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Like a Box of Chocolates – The Condensate Dilemma

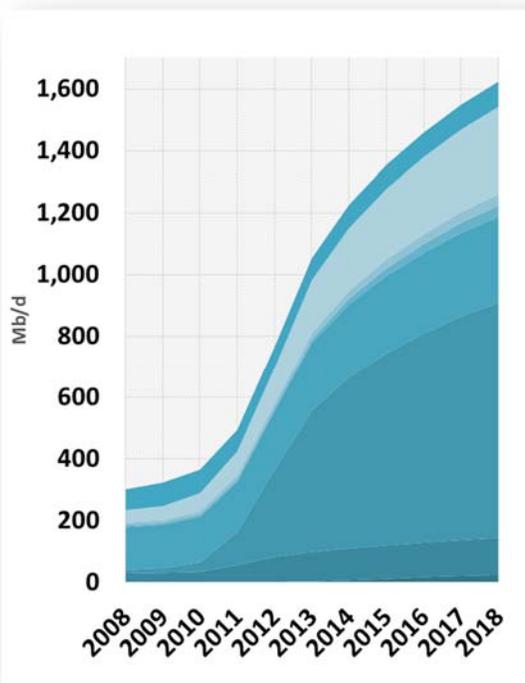


Figure 1 – The Condensate Tsunami

- Historically, U.S. field condensate production has been the backwater of liquid hydrocarbon markets, with most condensate blended off into crude. Shale has changed that, doubling condensate production from about 500 Mb/d in 2011 to more than 1,000 Mb/d in 2013 (Figure 1).
- Production of shale hydrocarbons, particularly those in the prolific Eagle Ford play in South Texas are very rich in condensates. This is due both to the nature of the formation and the fact that producers have concentrated on condensate-rich areas due to their attractive economics.
- The condensate ‘window’ of the Utica play in Ohio promises to become a significant area of growth
- As also noted in Figure 1, condensate production is expected to increase by another 600 Mb/d over the next five years.
- Growing volumes of light crude oil and condensate will back natural gasoline (also called plant condensate) out of the refinery motor gasoline blend pool.
- Both condensate and natural gasoline will increasingly be forced into export markets. U.S. law prohibits exports of unprocessed condensate to countries other than Canada.

When Forrest Gump’s mama famously said, “Life is Like a Box of Chocolates – you never know what you are going to get”, she might as well have been talking about condensates. Like the fillings inside boxed chocolates, condensates come in many varieties. Even condensates from the same producing field can have a wide quality range. This inconsistent quality can be a big problem for refiners. And that problem is growing. The shale revolution has doubled U.S. condensate production since 2011 and those numbers are expected to continue increasing. Almost half of what the Energy Information Administration (EIA) calls Eagle Ford crude oil is really field condensate. And that is not all. Field condensate has a “cousin” in the NGL family – natural gasoline, sometimes called plant condensate. Production volumes of that product are also growing along with all the other NGLs, and the natural gasoline price is the shining star of the NGL family, selling for more than five times the price of ethane on a BTU basis over the past year and making up between 25-30% of the economic uplift from a typical gas processing plant. These growing volumes of light hydrocarbons are linked together by their “C5” chemistry and finding a home for them is proving disruptive to traditional supply/demand patterns.

Condensate, natural gasoline and its other relatives in the C5 family are seeing problems in the market—caused by the combination of declining demand in the refining and petrochemical sectors, the wide quality range of the material resulting in operating difficulties for refineries, and above all – rapidly increasing production. It is a tsunami.

This report examines the major developments in the world of condensates for the past few years and looks forward through 2018. The analysis begins with an overview of the condensate family, including field condensate (sometimes called lease condensate), natural gasoline and naphtha. The remainder of this report then reviews:

- Field condensate production forecast by major basin; quality variations
- Natural gasoline production; supply/demand balance
- Gulf Coast condensate splitter infrastructure and projects
- Spotlight on Utica condensate supply and infrastructure development

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