Shifting trends in hydrocarbon markets

By Ashley Madray

Hydrocarbons in the United States and worldwide remain the most popular form of energy for the developed world. They are attractive because of their efficiency, safety, availability, ease of storage and transportation, etc.

As we know, the primary application of hydrocarons is for fuels. The second most widely used application of is as building blocks for chemicals, pharmaceuticals, and many other chemistry-related applications. These uses are big demand drivers in the hydrocarbon market.

The attractiveness of the hydrocarbon molecule (CxHy) has driven technology in the exploration and production of crude oil and natural gas, the primary sources for hydrocarbons. In the US, this technology success is most evident in the development of the shale reserves. Some of the most recognized names in shale - Marcellus, Eagle Ford, Permian, Balkans, and Austin Chalk - are examples of this technology success. The trends in development of shale plays continues as does the continued development of hydraulic fracturing (fracking) of these regions.

As we go to press, the *Wall Street Journal* reports that even with OPEC's success in curtailing production of some of their members, the price of crude oil and natural gas remain unchanged in the US market, and minimally changed in the worldwide market. This unchanged pricing, in spite of the OPEC curtailment, is evidence that fracking in the shale plays allows US producers the ability to compete with new production at the current price levels.

The charts below show the growth in production of natural gas and natural gas liquids (NGLs). This information is update monthly by the US Energy Information Administration (US EIA) on its website, which provides details on fuel data. Figure 1 shows the growth in production of natural gas plants in the US. Please note, what we refer to as NGL production, the EIA refers to as HGL production in Figure 1.

Figure 2 shows the NGLs by product and their specific growth rates since 2008.

Methane, of course, is the main molecule of natural gas. There are four other primary NGLs: ethane, propane, butane, and pentane (natural gasoline). Streams of natural gas will vary in their constituency of each NGL. "Lean" streams will have minimal amounts of NGLs, while the "rich" or "wet" streams will contain larger amounts of the NGLs.

So, what does this growth in production of natural gas and NGLs yield in our markets? Primarily, it yields cost pressures on energy production, fuels, and petrochemical production. These cost pressures have created a competitive advantage over other countries in the world with a less cost-advantaged positions for our domestic producers of fuels and chemicals. We

FIGURE 1

Growth in hydrocarbon gas liquids production (excluding rejection) at natural gas plants and marketed natural gas production, quarterly 2008-17

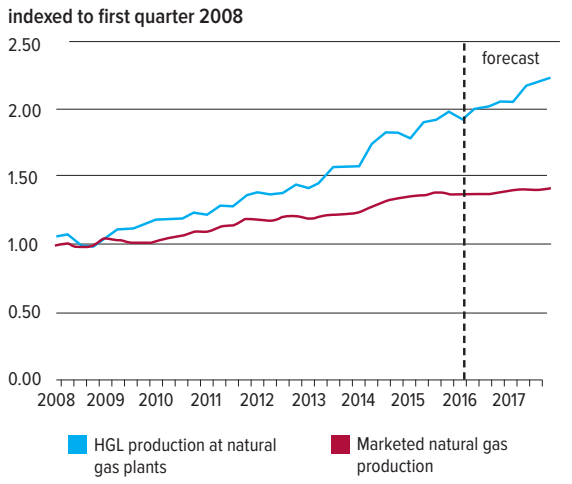
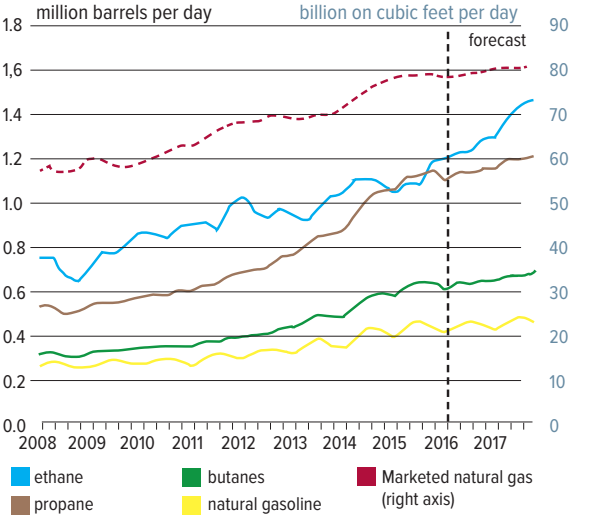


FIGURE 2:

Natural gas plant production of hydrocarbon gas liquids, quarterly 2008-17



Source: US Energy Information Administration, Short-Term Energy Outlook, March 2016

do not need to look very far to see the impact in the Gulf Coast. Expansions of almost every petrochemical plant and refinery have been underway for the past few years and some continuing. We can also see this in our immediate industry by the expansions of industrial gas capacities with the production of hydrogen, and the oxygen and nitrogen plants to support these expansions and their related demand.

The other major change has been the construction of the liquefied natural gas (LNG) plants for export, and the reversal of some LNG plants originally designed to accept imports now being designed for export. These two trends have presented tremendous opportunities for those in our industry who provide the nitrogen, fabrication equipment, gases and consumables, and refrigerants for LNG plants. Ten years ago we were building plants to accept large volumes of imported LNG, which was then vaporized and delivered into our pipeline distribution networks. Our new found success at fracking in the shale plays has reversed the LNG import trend and created many market opportunities .Companies within our industry that support LNG plants with maintenance services, specialty gases for standards, and related gases and operational equipment have seen their business expand.

Many of these plants have required alloys, including stainless steels, aluminum, bronze, and others, in their construction. The gases and equipment to weld these structures continues to be a boon to those supplying these requirements.

In the US, the export of natural gas and NGLs has been the market trend since 2010. Ship loads of cryogenic ethane, propane, propylene, ethylene and now LNG, with volumes measured in cubic meters and thousands of tons, have created a significant shift in our trade balances with different countries. The export of these products have kept propane, as well as other products, from dropping even further in price.

Those in our industry who supply to these markets have enjoyed growth and profitability while those who have focused more on the historic markets may have enjoyed a much smaller growth over the past few years. SGR

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Ashley Madray is Vice President and Co-founder of Gas Innovations, a leading supplier of high purity hydrocarbons serving the industrial gas and welding supply industry. He has 33 years of experience in the industrial and specialty gas business. He founded his current company in 2002, and it now has 12 US locations/shipping points. For more information, visit **www.gasinnovations.com**