Petrobras puts gas flares out of fashion with GTL

Brazilians qualify new compact gas-to-liquids technology to reduce flaring at offshore wells

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PETROBRAS has qualified a modular gas-to-liquids technology developed by US-based CompactGTL, offering a route to carrying out extended well tests in remote offshore areas without gas flaring. Petrobras became interested in the concept five years ago, seeing a potential solution to handling gas from extended well tests in remote pre-salt blocks.

The oil company has used small-scale flooding production, storage and offloading vessels to carry out extended well tests in the Campos and Santos basins, but now has a commitment to phase out flaring, even on these smaller wells. Petrobras, through its Copesa research and development division, backed a small US pilot project with CompactGTL in 2008, then signed up to a technological co-operation agreement that included a funded 2.5 million-3.5 million pilot plant pilot plant.

The qualification tests were held at a Petrobras research base in Angra dos Reis, in north-east Brazil, through the second half of 2011. The project uses proprietary mini-channel reactor technology and Fischer Tropsch reactors, operating in conjunction with new catalysts, achieving permitting compact and low centre of gravity GTL processes.

The mini-channel reactor technology was originally pioneered by scientists working with the US Atomic Energy Authority (UCSD), subsequently acquired by UK-based spin-off company CompactGTL.

This company was later absorbed by private equity outfit Callon Capital, leading to the creation of CompactGTL in 2008. Ricardo Beltran, a Copesa manager, recently told Energy News that the main challenge was to show that the technology is capable of handling large volumes of gas and has a carbon dioxide footprint.

Petrobras has mothballed a project calling for a 100,000 barrels per day facility, built a 225,000 barrels per day plant in the Santos basin and is looking at building a 500,000 barrels per day plant in the Campos basin.

Development: the CompactGTL small-scale GTL facility

Photo: COMPACTGTL

E&P unit studies next step for project

PETROBRAS’ exploration and production division is analysing the next step forward for its offshore GTL project, writes Gareth Chetwynd.

The CompactGTL pilot plant produced about 30 barrels per day of synthetic crude, but full-scale offshore application is expected to produce up to 100,000 barrels per day, based on a Suzuki, or possibly an Aramco, vessel.

Petrobras had mothballed a project calling for a 100,000 barrels per day facility, but a fully-commercialized operation is considered a pre-requisite for the project.

It is understood that the Gazania project is starting to move forward again but Petrobras E&P is yet to decide on timing.

One option is to proceed with the newly-qualified technology to respond to regulatory agency pressure over flaring as soon as possible.

The other route would be to wait for the rival technology to pass the qualification hurdle, allowing a competitive process. A half-way solution might be to move to the new technology as a pre-front-end engineering and design project, helping the CompactGTL project move into a greater state of readiness.

The Santos basin pre-salt offshore fields are around one kilometer offshore, undermining the economics of alternative solutions. The carbon dioxide content in typically 4% to 15% in the pre-salt pre-field, but rises for higher on some, notably Jupiter. Both potential suppliers have positioned themselves with major shareholders. CompactGTL, with Siemens Energy, and Total have a partnership with Siemens.

Velocys, the US-based modular GTL plant developer, has signed a deal with Petrobras to build a 20,000 barrels per day GTL plant in the Santos basin, aiming to start production in the Campos basin.