



Mr. Hans Jurgen Stehr
Chair, CDM Executive Board
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Re Request for review of the request for registration for the CDM project activity "Nava Bharat RE Bagasse Project" (Ref. no. 1288)

Dear Mr. Stehr,

SGS has been informed that the request for registration for the CDM project activity "Nava Bharat RE Bagasse Project" (Ref. no. 1288) is under consideration for review because three requests for review have been received from members of the Board.

The requests for review are based on the reasons outlined below. SGS would like to provide a response to the issue raised by the request for review:

Request for clarification to the DOE/PP:

1. The IRR should be calculated for the lifetime of the project activity and not just for the crediting period. It should be confirmed that the revised IRR is lower than the prime lending rate.

The IRR has been recalculated for the estimated project life time of 25 years and the same is lower than the prime lending rate of 12.75% to 13.25%. The prime lending rate has been verified with the Reserve bank of India website <http://www.rbi.org.in/home.aspx> . The revised IRR calculation sheet is attached as Annex 1.

2. Further information is required to confirm how the calculation of electricity generation attributable to the project activity will be conducted in accordance with paragraph 11 of the approved methodology.

In accordance to para 11 of the methodology, the project activities is modification of an existing facility for renewable energy generation and the baseline scenario is the existing facility would continue to provide electricity to the grid (EGbaseline, in MWh/year) at historical average levels (EGhistorical, in MWh/year). The life time of the replaced turbine was verified to be more than the crediting period. The replaced turbines 2MW & 3MW were installed in 1977 & 1997 respectively. The operational life time of turbines is more than 25 years but the turbine although installed long back, the operation was maximum to 12 years as verified with the attached document Annex 4. The turbines were back pressure turbines and operated during the crushing season only. Hence, the generation facility would not be likely to be replaced or retrofitted in the absence of the CDM project activity. Therefore

EGbaseline = MAX(EGhistorical, EGestimated,y) for the crediting period

EG_{historical} is the average of historical electricity delivered by the existing facility to the grid (i.e. 2006MWh/year), spanning all data from the most recent available year (2002-03, 2003-04 & 2004-05) to the time at which the facility was constructed.

EG_{estimated,y} is the estimated electricity that would have been produced by the existing units under the observed availability of renewable resource for year y. The average electricity exported to the grid from 2002-05 was estimated with a rate of 0.548 MW. The seasonal operating hours will be monitored ex-post and the EG_{estimated,y} will be 0.548 x t (MWh).

All project electricity generation above baseline levels (EG_{baseline}) would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources. Baseline emissions (BE_y in tCO₂) are then, the product of the baseline emissions factor (EF_y in tCO₂/MWh) times the electricity supplied by the project activity to the grid (EG_y in MWh) minus the baseline electricity supplied to the grid in the case of modified or retrofit facilities (EG_{baseline} in MWh), as follows:

$$BE_y = (EG_y - EG_{baseline}) \cdot EF_y$$

The equation in section B4 page 9 in the PDD has amended as follows:

$$ER_y = (E_y - \alpha.t) \cdot EF_y - PE_y$$

to

$$ER_y = (E_y - \max(EG_{historical}, \alpha.t)) \cdot EF_y - PE_y$$

In this equation $\alpha.t$ is equal to EG_{estimated} (= 0.548 x t) and project emissions PE will be zero.

3. Further information regarding the date on which the baseline equipment would have been replaced is also required.

In order to estimate the point in time when the existing equipment would need to be replaced in the absence of the project activity (DATE_{BaselineRetrofit}), the typical average technical lifetime of the equipment type was considered as 25 to 35 yrs common practices in the sector and country as verified with page no. 123 at http://books.google.com/books?id=hV4e7oKEDpkC&pg=PA123&lpq=PA123&dq=what+is+the+lifetime+of+steam+turbine&source=web&ots=WTlpwQ3cMC&sig=lz98VzqpP5rlgwrM_T7SrG8uQY0#PPA123.M1

The turbines of 2MW and 3MW were installed in 1977 and 1997 respectively as per the plant records. The running hours of these turbines have been checked since 1977 and on the basis of the past running condition it was concluded that these turbines were in good working condition, and need not to be changed for the entire crediting period in absence of project activity. Operational data for 2, 3 MW turbine is attached as Annex 4. The turbines were operated only in cane crushing season as these were back pressure turbines hence the operating hours were quite low although installed long back. The turbine can also have 40+ years service life and designed for 100,000 equivalent operating hour (EOH) inspection intervals as verified with page12 of the webpage http://www.powergeneration.siemens.com/NR/rdonlyres/795DF1C3-1A86-47B4-A97D-ABB398CB9825/0/3_Steam_Turbine_Modernization.pdf

4. The monitoring plan states that electricity exports will be monitored however the methodology requires that “monitoring shall consist of metering the electricity generated by the renewable technology”.

As mentioned above the baseline emissions (BE_y in tCO₂) are the product of the baseline emissions factor (EF_y in tCO₂/MWh) times the electricity supplied by the project activity to the grid (EG_y in MWh) minus the baseline electricity supplied to the grid in the case of modified or retrofit facilities (EG_{baseline} in MWh). Thus the monitoring requires metering the energy exported to the grid. However, a separate meter for metering the



electricity generated by the renewable technology was already installed and the parameter will also included in the monitoring plan of the revised PDD.

5. The DOE shall further clarify how they have validated the additionality of the project on the basis of a financial barrier.

The project proponent has recalculated the IRR for the project activity for the life time of the project. The IRR without CDM revenue was verified as 10.94% which increased to 15.67% with CDM benefits and crosses the benchmark considered as the prime lending rate (PLR) of the reserve bank of India. The PLR was verified as 12.75% to 13.25% with <http://www.rbi.org.in/home.aspx#>. The revised IRR sheet and revised validation report are attached with this letter as Annex 1 and Annex 2 respectively.

We apologize if the initial validation report has been unclear and hope that this letter, revised validation report and the attached information address the concerns of the members of the Board.

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: IRR Calculation Sheet.
Annex 2: Validation Report.
Annex 3: Revised PDD version 6.
Annex 4: Operational data for 2 & 3 MW Turbine