



CDM Project Activity Registration and Validation Report Form

(By submitting this form, designated operational entity confirms that the proposed CDM project activity meets all validation and registration requirements and thereby requests its registration)

Section 1: Request for registration

Name of the designated operational entity (DOE) submitting this form	Det Norske Veritas Certification Ltd. (DNV)
Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration	Electric Power Co-Generation by LDG Recovery – CST - Brazil
Project participants (Name(s))	CST - Companhia Siderúrgica de Tubarão (Brazil)
Sector in which project activity falls	Sectoral scope 1: Energy industries
Is the proposed project activity a small-scale activity?	No.

Section 2: Validation report

List of documents to be attached to this validation report (please check mark):	
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> The CDM-PDD of the Project activity <input checked="" type="checkbox"/> An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations (Note: Included in DNV's Validation Report (DNV report 2005-1313, rev. 01)); <input type="checkbox"/> The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assist it in achieving sustainable development: <ul style="list-style-type: none"> ○ (Attach a list of all Parties involved and attach the approval(in alphabetic order)) <input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation. <ul style="list-style-type: none"> ○ DNV's Validation Report (DNV report 2005-1313, rev. 01), including a validation protocol and a list of person interviewed by DNV validation team during the validation process. <input type="checkbox"/> Information on when and how the above validation report is made publicly available. <input type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee. <input type="checkbox"/> A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocation of CERs at issuance. 	

Executive Summary and Introduction, including

- **Description of the proposed CDM project activity**
- **Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable)**
- **DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation)**

The “Electric Power Co-Generation by LDG Recovery – CST - Brasil” consists of a system to recover part of LDG gas (which is rich in CO) generated in CST’s steel making plant and to use the LDG in three existing thermoelectric plant and a newly added 4th thermoelectric plant (CTE#4). Prior to the implementation of the project, LDG was flared. The project involves significant investments into an adequate system for LDG cleaning in order to condition the gas to the requirements for adequate transportation and electric power co-generation. The additional electricity generated by CST is consumed internally, but would in the absence of the project be imported from the Brazilian South-Southeast-Midwest (S-SE-CO) grid. The project will thus avoid CO₂ emissions that would occur if the same amount of electricity would partly be produced by fossil-fuelled thermal plants connected to the S-SE-CO grid. The estimated amount of GHG emission reductions from the project is 457 696 tCO₂e during the fixed 10 years crediting period, resulting in estimated average annual emission reductions of 45 769 tCO₂e.

The validation scope is an independent and objective review of the Project Design Document (PDD). The PDD was reviewed against Kyoto Protocol criteria for the CDM, the CDM modalities and procedures as agreed in the Marrakech Accords and relevant decision by the CDM Executive Board. The validation team has, based on the recommendation in the IETA/PCF Validation and Verification Manual, employed a risk-based approach, focusing on the identification of significant risks for the project implementation and the generation of CERs.

The following documents were reviewed:

CST and PricewaterhouseCoopers: Project Design Document for the Electric Power Co-Generation by LDG Recovery – CST - Brasil, Version 1 (22 August 2005)

CST and PricewaterhouseCoopers: Project Design Document for the Electric Power Co-Generation by LDG Recovery – CST - Brasil, Version 2 (17 November 2005)

Spreadsheet of Calculation of Combined Margin Emission Coefficient (ONS-Emission Factor SSECO 2001-2003 v 2005-06-22.xls).

CST and PricewaterhouseCoopers: CDM possibilities at CST, December 2002

CST Financial spreadsheet LDG November 2005

MAE electricity auction 2002

[http://www.mae.org.br/leiloes_mae/leilao_venda/fechamento/resumo.jsp?codigo-aviso=9&codigo-Brazilian Central Bank, SELIC:](http://www.mae.org.br/leiloes_mae/leilao_venda/fechamento/resumo.jsp?codigo-aviso=9&codigo-Brazilian%20Central%20Bank,%20SELIC) <http://www.bcb.gov.br/?SELICMES>

Letter sent to local stakeholder to invite comments about the project

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

Approved Baseline Methodology ACM0004: “Consolidated baseline methodology for waste gas and/or heat for power generation”. Version 01 of 08 July 2005.

Approved Monitoring Methodology ACM0004: “Consolidated monitoring methodology for waste gas and/or heat for power generation”. Version 01 of 08 July 2005.

Approved Baseline and Monitoring Methodology ACM0002 “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” Version 01 of 03 September 2004

Bosi, M., A. Laurence, P. Maldonado, R. Schaeffer, A. F. Simoes, H. Winkler and J.-M. Lukamba: Road testing baselines for greenhouse gas mitigation projects in the electric power sector. OECD

and IEA information paper, October 2002.

CDM-EB, "Tool for the demonstration and assessment of additionality", Annex 1 of the report of the EB's 16th meeting.

The following persons were interviewed:

Guilherme Correa Abreu – Environmental Engineer CST

The validation team consisted of the following personnel:

Mr. Luis Filipe Tavares	DNV Rio de Janeiro	Team leader,
Ms. Cintia Dias	DNV Rio de Janeiro	CDM auditor
Mr. Vicente San Valero	DNV Rio de Janeiro	CDM auditor
Mr. Michael Lehmann	DNV Oslo	Energy sector expert/Technical reviewer

For further details, please refer to the "Introduction" and "References" Sections of DNV's Validation Report (DNV Report 2005-1313, rev. 01).

Description of methodology for carrying out validation

- **Review of CDM-PDD and additional documentation attached to it**
- **Assessment against CDM requirements (e.g. by use of a validation protocol)**
- **Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are "labelled" during validation.**
- **Include statements or assessments in the section "Conclusions, final comments and validation opinion" below.**

The validation consisted of the following three phases:

- i) a desk review of the project design, baseline and monitoring plan;
- ii) follow-up interview with project stakeholders;
- iii) the resolution of outstanding issues and the issuance of the validation report and opinion.

The original and revised versions of the project design document (PDD) submitted by the project participants were assessed. Additional background documents related to the project design and the baseline were also reviewed.

On 10 October 2005, DNV performed interviews with a representative of Companhia Siderurgica Tubarão - CST

In order to ensure transparency, a validation protocol has been customized for the project, according to the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validation the identified criteria.

Findings established during the validation can either be seen as a non- fulfilment of validation criteria or where a risk to the fulfilment of project objectives is identified. Such findings are termed Corrective Action Requests (CAR). The term Clarification may be used where additional information is needed to fully clarify an issue. The Corrective Action Requests and requests for Clarification raised by the validation team were resolved through communications with the project participants. To guarantee the transparency of the validation process, the concerns raised by DNV and the response provided by the project participants are documented in Table 3 of the Validation Protocol in Appendix A of DNV's Validation Report. (DNV report 2005-1313, rev. 01).

For further details, please refer to the "Methodology" Section of DNV's Validation Report (DNV Report 2005-1313, rev. 01) and the IETA/PCF Validation and Verification Manual (www.vvmanual.info)

Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM

modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

- **Description of how and when the PDD was made publicly available**
- **Description of how comments were received and made publicly available**
- **Explanation of how due account has been taken of comments received**
- **Compilation of all comments received (Identify the submitter)**

DNV Certification published the PDD of 22 August 2005 on the DNV Climate Change web site (<http://www.dnv.com/certification/ClimateChange>) and Parties, stakeholder and UNFCCC accredited NGOs were, through the UNFCCC CDM web site, invited to provide comments within a 30 days period from 20 September 2005 to 19 October 2005. No comments were received.

Conclusions, final comments and validation opinion

- **Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been met. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.**
- **Final comments and validation opinion**

Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the “Electric Power Co-Generation by LDG Recovery – CST - Brasil project at Serra Municipality, Espírito Santo state, Brazil. The validation was performed on the basis of UNFCCC criteria for CDM project activities and relevant Brazilian criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project participant is Companhia Siderúrgica de Tubarão (CST) of Brazil. The host Party Brazil meets all relevant participation requirements. No participating Annex I Party is yet identified.

Companhia Siderúrgica de Tubarão (CST) is an integrated steel industry based on coke, with an installed capacity of 5.0 Mt/year. The project consists of a system to recover part of LDG gas generated in the steel making plant (which is rich in CO) and to utilise LDG in three existing thermoelectric plant and the newly added 4th thermoelectric plant. LDG was flared prior to the implementation of the project.

The baseline scenario assumes that LDG would continue to be flared during the crediting period. Emission reductions will thus be achieved through the use of LDG as fuel to produce electricity and by displacing grid electricity that is partly generated by thermal units connected to the S-SE-CO Brazilian grid.

By promoting the use of a waste gas for electricity generation instead of flaring it without utilising its energy, the project is in line with the current sustainable development priorities of Brazil.

The project applies the approved baseline and monitoring methodology ACM0004, i.e. “Consolidated baseline methodology for waste gas and/or heat for power generation”. The baseline methodology has been applied correctly and the assumptions made for the selected baseline scenario are sound. It is sufficiently demonstrated that the project is not a likely baseline scenario and that emission reductions attributable to the project are additional to any that would occur in the absence of the project activity.

The monitoring methodology has been applied correctly. The monitoring plan sufficiently specifies the monitoring requirements of the main project indicators.

The calculation of emission reductions is based on multiplying the amount of electricity generated based on combusting LDG with an emission factor for electricity generation in the Brazilian S-SE-CO grid, calculated according to ACM0002. Given that the project performs as planned, stated emission reductions are likely to be achieved.

Local stakeholder comments were invited according to the Brazilian DNA Resolution 1. No comments

were received. Public stakeholder input has also been invited via the UNFCCC web-site, but no comments have been received.

In summary, it is DNV's opinion that the "Electric Power Co-Generation by LDG Recovery – CST - Brasil" project, as described in the revised and resubmitted project design document of 17 November 2005, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0004. Hence, DNV will request the registration of the "Electric Power Co-Generation by LDG Recovery – CST - Brasil" project as a CDM project activity.

For further details, please refer to the "Validation Findings" Section and Table 1 of the Validation Protocol in Appendix A of DNV's Validation Report (DNV Report 2005-1313, rev. 01).

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

By submitting this validation report, the DOE confirms that all validation requirements are met.

Prior to the submission of this validation report to the CDM Executive Board, DNV will have to receive the written approval of the DNA of Brazil, including confirmation that the project assists in achieving sustainable development.

Name of authorized officer signing for the DOE

Michael Lehmann

Date and signature for the DOE

17 November 2005

Michael Lehmann

Section below to be filled by UNFCCC secretariat

Date when the form is received at UNFCCC secretariat

Date at which the registration fee has been received

Date at which registration shall be deemed final

Date of request for review, if applicable

Date and number of registration

Date

Number