Chevron goes Big Game Hunting and Fishing on Shale Safari

Chevron's big game hunting endeavours in South Africa, joining the shale safari in partnership with Toronto-listed Falcon Oil and Gas, are giving the supermajor potential future gas-to-liquid options in Africa's biggest economy, flowing from its close relationship with diversified petrochemical company Sasol.

PetroSA's Mossgas facility on the southern Cape coast.

Chevron's entry into shale exploration in South Africa sees the Sam Ramon head-quartered energy giant joining fellow supermajor Shell eyeing exploration endeavours in the country. This followed the announcement of Chevron's partnership with Falcon, one of only three companies licensed to conduct seismic surveys in South Africa.

The deal was sealed less than a week after Angola LNG, a joint venture between Angola state-owned oil company Sonangol (22.8%) and Chevron (36.4%), with BP, Eni SpA and Total SA each holding a 13.6% stake, announced that first exports of liquefied natural gas from Angola,targeting sales in Europe and Asia, will commence in the first quarter of 2013.

Angola Oil Minister Jose Maria Botelho de Vasconcelos said the 5.2 MMtpa project had conducted some shipping tests in recent months after the start of exports, originally scheduled for earlier this year, had been delayed several times.

Chevron and Falcon have agreed to a five-year partnership which will enable the JV to drill for shale gas in the eco-sensitive Karoo region, which is in Shell's orbit of attraction but has also proven a magnet for anti-fraccing protests in South Africa.

South Africa is estimated by the US Department of Energy to contain 485 Tcf of shale gas, the fifth highest reserves of technical recoverable shale gas on the planet; behind China (1275 Tcf), the US (862 Tcf), Argentina (774 Tcf) and Mexico (681 Tcf). Australia's shale gas reserves are estimated to be the fifth highest in the world at 405 Tcf.

The Chevron-Falcon deal comes just three months after South Africa lifted a temporary ban on fraccing that had effectively stymied shale gas exploration. The ban was imposed as a result of environmental groups protesting over concerns for underground water aquifers in the arid Karoo.

The most prominent anti-fraccing group, a coalition called *Treasure the Karoo*, has subsequently vowed to fight any exploration initiatives by lodging appeals to the Department of Mineral Resources should fraccing operations commence.

Irrespective of the outcome, South Africa's shale reserves are at least ten years from any future point of inflection.

Nevertheless, should South Africa realise its shale gas potential, Sasol, in conjunction with Chevron, will surely consider growth options of either expanding Sasol's coal to liquid plant at Sasolburg, or providing feedstock to the gas-to-liquids plant at Mossgas on the Southern Cape coast. A recent SASOL visitor to Perth described the 20-year-old Mossgas plant as "running on fumes".

Sasol and Mossgas were both created by the former apartheid South African government to supply energy and fuel for South Africa during a period of economic sanctions against the country.

In 2006 Chevron and Sasol formed SasolChevron Holdings, a joint venture to promote the global gas-to-liquids industry. The partnership combines Sasol's slurry phase distillate process with Chevron's hydroprocessing technologies to convert natural gas to premium quality liquid fuels and base oils.

In partnership with Qatargas, Sasol has opened its Oryx natural gas to diesel GTL plant in Qatar, close to Shell's giant $19 B Pearl GTL plant, and announced plans to build the first gas-to-liquids plant in the US – a $14 B project in Louisiana supplemented by $2 B in state incentives. Sasol is also building a GTL plant in Uzbekistan with Malaysian oil company Petronas and working with Chevron to build a second GTL plant in Nigeria.

Sasol GTL's plant in Qatar is producing 32 000 bbl of liquid fuel per day, one third of planned capacity for the Louisiana plant, yet significantly dwarfed by Pearl GTL's 140,000 bbl per day output.

To emphasise the effectiveness of their product, Sasol and Chevron announced the Sasol Chevron GTL Challenge featuring a team of 12 men and women driving 11,000 km from Sasolburg, South Africa, to Qatar, to mark the inauguration of the Oryx GTL plant. One of the team's five vehicles, a Toyota Hilux Raider dubbed *African Renaissance*, was fuelled by GTL diesel fuel from the Sasolburg plant.

Sasol's future business plan is reliant on natural gas becoming the dominant global fuel over the next half-century as oil reserves decline and demand for transport fuels soar.

The decision to construct the Louisiana GTL plant was driven by abundant and cheap shale gas in the US creating a commercially viable product derived from a complex science whereby pure oxygen and methane are used to make a synthetic gas cleansed of sulphur, metals and other impurities. Under intense pressure and heat, giant reactors make a synthetic gas through the Fischer-Tropsch process which is forced to react with a catalyst, typically cobalt, to convert into a liquid hydrocarbon and refined into different fuels. ■

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