



UNFCCC Secretariat
 Martin-Luther-King-Strasse 8
 D-53153 Bonn
 Germany

DET NORSKE VERITAS
 DNV Certification AS
 International Climate Change Services
 Veritasveien 1
 NO-1322 Høvik
 Norway
 Tel: +47-6757 9900
 Fax: +47-6757 9911
 http://www.dnv.com
 NO 945 748 931 MVA

Att: CDM Executive Board

Your ref.:
 CDM Ref 0895

Our ref.:
 ETEL/KCHA

Date:
 11 April 2007

Response to request for review

“Energy efficiency and fuel switching measures in the caustic soda and sodium cyanide plant at Vadodara complex of GACL” (0951)

Dear Members of the CDM Executive Board,

We refer to the clarifications to the requests for review raised by the Board members concerning DNV’s request for registration of the “Energy efficiency and fuel switching measures in the caustic soda and sodium cyanide plant at Vadodara complex of GACL” (0951) and would like to provide the following initial response to the issues raised by the requests for review.

Comment 1:

Application of methodology- AMS III B “switching fossil fuels” is not an appropriate methodology for the fuel switch measure ‘natural gas to hydrogen’, as hydrogen is not a fossil fuel but simply represents an energy carrier that is normally produced by means of natural gas or fuel oil.

DNV Response:

GACL’s manufacture of caustic soda follows an electrolytic process where the power input is essentially drawn from the grid. It has been demonstrated in the PDD and in DNV’s validation report that this power is essentially fossil fuel based. The input energy in the form of this fossil-fuel based electricity for the electrolytic decomposition results in the release of hydrogen as a by-product. Hence, in our opinion, the hydrogen can be deemed to be a “secondary fuel” as it is derived out of fossil fuel based power.

In the absence of the project activity, the heat required would otherwise have been generated by the use of natural gas, which is available to the company. Hence, in the context of the project activity, and the fact that the hydrogen produced is indeed a secondary fuel now used in stead of the natural gas, it is deemed that AMS III.B is applicable and justified.

This being said, we do concede with the Board members that the interpretation of the applicability of such secondary fuels in AMS III.B in its current version is ambiguous. To this extent we request the EB to consider an extension and/or revision of AMS III B on the applicability of the methodology for project activities using secondary fuels, as this is one of the project categories

meant to cover “other project activities”. In aftertime, we acknowledge that we should have presented a request for deviation or a request for clarification to the Board in order to resolve the ambiguity.

Comment 2:

There is a different grid emission factor mentioned in the Validation Report as compared to the factor outlined in the PDD.

DNV Response:

We beg to differ on this issue. We confirm the use of the following factors is consistent in both the PDD as well as the validation report.

- The grid emission factor as 1136 tCO₂/GWh
- Emission factor for self generation as 460.12 tCO₂/GWh

If there is anywhere this differs in the documentation, please provide further details, and we will be happy to adjust the documentation.

Comment 3:

The additionality of the project-The validity of the arguments related to the investment barriers

DNV Response:

The investment barriers have been addressed, essentially under two counts:

- Investments required for the various activities and its resultant pay-off
- Losses incurred due to the project activities

Investments:

At the outset, we would like to emphasize that this issue has been considered by DNV and been addressed through our Clarification request no 1 in the validation report. As addressed in DNV’s validation report, *GACL has made a total investment of INR 91 million in these project activities (for those involving Type II methodologies) and the payback for the same has been determined to 4.9 years. The investment and efforts are initiated only with the aim to reduce GHG emissions. Records pertaining to investment and purchases for the measures initiated were presented and justify that energy savings and emission reductions were the sole driver for the projects. As it is a more attractive venture to invest in modern technologies either at the design phase of a plant or during a total revamp of the unit, this partial investment does not bring in sufficient returns to make it financially attractive.*

To demonstrate the above the following evidences have been verified and are attached to this response:

- Annex 1: CDM initiatives page 1 and page 2, demonstrating GACL’s initiative towards energy savings and emission reductions
- Annex 2: Containing the investment details, the excel sheet demonstrating the pay back and depreciation details.

Losses incurred due to the project activity:

As addressed in DNV's validation report, *it has been demonstrated that by switching from natural gas to hydrogen, GACL is likely to incur losses on revenue which will partly be recovered from CDM benefits, for the following reasons:*

- *GACL had the option of selling hydrogen to third parties*
- *Natural gas was available at a lower price and hence a more economical option for GACL compared to hydrogen*
- *There was a steady market for hydrogen and demand for hydrogen is evidenced by enquiry letters from process industries such as Deepak Nitrite, Nishal Enterprises and Dragon Drugs*
- *It has also been demonstrated and verified by DNV that the quantity of natural gas required in CCU-II was otherwise available with GACL at the time of switch over to hydrogen and also the infrastructure for selling hydrogen was available with GACL*

To demonstrate the above the following evidences were verified, as attached:

- Annex 3 – demonstrating cost of natural gas
- Annex 4 – copies of invoices towards cost of hydrogen sold
- Annex 5 – correspondence with Indu Nissan to demonstrate demand for hydrogen

Thus the requirement of hydrogen as a replacement fuel at 3.62 times than that of natural gas (105 Sm³ of natural gas or 380 Nm³ of hydrogen is required for the production of 1 MT of caustic soda flakes), demonstrates that there is an opportunity cost associated with the utilization of hydrogen as fuel that can be overcome with CER revenue.

We sincerely hope that the Board accepts our aforementioned explanations and we look forward to the registration of the project activity.

Yours faithfully
for DNV CERTIFICATION AS



Einar Telnes
Director
International Climate Change Services



C Kumaraswamy
Manager – South Asia
Climate Change Services

Attachments: Annexure 1, 2, 3, 4 and 5