

NEWS JANUARY 2014

OPEC decided at its latest meeting (27 November 2014) not to react to falling oil prices by cutting production. It also omitted from its post – meeting press release any mention of a pledge to comply with the 30mn b/d ceiling that has been in place since the beginning of 2012. Prices resumed their downward run as the meeting closed. For more comment regarding the implications of OPEC's decision.

The Petrobras Orca – 1 exploratory well in the Tayrona block is reported to have revealed a natural gas accumulation in the deep waters of the Colombian Caribbean, 40 km off the coast of La Guajira. This is the first discovery in the history of deepwater exploration of this region of the Caribbean, states Petrobras. Petrobras is the operator (40%), in partnership with Ecopetrol (30%), and Repsol (30%).

US crude oil proved reserves increased for the fifth year in a row in 2013, with a net addition of 3.1bn barrels of proved oil reserves (a9% increase) from 2012, and exceeded 36bn barrels for the first time in nearly four decades, according to the US Energy Information Administration (EIA). US natural gas proved reserves increased 10% in 2013, more than replacing the 7% decline in proved reserves seen in 2012, and raising the US total to a record level of 354tn cf.

ExxonMobil to begin drilling in disputed waters

The Stabroek block lies in waters claimed by both Guyana and Venezuela. ExxonMobil will begin a \$200mn drilling programme in 2Q2015 at Guyana's offshore Stabroek block. However, the block lies in waters that are the subject of a long – running border dispute between Guyana and Venezuela, reports Argus Latam Energy.

Stabroek is 200km off Guyana's coast and covers 26,806 sq km at a depth of 2,000 – 3,000 metres, according to Guyana's state – run mining and energy agency GGMC. It forms part of the Guiana shield, which runs from eastern Venezuela to French Guiana, and which the US Geological Survey estimates could contain 13.6bn barrels of technically recoverable oil and an estimated 21.2tn cf (590bn cm) of natural gas. Guyana currently produces no oil or gas and meets domestic demand of 10,500 boe / d with imports from Venezuela and Trinidad and Tobago.

The project 'is a big risk', says ExxonMobil Vice President Eric Oswald. 'Moving into the deep water is a huge technological challenge. This exploration is in a frontier basin that has not been explored before. So while, it is exciting it is also risky.'

Guyana awarded the Stabroek block to ExxonMobil in 1999. However, the company's surveying and exploration schedule was disrupted when Venezuela claimed that the block was in its territory. Shell farmed into the block in 2009 with a 25% share. ExxonMobil holds 75%.

Venezuela again protested to Guyana when ExxonMobil resumed seismic surveying of Stabroek in 2012, but Guyana told the company to continue its work, claiming the Venezuelan objections 'were baseless'.

Guyana's Natural Resources Minister Robert Persaud did not refer to the dispute in announcing ExxonMobil's plans. 'We expect some comments from Venezuela but these will not disrupt the

search for oil and gas as there is no doubt that stabroek is well within our territory,' reported a GGMC official.

Venezuela has a 110 year old claim to Essequibo – the western two – thirds of Guyana that covers about 153,000 sq km, and which Guyana's government says is potentially rich in oil, gold, bauxite, diamonds and timber. This claim has prevented the two countries from defining their maritime boundary.

Navy seizure

The Venezuelan Navy seized the Teknik Perdana research vessel in October 2013, alleging that it had entered Venezuela maritime territory. The vessel was working in the Roraima block on behalf of US independent Anadarko and was released after eight days. Guyana maintains that the vessel was working in its territory.

Canada's CDX Energy, Spain's Repsol and the UK's Tullio Oil are also involved in offshore exploration activity in Guyana.

Shale gas is not a silver bullet for Europe's energy security

Technology and regulation could result in environmentally friendly shale gas extraction, but uncertainty remains

The European Academies' Science Advisory Council (EASAC) has warned that although there are 'no scientific or technical grounds to ban shale gas exploration or extraction using hydraulic fracturing', fracking for gas will not provide a miraculous solution for energy security or reducing greenhouse gas emissions.

EASAC says that, providing there is effective regulation, technology can ensure that local shale gas resources are utilized in a way to protect the environment, water resources and local communities. However, it also says that considerable uncertainty remains over the scale of shale gas resources and their economic viability in different EU member states. Consequently, fracking is not necessarily a silver bullet for European energy security, says EASAC.

The Council looked at population levels, fugitive emissions and public concerns on fracking for the study. It found that best practices, such as the replacement of potentially harmful additives and full disclosure to authorities of all additives used, have reduced the environmental footprint of shale gas fracturing and improved the transparency of the process.

It also finds that Europe's regulatory systems and experience of conventional gas extraction already provide an appropriate framework for minimizing the impact on health, safety and the environment.

Trade association Shale Gas Europe said the 'balanced and evidence - based analysis' acknowledged the point on uncertainty over resources, and that the study shows that shale gas development brings with it environmental benefits such as greenhouse gas reduction.

Marcus Pepperell, a spokesperson for Shale Gas Europe, said: 'No one single energy source will ever fulfil Europe's energy needs. We need diversity from both domestic and foreign markets to safeguard an affordable energy supply. With over 13tn cm of estimated resources in Europe, shale gas could make an important contribution but we need much more exploration before we will be able to define how much can be commercially extracted.'

Researchers turn sawdust into fuel

New chemical process produces hydrocarbon chains that can be use as a gasoline additive or a component in plastics

Researchers at KU Leuven's Centre for Surface Chemistry and Catalysis, in Belgium, have successfully converted sawdust into hydrocarbon chains. These hydrocarbons can be used as an additive in gasoline, or as a component in plastics. The researchers reported their findings in the journal Energy & Environmental Science.

Cellulose is the main substance in plant mater and is present in all non – edible plant parts of wood, straw, grass, cotton and old paper. 'At the molecular level, cellulose contains strong carbon chains. We sought to conserve these chains, but drop the oxygen bonded to them, which is undesirable in high – grade gasoline. Our researcher Beau Op de Beeck developed a new method to derive these hydrocarbon chains from cellulose,' explains Professor Bert Sels.

'This is a new type of bio – refining, and we currently have a patent pending for it. We have also built a chemical reactor in our lab: we feed sawdust collected from a sawmill into the reactor and add a catalyst – a substance that sets off and speeds the chemical reaction. With the right temperature and pressure, it takes about half a day to convert the cellulose in the wood shavings into saturated hydrocarbon chains, or alkanes.' Says Dr Bert Lagrain.

'Essentially, the method allows us to make "petrochemical" product using biomass – thus bridging the worlds of bio – economics and petro chemistry,' he adds.

The result is an intermediary product that requires one last simple step to become fully – distilled gasoline, explains Sels. 'Our product offers an intermediate solution for as long as our automobiles run on liquid gasoline. It can be used as a green additive – a replacement for a portion of traditionally – refined gasoline.'

But the possible applications go beyond gasoline: 'The green hydrocarbon can also be used in the production of ethylene, propylene and benzene – the building blocks for plastic, rubber, insulation foam , nylon, coatings and so forth.'

Form an economic standpoint cellulose has much potential, says Sels. 'Cellulose is available energy where; it is essentially plant waste, meaning it does not compete with food crops in the way that first generation energy crops – crops grown for bio ethanol, for example – do. It also produces chains of five to six hydrocarbons atoms – "light nafta". We are currently facing shortages in this because it is becoming quite difficult and more expensive to distil these specific hydrocarbon chains from crude oil or shale gas. In time, hydrocarbon derived from cellulose may provide an alternative,' says Sels.

Increasing gas transit transparency

Naftogaz begins posting daily statistics on gas transit flows through Ukraine

Naftogaz of Ukraine has taken another significant step forwards in terms of transparency. Ukrtransgaz, the operator of Ukraine's gas transportation system and a 100% subsidiary of Naftogaz, has begun posting daily statistics on the gas transit flows through Ukraine on the information platform of the European Network of Transmission System Operators for Gas.

The company has already been publishing daily information on gas volumes in Ukrainian underground storage facilities daily on the Gas Infrastructure Europe platform since August 2014. Naftogaz is reportedly the first non – EU company to share this information, both for storage and entrance – exit. The most significant gas volumes are transported to the EU through Uzhhorod (towards Slovakia), Beregovo (towards Hungary) and Orlovka (towards Romania).

Furthermore, in high – level talks with the European Commission and Parliament in November, Naftogaz invited international observers to monitor gas flows via Ukraine this winter, an invitation that was later extended at the Central European Energy Conference in Bratislava, Slovakia.

‘Significantly improving transparency is a cornerstone of the reform programme I initiated for Naftogaz when I commenced my job in April 2014,’ said Andriy Kobolyev, CEO of Naftogaz, adding: ‘Only by working closely with our neighbours and partners in the EU can we succeed in fully reforming our energy sector, thereby increasing energy security for both Ukraine and EU member states... It is Naftogaz’ hope and belief that the daily disclosure of information on Ukrainian underground gas storage volumes and gas transportation volumes on leading European data platforms will give our partners confidence in both the reliability of the Ukrainian gas transportation system and the commitment to best quality business practices at Naftogaz and Ukrtransgaz.’

Energy under strain

Global energy system are increasingly under strain and the investment necessary to sustain them could be in jeopardy as tough economic conditions persevere. So says a report from the World Energy Council, which ranks countries’ energy ‘invest ability’ – and finds that they are dropping. The report, World Energy Trilemma: time to get real – the myths and realities of financing energy systems says that decisions that investors make today in the energy sector will ‘make or break’ the sustainability of global energy systems for years to come. The ability to supply sustainable, reliable and affordable energy will be limited by the ability to invest the \$49tn needed in the energy sector over the next 20 years.

Based on 50 interviews with senior members of the energy finance community, the report says that the current funding challenges the industry faces could become more acute as new financial rules come into play affecting energy project – such as the Basel III regulation which is aimed at limiting risky asset spending but could affect infrastructure loans.

At the same time, long – term bank debt is becoming harder to secure and energy project developers are increasingly looking towards alternative financing sources. ‘Investors and developers will have to invest way beyond their comfort zones, and they will need better help from governments, regulators, and international financial institutions than is currently envisaged,’ said Joan MacNaughton CB HonFEI, Executive Chair of the World Energy Trilemma Work.

E.ON to split assets

German utility E.ON’s board has announced that the company will focus on renewable, distribution network and energy efficiency for customer; and will combine its conventional generation, global trading and exploration and production businesses into a new independent company. The majority of the new company will be spun off E.ON shareholders.

The new setup is the result of a strategy decided by the board aiming to make the businesses viable for the future.

The company will dispose of its Spanish assets, selling them to Macquarie, an Australian investment firm; potentially divest in its Italian assets; and its exploration and production businesses in the North Sea are under Strategic review.

Under the transformation the separation of power and gas production and trading from the customer – focused business will create more transparency for regulators, says E.ON. It claims both companies will offer attractive returns for shareholders.

E.ON says that the move, which it hopes to complete by 2016, will not result in job losses.

Finland and Estonia reach agreement on LNG connector

After two years of talks, Finland and Estonia have reached an agreement to build an LNG Baltic – connector pipeline under the Gulf of Finland between the two countries by 2019, reports Gerard J'Dwyer from Helsinki.

'There are no negatives in this investment. It will diversify Finland's fuel supply and promote competition,' Antto Vihma, an energy – security expert at the Finnish Institute of International Affairs, told Petroleum Review. The landmark investment, which is the most capital intensive energy – related project linking any Nordic and Baltic states, is intended to reduce the dependence of both countries on gas sourced from Russia. It will also integrate Finland into the European gas network through the Baltic system, once a planned Lithuania – Poland link is up and running. Project financing for the Estonia – Finland link is estimated at \$615,90mn. The investment not only comprises the Baltic – connector but also a large – scale LNG terminal near Inkoo, Finland, and a small – scale distribution unit in Estonia.

'The entire undertaking must be economically feasible. Ultimately, the investment costs will be transferred to the price paid by the end users,' said Jan Vapaavuori, Finland's Economic Affairs Minister. Finland and Estonia want partial financing through EU grants and loans from both the Nordic Investment Bank and European Investment Bank.

An essential guide to shale gas

Since 2008, the 'shale gas boom' in North America has brought this particular unconventional gas, and the techniques used to produce it, to the forefront of the energy agenda. There has been a vigorous debate about the potential benefits and risks of developing this resource. Perspectives vary widely among government, energy companies, local communities, non – governmental organizations, scientific bodies and the media.

To help inform the discussion, the EI has now published an essential guide to shale gas, which addresses the scientific and technological aspects of shale gas and its development. It provides a factual, balanced explanation of the major issues to be considered in the debate about the role of shale gas in meeting future UK energy needs.

This document was developed following an extensive review and analysis of relevant literature. It has been subjected to a robust peer review process, with contributions from over 75 subject specialists, including professionally qualified EI Fellows and Members, from a broad range of backgrounds and with extensive experience.

The guide is available to download free of charge and it is hoped that it will help readers to understand the subjects with scientific and technical accuracy, in order to use that knowledge as a

basis for discussion. Hard copies are also available and cost £10 each (bulk discounts are available for community groups, organizations and academia).