CDM Executive Board
UNFCCC Secretariat
CDMinfo@unfccc.int

14th July 2009

Re: Request for review of the request for registration for the CDM project activity "Waste Heat Recovery based Captive Power Project of Adhunik Metaliks Limited" (Ref. no.2507).

Dear CDM Executive Board Members,

SGS has been informed that the request for registration for the proposed CDM project activity "Waste Heat Recovery based Captive Power Project of Adhunik Metaliks Limited" (Ref. no. 2507) is under consideration for request for review because three requests for review have been received from members of the Board.

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

Request for Review Issues 1 – 8:

Request for Review, Issue 1:

The DOE shall ensure that the project description clearly states the differences resulting from the project activity compared to the pre-project situation in compliance with paragraphs 59 and 64 of VVM, in particular, (a) whether the project activity involves use of existing boilers, turbines and generators to generate electricity, and (b) whether integrated iron and steel plant of AML is an existing plant or new construction together with the project activity.

SGS' and PP Response to Issue 1:

The DOE hereby wishes to clarify that the project activity of waste heat recovery based power generation facility has been implemented as a part of the phase wise installation of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited. The objective of this project activity implementation is to cater partially to the electrical energy requirement of the integrated iron and steel plant. However in the pre-project scenario *i.e.* in absence of the integrated iron and steel plant, the project scenario power demand was not in place. Therefore in the pre-project scenario, the project participant was not required to cater to the electrical energy requirement as is required in the project scenario. However in the baseline scenario wherein the integrated iron and steel plant would have been installed without the project activity power plant (*i.e.* waste heat recovery based power generation facility), the project participant would require to cater to the electrical energy requirement of the integrated iron and steel plant from a coal based captive power plant.

The DOE also wishes to provide the following information with respect to the clarifications required by the Executive Board:

(a) All the boilers, turbo-generator sets required for the project activity implementation are procured newly from respective suppliers. The purchase orders for the same have been enclosed herewith for reference. Please refer to -

- Purchase Order for the supply of Waste Heat Recovery Boilers (Ref. No.-AML/KOL/PO/PP/PO/06-07/5152 dated 30/04/2006) (please refer Annex - 01 of this letter) and
- Contract for supply of Turbo-generator and auxiliaries', dated 17/04/2006 (Please refer Annex - 02 of this letter)

(b) The integrated iron and steel plant of M/s. Adhunik Metaliks Limited is a new facility being installed in parallel to the current project activity. The Management of M/s. Adhunik Metaliks Limited (erstwhile known as M/s. Neepaz Metaliks Limited) had decided to set up the integrated iron and steel plant which also includes installation of a waste heat recovery based power generation facility *i.e.* the project activity. This is evident from the 'Extracts of the Resolution passed at the meeting of the Board of Directors of Neepaz Metaliks Limited' dated 25th of August 2004. (please refer to 'Appendix-4: CDM Consideration' submitted during requesting registration for details).

Request for Review, Issue 2:

The DOE is requested to further justify why coal fired boilers are not included in the project boundary.

SGS' and PP Response to Issue 2:

The DOE hereby wishes to clarify the as per the Approved Consolidated Methodology-ACM0012; Version 02, the geographical extent of the project boundary shall include the following:

1. The industrial facility where waste gas/heat/pressure is generated (generator of waste energy);
2. The facility where process heat in element process/steam/electricity is generated (Generator of process heat/steam/electricity). Equipment providing auxiliary heat to the waste heat recovery process shall be included within the project boundary; and
3. The facility/s where the process heat in element process/steam/electricity is used (the recipient plant(s)) and/or grid where electricity is exported, if applicable.

In accordance with Point-(2) of this definition, the project boundary shall include the facility where the waste gas (*i.e.* DRI kiln gas for the project activity under consideration) is utilized for generation of steam and electricity. In the power plant of M/s. Adhunik Metaliks Limited (AML), the DRI kiln gas is introduced into the Waste Heat Recovery Boilers (WHRBs) for generation of steam. The steam thus produced is fed into a Common Steam Header which also receives steam from a CFBC boiler within the power plant of M/s. Adhunik Metaliks Limited. The steam from the Common Steam Header is then introduced into the Steam-Turbo Generators for generation of electrical energy. Since the DRI kiln gas is introduced only into the Waste Heat Recovery Boilers (WHRBs) and the steam generated is fed into the Steam-Turbo Generators for power generation and this whole process of waste heat recovery for steam and power generation is independent of the CFBC boiler operation. Project boundary referring to the approved consolidated methodology (ACM0012, version 2) applied that the waste gas generation source for the project activity under consideration includes the outlet of the After Burning Chambers (ABC) of the DRI kilns of AML and the ducting system for transportation of waste gases from the respective emission sources to the power plant. Further the waste gas utilization facility where electricity is generated and electricity consumption facilities have been included in the project boundary which is as per the approved methodology. The same has been checked and verified with the project boundary description depicted in the PDD. The CFBC boiler and the synchronous power generation is not part of the current project activity thus, it has not been considered within the project boundary. The quantity and energy content of the CFBC boiler steam along with its respective monitoring for the purpose of arriving at the baseline emission reduction calculation for the project activity is found in line with the applied methodological requirement and hence accepted. (Please refer NIR 06 as discussed in the Validation Report submitted during requesting registration).

Therefore the CFBC boiler has not been included within the project boundary for the project activity under consideration.

Request for Review, Issue 3:

The DOE is requested to further substantiate: (a) how 36.1 MW (CFBC: 25.4 MW + WHRB: 10.7 MW) power can be generated in the project scenario with 34 MW steam turbines, and (b) the appropriateness of economic comparison, in particular, how the unit cost of electricity from a 55 MW coal based power plant can be compared with that of the project activity (36.1 MW).

SGS' and PP Response to Issue 3:

The DOE hereby wishes to provide the following clarifications with regards to the queries of the Executive Board:

a. Power Capacity in the project scenario: The DOE hereby wishes to clarify that the current project activity *i.e.* the DRI kiln gas (*i.e.* the waste gas) based power generation entails utilization of the waste energy for power generation and does not require any additional fuel input. Therefore, under all circumstances in the project scenario, the objective of the project proponent would be to fully utilize the DRI kiln gas for power generation. Since the power generation capacity of the project activity power plant is fixed (*i.e.* 34MW with two steam-turbo generator sets of 17MW each), therefore the CFBC boiler will be operated only to generate steam required for generation of the balance power (*i.e.* 34MW – Power generated with DRI kiln gas). This will result in an overall power output of 34MW from the project activity power plant.

However this is to be noted that the DRI kiln gas of M/s. Adhunik Metaliks Limited will be utilized in five Waste Heat Recovery Boilers (WHRBs) connected separately to each of the five DRI kilns. Therefore with any shut down of a DRI kiln, the connected Waste Heat Recovery Boiler will also be non-operational resulting in lower availability of steam from the Waste Heat Recovery Boiler. However the CFBC boiler has been designed accordingly so that such reduction in steam availability from a particular Waste Heat Recovery Boiler will be catered by the CFBC boiler thereby maintaining the overall power output of 34MW from the project activity power plant.

For the power cost analysis computed by the third party renowned power plant consultant - M/s. Avant-Garde Engineers and Consultants (P) Limited, it is assumed that the project activity power plant will operate for 350 days/annum (considering an annual maintenance shut down of 15days/annum). However at any point of time during a year, only four Waste Heat Recovery Boilers will be operational which is as per the operational schedule of the DRI kilns (10days of shut down with every 60days of operation of DRI kilns and 15days of annual maintenance shut down). This assumption was found realistic as although individual DRI kiln and the connected Waste Heat Recovery Boiler will operate for 300days/annum, the project proponent has developed an annual maintenance schedule for the five DRI kilns in such a fashion that four kilns are operational at any point of time during a year resulting in availability of four Waste Heat Recovery Boilers throughout the project activity power plant operation (*i.e.* 350days/annum). Therefore the project activity power plant will be operated with four Waste Heat Recovery Boilers and the CFBC boiler at any point of time during a year. Hence although the power generation capacity of all the five Waste Heat Recovery Boilers is around 10.7MW (based on the DRI kiln gas availability and subsequent steam generation potential), the available capacity round the year will be around (10.7MW x 4/5) = 8.6MW. The power generation requirement with steam from CFBC boiler has been determined considering the availability of four Waste Heat Recovery Boilers at any point of time during a year and the power generation capacity of the captive power plant found to be 34 MW and hence the power output from CFBC boiler is found (34MW – 8.6MW) 25.4MW (please refer to cells C12 and C13 of the 'WG+CFBC based Power Generation' worksheet of 'Appendix-1: Adhunik Metaliks Limited-Power Cost' as already been provided to UNFCCC during requesting registration). Considering the power balance algorithm as discussed above (paragraph one of this response) the output of CFBC boiler at any time will be depending on the availability of the WHRB steam on operational basis. This justifies that although the available capacity for the project activity power plant at any point of time during a year will be 34MW (WHRB: 8.6MW + CFBC: 25.4MW) as only four Waste Heat Recovery Boilers are expected to operate simultaneously at any point of time during a year.

b. Appropriateness of economic comparison: The DOE hereby wishes to clarify that M/s. Adhunik Metaliks Limited (erstwhile M/s. Neepaz Metaliks Limited) is in the process of phase wise setting up an integrated iron and steel plant in Sundargarh District of Orissa. The project activity power plant is implemented as a part of this

integrated iron and steel plant of M/s. Adhunik Metaliks Limited. The baseline alternatives for the project activity have been identified following the most realistic approach which entails the project proponent to consider all the alternatives with the objective to cater to the total electrical energy requirement of the integrated iron and steel plant. This approach is justified as the integrated iron and steel plant operation is power intensive and hence project proponent's decision of setting up the project activity power plant or the baseline power plant or any other alternative would largely depend on how the entire power requirement of the integrated iron and steel plant would be met with either of these options in place. With this background, the total annual electrical energy requirement of the integrated iron and steel plant has been worked out to be around 458033 MWh (the details of power requirement have already been provided to UNFCCC during requesting registration; please refer to the 'Power Requirement' worksheet of 'Appendix-1: Adhunik Metaliks Limited-Power Cost' for details). Therefore all the alternatives for catering to the power requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited were envisaged with the consideration of supplying a net electrical energy output of 458033 MWh per annum. With this consideration, M/s. Adhunik Metaliks Limited has envisaged the following three alternatives:

Alternatives for Catering to the Power Requirement of M/s. Adhunik Metaliks Limited	
Alternative	Description
Alternative-1: Generation of power in a coal based captive power plant	This alternative entails installation of a 55 MW coal based captive power plant. After catering to the auxiliary power requirement of the captive power plant, the same will be able to supply 416075 MWh of electrical energy per annum to the integrated iron and steel plant of M/s. Adhunik Metaliks Limited. The balance *i.e.* (458033 – 416075) = 41958 MWh of electrical energy per annum will be imported from the grid with this alternative in place.
Alternative-2: Import of power from the grid	This alternative entails import of entire 458033 MWh of electrical energy per annum from the grid to cater to the electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited.
Alternative-3: Project Activity	This alternative entails utilization of the heat content of the DRI kiln gas for generation of around net output of 69429 MWh electrical energy per annum after catering to the auxiliary electricity requirement of the power plant equipments. This will be supplemented with an additional power generation with steam from a CFBC boiler (which would be primarily based on the Coal Washery Rejects and Coal Char available in the plant along with the minimum quantity of coal necessary for proper operations) *i.e.* equivalent to a net electrical energy output of 192240 MWh per annum after catering to the auxiliary electricity requirement of the power plant equipments. Hence with these in-house power generation facilities, the project proponent would be able to supply (69429 MWh + 192240 MWh) = 261669 MWh of net electrical energy per annum to the integrated iron and steel plant of M/s. Adhunik Metaliks Limited. Therefore with the project option in place, the project proponent would require to import the balance power *i.e.* (458033 – 261669) = 196364 MWh of net electrical energy per annum from the grid.

The above explanation clearly explains that all the alternatives (*i.e.* Alternative-1, Alternative-2 and Alternative-3), identified for catering to the power requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited, will have a net power output equivalent to 458033MWh of electrical energy per annum (*i.e.* alternatives with similar output). Hence all these alternatives can be considered as alternate investment options for the project participant to cater to their electrical energy requirement. Therefore an investment cost comparison amongst all these alternatives in terms of their respective unit power costing would be appropriate to determine the most economically attractive alternative (*i.e.* the baseline scenario) to the project proponent and to assess additionally of the project activity under consideration.

Request for Review, Issue 4:

The PP/DOE are requested to clarify: (a) why electricity imports from the grid in the project activity is significantly higher (196,364 MWh/annum) compared to that in the baseline scenario (41,958 MWh/annum), and (b) why electricity imports from the grid has not been kept equal in both project activity and baseline scenario.

SGS' and PP Response to Issue 4:

The PP and DOE hereby wish to provide the following clarifications with regards to the queries of the Executive Board of UNFCCC:

a. Higher grid imports in project scenario: The PP and the DOE hereby wish to reiterate that both the baseline alternative and the project alternative have been identified with the objective of catering to the total electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited. The capacity of the coal based power plant in the baseline scenario has been determined accordingly. However the integrated iron and steel plant of M/s. Adhunik Metaliks Limited also consists of a Rolling Mill where the power requirement is high in magnitude; however it is instantaneous in nature (please refer to the 'Power Requirement' worksheet of 'Appendix-1: Adhunik Metaliks Limited-Power Cost' as submitted during requesting registration). Therefore it is not desirable to supply this kicking load power from the captive power plant as in that case the power plant would require to be oversized and the capacity utilization for the power plant will be significantly lower (because of higher idle time of the installed capacity). Hence the power source for the harmonic load of Rolling Mill is selected as the grid such that the source can accommodate the sudden instantaneous surges in power demand without jeopardizing the power generation capability of the source. This is in line with the basic operation of an integrated iron and steel plant operation where grid power is primarily used to cater to such harmonic loads. This justifies why the electricity import in the baseline scenario is lower as the same is required only to cater to the electrical energy requirement of the Rolling Mill of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited.

However in the project scenario, the power generation potential depends on the availability of DRI kiln gas from the DRI kilns of M/s. Adhunik Metaliks Limited. The same is supplemented with steam from a CFBC boiler. With the predicted availability of the DRI kiln gas, the project participant would be able to generate only 261669 MWh of net electrical energy per annum through the operation of the Waste Heat Recovery Boilers along with the CFBC boiler. Therefore in the project scenario, the in-house power generation facility will not be able to cater to the total electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited *i.e.* 458033 MWh of net electrical energy per annum (please refer to the 'Power Requirement' worksheet of 'Appendix-1: Adhunik Metaliks Limited-Power Cost' for details as submitted during requesting registration). Hence the project proponent would require to import the balance power *i.e.* (458033 MWh – 261669 MWh) = 196364 MWh of net electrical energy per annum from the grid to cater to the electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited. This justifies why the electrical energy import in the project scenario will be higher than that in the baseline scenario.

b. Non-equal imports of grid power: As explained above, in the baseline scenario, power is imported from the grid only to cater to the electrical energy requirement of the Rolling Mill to take care of its kicking loads. The balance power requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited will be catered from the coal based captive power plant in the baseline scenario. However, in the project scenario, the power generation potential depends on the availability of the DRI kiln gas from the DRI kilns of M/s. Adhunik Metaliks Limited. With the predicted availability of the DRI kiln gas, the project participant would be able to generate only 261669 MWh of net electrical energy per annum through the operation of the Waste Heat Recovery Boilers along with the CFBC boiler. This will cater only to a part of the electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited as the total power requirement will be around 458033 MWh of net electrical energy per annum (please refer to the 'Power Requirement' worksheet of 'Appendix-1: Adhunik Metaliks Limited-Power Cost' for details). Therefore the balance power i.e. (458033 MWh – 261669 MWh) = 196364 MWh of net electrical energy per annum would require to be imported from the grid in the project scenario. Since this balance power requirement in the project scenario is higher than the electrical energy requirement of the Rolling Mill i.e. 41958 MWh/annum (please refer to the 'Power Requirement' worksheet of 'Appendix-1: Adhunik Metaliks Limited-Power Cost' for details as submitted during requesting registration), therefore the electrical energy import in the baseline scenario and in the project scenario are found to be different.

Request for Review, Issue 5:

The DOE is requested to further substantiate the suitability of input values to economic comparison, in particular, (a) the total project cost, and (b) the annual interest.

SGS' and PP Response to Issue 5:

The DOE hereby wishes to clarify that all the input values and assumptions used in the economic comparison for both the baseline option and project option have been provided by a third party; renowned power plant consultant-M/s. Avant-Garde Engineers and Consultants (P) Limited based on standard industrial practices and norms *(the report has already been submitted to UNFCCC during requesting registration; please refer to 'Appendix-3: Letter from Avant-Garde')*. Avant-Garde has vast credentials in power plant designing and has pioneered in many new power plant technologies in India with their activities spread over India and abroad. Same are found well evident through the detail information available at their company's web portal *(http://www.avantgarde-india.com/index.php#)*. This justifies the credibility of all the input values and assumptions used for the economic comparison analysis for the baseline option and the project option. However, in addition to that DOE has validated the investments costs based on publicly available information. The same is elaborated below for further clarification:

(a) The total project cost and

(b) The annual interest

Total Project Cost		
Scenario	**Initial Investment**	**Justification**
Baseline Scenario - 55 MW Coal based Power Plant supplemented with Grid Power Import	INR 2201.5 Million	This is based on an assumption of installation cost of INR 40 Million/MW for coal based power plant. The same has been validated with installation cost as published in http://www.hinduonnet.com/businessline/2003/08/05/stories/2003080501650200.htm.
Project Scenario - Waste Gas based Power System (10.7MW) supplemented with CFBC Boiler based Power Generation System (25.4 MW) and Grid Power Import	INR 1445.7 Million (INR 428.6 Million for Waste Gas based Power Generation System and INR 1017.1 Million for the CFBC Boiler based Power Generation System)	i) The installation cost for waste gas based power generation system is based on an assumption of INR 40 Million/MW which is found to be approximately 889 USD/kW (assuming 1 USD = INR 45). The same is validated with the installation cost of around (USD 600-USD 1800)/kW for waste heat recovery based power generation system as published in Pg.13 of the Report published in the 'Industrial Energy Technology Conference-2007' available at http://www.chpcenterpr.org/wasteheat2power07/PDF/stinger%20presentation.pdf . ii) The installation cost of CFBC boiler based power generation system is based on an assumption of INR 40 Million/MW for coal based power plant. The same has been validated with installation cost as published in http://www.hinduonnet.com/businessline/2003/08/05/stories/2003080501650200.htm. iii) Furthermore, to check the ground reality, the actual initial investment in the project scenario *i.e.* INR 1445.7 Million has also been validated with the audited expenditure of M/s. Adhunik Metaliks

Total Project Cost		
Scenario	**Initial Investment**	**Justification**
		Limited on the power plant project till 31st March 2009 which is around INR 1503.90 Million. The audited expenditure, as certified by an independent authority based on the actual expenses incurred, has been enclosed herewith for reference (Please refer Annex - 03 of this letter).

The Annual Interest
The annual interest rate for both the baseline scenario and the project scenario has been considered as 9% per annum in the economic comparison analysis conducted by the third party renowned power plant consultant - M/s. Avant-Garde Engineers and Consultants (P) Limited. The same has also been validated with the following evidences: i) The interest rate as prescribed by the Reserve Bank of India (India's Central Bank) for the period of 2004-2005 (since the project activity was approved by the Management of M/s. Adhunik Metaliks Limited on 25th August 2004). The same is found to be around 10.25% - 10.75% per annum and is available at http://rbidocs.rbi.org.in/rdocs/Publications/PDFs/87456.pdf ii) The interest rate at which M/s. Adhunik Metlaiks Limited has entered into contractual agreement with their Bankers for securing the project debts. The same is found to be around 9.5%. Please refer to Annex - 04 of this letter). Therefore, consideration of annual interest rate used for economic comparison was found justified.

Request for Review, Issue 6:

The means of calculation of QBL,product is not in accordance with ACM0012 version 2. The DOE should have raised a Corrective Action Request to require the project participant to apply ACM0012 version 3.1 or requested a deviation. As no deviation has been requested, the PP should now apply ACM0012 version 3.1 fully to this project activity. The DOE should revalidate the project applying ACM0012 version 3.1.

SGS' and PP Response to Issue 6:

The DOE hereby wishes to clarify that the DRI kiln gas (*i.e.* the waste gas) generated from the DRI kilns of M/s. Adhunik Metaliks Limited was not monitored during phase-wise implementation of the facility as the same has got no use within the integrated iron and steel plant. Furthermore initially the project activity was developed following the guidance of the Approved Consolidated Methodology-ACM0004 (please refer the detailed CDM project development chronology discussed in the validation report submitted during requesting registration) which did not require the project proponent to monitor the waste gas quantity. Therefore there is no historical data available for DRI kiln gas (*i.e.* the waste gas) generation from the DRI kilns of M/s. Adhunik Metaliks Limited.

However the Project Design Document (PDD), submitted for validation, was developed following the guidance of the Approved Consolidated Methodology-ACM0012, Version 02 which requires the project proponent to cap the baseline emissions with a capping factor-f_{cap}. In accordance with the guidance of the methodology, for project activities where historical waste gas generation data are not available (same as that of the project activity under consideration), the factor-f_{cap} will be determined following 'Method-2 of Capping of baseline emissions' of the Approved Consolidated Methodology-ACM0012, Version 02. This method requires the project proponent to determine $Q_{BL,product}$ based on 3 years average production data from the process related to waste gas generation (*i.e.* 3 years average DRI production data for the project activity under consideration).

Furthermore the DOE has also submitted one clarification request to UNFCCC requesting further elaboration on ACM00012 version 02 criteria (please refer to AM_CLA_0071 available on http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_GU59XMVIK6RS6RXDL25B0HBHWHAP30) for

'$Q_{BL,product}$ determination in cases where no 3 years historic data is available'. As per the clarification provided by the Meth Panel of UNFCCC, $Q_{BL,product}$ is defined as –

"Production associated with the relevant waste energy generation as it occurs in the baseline scenario. The minimum of the following two figures should be used:
(1) historical production data from start-up (or three years which ever is lower) of the plant or
(2) the most relevant manufacture's data for normal operating conditions.
In case of new facilities or where data is not available the manufacture's data for normal operating conditions shall be used".

Since the project activity is implemented as a part of the new integrated iron and steel plant of M/s. Adhunik Metaliks Limited, therefore following the above guidance, $Q_{BL,product}$ is determined based on manufacturer's data for DRI kiln production under normal operating conditions. This justifies the appropriateness of applying 'Method-2 of Capping of baseline emissions' of the Approved Consolidated Methodology-ACM0012/Version 02 alongwith the guidance provided by the Meth Panel of UNFCCC against clarification request AM_CLA_0071 for determination of $Q_{BL,product}$ and f_{cap} without any deviation request. Furthermore the DOE also wishes to clarify here that exactly similar guidance is provided under 'Method-2 of Capping of baseline emissions' of the Approved Consolidated Methodology-ACM0012, Version 03.1 for determination of $Q_{BL,product}$ and f_{cap}. This justifies why the DOE has not requested a deviation or raised a Corrective Action to develop the project activity following the Approved Consolidated Methodology-ACM0012/Version 03.1. The capping of baseline emissions has been applied in accordance with the Approved Consolidated Methodology-ACM0012/ Version 2, following the Method 2 by the project proponent as the project activity caters to implementation in a new facility. The selection of Method – 2 for capping of baseline emissions and adopting manufacturer's data for calculation of the same is also in line with the requirement of the further revisions of applied methodology, i.e. ACM0012 version 03, the same was confirmed with the clarification approved by the meth panel (AM_CLA_0071) and thus it is accepted.

However the DOE appreciates the concern of the Executive Board of UNFCCC and hereby proposes to re-calculate $Q_{BL,product}$ to ensure more conservative estimation of the same following the guidance provided against the clarification request AM_CLA_0071 as a minimum of:

- 3 years historical DRI production data (since the operational history of the DRI kilns is more than 3-years)-The same is determined as an average of 3 years DRI production data from all the DRI kilns of M/s. Adhunik Metaliks Limited and is found to be 122875 MT/annum. Please refer to Annex - 5: of this letter.

- Most relevant manufacturer's data for normal operating condition -The same is determined from the manufacturer's data on DRI kiln production under normal operating condition and is found to be 150000 MT/annum. Please refer to Annex - 6 of this letter.

The DOE proposes this re-calculation in order to arrive at a conservative value of $Q_{BL,product}$ and f_{cap} which in turn will ensure a conservative estimation of baseline emissions and hence emission reductions resulting from the project activity. As per the above method, $Q_{BL,product}$ is found to be 122875 MT/annum and the f_{cap} is found to be 0.819 With this revised computation, the baseline emission for the project activity is found to be 65587 tCO_2/annum which will result in an annual emission reduction of around 65587 tCO_2/annum. The revised emission reduction computation is enclosed herewith for reference (please refer to Annex - 7 of this letter).

Request for Review, Issue 7:

The PP/DOE are requested to further substantiate the applicability of the ACM0012 version 02 to the project activity, in particular, what would happen to the waste gas in the absence of the project activity.

SGS' and PP Response to Issue 7:

The PP and the DOE hereby wish to clarify that the DRI kilns gas utilized for power generation in the project activity does not have any other use in the integrated iron and steel plant of M/s. Adhunik Metaliks Limited. Therefore in absence of the project activity the same would have been released into the atmosphere after quenching and cleaning thereby wasting the thermal energy content of the same without any productive use.

Regarding the use of waste heat for internal thermal applications, there is currently no demand within the sponge iron or the steel plant other than to feed the boilers and generate electricity, which corresponds to the project activity. Demonstration of use of waste energy in absence of CDM project activity has been validated following the guidance of the Approved Consolidated Methodology - ACM0012, Version 02 with energy bills before the implementation of the current project activity which will demonstrate that all the electrical energy required for construction or partial operation of the integrated iron and steel plant[1] of M/s. Adhunik Metaliks Limited have been procured commercially. The same has been elaborated below:

The total electrical energy consumption in the integrated iron and steel of M/s. Adhunik Metaliks Limited for the period 2006-2007 (*i.e.* before the implementation of the project activity power plant) has been obtained from the audited copy of the Director's Report (a part of the Annual Report (2006-2007) of M/s. Adhunik Metaliks Limited; please refer to Annex - 8: Director's Report for the same). As per this report, the electrical energy consumption of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited has been sourced partially by importing power from the grid and partially by generating power in the Diesel Generator (DG) Set. The electricity import from the grid has also been cross-verified with the monthly electricity bills for the period 2006-2007 (please refer to Annex - 9: Electricity Bills). The detailed energy balance of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited for the period 2006-2007 has been verified as mentioned below:

Detailed Energy Balance for M/s. Adhunik Metaliks Limited for the year 2006-2007					
Month	**Grid Drawl**	**DG Generation**	**Total[2] (Grid + DG)**	**Total Consumption**	**Difference[3]**
	(kWh)	(kWh)	(kWh)	(kWh)	(%)
Apr 2006	11241600	403531	11645131	11557363	0.75
May 2006	12585120	430780	13015900	12913126	0.79
June 2006	12204480	487854	12692334	12629459	0.50
July 2006	13122480	567856	13690336	13640548	0.36
Aug 2006	13282800	520098	13802898	13727248	0.55
Sep 2006	12740880	478861	13219741	13102071	0.89
Oct 2006	10864800	558591	11423391	11417491	0.05
Nov 2006	12920160	459617	13379777	13196697	1.37
Dec 2006	13577280	520093	14097373	13996963	0.71
Jan 2007	14096400	528510	14624910	14549120	0.52
Feb 2007	13117680	470066	13587746	13471166	0.86
Mar 2007	14411760	495143	14906903	14779773	0.85
Total	154165440	5921000	160086440	158981025	0.69

The above energy balance clearly demonstrates that during the year 2006-2007 (*i.e.* before the implementation of the project activity power plant), the entire electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited has been procured commercially. Furthermore the Director's Report (which is a part of the Annual Report (2006-2007)), have been audited by third party statutory auditor which will ensure the authenticity of all the data used for the energy balance. This clearly establishes that the DRI kiln gas was not utilized before the implementation of the project activity and the same would have been wasted in absence of the project activity.

[1] This is to be noted here that the entire integrated iron and steel plant of M/s. Adhunik Metaliks Limited was not operational during the period of 2006-2007 (*i.e.* before the implementation of the project activity). Only some facilities (sponge iron kilns I to V, Coal Washery and Ferro Alloy Plant – I) have been commissioned before the commissioning of the project activity power plant in June 2007.

[2] A very small quantity (121 MWh) of electricity is generated during 2006-2007 with the DRI kiln gas; however the same was for trial run of the project activity power plant which was commissioned in June 2007.

[3] The small difference between total electricity generation and total electricity consumption may be attributed to transmission and distribution losses.

Request for Review, Issue 8:

The monitoring plan shall include monitoring of: (a) the enthalpy and steam flow rate of each boilers, (b) the rate of waste gas used by each units, (c) the rate of other fuels used by each boilers, (d) the electricity generated by the diesel generators set, and (e) the electricity imports from the grid.

SGS' and PP Response to Issue 8:

The PP and the DOE hereby wish to clarify that monitoring of:

(a) The enthalpy and steam flow rate of each boiler (*i.e.* Five nos. Waste Heat Recovery Boilers and One no. CFBC boiler) have already been included in the monitoring plan of the Project Design Document (PDD) submitted to UNFCCC for 'Request for Registration'. Please refer to the parameters-$Q_{steam,whr,y}$, $ST_{whr,y}$, $Q_{steam,other,y}$ and $ST_{other,y}$ under 'Section B.7.1: Data and parameters monitored' of the Project Design Document (PDD), Version 04 dated 7th April 2009.

(b) The waste gas consumption by each of the Waste Heat Recovery Boilers has already been included in the monitoring plan of the Project Design Document (PDD) version 4 dated 7th April 2009 submitted to UNFCCC with 'Request for Registration'. Please refer to the parameter-$Q_{WG,y}$ under 'Section B.7.1: Data and parameters monitored' of the Project Design Document (PDD), Version 04 dated 7th April 2009. The parameter will be monitored with flow meters connected separately with each of the Waste Heat Recovery Boilers.

(c) Other fuel consumption by each of the Waste Heat Recovery Boilers has not been included in the monitoring plan since there is no provision for consumption of other fuels in the Waste Heat Recovery Boiler. The same has been cross verified during on-site validation and also with the technical specification of Waste Heat Recovery Boilers. The technical specification of the Waste Heat Recovery Boilers has been enclosed herewith for reference (please refer to Annex - 10 of this letter).

(d) The electricity generation in Diesel Generator (DG) Set has not been included in the monitoring plan since electricity will be sourced from Diesel Generator (DG) Set only under extreme emergency situation wherein the project activity power plant has tripped and when there is grid isolation. Under this situation, the auxiliary electricity requirement of the project activity power plant equipment will be met with electricity generated from the Diesel Generator (DG) Set and the emission from the diesel consumption will be deducted as project emissions. This is in accordance with the guidance of the Approved Consolidated Methodology-ACM0012, Version 02 which requires the project participant to deduct project emission from consumption of auxiliary fossil fuel required for supplementing the waste gas based power generation. Necessary parameters for computation of project emissions from auxiliary fuel (like diesel) consumption *i.e.* FF_i, NCV_i and $EF_{CO2,i}$ have already been included in the monitoring plan of the Project Design Document (PDD) submitted to UNFCCC with 'Request for Registration'. Please refer to 'Parameter to be monitored for the computation of Project Emissions' under 'Section B.7.1: Data and parameters monitored' of the Project Design Document (PDD), Version 04 dated 7th April 2009.

(e) The electricity import from the grid has not been included in the monitoring plan as electricity will be imported from the grid in the project scenario primarily to cater to the electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited along with the electricity sourced from their in-house power generation facilities. The same is evident from the power balance in the project scenario (please refer to the 'Project Case-WG+CFBC+Grid' worksheet of Appendix-1: Adhunik Metaliks Limited-Power Cost for details as submitted during requesting registration). This electricity import required for catering the electrical energy requirement of the integrated iron and steel plant of M/s. Adhunik Metaliks Limited is not included in the project boundary of the project activity under consideration which is in accordance with the guidance of the Approved Consolidated Methodology-ACM0012, Version 02. However electricity imported to cater to the auxiliary electricity of the project activity power plant will be monitored with energy meters (please refer to Project Participant Response to CAR 05 of the Validation Report). The baseline emissions (and hence the emission reductions) will be computed following the guidance of the Approved Consolidated Methodology-ACM0012, Version 02 based on the quantity of electricity supplied by the project activity power plant which is after consideration of the auxiliary electricity requirement of the project activity power plant. This justifies why grid electricity import has not been included as a separate monitoring parameter in the monitoring plan of the Project Design Document (PDD) version 4 dated 7th April 2009 submitted to UNFCCC with 'Request for Registration'.

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

Ajoy Gupta (+ 91 99038 03700) 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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Enclosures:

Annex 01: Purchase Order from M/s. Adhunik Metaliks Limited issued to M/s. Thermal Systems (Hyderabad) Pvt. Ltd. for supply of Waste Heat Recovery Boilers dated 30/04/2006.
Annex 02: Contract for supply of Turbo-generator and auxiliaries issued to M/s. Greensol Power Systems Pvt. Ltd. for supply of Steam-Turbo Generator Sets, dated 17/04/2006.
Annex 03: Actual Project cost.
Annex 04: Common Rupee Loan Agreement between Adhunik Metaliks Limited (as the Borrower) and the Banks (as the Lenders) and State Bank of India (as the Lender's Agent), dated 14.06.2006.
Annex 05: Three years DRI Production Data of M/s. Adhunik Metaliks Limited.
Annex 06: Manufacturer's Data for DRI kilns.
Annex 07: Adhunik Metaliks Limited-Revised CER Spreadsheet.
Annex 08: Director's Report 2006-2007.
Annex 09: Electricity Bills_2006-2007.
Annex 10: Technical Specification of Waste Heat Recovery Boilers.