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Att: CDM Executive Board

Your ref.:
UNFCCC Ref # 4289

DNV responsible ref.:
INRA/MLEH

Date:
4 October 2011

QUESTIONS RAISED BY CDM EXECUTIVE BOARD MEMBERS	RESPONSE SUMMARY FROM DNV	ACTION TAKEN (IF RELEVANT)
Q1 The DOE shall further substantiate the suitability of the input values to the investment analysis, in particular, whether the Technical Offer is available at the time of investment decision, as it is reported to be the source of the auxiliary power consumption for WHR based power plant and the amount of waste gas. In doing so, please refer to paragraph 6 of the "Guidance on the Assessment of Investment Analysis" (EB 62, Annex 5).	Birla Corporation Limited received technical offer from M/S. Dalian for Waste Heat Recovery Based Power System on 16 November 2007. During financial computation Project participant used the same document as a source of the auxiliary power consumption for WHR based power plant and the amount of waste gas. The board's investment decision happened on 31 January 2008 along with CDM consideration. Therefore the above justifies the suitability of input parameters used in the investment analysis (in particular auxiliary power consumption for WHR based power plant and the amount of waste gas) because the technical offer of the project activity was available to project.	PDD: The received date of technical offer for waste heat recovery based power plant has been mentioned in the section B.5 under the table chronology Validation report: In the reference table under reference number 17 the date of the technical offer has been mentioned. Under 4.5.1 the dates of the offers of WHR based power plant and coal based power plant have been mentioned
Q2. The DOE shall further justify the elimination of baseline alternatives related to electricity import from the grid, and captive power generation using different fuel options. In doing so, the DOE should explain how it has validated that either they: a) have prohibitive barriers; or b) are clearly economic unattractive, as required by Step 3 of "Identification of	In line with the requirement PP has further clarified the elimination of two baseline alternative i.e. electricity import from grid and captive power generation using different fuel options in the PDD. DNV has also justified the elimination of the alternatives: electricity import from the grid, and captive power generation using different fuel options in the revised FVR. The alternative faces prohibitive barrier and/ or clearly economic unattractive.	PDD: Under section B.4 , in step 1 all the alternatives has been described elaborately and elimination of baseline alternatives related to electricity import from the grid, and captive power generation using different fuel options as the alternative faces prohibitive barrier and/

baseline scenario” of AM0024 v02.1.		<p>or clearly economic unattractive.</p> <p>Validation report: Under 4.4 DNV justifies the elimination of alternative 3 (import of power from grid) and alternative 4 (captive power generation).</p>
<p>Q3 The DOE shall further explain how it has accepted the capacity of the new coal based power plant in the baseline scenario and a power plant with capacity to eliminate power from the grid, considering that remaining power demand of 38.9 million kWh would be imported from the grid (VR, page 15).</p>	<p>The average annual power demand in the post project scenario is envisaged to be 286.2 million kWh.</p> <p>Average annual electricity generation of the existing captive power plant (EGATEXIST) of 27 MW coal based Thermal Power Plant is envisaged to be 182 million kWh.</p> <p>It has been evidenced from the electricity demand and supply in BCL, Satna unit 104.2 million unit per annum (i.e. the difference of 286.2 million kWh and 182 million kWh) needs to be met from other sources. However in meeting this balance power requirement, only 65.3 million kWh will be supplied by the waste heat recovery based power plant i.e. the project activity and remaining 38.9 million kWh will be drawn from the local grid.</p> <p>Since only 65.3 million kWh /annum of electricity supply is likely to be displaced by the project activity all the credible and realistic alternatives have been identified based on net generation of 65.3 million kWh /annum.</p> <p>The credible and realistic alternatives to the project activity identified are as follows:</p> <p>Alternative 1: The project activity undertaken without being registered as a CDM project activity.</p> <p>Alternative 2: Installation of a new coal based power plant as an extension of the existing 27 MW captive power plant and releasing the waste heat (available after type 1 waste heat</p>	<p>Validation report: The capacity of new coal based power plant has been described under section 4.4</p>

	<p>utilization) to atmosphere.</p> <p>Considering the total power generation capacity per annum (i.e. 65.3 million kWh/ annum) of WHRB based base power plant, capacity of coal based power plant has been determined.</p> <p>Hence in absence of the project activity project participant would have sourced the power from a new coal based power plant of capacity 10MW. The capacity of this new coal based captive power plant has been selected in the following manner.</p> <p>Rated capacity = [Net power generation / ((1- auxiliary power percentage) X Annual working days X Plant availability Factor)]</p> <p>On basis of the above analysis a new coal based captive power plant of capacity 10MW has been considered as realistic and plausible alternative.</p> <p>Here a 15MW waste heat recovery based power plant has been compared with a 10MW coal based power plant in order to determine the baseline scenario. Since each of the alternatives will cater equivalent quantum of electricity i.e. 65.3 million kWh per annum, these two alternatives are comparable. Please note that this disparity in capacity (in-spite of catering same quantity of electricity i.e. 65.3million kWh /annum) is because of low PLF of the waste heat recovery based power plant. The reason behind low PLF of the project activity has already been justified and supported.</p> <p>There is no basis to compare a 15MW waste heat recovery based power plant with a 15 MW coal based power plant since 15MW coal based power plant will always generate more power because of it comparatively higher PLF, making the baseline more financially attractive. Therefore to do a comparison between a 15MW waste heat recovery based power plant and a 15 MW coal</p>	
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	<p>based power plant would not have been a conservative approach.</p> <p>Therefore selection of baseline capacity is justifiable.</p> <p>However to further confirm the financial unattractiveness of project activity compared to baseline, a different comparison approach has been selected by comparing the 15MW waste heat recovery based power plant with a 15 MW coal based power plant assuming both are capable to generate same NET electricity (by increasing the PLF of the waste heat recovery based power plant) which is the only change made in the IRR sheet. In spite of improving the generation performance of 15MW waste heat recovery based power plant so unrealistically, still the IRR of the 15 MW waste heat recovery based power plant comes out to be considerably lower (25.67%) than that of 15MW coal based power plant (30.7%).</p>	
<p>Q4 The DOE shall further substantiate the suitability of input values applied in the project emission calculation, in particular the pre-project energy consumption per unit of output of the clinker (EIB), given that that clinker production lines have been upgraded in September 2009 and July 2010 respectively, and as (a) it is unclear how the average annual energy consumed (i.e. FB) is determined; and (b) annual clinker output (Oclinker,B) is calculated using the rated capacity of the clinker production lines, instead of the historical value of the annual clinker production, as required by the methodology.</p>	<p>As per the guidance provided in the approved methodology AM0024, version 2.1.</p> <p>‘If a year’s worth of pre-Project Activity data is not available, then the Project Developer should outline the plan for ensuring conservativeness based on a combination of the ex ante design estimate of energy consumption plus available measured data.’</p> <p>Since pre-project scenario data was not available at the time of validation because plants were supposed to undergo up-gradation, PP decided to use design data provided by the technology suppliers (i.e. LNVT and FLS Smith). The same is in compliance with the above mentioned guideline.</p> <p>However at a later stage when the data got available PP crosschecked these design figure with the real pre-project plant data. It was found that the design data is more conservative than the actual pre-project data.</p>	<p>PDD: In section B.6.2 the suitability of the input values applied in the project emission calculation has been demonstrated.</p> <p>Validation report: In section 4.6.1 the suitability of the input values applied in the project emission has been demonstrated</p>

	<p>As per the design data, $EIB = 0.003313$</p> <p>Whereas as per actual plant data (which was made available at a later time), $EIB = 0.003363$ (PP submitted the all relevant actual data to the DOE)</p> <p>Since the former one is more conservative to the later one PP decided to stick to the former one (i.e. $EIB = 0.003313$)</p>	
<p>Q5 The PP shall further justify: (a) why the following parameters are not included in the monitoring plan: (i) OXIDfuel (oxidation ratio of fuel used in clinker production), (ii) OXIDfuel/igs (oxidation ratio of fuel used in coal plant), (iii) EFCO_{2, fuel,y} (CO₂ emission factor per unit of the fuel used) and (iv) COEF fuel,y (emission factor of fuel used in the clinker production); and (b) the reporting frequency for NCVfuel,y, in line with the applied methodology AM0024 v02.1</p>	<p>All the parameters have been included in the monitoring plan of the revised PDD version 5 dated 23 Sep 2011</p>	<p>PDD: In section B.6.2 and B.7.1 (monitoring plan) all the parameters have included.</p>