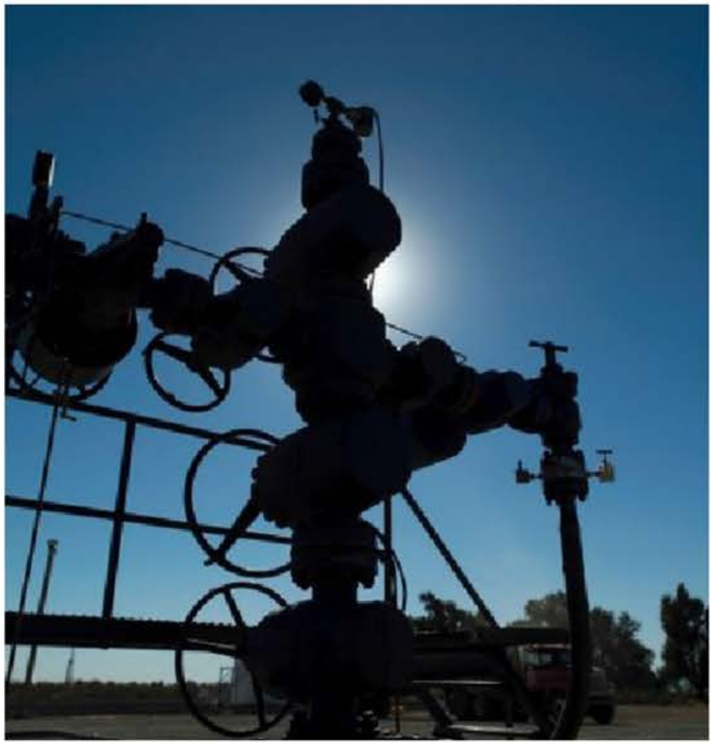
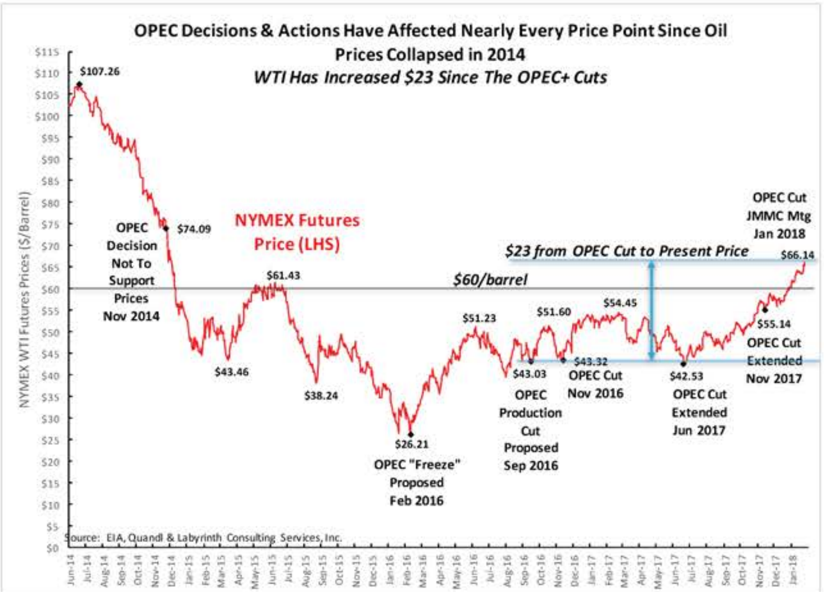


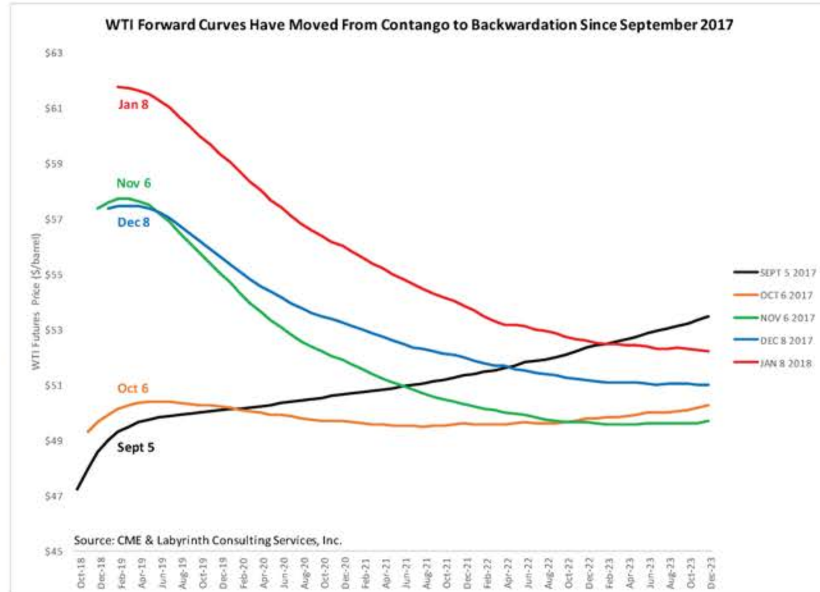
January Oil Overview
MacroVoices

Art Berman
Labyrinth Consulting Services, Inc.

January 31, 2018

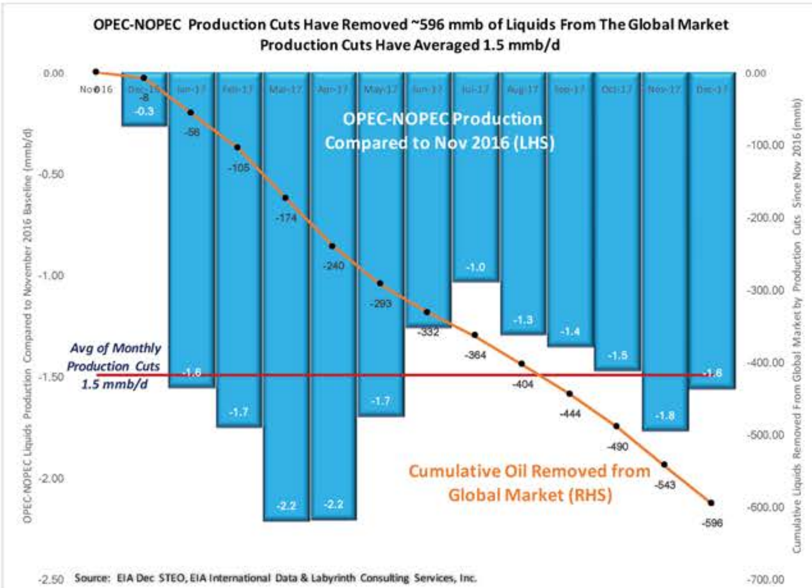
OPEC Decisions & Actions Have Dominated Price Cycles Since late 2014

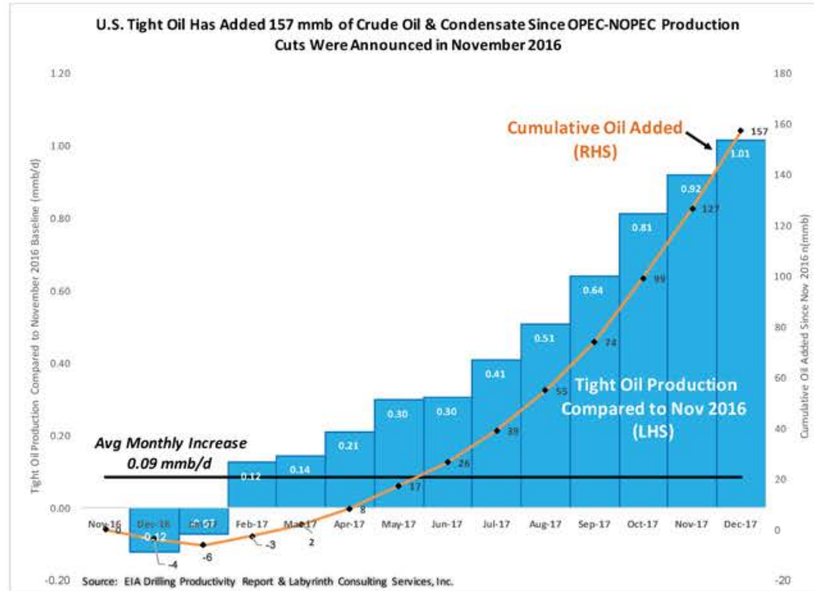




- OPEC decisions & actions have dominated oil prices since late 2014.
- Production cuts resulted in change from contango to backwardation in forward curves.
- OPEC+ production cuts probably responsible for $20-$25 increase in WTI since Sept 2016

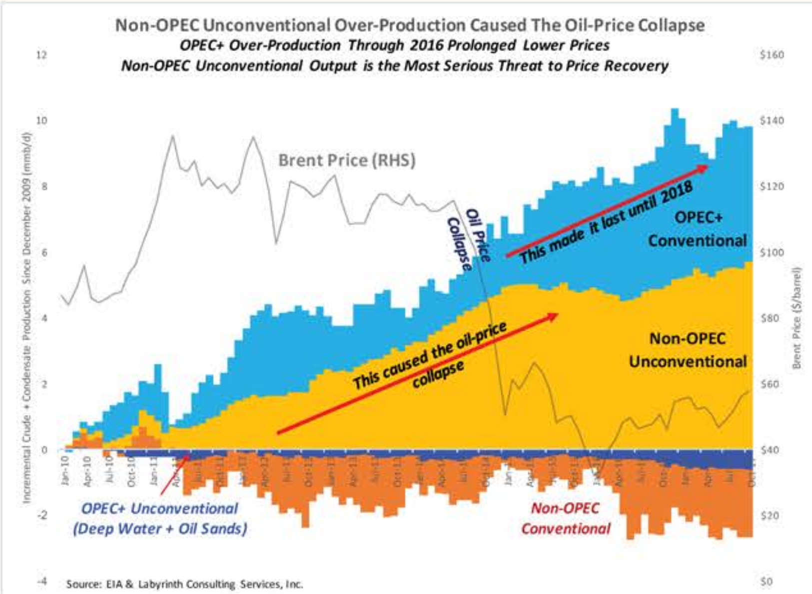
OPEC+ Production Cuts Have Removed Almost 600 mmb From the Global Market

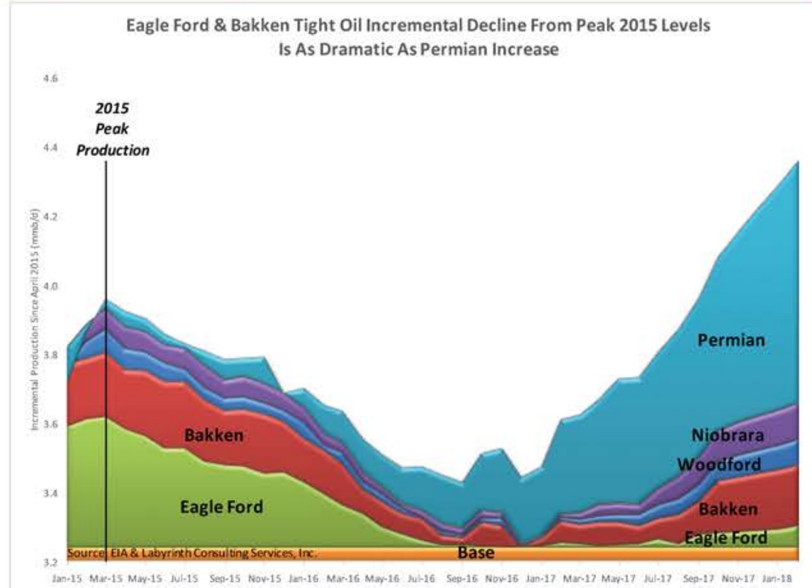




- Despite lack of full OPEC+ compliance, cuts have removed ~596 million barrels of liquids from global markets since November 2016.
- U.S. tight oil has added ~157 million barrels over the same time period.

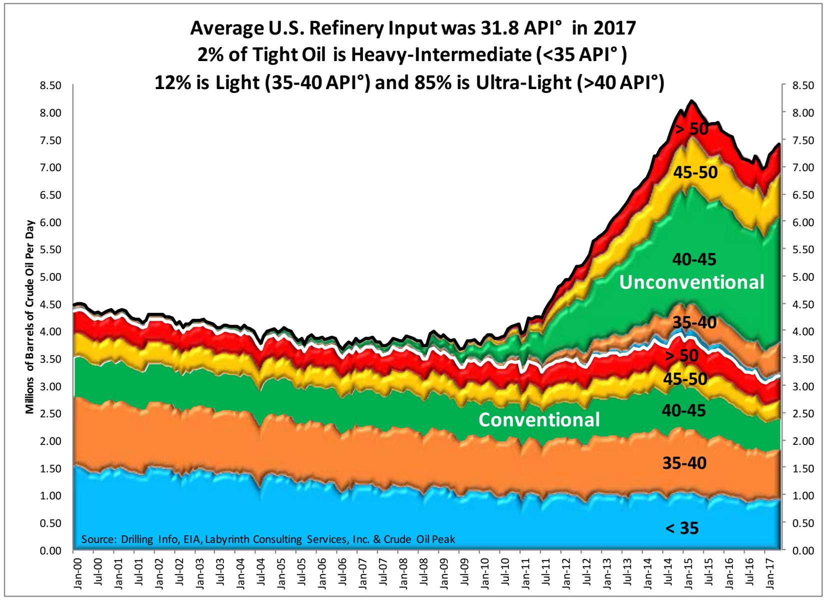
Both OPEC+ and Unconventional Oil Share Responsibility for 3 Years of Low Oil Prices

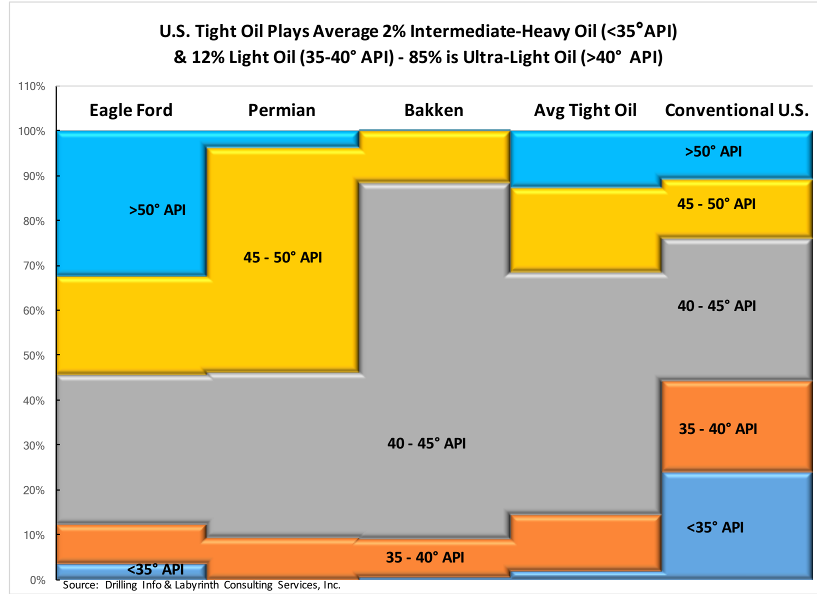




- U.S. and Canada unconventional over-production caused the oil-price collapse.
- OPEC+ over-production made low prices last for 3 years.
- Tight oil production has surpassed 2015 peak levels by ~414 kb/d with the principal increase in the Permian basin.
- Both OPEC+ and unconventional oil continue to be potential threats to price recovery.

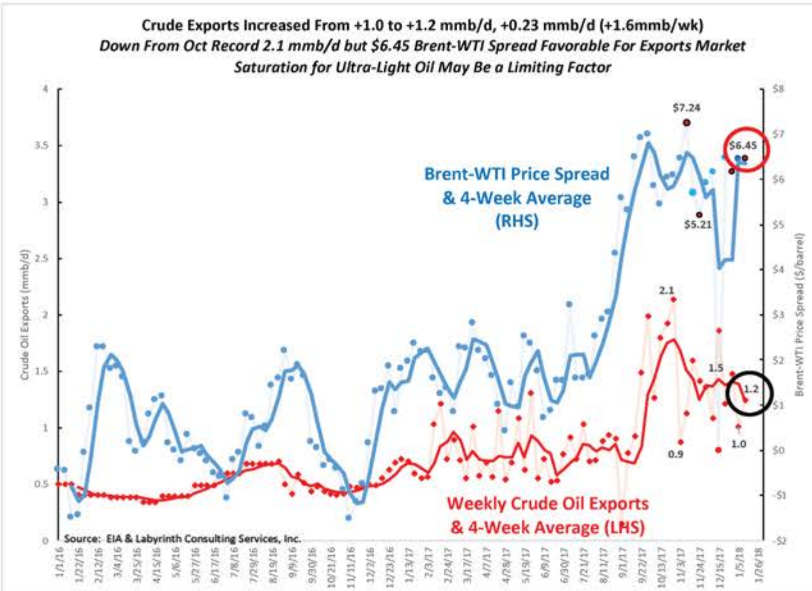
Much U.S. Tight Oil Cannot Be Readily Refined Because of Oil Quality Issues

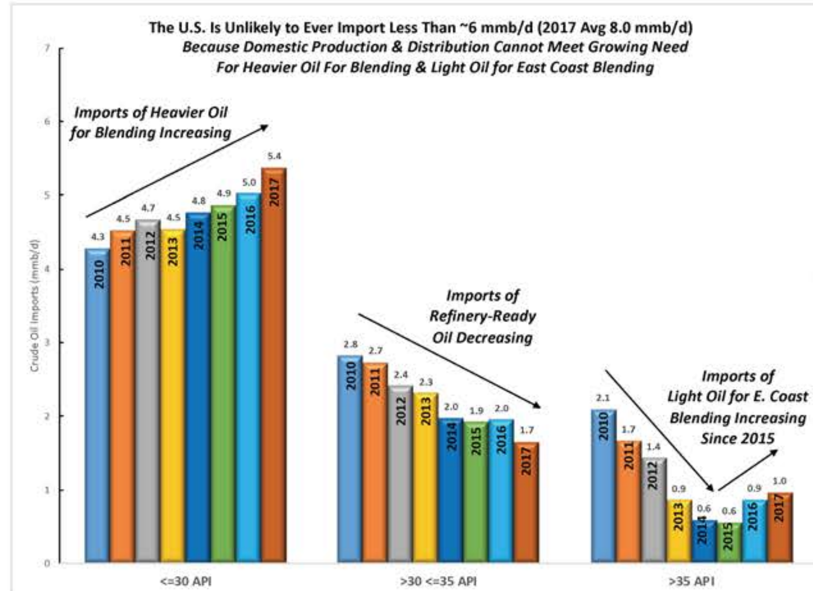




- U.S. refinery input average is 32 API gravity but only 2% of tight oil is less than 35 API.
- Only 12% is ”light” (35-40 API) & 85% is ultra-light/condensate (>40 API).

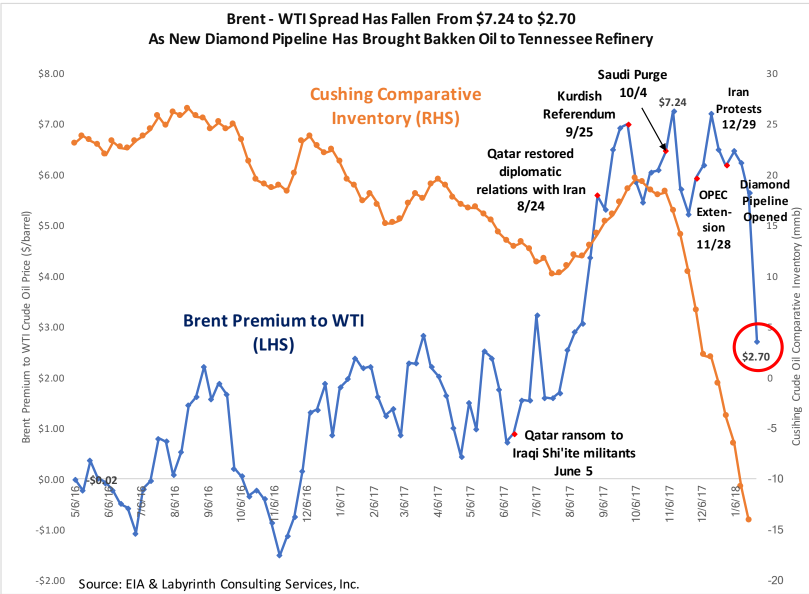
There May Be Limits to U.S. Crude Oil Exports





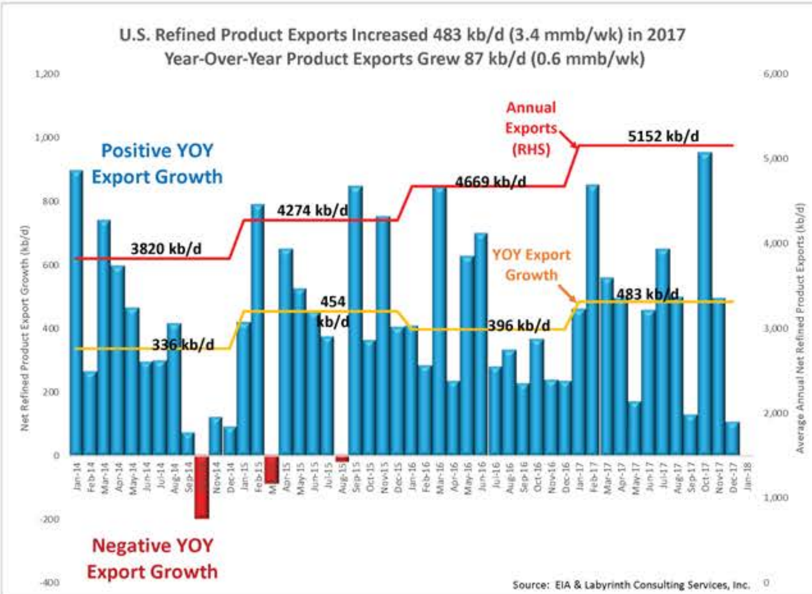
- Crude exports reached a maximum of 2 mmb/d in October & have fallen to an average of 1-2 mmb/d since.
- This may be because of more international competition for limited ultra-light refinery capacity.
- There have also been concerns about variable quality of U.S. light exports
- Condensate produces low octane gasoline & lacks middle distillates needed for diesel production.
- U.S. light oil imports have increased mostly from West Africa.
- That is because it is cheaper to import than to pay for rail shipping & because the Jones Act prohibits foreign carriers from doing commerce between U.S. ports.
- The threat to supply & price from tight oil may be different than many imagine.

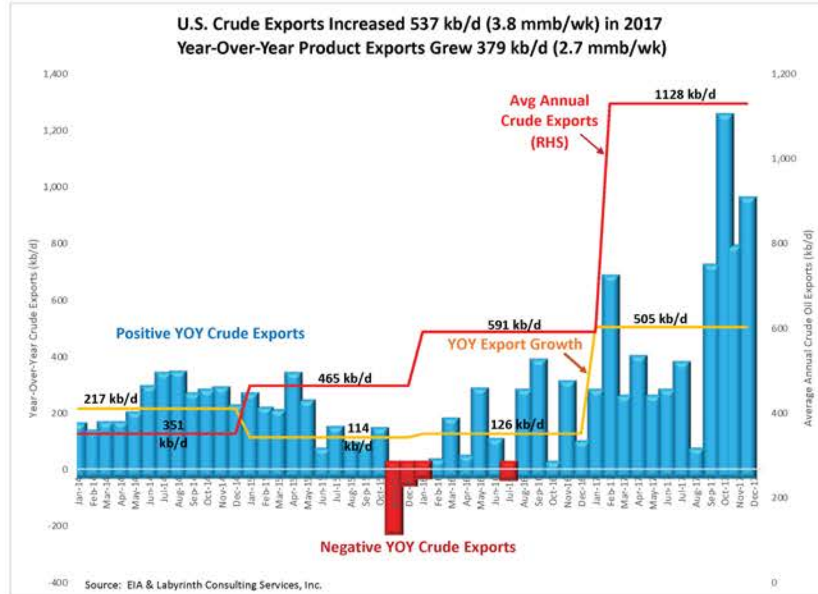
Recently Opened Diamond Pipeline Has Reduced WTI-Brent Spread by $5/barrel



- The Diamond Pipeline will ultimately bring 200 kb/d Bakken tight oil to Plains-Valero refinery in Memphis bypassing storage at Cushing.
- The Caprock Pipeline that brought tight oil from Cushing and the Gulf Coast to the Midwest is now under-utilized.
- The price of LLS & Mars crude has plummeted because it is now stranded in Louisiana.
- Caprock now plans to reverse its flow direction.

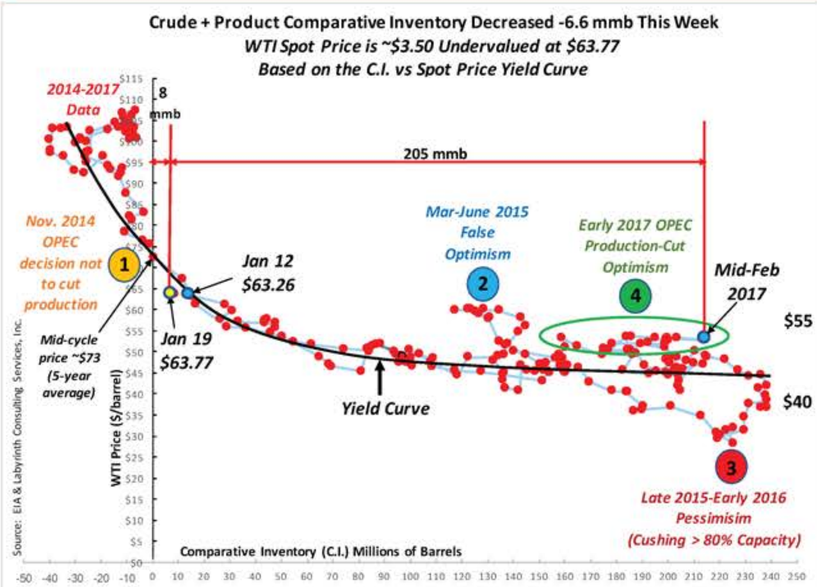
Exports Have Been The Primary Reason Behind U.S. Inventory Reductions

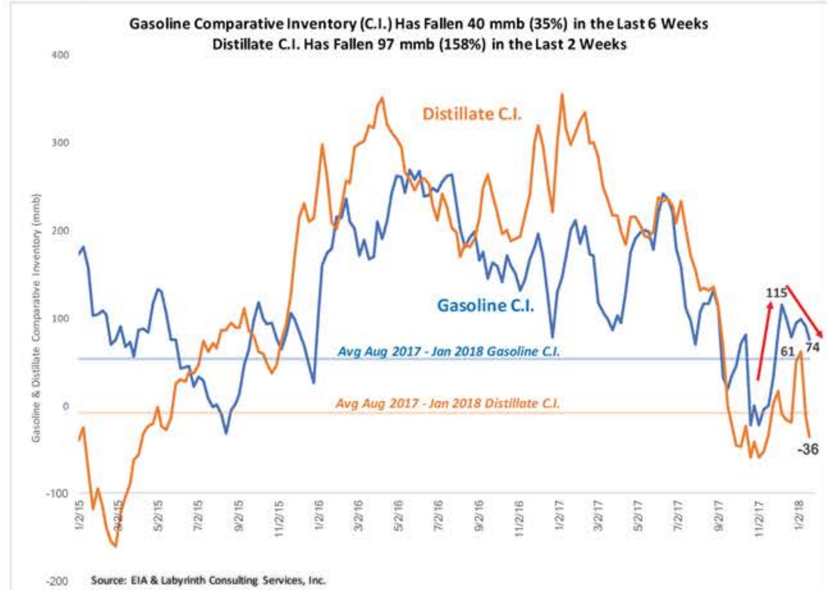




- Refined product exports increased an average of 3.4 mmb/week in 2017.
- 2017 crude oil exports increased 3.8 mmb/week.
- Product export strength reflects an improving global economy in part because of lower oil prices.
- Crude exports have increased because of supply outages in Africa.
- The widened Brent-WTI spread has produced an arbitrage advantage to U.S. producers.

U.S. Crude + Product Inventories Are Essentially at The 5-Year Average





- Comparative inventory is 8 mmb above the 5-year average as I have predicted for many months.
- This is a counter to trader sentiment that prices will move lower.
- Curvature of the yield curve suggests that price increases should accelerate.
- Distillate and gasoline C.I. are near 2 year lows reflecting strength of consumption and exports.