



Mr. Hans Jürgen Stehr  
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UNFCCC Secretariat  
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November 01, 2007

Re Request for review for the request for registration of the CDM project activity "20MW Waste gas based captive power project based at Kharagpur, West Bengal "(Ref. no. 1266)

Dear Mr. Stehr,

SGS has been informed that the request for registration of the CDM project activity "20MW Waste gas based captive power project based at Kharagpur, West Bengal "(Ref. no. 1266) is under consideration for review because three requests for review have been received from members of the Board..

SGS would like to provide an initial response to the issues raised by the request for review:

1. ACM0004 v2 states that, "Among the alternatives that do not face any prohibitive barriers, the most economically attractive alternative should be considered as the baseline scenario." The PDD should be revised to clearly state that the baseline is the alternative which is the most economically attractive.

**SGS Reply:** The project participant considered the import of power from the grid as the best alternative to the project as the board of directors were of the opinion that the installation of a captive power plant would be a costly affair of around 55% of the cost of setting up the sponge iron unit. The board minutes were assessed by the validator and are attached as Annex 1 to this reply.

The project was also considered since common practice in the region is import of power from the grid. This was substantiated by the Joint Plant Committee report which clearly says that no captive power plants have been installed out of 30 surveyed till date in the region. The JPC report page 38 shows this and is attached as Annex 2 to this reply.

The initial investment cost was compared for establishment of the captive power plant and import of power from the grid. This is shown in table below:

| Alternative                     | Capital cost<br>(Crores INR) | Comments                                                                                                                                          | Conclusion                        |
|---------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Import of electricity from grid | NIL                          | Continuation of current practice in the region, annual expenses in the form of tariff is low, no additional investment, easy government approvals | An economically attractive option |
| Coal based CPP                  | 800<br>(40Million/MW)        | High capital cost- difficulty in accessing bank loans, government clearances cumbersome                                                           | This option is economically       |

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| Alternative      | Capital cost<br>(Crores INR) | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Conclusion                                                    |
|------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Project activity | 34                           | The promoters are reluctant to set up the waste heat recovery based power unit, primarily on account of the high capital cost and the risks involved. In fact it was only when the CDM related revenue was highlighted to the investor group and concrete offers were produced to the investors that they agreed to invest the equity component required to fund the power plant. Otherwise, the investors were of the opinion that the project was very risky and preferred to set up the project by drawing the required power from the state electricity grid. In addition, all (most) similar WHR projects being set-up in the country (in the SME segment) are being developed under the CDM. In view of the above, it may be concluded that at that point in time when the decision to proceed with the project was taken, the related CDM linked revenue was seriously considered and was a key factor responsible for the favourable decision. | unattractive<br>This option is not a viable baseline scenario |

Based on the information presented above it is evident that “Import of electricity from the grid” requires the minimum initial investment and hence is the most economically attractive baseline alternative considered/available to RLUL for obtaining power requirement in its industrial complex. Hence, **“Import of electricity from the grid”** has been considered as the baseline scenario in this project activity.

The PP provided the sanction letter of 20MVA from state grid to meet the power requirements for the sponge iron plant .The letter is attached as Annex 3 to this response. Also, to be on the conservative side, the baseline emission factor is taken as grid emission factor. Eastern regional grid as the baseline was accepted based on common practice in the region and also on the basis of economically most attractive option and this is as per ACM0004 version2. Taking power from grid does not face any prohibitive barrier. The revised PDD is attached as Annex 7.

2. Version 3 of the Tool for the demonstration and assessment of additionality should be applied.

**SGS Reply:** As per EB30 Annex 2 paragraph 18: The revision of an approved methodology or tool referred to in a methodology shall not affect (i) registered CDM project activities during their crediting period; and (ii) project activities that have been published for public comments for validation using the previously approved methodology or tool, so long as the project activity is submitted for registration within 8 months of the date when the revision became effective.

The Tool was changed in EB29 dated 15-16 February 2007 whilst the project was published for international stakeholder consultation from 06-12-2006 to 04-01-2007 which is before the revision of tool. The request for registration was sent in July 2007 which is within 8 months of revision of the tool. Due to these clarifications version 2 of tool for demonstration and assessment of additionality was applied by PP and accepted by DOE.

| Activity                                                                                                                                                           | Date                                                   | Source                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project uploaded for public comments / International stake holder consultation                                                                                     | 6 <sup>th</sup> Dec 2006 till 4 <sup>th</sup> Jan 2007 | <a href="http://cdm.unfccc.int/Projects/Validation/DB/YNS09NDX3KWT7NU6FX68QJ7N1W2HVO/view.html">http://cdm.unfccc.int/Projects/Validation/DB/YNS09NDX3KWT7NU6FX68QJ7N1W2HVO/view.html</a> |
| Request for review period / submission for registration                                                                                                            | 24 Aug 07 - 20 Oct 07 @17:00 GMT                       | <a href="https://cdm.unfccc.int/Projects/DB/SGS-UKL1185448235.09/view.html">https://cdm.unfccc.int/Projects/DB/SGS-UKL1185448235.09/view.html</a>                                         |
| Adoption of Additionality tool version 3                                                                                                                           | 14 –16 Feb 2007                                        | EB 29 Annex 5                                                                                                                                                                             |
| Guidelines provided by EB on impact of revision<br>Revised procedures for the revision of an approved baseline or<br>Monitoring methodology by the executive board | 21 –23 Mar 2007                                        | EB 30 Annex 2 Para 18                                                                                                                                                                     |
| Application of revision                                                                                                                                            | 16 Feb 2007 + 8 months                                 | = 16 <sup>th</sup> Oct 2007, the project submitted for registration is 24 <sup>th</sup> Aug 2007 and hence version 2 is applicable.                                                       |

From the above stated it is our opinion that the applied tool is valid for projects submitted for registration before 16<sup>th</sup> Oct 2007. Since RLUL project activity has submitted two months prior to this deadline it is regarded applicable.

3. The baseline emission factor does not appear to be consistent with Central Electricity Authority of India published data.

**SGS Reply:** The baseline emission factor validated was 0.96451 tCO<sub>2</sub>/GWh and this was validated from authenticated and publicly available sources of data. Hard copies of data were checked with the data provided in the excel sheet. All calculations were checked and found to be correct. The CEA calculated data is 1.04 tCO<sub>2</sub>/GWh which is on the higher side. PP also used the CEA generation and consumption data to calculate baseline emission factor. As per the request this can be changed to CEA published data but this will result in an increase of CERs.

4. The project activity involves the use of light diesel oil (LDO) for the generation of power. Clarification is required as to why this is included in the project emissions, which, as per the methodology, is applicable only if auxiliary fuels are fired for generation start up, in emergencies, or to provide additional heat gain before entering the waste heat recovery boiler.

**SGS Reply:** The project activity is based on waste gas and LDO is used only as initial start-up fuel inside the project boundary. This has been checked during the site visit by the validator. Therefore it was included in the project emissions as per ACM0004 version 2. This not mentioned correctly in the PDD. The waste MBF gases alone cannot reach the required flame temperature at start-up. Hence, LDO is required as a support fuel to (initially) raise the temperature to required levels. The combustion of CO is an exothermic reaction and is self-sustaining, however, when waste MBF gases, which is a lean CO gas are put into a hot furnace, they tend to cool down the furnace due to the lower temperature. Hence, adequate re-radiation from hot refractory lining is required to sustain the high temperature so reached. Therefore, in the design of the boiler, refractory lining is provided on the water wall tubes up to first 5 feet of the furnace heat transfer surface. This refractory re-radiates heat into the flame thereby enhancing the flame stability. The revised PDD is attached as Annex 7 to this response.

5. All formulae used to calculate the emission reductions should be stated, e.g. apportioning of steam output from each boiler.

**SGS Reply:** The project is a **100% waste gas** based captive power generation project with no additional fossil fuel based AFBC boiler integrated to the system. The total heat energy available from the waste gas of DRI kilns and MBF are converted into steam on a WHRB and the steam generated in the same is used to drive a 20MW TG which in turn will generate electrical power for captive uses. As per the methodology ACM0004 version 02 the PP has opted for Option 2, where in the Net quantity of electricity supplied to the manufacturing facility by the project during the year  $y$  in MWh (EGy) needs to be measured and the project activity has the provisions for the same since all the energy supplied are from the waste heat sources, hence the displaced electricity i.e., net electricity generated from 20MW power plant times the grid emission factor will increase the baseline emissions.

As per the methodology, the project emissions are applicable only if auxiliary fuels are fired for generation start up, in emergencies, or to provide additional heat gain before entering the WHRB. Light Diesel Oil (LDO) not forms as one of the primary raw materials but as start up fuel for initially getting the temperature of flame in the blast furnace gas boiler. Therefore project emissions on firing LDO as start up fuel will be accounted for emission reductions calculations.

As per request steam parameters can be done as the steam flow meters are also installed at the boiler outlet terminals and inlet of turbine but according to methodology this is not required

6. Section B.7.1 of the PDD should include all monitored parameters, e.g. steam output of each boiler.

**SGS Reply:** As per ACM0004 version 2, steam output of each boiler is required to be monitored if fossil fuel is used for generation of power. In the project activity the total generation is from waste gas only but there is some fossil fuel used at the initial start up of the blast furnace gas boiler, this is already included in project emissions. This usage is not for the power generation it is only for initial start up to get the required flame temperature. There is no other usage of fossil fuel inside the project boundary so this is not required but as per request this can be done as individual steam flow meters are installed at the site for both boilers.

Therefore, we feel that the decision by the EB has been taken into account. We do however apologize if this was not sufficiently clear from the validation report.

Sanjeev Kumar (0091 9871794628) will be the contact person for the review process and is available to address questions from the Board during the consideration of the review in case the Executive Board wishes.

Yours sincerely,

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Annex 1 Minutes of board meeting  
Annex 2 JPC report page 38  
Annex 3 Grid sanction letter  
Annex 7 Revised PDD