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Att: CDM Executive Board

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CDM Ref 1186	TRIKA/MLEH	11 October 2007

Response to request for review
Biomass thermal energy plant – Hartalega Sdn.Bhd, Malaysia (1186)

Dear Members of the CDM Executive Board,

We refer to the requests for review raised by three Board members concerning DNV's request for registration of the project activity entitled "Biomass thermal energy plant – Hartalega Sdn.Bhd, Malaysia" (1186), and we would like to provide the following response to the issues raised by these requests for review.

1. The PP shall further demonstrate the additionality of the project activity:
a. The work of Phase 1 of the project activity began in February 2002 before the Board of Directors for Hartalega considered CDM revenues as important to improve the viability of the project as was demonstrated through a " Directors' Circular Resolution" regarding the project which was dated of 28 January 2002. Hence the starting date is prior to CDM consideration and the project would be business as usual project.

DNV Response:

We refer to the response to the requests for review submitted by the project participants where the whole chronological order of discussion with the supplier (Vyncke) and project milestones were provided. DNV has assessed all the documentations provided to support the relevant milestones. The project was considered based on the confirmation by the supplier (in the letter dated 20 January 2002) that it is eligible as a CDM project to obtain carbon credits.

Furthermore, the project participants have also provided evidence (from two other projects) that the lead time required between the signing of purchase agreements and issuance of director's resolution can be within the same day. Hence, the starting date of the project activity is deemed to be after CDM consideration.

b. As stated in the Validation report, the predominant use of biomass residues in the country is for energy purposes. Further clarification and evidences on the analysis of alternatives to the project activity are required to substantiate the selection of the project activity.

DNV Response:

We refer to the response to the requests for review submitted by the project participants where clarification was provided on the predominant use of biomass residues in Malaysia. Documented references were provided by the project participants to justify the selection of B2 (The biomass residues are dumped or left to decay under clearly anaerobic conditions in a landfill site) and B4

(The biomass residues are sold to other consumers in the market and the predominant use of the biomass residues in the region/country is for energy purpose) as the most plausible alternative scenario for EFB (Empty Fruit Bunches) and PKS (Palm Kernel Shells) respectively.

It should be noted that although the EFB produced by palm oil mills in Malaysia can also be used for mulching, it is not necessarily the common practice among the mills. In addition to that, the low calorific value of EFB (as compared to PKS and Mesocarp fibres) and the pre-treatment required (such as shredding) substantiate the fact that it is not commonly used for energy purposes [1]

The predominant use of PKS for energy purposes was satisfactorily justified with the documented references provided. The references provided has been assessed by DNV and justifies that the PKS is deemed too valuable to be disposed off as waste and left to decay anaerobically in landfills.

c. Clarifications are required in relation to the investment and financial barriers. In the validation report (page 15 of 92) the DOE states that "The cost of installing and operating biomass fuelled boilers was demonstrated to be higher than that of fossil fuel boilers. The extra costs are associated with the additional manpower requirements, the need for a large storage area for the biomass and the variable price of EFB and PKS. The costs mentioned are mainly operational rather than capital costs.

DNV Response:

We refer to the response to the requests for review submitted by the project participants on the additional capital costs involved for the project activity: -

i) The total capital cost of installing three biomass boilers (capacity 25.6 MW) is around RM 15.6 million (incl. auxiliary equipment of RM 4.6 million) while the total capital cost of installing the fossil fuel fired burners (21 MW) is RM 3.2 million. The documented reference (purchase agreements and invoices) were provided to substantiate the figures used.

ii) The manpower required for the project activity is estimated to be 37 people, as compared to only 7 people when the natural gas boiler was used.

iii) The biomass boilers will occupy a substantially larger combined land area compared to the natural gas boiler. This was confirmed through the plant layout that was submitted.

d. Both technological barriers and prevailing practices barriers analysis is generic and vague. Further demonstration is required.
In addition, there are two other large manufacturing plants in Malaysia utilizing oil palm waste for thermal energy production.

DNV Response:

We refer to the response to the requests for review submitted by the project participants to further demonstrate on the technological and prevailing practice barrier analysis. The barriers faced by Hartalega include:

[1] PDD ref. 10: Barrier Analysis for the supply chain of palm oil processing biomass (Empty Fruit Bunch) as renewable fuel, Integrated resource planning 2, January 2006 (Final)

Technological barrier

i) Empty fruit bunches has poor fuel characteristics and is more difficult to handle and burn as compared to PKS and mesocarp fibres. As a result of the high wear and tear associated with the utilization of the fuel, boiler capacity was reduced to 30%. This was confirmed by the supplier through e-mail correspondence. A summary of the challenges faced by the operators, and related pictures from the boilers, due to the fuel characteristics of EFB is given by the project participants.

Prevailing practice barrier

The project proponent has described, and related documentation has been made available to DNV, in order to further explain the prevailing practice barrier. The major operational difference for Hartalega, compared to the 2 companies out of about 100 glove manufactures that has installed biomass boilers, is the main fuel for the Hartalega biomass boiler being EFB as described as the technical barrier above. However the following issues should be noted:

i) Hartalega is using thermal oil as the heating media instead of steam. The capital cost required to purchase the thermal oil boiler system (which include boiler 1, boiler 2 and boiler 3) is close to three times the capital cost required for a steam boiler. This was substantiated with the documentation provided by the project participants, where the cost of a thermal oil boiler system is USD 2.893 million (about RM 11 million, assuming a conversion rate of 1 USD to RM 3.80) while the cost of a steam boiler is about RM 3.8 million. Although the heat output of the thermal oil boiler system (25.60 MW) is slightly lower than the heat output for the steam boiler (27.90 MW), the comparison has demonstrated that the investment is financially and technically unattractive.

ii) Documentation was provided by the project participants to support that the top 2 glove manufacturers in Malaysia (Top Glove and Supermax) are using the steam boiler system.

e. Regarding the impact of the CDM registration the DOE states that it would be essentially of a financial nature while the PP has chosen the use of barriers instead of financial analysis

DNV Response:

We refer to the response to the request for the review submitted by the project proponent and the PDD where it is stated that a barrier analysis (Step 3) was chosen to demonstrate the additionality; the investment and financial barrier was described as one of the barriers.

We also refer to the validation report where DNV stated that the impact of the CDM registration will be a financial compensation in form of CERs income in order to overcome the defined barriers that will have a financial negative effect summarised as follows:

1. The additional investment cost of biomass-fuelled boilers compared to conventional boilers (and the fact that the existing boilers were not amortized and still have 20 years of lifetime),
2. The additional cost of handling EFB for combustion. Unlike PKS, EFB must be shredded before it can be combusted,
3. The potential future increase in biomass market value,
4. The additional manpower required to operate the biomass-fuelled boilers, and
5. The higher maintenance and operation costs of the biomass-fuelled boilers.

The barriers stated in the validation report leading to increased costs, are now enforced by the information received as a consequence of the request for review. However the barriers analysis is still in principal the same and as stated by the project proponent being the barrier of the activity being

”first of its kind” thermal oil heater burning predominately EFB with the associated technical barriers leading to increased capital and operating costs.

It should be noted that the barrier associated with the lack of accessible and favorable financing scheme is described in the PDD page 17, which in fact resulted in no available loan for phase 1, thus phase 1 was self-financed by Hartalega. Information about financing of phase 2 is given in the response to the request for review submitted by the project proponent where they refer to negotiations for the financing of phase 2 and stating that the CDM registration and additional revenues from carbon credits are a strong guarantee to the bank.

2. The required documentation on the typical average technical lifetime of boilers in the country/sector should be provided.

DNV Response:

We refer to the response to the requests for review submitted by the project participants where currently there is no research being carried out on thermal oil boilers. Correspondence from the suppliers to the project participants were used to support the estimated technical lifetime of the boilers instead.

3. The DOE shall inform under which contractual arrangements were being retained the assessors that participated in the validation team.

DNV Response:

DNV fails to see that this is an issue associated with the validation requirements in accordance with paragraphs 37 and 40 of the CDM modalities and procedures. This issue has been addressed as part of the accreditation of DNV and will be revisited during DNV’s upcoming reaccreditation process

We sincerely hope that the Board accepts our above explanations.

Yours faithfully
for DET NORSKE VERITAS CERTIFICATION AS

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