



## CDM: Recommendation Form for Small Scale Methodologies (version 01)

*(To be used for presenting questions/proposals/amendments to the simplified methodologies for small-scale CDM project activity categories)*

<i>Date of SSC WG meeting:</i>	As per procedures for fast track clarifications
<i>Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):</i>	Applicability of AMS-III.Q, version 1, for utilization of Waste Hydrogen Gas to be fired in boiler for process steam production
<i>Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.</i>	AMS-III.Q version 1
<i>Name of the authors of the query:</i>	Institution: Durgapur Chemicals Limited <a href="mailto:admin@gensolconsultants.com">admin@gensolconsultants.com</a>

### **Summary of the query:**

Please use the space below to summarize the query related to SSC methodologies/categories SSC Modalities and Procedures provide recommendation/analysis of the SSC WG.

The project activity involves:

- The installation of a new 8 TPH Steam Boiler based on Hydrogen gas (primary fuel) and FO (secondary fuel) for generation of process steam to replace coal fired steam generation;
- In the absence of the project activity, the hydrogen fired at the boiler would have been vented off to the atmosphere;
- The source of the hydrogen gas is the chemical reaction (electrolysis of NaCl brine solution) of the caustic soda manufacturing process through membrane cell technology, the overall reaction is as follows:  
$$2\text{NaCl} + 2\text{H}_2\text{O} = 2\text{NaOH} + \text{Cl}_2 + \text{H}_2 \uparrow$$
- The energy (steam) produced with the recovered hydrogen gas 'should be' (sec: understood as 'is') measurable;

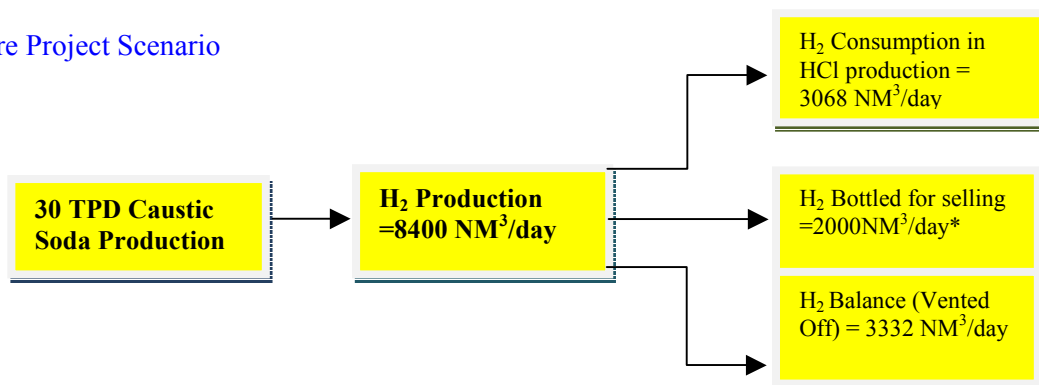
SSC WG had clarified vide SSC\_145 that AMS-III.Q (version1) is applicable to the project activity in case it can be substantiated that the Hydrogen fired in the boiler would have been vented off to the atmosphere in absence of the project activity.

Clarification is sought as to whether Hydrogen Gas can be considered as a waste gas in the project scenario as stated below.

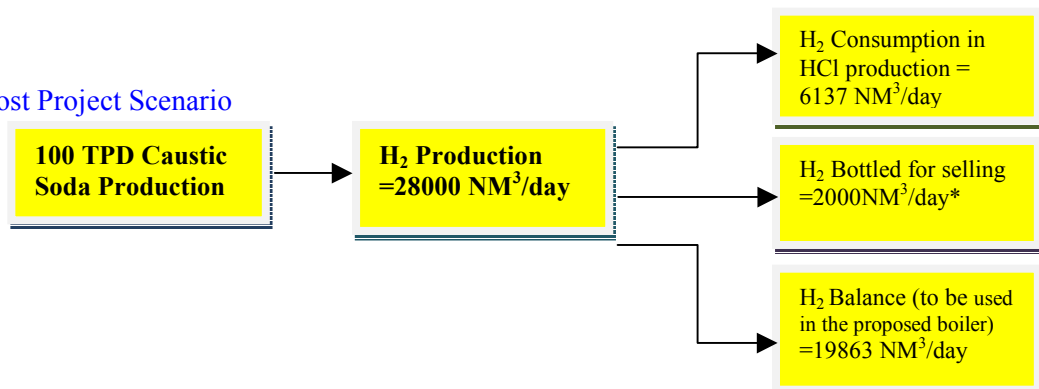
AMS-III.Q defines waste gas/heat/pressure as: 'by-product gas/heat or pressure of machines and technical processes for which no useful application is found in the absence of the project activity and for which it can be demonstrated that it has not been used prior to, and would not be used in absence of the CDM project activity (e.g. because of low pressure, heating value or quantity available). In the project scenario, this waste gas/heat/pressure is recovered and conditioned for use'.

The facts for hydrogen usage are presented below:

#### Pre Project Scenario



#### Post Project Scenario



\*Hydrogen sales figures have been taken from the Maximum Historical sales figures of the Industry records.

Due to upcoming Membrane Cell project and enhancement in the Caustic Soda production, there will be around 19,000NM<sup>3</sup>/day of waste Hydrogen gas which in absence of the Project i.e. Hydrogen + F.O. fired boiler, would be a waste product and vented off. From the above flow diagram it is clear that around 70% Hydrogen produced is a waste product in absence of the project activity.

#### **Recommendation by the SSC WG:**

Please use the space below to provide amendments/change (in your expert view, if necessary).

This recommendation is as per the procedures for fast track clarifications as specified in paragraph 8 of the 'procedures for the submission and consideration of request for clarification of approved small-scale methodologies' found at [http://cdm.unfccc.int/Reference/Procedures/MethSSC\\_proc01\\_EB34a06.pdf](http://cdm.unfccc.int/Reference/Procedures/MethSSC_proc01_EB34a06.pdf).

#### **Answer to authors of query by the SSC WG:**

Please use the space below to provide answer to the authors of the above query

The small-scale working group of the CDM Executive Board would like to thank the author for the submission.


The SSC WG agreed to clarify that hydrogen cannot be considered as waste gas in the described project scenario. In providing this clarification SSC WG took into account:

- The definition of waste gas as provided in paragraph 7 of AMS-III.Q;
- Various alternative options provided under paragraph 6 of AMS-III.Q to show that the waste gas utilized in the project activity would have been flared or released into the atmosphere in the absence

of the project activity;

- The information provided by the submission on the utilisation of hydrogen in the baseline scenario;
- As described in the PDD of project no 0951 'Energy efficiency and fuel switching measures in the caustic soda and sodium cyanide plant at Vadodara complex of GACL'<sup>1</sup>, hydrogen may have market value and alternative uses.

There are many other critical issues associated with the use of co-product hydrogen for energy generation. In this context, the project proponents are requested to refer to the recommendation provided by SSC WG 16 to new methodology submission SSC-NM011 (Hydrogen based energy system) available at <http://cdm.unfccc.int/methodologies/SSCmethodologies/NewSSCMethodologies/index.html>.



Signature of SSC WG Chair .....

(Ulrika Raab)

Date: 20/08/2008



Signature of SSC WG Vice-Chair .....

(Kamel Djemouai)

Date: 20/08/2008

**Information to be completed by the secretariat**

SSC-Submission number	SSC_196
Date when the form was received at UNFCCC secretariat	20 August 2008
Date of transmission to the EB	20 August 2008
Date of posting in the UNFCCC CDM web site	20 August 2008

<sup>1</sup> This PDD indicated a market value of Rs. 6.25 to Rs.19/NM3 for Hydrogen in addition to the following remarks: "In switching from NG to hydrogen GACL faces loss due to loss of market price attached to hydrogen and it amounts to approximately INR 100 million.... Hydrogen gas, a co-product of the caustic soda process, has demand by other industries in the region for hydrogenation purpose.... Thus, for any industry with an infrastructure and buyer for hydrogen it would not be a common practice to use it for internal firing purpose".