It's Not Supposed To Be That Way – Part 2:

What Happens to New NGL Infrastructure if Production Growth Slows?

- **Massive infrastructure investments in petrochemical steam crackers and export terminals for propane, butane and ethane are in the works. But the market has changed since the investment decisions for many of these facilities were made.**
- **Instead of the low ethane prices the petrochemical market is enjoying today, prices could ramp up to 50 cents per gallon by 2020 as new steam crackers and ethane export facilities come online.**
- **If crude oil prices remain below $65/bbl for most of the next five years, dampened oil and gas drilling activity could diminish the prospects for continued production growth of ethane and other natural gas liquids.**
- **Low crude prices would also keep a lid on the price for naphtha; Soft naphtha prices would keep worldwide ethylene prices low, and would make naphtha more competitive with ethane as a cracker feedstock if ethane prices rise to high.**
- **Reduced production growth for propane could tighten U.S. propane supplies, firming U.S. propane prices, potentially squeezing export arbitrage opportunities in this sector.**
- **The degree to which crude oil prices either recover or languish will have significant effects on NGL production levels, ethane and propane prices, the profitability of new U.S. steam crackers and the outlook for LPG exports.**

Until recently, there was every reason to believe that U.S. oil and natural gas producers would generate increasing volumes of ethane and other natural gas liquids (NGLs), and that this plentiful supply would keep NGL prices low and continue driving the ongoing renaissance of the domestic petrochemical industry and the expansion of U.S. NGL export facilities. The development of billions of dollars in NGL-related infrastructure – including new ethane-only steam crackers and ethane/propane export terminals – has been based on three key assumptions:

1. U.S. NGL production would continue to grow.
2. U.S. NGL prices would remain low.
3. Crude oil—and naphtha--would continue to be expensive.

But the collapse of crude oil prices in the latter half of 2014 and early 2015 and only a slight rebound this spring and early summer has undermined this set of assumptions. This two-part report, the initial portion of which was released in June, provides a detailed analysis of how an extended period of relatively low crude and naphtha prices could affect U.S. NGL production and pricing, and how these changes in NGL availability and cost might affect the economics of new and expanded U.S. steam crackers, existing and planned propane and ethane export terminals, and other major infrastructure developed to take advantage of this set of assumptions that may not, in the end, play out.

The gap between what most observers expected a year or so ago regarding future NGL production, steam cracker feedstock costs, steam cracker margins and LPG export arbitrage spreads and what could be the new reality is significant, and worthy of serious consideration. Consider that only a dozen years ago, U.S. power plant developers were building tens of thousands of megawatts of new, natural gas-fired generating capacity, anticipating a boom in demand that failed to occur. And more recently, in the latter half of the 2000's, a long list of U.S. liquefied natural gas import terminals were built with the confidence that the U.S. would become increasingly dependent on imported LNG. This report examines the possibility that the ongoing build-out of steam cracker and NGL export infrastructure may be at risk of similar market reversals.

In Part 1, we considered the recent history of NGL production growth in the U.S. and the challenges inherent in making infrastructure development decisions. We also provided the analytical framework to be used in our analysis of future NGL production and pricing, as well as a preview of our NGL price outlook under different crude oil price scenarios. In Part 2, we examine RBN's alternative forecasts for NGL prices, and examine petrochemical feedstock switching capabilities and preferences, and the implications of lower crude oil production for ethane supplies. We also consider further logistical complications for ethane (such as capacity constraints to move ethane supplies to the Gulf Coast), and the implications of lower crude oil prices for propane exports.

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