ENERGY BOOST SUCCESS*

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With the collapse of global oil prices, the question just over a year ago was 'is this the end of the shale boom?' A year later, technology and OPEC's production cuts have breathed new life into the US shale oil industry.

This revival has a global impact and is one of the factors keeping global oil and gas prices low, which also impacts development of East Med hydrocarbons.

A period of low oil prices forced the US shale industry to cut costs and boost efficiency. Over the last two years US shale companies re-organised and reshaped themselves into more efficient and fitter, lower cost, companies, precisely in response to the difficult times they went through.

The break-even price of shale-plays is mostly a function of operating and field costs, well costs, flow rate and ultimate recovery. By the start of 2017, it was brought down to $34/barrel on average – a remarkable achievement.

As efficiency increased, costs have come down. In some cases, drilling costs are down over 50% in comparison to 2013, while oil output per well has increased dramatically. In some areas, output per rig is now at least 40% higher since the oil price collapse began in 2014. As a result, shale producers can now function profitably with prices as low as $40-$50/barrel.

Companies have also become more disciplined in terms of cutting costs, controlling their budgets and cash-flows. This has given them flexibility to increase or reduce production as required by markets.

Technology advancements

Technology is key to these advancements and efficiency gains. It used to take 30 days to drill a well, but now it is down to 15 or less. With the same number of rigs, companies can now drill twice as many wells. Advancements in completion designs, longer laterals, drilling fluids and data analytics are helping get the most from reservoirs.

Investment in information technology and data analytics is big business, helping optimise each step of the production process.

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Development and use of new technology drives costs down and recovery and productivity up. And as technology continues to advance, more shale areas become commercially available for production.

Surging oil production

Increased efficiency and technology advancements have led to oil production increasing steadily since the middle of 2016.

By the end of March US crude oil production reached 9.15 million barrels, up 700,000 on the low in 2016. By April, the contribution from shale oil increased close to 5million barrels/day (bpd), with most coming from the prolific Permian Basin.

As a result of this, the US Energy Information Administration (EIA) has revised its crude oil production projections upwards, forecasting that production will reach 9.53 million bpd in 2018. This will make it the highest US output since 1970.

Rising output has also helped the US increase its oil exports, which averaged almost 900,000 bpd during March. This is becoming a challenge for the global market and a renewed threat to OPEC and its plans to keep oil prices up.

US shale oil will end up acting as a balancing point on global oil prices. With control of budgets and cash-flows, and low break-even prices, shale companies have the flexibility to ramp-up and ramp-down production as needed, in response to global price variations. When prices go up operators can increase drilling and production, which in turn brings prices down, drilling slows-down and prices go back up, and the cycle carries on. This could keep oil prices cycling in the range $40-$60/barrel for years to come.

Impact on shale gas

The great success of the US shale revolution is in the production of natural gas. With shale oil production growth comes more associated gas, i.e. gas co-mingled with oil. US gas production reached close to 50 bcf/day early in April, and it is still increasing.

The US has access to significant shale natural gas resources. Proven shale gas resources are estimated at about 200tcf. Additional unproved technically recoverable shale gas resources are estimated to be nearly 623tcf.

Growing US gas production means that the focus is shifting towards exports as LNG. This is having a similar effect on global gas supplies and prices as US shale oil.

Given that much of the gas is associated gas, which costs very little, it helps keep prices down not only for exports, but also for domestic consumption. And with such low gas prices, US LNG producer Cheniere Energy confirms that it has no trouble finding markets for its LNG. By 2020 US could become the world's third-largest LNG exporter, behind Australia and Qatar, with capacity to produce 71 million tonnes/year.

This resurgence of shale is what has persuaded ExxonMobil to invest $6.6 billion and commit a third of its budget this year to the prolific Permian Basin, where it can deliver cash-flow in as little as three years and can make profit even at $40/barrel.

In today's low-price climate, shale drilling is relatively low-risk, requiring low upfront costs, while providing quick returns. Conventional projects, in comparison, require huge upfront commitments with long payback times and consequently uncertain economics.

ExxonMobil is not alone in committing to shale. Other big companies, such as Chevron, Shell, Total, BP, Conoco-Phillips, Marathon, Oxy, Anadarko, EOG and smaller domestic producers have been restarting shale operations as oil prices hold steadily in the $50/barrel range. However, if OPEC goes back to 'free-for-all' and prices drop below $40/barrel, oil industry problems may return.

With emphasis on short-cycle quick-returns projects, the US has become the centre of attention for oil and gas producers. In a lower-for-long price era, if not forever, success in shale is becoming paramount.

Adding to the mix the election of President Donald Trump, putting into action his promises of fewer regulations, lower taxes, opening-up of federal lands, more pipelines and energy independence, has compounded the shale-patch euphoria.

Global impact

Cost-cutting, improved efficiency, increased production and growing oil and gas exports are driving the new stage in the US energy revolution. And if these are successful, then shale's impact on the global energy market could be even bigger and longer-lasting than it has been to-date.

The upshot of these developments is that big oil companies now consider shale to be an attractive investment opportunity and it is transforming the global oil and gas business, from the impact of shale oil on global prices to the impact of US LNG on global markets. Shale is becoming the swing producer both in the oil and gas global markets.

With its second coming well on the way, the impact of shale looks likely to continue and will be compounded by climate change, renewables and shifts in technology, and a global glut of oil and gas. The world is undergoing a structural shift, with plentiful energy supply growth exceeding demand and keeping oil and gas prices low for the longer-term.

It is these longer-term low prices that make the development and export of East Med gas challenging. If it is to succeed in securing markets it must be able to compete in a low price environment.