

Bogota D.C., January 28, 2013

CDM Team
UNFCCC
Bonn
Germany

Dear CDM team:

In relation to your request for review regarding our submission for registration of the project **“Improving energy efficiency in a new Gas Plant in Gibraltar-Colombia”**, the responses to the clarification request are as follows:

1. The DOE is required to clarify how it has validated that the impact of the measures implemented by the project activity can be clearly distinguished from changes in energy use due to other variables not influenced by the project activity (signal to noise ratio) as per the paragraph 4 of the applied methodology as it is not clear whether the load of natural gas processed during the implementation of the project activity would be the same as the load in the baseline. Please refer to VVM v1.2 paragraph 76 and methodology paragraph 4.

Response: ICONTEC could validate that the load of natural gas processed during the implementation of the project is slightly different to the load in the baseline. The slight difference between the inlet gas values presented in the spreadsheet (Baseline 76,743 Lb/h Vs Project: 76,165 Lb/h) can be explained in the light of the terms of references of the prequalification concourse PRECGEA-512215, where it was specified the amount of sales gases (or outlet gases) required according with government specifications. It means, the Terms of References did not specify the load of natural gas (inlet gas) but they specify the required sales gases (outlet gases). The load of natural gas was calculated based on a simulation using Hysys software, which models the operation of the plant according to the technology to be used and its efficiencies (Volumetric Efficiency Index, Stabilized Condensate Recovery Index and Energy Efficiency Index).

In accordance with the preceding paragraph, values of load of natural gas are different, since baseline and project technology are different, and its volumetric efficiency Index are different too.

It is noteworthy that similar explanation is included in Validation Report to clarify the difference between the Net Caloric Value of the baseline (process of Mechanical cooling) and the Net Caloric Value of the project (Twister Technology). Please refer CL4 and validation report page 19.

This clarification was included in Validation Report section 3.5 – Page 15.

2) The DOE is request to clarify how it validated the project and baseline scenarios, as the Joule-Thompson technology considered in the project activity as the starter facility was not identified as the baseline scenario and project emissions from the starter facility were not considered in the emission reduction calculation. Please refer to VVM v1.2 paragraph 80.

Response: In accordance with the terms of references of the prequalification concourse PRECGEA-512215, proponents were requested of a project for the treatment of natural gas in order to obtain 30.3 MMSCFD (Million standard cubic feet day) of sell gas. After this process, the best proposal presented was from Union Temporary Gas Gibraltar (UTGG), which included the Twister technology. The contract was signed between ECOPETROL and UTGG on September 19 of 2008, as was validated by ICONTEC. The development of the project as presented by UTGG included a facility that gives flexibility to the operation because it can support the plant during the start-up, when the entry gas load is below than 20MSCFD, and complements the processing capacity of the load to the system Twister when the volume of processed gas is high, due to the system (Twister Technology) does not work properly with gas loads below 20 nor above 34 MSCFD.

The mentioned facility consists of a Joule Thompson valve of maximum capacity of 5 MMSCFD, as was validated by ICONTEC and also explained is the letter attached to this response (please see the file: "treatment of additional gas.pdf). During start-up, well flows are below 20 MSCFD, so the Joule Thompson valve has to be feed with the initial load of gas, while the volumes are increased gradually.

Subsequent to the development of the project using the Twister technology, there was a demand for additional gas of 5 MMSCFD. As stated in PDD page 4, due to a refining reservoir model on the Gibraltar field and the current fulfilment with the gas sale clients (35 MMSCFD), the project participant decided to use the starter facility (Joule-Thompson valve) as a complement of the missing sale gas flow, in such a way that 5 MSCFD of associate gas will be treated with the Joule-Thompson technology and others 31-33 MMSCFD with the system Twister. The energy required for the treatment of this additional gas was already included in the spreadsheet "Emission_Calculation_Project_New_Gas_Plan_in_Gibraltar", sheet emission reduction, please refer row E8 (Please also refer: PDD section B7 page 24, a letter attached to this response: treatment of additional gas.pdf). Note that an extra explanation has been included in validation report page 21 in order to clarify this issue.

On the other hand, If the project would not be implemented, it means in baseline scenario, the project would be developed using Mechanical refrigeration technology, as was validated by ICONTEC (please refer Validation Report section 3.5: Baseline determination and PDD Section B4). This kind of technology does not require a Joule Thompson valve as starter facility since it can support by itself the start-up when the entry gas load is below than 20MMSCFD.

However, if the project would not be implemented, the demand for additional gas of 5 MMSCFD, would be required in baseline scenario, since it depend of the refining reservoir model on the Gibraltar field and the current fulfilment with the gas sale clients (35 MMSCFD). Under this conditions, the baseline scenario would required an additional facility for the treatment of the additional gas, since the plant as designed by the proponents of the Mechanical refrigeration would not worked properly with gas loads above 33 MSCFD.

Considering that the scenario described is a supposition and it was not taken into account from the design of the project, ECOPETROL as PP analyzed the situation and concluded that the best option to treat the additional gas under the baseline scenario also corresponded with a Joule Thompson valve. ICONTEC together with project technical expert and its knowledge about this kind of project could validate this assumption.

In accordance with the explanation above, the fuel gas required for the treatment of the additional gas has been included in the spreadsheet (please refer row C8). It is noteworthy that the fuel gas required for the treatment of the additional is the same in both scenarios, baseline and project, since it refers the same technology (Joule Thompson) and the same amount of gas to be treated (5MMSCFD). This modification was the result of a clarification request raised by ICONTEC after received this request for review (please refer validation report section 3.7 – page 19 and validation protocol CL 6 – page 64).