

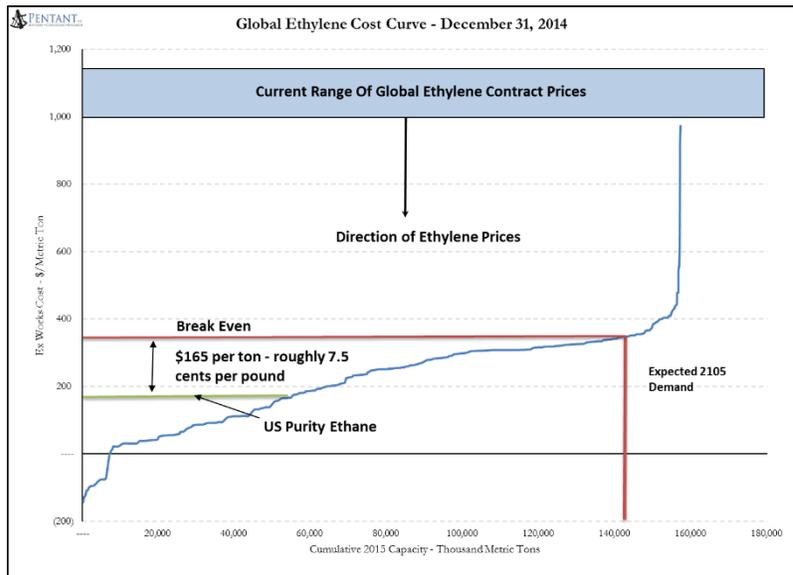
The Ethylene Conundrum – Understanding the Moving Parts

Executive Summary

While likely unsustainable, an estimate of the global ethylene cost curve for late December shows us two things: how much money the global industry made at the tail end of 2014, and how tenuous investments in the US could look with more normal costs and pricing. Global prices for ethylene and its co-products are tumbling, with monthly price declines far larger than historic norms. However, outside of US ethane, feedstock costs are falling significantly more quickly creating what is likely to be short term very high profitability.

The apparent negative costs in the adjacent chart are on facilities cracking propane in the US, though there are a large number of naphtha units globally where variable costs (excluding direct labor and shipping) are close to, or below zero. Ethane based ethylene units have no co-product credits except fuel and cannot exhibit negative cash costs, even if ethane is free.

Most raw material and co-product price scenarios have US ethylene profitable (expensive co-products and low crude would change this). But it is hard to find conditions that support 2015 and 2016 consensus estimates for LYB, DOW and WLK, especially WLK which does not benefit if European margins are better. Detailed cost curve analysis supports our October 2014 view that ethane based ethylene margins in the US could fall by 15 cents per pound in 2015 versus 2014 (41%)



Those pushing ahead with major investments in the US are betting on a cost/price scenario which now looks very much like that; a bet! We discuss scenarios that would still make these good ideas, but we also highlight a very credible downside case.

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Sources:

All of the data shown in the charts in this report and mentioned through the text were obtained from publicly available sources and corporate reports, much of it aggregated through Capital IQ. We also use Bloomberg, IHS and government data bases.