



VALIDATION REPORT BHANDER POWER LIMITED

VALIDATION OF THE 155 MW GAS BASED COMBINED CYCLE POWER PROJECT

BUREAU VERITAS CERTIFICATION

REPORT NO. **INDIA-VAL/9449/2007**

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VALIDATION REPORT

Date of first issue: 26 / 07 / 2007	Organizational unit: Bureau Veritas Certification Holding SA
Client: Bhandar Power Limited	Client ref.: Mr VT Joshi

Summary:

Bureau Veritas Certification has made the validation of “155 MW Gas based combined cycle power project at Hazira” in Surat District, Gujarat State, India, by Bhandar Power Limited, a special purpose vehicle (SPV) set up by Essar Group on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The validation scope is defined as an independent and objective review of the project design document, the project’s baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final validation report and opinion. The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the validation process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification’s opinion that the project correctly applies the baseline and monitoring methodology AM 0029 Ver 01.1 and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

Report No.: INDIA -val/8749/2007	Subject Group: CDM
Project title: 155 MW Gas based combined cycle power project at Hazira	
Work carried out by: R Sankaranarayanan Team leader R Reghukumar – Team Member S. Saraf – Sector Specialist S Budhia – Finance Specialist	
Work verified by: H B Muralidhar	
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Indexing terms

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Abbreviations change / add to the list as necessary

BPL	Bhander Power Limited
CAR	Corrective Action Request
CCPP	Combined Cycle Power Plant
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO ₂	Carbon Dioxide
DOE	Designated Operational Entity
ESTL	Essar Steel Limited
GHG	Green House Gas (es)
I	Interview
IETA	International Emissions Trading Association
MoV	Means of Verification
NG	Natural Gas
NGO	Non Government Organization
PCF	Prototype Carbon Fund
PDD	Project Design Document
R - LNG	Re gasified Liquefied Natural gas
UNFCCC	United Nations Framework Convention for Climate Change



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1 INTRODUCTION

Bhander Power Limited has commissioned Bureau Veritas Certification to validate its CDM project 155 MW Gas based Combined Cycle Power Project at Hazira (hereafter called “the project”) at Hazira Village in Surat District of Gujarat, India.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The validation serves as project design verification and is a requirement of all projects. The validation is an independent third party assessment of 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 a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

1.2 Scope

The validation scope 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.

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.

1.3 GHG Project Description

The project activity involves setting up of a 155 MW Natural Gas based combined cycle power plant at Hazira, Gujarat for generation and supply of electricity through Gujarat state electricity grid to Essar Steel Limited their parent company with which Bhander Power Limited has a Power Purchase agreement.



1.4 Validation team

The validation team consists of the following personnel:

R Sankaranarayanan
Bureau Veritas Certification Team Leader, Climate Change Verifier

R Reghukumar
Bureau Veritas Certification Climate Change Verifier

S.Saraf
Bureau Veritas – Sector Specialist

S Budhia
Finance Specialist

H B Muralidhar
Bureau Veritas Certification, Internal reviewer

2 METHODOLOGY

The overall validation, from Contract Review to Validation Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a validation protocol was customized for the project, according to the Validation and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

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

The validation protocol consists of five tables. The different columns in these tables are described in Figure 1.

The completed validation protocol is enclosed in Appendix A to this report.



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Validation Protocol Table 1: Mandatory Requirements			
Requirement	Reference	Conclusion	Cross reference
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), a Corrective Action Request (CAR) or a Clarification Request (CL) of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Validation Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is validated. This is to ensure a transparent validation process.

Validation Protocol Table 2: Requirements checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

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Validation Protocol Table 4: Legal requirements				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	Ref. to checklist question in tables 2/3/4	Summary of project owner response	Validation conclusion
If the conclusions from the Validation are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the validation team should be summarized in this section.	This section should summarize the validation team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Validation protocol tables

2.1 Review of Documents

The Project Design Document (PDD) submitted by Bhandar Power Limited and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (CDM-PDD), Approved methodology, Kyoto Protocol, Clarifications on Validation Requirements to be Checked by a Designated Operational Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests Bhandar Power Limited, revised the PDD and resubmitted it on 07/2007.

In response to the request for review raised in EB 36, the PP submitted their replies to EB 37. Based on the EB 37 decision, the PDD is revised to include further information and submitted in 02 / 2008. The validation findings presented in this report relate to the project as described in the PDD version 03.



2.2 Follow-up Interviews

On 26/06/2007 and 27/06/2007 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Bhandar Power Limited were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Bhandar Power Limited	<ul style="list-style-type: none"> ➤ Project description ➤ Contribution of Project towards Sustainable Development ➤ Operational aspects ➤ Monitoring Methodologies, plans and Procedures. ➤ QA/ QC Procedures ➤ Internal review / verification mechanism ➤ Competency Management ➤ Approach towards understanding the issues pertaining to interested parties ➤ Base line & Additionality – Justification and Application ➤ Monitoring plans
Local Stakeholder at Hazira	<ul style="list-style-type: none"> ➤ Social and economical benefits due to Project.
Price water house Coopers	<ul style="list-style-type: none"> ➤ Project Category ➤ Base line & Additionality – Justification and Application ➤ Monitoring plans

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

To guarantee the transparency of the validation process, the concerns raised are documented in more detail in the validation protocol in Appendix A.

3 VALIDATION FINDINGS

In the following sections, the findings of the validation are stated. The validation findings for each validation subject are presented as follows:



- 1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Validation Protocol in Appendix A.
- 2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Validation Protocol in Appendix A. The validation of the Project resulted in **09** Corrective Action Requests and **06** Clarification Requests.
- 3) The conclusions for validation subject are presented.

3.1 Project Design

Bureau Veritas Certification recognizes that Bhandar Power Limited's Project is helping country fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific CDM requirements because –

The project activity involves development, designing, engineering, procurement, financing, construction, ownership, operation and maintenance of a 155 MW gas based combined cycle power generation facility for generation and supply of electricity using Natural Gas/ R-LNG as fuels. Electricity generated by the project activity will be fed into the Gujarat state electricity grid, which forms part of the Western region electricity grid of India and supplied to their parent company M/s Essar Steel Limited.

The project is phase 1 of the 500 MW combined cycle power plant being set up by Bhandar Power limited, to meet power requirements of Essar Steel Limited's steel plants located next to the power plant.

Power generated from this project activity at BPL is evacuated at 220 kV to MRSS (main receiving sub-station) of ESTL, which is connected to GETCO grid.

The project activity involves utilization of less carbon-intensive fuel as compared to the overall mix of fuels being used in the western regional grid of India to which the power plant is connected. The power plant uses state-of-the-art systems for pollution control. The project activity will contribute to the reduction of GHG emissions and also generation of effluents and air emissions viz., SO_x and SPM and avoid solid waste (fly ash) generation that would have otherwise occurred with higher GHG intensive fossil fuels like coal and lignite

The Project Scenario is considered additional in comparison to the baseline scenario, and therefore eligible to receive Certified Emissions



Reductions (CERs) under the CDM, based on an analysis, presented by the PDD, of investment barrier and prevailing practice.

The project design is sound and the geographical (Hazira Village, Surat District, Gujarat State) and temporal (20 years) boundaries of the project are clearly defined.

CAR 1 and CL 1 - 3 were issued with respect to project design, which have been satisfactorily resolved. Refer- Appendix A

3.2 Baseline and Additionality

The “155 MW gas based combined cycle power project at Hazira” uses the approved baseline methodology AM0029 (“Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas”, version 01.1) The applicability of the methodology has been discussed in section B 2 of PDD. The project activity of Bhandar Power Limited involves utilization of natural gas as fuel to generate power. Natural Gas is the only fuel, no other start up fuels are used.

Power generated from the proposed project activity will be supplied to the state grid from where it will be utilised by Essar Steel Limited, which in turn forms a part of the western grid. The baseline of western grid is clearly identifiable and the data for baseline estimation and the CO₂ emission factor for the western grid is available in public domain on the website of the Central Electricity Authority of India.

Most of the production of gas comes from the Western offshore area.

Since the discovery of Natural Gas in India in mid 70s on-shore and offshore, there has been a steady improvement in its availability. Based on efforts of Oil and Natural Gas Corporation (ONGC), which has pioneered gas exploration, Govt. of India (GOI) opened several blocks, both onshore as well as offshore, for exploration of Natural Gas by private sector. During these as well as continued explorations by ONGC, more gas fields have been discovered. As per the statistics published by Ministry of Petroleum and Natural Gas (MOPNG), the balance recoverable reserves of Natural Gas are about 1072 BCM.

M/s Essar Steel Limited who has supply arrangements with GSPCL, BPCL and IOCL for supply the gas requirement for the project activity to M/s Bhandar Power Limited.

Thus gas quantities required for fulfilling this gas based economy vision are expected to be available in the envisaged time frame.

The alternatives considered for determination of the baseline scenario in the context of the project activity include “emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment”

The possible alternative baseline scenarios are the following:

- Proposed project activity without CDM;



- Establishing similar new generation capacity following the recent fuel choice trend in power generation in India, including addition of plants running on poor quality Indian coal (its quality is continuing to deteriorate); imported coal; lignite (with higher emission of GHGs as well as SO_x); Naphtha, among others,

.The baseline options considered do not include those options that:

- do not comply with legal and regulatory requirements; or
- depend on key resources such as fuels, materials or technology that are not available at the project site.

The fossil fuel (coal) based power plant, was found to be economically more attractive baseline scenario based on investment analysis using levelised cost of generation as a financial indicator and the same was confirmed by performing sensitivity analysis by varying four critical parameters (PLF, fuel cost, fuel cost escalation rate and Heat Rate) in accordance with § 2 of AM0029. The input data, assumptions, the financial calculations/IRR/ and the resultant figures in the PDD have been assessed independently by the validation team and found OK.

Additionality has been discussed using the latest tool for additionality Ver 3. The arguments to justify the assessment of additionality as per AM 0029 Ver 01.1 are addressed in Section B 5 of PDD, which has been assessed by the validation team.

In accordance the additionality tool, Step 1 (as per AM 0029) for benchmark analysis, the project proponent has taken into consideration all the financial parameters relevant to the project activity and has also conducted sensitivity analysis to gauge the impact of probable realistic fluctuation of key parameters.

The indicator that has been selected for benchmark analysis is the levelised tariff from power generation in Rs./kWh.

The summary of levelised tariff for the plausible baseline options to the proposed project activity, as identified in section B.4 above is presented in the table below:

S.No.	Baseline option	Levelised Tariff (Rs./kWh)
1	Power generation using Natural gas, without CDM revenue	2.63
2	Power generation using Coal	2.44
3	Power generation using Lignite	2.52
4	Power generation using Naphtha	7.85
5	Import of power from the interconnected grids	4.52



On analysing this data it is observed that the project activity is not the most economical option for power production. Using coal as fuel is economically the most feasible investment for producing power in Gujarat. In all the above options, the GHG emissions will be more than the project option.

As per the adopted methodology investment analysis along with sensitivity analysis are to be carried out by calculating the cost of per unit generation using different fuels and the internal rate of return has been calculated with and without CDM incentives. The validation team assessed the investment analysis independently and is accepted that CDM revenue can act as risk mitigation

The common practices analysis (Step 2 as Per AM 0029) is addressed in Section B 5 of PDD.

Based on the data available in Central Electricity Authority website the power generation from gas based plants is ranging from 12 - 18% of the total power generation from grid connected power plants. Some new power plants are in the process of developing as potential CDM projects. The national Electricity Policy favours coal and lignite based projects and states that gas, as a source for power generation is dependent on its price.

The common practices analysis based on Sub step 4 a and 4 b of Additionality tool has been further validated by the following investigation to ascertain the essential distinctions between the project activity and the current common practices.

In 1991, the Government of India amended the Electricity Supply (Act) 1948 to allow the entry of private investors in power generation and distribution. A tariff notification issued in 1992, provided for a two-part tariff structure covering fixed and variable costs. It provided for a 16% rate of return on equity at 68.5% PLF for thermal plants and (coal / lignite/ gas) at 90% availability for hydro power plants. The achievement of higher efficiency levels translated into higher rate of return for investors.

Refer: /15/ in Category 2 documents under Section 6 - References

As per the new policy in 1991, for both Licensee and Generating Companies, the following was permitted.

Refer: /16/ in Category 2 documents under Section 6 - References

1. Upto Hundred percent (100%) foreign equity participation can be permitted for projects set up by foreign private investors.
2. With the approval of the Government, import of equipment for power projects will also be permitted in cases where foreign supplier(s) or agency(ies) extend concessional credit.
3. All private companies entering the Power Sector hereafter will be allowed a debt-equity ratio of 4:1.

The specific incentives for Licenses were:



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- Licenses of a longer duration of 30 years in the first instance and subsequent renewals of 20 years, instead of 20 and 10 years respectively prevailing at that time.
- Higher rate of return of 5% in place of the previous 2% above the RBI rate.
- Capitalisation of Interest During Construction (IDC) at actual cost (for expansion project also) as against 1% over RBI rate prevailing at that time.
- Special appropriations to meet debt redemption obligations.

These incentives in the 1991 policy were able to attract investments in the power sector in India.

The validation team could access and verify from the publicly available documents that there are only 14 power plants in the western region implemented using CCGT technology (source: CEA Database) upto 2004 – 05 prior the start date of this project activity. 7 out of the 14 CCGT were implemented when the Ministry of power, GOI announced the new policy during 1991, encouraging private participation and they enjoyed special status as being promoted by the State /Federal Government.

Of the remaining seven, which were implemented after the announcement of the policy in 1991, three of the projects (Essar GT, Dabhol GT and Paguthan) were with multi-fuel firing technology thereby having greater flexibility and reduced risk associated with fuel type. Hazira CCCP project is owned by Gujarat State Energy Generation Ltd, (GSEG) a State utility. Gandhar CCGT project was owned by NTPC a government organisation and also funded through Japanese ODA. The Reliance energy project is designed to run on Naphtha.

It is also to be noted that one more power project, which is an extension of Dhuvaran CCPP by Gujarat State utility, has been initiated in January 2004

The failure of Dabhol project in the year 2001 due to legal and regulatory issues, arbitration etc hindered the investment climate in the power sector with a number of foreign investors withdrawing their decisions of investment.

Subsequent policy notifications and changes brought about by the Electricity Regulatory Commissions Act 1998 and the Electricity Act 2003 removed the guaranteed cost plus regime, provision of escrows and a range of incentives that were provided earlier.

This establishes the fact that projects which were implemented after 1991–92 and prior to 2002 enjoyed a favourable investment scenario as compared to the private sector projects developed after 2002, when the major investors left India and the investment climate turned adverse compounded by the Dabhol Project failure. This situation is further confirmed by a news report in Times of India dated 4 Nov 2001.

Break up of the power projects implemented / being implemented can be seen from the table below (Summary of the table provided in the Section B5 of PDD)



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Scenario	Total	Public Sector Utilities		Private Sector Utilities	
		Multi Fuel	Gas	Multi Fuel	Gas
Prior to 2002	13	3	4	5	1
Post 2002	1	0	1	0	0
Being Implemented in 2004	1	0	1	0	0

Further it is to be noted that all these projects except the Dhuvaran CCPP project, are prior to 2002 and the Dhuvaran CCPP project is a Gujarat State owned utility.

The Dhuvaran CCPP project implemented post 2002 and the one under implementation in 2004 have been proposed as CDM project (Regn No 1352)^[m1]

Thus, this “155 MW Gas based combined cycle power project at Hazira” (a private sector power project) has not enjoyed the benefits or favourable investment situations / government policies that others enjoyed making it distinct from the common practice prevailed.

Hence it is concluded that there are no other activities, similar to this project activity that satisfies sub step 4(a) and consequently sub step 4(b) is not applicable to this project activity.

The validation team verified the detailed working and observed that the project is not financially viable without CDM revenue. (Step 3 as Per AM 0029)

CAR 2 – 4 and CL 4 were issued with respect to baseline and additionality, which have been satisfactorily resolved. Refer- Appendix A

3.3 Monitoring Plan

The Project uses the approved monitoring methodology AM 0029 (Grid Connected Electricity Generation Plants using Non-Renewable and Less GHG Intensive Fuel), version 01.1. Refer discussions on the validity of the methodology at section 3.2 above.

This methodology stipulates that monitoring shall consist of metering the electricity exported by the CCPP to the ESTL and the BM emission factor in accordance with ACM0002. Other set of parameters is also to be monitored in line AM0029. According to the § B.7.1 of the PDD these requirements are fulfilled. The procedure for calibration & maintenance of monitoring equipment are addressed in Annex 4 of PDD.

Leakages occurring due to fugitive methane emissions during production and transportation of NG / R LNG have been considered taking into account values provided in table provided in the methodology AM 0029. The leakages have been taken into account considered the rated capacity



of the plant and equal quantity of NG and R LNG consumption (Monitoring plan includes the total fuel consumption.)

CARs 5 to 7 & - 9 was issued with respect to monitoring plan, which have been satisfactorily resolved. Refer- Appendix A

3.4 Calculation of GHG Emissions

As per AM 0029 “Grid Connected Electricity Generation Plants using Non-Renewable and Less GHG Intensive Fuel”, the baseline emission sources considered are the power plants connected to the western grid that contribute to its build margin. The proposed natural gas based power project intends to reduce GHG emissions to the extent of the difference of baseline emission (multiplication of net electricity generated by the project plant with the build margin baseline emission factor of western regional grid as per the latest data of CO₂ baseline database published by CEA) and sum of project emission (multiplication of fuel quantity and CO₂ emission coefficient of Natural Gas) and leakage. These have been described adequately on CER calculations as required by the methodology AM 0029 Ver 01.1

The estimated annual average of approximately **190876** t CO₂e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project.

CL 4 was issued with respect to GHG Emissions, which have been satisfactorily resolved. Refer- Appendix A

3.5 Sustainable Development Impacts

The project proponents have undertaken Environmental Impact Assessment study for the project activity prior and project implementation has been considered. All aspects like water, air, land, and noise pollution as well as effect on ecology have also been carried out and outlined in section D.2 of the PDD, which clearly demonstrates environmental Management Plan of the impact envisaged.

Bhander Power Limited has also obtained relevant air and water consents and all necessary statutory clearances from the respective bodies. Bhander Power Limited has taken care to minimise risks and hazards by installing state of the art equipments and adopting good engineering practices. In addition, possible emergencies are identified and an emergency preparedness plan is in place.

CAR 8, & CL 5 was issued with respect to sustainable development impacts, which have been satisfactorily resolved. Refer - Appendix A.



3.6 Comments by Local Stakeholders

Local stakeholder consultation meeting to discuss stakeholder concerns on the proposed Clean Development Mechanism (CDM) project – 155 MW gas based combined cycle power project at Hazira by both project proponents on 20/09/2006 at the HRD Centre, Essar Power limited of Essar Steel Plant at Hazira.

The list of participants, notice-inviting participation to interested stakeholders, and record of the stakeholder meeting proceedings is maintained by the project participants and the same has been included in the PDD

The stakeholders viewed 155 MW gas based combined cycle power project at Hazira Project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development. The local stakeholders interviewed during the site visit of the validation activity endorsed these views.

CL 6 was issued with respect to comments by local stakeholder, which has been satisfactorily resolved. Refer - Appendix A

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Validation of CDM projects, the DOE shall make publicly available the project design document and receive, within 30 days; comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

Bureau Veritas Certification published the project documents on the UNFCCC CDM website (<http://cdm.unfccc.int>) on 01/05/2007 and invited comments within 31/05/2007 by Parties, stakeholders and non-governmental organizations.

No Comments were received.

5 VALIDATION OPINION

Bureau Veritas Certification has performed a validation of the 155 MW gas based combined cycle power project at Hazira in India. The validation was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The validation consisted of the following three phases:

- i) a desk review of the project design and the baseline and monitoring plan; (May 2007)
- ii) Follow-up interviews with project stakeholders;(June 2007)



iii) The resolution of outstanding issues and the issuance of the final validation report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment and prevailing barriers to determine that the project activity itself is not the baseline scenario.

By generating electricity using natural gas, the project is likely to result in reductions of GHG emissions partially displacing the electricity that would have been generated using fossil fuels. An analysis of the investment barrier demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions. The review of the project design documentation (Version 01 dated December 2006) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. The Project design document was subsequently revised as Ver 02 dated 17 July 2007 to resolve the issues that rose during the interviews and subsequent interactions.

In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria. The validation is based on the information made available to us and the engagement conditions detailed in this report.

6 REFERENCES

Category 1 Documents:

Documents provided by Type of the company that relate directly to the GHG components of the project.

- /1/ Evidence of CDM consideration – Copy of the Bhandar Power Limited board resolution dated 30 December 2003
- /2/ Project design document Version 01 dated December 2006 subsequently revision 02 dated 17 July 2007
- /3/ PPA between Bhandar Power and Essar Steel Limited dated 1 April 2004
- /4/ Permission dated 04/05/2005 from Gujarat Energy Transmission Corporation Limited (GETCO) for parallel operation of 155 MW CPP with GETCO and supply power to Essar Steel limited
- /5/ Host country approval from Ministry of Environment & Forests 4/23/2006 – CCC dated 16 April 2007 for this project for both proponents – M/s Essar Steel Limited and M/s Bhandar Power Limited.
- /6/ Consolidated consent and authorisation order no 3355 dated 27/04/2004 valid up to 24/06/2009 issued by Gujarat Pollution Control Board.



- /7/ IRR & Sensitivity Analysis as required by the methodology AM 0029
- /8/ CER Calculations

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- /1/ Communication regarding local stake holder meeting dated 20 September 2006
- /2/ Statement on the modalities for communicating with the Executive Board and the UNFCCC Secretariat dated 29 June 2007 signed by both project proponents.
- /3/ AM 0029 Baseline/ monitoring methodology for grid-connected electricity generation Plants using natural gas (Version 01.1: 19 May 2006)
- /4/ CEA CO₂ baseline database ver 2.0 for Emission factor
- /5/ Kyoto Protocol to the United Nations Framework Convention on Climate Change, United Nations 1997
- /6/ Tool for the demonstration and assessment of additionality". Version -3
- /7/ Notice inviting participation of local stake holders consultation process on 20 September 2006
- /8/ Evidence of project start date – Agreement dated 20 May 2004 between M/s Bhandar Power Limited and Shanahan Engineering Ltd., for Power plant erection.
- /9/ Commissioning of 155 MW combined cycle power plant on 15/01/2006 by TCE Consulting Engineers Limited
- /10/ Residual life assessment for the Turbine by SGS dated 29 April 2004.
- /11/ Facility use agreement between Essar Steel Limited and Bhandar Power Limited.
- /12/ Emergency preparedness plan 2007 for Bhandar Power Plant
- /13/ Environmental clearance dated 21 September 2006 from the Ministry of Environment & Forests.
- /14/ Registration of Boiler and economizer – GT 5124 & GT 5123 respectively dated 4 April 2006 from the Office of the Chief Inspector of Steam Boilers & Smoke Nuisance, Gujarat State.
- /15/ ADB Institute Discussion paper No: 64, Policy Environment and Regulatory Reforms for Private and Foreign Investment in Developing Countries
- /16/ Department of Power, Annual Report 1991-92, Ministry of Power and Non-Conventional Energy Sources, Government of India, New Delhi,



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Persons interviewed:

List persons interviewed during the validation or persons that contributed with other information that are not included in the documents listed above.

- /1/ Mr Madan Gopal Gupta – Bhandar Power Limited
- /2/ Mr VT Joshi –Bhandar Power Limited
- /3/ Mr Joseph Mathews – Bhandar Power Limited
- /4/ Mr Mitheel Mody – Essar Power Limited
- /5/ Mr Prashant Vikram Singh - Pricewaterhouse Coopers
- /6/ Ms Deeksha Vats – Pricewaterhouse Coopers
- /7/ Mr Harish Ahir – Transport Contractor - Local Stake holder - Hazira
- /8/ Mr Bhupendra Patel - Shop Owner -Local Stake holder - Hazira
- /9/ Mr Amit Patel – Computer Instructor - Hazira

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APPENDIX A:
VALIDATION PROTOCOL



VALIDATION REPORT

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

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK	Table 2, Section A.3.
2. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof	Kyoto Protocol Art. 12.2, Marrakesh Accords, CDM Modalities §40a	Host country approval letter 4/23/2006 – CCC dated 16 April 2007	Table 2, Section A.3
3. The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC	Kyoto Protocol Art.12.2.	OK	Table 2, Section A.3.
4. The project shall have the written approval of voluntary participation from the designated national authorities of each party involved, including confirmation by the host party that the project activity assists it in achieving sustainable development	Kyoto Protocol Art. 12.5a, Marrakesh Accords, CDM Modalities §40a, §28, Annex 3 of the Resolução Interministerial 01/03	Host Country approval for both the participants is received	Host country approval is received from Ministry of Environment and Forest (MOEF), DNA, India
5. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change	Kyoto Protocol Art. 12.5b	OK	Table 2, Section B.6.
6. Reduction in GHG emissions shall be additional to any that would occur in absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity	Kyoto Protocol Art. 12.5c, Marrakesh Accords, CDM Modalities §43 and 44	OK	Table 2, Section B.5.



VALIDATION REPORT

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
7. Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance	Marrakech Accords	OK	No public funding for the project from Annex1 parties is indicated.
8. Parties participating in the CDM shall designate a national authority for the CDM	Marrakech Accords, CDM Modalities §29	OK	Ministry of Environment and Forest has been designated national authority by the host country i.e. India.
9. The host country shall be a Party to the Kyoto Protocol	Marrakech Accords, CDM Modalities §30	OK	Host country, India is a party to the Kyoto Protocol
10. Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received	Marrakech Accords, CDM Modalities §37b	OK	Table 2, Section E.
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.	Marrakech Accords, CDM Modalities §37c	OK	Table 2, Section D.
12. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel	Marrakech Accords, CDM Modalities §37e	OK	Table 2, Section B.1. and B.6.
13. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP	Marrakech Accords, CDM Modalities §37f	OK	Table 2, Section B.7.



VALIDATION REPORT

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference / Comment
14. 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	OK	PDD was made available for public comments from 01.05.2007 to 30.05.2007
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, CDM Modalities, §45 b, c, e	OK	Table 2, Section B.4.
16. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, CDM Modalities, §47	OK	Table 2, Section B.4.
17. The project design document shall be in conformance with the UNFCCC CDM-PDD format and fulfilled according to the guidelines for completing CDM-PDD, CDM-NMB, and CDM-NMM	Marrakech Accords, CDM Modalities, Appendix B, EB Decisions	OK	Guideline for completing CDM PDD – Version 6, dated July 28, 2006



VALIDATION REPORT

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of Project Activity					
<i>The project design is assessed.</i>					
A.1. Title of the project activity, version number and date of the document	1	DR	155 MW Gas based combined cycle power project at Hazira, Version 01 Dated 1 st December 2006	OK	OK
A.2. Description of the project activity					
A.2.1. Is the purpose of the project activity included?	1	DR	The purpose of the project activity is to set up a 155MW gas based combined cycle power project to take care of the additional requirement of power for the expansion activities of Essar Steel Ltd (from 2 MTA to 3 MTA). This power will be exported to Essar Steel Limited through the Western grid.	OK	OK
A.2.2. Is the view of the project participants on the contribution of the project activity to sustainable development included?	1	DR	According to project participants, the project activity contributes to sustainable development through – 1. Increased employment to the local public. 2. Opportunity for secondary small scale entrepreneurs' development near the project site. 3. Economic improvement of the local population. 4. Reduce emission of GHG's.	OK	OK
A.2.3. Is the project in line with relevant legislation and plans in the host country?	-	DR I	Yes. Indian legislation allows gas based power generation.	OK	OK
A.2.4. Is the project in line with host-country specific CDM requirements?	-	DR I	It is not clear from the PDD whether the specific CDM requirements like Host country approval have been obtained.	CAR-1	OK
A.2.5. Is the project in line with sustainable	-	DR	Yes, the project proponents view as addressed in	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
development policies of the host country?		I	Section A.2 of PDD is in line with sustainable development policies of India.		
A.2.6. Will the project create other environmental or social benefits than GHG emission reductions?	-	DR I	The project is expected to benefit the local population by the employment opportunities, direct and indirect, apart from GHG emission reduction.	OK	OK
A.3. Project participants					
A.3.1. Are Party(ies) and private and/or public entities involved in the project activity listed?	1	DR	Yes, the host party is India and the private entities are Essar Steel Limited (ESTL) and Bhandar Power Limited (BPL). Refer A.3 of PDD.	OK	OK
A.3.2. Is the contact information provided in annex 1 of the PDD?	1	DR	Yes, provided in Annex 1 of PDD	OK	OK
A.3.3. Is this information indicated using the tabular format?	1	DR	Yes. Contact information of Essar Steel Limited and Bhandar Power Ltd is indicated in tabular format in Annex 1. (Nodal agency for Communication is Essar Steel Limited)	OK	OK
A.4. Technical description of the project activity					
A.4.1. Location of the project activity					
A.4.1.1. Host country Party(ies)	1	DR	Government of India	OK	OK
A.4.1.2. Region/State/Province etc.	1	DR	Gujarat state.	OK	OK
A.4.1.3. City/Town/Community etc.	1	DR	Hazira Village	OK	OK
A.4.1.4. Detailed description of the physical location, including information allowing the unique identification of this project activity.	1	DR	The Project site is located at Choryasi Taluka and District Surat in the state of Gujarat at Longitude: 72°39'E; Latitude: 21°16'N. The nearest port is at Hazira and railway station is at Surat. Unique identification like plot no. not defined	CL 1	OK
A.4.2. Category of the project activity					
A.4.2.1. Is the category of the project	1	DR	Yes, Project activity is categorized under sectoral	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
activity specified?			Scope 01 Category 1: Energy industries (renewable - / non-renewable sources)		
A.4.2.2. Is it justified how the proposed project activity conforms to the project category selected?	-	DR	Yes. A Grid connected electricity-generating project using natural gas by setting up of a 155MW gas based combined cycle power project.	OK	OK
A.4.3. Technology to be employed <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
A.4.3.1. Does the project design engineering reflect current good practices?	-	DR I	Yes	OK	OK
A.4.3.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	-	DR I	The technology involved is combined cycle electricity generation system with out supplementary firing in HRSG Refer A 4.3.3	OK	OK
A.4.3.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	-	DR I	The project lifetime is not indicated.	CL 2	OK
A.4.3.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	-	DR I	It is not clear from the PDD whether the project activity described need initial training as well as maintenance efforts during the project period	CL 3	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.4.3.5. Does the project make provisions for meeting training and maintenance needs?	-	DR I	Refer A.4.3.4.	CL 3	OK
A.4.4. Estimated amount of emission reductions over the chosen crediting period.					
A.4.4.1. Is the estimate of total anticipated reductions of tons of CO ₂ equivalent provided?	1	DR	Yes, the annual average of estimated emission reductions over the 10 years fixed crediting period would be 190876 tCO ₂ e	OK	OK
A.4.4.2. Is this information indicated using the tabular format?	1	DR	Yes, Indicated in tabular format in the PDD section A.4.4.	OK	OK
A.4.5. Public funding of the project activity					
A.4.5.1. Is it indicated whether public funding from Parties included in Annex I is involved in the proposed project activity?	1	DR	The total cost of the project activity is about INR 2900 million with 30% equity and 70% debt from Indian Financial Institutions. There is no ODA involved in development of the proposed CDM Project activity as indicated in A 4.5 and Annex 2 of PDD	OK	OK
A.4.5.2. If public funding is involved, is information on sources of public funding for the project activity provided in Annex 2, including an affirmation that such funding does not result on a diversion of official development assistance and is separate from and is not counted towards the financial obligations of those Parties?	1	DR	Not applicable.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B. Project Baseline <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
B.1. Baseline Methodology <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
B.1.1. Are the title and the reference of the baseline methodology applicable to the project activity defined?	1 UNF CCC web site	DR 	Yes. Approved baseline methodology AM0029 (version 01.1 dated 19 May 2006) has been used to determine the baseline emissions and emission reduction due to the project activity. The title of this baseline methodology is "Baseline Methodology for Grid Connected Electricity Generation Plants using Natural Gas.	OK	OK
B.1.2. Is the baseline methodology previously approved by the CDM Methodology Panel?	1	DR	Yes. Refer B.1.1	OK	OK
B.1.3. Does the proposed project activity meet the applicability conditions of the methodology?	1	DR	Yes. This methodology applies to project activities that generate electricity using natural gas.	OK	OK
B.2. Description of how the methodology is applied in the context of the project activity					
B.2.1. Is the baseline methodology the one deemed most applicable for this project and is the appropriateness justified?	1 AM 0029	DR	The approved baseline methodology is applicable to grid-connected natural gas fired generation project activities. Refer B.2 of PDD	OK	OK
B.2.2. Is the project activity construction and	AM		Yes. Refer B.2 of PDD	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
operation of a new gas fired grid connected electricity generation plant?	0029				
B.2.3. Can the geographical boundaries of the baseline grid be clearly defined and information pertaining to the grid and estimating baseline emissions publicly available.	AM 0029		Yes.	OK	OK
B.2.4. If natural gas is sufficiently available in the region or country.			Yes	OK	OK
B.3. Description of the project boundary for the project activity					
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?	1	DR	The spatial extent of the project boundary includes the project site and all power plants connected physically to the baseline grid	OK	OK
B.3.2. Are the project's system (components and facilities used to mitigate GHGs) boundaries clearly defined?	1	DR	Yes.	OK	OK
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario					
B.4.1. Does the PDD explain how most plausible baseline scenario is identified?	1	DR	Yes. Section B 4 of PDD	OK	OK
B.5. Description of how the anthropogenic GHG emissions by sources are reduced below those that would have occurred in the absence of the proposed project activity					
B.5.1. Is the proposed project activity additional?	1	DR	The additionality has been identified by investment benchmark analysis and common practice analysis.	CAR 2	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			As per the additionality steps mentioned in AM0029, the calculation and comparison of financial indicators (substep-2c) and the description of the impact of CDM consideration are not evident while demonstrating additionality in B 5.		
B.5.2. Are national policies and circumstances relevant to the baseline of the proposed project activity summarised?	-	I	Yes, they are summarised in Step 1b of additionality check.(B.5 of PDD).	OK	OK
B.6. Emission Reductions Validation of baseline GHG emissions will focus on methodology transparency and completeness in emission estimations.					
B.6.1 Explanation of methodological choices <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>					
B.6.1.1. Are all relevant methodological choices / scenarios explained?	-	DR I	Yes Refer A.6.1 of PDD. The options included build margin, combined margin and the emission factor of the technology identified for baseline emissions.	OK	OK
B.6.1.2. Are various emissions like project emissions, Baseline emissions and Leakages considered for calculations?	-	DR I	Yes Refer B.6.1 of PDD. The calculations for project emissions, baseline emissions and leakages are considered.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.6.2. Data and parameters that are available at validation. <i>Compilation of information on the data and parameters that are not monitored throughout the crediting period but are determined only once.</i>					
B.6.2.1. Are all data or parameters; the chosen value or, where relevant, the qualitative information, using the table provided?	-	DR	Refer B.6.2 of PDD. It indicates default emission factor (56.1 tCO ₂ /TJ) for natural gas as per Table 2.2 of IPCC 2006 guidelines Table 2.2 and the same is mentioned in the tabular format.	OK	OK
B.6.3. Ex-ante calculations of emission reductions. <i>The validation of predicted project GHG emissions focuses on transparency and completeness of calculations.</i>					
B.6.3.1. Are all aspects related to direct and indirect GHG emissions, including leakage, captured in the project design?	-	DR	Yes.	OK	OK
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	-	DR	The calculations are indicated in B 6.3 of PDD as per the formula $ER_y = BE_y - PE_y - LE_y$. Transparency needs to be verified	CL 4	OK
B.6.3.3. Have conservative assumptions been used to calculate project GHG emissions?	-	DR	Assumptions used for calculation of GHG emissions to be verified	CL 4	OK
B.6.3.4. Have all relevant greenhouse gases and source categories listed in	-	DR	Yes. CO ₂ & CH ₄	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
Kyoto Protocol Annex A been evaluated?					
B.6.3.5. Are uncertainties of external data sources for emissions reduction estimated?	-	DR	External data sources indicated in the B 6.2 of PDD	OK	OK
B.6.3.6. Are potential leakage effects beyond the chosen project boundaries properly identified?	-	DR	No potential leakages beyond the project boundary.	OK	OK
B.6.3.7. Have these leakage effects been properly accounted for in calculations?	-	DR	Leakages accounted as per AM0029	OK	OK
B.6.3.8. Does the methodology for calculating leakage comply with existing good practice?	-	DR	Yes	OK	OK
B.6.3.9. Are the calculations documented in a complete and transparent manner?	-	DR	Yes	OK	OK
B.6.3.10. Have conservative assumptions been used when calculating leakage?	-	DR	Yes	OK	OK
B.6.3.11. Are uncertainties in the leakage estimates properly addressed?	-	DR	Yes. Default emission factors for fugitive CH ₄ upstream emissions taken.	OK	OK
B.6.4. Summary of the ex-ante calculations of emission reductions. <i>Summarize the results of emission reductions for all years of the crediting period.</i>					
B.6.4.1. Are the reductions of emissions of the project captured as per the tabular form?	-	DR	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.7. Application of the monitoring methodology and description of Monitoring Plan <i>The monitoring plan review aims to establish whether all relevant project aspects deemed necessary to monitor and report reliable emission reductions are properly addressed.</i>					
B.7.1. Is the monitoring methodology previously approved by the CDM Methodology Panel?	1	DR	Yes. Approved monitoring methodology AM0029 "Monitoring Methodology for Grid Connected Electricity Generation Plants using Natural Gas" used.	OK	OK
B.7.2. Is the monitoring methodology applicable for this project and is the appropriateness justified?	1	DR	The reasons for choosing this monitoring methodology are addressed in B.2 of the PDD.	OK	OK
B.7.3. Does the monitoring methodology reflect good monitoring and reporting practices?	-	DR	Though monitoring mechanism has been discussed in Annex 4 the calibration frequency is not defined	CAR 3	OK
B.7.4. Is the discussion and selection of the monitoring methodology transparent?	-	DR	Yes.	OK	OK
B.7.5. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	-	DR	The frequency of calibration, data collection and archiving period and method are not indicated in PDD and in Annexure 4.	CAR 3	OK
B.7.6. Are the choices of project GHG indicators reasonable?	-	DR	Yes.	OK	OK
B.7.7. Will it be possible to monitor / measure the specified project GHG indicators?	-	DR	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.7.8. Will the indicators give opportunity for real measurements of achieved emission reductions?	-	DR	Yes.	OK	OK
B.7.9. Will the indicators enable comparison of project data and performance over time?	-	DR	PDD is silent about the Internal review process/plan to be verified during site visit	CAR 3	OK
B.8. Details of the baseline and its development					
B.8.1. Is the date of completion provided?	1	DR	The date of completion of the baseline study is 27.11.2006. But the same is not in DD/MM/YYYY format.	CAR 4	OK
B.8.2. Is contact information provided?	1	DR	Price Waterhouse Coopers (P) Limited has assisted the project proponent in determining the application of baseline methodology for the identified CDM project.	OK	OK
B.8.3. Is the person/entity is also a project participant?	1	DR	No	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
C. Duration of the Project activity / Crediting Period					
<i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
C.1. Is the project's starting date clearly defined ?	1	DR	In section C.1.1 of PDD three different dates as given. Further in PDD in A 4.4 crediting period starts at August 2004.	CAR 5	OK
C.2. Is the project's operational lifetime clearly defined and reasonable?			Operational lifetime indicated in C 1.2 of PDD as 25 years. The format as per guidelines years and months to be given. The evidence and basis needs to be verified – for operational life of GT (as it is second hand).	CAR 6	OK
C.3. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max. two x 7 years or fixed crediting period of max. 10 years)?	1	DR	Fixed crediting period of 10 years is chosen.. The starting date format in C 2.2.1 & in C 2.2.2 of PDD is not in dd/mm/yyyy format	CAR 7	OK
D. Environmental and Social Impacts					
<i>Documentation on the analysis of the environmental and social impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
D.1.1. Has an analysis of the environmental and social impacts of the project activity been sufficiently described?	PDD	I	It is not clear from the PDD if the findings narrated in D.1 of PDD is a result of the EIA study for the 155 MW gas based power project or not.	CAR 8	OK
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	-	I	See above. .	CAR 8	OK
D.1.3. Will the project create any adverse	-	I	No, project is not likely to create any adverse	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
environmental or social effects?			environmental and social impacts.		
D.1.4.Are transboundary environmental and social impacts considered in the analysis?	-	I	No adverse trans boundary impacts envisaged.	OK	OK
D.1.5.Have identified environmental and social impacts been addressed in the project design?	-	I	Section D.1 of PDD addresses these.	OK	OK
D.1.6.Does the project comply with environmental legislation in the host country?	-	I	It is not clear from PDD, whether the environmental clearance is obtained for this project	CAR 8	OK
E. Stakeholder Comments <i>The validator should ensure that a stakeholder comments have been invited and that due account has been taken of any comments received.</i>					
E.1.1.Have relevant stakeholders been consulted?	-	DR	Evidence of local stakeholder consultation process needs to be verified, as it is not clear from the PDD whether relevant stakeholders have been consulted.	CL 5	OK
E.1.2.Have appropriate media been used to invite comments by local stakeholders?	-	DR	Meeting conducted on 20/09/2006 at conference room HRD center.	OK	OK
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?	-	I	Yes. To obtain environmental clearance such consultation is required.	OK	OK
E.1.4.Is a summary of the stakeholder	-	DR	Yes. Refer E. 2	OK	OK


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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
comments received provided?					
E.1.5.Has due account been taken of any stakeholder comments received?	-	DR	Refer E.3 of PDD. No indication on how due account is taken for the stakeholder comments received.	CL 6	OK

Table 3 Baseline and Monitoring Methodologies: AM 0029 Ver 1.1

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1. 1. Applicability					
1.1.1. Does the project activity generate electricity as defined the chosen methodology	3	DR I	The project activity involves setting up of 155 MW gas based power plant and connected to grid.	OK	OK
1.1.2. Is the power connected to the grid?		DR I	Yes, the power plant is connected to the western Grid.	OK	OK
1.1.3 Is the baseline methodology used in conjunction with the approved monitoring methodology AM 0029?	3	DR	Yes. Baseline methodology is used in conjunction with approved monitoring methodology	OK	OK
1.1.4 Is the geographical/ physical boundaries of the baseline grid can be clearly identified ?	3	DR I	Yes.	OK	OK
1.1.5 Is information pertaining to the grid and estimating baseline emissions is publicly available.	3	DR I	Yes	OK	OK
1.1.5. Does proposed project activity falls under electricity generation from renewable sources	3	DR I	No. the project activity is electricity generation using natural gas / R LNG	OK	OK
1.1.6. Is Natural gas is sufficiently available in the	3	DR	Yes.	OK	OK



VALIDATION REPORT

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Concl	Final Concl
region or country?					
1. 2. Project boundary					
1.2.1. Did the project participant account for the CO ₂ emission from electricity generation in fossil fuel fired power that is displaced due to project activity?	2,3	DR	Yes	OK	OK
1.2.2. Does the spatial extent of the project boundary include the power plant at project site and all power plants connected physically to the electricity system that the CDM project power plant is connected to?	2,3	DR	The spatial extent of the project boundary includes the project site and all power plants connected physically to the baseline grid as in B.3 of PDD.	OK	OK
1.2.3 Whether choice of inclusion/exclusion CH ₄ emissions in project and baseline are documented in PDD?	2,3	DR	The choice is documented in B.3 of PDD	OK	OK
1.2.4 Is the regional project electricity system identified by the spatial extent of the power plants that can be dispatched without significant transmission constraints?	2,3	DR	Yes identified.	OK	OK
1.2.5. Are the assumptions made in determining the project electricity system defined and justified?	2,3	DR	There are no assumptions made in defining the project electricity system,	OK	OK
1.2.6 Does the application of this methodology result in a clear grid boundary?	2,3	DR	Yes.	OK	OK
1.2.7 Does the application of this methodology result in a given country specific variations in grid management policies?	2,3	DR	No	OK	OK
1.2.8 If answer to question is yes then whether DNA of the host country provides the delineation of grid	2,3	DR	NA	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Concl	Final Concl
boundaries.					
1.2.9 If answer to question is no whether DNA guidance is available for defining the boundary.	2,3	DR	Yes	OK	OK
1.2.10 If answer to question is no whether the layered dispatch system (e.g. state/provincial/regional/national) the regional grid is used?	2,3	DR	Yes, Western Region grid is considered.	OK	OK
1.2.11 If the regional grid is not used whether the national grid is used.	2,3	DR	Not applicable	OK	OK
1.3. Identification of alternative baseline scenarios					
1.3.1 Are the various options for alternatives explained in PDD?	3	DR	The alternatives considered are power generation using coal, lignite, naphtha, hydro, nuclear and wind energy.	OK	OK
1.3.2. Is the explanation of these options transparent and complete	3	DR	Yes	OK	OK
1.3.3 Are the calculations for baseline is as per latest version of AM 0029 as required by this methodology?	3	DR	Yes	OK	OK
1.3.4. Whether the project participant has used the steps as per AM0029 for defining the baseline scenario?	3		Yes	OK	OK
1.3.5. Is the choice of financial indicators relevant and calculations transparent?	3		The choices of financial indicators are addressed in the PDD.	OK	OK
1.3.6. Is levelized cost of electricity production in INR/kWh should be used as financial indicator for investment analysis?	3		Yes	OK	OK
1.3.7. Is sensitivity analysis performed for all alternatives?			Yes	OK	OK
1.3.8. Is the most likely baseline scenario 'electricity	3	DR	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Concl	Final Concl
production from other sources feeding into the grid?					
1.3.9 Did the project participant provide evidence and supporting documents to exclude baseline options that do not comply with legal and regulatory requirements; or depend on key resources such as fuels, materials or technology that are not available at the project site?	3	I	There are no baseline options that do not comply with legal and regulatory requirements or no key resources such as fuels, materials or technology that are not available at the project site	OK	OK
1.4. Additionality					
1.4.1. Was the additionality of the project activity demonstrated and assessed using the latest version of the "Tool for demonstration and assessment of additionality"?	3	DR	The additionality as per AM 0029 has been considered. However sub step 2c and impact of CDM registration have not been addressed	CAR 2	OK
1.4.2. Was the bench mark investment analysis done covering steps in 2b, 2c and 2d of the additionality tool	3	DR	See above.	CAR 2	OK
1.4.3 <i>Is it demonstrated that the project activity is not common practice in the relevant country and sector by applying Step 4 (common practice Analysis)</i>	3	DR	Yes	OK	OK
1.4.4 Is the impact of the registration of the project activity by applying Step 5 (Impact of CDM registration) described in PDD	3	DR	Impact of CDM registration not addressed in PDD	CAR 2	OK
1.5 Project Emissions					
1.5.1. Are the project emissions considered as CO2 emissions from on-site combustion of natural gas to generate electricity.	3	DR	Yes	OK	OK
1.6. Baseline Emissions					
1.6.1. Are the baseline emissions determined according to the formula $BE_y = EG_y \times EF_{BL, CO2, y}$	3	DR	Yes. The formula used is $BE_y = EG_y \times EF_{BL, CO2, y}$	OK	OK
1.6.2. Were the Emissions Factor for displaced electricity calculated as in ACM0002?	3	DR	Yes.	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Concl	Final Concl
1.7.1. Are the leakage considered?	3	DR	Yes. Leakages due to fugitive upstream CH4 emissions and Leakage emissions due to fossil fuel combustion / electricity consumption associated with the liquefaction, transportation, re-gasification and compression of LNG into a natural gas transmission or distribution system considered.	OK	OK
1.7.2 What emission factors for fugitive CH4 upstream emissions are used.	3	DR	Default emission factors for fugitive CH4 upstream emissions as per IPCC guidelines 1996 and as given in Table 2 of AM 0029 is used.	OK	OK
1.7.3. Have any credits been claimed for the project on account of reducing the emissions due to power plant construction, fuel handling and land inundation below the level of the baseline scenario?	3	DR I	No credits claimed for activities during the project construction activity.	OK	OK
1.8. Emission Reduction	3				
1.8.1. Did the emissions reductions were determined according to the formula $ER_y = BE_y - PE_y - LE_y$	3	DR	Yes, this is explained in section B.6.1 & B.6.3 of the PDD	OK	OK
1.8.2. Were all values chosen in a conservative manner and was the choice justified?	3	DR I	Refer Table 2 B 6.3.3.	CL 4	OK
1.8.3. Whether an estimate of likely project emission reductions for the proposed crediting period is prepared as part of the PDD?	3	DR I	Yes.	OK	OK
1.8.4. Whether the estimate in principle employs the same methodology AM0029?	3	DR I	Yes	OK	OK
1.8.5. Whether the emission factor is determined ex-post during monitoring?	3	DR I	CEA data is taken for calculations.	OK	OK
1.8.6. If yes whether project participants have used models or other tools to estimate the emission reductions prior to validation?	2	DR I	CEA data and equations given in ACM0002 are used for estimation.	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Concl	Final Concl
2.1. Applicability					
2.1.1. Is the project activity, construction and operation of a new natural gas fired grid-connected electricity generation plant?.	3	DR I	Yes. The project activity involves setting up of 155 MW gas based power plant and connected to grid.	OK	OK
2.1.2. Is the power connected to the grid?		DR I	Yes, the power plant is connected to the western Grid.	OK	OK
2.1.3 Is the monitoring methodology used in conjunction with the approved baseline methodology AM 0029?	3	DR	Yes. Monitoring methodology is used in conjunction with approved baseline methodology	OK	OK
2.1.4 Is the geographical/ physical boundaries of the baseline grid can be clearly identified ?	3	DR I	Yes.	OK	OK
2.1.5 Is information pertaining to the grid and estimating baseline emissions is publicly available.	3	DR I	Yes	OK	OK
2.1.5. Does proposed project activity falls under electricity generation from renewable sources	3	DR I	No, the project falls under electricity generation using natural gas / R LNG	OK	OK
2.1.6. Is Natural gas is sufficiently available in the region or country?	3	DR	Yes.	OK	OK
2.2. Monitoring Methodology					
2.2.1. Does the monitoring plan require monitoring of increased electricity generation from the proposed project activity?	3	DR	Yes.	OK	OK
2.2.2. Does the monitoring plan require monitoring of Data needed to recalculate the build margin emission factor, if needed, consistent with ACM0002?	3	DR	Yes	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Concl	Final Concl
2.2.3. Does the monitoring plan cover the primary parameters given under to be monitored during the crediting period? 1. Annual fuel(s) consumption in project activity. 2. Net Calorific Value(s) of the fuel used in the project activity. 3. Fuel emission factors for fuel used in the project activity.	3	DR	In the table for calorific value, description of the parameter is given as gross calorific value whereas as per the AM0029, it is net calorific value is to be considered for calculations	CAR 9	OK
2.3. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.3.1. Did all measurements use calibrated measurement equipment that is regularly checked for their functioning?	3	I	Calibration plan for metering equipments not defined	CAR 3	OK
2.3.2. Are the data double-checked against commercial data?	3	DR I	PDD is silent about the Internal review process/plan.	CAR 3	OK

Table 4 Legal Requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	2	DR	Environmental clearances are to be verified for their validity	CAR 1	OK
1.2. Are the conditions of the environmental license being met?	2	DR	See above	CAR 1	OK
1.3 Are the conditions of the Designated National Authority being met?	2	DR	It is not clear from the PDD whether the specific CDM requirements like Host country approval have been obtained	CAR 1	OK



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Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3/4	Summary of project owner response	Validation team conclusion
<p>CAR 1 It is not clear from the PDD whether the specific CDM requirements like Host country approval have been obtained. Environmental clearances are to be verified for their validity</p>	<p>Table: 2 A 2.4</p>	<p>HCA letter 4 / 23 / 2006 – CCC dated 16 April 2007 for both the project participants and CCA order no 3355 dated 27/07/2004 from GPCB valid upto 24/06/2009</p>	<p>Verified and found to be in order. Hence this CAR is closed.</p>
<p>CAR 2 The additionality has been identified by investment benchmark analysis and common practice analysis. As per the additionality steps mentioned in AM0029, the calculation and comparison of financial indicators (substep-2c) and the description of the impact of CDM consideration are not evident while demonstrating additionality in Section B 5</p>	<p>Table: 2 B 5.1 Table 3 1.4.1 1.4.2 1.4.4</p>	<p>The steps in Section B.5 of the PDD have been aligned to AM0029. Kindly refer pages 17 & 18 of the revised PDD version 02 dated 17 July 2007 (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests)</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CAR is closed.</p>



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Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 2/3/4	Summary of project owner response	Validation team conclusion
<p>CAR 3 The frequency of calibration, data collection and archiving period and method are not indicated in PDD and in Annexure 4. PDD is silent about the Internal review process/plan.</p>	<p>Table: 2 - B 7.3, B 7.5 B 7.9 Table 3 - 2.3.1, 2.3.2</p>	<p>Sections B.6.2, B.7.1, B.7.2 and Annex 4 have been updated in the revised PDD version 02 dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests)</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CAR is closed.</p>
<p>CAR 4 The date of completion of the baseline study is 27.11.2006. But the same is not in DD/MM/YYYY format.</p>	<p>Table: 2 B 8.1</p>	<p>Section B.8 has been updated in the revised PDD.</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CAR is closed.</p>
<p>CAR 5 In section C.1.1 of PDD three different dates as given. Further in PDD in A 4.4 crediting period starts at August 2007</p>	<p>Table: 2 C .1</p>	<p>Sections C.1.1 and section A.4.4 have been updated in the revised PDD.</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CAR is closed.</p>
<p>CAR 6 Operational lifetime given as 25 years. The format as per guidelines years and months to be given. The evidence and basis needs to be verified – for operational life of GT (as it is second hand).</p>	<p>Table: 2 C.2</p>	<p>Sections C.1.2 has been updated in the revised PDD</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CAR is closed.</p>



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<p>CAR 7 Fixed crediting period of 10 years is chosen. The starting date format in C 2.2.1 & in C 2.2.2 of PDD is not in dd/mm/yyyy format</p>	<p>Table: 2 C.3</p>	<p>Sections C.2.2.1 and C.2.2.2 have been updated in the revised PDD.</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CAR is closed.</p>
<p>Draft report clarifications and corrective action requests by validation team</p>	<p>Ref. to checklist question in table 2/3/4</p>	<p>Summary of project owner response</p>	<p>Validation team conclusion</p>
<p>CAR 8 It is not clear from the PDD, the findings narrated in D.1 of PDD is a result of the EIA study for the 155 MW gas based power project or not</p>	<p>Table: 2 D 1.1 D 1.2</p>	<p>Sections D.1 & D.2 have been updated in the revised PDD</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Copy of Environmental clearance was also available to the validation team Hence this CAR is closed.</p>



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<p>CAR 9 In the table for calorific value, description of the parameter is given as gross calorific value whereas as per the AM0029, it is net calorific value is to be considered</p>	Table 3 2.2.3	The revised PDD refers to Net Calorific Value (NCV) of natural gas.	The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CAR is closed.
<p>CL 1 The Project site is located at Choryasi Taluka and District Surat in the state of Gujarat at Longitude: 72°39'E; Latitude: 21°16'N. The nearest port is at Hazira and railway station is at Surat. Unique identification like plot no. not defined</p>	Table 2 A 4.1.4	Section A.4.1.4 has been updated in the revised PDD	The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CL is closed
<p>CL 2 Project life time is not indicated</p>	Table 2 A 4.3.3	Sections C.1.2 has been updated in the revised PDD. The residual life time assessment carried out by SGS is also provided to the validation team	The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) The residual lifetime assessment letter of SGS was verified Hence this CL is closed
<p>Draft report clarifications and corrective action requests by validation team</p>	Ref. to checklist question in table 2/3/4	Summary of project owner response	Validation team conclusion
<p>CL 3 It is not clear from the PDD whether the project activity described need initial training as well as maintenance efforts during the project period</p>	Table 2 A 4.3.4 A 4.3.5	Essar group has been operating natural gas based power projects since last 10 years. Also, Essar group recruits trained engineers from National Power Training Institute.	This was verified during the interaction with the shop floor engineers and was observed to have initial training in NG based Power plant operations. Hence this CL is closed



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<p>CL 4 The calculations are indicated in B 6.3 of PDD as per the formula $ER_y = BE_y - PE_y - LE_y$. Transparency needs to be verified. Assumptions used for calculation of GHG emissions to be verified.</p>	<p>Table 2 B 6.3.2 B 6.3.3 Table 3 1.8.2</p>	<p>The source for the data used for the Calculations are indicated in the excel sheet for CER estimations.</p>	<p>The excel sheet for CER calculations verified and found to include the data source as well the transparency is also observed. Hence this CL is closed</p>
<p>CL 5 Evidence of local stakeholder consultation process needs to be verified, as it is not clear from the PDD whether relevant stakeholders have been consulted.</p>	<p>Table 2 E 1.1</p>	<p>Sections E.1 has been updated in the revised PDD. Also the minutes of meeting with the local stake holders was also provided to the validation team</p>	<p>The PDD is revised and the minutes of meeting observed to contain the local villagers as well as businessmen and teachers. Validation team also could confirm this during their interaction with some of the local stakeholders during the site visit. Hence this CL is closed.</p>
<p>CL 6 Refer E.3 of PDD. No indication on how due account is taken for the stakeholder comments received.</p>	<p>Table 2 E 1.5</p>	<p>PDD has been revised to address this.</p>	<p>The changes are incorporated in the revised version 02 of PDD dated 17 July 2007. (PDD now revised to Ver 03 dated 20 February 2008 to include response to EB review requests) Hence this CL is closed.</p>

- 1- GUIDELINES FOR COMPLETING CDM-PDD, CDM-NMB and CDM-NMM – Version 06.2 – 19th December, 2006
- 2- APPROVED CONSOLIDATED METHODOLOGY ACM0002 – Version 6 – 19 May 2006
- 3- APPROVED BASELINE METHODOLOGY AM0029 – Version 01.1 – 19th May 2006.
- 4- TOOL FOR THE DEMONSTRATION AND ASSESSMENT OF ADDITIONALITY (Version 03)



APPENDIX B – VALIDATION TEAM PROFILE

Mr. R Sankaranarayanan	Bureau Veritas Certification India Private Limited	<p>GHG Lead Validator</p> <p>B Tech (Chemical) graduate with 23 years of experience in manufacturing industries and 9 years in Management system auditing He has been involved in validation of more than 18 CDM projects.</p>
Mr. R Reghukumar	Bureau Veritas Certification India Private Limited	<p>GHG Validator</p> <p>Post graduate in Environmental Engineering, Management and certified Project Management Professional from PMI, Pennsylvania, USA, with 20 years of work experience, which include teaching, Environmental Management & Monitoring as part of the environmental regulatory authority and Management system auditing with exposure to variety industrial processes. He has been involved in validation and verification of 6 CDM projects</p>



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Mr S Saraf	Bureau Veritas	He is the Sector expert and has several years of Industrial work experience in the field of monitoring of electrical power, qualitative aspects of monitoring, calibration procedures etc He is so far has carried out Validation/verification for more than 10 CDM projects.
Mr H B Muralidhar	Bureau Veritas Certification India Private Limited	Internal Reviewer BE (Electrical) graduate Total of 25 years of experience power generation and distribution related fields as well as in management system auditing. He has been involved in validation of more than 50 CDM projects
Mr. Sushil Budhia	Sushil Budhia & Associates, Mumbai	Financial Analysts, He is a Chartered Accountant and has extensive experience for conducting statutory and tax audits. He has experience in internal audits and taxation matters

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