

10 February 2011

**To Whom it May Concern**

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Our ref. TW 1304

**Subject: Twister Technology Utilization by Ecopetrol**

Dear Sirs,

Twister Supersonic Gas Processing is a leading technology for dehydrating and hydrocarbon dewpointing natural gas. It is also used for efficiently recovering natural gas liquids. Twister gas conditioning systems have been installed in three different continents, and have to date accumulated over **100,000 operating hours**. This state-of-the-art technology has been successfully technically qualified by many major operators, including Shell, Petronas, Petrobras, Total & NAM. See attached references and articles for further information.

We are pleased to confirm that the Twister gas processing system that Ecopetrol has installed at their Gibraltar Gas Plant is the first commercial application of Twister technology in Latin America. Petrobras has purchased, and successfully tested, a Twister system in Brazil, but this is not yet operating on a commercial application. Petrobras plan to put the Twister module into commercial operation later this year.

A major factor in the Ecopetrol decision to select Twister technology for the Gibraltar Gas Processing Plant was the fact that Twister is a cleaner, more environmentally-friendly, technology compared to conventional gas processing systems. When compared to a conventional MEG inhibited JT-LTS plant for the Gibraltar application, Twister can be seen to use less MEG circulation, and hence less MEG regeneration. Per the table below, regeneration duties for a conventional MEG-inhibited JT-LTS plant will be between 41% and 187% higher than the Twister system, depending on the operating pressure.

JT-LTS		Additional MEG rate compared to Twister	
1846	psia	41	%
1746	psia	127	%
1646	psia	187	%
1546	psia	163	%
Max liq JT-LTS			
1846	psia	100	%

Due to its lower MEG regeneration requirements, the Twister system installed on the Ecopetrol Gibraltar Gas Processing Plant, utilizes less regeneration heat, and hence produces lower CO<sub>2</sub> emissions. This could allow Ecopetrol to earn valuable carbon credits under the Clean Development Mechanism (CDM).

Yours faithfully,



Hugh Epsom

Twister B.V.