

Sasol and the Liquid Coal Revolution

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Jason Hamlin submits: A lump of coal should be on everyone's Christmas list this year. Whether you subscribe to the theory that we have reached "Peak Oil" or not, one thing should be clear: demand for oil is increasing rapidly, while supplies are stagnant to declining.

Turning Away from Oil

The price for a barrel of oil has more than doubled over the past two years and has since been stubbornly holding around the \$60 mark. We will surely see the price of oil drop into the \$50's and quick dips into the \$40's aren't unfathomable. However, the days of oil at \$30 are well behind us.

Politicians are feeling the heat amidst calls for windfall profit taxes on the oil giants that have been posting the largest quarterly profits of any company, anywhere, at any time in history. And if you think gas prices are outrageous now, consider that many experts have predicted oil prices over \$100 per barrel and gas prices over \$5 per gallon within the next 5 years.

The silver lining in the gloomy picture painted by skyrocketing oil prices is the massive shot of adrenaline given to the alternative energy sector. With oil prices at these levels and increased tensions in the Middle East, both public and private enterprise are turning their focus and their budgets towards power sources such as wind, solar, hydrogen, ethanol, biodiesel and nuclear.

But while these technologies are moving us in the right direction, they each carry significant setbacks that leave many to conclude that no substitute for petroleum can fill enough of the demand, at an acceptable price and within a reasonable time-frame, to make much of a difference.

Liquid Coal: Then and Now

Enter an old technology that has been gaining plenty of new steam lately: Coal Liquefaction. The technology of producing a liquid fuel from coal or natural gas is hardly new. The Fischer-Tropsch process was developed by German researchers Franz Fischer and Hans Tropsch in 1923 and used by Germany and Japan during World War II to produce alternative fuels and overcome their limited access to oil. Germany utilized the technology to produce 6.5 million tons, or 124,000 barrels a day.

South Africa has also been producing liquid coal for a number of years, developing the technology to tap its large coal reserves and seeking ways around apartheid sanctions. In fact, liquid coal meets 30 percent of the transportation fuel needs in South Africa.

Not to be confused with coal-to-liquid [CTL], a similar technology called gas-to-liquid [GTL] converts natural gas into liquid fuel form. Most of the companies involved with CTL are also exploring GTL technology. In addition to being cheaper than oil, advocates point out that CTL/GTL fuel is better for the environment than its oil counterpart.

Burning raw coal is highly polluting, but with the liquefaction technology sulphur, ash, mercury and other pollutants are removed. The sulphur can be sold as a byproduct and CO₂ is segregated and can be injected underground. If hydrogen is needed for fuel cells, these plants can also provide it. The gasoline and diesel produced are high grade and clean, meeting even future 'clean diesel' requirements of the US.

Coal liquefaction would also help America wean itself from foreign oil imports. The United States has

the world's largest coal reserves with an estimated 268 billion recoverable tons. Converting just 5 percent of the U.S. coal reserves to Fisher-Tropsch fuels would equate to the existing U.S. crude reserves of 29 billion barrels. America could virtually double its domestic motor fuel supply without drilling a single well or building a new refinery.

In October of 2006, Montana Gov. Brian Schweitzer announced an agreement with a team of companies to build one of the nation's first coal-to-liquid fuel facilities. The Montana plant would use what is called integrated gas combined cycle technology to gasify, rather than ignite, the coal. The project calls for converting a portion of the synthetic gas into 22,000 barrels per day of diesel fuel, using the rest of the gas to generate about 300 megawatts of electricity.

China, which is the world's second biggest consumer and importer of oil after the U.S., is planning a \$6 billion investment in new liquefaction plants that would have a total annual production capacity of 440 million barrels of liquid fuel annually. This capacity would dwarf that of the world's largest plant, located in South Africa. A facility planned for Mongolia is slated to come online in the next few years and to eventually produce 50,000 barrels daily of clean-burning gasoline and diesel fuel.

Sounds good so far, right? Here is some icing for the cake. The production costs are reported to be as low as \$15 per barrel. More conservative estimates come in around \$30 per barrel, but that is still half the cost of a barrel of oil today! Which brings us to the investment portion of this article.

Investing in Coal Liquefaction

There are a number of ways to invest in coal-to-liquid technology, but our choice is the industry leader [Sasol \(SSL\)](#). With 30,000 employees and a market cap of \$22 billion, Sasol is much larger than most of the companies we track.

[Syntroleum \(SYNM\)](#) and [Rentech \(RTK\)](#) are two smaller companies playing in the coal-to-liquid sector, but we don't believe their management teams stack up to the quality and depth of experience found at Sasol. Their stock prices have taken a beating in the past year, but either company's stock could explode upwards on any significant news, technological advancements or new contracts.

Syntroleum recently had their fuel successfully tested in B-52s by the US Air Force. If they manage to ink a long-term agreement, the price could easily double from current levels. But let's take a deeper look at Sasol and explain why we think the company offers the best investment platform in the coal-to-liquid sector.

Sasol was founded in 1950 with the original Fischer-Tropsch [FT] technologies for synthesizing fuel, and enhanced it from there. Sasol was established to provide petroleum products in coal-rich but oil-poor South Africa. The firm has built a series of Fischer-Tropsch coal-to-oil plants, and is one of the world's most experienced synthetic fuels organizations.

In addition, Sasol also markets a natural gas-to-oil technology and is working in Qatar on this process which skips the coal gasification process, and takes natural gas to syngas and then to fuels. These resulting fuels are very clean — much lower in emissions such as Volatile Organic Compounds, CO and Particulate Matter than standard petroleum fuels.

As recently as December 11, 2006, Sasol announced that it may invest up to 6 billion U.S. dollars over five years to build a second coal-to-liquid [CTL] plant in South Africa with a capacity of 80,000 barrels of fuel per day. A new Sasol-led CTL plant could be the country's best option in terms of security of



energy supply, using South African resources. For perspective, a CTL plant producing 80,000 barrels of liquid fuel a day would consume between 9 million and 15 million tons of coal per year.

Sasol is not a pure play on CTL technology, as they also explore for, produce and refine crude oil and a wide range of chemicals and oxygenated solvents. Still, the percentage of their business that comes from Synfuels is significant, at over 50% of earnings and in expected future growth. Speaking of earnings, Sasol generated an annual net income of \$1.45 billion on revenues of nearly \$8 billion. Income was down slightly (-0.9%) for the period ending June 30, 2006, after an impressive 71% growth between 2004 and 2005.

In addition, Sasol has increased their gross profit margin by 12 points, from 40% to 52%. While these are impressive statistics, we do have some concern over the 22% decline in revenues versus a year ago. And while their P/E ratio of 15 is strong by most standards, it is a bit high in comparison to the oil giants.



Management has a wealth of experience and is rock solid in both executive and non-executive capacity. Pat Davies, the CEO with full responsibility for Sasol Synfuels, joined Sasol in 1975 and has experience across engineering design, project management, operations management and corporate affairs for the company. He has a degree in mechanical engineering and a Masters from Harvard Business School.

After falling from its May high of \$46 to just under \$30, Sasol's share price consolidated and has since been trending upwards towards its current level at around \$35. We expect a breakout from these levels that will push the share price above \$40 in the first quarter of 2007 and test the May peak of \$46 during the 2nd quarter. Technical indicators have turned bullish, with the RSI breaking above the neutral 50 mark for the first time since shares traded at their May highs.

Higher Share Price for Sasol on the Horizon

Sasol stands to benefit from any increase in the price of crude oil and while oil prices have remained at \$60 longer than we anticipated, we expect a steady increase in the price in the coming months. And that is assuming relative calm in the Middle East. Any increased tension, particularly between the U.S. and Iran, will quickly push oil back above \$70 per barrel, with \$100 oil a distinct possibility.

Factoring in the increasing demand from China, OPEC's announced desire to keep oil above \$60, threatened supply cuts from Venezuela (4th largest oil producing nation), and the fact that oil is becoming increasingly costly and difficult to extract, we can only see higher prices for crude on the horizon and thus, a much higher share price for Sasol.

But even if oil prices remain flat or decline slightly, the production cost of CTL or GTL fuel will remain significantly lower than oil. And with countries such as China and the U.S. sitting on massive coal reserves and looking for domestic solutions to their energy needs, CTL technology is the future. Sasol is well-positioned to profit from the increased interest in CTL and we believe their technology and experience is well ahead of anyone else playing in this arena. The liquid coal revolution is just around the corner. Are you ready?

We do not currently have a position in Sasol, but are looking to purchase shares on dips below \$33. We view this as a mid to long-term investment, although we may also pick up \$40 March call options, anticipating higher oil prices and increased media coverage of CTL technology over the next 6 months.

SSL vs. SYNM vs. RTK 1-yr chart:

