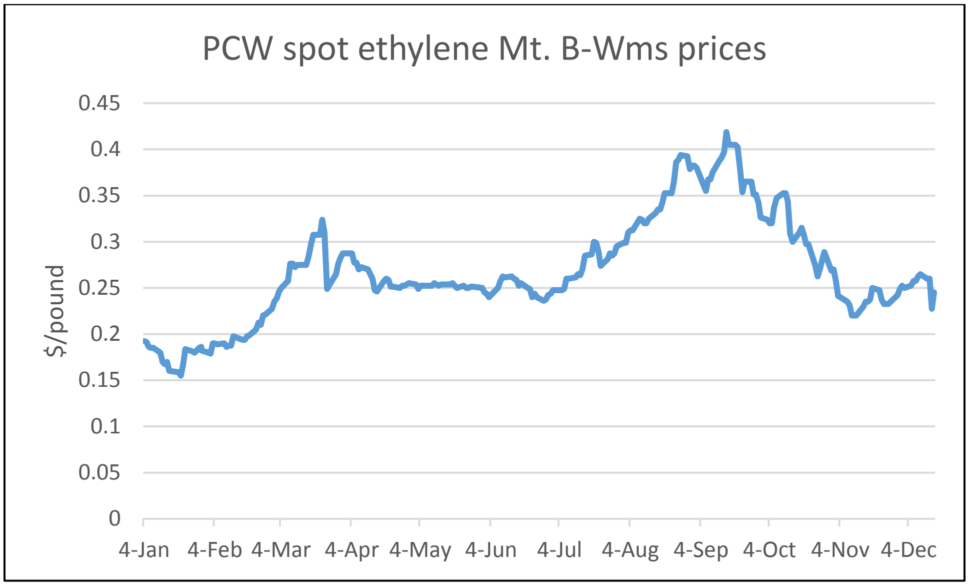
PETROCHEM WIRE'S YEAR IN REVIEW: ETHYLENE

Spot ethylene markets have been marked by extreme volatility this year, touching lows not seen since Dec 2008, according to PetroChem Wire prices, but also hitting highs last seen in Jan 2015. Ultimately, spot ethylene prices look set to close out the year with about a 32% increase in value amid a rash of plant outages, the likes of which were last seen in late 2014, and uncertainty surrounding returning and new production.

This frequent and unheralded volatility has led to a marked change in trading strategies as well, as the mounting atmosphere of speculation has lowered tolerance levels for risk and seen the exit of several shops from the petrochemical trading space.



1 PetroChem Wire publishes daily spot ethylene prices.
For more information or for a free trial of Daily PetroChem Wire report, e-mail cindy@petrochemwire.com

OPERATIONAL ISSUES

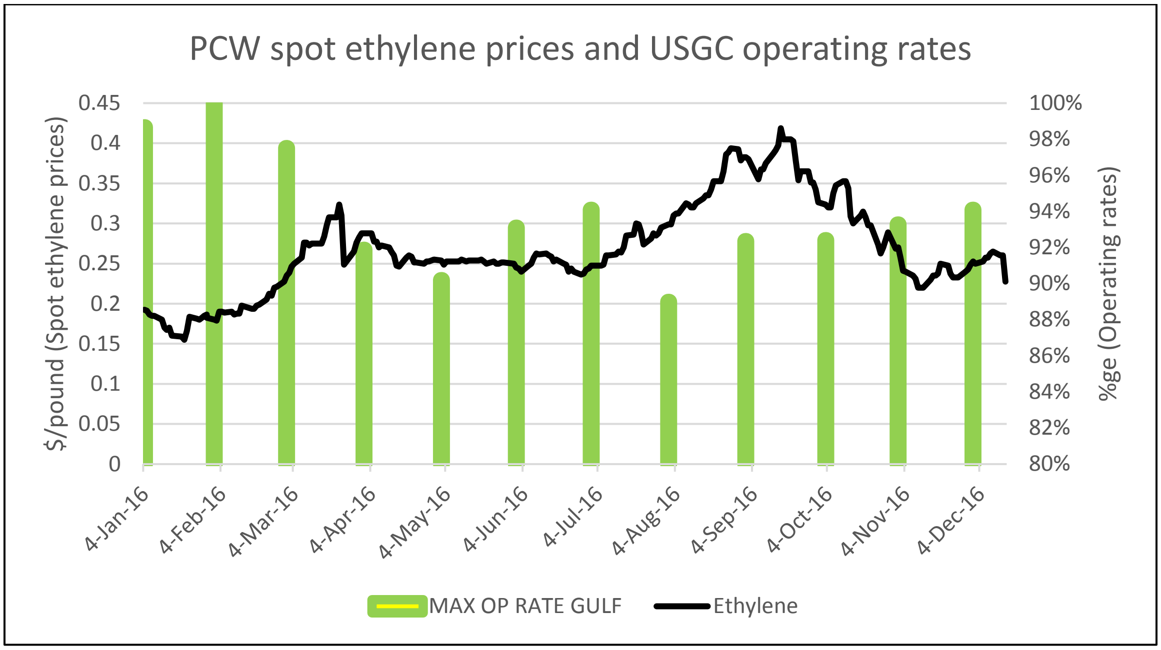
Spot ethylene prices started the year out at 19.25 cpp, falling to an intra-year low of 15.5 cpp in late January as Gulf Coast steam cracker operating rates were at nearly 100%. Starting in April with the shutdown of Equistar's 1.7 billion lbs/yr Corpus Christi cracker (which would bring online an 800 million lbs/yr expansion), spot ethylene prices began climbing as ops rates retreated as more turnarounds piled on.

In August, combined Gulf Coast ethylene ops rates stood at their low of the year at around 89%. The following units had unplanned and planned shutdowns that month:

- ExxonMobil's 2.15 billion lbs/yr Baton Rouge olefins unit (compressor trip)
- BASF/Total's 2.128 billion lbs/yr cracker and c4 units at Port Arthur (equipment failure);
- ExxonMobil's 1.8 billion lbs/yr Beaumont unit (compressor trip);

- Huntsman's 400 million lbs/yr Port Neches cracker (one-day power outage);
- Dow's 2.295 billion lbs/yr TX-8 unit reduced rates to conduct maintenance;
- Westlake Chemicals 1.64 billion lbs/yr Petro 2 cracker in Lake Charles had a temporary operating issue;
- ExxonMobil's 4.83 billion lbs/yr Baytown units had a short-lived operational issue.

Ongoing outages were also seen at Equistar's Corpus Christi plant and 1.21 billion lbs/yr Morris plant in Illinois.



2 PCW publishes daily spot ethylene prices and US Gulf Coast steam cracker operating rates in the Daily PetroChem Wire report. For more information or a free trial, click here.

VOLATILITY PICKS UP; PRODUCTION, INVENTORY UNCERTAINTY BUILDS

But it was in September that ethylene hit its intra-year high of 41.875 cpp – a level not seen since Jan 2015. Interestingly, op rates had recovered to about 92.4% during that time frame, indicating other factors at work in the markets. The month of September also marks the beginning of some extraordinary volatility in spot ethylene markets.

In the space of two months – from mid-September to mid-November – spot ethylene dropped from 41.875 cpp to 22 cpp, a 47.5% decline. Interesting as well is how fast spot prices got to that peak from 35.5 cpp on Sep 6 – a nearly 18% increase in a 10-day period.

Daily volatility has noticeably picked up, beginning in September with gains or losses of 2 cpp or more occurring at a frequency not seen since late 2014.

Granted, these large day-to-day movements have coincided with a rash of ethylene plant outages. LyondellBasell's Corpus Christi unit remained down and was joined in September by CP Chem's 1.84 billion lbs/yr Cedar Bayou unit and Dow's 1.75 billion lbs/yr Plaquemine LA-3. Additionally, ExxonMobil's 1.8 billion lbs/yr Beaumont units were running at reduced rates.

But the volatility had more to do with the uncertain timing and market bets about returning production. Corpus Christi's restart, which had been initially expected in October, was pushed back. The market began chattering about a late November to possible early December restart. As of mid-December, the unit remains in restart mode.

Then in late November, a wrench was thrown in the works when the AFPM reported its quarterly ethylene inventory data that showed stockpiles had increased about 401 million lbs (or 35.6%) quarter-on-quarter to nearly 1.53 billion lbs. The number was far larger than the market was expecting and also represented the largest percentage inventory increase in the last 12 months.

As a result, prompt-month spot prices fell 2 cpp, or 6.9%, on the day.

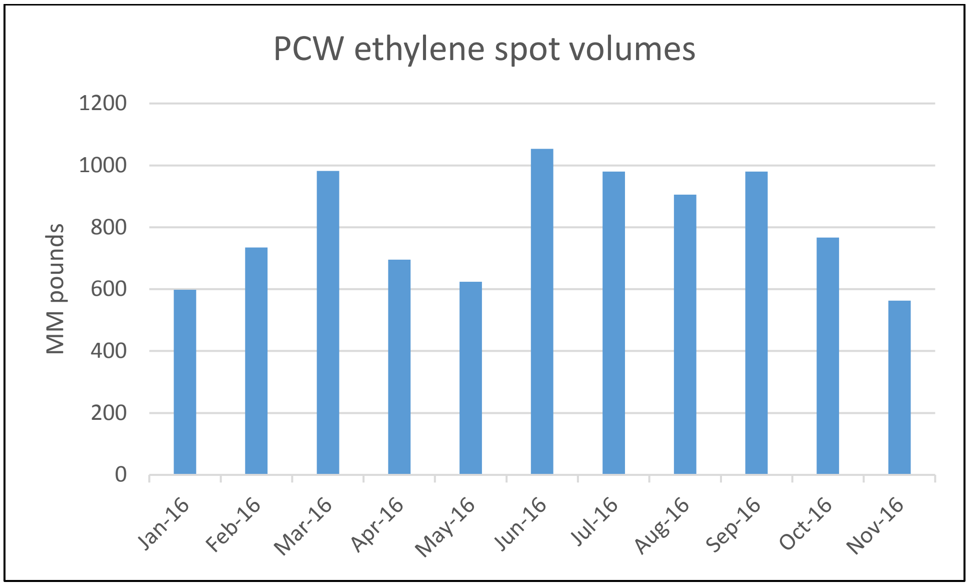
The bump was due to the recent addition of data of Boardwalk Louisiana Midstream, whose ethylene distribution system also includes salt dome storage facilities in Sulphur, Louisiana, effectively the Choctaw hub.

These data additions apparently threw several market players for a loop with questions regarding the effects on historical inventory statistics. In response, the AFPM on Nov 4 released a note stating that new survey participants may be asked to also submit a year's worth of historical data. It is unknown if Boardwalk did comply with this request; the AFPM data released on Oct 31 only shows a revision back to 2Q.

CHANGES TO THE MARKETPLACE

Finally, a more longer term effect on this recent market action and volatility has been reports of certain players pulling back on positions or getting out of ethylene markets altogether. Not only has there been heavy selling of the front month, but activity on longer-dated instruments has been rife as well, suggesting a player or players could be exiting positions. Given recent volatility it has been suggested several more opportunistic players' appetite for risk has been tested, leading to a rejigging of trading strategies or head count reduction.

This has been reflected in the spot volumes changing hands on a monthly basis, as per PetroChem Wire data. In June, monthly traded volumes came in at an all-time high of 1.053 billion lbs, but this quickly plummeted to an intra-year low of 563 million lbs in Nov, a level not seen since Nov 2015, likely an offshoot of the volatility that ensued from September onward.



3 PCW publishes spot volumes for all reported trades in its Monthly Summary.
For more information or a free trial, click here.

THE YEAR AHEAD

The coming year could see the roller coaster ride continue.

Some 11.9 billion lbs/yr of new ethylene production will be coming into the market in the form of five crackers and an expansion.

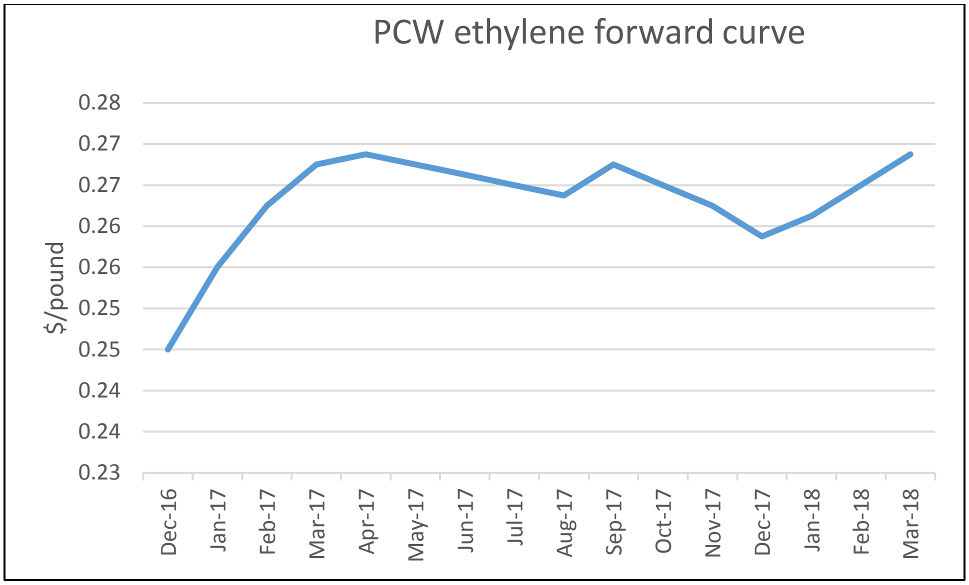
These include:

- Oxy/Mexichem's 1 billion lbs/yr olefins plant at Ingleside, Texas;
- Dow's 3.3 billion lbs/yr Freeport unit;
- Westlake's 70 million lbs/yr expansion at Calvert City, Kentucky;
- ExxonMobil's 3.3 billion lbs/yr Baytown unit;
- Chevron Phillips Chemical's 3.3 billion lbs/yr Cedar Bayou unit;
- Indorama Ventures' 924 million lbs/yr refurbished Lake Charles plant.

Company	What	Site	State	B lbs/yr	Start-up	Downstream	Downstream capacity (B lbs/yr)
Oxy/Mexichem	new	Ingleside	TX	1.000	1Q 2017	VCM	1.000
Dow	new	Freeport	TX	3.300	2Q 2017	MEGlobal plant	*not disclosed*
Westlake	expansion	Calvert City	KY	0.070	1Q 2017		
ExxonMobil	new	Baytown	TX	3.300	2H 2017	PE expansion at Mt Belvieu	2.865
ChevronPhillips	new	Cedar Bayou	TX	3.300	2H 2017	PE	2.200
Indorama	revival	Lake Charles	LA	0.924	4Q 2017	existing MEG	0.960

In total this will increase US ethylene production by nearly 21% from current levels. While all of the output of these new plants is to be consumed by downstream polyethylene, vinyl chloride monomer or monoethylene glycol, downstream consumption units could well lag this new supply – or vice versa.

PetroChem Wire's forward curves show values in contango through Apr 2017 when perhaps this increased production finally takes hold and forces prices into backwardation through Aug of that year. The ability for downstream derivatives units to consume this new production has also brought the possibility of increased ethylene exports to the forefront.



Currently, there is only ethylene export terminal in the US: the 660 million lbs/yr Galena Park terminal jointly operated by Chevron Phillips, ExxonMobil and Mitsubishi. But EPD is mulling installing ethylene export capabilities at its 200,000 b/d ethane export terminal at Morgan's Point along the Houston Ship Channel.

However, EPD has said it could have ethylene exports up and running within 24 months of them giving the project the green light.

This added production and the high likelihood of short-term supply/demand imbalances have fueled several new players that are reportedly interested in entering spot ethylene markets.

-- Samantha Hartke

SUMMARY

- Spot ethylene markets have been extremely volatile in 2016, hitting lows not seen since Dec 2008, as well as highs last seen in Jan 2015. Spot ethylene prices should close out the year with around a 32% increase in value.
- US Gulf Coast operating rates have ranged from 89-100% during the year.
- Spot monthly traded volumes were at an all-time high of 1.053 billion lbs in June, but fell to an intra-year low of 563 million lbs in Nov, a level not seen since Nov 2015.
- In 2017, about 14.5 billion lbs/yr of new ethylene production will come online via six crackers and an expansion.
- This new infrastructure will increase US ethylene production by nearly 23% from current levels.
- Continued supply/demand imbalances due to timing uncertainties of new crackers and downstream consumption units should lead to further volatility in 2017.