New Year, New Outlook

Trisha Curtis gave this presentation at the January 9 RMAG Luncheon Meeting. Ms Curtis is the President and Co-Founder of PetroNerds, LLC, which she co-founded in 2015 and where she began working full time in January 2016. She was formerly the Director of Research, Upstream and Midstream at the Energy Policy Research Foundation, Inc. (EPRINC) in Washington, DC. Ms. Curtis completed her undergraduate work at Regis University in Denver, Colorado where she double majored in Economics and Politics, minored in Criminology, and graduated Summa Cum Laude. She has a Master of Science (MSc) degree from the London School of Economics in International Political Economy and wrote her MSc Dissertation on Chinese National Oil Companies. As an undergraduate, she also worked as a staff assistant in the UK Parliament for John Grogan, Selby Constituency. Raised in northwest Colorado and southwest Wyoming, Ms Curtis grew up around pump jacks and has worked on oil and gas sites in Colorado and Wyoming with her father. She is a research fellow with the Oxford Institute for Energy Studies, an independent think tank of Oxford University.

PetroNerds is a boutique analytics and advising company specializing in US shale production and reporting on developments in the industry. Early in 2018 Brent crude was priced over $86/bbl and it is important to consider demand at those prices. OPEC production in November was around 33 million bbl/day, with Saudi Arabia generating 11.2 million bbl/day. Russia produced 11.6 million bbl/day in October with the USA coming in at 11.5 million bbl/day. There was an OPEC agreement for a 1.2 million bbl/day cut in December, and this had an immediate effect on prices. However, Saudi Arabia seems to be cutting production beyond OPEC agreements, as they need to raise prices to support government expenditures. (This is the first time in Saudi Arabia that decisions are being made by Mohammad Bin Salman (MBS) rather than an oil minister.) One of the reasons for the recent drop in oil prices was that there was an increase in supply prior to the Iran sanctions; after the sanctions certain exemptions were extended, which maintained the supply. Russia can balance its budget with $50 per bbl oil by devaluating the ruble and using its unique tax structure.

US shale production has had an enormous effect on oil and gas prices since 2014. Less CAPEX is needed for quick growth in supply. But the prospect of a recession is creating concern about oil demand growth. Instead of growth of around 1.8 million bbl/day, it is projected to be about 1.4 million bbl/day in 2019. Due to the devaluation of the rupee, oil prices for India are higher than they were in 2014 ($150 per bbl equivalent). This, combined with a roll back in subsidies by the Indian government, has had an impact on demand. Ms Curtis does not think that supply cuts alone were balancing the market in 2018; it was also a drop in demand. It is possible that OPEC will have to adjust to a lower price band.

Domestically, the latest shale production from the Permian Basin is 3.5 million bbl/ day; from the Williston 1.5 million bbl/day; from the Eagle Ford 1.0 million bbl/day and the DJ Basin 0.5 million bbl/day. Total US shale production is around 7 million bbl/day. Most US oil imports are heavy oil from Canada, which is refined in the Midwest and Gulf Coast. Saudi Arabia has reduced exports to the US but owns the Motiva Refinery on the Gulf Coast, which it has to keep supplied. The US is currently exporting over 2 million bbl/day, most of which goes to Canada and Asia. Refinery utilization is at 100%. New refineries have not been built; the existing ones have become more efficient.

The Permian Basin is the new Marcellus of oil, although the situation of excess gas production in the Permian will persist through 2019, and will consequently limit oil production. Increased Bakken production is limited by pipeline constraints. Pipeline problems, Midwest refinery capacity, and competition with Canadian crude caused a large differential for Bakken crude prices. About 300,000 bbl/day of Bakken production is being moved by rail. By 2020 the transport problems will be resolved with the expansion of the Rockies and other pipelines, such as the proposed Liberty Pipeline from the Bakken to the Gulf Coast. Associated gas and water production are looming issues. Fractionation capacity for natural gas liquids (NGLs) is also a concern.

PetroNerds reports on the hedging activities of 40 shale operators who had 3.6 million bbl/day in production and $18.6 billion in CAPEX in the third quarter. These companies had negative free cash flow but their situation is improving. In the past production did not fall with prices, as the production was hedged. With $50/bbl oil there is going to be a corresponding fall in CAPEX and production. About 3 million barrels of oil were hedged through the fourth quarter, but this will drop to 1 million bbl/day in 2019. The results of a Fed survey of what prices were needed for operators to be profitable for the Permian were $57/bbl and wells shut in at $25/bbl oil. Operators saw $40/bbl oil over Christmas and are cutting back. Harold Hamm of Continental Resources and Mark Papa of Centennial Oil are very bullish about the market, and in the third quarter said they would hedge at $70/bbl oil. Oxy said their CAPEX would change by $1 billion with a move from $60 to $50/bbl oil.

Lateral lengths are increasing and there have yet to be diminishing marginal returns. However, there are skeptics about the shale oil industry, especially when prices drop. Schlumberger questioned productivity gains in their earnings call. They measured performance by proppant volumes pumped. However, an alternate conclusion could be that operators are becoming more efficient with proppant, an idea supported by PetroNerds. Schlumberger pointed out potential problems with infill drilling and child wells, stating that the industry does not understand the reservoir changes that occur when millions of barrels of water and millions of pounds of sand are pumped into the ground each year. However, operators continue to learn and evaluate the impact of these changes.

There is currently a debate on the type of sand to use when fracking – fine grained or coarse. The industry is moving to using more dust-like sand, which can be seen as a progression similar to the move from ceramics to sand in 2014. Sand prices are crashing which is good news for the operators. Another opportunity for improvement is determining optimal placement for infill wells.

As in 2014, lower oil prices lead to increased efficiency. In the Bakken fields, operators are drilling deeper and exploring the Three Forks, which is helping productivity. The Eagle Ford is having gains due to increased lateral lengths, and the Permian is doing very well, particularly in the New Mexico portion of the basin. The average lateral length in the Permian is 8,000 ft. The DJ Basin is having difficulties due to midstream constraints.

An audience member asked about the lack of international exploration and Ms Curtis replied that conventional production abroad seems to maintain, despite the lack of CAPEX. The cost of offshore wells has dropped significantly. She is optimistic about shale exploration world-wide and mentioned OXY in Oman.