants indicated whether they choose to account using ICERs or tCERs as defined in Section K, paras 38 – 60 of Decision 19/CP.9	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.4 Has the project undergone international public consultation for a period to 45 days?	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.5 Have selected carbon pools been be ignored in accordance with the conditions described in Para 21 of Decision 19/CP.9 and does the project avoid double counting?	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.6 Has a project lifetime of 20 years renewable three times or 30 years been selected?	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.7 Does the monitoring plan take account of issues related to biodiversity and natural ecosystems identified elsewhere in the PDD?	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.8 Is the application of ICERs and tCERs accounting regimes consistent with Sections J and K and Decision 19/CP.9?	01	DR	The proposed CDM project activity is not an AR project.	NA	NA
3.9 Note Appendix B highlighting the differences in the PDD, the PDD template for AR projects and the guidelines, available at http://cdm.unfccc.int/Reference/Documents	01	DR	The proposed CDM project activity is not an AR project.	NA	NA

References

Reference ID	Title / Description	Comments
01	Project Design Document	This has been referred to assess the applicability of CDM Modalities, baseline and monitoring methodology with the project design.
02	ACM0012 version 02	This has been referred to assess the applicability and justification of baseline and monitoring methodology with the project design and baseline selection.
03	Tool for the demonstration and assessment of additionality – Version 5.2.	This has been referred to assess the most plausible baseline scenario selection approach and project additionality.

A.3 Annex 3: Overview of Findings

Findings Overview

Findings from validation of GHG emission reductions through waste gas based power generation at Visa Steel Limited.

Each Table below represents a finding from the validation assessment. The findings are numbered consecutively, approximately in the order that they have been identified.

Description of Table:

Type	Findings are either New Information Requests (NIR) or Corrective Action Requests (CAR). CARs are items that must be addressed before a project can receive a recommendation for registration. NIRs may lead to the raising of CARs. Observations are included at the end and may or may not be addressed. They are primarily to act as signposts for the verifying DOE.
Issue	Details the content of the finding
Ref	Refers to the item number in the Validation Protocol
Response	Please insert response to finding, starting with the date of entry.

Rows for comments and further response will be appended to the table until the Findings has been addressed to the satisfaction of the Lead Assessor.

Please Note: This is an open list and more findings may be added as validation progresses.

Date:	05/09/2008			Raised by:	Ajoy Gupta		
No.:	01	Type:	CAR	Issue :	Participation Requirements for Clean Development Mechanism-HCA	Ref.:	Table1-3
Lead Assessor Comment					Date: 05/09/2008		
Provide the Host Country Approval letter from the Indian DNA (Ministry of Environment and Forest) for the project activity.							
Project Participant Response:					Date: 13/12/2008		
The same has been provided to the Validator. Please refer to the Host Country Approval Letter (Ref. No. - 4/24/2007-CCC dated 23 January 2008) for the project activity of "GHG emission reductions through waste gas based power generation at Visa Steel Limited".							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008		
Information Provided: Host Country Approval from the Ministry of Environment & Forests (Indian DNA) Information Verified: The information provided has been verified against the document referred to provided in the form of hard copy and found acceptable.					Verified Document Reference: - Host Country Approval Letter (Ref. No.- 4/24/2007-CCC dated 23 January 2008)		
Reasoning for not acceptance or acceptance and close out: The Proponent has provided the Host Country Approval letter (Ref. No. - 4/24/2007-CCC dated 23 January 2008) from the Ministry of Environment & Forests towards the project activity. The HCA letter was provided in original during the CDM validation site visit. The title of the project activity as mentioned in the PDD web hosted for the Global Stake holders comments has been found to be in line with title mentioned in the HCA letter which was checked and verified against the document provided in the form of the hard copy provided and found acceptable. The CAR 01 was closed out.							

Date:	05/09/2008	Raised by:	Ajoy Gupta				
No.:	02	Type:	CAR	Issue :	Participation Requirements for Clean Development Mechanism-Modalities of Communication	Ref.:	Table1-6

Lead Assessor Comment	Date: 05/09/2008
Please provide the letter on Modalities of communication for the project activity.	
Project Participant Response:	Date: 13/12/2008
The Modalities of Communication for the project activity has been provided to the Validator.	
Acceptance and Close out by Lead Assessor:	Date: 16/12/2008.
Information Provided: Modalities for Communicating with the Executive Board and the UNFCCC Secretariat. Information Verified: The information has been verified against the document referred to, provided in the form of scanned copy and found acceptable.	Verified Document Reference: - Modalities of Communication dated 30.09.2008.
Reasoning for not acceptance or acceptance and close out: The Proponent has provided the information on the Modalities of Communication for the project activity with the Executive Board and the UNFCCC Secretariat in the form of a scanned copy. The information provided has been found to be in line with the detail mentioned in Annex 1 of the PDD which has been checked and verified and found correct. The CAR 02 was closed out.	

Date:	05/09/2008			Raised by:		Ajoy Gupta	
No.:	03	Type:	NIR	Issue :	Technical Description of the Project Activity- No Technology Substitution	Ref.:	A.4.8
Lead Assessor Comment					Date: 05/09/2008		
Please substantiate that the project technology is not going to be substituted by more efficient one during the entire crediting period.							
Project Participant Response:					Date: 13/12/2008.		
The project activity will follow the same technology throughout the entire crediting period. The project proponent has provided an undertaking in support of the same.							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008.		
Information Provided: -No Technology Substitution through out the entire crediting period. Information Verified: The information has been verified against the documents referred to, provided in the form of hard copy and found acceptable.					Verified Document Reference: -Undertaking for No Technology Substitution dated 20/10/2008.		
Reasoning for not acceptance or acceptance and close out: The PP has provided an Undertaking signed by the Deputy General Manager, Visa Steel Limited, dated 20/10/2008 which has specifically mentioned that the project technology will not be substituted by a more efficient one during the entire crediting period. The document provided in the form of a hard copy has been checked and verified and found acceptable. Based on the documentary evidence provided the NIR 03 was closed out.							

Date:	05/09/2008				Raised by:	Ajoy Gupta		
No.:	04	Type:	NIR	Issue :	Technical Description of the Project Activity- Implementation schedule and risk of delay.	Ref.:	A.4.11	
Lead Assessor Comment					Date: 05/09/2008			
Provide information on the schedule on the implementation of the project activity and clarify the probable risk of delay for the project implementation and its impact on emission reduction projections by the reasonably changed timelines.								
Project Participant Response:					Date: 13/12/2008			

<p>The implementation schedule for the project activity is provided below: <u>Commissioning by STG 1</u> Coke Oven units 1, 2, and 3 have been already commissioned, and unit 4 is already complete, yet to be commissioned. Blast furnace unit to be commissioned by 26.12.08 <u>Commissioning by STG 2</u> DRI-boiler 1 is already commissioned. DRI-boiler 2 to be commissioned by 30.12.08 <u>Commissioning by STG 3</u> CFBC boiler to be commissioned by 30.09.09</p>	
Acceptance and Close out by Lead Assessor:	Date: 16/12/2008
<p>Information Provided: - The Coke Oven Boiler COB#1, COB#2, & COB#3 have been commissioned and COB#4 is completed which is to be commissioned. - DRI Kiln 1 has been commissioned. - Blast furnace unit to be commissioned by 26.12.08 - DRI-boiler 2 to be commissioned by 30.12.08 - CFBC boiler to be commissioned by 30.09.09.</p> <p>Information Verified: The information has been verified against the documents referred to, provided in the form of hard copy and considered acceptable.</p>	<p>Verified Document Reference:</p> <ul style="list-style-type: none"> - Commissioning Schedule of CPP (3 x 25 MW) dated 11/11/2008 - Commissioning Details of Coke Oven Plants to Bombay Stock Exchange Limited dated 30 July 2007.
<p>Reasoning for not acceptance or acceptance and close out: The Proponent has provided a commissioning schedule of the CPP (3 x 25 MW) which specifies the actual commissioning status of the Coke oven boilers, blast furnace unit and DRI kilns. All the coke oven boilers have been commissioned has been substantiated by the PP referring to the communication made by Visa Steel Limited to the Bombay Stock Exchange Limited dated 30 July 2007. The DRI kiln-1 & 2 along with the mini blast furnace as per the commissioning schedule submitted by the Project proponent is expected to be operational by December 2008 and the emission reduction as mentioned in the PDD is from January 2009 seems to be justified.. The actual implementation status of the project activity was also verified during the validation site visit and the envisaged timeline for the power plant to be operational seems to be rational. Thus NIR (04) was closed out.</p>	

Date:	05/09/2008	Raised by:	Ajoy Gupta
No.:	05	Type:	CAR
Issue :	Project Boundary- Emission sources and gasses	Ref.:	B.2.1
Lead Assessor Comment		Date: 05/09/2008	
<p>Provide further substantiation to the following:</p> <p>Proposed project activity:</p> <ul style="list-style-type: none"> Consideration of sources of GHG emissions due to "Supplemental electricity consumption" for the project activity is not clear, as under Section B.3 Table-B.1 of the PDD, it has been mentioned that "Power consumption under emergency situation by the power plant equipments will anyway be accounted as auxiliary consumption." 			
Project Participant Response:		Date: 13/12/2008	

The project proponent wishes to provide the following clarification in support of the above issues:

Proposed Project Activity

- Consideration of sources of GHG emissions due to “Supplemental electricity consumption” for the project activity- The project proponent wishes to clarify here that electricity is consumed within the project boundary only to cater to the auxiliary electricity requirement of the power plant equipments. Under normal operational condition, the auxiliary electricity will be sourced from the project activity power plant and/or from the grid. The same will be monitored with energy meters. However under normal operational condition, the emission reductions resulting from the project activity is computed based on the quantity of electricity supplied by the project activity power plant which is determined considering the auxiliary electricity requirement of the power plant equipments. This can be substantiated with the Electricity Distribution Line Diagram of Visa Steel Limited. Therefore under normal operational condition, the project proponent is not required to consider any additional source of GHG emissions resulting from supplemental electricity consumption for the project activity.

Under extreme emergency situations wherein the project activity power plant has tripped as well as there is a grid isolation, the auxiliary electricity requirement of the power plant equipments will be met through Diesel Generator Sets and the emissions from Diesel consumption will be deducted as project emissions.

The above explanation clearly justifies the non-consideration of any additional GHG emissions due to supplemental electricity consumption for the project activity.

Acceptance and Close out by Lead Assessor:		Date: 16/12/2008
<p>Information Provided:</p> <ul style="list-style-type: none">- Summary of gasses and sources included in the project boundary and clarified where gasses and sources are not included- Other additional GHG emission source due to supplemental electricity consumption for the project activity has not been considered. <p>Information Verified:</p> <p>The information has been verified against the documents referred to, and considered acceptable.</p>		<p>Verified Document Reference:</p> <ul style="list-style-type: none">-PDD version 01 dated 31/07/2008.-ACM0012/ version 02 dated 02 November 2007.
<p>Reasoning for not acceptance or acceptance and close out:</p> <p>The Project Proponent has substantiated the following with respect to the summary of gasses and sources included in the project boundary with respect to the proposed project activity</p> <p><u>Proposed Project Activity:</u></p> <ul style="list-style-type: none">– Consideration of sources of GHG emissions due to “Supplemental electricity consumption” for the project activity. <p>The proponent has provided information that the GHG emission source due to supplemental electricity consumption for the proposed project activity has been excluded as the electricity for the auxiliary consumption under normal operational condition would be sourced from the project activity power plant and/or from the grid. The electricity supplied by the project activity power plant includes the auxiliary electricity requirement as well. The PP has further clarified that in case of emergency due to non availability of power both from the project activity power plant and the relevant grid, DG sets would provide the auxiliary power requirement of the power plant equipments and the same would be monitored and deducted as project emission which is considered acceptable.</p> <p>Hence the non consideration of other additional GHG emission source due to supplemental electricity consumption for the project activity is justified. The CAR (05) was closed out.</p>		

Date:	05/09/2008			Raised by:	Ajay Gupta		
No.:	06	Type:	CAR	Issue :	Project Boundary- Spatial and System Boundary	Ref.:	B.2.3

Lead Assessor Comment	Date: 05/09/2008
Provide further information required to confirm why the CFBC boiler which is supplying steam through the common steam header to the turbine has not been included in the project boundary	
Project Participant Response:	Date: 13/12/2008
<p>As per the Approved Consolidated Methodology-ACM0012/ Version 02, the geographical extent of the project boundary shall include:</p> <p><i>"1. The industrial facility where waste gas/heat/pressure is generated (generator of waste energy);</i> <i>2. The facility where process heat in element process/steam/electricity are generated (generator of process heat/steam/electricity). Equipment providing auxiliary heat to the waste heat recovery process shall be included within the project boundary; and</i> <i>3. The facility/s where the process heat in element process/steam/electricity is used (the recipient plant(s)) and/or grid where electricity is exported, if applicable."</i></p> <p>Therefore in accordance with the guidance of the methodology, the project boundary shall include:</p> <ol style="list-style-type: none"> 1. Waste gas generation source- For the project activity under consideration, this will include the outlet of the After Burning Chambers (ABC) of the DRI kilns, the outlet of the Mini Blast Furnace and the outlet of the Coke Oven batteries of Visa Steel Limited and the ducting system for transportation of waste gases from the respective emission sources to the power plant; 2. Waste gas utilization facility where electricity is generated- For the project activity under consideration, this will include the DRI kiln gas based WHRBs, Blast Furnace Gas (BFG) based Boiler and Coke Oven Gas (COG) based WHRBs where the respective waste gases will be utilized for generation of steam as well as the Steam-Turbo Generators where the steam will be utilized for generation of power. This will also include the equipment required to cater to the auxiliary power demand of the power plant. 3. Electricity consumption facilities- For the project activity under consideration, this will include the integrated iron and steel plant of Visa Steel Limited. <p>Therefore non-consideration of the CFBC boiler within the project boundary is in accordance with the guidance of the Approved Consolidated Methodology-ACM0012/ Version 02. The project proponent is only required to monitor the steam generated in the CFBC boiler, the temperature and the pressure of the CFBC steam just to determine the baseline emissions (and hence emission reductions) for the project activity under consideration. The same will be monitored in accordance with the guidance of the Approved Consolidated Methodology-ACM0012/ Version 02.</p>	
Acceptance and Close out by Lead Assessor:	Date: 16/12/2008
<p>Information Provided:</p> <ul style="list-style-type: none"> -The project boundary includes Waste gas generation source, Waste gas utilization facility where electricity is generated, Electricity consumption facilities. - Non-consideration of the CFBC boiler within the project boundary. <p>Information Verified:</p> <p>The information has been verified against the documents referred to and considered acceptable</p>	<p>Verified Document Reference:</p> <ul style="list-style-type: none"> -PDD version 01 dated 31/07/2008. -ACM0012/version 02.
<p>Reasoning for not acceptance or acceptance and close out:</p> <p>The PP has clarified the project boundary referring to the approved consolidated methodology (ACM0012/version 02) applied that the waste gas generation source for the project activity under consideration includes the outlet of the After Burning Chambers (ABC) of the DRI kilns, the outlet of the Mini Blast Furnace and the outlet of the Coke Oven batteries of Visa Steel Limited and the ducting system for transportation of waste gases from the respective emission sources to the power plant. Further the Waste gas utilization facility where electricity is generated and Electricity consumption facilities have been included in the project boundary which is as per the approved methodology. The same has been checked and verified in the project boundary as depicted in the PDD version 01 dated 31/07/2008. The CFBC has not been considered in the project boundary and requirement of the steam generated in the CFBC and its respective monitoring for the purpose of arriving at the baseline emission and the emission reduction for the project activity is justified and considered acceptable. Hence CAR (06) was closed out.</p>	

Date:	05/09/2008	Raised by:	Ajoy Gupta				
No.:	07	Type:	CAR	Issue :	Identification of the Baseline Scenario	Ref.:	B.3.1
Lead Assessor Comment					Date: 05/09/2008		
<p>The selection of the most plausible and conservative baseline scenario needs to be further substantiated on the basis of following issues –</p> <ul style="list-style-type: none"> • Non availability of natural gas distribution network in eastern region of the country needs to be further substantiated with traceable references. • All the assumptions used to arrive at the unit cost of power generation for the selected baseline scenarios, i.e.; grid power, power generation from coal based captive power plant along with traceable references. • Further information and substantiation are required to confirm whether or not the CFBC boiler which is supplying steam to the same turbine through a common steam header would have been installed in the absence of this CDM project activity. 							
Project Participant Response:					Date: 13/12/2008		
<p>The project proponent wishes to provide the following clarifications for the above issues:</p> <ul style="list-style-type: none"> ▪ <u>Non availability of natural gas distribution network in eastern region of the country-</u> The natural gas availability in India is very much limited to Western India and in North-East Indian states with practically no availability in Eastern India. The same can be substantiated with natural gas availability as published by the Ministry of Petroleum and Natural Gas, Government of India at http://petroleum.nic.in/ng.htm. ▪ <u>All the assumptions used (cost of grid power, cost of power generation from coal based power plant as estimated by VSL) towards capital cost investment and cost of power generation for the project activity</u> – The unit power cost in case of import of power from the grid, generation of power in a coal based captive power plant and in the project scenario for Visa Steel Limited were calculated by a third party renowned power plant consultant- M/s. Development Consultants Private Limited. All the assumptions used for unit power cost computation have been provided by the Consultant based on standard industrial practices and norms. The report on unit power cost computation by M/s. Development Consultants Private Limited has been provided to the Validator. Please refer to the letter from M/s. Development Consultants Private Limited to Visa Steel Limited in this regards (Ref. No.-DCPL-01105/PC-7/CHEM/5273A dated 15th June 2005). ▪ <u>Further information and substantiation on installation of CFBC boiler-</u> The project proponent has considered the following three options for catering to the power demand of the integrated iron and steel plant of Visa Steel Limited namely <ul style="list-style-type: none"> - Import of entire power from the grid, - Installation of a coal based power plant with CFBC boiler and - Installation of the project activity power plant with surplus waste gases along with a CFBC boiler for partial generation of power and the import of remaining power from the grid <p>Accordingly the project proponent has requested a third party renowned power plant consultant- M/s. Development Consultants Private Limited for computation of unit power cost for all these options. As per the feedback received from the Consultant, the unit power cost in case of power generation in a coal based power plant was found to be the lowest. The same has been elaborated in Section B.4 of the Project Design Document. Therefore in absence of the project activity, a coal based power plant with CFBC boiler would have been installed to generate steam and subsequently power to cater to the power requirement of the integrated iron and steel plant of Visa Steel Limited. The same can also be evidenced from the discussion of the Board of Directors of Visa Steel Limited before the approval of the project activity under consideration. Please refer to the 'Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited', dated 25th June 2005.</p>							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008.		

<p>Information Provided:</p> <ul style="list-style-type: none"> -Non availability of the natural gas in the eastern region of the country. - Least cost option for the unit power cost of generation is coal based captive power plant. - Assumptions considered for computation of unit cost of power generation along with the traceable source for both the base case and the project case. <p>Information Verified:</p> <p>The information has been verified against the documents referred to and considered acceptable.</p>	<p>Verified Document Reference:</p> <ul style="list-style-type: none"> -http://petroleum.nic.in/ng.htm. - Ref No.DCPL-01105/PC-7/CHEM/5273A dated 15 June 2005. - Visa Letter dated 19/05/2005. - Minutes Of Meeting of the Board dated 25 June 2008.
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Reasoning for not acceptance or acceptance and close out:

The Proponent has provided information on the availability of the natural gas in the country region wise referring to the web site of Ministry of Petroleum and Natural Gas, Government of India, publicly available. The web link was accessible and clearly mentions regarding the predominant availability of the natural gas which is in the western and north eastern parts of the country. It does not where mention the availability of natural gas in the eastern part of India. Hence the non availability of natural gas in the eastern part is justified and considered acceptable.

The PP has provided the Computation of unit power cost for Visa Steel Limited assessed by a third party power plant consultants, M/s Development Consultants Private Limited as per Letter ref no. DCPL-01105/PC-7/CHEM/5273A dated June 15, 2005 in the form of a hard copy document. The unit power cost of generation for the baseline alternative scenarios such as the entire power sourced from grid, entire power generated in a coal based captive power plant and partial power generation with surplus by product waste gasses along with installation of a CFBC boiler and the remaining power being sourced from the grid are INR 3.20/kWh, INR 2.09/kWh and INR 2.27/kWh respectively. The assumptions applied in computing the unit power cost of generation for the alternatives identified by the third party power plant consultant was checked as follows:

Unit Power Cost for coal based captive power plant:

1. The Auxiliary consumption has been considered 10% adopted from the Central Electricity Authority data. (Performance Review of Thermal Power Stations 2001-02 & 2003-04, Section-11 PAGE NO 11. 1), which provides data on auxiliary power consumption in thermal power stations and found acceptable. The same could be accessed through the web link:
http://www.cea.nic.in/god/opm/Thermal_Performance_Review/0102/Sec11%20fin_lo777.pdf
http://cea.nic.in/god/opm/Thermal_Performance_Review/0304/sec11f%7E2.pdf
2. The efficiency of the power plant has been considered from the supportive documents as provided by M/s DCPL & Desein Private Limited as 30% & 28% respectively, the higher of the two as 30% have been adopted. The same was checked against the documents referred to and considered acceptable. The same was also checked and verified against the document made publicly available as per the web link:
http://cea.nic.in/god/opm/Thermal_Performance_Review/0203/sec-13_sush.pdf.
3. The calorific values of coal fines, coal char and coal are 3600, 2000 and 3200 kCal/kg was referred from the Test certificates issued by the NABL accredited Laboratory Inspectorate Griffith India Private Limited, Bhubaneswar [Test Report No. IGI/BBSR/TC/08-09/SUM/003(C&C) dated 13/11/2008 & IGI/BBSR/TC/08-09/SUM/004 (C&C) dated 13/11/2008.]
4. Coal fine cost value was applied appropriately as the E-Grade coal ex-mine cost which was checked and verified against the information provided by Coal India limited which could be accessed through the web link:
<http://www.coalindia.nic.in/pricing.htm>, last accessed on 14 December 2008.
5. Coal Char Cost was not considered as generated in-house, and hence considered accepted.
6. Coal Cost considered as INR 1153/- was checked from the web link of coal India Limited:
<http://www.coalindia.nic.in/pricing.htm> as INR 440/- administered price for F-Grade coal from MCL and other related taxes and duties as applicable comes out to be INR 553/- and the transportation cost INR 600/-, approximately considered which was checked against the transportation cost provided by the Truck Owner's association dated 13-06/2008 and found appropriately applied.
7. Total utility cost (water and chemicals) calculated as INR 0.05/kWh.
8. The total cost per MW in a thermal power plant has been adopted as 4 Crore made available publicly in the web site: <http://www.hinduonnet.com/businessline/2003/08/05/stories/2003080501650200.htm> of the News Daily Hindu on 05 August 2003 and found correct.
9. Debt: Equity as 70:30 considered against the guidelines provided by the CERC (No. L-7/25(5)/2003-CERC 26th March 2004 accessible through the web link:
http://www.cercind.gov.in/28032004/finalregulations_terms&condition.pdf, last accessed on 14 December 2008 and found to have been applied correctly..
10. Interest on Loan has been taken as average from Oriental Bank of Commerce and State Bank of India which is 12.25% & 8% respectively, checked and verified against the hard copy documents provided.

11. The Return on Equity has been considered 12% approximately as per SBI PLR of 10.25% plus country risk premium of 3.75% Source: which was checked through the web link: <http://www.hindu.com/2003/12/30/stories/2003123003331800.htm> & http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html
12. Depreciation value of Factory Buildings as 3.34% and Plant and Machinery as 5.28% has been adopted from the Company's act schedule checked and verified against the document made publicly available http://www.mca.gov.in/MinistryWebsite/dca/actsbills/pdf/Companies_Act_1956_Part_2.pdf and found appropriately applied.
13. Operation & Maintenance cost has been considered 2.5% of the Total project cost which is approximately equal to that provided in the CERC guidelines http://www.cercind.gov.in/28032004/finalregulations_terms&condition.pdf and found to have been appropriately applied.

Grid power Cost:

The assumption regarding the Grid Power Cost per unit as INR 3.20 has been cross verified against the invoice raised by North Eastern Electric Supply CO. of Orissa during the construction phase of the project activity, and found appropriate..

Project case:

The waste heat recovery based power plant cost per KW was checked against the information provided through the web link made publicly available which was last accessed on 14 December 2008 and found to have appropriately referred. The weblink is http://www.wowenergies.com/images/IETC_May_2007.pdf.

Based on the out come of the unit cost comparison of all the three alternatives identified, generation of power by implementing a coal based captive power plant is found to be the least cost option and hence accepted as the most plausible baseline scenario.

The Proponent has provided information on the issue of installation of a CFBC boiler in the absence of the CDM project activity the three options considered on the way to opt for the current project activity to cater to the partial power requirement for the integrated iron and steel plant of M/s Visa steel limited. The three options available to the proponent are import of entire power from grid, installation of a coal based captive power plant with CFBC boiler and installation of the project activity power plant with surplus waste gasses generated as process by-product along with the installation of a CFBC boiler to generate steam and subsequently power and the import of remaining power from the grid. Based on the outcome of the assessment for the unit power cost of generation carried out by a third party power plant consultant, M/s Development Consultants Private limited, the least cost option is installation of a coal based captive power plant. Thus the claim of consideration of installing a coal based captive power plant based on the least cost option of unit power generation in absence of the CDM project activity seems to be justified. The Project Proponent has provided documentary evidence in the form of a hard copy of the Extracts of the Minutes of the Forty Third Meeting of the Board of Directors of Visa Steel Limited held at Visa House on 25 June 2005 in support of the same. The information on the unit power cost for Visa Steel Limited has been further substantiated against the document provided by the third party power plant consultants, Development Consultants Private Limited (Ref No.DCPL-01105/PC-7/CHEM/5273A) dated 15 June 2005 for computation of unit power cost of Visa Steel Limited. The least cost option for unit power generation could be checked and verified and found in line, hence considered acceptable.

Based on the documentary evidences provided the CAR 07 was closed out.

Date:	05/09/2008			Raised by:	Ajoy Gupta		
No.:	08	Type:	CAR	Issue:	Additionality	Ref.:	B.4.3
Lead Assessor Comment					Date: 05/09/2008		

The consistency of the project start date with the discussion of the project additionality is not transparent.

- Project proponent needs to substantiate along with reliable evidences that they had prior knowledge about CDM modalities before they have considered the CDM revenue to mitigate the project risk.
- How and when the CDM was taken into serious consideration in the decision to go ahead with the project activity is not clear and the same has to be properly substantiated.
- Please explain how the benefits of the CDM were considered as a decisive factor in the decision to proceed with the project and justify the delay in the CDM process till date.

Project Participant Response:

Date: [13/12/2008](#)

- The project proponent wishes to provide the following clarifications for the above issues:
- *Project Proponent's prior knowledge about CDM-* The Management of Visa Steel Limited was aware of CDM concept and its modalities before the approval of the project activity. In March 2005, the Indian Chamber of Commerce (ICC) (<http://www.indianchamber.net/events/eventArchive.asp?cid=7#>) had invited executives from Visa Steel Limited to attend a full day workshop on Clean Development Mechanism: Opportunities & Benefits. Representatives of Visa Steel Limited had attended the workshop on 29 March 2005. The copies of the invite and acceptance of invitation have been submitted to the Validator. This explains the background knowledge of the project proponent about CDM modalities.
- *CDM Consideration-* As elaborated under CAR-10, the project proponent has considered three options for procurement of power to meet the power requirement of the integrated iron and steel plant of Visa Steel Limited. Accordingly the project proponent has requested a third party renowned power plant consultant- M/s. Development Consultants Private Limited for computation of unit power cost for all these options. Based on the feedback received from the Consultant, the Board of Directors of Visa Steel Limited could understand the installation of a coal based power plant would be the most economically attractive and reliable option for sourcing of power. However the project activity of utilization of surplus waste gases for power generation can be conceived as a climate change initiative under the Kyoto Protocol and with the expected CDM revenue, the power cost in the project scenario would be lower than the power cost in case of a coal based power plant. The same was discussed in the Forty Third Meeting of the Board of Directors of Visa Steel Limited on 25th June 2005 and decision was taken to proceed with the implementation of the project activity as a climate change initiative with CDM revenue under consideration. The 'Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited', dated 25th June 2005, where the project activity was approved with CDM revenue consideration, has been provided to the Validator.
- *Consideration of CDM as a decisive factor-* As discussed above, based on the feed back received from the third party renowned power plant consultant- M/s. Development Consultants Private Limited on unit power cost for the three plausible options, the Board of Directors of Visa Steel Limited could understand the installation of a coal based power plant would be the most economically attractive and reliable option for sourcing of power. However the project activity of utilization of surplus waste gases for power generation can be conceived as a climate change initiative under the Kyoto Protocol and with the expected CDM revenue, the power cost in the project scenario would be lower than the power cost in case of a coal based power plant. The same was discussed in the Forty Third Meeting of the Board of Directors of Visa Steel Limited on 25th June 2005 and decision was taken to proceed with the implementation of the project activity as a climate change initiative with CDM revenue under consideration. The 'Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited', dated 25th June 2005, where the project activity was approved with CDM revenue consideration, has been provided to the Validator.
- *Justification of the delay in the CDM milestones of Visa Steel Limited-* The following table justifies the chronology of events for the CDM project of Visa Steel Limited.

Chronology of Events for "GHG emission reductions through waste gas based power generation at Visa Steel Limited"			
Milestone	Date	Supportive Document	Comment
Project approval by the Management of M/s. Visa Steel Limited	25-Jun-05	Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited	
Interactions with CDM Consultants	July-November 2005	Communications with CDM Consultants	
Placement of Work Order to CDM Consultant	3-Nov-05	Work Order	Selection of CDM Consultant based on their expertise for development of similar methodologies. The appointed CDM Consultant has developed a methodology 'NM0031: OSIL-10MW Waste Heat Recovery Based Captive Power Project'-Similar to the project activity under consideration.
Submission of new methodology in Round-15 by the appointed CDM Consultant in the name "NM0179: Waste Heat Recovery based Steam and Power Generation"	May-06	http://cdm.unfccc.int/methodologies/PAmethodologies/publicview.html?single=1&OpenNM=NM0179	As the methodology NM0031 (which was approved as ACM0004) was not applicable for projects where electricity is generated with both waste gas and fossil fuels (similar to the project activity under consideration). Furthermore AM_REV_0033 could not be followed as the same is applicable only when steam generated with waste gas and fossil fuel are fed to a single turbine whereas the project activity comprises of three turbines.
Requesting quotations from Validators	13-Mar-07	Communications to the Validators	
Approval of NM0179 as ACM0012/ Version 01	6-Jul-07	http://cdm.unfccc.int/methodologies/DB/3YL5T8ATMB8NTD9HEBU42EP6OJLAY4/view.html	
Preparation of PDD and PCN in accordance with ACM0012/ Version 01	July-October 2007		
Requesting revised quotations from Validators	27-Sep-07	Communications to the Validators	
Submission of PDD to Ministry of Environment & Forests (MoEF), Government of India	23-Oct-07	Forwarding Letter to MoEF, GOI	
Appointment of Validator	3-Dec-07	Contract with M/s. SGS	As M/s. SGS has already faced similar problem in their project validation related to waste gas metering
Presentation at Ministry of Environment & Forests (MoEF), Government of India	8-Jan-08	Host Country Approval Letter (Ref. No.-4/24/2007-CCC)	
Receipt of Host Country Approval Letter	23-Jan-08		
Discussion with Validators on waste gas measurement (as required by ACM0012/ Version 02)	Until April 2008		M/s. SGS has sought for a Clarification to Meth Panel of UNFCCC on waste gas measurement on 18 January 2008 (Reference: http://cdm.unfccc.int/UserManagement/FileStorage/WVN062D42DP04OWKMZ5PH1Q10FOMZV)
Clarification provided by Meth Panel against the Clarification raised by M/s. SGS on waste gas measurement	7-11 April 2008	AM_CLA_0077 (http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_GU59XMKV6RS6RXL25B0HBWHAP30)	
Revision of PDD in accordance with ACM0012/ Version 02 and AM_CLA_0077	Jun-08		
Review of PDD by M/s. Visa Steel Limited and finalisation of PDD for submission to Validator	Jul-08		After detailed assessment of all the aspects of monitoring
Publication of PDD for Global Stakeholder Consultation	7 August 2008-5 September 2008		
Acceptance and Close out by Lead Assessor:		Date: 16/12/2008.	

<p>Information Provided:</p> <ul style="list-style-type: none"> -Project approval by the management of VISA steel limited on 25 June 2005. -CDM Mile stone activities and justification for the delay. <p>Information Verified:</p> <p>The information provided by the proponent has been verified against the document and the analysis spread sheet and found to be satisfactory</p>	<p>Verified Document Reference:</p> <ul style="list-style-type: none"> -PDD version 02 dated 21/11/2008. -Enquiry letter dated 19.05.2005. -Ref No. DCPL-01105/PC-7/CHEM/5273A dated June 15, 2005 -Extracts of the Minutes of the Forty Third meeting by the Board of Directors of Visa Steel Limited dated 25 June 2005. <p>-</p>
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Reasoning for not acceptance or acceptance and close out:

The Project participant has provided information on the following:

Project Proponent's prior knowledge about CDM: The project proponent has provided documentary evidence in the form of a hard copy of a invitation letter signed by the Secretary General-Indian Chamber of Commerce, Calcutta issued to the Chairman-Visa International Limited informing him about the full day workshop on "Clean Development Mechanism: Opportunities and Benefits" to be organized on 29th March 2005, at 9:00 A.M at Oberoi Grand. The letter has mentioned on the objective of such a workshop as to map the opportunities and benefits associated with the Climate Change and requested to nominate Executives for the workshop. The acknowledgement letter dated 21 March, 2005 mentioning the interest of Visa along with the receipt of participation fees towards the Workshop organized by the Indian Chamber of Commerce-Calcutta has also been provided in the form of a hard copy document which could be checked and verified and considered acceptable. The web link provided by the Participant in support of the information provided to substantiate the issue of prior knowledge of the Participant regarding the CDM <http://www.indianchamber.net/events/eventArchive.asp?cid=7#> could be accessed and the information provided on the said workshop on the CDM: Opportunities and Benefits has been found to be mentioned in the Event calendar made publicly available [Site Maintained by : ICC Informatics (A Division of Indian Chamber of Commerce)] found consistent. Thus attending the work shop on CDM held on 29 March 2005 and being aware of the modalities followed by consideration of the costlier option of generating power along with the associated risks prevailing, mitigating the same with the revenues from the sale of carbon credits and going ahead with the decision in taking up the project activity seems to be rational and is hereby considered acceptable. The work shop on CDM organized by The Indian Chamber of Commerce-Calcutta was attended by Visa on 29 March 2005, enquiry sent to the renowned power plant consultant M/s Development Consultant Private Limited to compute the unit cost of power for all the options available to the proponent to meet the partial in-house requirement of electricity on 19 May 2005, the computation of the unit power cost for all the three options available to the Proponent by M/s Development Consultants Private Limited on 15 June, 2005 (Letter Ref No. DCPL-01105/PC-7/CHEM/5273A dated 15 June, 2005) and finally the 'Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited', dated 25th June 2005, where the project activity in spite of being a costlier option for power generation along with the associated risks was approved with CDM revenue consideration, has been provided in the form of a hard copy document is found to be rational and justified and hence considered acceptable.

CDM Consideration: The proponent has considered three options of meeting the in-house requirement of electricity for the integrated iron and steel plant of Visa Steel limited at Kalinganagar, Orissa. A third party power plant consultant M/s Development Consultant Private Limited was appointed to compute the unit power cost for all the three options. The Participant has provided the enquiry letter issued to M/s Development Consultant Private Limited signed by the Chief Financial Officer on behalf of Visa Steel dated 19.05.2005 to determine the unit power cost for all the three scenarios of power generation to cater to the in-house requirement of the plant in the form of a hard copy document, which was checked and verified and considered acceptable. In response to the enquiry M/s Development Consultant Private Limited had provided Visa Steel Limited the computation of the unit power cost for all the three scenarios. The document in the form of a hard copy has been provided by the proponent (Ref No. DCPL-01105/PC-7/CHEM/5273A dated June 15, 2005) which was checked, verified and considered acceptable. The outcome of the computation reveals that installation of a coal based captive power plant being least cost option is the most attractive and reliable option economically. Based on the documentary evidence provided by M/s Development Consultants Private Limited in support of the claim by the proponent, it is hereby considered acceptable. The unit cost of power generation in the project case in spite of being a costlier option along with existing elements of uncertainty could only be considered based on the revenues from the sale of the carbon credits seems to be justified. The Board note in the form of the 'Extracts of the Minutes of the Forty Third Meeting of the Board of Directors, Visa Steel Limited', dated 25th June 2005, where the project activity was approved with CDM revenue consideration, has been provided in the form of a hard copy document which has been considered acceptable on checking and verification.

Justification for the delay and the CDM mile stone activities:

The proponent has provided information on the chronology of events for the CDM project mile stone activities:

The Proponent has provided hard copy document towards consideration of the CDM and Project approval by the Visa Management as Extracts of the Minutes of the forty third Meeting of the Board of Directors, Visa steel Limited on 25 June 2005. This was checked and verified and considered acceptable.

The PP has further provided information that during the period July- November 2005, the Participant was interacting with the CDM consultants. In support of the claim the participant has provided an email communication from Sabina Pandey, Sustainable Business Solutions- Pricewaterhouse Coopers Private Limited to Mr. Manoj Digga of the Visa Group, on 17 October 2005 which has categorically mentioned that the query on CDM would be addressed by PWC shortly. Further the Work Order placed on M/s Ernst & Young Private Limited to provide CDM consultancy services (Letter ref no. VSL/CDM/LOA/08 & 09 dated 03 November 2005), clearly defining the scope of work in this regard specified have been provided in the form of a scanned document. The document refers to the discussions on the CDM consultancy services with Visa on 25 October 2005. Thus the claim of the Participant that during the period July to November 2005 the CDM consultants were interacted with and the documentary evidence of the communication with the consultants namely PWC and Ernst & Young furnished seems to be justified and may be considered acceptable. The PP has referred to the official web link of the UNFCCC regarding the Submission of new methodology NM 0179 for Waste Heat Recovery Based Steam and Power Generation dated 08/05/2006.

http://cdm.unfccc.int/methodologies/PAMethodologies/publicview.html?meth_ref=NM0179 Hence the justification towards the delay till May 2006 for the Participant awaiting the proposed new methodology to come into force replacing the earlier methodology ACM0004 which did not had clear guidelines towards the steam apportioning in case of steam being generated from both the Waste heat recovery based boilers and fossil fuel combustion based boilers, fed to the common steam header thereafter generating power seems to be justified and is therefore considered acceptable.

The Proponent has provided the email communication of their appointed consultant Ernst & Young on behalf of Visa to the DOE, requesting to have the quotes for two projects with Visa Steel on 13 March 2007. The time gap since the proposed new methodology ACM0012 version 01 replacing the earlier methodology ACM0004 available for the waste heat recovery projects coming into force and valid from 06 July 2007 to 01 November 2007 followed by version 02 which came into force and is valid from 02 November 2007 to 15 August 2008 which is the version of the methodology against which the initial version of the PDD dated 31/07/2008 was drafted and web hosted inviting global stake holders comments. The same was checked and verified against the official web link of the UNFCCC and information made publicly available <http://cdm.unfccc.int/methodologies/DB/3YL5T8ATMB8NTD9HEBU42EP6OJLAY4/view.html>

The claim of the Proponent of the time period from July- October 2007 being involved in the preparation of PDD and PCN in accordance with ACM0012/version 01 seems to be justified as the methodology came into force valid from 06 July 2007.

A Copy of Email communication to SGS on 27/09/2007 requesting revised quotations for validation of the project against methodology ACM0012 from validator was provided by the Proponent which was checked and found correct.

A forwarding letter to MoEF, Govt of India, dated 23.10.2007 for Submission of PDD to the Ministry of Environment and Forests was checked and found correct.

The Appointment of Validator was cross checked with the Contract with SGS UK dated 28.11.2007 and found correct. Presentation at Ministry of Environment and Forests was checked with the Invitation letter issued by MoEF on 08.01.2008.

The Receipt of Host Country Approval letter on 23.01.2008 Host Country Approval Letter (Ref. No. - 4/24/2007-CCC dated 23 January 2008).

The clarification provided by the Meth panel against clarification sought by M/s SGS available at UNFCCC website: http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_GU59XMKV6RS6RXDL25B0HBHWHAP30 during 7-11 April 2008 was checked and found correct.

Finally publication of PDD for Global Stake holders Consultation from 07 August 2008 – 05 September 2008 available at UNFCCC website: <http://cdm.unfccc.int/Projects/Validation/DB/PCMDYRFPJ5J3KOU53BOX14JT43AMWK/view.html> which was cross checked against the web site and found correct.

With reference to the above mentioned chronology of the project milestone activities and the supporting documents, it has been found justified that CDM revenue was considered in the decision to implement the project activity and project participant has demonstrated continued and real actions were taken to secure CDM status for the project in parallel with its implementation as per guidelines set in EB41 Annex 46.

Thus CAR 08 was closed out.

Date:	05/09/2008				Raised by:	Ajoy Gupta		
No.:	09	Type:	CAR	Issue :	Additionality		Ref.:	B .4.5.
Lead Assessor Comment					Date: 05/09/2008			
Please provide the Investment comparison analysis calculation sheet as well as sensitivity analysis calculation procedure with clarification of chosen variation.								
Project Participant Response:					Date: 13/12/2008			
<p>The project proponent wishes to provide the following clarifications for the above issues:</p> <ul style="list-style-type: none"> <u>Investment Comparison Analysis and Sensitivity Analysis</u>- The Investment Comparison Analysis and the Sensitivity Analysis for the different alternatives available to Visa Steel Limited were carried out by a third party renowned power plant consultant- M/s. Development Consultants Private Limited. The detailed calculation procedure, as provided to Visa Steel Limited by the Consultant, has been submitted to the Validator. Please refer to letter from M/s. Development Consultants Private Limited to Visa Steel Limited in this regards (Ref. No.-DCPL-01105/PC-7/CHEM/5273A dated 15th June 2005). <p>The Sensitivity Analysis for the unit power cost was carried out by the third party renowned power plant consultant- M/s. Development Consultants Private Limited with variation in coal price, grid power purchase cost, net power generated with waste gases and their suitable combinations. The range of variation for coal price and grid power purchase cost have been selected through a trend analysis on past records. The variation in net power generation with waste gases will depend on availability of waste gases from the different operational units <i>i.e.</i> DRI kilns, Blast Furnace and Coke Ovens of Visa Steel Limited. In determining the unit power cost in the project scenario, the net power generated with waste gases has been calculated based on realistic availability of waste gases from these operational units as indicated by the suppliers. The waste gas generation from these operational units, as considered in the determination of net power generated with waste gases, will not vary significantly as the same is determined based on output capacity of the operational units. This can further be substantiated with actual waste gas generation data of two of the operational units which have been commissioned <i>i.e.</i> Blast Furnace and Coke Ovens (the same has been provided to the Validator). This will justify the range selected by the Consultant for net power generated with waste gases in the Sensitivity Analysis.</p>								
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008.			
<p>Information Provided: -Sensitivity Analysis for the different alternatives available to VISA steel limited with variation in coal price, grid power purchase cost, net power generated with waste gases and their suitable combinations.</p> <p>Information Verified: The information provided by the proponent has been verified against the document and the analysis spread sheet and found to be satisfactory.</p>					<p>Verified Document Reference: -PDD version 02 dated 21/11/2008. -EB Guidance on the assessment of investment analysis (version 02) http://cdm.unfccc.int/EB/041/eb41_repan45.pdf -Sensitivity analysis work spread sheet.</p>			

Reasoning for not acceptance or acceptance and close out:

The PP has provided a sensitivity analysis work spreadsheet in soft copies for comparing the various alternatives available for Visa Steel Limited which has been carried out by a renowned third party power plant consultant, M/s Development Consultants Private Limited. The summary of the outcome of the analysis has also been included in the PDD version 02 dated 21/11/2008. The sensitivity analysis for the unit power cost has been carried out with a variation in coal price, grid power purchase cost, net power generated with waste gasses along with their suitable combinations. A variation of 10% is considered in the coal price and the grid power cost per unit based on the past trend and a variation of 5% in case of waste gas generation based on uncertainty in generation and availability of waste gasses, which is in accordance with the Guidance on the Assessment of Investment Analysis as per the EB 41, Annex 45. In accordance to the Guidance provided by the UNFCCC EB, the variables considered in computing the sensitivity analysis has shown considerable material impact on the unit power cost both in base case as well as in the project case in spite of %age variation considered being below 20%, hence found correctly adopted and applied. The results of sensitivity analysis against the unit power cost of generation for the base case (coal based captive power plant) and the project case and taking variation of the different essential parameters and a combination of them which has been checked and verified and considered acceptable. Based on the analysis provided, checked and verified the CAR (09) is closed out.

Date:	05/09/2008			Raised by:		Ajoy Gupta			
No.:	10	Type:	CAR	Issue:	Additionality			Ref.:	B.4.7
Lead Assessor Comment						Date: 05/09/2008			
<ul style="list-style-type: none">• The analysis of the other activities implemented previously or currently underway similar to the proposed project activities in the context of national and State (Orissa) scenario without CDM modalities needs to be substantiated more clearly with proper direct traceable references.• The UN reference number of similar Registered CDM project activity needs to be provided by the project proponent for transparent traceability of the fact.• The similar activities are required to be identified properly and the project proponent needs to demonstrate why the existence of those identified activities does not contradict the claim that the proposed project activity is financially unattractive or subject to barriers.									
Project Participant Response:						Date: 13/12/2008			

The project proponent wishes to provide the following clarifications for the above issues:

- Analysis of other activities- The analysis of similar activities implemented previously or currently underway similar to the project activity under consideration has been elaborated under 'Step 4: Common practice analysis' of Section B.5 of the Revised PDD/ Version 02. For this purpose, the project proponent has considered the power generation practice being followed in the integrated iron and steel plants (like Visa Steel Limited) in India. As per this analysis, there are 12 integrated iron and steel plants in India (excluding the project activity plant). Out of these 12 integrated iron and steel plants, 7 plants are generating power with fossil fuels (the details of the same have been provided in the Revised PDD/ Version 02). The remaining 5 plants are generating power partially with waste gases and all of them have been conceptualized with CDM revenue under consideration (the details of all these projects in the CDM cycle are provided in the Revised PDD/ Version 02). This justifies that in absence of CDM revenue, waste gas based power generation practice has no penetration in the Indian integrated iron and steel sector and is therefore not a common practice.
- UN Reference for similar registered projects- As discussed above, 5 out of 12 integrated iron and steel plants (excluding the project activity plant) in India have implemented waste gas based power generation facility to partially cater to their power requirement. Out of these 5 plants, 3 plants (namely, Rourkela Steel Plant (RSP) of Steel Authority of India Limited (SAIL), JSW Steel Limited and Jindal Steel & Power Limited) have already got their projects registered with UNFCCC. The UNFCCC Reference Numbers for these three registered projects have been incorporated in the Revised PDD/ Version 02. Please refer to 'Step 4: Common practice analysis' of Section B.5 of the Revised PDD/ Version 02.
- Comparison with similar activities- As discussed above, 5 out of 12 integrated iron and steel plants (excluding the project activity plant) in India have implemented waste gas based power generation facility to partially cater to their power requirement *i.e.* similar to the project activity under consideration. Details of the same have been provided in 'Step 4: Common practice analysis' of Section B.5 of the Revised PDD/ Version 02. However this is to be clarified that all these waste gas based power generation projects have been developed with CDM revenue under consideration. 3 out of these 5 plants, have already got their projects registered with UNFCCC (as mentioned above) and the remaining 2 (namely Tata Steel Limited and Adhunik Metaliks Limited) are in the advanced stage of registration (*i.e.* at the validation stage). This justifies that in absence of CDM revenue, these projects could also not have been implemented as like the project activity under consideration. Therefore the existence of these similar projects do not contradict, rather support, that the project activity under consideration could not have been implemented in absence of CDM revenue because of its economic unviability and the barriers being faced.

Acceptance and Close out by Lead Assessor:		Date: 16/12/2008
<p>Information Provided:</p> <ul style="list-style-type: none"> - There are 12 numbers of integrated iron and steel plants operational in India excluding the Visa Steel Limited. - Out of them five integrated iron and steel plants have implemented waste heat recovery based power plant to cater to their partial electricity requirements. - All the five plants have considered CDM revenues on the way to implementation of the project activity. Three of them have already been registered as CDM projects with the EB and two of them are in the advanced stage of validation. <p>Information Verified: The information provided has been checked and verified against the official web links provided and found acceptable.</p>		<p>Verified Document Reference: -PDD version 02 dated 21/11/2008 -</p>

Reasoning for not acceptance or acceptance and close out:

– Analysis of other activities:

The Proponent has provided information on the analysis of the other activities implemented previously or currently underway similar to the proposed project activities in the context of national and State (Orissa) scenario with or without CDM modalities in the PDD version 02 dated 21/11/2008.

The web link ([http://steel.nic.in/Annual%20Report%20\(2006-07\)/English/Annual%20Report%20\(2006-07\).pdf](http://steel.nic.in/Annual%20Report%20(2006-07)/English/Annual%20Report%20(2006-07).pdf) , last accessed on 14 December 2008) of the Annual Report for the year 2006-2007 published by the Ministry of Steel, Government of India, clearly state that there are five integrated steel plants under the Steel Authority of India Limited (SAIL) registered under the Companies Act 1956, a Government of India Enterprise, made publicly available and referred by the proponent for the facts and figures regarding the the integrated iron and steel plant in India under SAIL was checked and verified and found correct. The same Report has also mentioned that the first shore based integrated iron and steel plant, RINL (Rastriya Ispat Nigam Limited) was set up in Visakhapatnam and mentioned about the Tata Steel Limited, Essar Steel Limited, JSW Steel Limited, Jindal Steel and Power Limited (JSPL), Ispat Industries Limited (IIL) as private entities setting up integrated iron and steel plants in the country. Thus the information provided that there are 12 number of integrated iron and steel plant existing nation wide excluding Visa is found justified and hence accepted.

The integrated iron and steel plants of the Steel Authority of India Limited has been utilizing the non coking coal for the generation of power which has been clearly stated in the website referring to the official web link made publicly available. Web site: <http://www.sail.co.in/aboutus.php?tag=company-energy>. The LD gas recovery based power recovery project implemented in Rourkela steel plant has got registered with the CDM-EB could be checked and verified against the official web link of the UNFCCC made publicly available on access found correct. Web site:

<http://cdm.unfccc.int/UserManagement/FileStorage/D0YOKH0N9YHKRWDM SX7I67L0UA9XXW>.

The power requirement of JSW Steel Limited and Jindal Steel & Power Limited is met respectively from a 'Blast Furnace Gas and Corex Gas based power generation system' and 'Coke Oven Gas based power generation system' which have got registered as CDM projects as per the web link provided below accessed and found correct.

Web site: <http://cdm.unfccc.int/UserManagement/FileStorage/5K5XJ3GMSTGYQE2KT3IL1NP0RGLSVK> .

Web site: <http://cdm.unfccc.int/UserManagement/FileStorage/XQKW19L92IAYD0XP1QP8YRQIU3ZL8I>.

Essar Steel in the process of setting up a 350 MW natural gas based power generation facility to meet their power demand could be checked and verified referring to the web site provided which on access found correct. Web link: <http://www.projectsmonitor.com/detailnews.asp?newsid=10794> .

- UN reference for the similar registered projects has been provided by the PP in the PDD version 02 dated 21/11/2008. The 3 plants (namely, Rourkela Steel Plant (RSP) of Steel Authority of India Limited (SAIL), JSW Steel Limited and Jindal Steel & Power Limited) have already got their projects registered with UNFCCC. The web link provided in the PDD version 02 could be accessed and the information provided could be checked and verified against the web link and found correct.

- Comparison with similar activities: The PP has provided information on the 5 nos. of integrated Iron and Steel plants in India which have implemented waste gas based power generation facility to partially cater to their power requirement i.e. similar to the project activity under consideration. 3 out of these 5 plants, have already got their projects registered with UNFCCC which could be checked and verified against the web links provided below which could be accessed and found correct:

iv) <http://cdm.unfccc.int/UserManagement/FileStorage/D0YOKH0N9YHKRWDM SX7I67L0UA9XXW>.

v) <http://cdm.unfccc.int/UserManagement/FileStorage/5K5XJ3GMSTGYQE2KT3IL1NP0RGLSVK>

vi) <http://cdm.unfccc.int/UserManagement/FileStorage/XQKW19L92IAYD0XP1QP8YRQIU3ZL8I>.

The remaining two plants namely Tata Steel Limited and Adhunik Metaliks Limited are in the advanced stage of registration (i.e. at the validation stage) as per the information provided by the PP, could be checked and verified against the web link provided hence acceptable.

Web sites:

<http://cdm.unfccc.int/Projects/Validation/DB/ZJPUUUHM7IA8AF8P2PWM24OQGWGSC8/view.html>

<http://cdm.unfccc.int/UserManagement/FileStorage/IYZ32UCOLFQMW7K5DS8RVXJP46EG91> .

The information provided by the PP regarding the five integrated iron and steel plants which has gone ahead with the implementation of waste heat recovery projects for captive power generation to cater their partial electricity requirements and have considered CDM revenues has been found traceable against the web links of the UNFCCC and hence considered acceptable.

The justification provided by the PP that in absence of CDM revenue, these projects could also not have been implemented as like the project activity under consideration is likely to be acceptable. Further the claim of the existence of these similar projects do not contradict, rather support, that the project activity under consideration could not have been implemented in absence of CDM revenue because of its economic being not viable and the barriers faced is hereby found justified.

The information provided by the PP that there are twelve number of integrated iron and steel plants operational in India excluding Visa Steel Limited, and out them five integrated iron and steel plants have implemented waste heat recovery projects to generate power to cater to their partial electricity requirements taking into consideration the CDM revenues (three of them being already registered with the UNFCCC CDM-EB and two in the process of validation) has been checked and verified against the web links provided and found correct. The UN reference numbers provided could also be accessed through the official web site of UNFCCC and found correct. Thus the CAR 10 was closed out.

Date:	05/09/2008			Raised by:		Ajoy Gupta	
No.:	11	Type:	CAR	Issue :	Application of the Baseline Methodology	Ref.:	B.5.1
Lead Assessor Comment					Date: 05/09/2008		
<p>The current version of the PDD has used the equations, steps/calculations in accordance with ACM0012 version 02 during determination of baseline emissions, however the following issues are not clear –</p> <ul style="list-style-type: none">• Consideration of Efficiency of the power plant as mentioned in the PDD is not justified as it seems like calculated by the project proponent, how the option (ii) mentioned under ACM0012 version 02 has been applied for the same needs to be clarified.• During baseline emissions calculation how the “Capping of baseline emissions” has been considered following Method-2 of ACM0012 version 02 is not transparent.• In the PDD version 01, the value of the $q_{wg\ product}$ has not been specified whereas the value of f_{cap} in the Annex 3 has been mentioned as 1. The PP would have to clarify the same.• The value of the parameter mentioned with respect to $Q_{WG, Y}$ needs to be clarified by the PP.							
Project Participant Response:					Date: 13/12/2008		

The project proponent wishes to provide the following clarifications for the above issues:

- Efficiency of baseline power plant- As per the guidance provided in Option (ii) of Approved Consolidated Methodology-ACM0012/ Version 02, the overall efficiency of the existing plant that would be used by the j^{th} recipient in absence of the project activity (*i.e.* $\eta_{\text{Plant},j}$) is calculated as the highest of the efficiency values provided by two or more manufacturers for power plants with specifications similar to that which would have been required to supply the recipient with electricity that it receives from the project activity. In accordance with the guidance, the project proponent has considered the efficiency of the baseline coal based power plant that would have been installed in absence of the project activity to cater to the power requirement of the integrated iron and steel plant of Visa Steel Limited as the highest efficiency value provided by renowned manufacturers *i.e.* M/s. Thermal Systems Private Limited, M/s Isgec and M/s. Greenesol Power Systems Private Limited. The efficiency values provided by the manufacturers have been provided to the Validator. M/s Isgec has provided the efficiency value of the boiler while M/s. Greenesol Power Systems Private Limited has provided the heat rate for the turbine cycle. Based on the boiler efficiency and turbine heat rate, the efficiency of the power plant has been calculated. Please refer to the letter from M/s. Thermal Systems Private Limited to Visa Steel Limited (Ref. letter dated 2nd December 2008), performance guarantee given by M/s Isgec (for IJT boiler) and heat and mass balance diagram from M/s. Greenesol Power Systems Private Limited to Visa Steel Limited (dated 17th January 2006).
- Capping of baseline emissions- As per the Approved Consolidated Methodology-ACM0012/ Version 02, in case of implementation of a project activity in a new facility (similar to the project activity under consideration), project proponent is required to follow Method-2 for capping of baseline emissions. In accordance with the guidelines of Method-2, the project proponent has determined the factor f_{cap} as a ratio of
 - Quantity of waste gases generated prior to the start of the project activity ($Q_{\text{WG,BL}}$)- Since the project activity is implemented in a new facility, therefore the parameter is determined following the guidance of the methodology as a product of 'production by process that most logically relates to waste gases generation in baseline ($Q_{\text{BL,product}}$)' and 'amount of waste gases the industrial facility generates per unit of product generated by the process that generates waste gases ($q_{\text{wg,product}}$)'. Both the parameters ($Q_{\text{BL,product}}$ and $q_{\text{wg,product}}$) have been considered from the manufacturer's specification on production output of the individual operational facilities (*i.e.* DRI kilns, Blast Furnace and Coke Ovens) and the corresponding waste gas generation. The manufacturer's specifications have been provided to the Validator.
 - Quantity of waste gases used for energy generation during year y ($Q_{\text{WG},y}$)- The same will be monitored *ex-post* during the proposed crediting period of the project activity under consideration. However for *ex-ante* computation of baseline emissions (and hence emission reductions) for the project activity under consideration, the parameter is considered to be same as that of $Q_{\text{WG,BL}}$.
- Clarification for $q_{\text{wg,product}}$ and f_{cap} - The values of $q_{\text{wg,product}}$ (*i.e.* amount of waste gases the industrial facility generates per unit of product generated by the process that generates waste gases) have been provided in the Revised PDD/ Version 02 individually for all the three processes *i.e.* sponge iron production in DRI kilns, pig iron production in Blast Furnace and coke manufacturing in Coke Ovens. Please refer to Section B.6.2 of the Revised PDD/ Version 02 for details.
As explained above, for *ex-ante* computation of baseline emissions (and hence emission reductions) for the project activity under consideration, the parameter $Q_{\text{WG},y}$ is considered to be same as that of $Q_{\text{WG,BL}}$. Since f_{cap} is determined as a ratio of $Q_{\text{WG,BL}}$ and $Q_{\text{WG},y}$, hence the parameter f_{cap} is shown as 1 in Annex-3 of the Project Design Document. However the parameter $Q_{\text{WG},y}$ will be monitored *ex-post* during the proposed crediting period of the project activity under consideration and accordingly the parameter f_{cap} will be updated.
- Clarification for $Q_{\text{WG},y}$ - As discussed above, for *ex-ante* computation of baseline emissions (and hence emission reductions) for the project activity under consideration, the parameter $Q_{\text{WG},y}$ is considered to be same as that of $Q_{\text{WG,BL}}$. However the same will be monitored *ex-post* during the proposed crediting period of the project activity under consideration.

Acceptance and Close out by Lead Assessor:

Date: 16/12/2008.

<p>Information Provided: Information Verified: The information provided by the Proponent has been checked and verified against the document provided and referred to and considered acceptable.</p>	<p>Verified Document Reference: -HBD- BHEL -HBD-Greensol Power Systems Private Limited. -IJT Boiler specifications. -PDD version 03 dated 13/12/2008. -Power Plant Efficiency Calculation Sheet.</p>
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Reasoning for not acceptance or acceptance and close out:

Efficiency of baseline power plant

The efficiency of the power plant as per the approved methodology is provided by the proponent based on two sets of manufacturer's data. The first case has been considered as the project case where the combination chosen as M/s IJT (Boiler manufacturer, boiler efficiency as 88%) and BHEL (turbine manufacturer, turbine efficiency as 34.07%) to arrive at the overall efficiency of the power plant as 30% which was checked against the excel sheet and found appropriate.

The second case has been considered as the project case where the combination chosen as M/s Thermal Systems Private Limited (Boiler manufacturer, boiler efficiency as 86.5%) and BHEL (turbine manufacturer, turbine efficiency as 33.78%) to arrive at the overall efficiency of the power plant as 29.2% which was checked against the excel sheet and found appropriate

Thus as per the methodology applied 30% being the highest of the two combinations has been applied in calculating the baseline emission and emission reduction thereafter which is conservative and in accordance with Option (ii) and hence justified. The same was cross checked against the document provided by the power plant consultant and found appropriately applied,

- Capping of baseline emissions

The capping of baseline emissions has been applied in accordance with the Approved Consolidated Methodology-ACM0012/ Version 02, following the Method 2 by the Proponent as the project activity caters

to implementation in a new facility. The value of $f_{cap} = \frac{Q_{WG,BL}}{Q_{WG,y}}$ depends on the values of $Q_{WG,BL}$ and

$Q_{WG,y}$. Further $Q_{WG,BL} = Q_{BL,product} \times q_{wg,product}$ which is the requirement of the methodology as well as for a new facility. The values of $Q_{BL,product}$ and $q_{wg,product}$ has been taken from the manufacturers specification for DRI Kiln, Coke oven batteries and mini blast furnace. These values have been applied for the Emission reduction calculation which was cross checked with the manufacturers data provided and in the detail ER computation excel sheet and found in line. The value of $Q_{WG,y}$ has been taken as the same value as of $Q_{WG,BL}$, hence f_{cap} is 1 which is as per the methodology for the option (ii) adopted Both the parameters $Q_{BL,product}$ and $q_{wg,product}$ have been considered from the manufacturers specification for production output of the individual operational facilities which is acceptable. The values have been incorporated in the final version of the PDD dated 13/12/2008 which is found satisfactory.

- Value of $Q_{WG,y}$ which is the quantity of waste gases used for energy generation during year y could be either equal to or less than the value of $Q_{WG,BL}$ and could not be greater in any way. In case the value is equal to the value of the quantity of waste gases generated prior to the start of the project activity ($Q_{WG,BL}$) the value of f_{cap} equals to 1 and similarly when the value is less than that of the quantity of waste gas generated prior to the start of the project activity the value of f_{cap} becomes greater than one. As per the methodological option for the purpose of conservativeness the value has been opted as the same as that of $Q_{WG,BL}$. Hence the calculated value of f_{cap} is thus 1. The proponent would monitor the same *ex-post* during the crediting period is hereby accepted.

Thus the CAR 11 was closed out.

Date:	05/09/2008				Raised by:	Ajoy Gupta		
No.:	12	Type:	NIR	Issue :	Ex-ante Data and Parameters Used		Ref.:	B.6.2
Lead Assessor Comment						Date: 05/09/2008		
<ul style="list-style-type: none">Proper documentary evidence towards source data (manufacturer's specification) for Specific waste gas production per unit of $q_{wg, Product}$ needs to be provided by the project proponent								

Project Participant Response:		Date: 13/12/2008
<p>▪ <u>Documentary evidence for $q_{wg,product}$</u> The parameter $q_{wg,product}$ (i.e. amount of waste gases the industrial facility generates per unit of product generated by the process that generates waste gases) is determined based on the production output and the corresponding waste gas generation individually for all the three processes i.e. sponge iron production in DRI kilns, pig iron production in Blast Furnace and coke manufacturing in Coke Ovens, as specified by the manufacturers. The manufacturer's specifications have been provided to the Validator.</p>		
Acceptance and Close out by Lead Assessor:		Date: 16/12/2008
<p>Information Provided: -Amount of waste gasses generated by the industrial facility per unit of product generated adopted as per manufacturers data.</p> <p>Information Verified: The information provided by the Proponent has been checked and verified against the document provided and referred to and considered acceptable.</p>		<p>Verified Document Reference: - Emission Reduction Calculation Spread Sheet.</p>
<p>Reasoning for not acceptance or acceptance and close out: The Proponent has provided the manufacturers data as documentary evidence towards the DRI kiln, coke oven batteries and mini blast furnace. These values for all the components were cross checked against the manufacturer's specifications provided and found to have been appropriately applied in the calculation of emission reduction. Hence NIR (12) was closed out.</p>		

Date:	05/09/2008			Raised by:	Ajoy Gupta		
No.:	13	Type:	CAR	Issue :	Calculation of Emissions Reductions	Ref.:	B.7.1
Lead Assessor Comment					Date: 05/09/2008		
<p>The current version of the PDD has used the ACM0012/ version 2 during determination of ex-ante emission reductions.</p> <p>But the application of the methodology is not clear –</p> <ul style="list-style-type: none">• The input factors used and sources of the input factors used towards ex-ante emission reductions calculations are not clearly provided.• The excel sheet for calculation of emission reductions is required to be submitted along with evidences for the assumptions used.							
Project Participant Response:					Date: 13/12/2008		

The project proponent wishes to provide the following clarifications for the above issues:

- Input factors used for ex-ante computation of emission reduction- The input factors used for *ex-ante* computation of emissions reductions resulting from the project activity along with their sources are summarized below:

Ex-ante computation of Baseline Emissions

- Energy that would have been produced in project year y using waste gases generated in base year expressed as a fraction of total energy produced using waste gases in year y (f_{cap})- The parameter is determined based on $Q_{WG,BL}$ and $Q_{WG,y}$ in accordance with the guidance of the methodology-ACM0012/ Version 02. The parameter $Q_{WG,BL}$ is calculated as a product of $Q_{BL,product}$ and $q_{wg,product}$. Both $Q_{BL,product}$ and $q_{wg,product}$ are considered from the manufacturer's specifications and the same have been provided to the Validator. The parameter $Q_{WG,y}$ is considered to be same as that of $Q_{WG,BL}$ for *ex-ante* computation of emission reductions.
- Fraction of total electricity generated by the project activity using waste gases (f_{WG})- The parameter is determined based on $ST_{whr,y}$ and $ST_{other,y}$ in accordance with the guidance of the methodology-ACM0012/ Version 02. $ST_{whr,y}$ is determined with the quantity of steam generated with waste gases and the temperature and pressure of steam generated. Similarly $ST_{other,y}$ is determined with the quantity of steam generated in CFBC boiler and the temperature and pressure of steam generated. The quantity of steam generated with waste gases and in the CFBC boiler are considered from the unit power cost computation by the third party renowned power plant consultant- M/s. Development Consultants Private Limited and the same has been provided to the Validator. The temperature and pressure of steam generated with waste gases and in the CFBC boiler are considered from the Technical Specifications of the Boilers. The same has also been provided to the Validator.
- Quantity of electricity supplied to the recipient j by generator which in the absence of the project activity would have been sourced from the i^{th} source (*i.e.* the coal based captive power plant) during the year y ($EG_{i,j,y}$)- The parameter is considered from the unit power cost computation by the third party renowned power plant consultant- M/s. Development Consultants Private Limited and the same has been provided to the Validator.
- CO_2 emission for the electricity source i (*i.e.* the coal based captive power plant), displaced due to the project activity during the year y ($EF_{elec,i,j,y}$)- The parameter is determined based on $EF_{CO_2,is,j}$ and $\eta_{Plant,j}$. The parameter $EF_{CO_2,is,j}$ is considered from '2006 IPCC Guidelines for National Greenhouse Gas Inventories' for sub-bituminous coal. The parameter $\eta_{Plant,j}$ is considered as the highest efficiency value provided by renowned manufacturers *i.e.* M/s. Thermal Systems Private Limited, M/s Isgec and M/s. Greenesol Power Systems Private Limited in accordance with the guidance of the methodology-ACM0012/ Version 02. The efficiency values provided by the manufacturers have been provided to the Validator. M/s Isgec has provided the efficiency value of the boiler while M/s. Greenesol Power Systems Private Limited has provided the heat rate for the turbine cycle. Based on the boiler efficiency and turbine heat rate, the efficiency of the power plant has been calculated. Please refer to the letter from M/s. Thermal Systems Private Limited to Visa Steel Limited (Ref. letter dated 2nd December 2008), performance guarantee given by M/s Isgec (for IJT boiler) and heat and mass balance diagram from M/s. Greenesol Power Systems Private Limited to Visa Steel Limited (dated 17th January 2006).

Ex-ante computation of Project Emissions

- Quantity of fossil fuel type i combusted to supplement waste gases in the project activity during the year y ($FF_{i,y}$)- No fossil fuel consumption is considered by the project proponent for *ex-ante* computation of project emissions.
- Net calorific value of the fossil fuel type i combusted as supplementary fuel (NCV _{i})- In accordance with '2006 IPCC Guidelines for National Greenhouse Gas Inventories' depending on the type of fuel used.
- CO_2 emission factor per unit of energy of the fuel type i ($EF_{CO_2,i}$)- In accordance with '2006 IPCC Guidelines for National Greenhouse Gas Inventories' depending on the type of fuel used.
- Emission Reduction Computation with supportive documents- The excel sheet for emission reduction computation along with all the supportive documents (as explained above) have been provided to the Validator.

Acceptance and Close out by Lead Assessor:	Date: 16/12/2008.
Information Provided: Information Verified: The information provided by the Proponent has been checked and verified against the document provided and referred to and considered acceptable.	Verified Document Reference: -PDD version 03 dated 13/12/2008.

Reasoning for not acceptance or acceptance and close out:
The baseline emission is calculated as per the following equation:

$$BE_{En,y} = BE_{Elec,y} = f_{cap} \times f_{wg} \times \sum_j \sum_i (EG_{i,j,y} \times EF_{Elec,i,j,y})$$

The input factors for the calculation of baseline emission depends on the above mentioned equation parameters.

i) $f_{cap} = \frac{Q_{WG,BL}}{Q_{WG,y}}$ and $Q_{WG,BL} = Q_{BL,product} \times q_{wg,product}$ - All the parameters have been cross checked with

the manufacturers specification of the respective equipments/installations that is DRI Kiln, Coke oven batteries and mini blast furnace.

ii) $f_{wg} = \frac{ST_{whr,y}}{ST_{whr,y} + ST_{other,y}}$, where $ST_{whr,y}$ and $ST_{other,y}$ are the calculated figures from the parameters

(steam flow rate, steam temperature and steam pressure) to be monitored ex-post. The same has been checked and verified with the revised version of the PDD dated 16/12/2008 and found satisfactory.

iii) $EG_{i,j,y}$ = Quantity of electricity supplied to the recipient j by generator which in the absence of the project activity would have been sourced from the i^{th} source (i.e. the coal based captive power plant) during the year y (in MWh) which is a monitored parameter ex-post.

iv) $EF_{Elec,is,j,y} = \frac{EF_{CO2,is,j}}{n_{Plant,j}} \times 3.6 \times 10^{-3}$,

where $EF_{CO2,is,j}$, (CO_2 emission factor per unit of energy of the fossil fuel (coal) 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 which was checked against the "2006 IPCC Guidelines for National Greenhouse Gas Inventories"

and $n_{Plant,j}$ which is the overall efficiency of the existing plant that would be used by j^{th} recipient in the absence of the project activity has been applied as per option (ii) of the methodology ACM0012 version 02 correctly as proponent has chosen the value from two different manufacturers data which were cross checked with the documents provided and found satisfactory.

The detail excel sheet provided by the proponent has been checked and found satisfactory.

Hence CAR 13 was closed out.

Date:	05/09/2008			Raised by:	Ajoy Gupta		
No.:	14	Type:	CAR	Issue :	Quality Control (QC) and Quality Assurance (QA) Procedures	Ref.:	B.11.1
Lead Assessor Comment					Date: 05/09/2008		
The Monitoring Plan is not adequately defining a thorough QA/QC process. The PP would have to define the complete procedure ensuring the selection of data undergoing quality control and quality assurance procedures in a comprehensive manner.							
Project Participant Response:					Date: 13/12/2008		
The QA/QC processes to be followed for all the parameters which will be monitored during the proposed crediting period for the computation of emission reductions resulting from the project activity are elaborated in the Revised PDD/ Version 02. Please refer to Section B.7.1 of the Revised PDD/ Version 02 for details.							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008.		
Information Provided: -QA/QC procedures Information Verified: The information provided by the Proponent has been checked and verified against the document provided and referred to and considered acceptable.					Verified Document Reference: -PDD version 02 dated 21/11/2008		

Reasoning for not acceptance or acceptance and close out:
The QA/QC process has been provided in a comprehensive manner in the revised version of the PDD dated 21/11/2008. The PP has provided information on the selection of data undergoing a thorough quality control and quality assurance procedure which has been checked and verified in the PDD against each parameter monitored and found satisfactory. The CAR14 was closed out.

Date:	05/09/2008	Raised by:	Ajoy Gupta				
No.:	15	Type:	CAR	Issue :	Monitoring Plan (Annex 4)	Ref.:	B.13.3
Lead Assessor Comment					Date: 05/09/2008		
<p>In the PDD, the monitoring plan towards the project activity provides information regarding the Distributed control system (DCS) but does not provide detailed information regarding the on site energy meters, steam flow meters, thermocouple for steam temperature and pressure gauges for steam pressure monitoring, however the respective position of the respective monitoring equipments has also not been mentioned. Please provide the information in the said regard.</p>							
Project Participant Response:					Date: 13/12/2008		
<p>The Validator has been provided with:</p> <ul style="list-style-type: none"> Electricity Distribution Line Diagram which specifies the on-site energy meter locations and their details Steam Metering System which specifies the location of the steam flow meters, temperature and pressure gauges and their details <p>However, since this is a proposed project activity (which is being implemented in a phase wise manner), hence detailed specifications of the meters are not available completely now and will be available on full commissioning of the project activity. The monitoring details have also been incorporated in "Annex-4: Monitoring Information" of the Revised PDD/ Version 02.</p>							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008.		
<p>Information Provided: -Location details of the on-site energy meters and steam metering system. -Monitoring details in annex-4 in the revised version of the PDD</p> <p>Information Verified: The information provided has been checked and verified against the documents referred to and found acceptable.</p>					<p>Verified Document Reference: -Electricity distribution line Diagram. - PDD version 2 dated 21/11/2008.</p>		
<p>Reasoning for not acceptance or acceptance and close out: The project participant has provided the electricity distribution line diagram specifying the on-site energy meter location along with the details. The steam metering system has also been provided specifying the location of the steam flow meters, temperature and pressure gauges along with their details. The project participant has substantiated the issue as a proposed project activity to be implemented phase wise manner and will be available on full commissioning of the project activity seems to be logical and considered acceptable. The information related to monitoring details provided has been checked in the revised version of the PDD and found in line. The CAR 15 was closed out.</p>							

Date:	05/09/2008	Raised by:	Ajoy Gupta				
No.:	16	Type:	NIR	Issue :	Monitoring Plan (Annex 4)	Ref.:	B.13.5
Lead Assessor Comment					Date: 05/09/2008		
Please provide information regarding maintenance of monitoring equipment and installations							
Project Participant Response:					Date: 13/12/2008		
<p>All the monitoring equipments will be maintained through periodic testing/calibrations. The calibration frequencies will be determined as per the recommendations of the manufacturers and standard industry norms. Adherence to the same will be scrutinised by the Management of Visa Steel Limited. The same has been provided in the Revised PDD/ Version 02.</p>							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008.		

<p>Information Provided: - Maintenance of monitoring equipments and installations.</p> <p>Information Verified: The information provided by the Proponent has been checked and verified against the document provided and referred to and considered acceptable.</p>	<p>Verified Document Reference: -PDD version 02 dated 21/11/2008.</p>
<p>Reasoning for not acceptance or acceptance and close out: The PP has provided information on the maintenance of monitoring equipments and installations. The calibration of the equipments would be carried out at frequency specified as per the manufacturer's recommendations and standard industry norms periodically. The management of Visa would be responsible in ensuring the same. This is considered acceptable and based on the information provided the NIR 16 was closed out.</p>	

Date:	05/09/2008			Raised by:		Ajoy Gupta	
No.:	17	Type:	NIR	Issue :	Monitoring Plan (Annex 4)	Ref.:	B.13.6
Lead Assessor Comment					Date: 05/09/2008		
Please provide information regarding the procedure identified for day to day records handling and the related performance documentation.							
Project Participant Response:					Date: 13/12/2008		
All the parameters required for computation of emission reductions resulting from the project activity will be monitored by the Shift Operator in accordance with the guidance provided in the Revised PDD/ Version 02. These parameters will be reviewed by the Shift In-charge and daily and monthly reports will be prepared. The daily and monthly reports will be reviewed by the Plant Manager. Finally these reports will be submitted to the Management Representatives of Visa Steel Limited for review. Over and above, there will be an internal audit, conducted once in a year, to assess the GHG performance of the project activity. The same procedure has also been elaborated in “Annex-4: Monitoring Information” of the Revised PDD/ Version 02.							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008.		
Information Provided: -Day to day record handling procedure and related performance documentation. Information Verified: The information provided have been checked and verified against the document referred to and found acceptable.					Verified Document Reference: -PDD Version 02 dated 21/11/2008.		
Reasoning for not acceptance or acceptance and close out: The Proponent has provided information on the day to day handling of records and the related performance documentation. The parameters required to be monitored for the computation of the emission reductions resulting from the project activity has been explained by the PP. The information provided has been checked and verified and found to be appropriately incorporated in the “Annex 4” of the revised Project Design Document. The NIR 17 is closed out.							

Date:	05/09/2008				Raised by:	Ajoy Gupta		
No.:	18	Type:	NIR	Issue :	Monitoring Plan (Annex 4)		Ref.:	B.13.7
Lead Assessor Comment						Date: 05/09/2008		
Please provide information regarding procedures towards dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems								
Project Participant Response:						Date: 13/12/2008		

<p>The electricity parameters and the steam data will be available in the power plant Distributed Control System (DCS). The data available in the DCS system are non-editable and hence will ensure optimal reliability. Furthermore, as explained above, all the monitored parameters will be reviewed by the Shift In-charge, Plant Manager and the Management Representatives. Any discrepancy in data, identified in any one of the above mentioned data reviewing process, will be addressed immediately by undertaking appropriate corrective actions. Finally internal audit will be conducted once in a year to assess the overall GHG performance of the project activity. The audit findings and the necessary corrective actions will be documented and reported to the Management Representative(s) for their immediate actions. The Plant Management will also be informed on the same. Compliance with the audit findings and evaluation of implementation of the corrective actions will be a part of the subsequent audit.</p> <p>Since the data will be recorded in the log sheets (shift –wise) as well in the DCS, hence there is no possibility of missing data. In case of the energy meters, there will be a check meter besides a main meter, which will ensure further reliability of the metering system.</p>	
Acceptance and Close out by Lead Assessor:	Date: 16/12/2008.
<p>Information Provided:</p> <ul style="list-style-type: none">-Procedure towards dealing with possible monitoring data adjustment.- Procedure towards dealing with Missing data allowing redundant reconstruction of the data in case of monitoring problems <p>Information Verified:</p> <p>The information provided have been checked and verified against the document referred to and found acceptable</p>	<p>Verified Document Reference:</p> <p>-PDD version 02 dated 21/11/2008</p>
<p>Reasoning for not acceptance or acceptance and close out:</p> <p>The PP has provided the information regarding the procedures towards dealing with possible monitoring data adjustments. The DCS being in operation to register and monitor electricity generation data and steam data, is non editable ensuring reliability of such a system is considered acceptable. The day to day recording of the data and subsequent checking and reviewing of the same seems to ensure the data quality. The PP has further explained that any discrepancy in data, identified in any one of the above mentioned data reviewing process, will be addressed immediately by undertaking appropriate corrective actions. Finally the internal audit to be conducted once a year and any non conformance reported to be attended and dealt with immediate necessary action clearly indicate the issue of chances of possible monitoring data adjustment rare. The same is considered satisfactory and hence acceptable.</p> <p>The PP has further provided information on the monitoring system that the data would be recorded shift wise in the log sheets and the DCS will be in operation and hence there will be minimum possibility of missing data. Further the PP has provided information that there will be a main meter along with the check meter and hence will ensure reliability of the metering system. This seems to ensure procedures towards dealing with possible monitoring data adjustments and missing data allowing redundant reconstruction of data in case of monitoring problems. The same has been incorporated in the revised version of the PDD dated 21/11/2008.</p> <p>Based on the information provided which was checked and verified in the revised version of the PDD and found to have been incorporated, the NIR (18) was closed out.</p>	

Date:	05/09/2008				Raised by:	Ajoy Gupta		
No.:	19	Type:	NIR	Issue :	Duration of the Project / Crediting Period	Ref.:	C.1.1	
Lead Assessor Comment					Date: 05/09/2008			
Provide adequate documentary evidence regarding the starting date of the project activity and the expected operational life of the project activity.								
Project Participant Response:					Date: 13/12/2008			

The start date of the project activity is considered as the date of placement of first Letter of Intent i.e. 28th March 2006. On this date, the project proponent has issued a "Letter of Intent" to Bharat Heavy Electrical Ltd. for procurement of Steam-Turbo Generators (Ref. No.- VISA/PUR/PP-1(E-01)/2726 dated 28th March 2006). The same has been provided to the Validator. This is in accordance with the latest guidance provided by UNFCCC in the 41st Meeting of the Executive Board. Please refer to Section C.1.1 of the Revised PDD/ Version 02 for details.

The operational lifetime of the project activity has been considered as 25 years following the standard industrial practice. The same can also be substantiated with the guidelines of Central Electricity Regulatory Commission, Government of India.

Please refer to http://www.cercind.gov.in/070104/appendix_2.doc for the same.

Acceptance and Close out by Lead Assessor: Date: 16/12/2008.

Information Provided:

-The operational life time of the project activity is 25 years 0 month.
-The starting date of the project activity is the date of issue of the letter of Intent dated 28th March, 2006 to BHEL by M/s Visa Steel Limited.

Information Verified:

The information has been verified against the documents referred to, provided in the form of hard copy and the web link and found acceptable.

Verified Document Reference:

http://www.cercind.gov.in/070104/appendix_2.doc

- Ref. No.- VISA/PUR/PP-1 (E-01)/2726 dated 28th March 2006

Reasoning for not acceptance or acceptance and close out:

The Proponent has provided information on the operational life time of the project activity as 25 years referring to the web site of Central Electricity Regulatory Commission, Government of India, made publicly available. The information provided has been cross checked by accessing the Web link: http://www.cercind.gov.in/070104/appendix_2.doc, provided and found correct, hence considered acceptable. The proponent has also provided the first Letter of Intent issued by M/s Visa Steel Limited to Bharat Heavy Electricals Limited on 28th March, 2008 for the 2 nos. of 25 MW STG sets as the start date of the project activity. The same has been provided in the form of hard copy document and found acceptable. Based on the information provided NIR (19) was closed out.

Date:	05/09/2008	Raised by:	Ajoy Gupta
No.:	20	Type:	NIR
Issue :		Duration of the Project / Crediting Period	Ref.: C.1.2

Lead Assessor Comment Date: 05/09/2008

The crediting period will start only after the date of registration of the proposed activity as a CDM project activity has to be ascertained by the PP.

Project Participant Response: Date: 13/12/2008

The crediting period for the project activity will start from 1st January 2009 or date of commissioning of the power plant or from the date of registration of the project activity, whichever is later. The same has been revised in Section C.2.2.1 of the PDD/ Version 01. The project proponent has also provided an undertaking to the Validator in this regard.

Acceptance and Close out by Lead Assessor: Date: 16/12/2008.

Information Provided:

The crediting period will start upon commissioning or registration of the project activity with the CDM- EB, which ever is later.

Information Verified:

The information provided in the form of hard copy documents have been checked and verified and found acceptable.

Verified Document Reference:

-Revised PDD version 01 dated 31/07/2008.
-Undertaking-No Retroactive credits dated 30/08/2008.

Reasoning for not acceptance or acceptance and close out:

The PP has provided the Undertaking dated 30/08/2008 signed by the Deputy General Manager, Visa Steel Limited stating that Visa Steel limited will not be involved in any transactions pertaining to any retroactive carbon credits generated from the GHG abatement project before the same is commissioned or registered with the CDM-EB which ever is later.

The same has been mentioned in accordance in the PDD version 01 dated 31/07/2008. Thus NIR (20) was closed out.

Date:	05/09/2008			Raised by:	Ajoy Gupta		
No.:	21	Type:	NIR	Issue :	Environmental Impacts	Ref.:	D.1.2
Lead Assessor Comment					Date: 05/09/2008		
<p>The Impact study has been carried out in three distinct phases of its implementation as Impacts during Construction, Operational Phase and Maintenance phase.</p> <p>The copy of REIA along with the EMP would have to be provided by the PP</p>							
Project Participant Response:					Date: 13/12/2008		
The copy of "Rapid Environmental Impact Assessment (REIA) and Environmental Management Plan (EMP)", conducted by Visa Steel Limited, has been provided to the Validator.							
Acceptance and Close out by Lead Assessor:					Date: 16/12/2008		
<p>Information Provided:</p> <ul style="list-style-type: none"> -Rapid Environmental Impact Assessment (REIA) including the Environmental Management Plan (EMP) carried out by Global Experts in October 2005. -Letter Of Intent issued to M/s Global Experts by Visa Industries Limited dated March 18, 2004. <p>Information Verified:</p> <p>The information provided in the form of hard copy and scanned copy documents have been checked and verified and found acceptable.</p>					<p>Verified Document Reference:</p> <ul style="list-style-type: none"> -Rapid Environmental Management Plan by Global Experts dated October 2005. -VIL/GM/ENVI/LOI0034 dated March 18, 2004. 		
<p>Reasoning for not acceptance or acceptance and close out:</p> <p>The Rapid Environmental Impact Assessment (REIA) including the Environmental Management Plan (EMP) for Visa Steel Limited carried out by Global Experts, Bhubaneswar in October 2005 has been provided by the Participant in the form of a hard copy document. The letter of intent issued to M/s Global Experts by Visa Industries Limited has been provided by the participant in the form of a scanned document. The same has been checked and found satisfactory. Hence the NIR (21) was closed out.</p>							

Date:	05/09/2008			Raised by:	Ajoy Gupta		
No.:	22	Type:	NIR	Issue :	Stakeholder Comments	Ref.:	E.1.1
Lead Assessor Comment					Date: 05/09/2008		
<p>The stake holders identified for the project activity as per the PDD are as follows:</p> <ul style="list-style-type: none"> • Village Panchayat. • Employees of VSL. • Consultants. • Equipment suppliers. • Non-Governmental Organizations (NGO). • Orissa Pollution Control Board (OPCB). • Ministry of Environment and Forest (MoEF), Govt. of India. <p>The PP would have to provide information on how the above mentioned stake holders have been consulted for the said project activity. The project participants need to provide further information regarding the verbal communications made for the project activity inviting their comments and feedbacks and has there been a meeting arranged for the same, which is not clearly mentioned in the PDD.</p> <p>Provide information regarding the mode of communication to the local stake holders inviting them for providing comments. Further the PP would have to clarify whether media was made involved for the said purpose.</p> <p>In case a meeting had been organized the MoM of the LSC meeting is to be provided by the Project Proponent.</p>							
Project Participant Response:					Date: 13/12/2008.		

<p>The project proponent hereby wishes to clarify that all the non-governmental parties (like Village Panchayat, Employees of Visa Steel Limited, Consultants, Equipment Suppliers and Non-governmental Organizations) have been invited individually by the Management of Visa Steel Limited for a discussion on the project activity. The invitation letters from the Management of Visa Steel Limited to these identified stakeholders have been provided to the Validator. During the meeting, the stakeholders have been briefed about the project activity and its associated socio-economic and environmental benefits. Based on the discussion, the stakeholders have appreciated the initiative of the project proponent and provided their feedback through written communications. All these stakeholder consultation letters have also been provided to the Validator.</p> <p>In case of government parties (like Orissa Pollution Control Board, Ministry of Environment and Forests, Government of India), the project proponent has applied for the relevant consents and approvals where the project activity details have also been detailed. The project proponent has already received the necessary approvals from these government parties. The same has been provided to the Validator.</p>	
Acceptance and Close out by Lead Assessor:	Date: 16/12/2008.
<p>Information Provided: -The stake holders being informed regarding the project activity and requested to express their views and provide their feedback on the same.</p> <p>Information Verified: The information provided in the form of hard copy documents have been checked and verified and found acceptable.</p>	<p>Verified Document Reference: Invitation letter dated 21/08/2008 to -Kalinga Nagar Mazdoor Union. -Maa Tarini Rural Development Agency. -Invitation letter to Thermal Systems (Hyderabad) Pvt. Ltd. dated 9/10/2007. -Letter to Panchayat Pradhan dated 27/12/2007. -Letter to R. Singh & Associates (P) Ltd dated 1/07/2008.</p>
<p>Reasoning for not acceptance or acceptance and close out: The Proponent has provided the written communication letters issued to the local stakeholders to the project activity informing them regarding the project activity to be set up and the time, date and venue of the interactive session organized for the same requesting them to join and provide their feedbacks. The copy of the letters issued by Visa Steel informing and inviting the local stake holders and providing their comments and feedbacks regarding the project activity, towards the Local Stake Holders consultation process have been checked and verified and considered acceptable. Based on the documents provided the NIR 22. was closed out</p>	

Date:	05/09/2008	Raised by:	Ajoy Gupta
No.:	23	Type:	NIR
Issue :	Stakeholder Comments		Ref.: E.1.5
Lead Assessor Comment		Date: 05/09/2008	
The detail of comments received during local stakeholder consultation process, to be provided by the PP.			
Project Participant Response:		Date: 13/12/2008.	
All the local stakeholders (including the government parties and the non-governmental parties) have appreciated the initiative of the Management of Visa Steel Limited in implementing the project activity. All the stakeholder letters, received from non-governmental parties as well as the necessary approvals, received from the government parties, by the project proponent have been provided to the Validator.			
Acceptance and Close out by Lead Assessor:		Date: 16/12/2008.	

<p>Information Provided: The positive comments and feedback provided by the local stake holders regarding the project activity to be set up by Visa Steel Limited.</p> <p>Information Verified: The information provided has been verified against the documents referred to and found acceptable.</p>	<p>Verified Document Reference: -Letter form Maa Tarini Rural Development Agency dated 28.08.2008. -Letter from Kalinga Nagar Mazdoor Union dated 28.08.2008. -Letter from the Thermal Systems (Hyderabad) Pvt. Ltd dated 29th December'07. -Letter from the Panchayat Pradhan dated 28.12.2008. -Letter from R. Singh & Associates (P) Ltd. dated 26/08/2008. -Letter from Employee Representatives dated 29/12/2007.</p>
<p>Reasoning for not acceptance or acceptance and close out: The Proponent has provided the letter of appreciation/ no objections received from the local stake holders informed and invited to attend the interactive sessions on the project activity to be set up by Visa Steel Limited. The local stake holders to the project activity by and large appreciated the initiative of Visa Steel in implementing the project activity of generating power utilizing the waste gas and provided their positive feedbacks on the project activity in the form of letters addressing the issue. The copy of the letters provided by the Proponent has been checked and verified and found acceptable. Based on the documents provided the NIR 23 was closed out.</p>	

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Ajoy Gupta

SGS Affiliate: SGS India

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

Validation

Verification

- | | | |
|-------------------------|-------------------------------------|-------------------------------------|
| - Local Assessor | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| - Lead Assessor | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| - Assessor | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| / Trainee Lead Assessor | | |

Scopes of Expertise

- | | |
|------------------------------------------------------------------------------------------------|-------------------------------------|
| 1. Energy Industries (renewable / non-renewable) | <input checked="" type="checkbox"/> |
| 2. Energy Distribution | <input type="checkbox"/> |
| 3. Energy Demand | <input type="checkbox"/> |
| 4. Manufacturing | <input type="checkbox"/> |
| 5. Chemical Industry | <input type="checkbox"/> |
| 6. Construction | <input type="checkbox"/> |
| 7. Transport | <input type="checkbox"/> |
| 8. Mining/Mineral Production | <input type="checkbox"/> |
| 9. Metal Production | <input type="checkbox"/> |
| 10. Fugitive Emissions from Fuels (solid, oil and gas) | <input type="checkbox"/> |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/> |
| 12. Solvent Use | <input type="checkbox"/> |
| 13. Waste Handling and Disposal | <input type="checkbox"/> |
| 14. Afforestation and Reforestation | <input type="checkbox"/> |
| 15. Agriculture | <input type="checkbox"/> |

Approved Member of Staff by Siddharth Yadav Date: 21/12/2007

Statement of Competence

Name: Sanjay Banerjee

SGS Affiliate: SGS India Pvt. Ltd.

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☐

Validation

Verification

- Local Assessor ☒
- Lead Assessor ☐
- Assessor ☒
- /Trainee Lead Assessor

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) ☒
2. Energy Distribution ☐
3. Energy Demand ☐
4. Manufacturing ☐
5. Chemical Industry ☐
6. Construction ☐
7. Transport ☐
8. Mining/Mineral Production ☐
9. Metal Production ☐
10. Fugitive Emissions from Fuels (solid, oil and gas) ☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride ☐
12. Solvent Use ☐
13. Waste Handling and Disposal ☐
14. Afforestation and Reforestation ☐
15. Agriculture ☐

Approved Member of Staff by Shivananda Shetty

Date: 09th July 2008

Statement of Competence

Name: Nikunj Agarwal

SGS Affiliate: SGS India

Status

- Product Co-ordinator ☐
- Operations Co-ordinator ☐
- Technical Reviewer ☐
- Expert ☒

Validation

Verification

- Local Assessor ☒
- Lead Assessor ☒
- Assessor ☒
- / Trainee Lead Assessor

Scopes of Expertise

1. Energy Industries (renewable / non-renewable) ☒
2. Energy Distribution ☒
3. Energy Demand ☒
4. Manufacturing ☒
5. Chemical Industry ☐
6. Construction ☐
7. Transport ☐
8. Mining/Mineral Production ☐
9. Metal Production ☐
10. Fugitive Emissions from Fuels (solid, oil and gas) ☐
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride ☐
12. Solvent Use ☐
13. Waste Handling and Disposal ☐
14. Afforestation and Reforestation ☐
15. Agriculture ☐

Approved Member of Staff by Siddharth Yadav Date: 21/12/2007