

Seismic reflections

Gas to liquids could gain traction

The economics of gas-to-liquids (GTL) plants is looking increasingly interesting, driven by the widening gap between oil and natural gas prices, particularly in North America. Currently, on a heat-equivalent basis, WTI is selling for 7x Henry Hub against 2x as recently as 2008. GTL facilities are, of course, costly and the process is energy intensive but at anything like current US oil and gas prices, GTL projects are arguably viable. Interestingly, Chesapeake, the second-largest US gas producer, believes GTL could become a reality in the US later this decade.

Technology

GTL is the process where natural gas is converted to liquid fuels and chemical feedstock. Processing comprises four stages: removing water and impurities from the gas, reforming methane to produce synthetic gas, Fischer-Tropsch catalytic conversion to produce synthetic crude, and hydrocracking to produce refined product. The process typically requires about 10mcf of natural gas per barrel of liquid output. Approximately 6mcf is required as feedstock and the balance to operate the plant. The output mix is typically 70% diesel, 25% naphtha and 5% other products such as LPG and lubricants. Significantly, by virtue of the process, the liquids contain ultra low contaminants, including sulphur.

Economics

The key areas of cost relating to a GTL plant are capital, natural gas feedstock, natural gas as a heat and energy source and non-energy related cash operating cost including maintenance. Based on a cursory scoping analysis, we would put costs at about \$62/barrel currently assuming a large scale plant and Henry Hub benchmarked natural gas. This reflects \$22 for capital, \$25 for natural gas (\$2.5/mcf) and \$15 for general operating cost. Capital costs are based on Shell's \$19bn Pearl plant in Qatar commissioned in 2011, which has a capacity of 260,000b/d of diesel/kerosene and natural gas liquids. We have assumed here a 90% utilisation rate and, conservatively, a 10-year life. At first glance there appears to be plenty of headroom in the current WTI price of around \$100/barrel and even more so if we allow a further \$10/barrel for a conventional refining margin.

North American projects

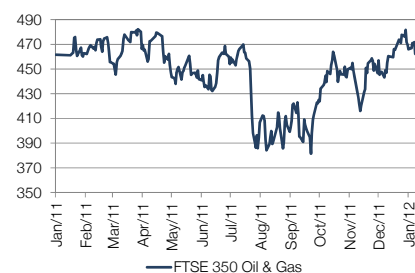
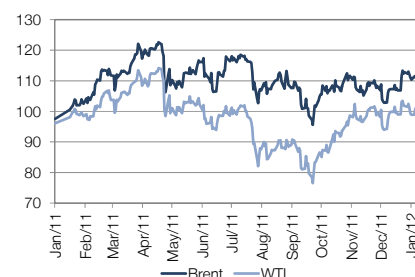
Johannesburg-based Sasol is the world's most experienced operator of GTL plants and currently produces about 160,000b/d of fuel at Secunda in South Africa. Sasol currently has two North American GTL projects at the feasibility study stage in Louisiana and Alberta. According to Chesapeake, the Louisiana plant would have output of 80,000b/d. Interestingly, Sasol in 2011 acquired a 50% stake in two large shale gas projects in the Montney Basin of Alberta/BC in partnership with Talisman.



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Exhibit 1: Best and worst performers

		1 week			
No.	Best performers	% change	No.	Worst performers	% change
1	LENI GAS AND OIL	112.0%	1	SALAMANDER ENERGY	(7.9%)
2	BPC LIMITED	35.3%	2	MEDITERRANEAN OIL AND GAS	(7.0%)
3	AMINEX PLC	25.5%	3	GULFSANDS PETROLEUM	(5.4%)
4	PETREL RESOURCES	24.2%	4	GASOL PLC	(5.3%)
5	ITHACA ENERGY	20.5%	5	PROVIDENCE RESOURCES	(4.8%)

		1 month			
No.	Best performers	% change	No.	Worst performers	% change
1	LENI GAS AND OIL	167.7%	1	MEDITERRANEAN OIL AND GAS	(16.7%)
2	ENEGI OIL	51.4%	2	GULFSANDS PETROLEUM	(16.0%)
3	BPC LIMITED	48.3%	3	GLOBAL ENERGY DEVELOPMENT	(12.2%)
4	TOWER RESOURCES	48.2%	4	PETRONEFT RESOURCES	(12.2%)
5	GULF KEYSTONE PETROLEUM	47.2%	5	EGDON RESOURCES	(12.0%)

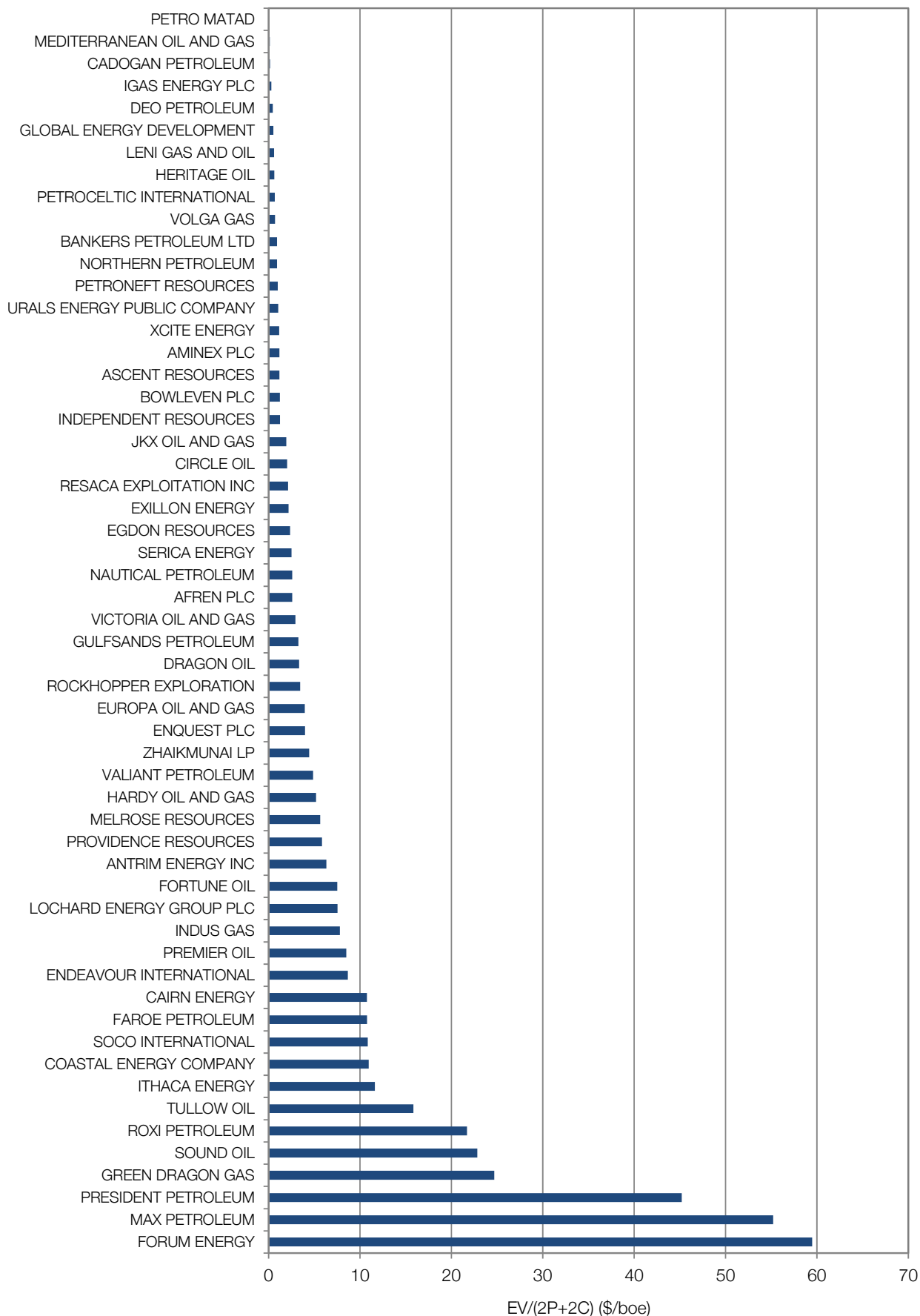
		3 months			
No.	Best performers	% change	No.	Worst performers	% change
1	GULF KEYSTONE PETROLEUM	98.4%	1	SOUND OIL	(48.0%)
2	ROXI PETROLEUM	87.0%	2	MEDITERRANEAN OIL AND GAS	(38.5%)
3	AMINEX PLC	64.2%	3	LOCHARD ENERGY GROUP PLC	(36.3%)
4	PROVIDENCE RESOURCES	55.5%	4	PETRONEFT RESOURCES	(33.7%)
5	PETRO MATAD	54.5%	5	MAX PETROLEUM	(29.3%)

		6 months			
No.	Best performers	% change	No.	Worst performers	% change
1	GULF KEYSTONE PETROLEUM	93.9%	1	AURELIAN OIL AND GAS	(76.2%)
2	COASTAL ENERGY COMPANY	79.3%	2	BOWLEVEN PLC	(71.5%)
3	DOMINION PETROLEUM	0.5%	3	PETRO MATAD	(64.2%)
4	DESIRE PETROLEUM	62.7%	4	FRONTERA RESOURCES CORPORATION	(62.2%)
5	COVE ENERGY PLC	46.1%	5	MEDITERRANEAN OIL AND GAS	(57.0%)

		1 year			
No.	Best performers	% change	No.	Worst performers	% change
1	COASTAL ENERGY COMPANY	137.7%	1	AURELIAN OIL AND GAS	(79.8%)
2	GULF KEYSTONE PETROLEUM	67.2%	2	BOWLEVEN PLC	(77.4%)
3	CADOGAN PETROLEUM	40.9%	3	PETRONEFT RESOURCES	(75.4%)
4	COVE ENERGY PLC	38.0%	4	MEDITERRANEAN OIL AND GAS	(74.0%)
5	ANTRIM ENERGY INC	32.9%	5	FRONTERA RESOURCES CORPORATION	(73.9%)

Source: Bloomberg

Exhibit 2: EV/2P + 2C rankings



Source: Bloomberg, company releases, Edison Investment Research

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