LP GAS: TOO MUCH OF A GOOD THING?

Natural gas is a boom industry in the United States (US) and Canada, and the number of new gas wells is increasing steadily. Combine that with the growth in production of so-called 'unconventionals', such as shale gas, then factor in a coming wave in synthetic fuel production, and all the ingredients are in place to generate an LP gas glut and a drop in prices. A looming financial disaster? Not necessarily, says US-based **Tad Dritz**

Defined as a gas that can be turned into a liquid fuel under relatively low pressure, liquified petroleum (LP) gas consists of propane and butane. Propane and butane are typically produced along with natural gas, or methane, from gas wells. As the number of new gas wells grows, not only does natural gas production increase, the production of propane and butane – and hence LP gas – increases too, with the risk of oversupply and a drop in both gas and LP gas prices.

Moreover, thanks to improvements in drilling and extraction technologies, such as fracturing or hydrofracking, more shale gas plays are being exploited and the productivity of shale gas wells has been greatly improved. The result? Large amounts of shale gas are now coming on the market. And that production is set to grow as producers continue to increase their output while lowering their costs.

According to an article in the authoritative publication, the *Oil & Gas Financial Journal* [vol 7, issue 8, 1 Aug 2010; *The Race to Liquids*, by E. Russell Braziel], one of the primary factors for drop in gas prices during the 18 months since January 2009 is a continuing oversupply of natural gas due to prolific production from shale plays. And because shale gas wells generally contain a higher percentage of LP components than natural gas wells, a side effect of the growth in shale gas production has been a significant additional growth in LP gas production.

That's the present situation. But looking ahead into the not-too-distant future an increase in synthetic fuel production could have the side effect of bringing even more LP gas into the market. This is because synthetic fuels include fuels produced from processes such as biomass to liquids (BTL) and gas to liquids (GTL). GTL offers a way to tackle the problem of associated and stranded gas – gas reserves located far from existing pipeline infrastructure and markets.

However, these abundant sources of energy that are often squandered. Rather than being transported to refineries for processing, stranded gas is often just left in the ground. Associated gas produced along with oil is frequently disposed of by flaring – a wasteful and environmentally unfriendly process that is increasingly subject to regulation – or by re-injection back into the reservoir at considerable expense.

Interest in GTL – a technology once thought to be of little relevance in North America – is increasingly now, due partly to the introduction of stiffer environmental regulations and partly to a growing disconnect between oil and gas prices. As the price of natural gas has dropped over the past 18 months, the spread – or ratio between the price of a barrel of oil to that of 1,000 standard cubic feet (mscf) of natural gas – has increased, bringing big changes in

ENERGY AND RESEARCH BRIEFS

7TH ANNUAL HSE FORUM

The seventh annual Health and Safety Forum in Energy (HSE) is set to take place from 10 to 12 October 2011 at the Grand Hyatt in Doha, Qatar. The Forum is being held under the patronage of HE Dr. Mohammed bin Saleh Al Sada, minister of energy and industry in Qatar and chairman of QP, includes a keynote address by Saad Al Kubaisi, HSE manager at QP, as well as more then 35 HSE experts on the leader's panel from the top minds of the energy industry.
www.hse-me.com

UAE WORKSHOP ON CCS SUCCESS

The United Nations Framework Convention on Climate Change (UNFCCC) made important progress towards allowing support for carbon capture and storage (CCS) projects under the Clean Development Mechanism (CDM) at a technical workshop hosted in September in Abu Dhabi by the United Arab Emirates' (UAE) ministry of foreign affairs. A wide range of presentations gave delegates a current picture of managing CCS projects. Delegates were optimistic that the Abu Dhabi workshop has led to greater common understanding of the issues facing the sector, as well as identification of viable solutions that could form the basis of a possible global agreement later this year.

hydrocarbon markets in its wake. In the US the oil/gas spread has historically varied between around six and 12. But beginning in mid-2009, natural gas prices seem to have become independent from oil prices, with the result that the spread ratio in North America has increased to greater than 20 and is expected to remain elevated for years or even decades. A large spread presents an arbitrage opportunity – and an incentive to use GTL technology to turn abundant North American natural gas into synthetic fuels.

In contrast, energy security is a major driver in North America behind the growing interest in biofuels. BTL can be used to produce biofuels from a very wide range of waste feedstocks, including agricultural, animal and municipal wastes, and ligno-cellulosic waste from trees. The fuels produced via BTL can be substituted directly into existing fuel systems without the need for blending. They also burn cleaner than petroleum-based diesel and jet fuels, resulting in lower emissions of nitrogen oxides (NOx) and harmful particulates.

With the development of cost-effective technologies that enable economical small scale and local production (also known as distributed production) of biofuels via BTL and small scale GTL to be carried out offshore, synthetic fuels production in North America looks set to increase even more. And with the growth in synthetic fuels production will come an increase in LP gas production. This is because as well as the methane used in synthetic liquid fuels, this process also generates waxes, propane and butane. Because the latter are essentially surplus to the synthetic fuel production process, operators may look to export them in the form of LP gas. LP gas is also a byproduct of hydrocracking, used to crack the waxes to produce liquid fuels.

In theory this growth in LP production could lead to a glut and a resulting drop in prices. But rather than looking at increasing LP production in the US as a challenge to profitability, I think producers should consider it as an opportunity to develop new markets for what is – after all – an important commodity in the energy mix. LP gas is a valuable hydrocarbon-based fuel source in a world where hydrocarbon resources are not unlimited. It also offers other environmental advantages, emitting just 81 percent of the CO_2 per kWh produced by oil, 70 percent of that produced by coal, and less than 50 percent of that emitted by coal-generated electricity distributed via the grid. In addition it burns more 'cleanly', releasing fewer particulates than heavier hydrocarbons. LP gas is already widely used around the world as an alternative to electricity and heating oil (kerosene); as a fuel for combined heat and power stations and as a fuel in vehicles. It is increasingly used to replace chlorofluorocarbons as an aerosol propellant and a refrigerant to reduce damage to the ozone layer. Surely, if we can develop ever more innovative technology to increase efficiency for LP production, we can come up with new, imaginative creative ways to market and take advantage of this valuable resource. ■

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NUCLEAR STILL IN WORLD FUTURE

Despite fears among the public about the risks following the Fukushima reactor disaster in Japan, nuclear power still has a strong future, government and industry leaders agreed in a session on energy security at the World Economic Forum's Annual Meeting of the New Champions 2011, in September. Nuclear power will necessarily remain an important part of the energy security strategies of many countries, especially fast-growing economies such as China and India that are building new plants, as well as the Middle East. "Our strategy for nuclear power will not change because of the Fukushima incident," Mohamed bin Dhaen Al Hamli, minister of energy of the UAE underlined. The UAE is building four nuclear power plants, the first of which is slated to go on stream in 2017. "There will be much greater emphasis on nuclear safety but...just because of Fukushima, we cannot condemn an entire industry." Pakistan's minister of science and Technology, Mir Changez Khan Jamali, stressed that his country has to develop nuclear power because it faces an energy crisis and safety concerns should not be an issue. "We have the raw materials and expertise," he said. "We need nuclear energy because of our energy deficit."

SMART ENERGY MIDDLE EAST 2011

The fifth annual Smart Energy Middle East Conference and Exhibition will be held at the Park Hyatt Hotel in Dubai, UAE, from 23 – 25 October 2011. The event aims to examine how the GCC region can achieve energy sustainability, operational excellence and customer engagement. Over 200 senior executives from the region's utilities and energy sectors will gather to learn from leading global experts. An exhibition and extensive presentations, panel discussions, workshops and networking sessions will take place. The event will also incorporate the Metering International Excellence Awards in the form of the Smart Energy Excellence 2011 Award, Smart Utility 2011 Award and Smart Technology Innovation 2011 Award.
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