



**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**

<b>Name of the designated operational entity (DOE) submitting this form</b>	SGS United Kingdom Ltd.
<b>Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration</b>	Rice Husk Based Power Project
<b>Project participants (Name(s))</b>	Vandana Vidhyut Limited
<b>Sector in which project activity falls</b>	1 Energy industries (renewable - / non-renewable sources)
<b>Is the proposed project activity a small-scale activity?</b>	<u>Yes</u> / No (underline as applicable)

**Section 2: Validation report**

<b>List of documents to be attached to this validation report (please check mark):</b>	
<p><input checked="" type="checkbox"/> The CDM-PDD of the project activity</p> <p><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;</p> <p><input checked="" 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 assists it in achieving sustainable development:</p> <p style="padding-left: 40px;"><input type="checkbox"/> (Attach a list of all Parties involved and attach the approval (in alphabetical order))</p> <p><input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> (comprehensive list of documents attached clearly referenced)</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> List of persons interviewed by DOE validation team during the validation process</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> Any other documents. Refer to list of documents attached .</p> <p><input type="checkbox"/> Information on when and how the above validation report is made publicly available.</p> <p><input type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee</p> <p><input checked="" 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 allocations of CERs at issuance</p>	

**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)**

**Description of the proposed CDM project activity**

The purpose of the proposed CDM project activity is to utilize rice mill generated rice husk for the generation of steam and electricity using a 7.7 MW turbine. Surplus electricity will be sold to the state grid.

Baseline Scenario:

Under the baseline scenario presented in the PDD, the electricity produced by the project would have been generated by the current fuel mix of the Chattisgarh State Electricity Board (CSEB) grid.

With-project scenario:

Under the project scenario presented in the PDD, the rice husk which is generated by rice mills and currently not utilized will be used for the generation of electricity and steam.

Leakage:

The project does not expect any leakage.

Environmental and social impacts:

According to the PDD an Environmental Impact Assessment has been carried out in accordance with Indian law and no adverse environmental impacts were expected.

**Scope**

The scope of the validation is the independent and objective review of the project design document, the baseline study and monitoring plan and other relevant documents of the Rice Husk Based Power Project implemented by Vandana Vidhyut Limited. The information in these documents is reviewed against the criteria defined in the Marrakech Accords (Decision 17) and the Kyoto Protocol (Article 12) and subsequent guidance from the CDM Executive Board.

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.

**Overview of documentation that has been reviewed and names of persons that have been interviewed as part of the validation**

Please refer to Annex 2

**DOE Validation team**

Name	Role
Irma Lubrecht	Team leader / lead assessor
Marco van der Linden	Lead Assessor
Shivananda Shetty	Local assessors
John Miles	Technical reviewer

**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.

### Review of CDM-PDD and additional documentation

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

In general, a site visit might be required to verify assumptions in the baseline. Sometimes additional information is required to complete the validation, which may be obtained through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate. In case of this project, a site visit and interviews have been conducted and the results are summarized in Annex 7 to this report.

### Assessment against CDM requirements

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

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

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

<b>Checklist Question</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements are linked to checklist questions the project should meet.</i>	<i>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.</i>	<i>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.</i>	<i>This is either acceptable based on evidence provided (Y), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). <b>New Information Request (NIR)</b> is used when the validation team has identified a need for further clarification.</i>

The completed validation protocol for this project is attached as Annex 5 to this report.

### Difference between large scale and small scale projects and how this has influenced the validation

This project is developed as a small scale CDM project. Small scale CDM projects have different

requirements related to the project design. These include, among others, the use of the simplified baseline and monitoring methodologies specified for the project category and the use of the Simplified PDD for Small-Scale CDM Project Activities

Although the validation process is similar for small scale and large scale project, there are some different requirements related to the validation. The validator will need to ensure that the project complies with one of the small-scale project categories and qualifies to employ the baseline and monitoring methodology of this project category. Extra questions are added to the validation protocol that take into account the specific requirements for small scale projects.

#### **Report of findings and use of type of findings.**

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

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

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR

is issued, where:

- I. mistakes have been made with a direct influence on project results;
- II. validation protocol requirements have not been met; or
- III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

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

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

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 6). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

#### **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)**

In accordance with the CDM modalities and procedures, the project design document of this proposed CDM project activity has been made publicly available and comments have been invited from Parties, stakeholders and UNFCCC accredited non-governmental organizations. This process is described in Annex 1 to this report which is available as a separate document.

## 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

## Participation requirements

The host Party for this project is India. India has ratified the Kyoto protocol on 26 August 2002. Initially, no Letter of Approval was provided and a CAR (01) was raised. A Letter of Approval was provided dated 21 July 2005 and issued by the Indian DNA (reference number 4/10/2003-CCC). The CAR was closed out.

No Annex 1 Party has been identified in the PDD and therefore no further Letter of Approval was available. It is observed that the CDM EB has agreed that the registration of a CDM project activity can take place without an Annex 1 Party being involved at the stage of registration although it should be noted that before CER can be transferred to an Annex I Party, a Letter of Approval will need to be submitted.

## Eligibility as a small scale project activity

For the project to qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM, the installed capacity of the project should not exceed 15 MWh. The project has an installed capacity of 7.7 MW. The PDD mentioned the project would be co-firing coal and biomass, but this was not totally transparent. Since co-firing can also influence the eligibility of the project as a small scale CDM activity a NIR was raised (03). From the reply of the project developer and the findings of the local assessment it was clear that coal will be co-fired with the biomass on a daily/regular basis. VVL has used 16.5% (w/w) of coal with rice husk in 2002-2003 and proposes to reduce this in the coming years. This number has been verified during the site visit with actual coal consumption data at the site and found to be justified. It was also clarified that the total generating capacity of the rice husk based power plant is 7.7MW which is achieved by co-firing of rice husk and coal. This was substantiated by the fact that the capacity of the single bleed cum condensing steam turbine generator (STG) used in the project activity is 7.7MW. The NIR was closed out.

The project is expected to generate renewable electricity which will be delivered to the state grid. Therefore the project conforms to one of the categories listed in Appendix B to Annex II to Decision 21/CP.8, specifically category 1. D: "Grid connected renewable electricity generation"

The list of registered small-scale CDM project activities and projects that have submitted a request for registration was checked on the UNFCCC website but no projects were identified with the same project participants; in the same project category and technology/measure; and registered within the previous 2 years; and whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point. Therefore the project activity is not considered to be a debundled component of a larger project activity.

Hence the project activity is considered to be eligible as a small scale CDM project.

## Baseline and monitoring methodology

The project is applying AMS I.D 'Grid connected renewable electricity generation'. In accordance with the methodology the baseline is selected as the kWh produced by the renewable generating unit

multiplied by an emission coefficient (measured in kg CO<sub>2</sub>equ/kWh).

It was noted that the PDD did not provide full reference for all data sources (especially section B of PDD) to allow the validator to verify the data used in the PDD. As a consequence a CAR (02) was raised. Documents and a web address were provided during the site visit. A sample was cross checked against the data used in the calculations found to be ok. Copies of the documents have been submitted to SGS. Project was requested to revise the PDD with full reference to the data sources and the CAR was closed out.

In the situation where coal is being co-fired, project emission should be calculated. The PDD proposed to use stoichiometric CO<sub>2</sub> release from coal. It was noted that the monitoring plan provided for the determination of the NCV of the coal used and a NIR (04) was raised to clarify why this NCV value was not utilized. Project developer replied that stoichiometric CO<sub>2</sub> release from coal would require the project developer to use the carbon percentage of the specific grade of coal used in the facility site which will be determined through sample testing which gives the actual carbon percentage in the specific grade of coal used. This was considered as more appropriate in comparison to the use of the NCV and a country specific emission factor for coal. This was accepted and the NIR was closed out.

Following NIR 04 the emission factor for the coal would be determined based on the carbon percentage of the specific grade of coal used in the facility site which will be determined through sample testing. Based on the monitoring plan this would be determined on a monthly basis. The project has a crediting period starting in April 2002 and therefore monthly data were expected to be available for this parameter. However, during the site visit the local assessor was asked to check the emission factor used for the coal. He commented that "F-grade coal is purchased from the South Eastern Coalfields Limited (SECL)" and "the total carbon % in coal is considered to be 40% based on which the project emission calculation is carried out. This is taken from theoretical calculation. VVL has sent the sample to a government laboratory for analysis and the results will be forwarded to SGS shortly". This seemed to imply that no monthly data were available and project was not implementing its own monitoring plan. Consequently a CAR (16) was raised. The project participants replied that the "carbon content of the fuel is monitored monthly". Further details were provided on the way this analysis is carried out and to support the claim that the 45% used in the calculation can be considered as conservative. It was confirmed by local assessor that invoices for coal delivered contains information on the grading and the coal received was graded F. Based on this other sources provided, the assumption of 45% carbon was found to be acceptable and the monitoring methodology proposed for the carbon content was accepted. CAR was closed out.

Following NIR 3 it was clear that coal will be co-fired in the project all the time. Project was requested to provide clear formulas for the calculation of the emissions arising from the burning of the coal and to be consistent and clear in the use of the parameters and notations (CAR 17). The PDD was revised and accepted and the CAR was closed out.

For the calculation of the Operating Margin in the PDD it was not clear if the efficiency of the plants has been taken into account and if so, how this efficiency had been determined. Consequently a CAR (07) was raised. The project replied that the Operating Margin emission factor had been recalculated. The calculations in the revised PDD were reviewed and no mistakes were found. The data that were used as input for the calculation were checked during site visit. The CAR was closed out. However some of the assumptions and formulas in the revised PDD were still not clear. The formula provided for 'power generation and export by project activity' didn't seem to make sense and it was not clear how this affected the ER from the project (NIR 18). It was clarified that the emission reductions resulting from the project activity depends on the gross power generated, auxiliary consumption of the power plant and the net quantum of power exported to the grid. However the estimation of the emission reduction is based only on the quantum of power exported to the grid. The revised PDD was received and reviewed and the NIR was closed out. Furthermore, in the first version of the PDD, the Emission factor for the grid was calculated using both the combined margin

and the weighted average emission of the current generation mix and the weighted average emission of the current generation mix was selected as being the most conservative approach. In the revised version of the PDD the calculation of the weighted average emission was dismissed entirely. A NIR (19) was raised to clarify this change. The Project Developer replied that calculation of the emission factor of the grid as per the combined margin approach takes into consideration both the present as well as future generation mix of the grid whereas the calculation of the emission factor of the grid as per weighted average approach considers only the power generating stations currently supplying to the grid (i.e. it does not consider the future generation mix of the grid). Since the project activity's crediting period extends up to ten years from its start date, hence future generation mix of the grid will have a significant impact on the emission reductions resulting from the project activity. The justification was accepted and the NIR was closed out. The project was asked to clarify the use of the number 860 in the formula for calculating the fuel consumption (NIR 20). It was clarified that this was a standard conversion factor and the NIR was closed out.

A CAR (08) was also raised on the Build Margin calculation which was not transparent. The BM was recalculated twice and the last calculation was considered to be correct. The CAR was closed out.

Regarding the choice of the grid that was used in the calculation of the emission factor, the project developer was asked to clarify how the imports from the other grids have been taken into account in the calculation and to explain assumptions/ data sources (NIR 21). The project provided further details on the data sources used for accounting the imported electrical energy from other grids. Following guidance by the Methodologies Panel, another NIR (22) was raised to provide further information on the choice of the grid and the significance of power imports/exports on the CSEB grid. The project developer replied by stating that "the calculation of grid emission factor considers the import from central power generating stations as well as from other state grids (e.g WBPDCL, GRIDCO, DVC, GEB, Tripura, Assam, APTRANSCO and DTL). However the import from these state grids being insignificant as compared to the total generation of the CSEB grid, the regional grid emission factors for the corresponding state grids are used (as given by the MNES). The imports from central generating stations are significant and hence the import from them are treated similarly as that of state generating stations". The data sources were cross-checked during the site visit and the statements from the project developers were accepted. Both NIRs were closed out.

### **Additionality**

The additionality of the project activity was addressed in a barrier analysis in accordance with the requirements for small scale CDM activities.

It was noted that the project starting date is listed as April 2000 with start of the crediting period on April 1, 2002. The project was requested to provide further documented evidence of the starting date of the CDM project activity and provide evidence that the incentive from the CDM was seriously considered in the decision to proceed with the project activity (NIR 14). The project developer replied by stating that during the approval of the project activity by the management of VVL, the incentive from CDM was seriously considered. It was found that the CDM revenue would assist VVL to overcome all the barriers associated with the implementation of the project activity. On the basis of the assumption of availing the CDM revenue, the management of VVL decided to proceed with project activity. The same has been documented in the extract of the Board Meeting where the approval for the project activity was granted. Documents were provided including a certified extract of a board meeting which was held on October 5, 2000 which discussed the possibility of selling carbon benefits. Also provided was a copy of the project schedule showing progress and which showed trial runs in July 2001 and expected export of power from August 2001. The NIR was closed out.

The barrier analysis presented was not considered as very clear. No alternatives were presented as required under Attachment A of Appendix B. Furthermore some of the barriers presented were not considered as conclusive. A CAR (09) was raised on this issue. A financial barrier was presented based on the fact that the price of biomass had risen after project implementation. However, this was

not considered as appropriate since there was no evidence to show that during the time the decision was made, the rise in biomass prices was anticipated and would have affected the financial viability of the project.

Secondly a barrier due to prevailing practice was presented based on the fact that rice husk based power plants are not a prevailing practice in the Chattisgarh scenario. Documented evidence was provided to show that the project is the first grid-connected rice husk based power plant in Chattisgarh and only the second rice husk based power project in the state. Other barriers were presented as anecdotal evidence to show that power production from biomass is not a usual practice for the project participant and the project has presented them with different problems and challenges.

The extract from the board meeting of Vandana Vidhyut Limited declares that the benefits from the CDM “may increase the project financial viability and protect against obstacles that may arise out of price rise of basic Raw Material or any others”. The other documents provided show that the project activity is the first grid-connected rice husk based power plant in Chattisgarh and only the second biomass based power project in the state. Hence it was accepted that setting up a biomass based power plant is not prevailing practice for Vandana Vidhyut Limited and that the CDM was taken into consideration when making the decision to proceed with the project. The identified alternatives would have led to higher emissions.

### **Monitoring plan**

In accordance with the simplified methodology, monitoring shall consist of metering the electricity generated by the renewable technology. In the case of co-fired plants, the amount of biomass and fossil fuel input shall be monitored

In accordance with the methodology the quantity of the rice husk and coal being used in the boiler is considered as an important parameter for determining the emission reductions especially if coal is being co-fired. The PDD stated that “an approximate measure is done by scaling” and “the amount of rice husk needs to be verified from invoices”. However, in the QA/QC section the uncertainty relating to this parameter was still considered low. The project as asked to provide further details on the uncertainty related to these parameters (NIR 10). The project developer commented that since there would be transportation losses, they considered the measurements to be conservative. This was accepted at this stage but should be further addressed during the verification. The NIR was closed out.

The presented monitoring plan did not provide sufficient information on authority and responsibility of project management and certain procedures. Since they are considered as necessary to show good monitoring practice a CAR (11) was raised. In this CAR, the project was also requested to provide more information regarding types of meters used and the metering setup. In reply a “Procedure of GHG Performance Monitoring, Measurement and Reporting of data” was provided which contained further information related to the meters used (accuracy of meters etc), specification of meters, plans for calibration, mode of data recording and the responsibilities. The procedure was reviewed and it was observed during the site visit that is already implemented. The CAR was closed out.

The PDD made claims on the contribution of the project to sustainable development without providing for monitoring of the performance of the project in this area. A NIR (12) was raised to ask the project for more details. The project replied that contribution to sustainable development was indicated in the Letter of Approval and neither the Letter nor the simplified methodology required further monitoring of the projects performance in this regard. However it was noted that all aspects related to sustainable development are related to the implementation of project activity and export of electricity to the CSEB grid. This was accepted and the NIR was closed out.

### **Environmental Impacts**



The impacts of the project on the various environmental parameters have been evaluated in an EIA study conducted by VVL. The EIA did not reveal any adverse environmental impacts. The site visit confirmed that the EIA study has been undertaken it has been approved by the regulatory authorities after which the project developer has been given the consent to build and the consent to operate the rice husk based power project.

### **Comments by local stakeholders**

The local stakeholder process as described in the PDD was not considered as being transparent and a NIR (13) was raised asking for more information. It was confirmed during the local assessment that the stakeholder consultation had been carried in conformance with local requirements for EIA study and has received clearance the regulatory authorities. Comments have been gathered from various stakeholders, copies of which were verified at site. The NIR was closed out.

### **Other requirements**

Description of the project location was considered to be very general and a NIR (05) was raised to ask for more details. More details were provided and the NIR was closed out.

It was noted that the unit MU is used to describe the electricity production where MU was defined as million Units. A Car (06) was raised and the project was asked to clearly define what a "Unit" is. It was clarified that "Unit" is a terminology used for kWh and this was incorporated in the PDD (Appendix I: Abbreviations). The CAR was closed out.

It was concluded that the PDD did not entirely conform to the requirements and a CAR (15) was raised. The PDD was revised and the CAR was closed out. It was observed that the PDD is still using version 1 of the SSC PDD template while a new template for the SSC PDD has been accepted by the Executive Board from July 8, 2005. In accordance with the decision by the EB "Revisions to the CDM-SSC-PDD do not affect projects already validated, or already made publicly available by an operating entity for receiving comments ... prior to the adoption of the revised CDM-SSC-PDD. The Executive Board will not accept documentation using previous versions of the CDM-SSC-PDD six (6) months after the adoption of the new version". The PDD for this project was made publicly available from 31st May 2005 until 29th June 2005 which was prior to the EB decision. Since the 6 month period is not finished yet, the PDD was accepted in the old template.

### **Final comments and validation opinion**

SGS has performed validation of the "Rice Husk Based Power Project" at Vandana Vidhyut Limited. The validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by SGS for registration with the UNFCCC.

SGS has received confirmation by the host Party that the project activity assists it in achieving sustainable development.

By utilizing rice husk for electricity generation, the project results in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the presented barriers demonstrates that the proposed project activity is not prevailing practice. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. If the project is implemented as designed, the project is likely to

achieve the estimated amount of emission reductions.

The validation is based on the information made available to SGS and the engagement conditions detailed in the report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence SGS can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

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.

G. Phillips

Name of authorized officer signing for the DOE

Date and signature for the DOE

30-12-2005

*Gareth Phillips*

***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