



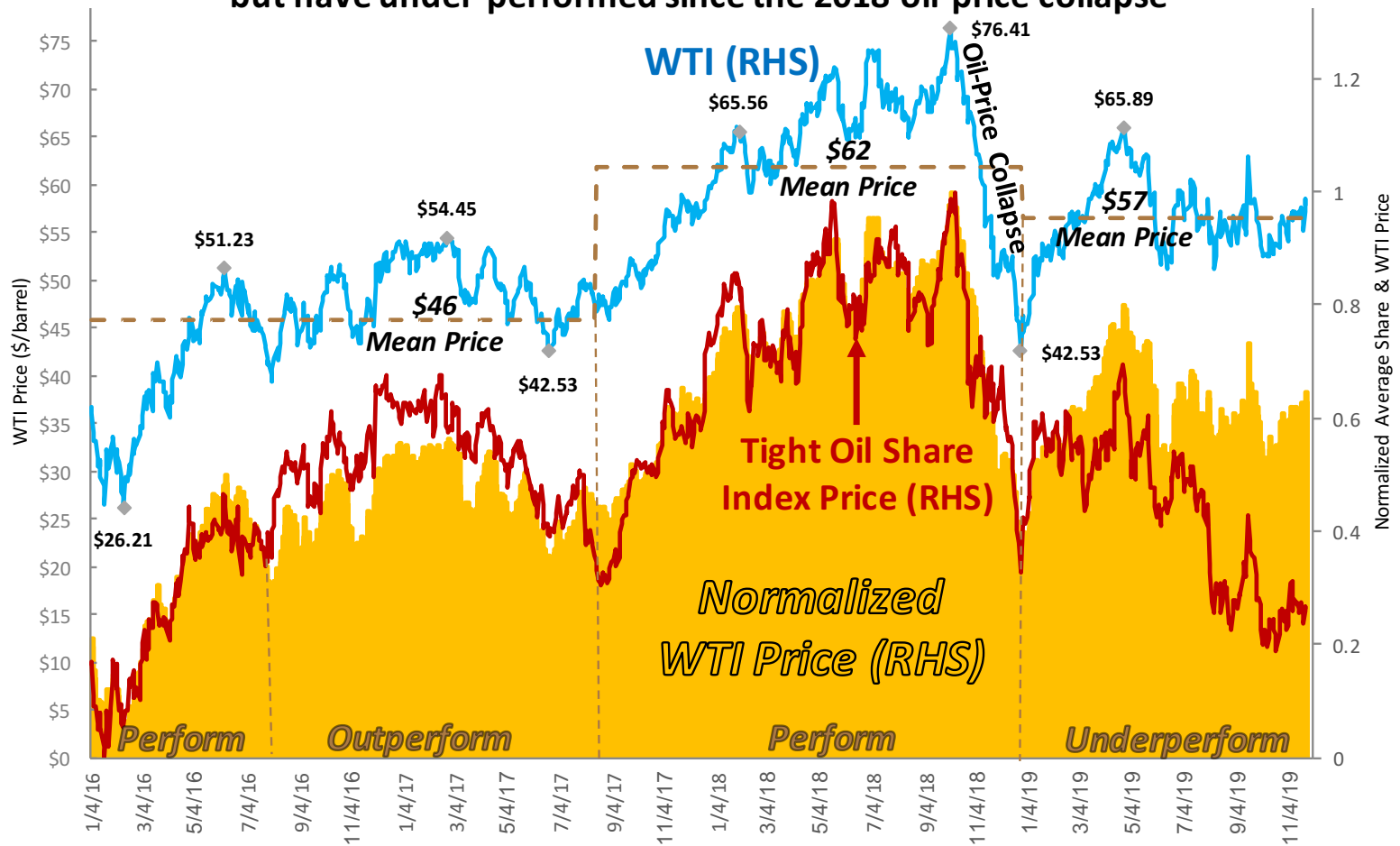
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MacroVoices

December 18, 2019



**Lower oil prices--not cash flow--will bring investors back to oil
Tight oil share prices outperformed WTI when oil prices were lowest
but have under-performed since the 2018 oil-price collapse**

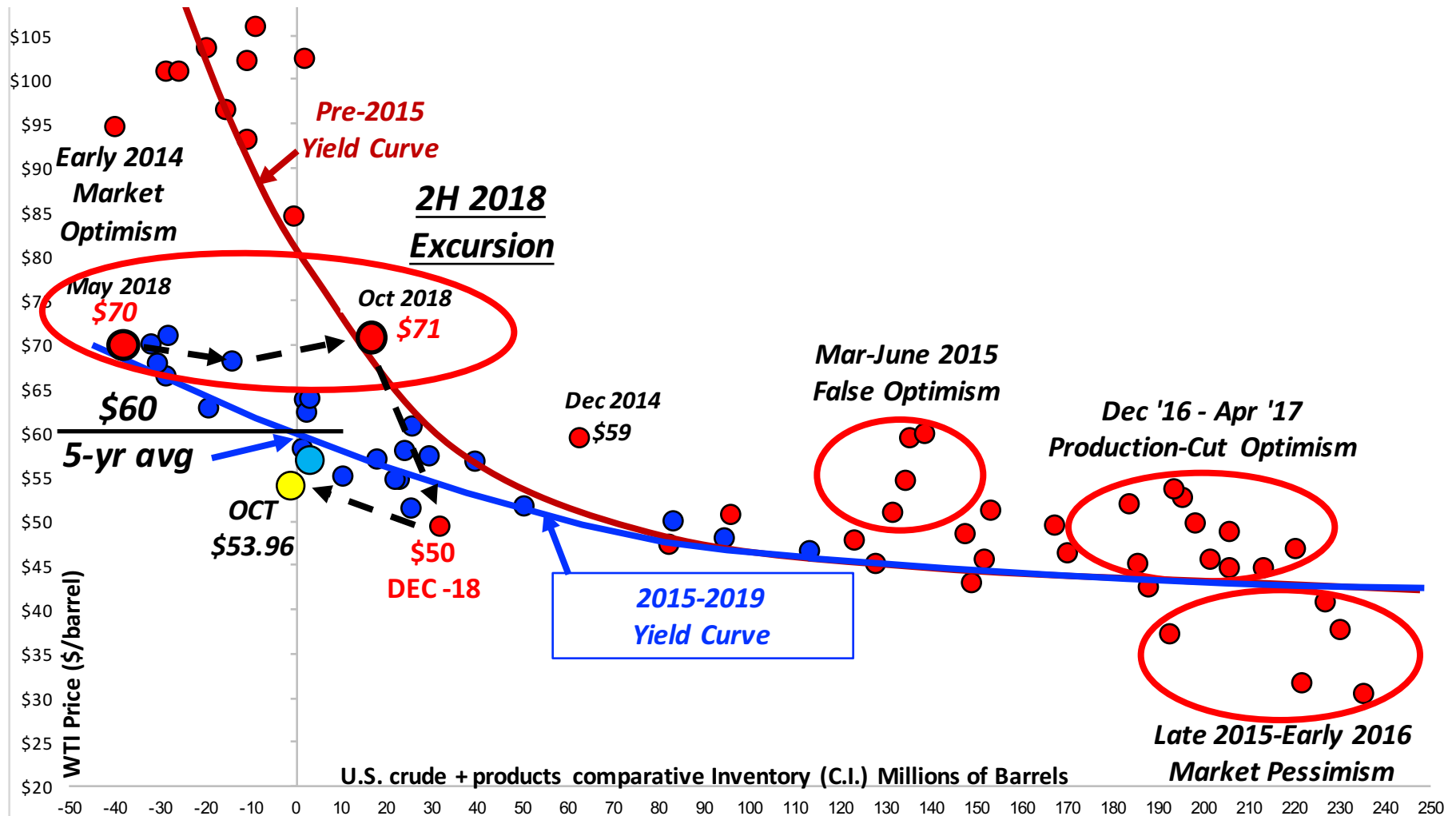


Source: Yahoo Finance, EIA & Labyrinth Consulting Services, Inc.

Oil & Gas Supply/Sampled E&Ps/Sampled E&Ps MASTER.xlsx

| Percent | EOG | COP | FANG | CXO | PXD | MRO | CLR | AVG | WTI |
|-------------------------------------|------|------|------|-------|------|------|------|------|------|
| 2016- NOV 2018 Share Price Change | 124% | 164% | 143% | 123% | 97% | 268% | 348% | 181% | 192% |
| DEC 2018-Present Share Price Change | -66% | -39% | -52% | -117% | -49% | -68% | -90% | -69% | -56% |

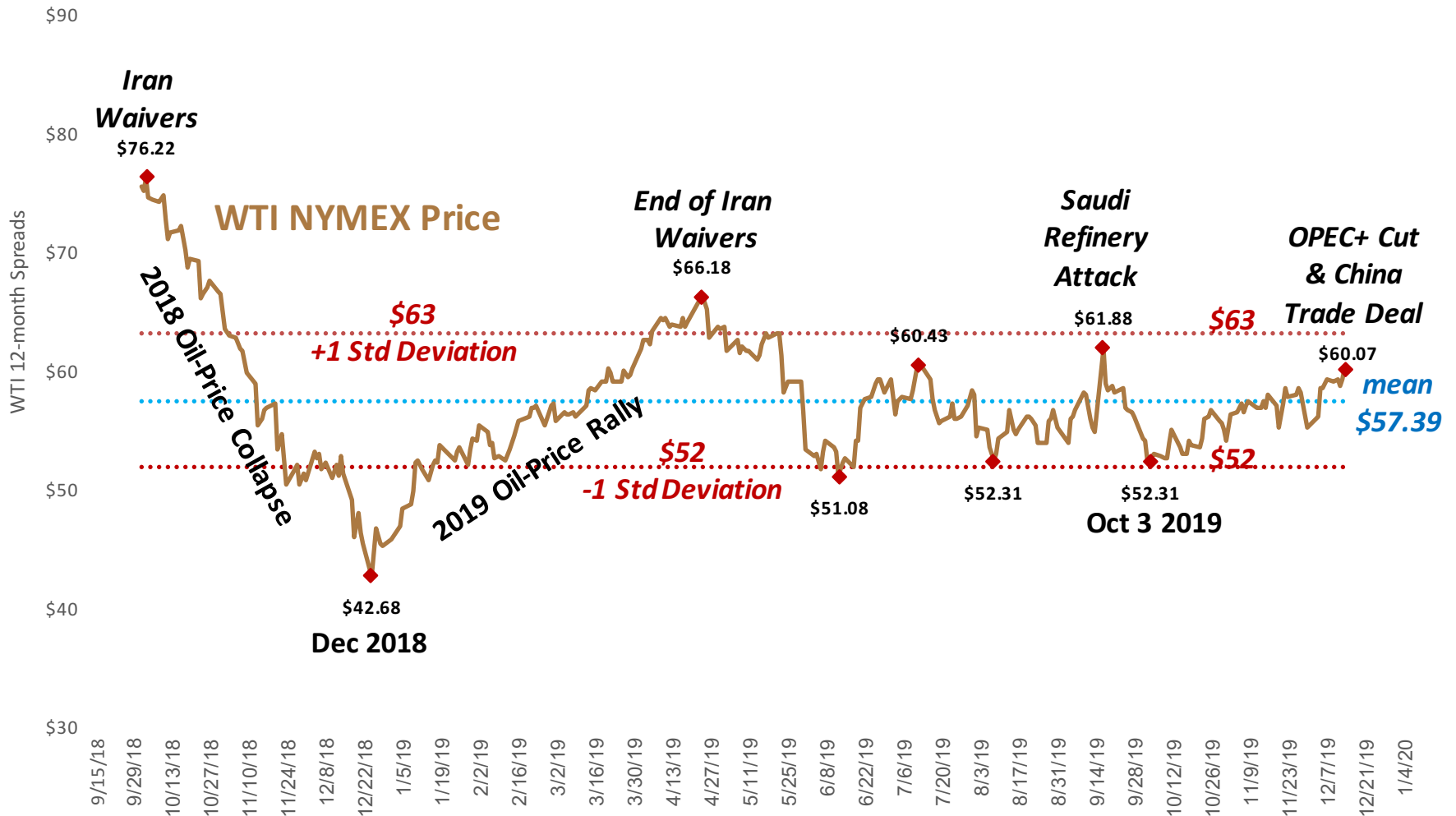
Markets have consistently signaled that \$60 is the market clearing price for the marginal barrel of WTI since the oil-price collapse in 2014-2015



Source: EIA & Labyrinth Consulting Services, Inc.-Aperio Energy Research

EIA 2019/Monthly Updates/MER/ Table_3.4_Petroleum Stocks_MASTER

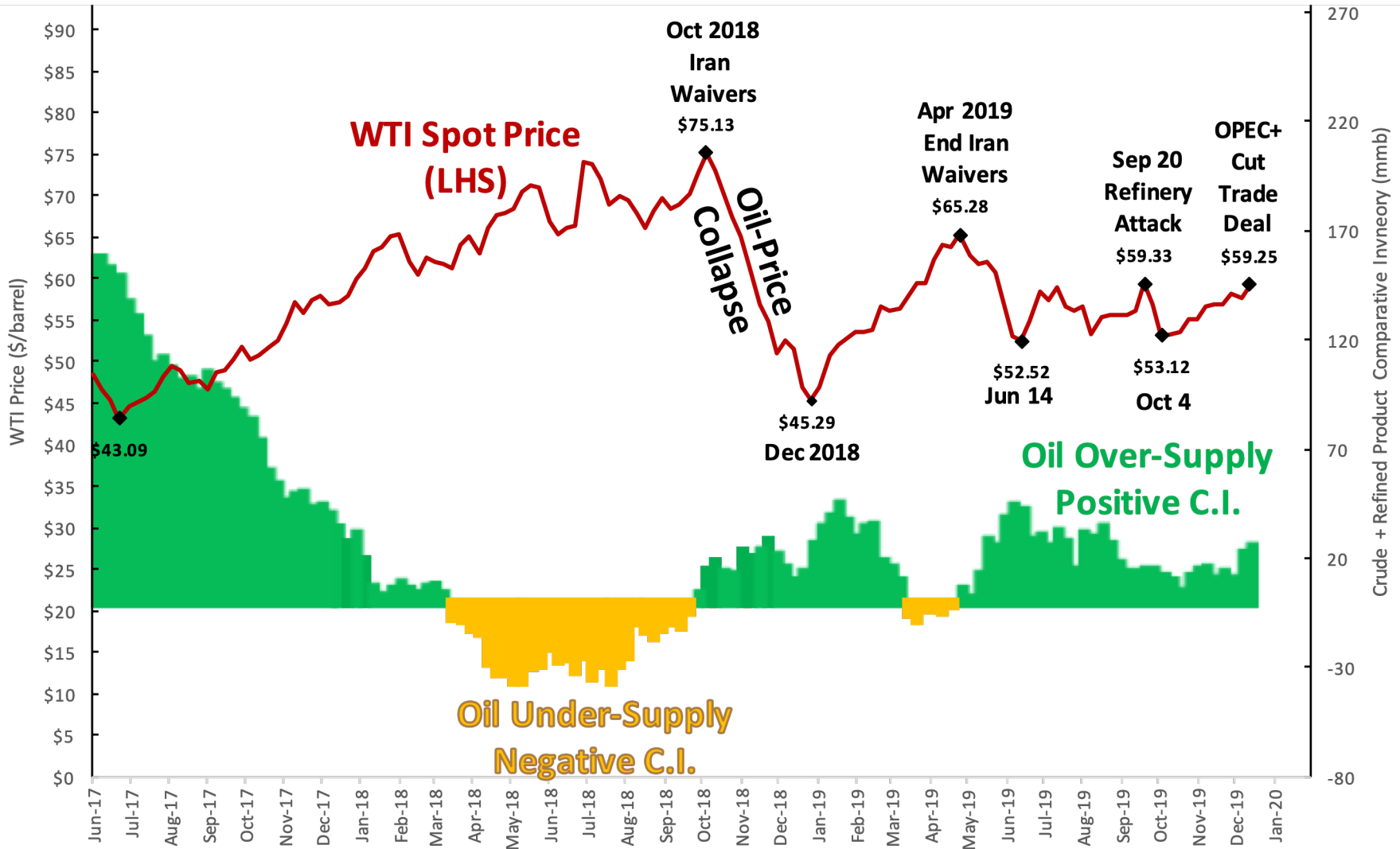
**Price rally that began in early October is probably at or near its peak
WTI has been largely range-bound between \$52 and \$63 throughout 2019**



Source: Quandl & Labyrinth Consulting Services, Inc.

Oil & Gas General/Futures & Future Spreads/CL1&CL7 Futures

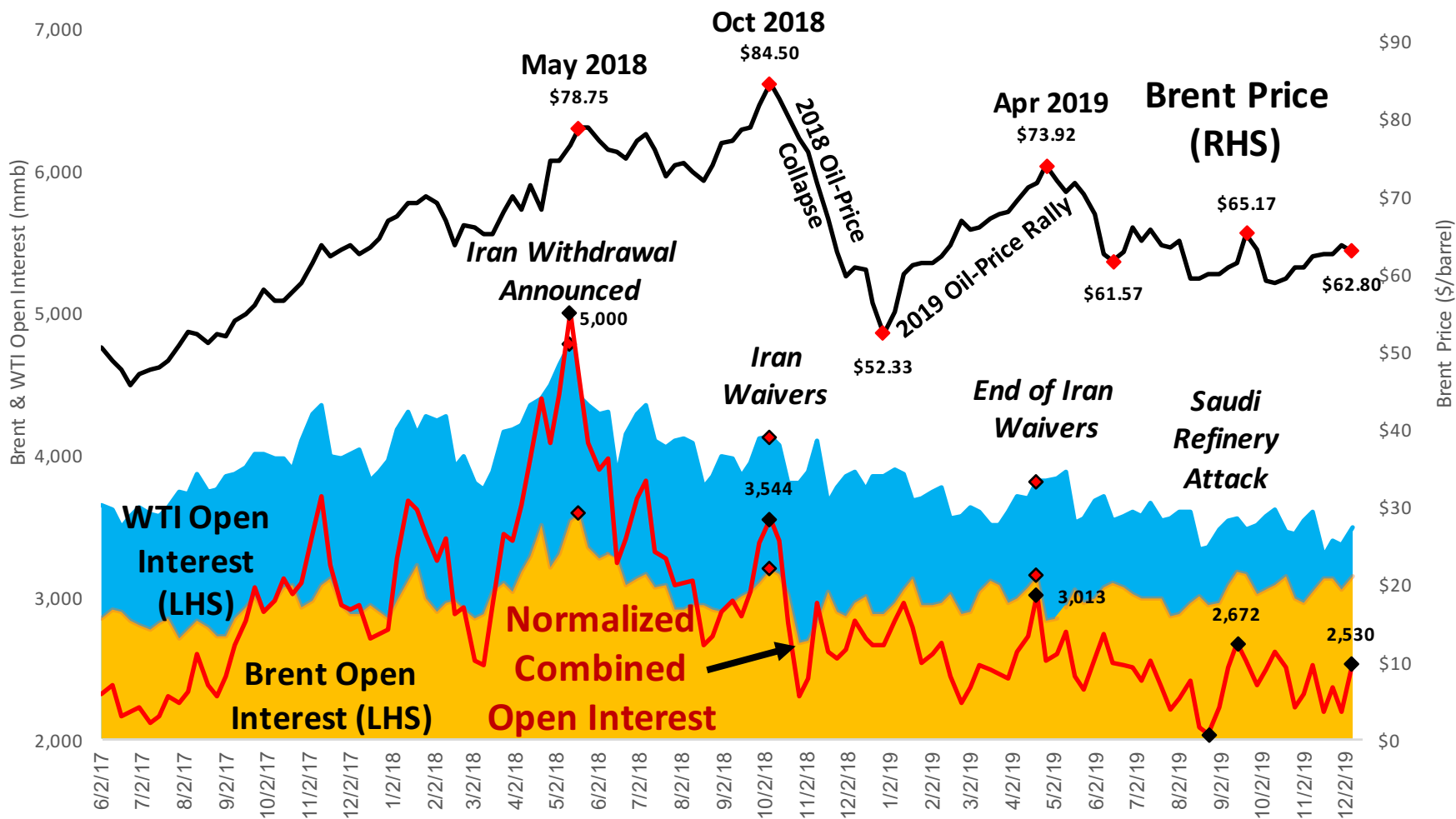
WTI price trends since June 2019 have been largely price discovery excursions not correlated to fundamentals



Source: EIA & Labyrinth Consulting Services, Inc.

EIA 2019/Weekly Updates/Crude Oil & Refined Products Inventories & CI

**Brent + WTI open interest increased +230 mmb (+3.5%) week ending December 6
 OPEC+ production cuts & U.S. - China trade agreement only electric shock therapy
 for a market on life support since Iran withdrawal announcement in May 2018**

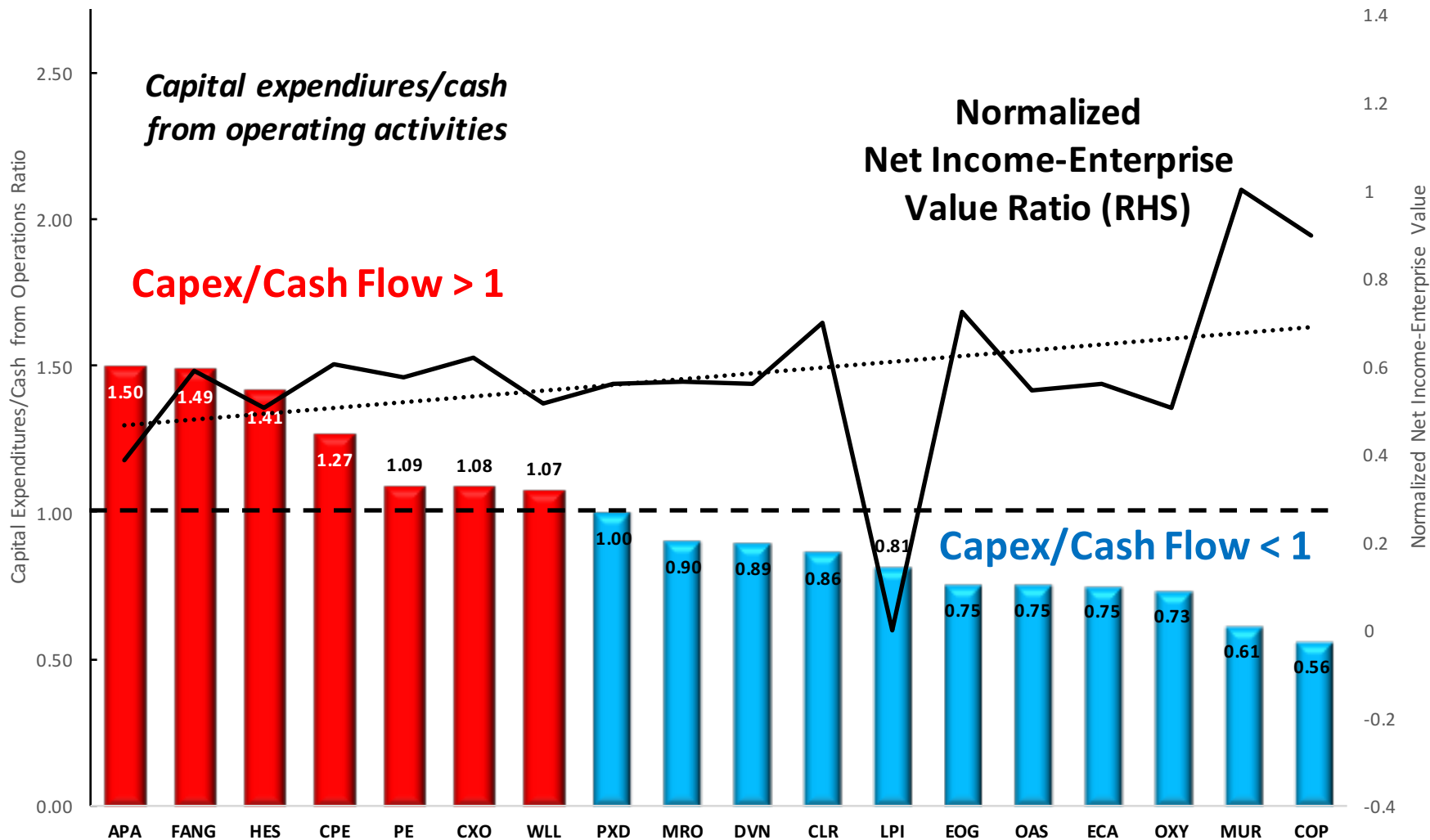


Source: CFTC, St. Louis Fed, Quandl & Labyrinth Consulting Services, Inc.

Oil & Gas General/CFTC Futures Master

61% of tight oil-weighted U.S. companies had positive cash flow in Q3 2019 compared to only 50% in Q2

Good correlation between cash flow & net income-to-enterprise value ratio



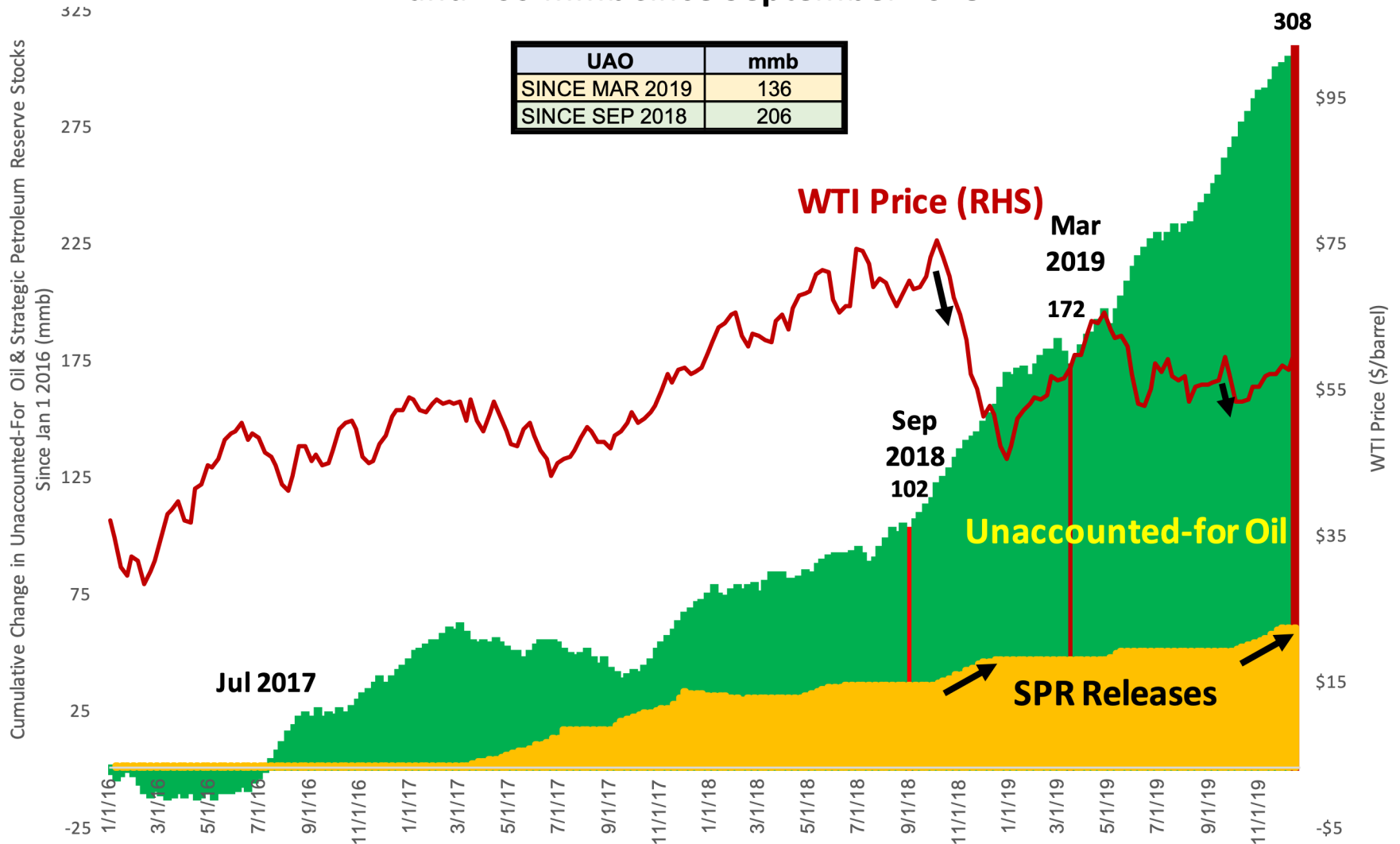
Source: Yahoo Finance, SEC 10-Q filings & Labyrinth Consulting Services, Inc

Oil & Gas General/Sampled E&Ps/Sampled E&Ps

MASTER

Financialization of oil is most significant factor excluded from most market analyses

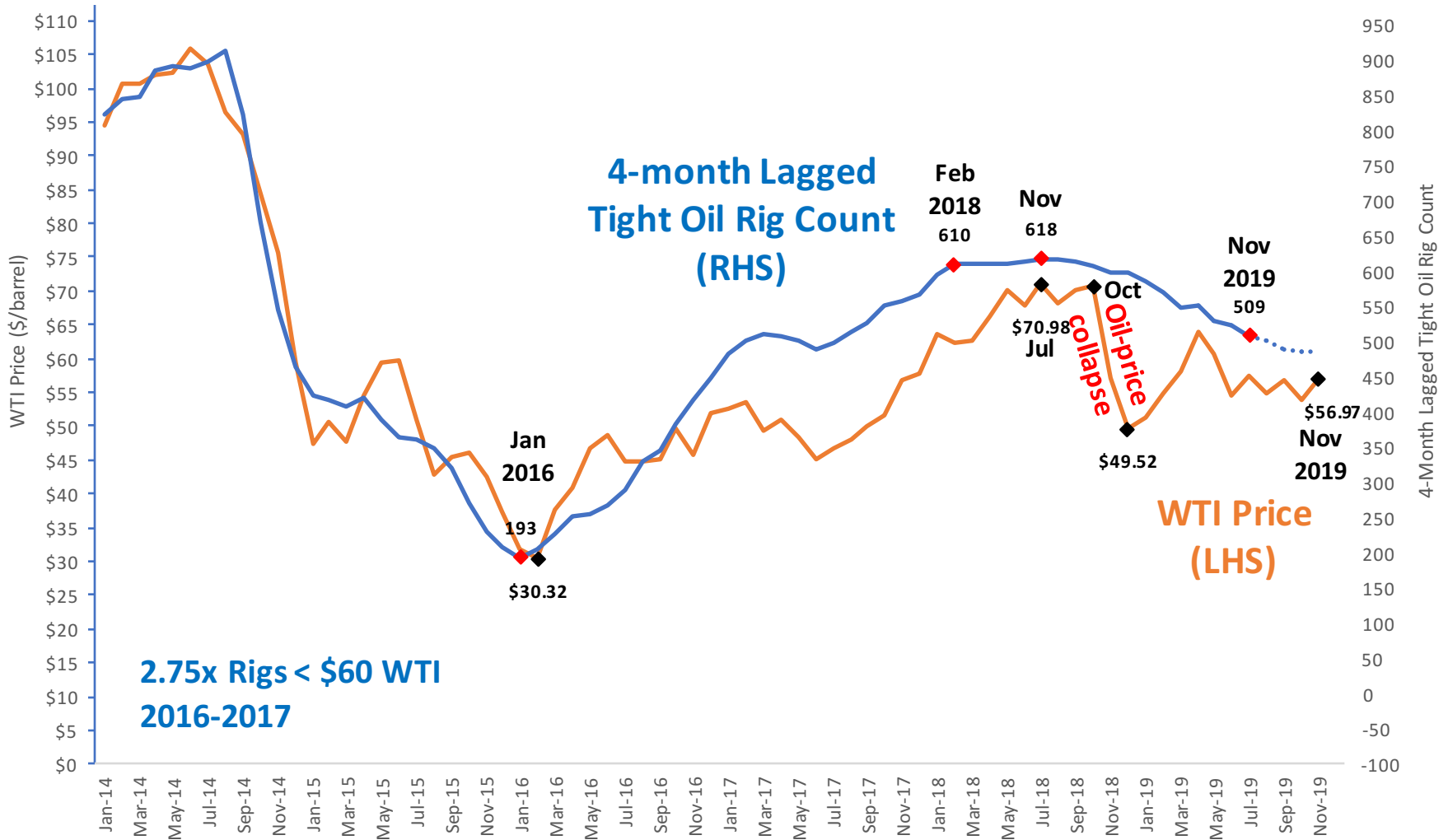
308 mmb of unaccounted-for oil additions since July 2017 and 206 mmb since September 2018



Source: EIA & Labyrinth Consulting Services, Inc.

EIA 2019/Weekly Updates/PSW Master.xlsx

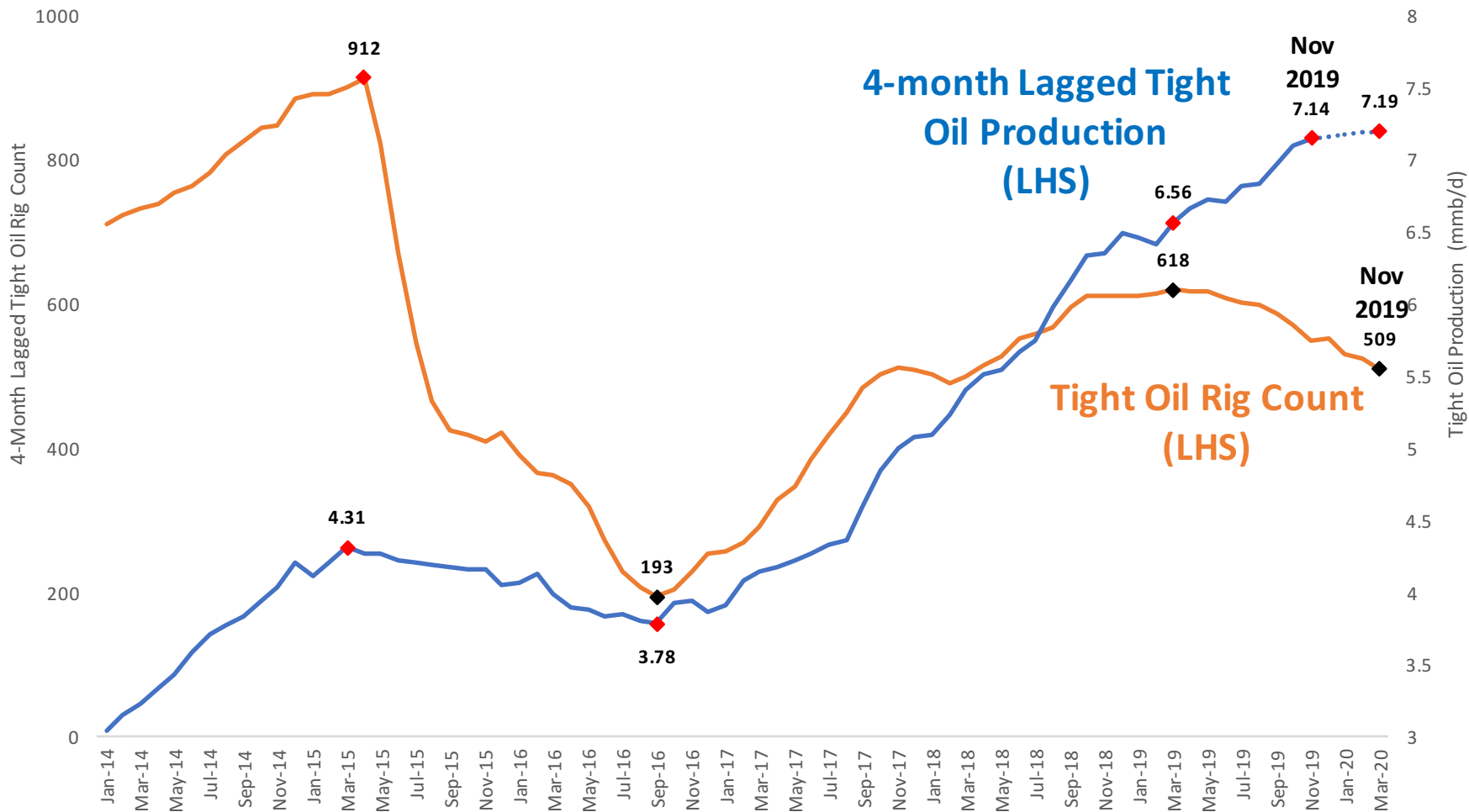
U.S. tight oil rig count will probably decline at a slower rate from 509 rigs in November to a minimum of about 485 rigs by March 2020
Maximum rig count decline was mid-August through late September 2019



Source: Baker Hughes, EIA DPR, Drilling Info & Labyrinth Consulting Services, Inc.

Rig Count/Rig Count 2019/MONTHLY SHALE GAS-TIGHT OIL RIG COUNT

U.S. tight oil production will probably increase at a slower rate from 7.14 mmb/d in November to about 7.19 mmb/d by March 2020

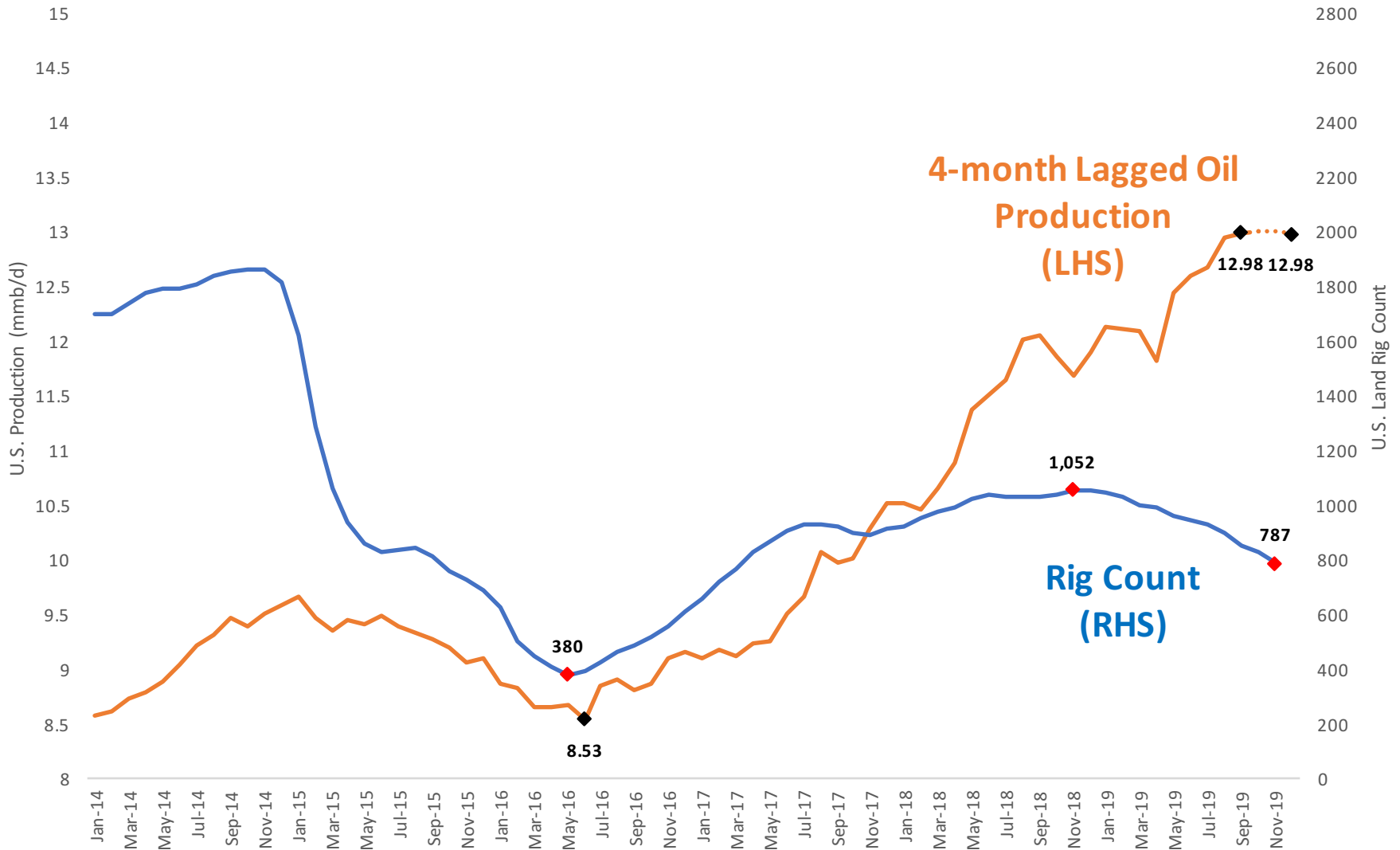


Source: Baker Hughes, EIA DPR, Drilling Info & Labyrinth Consulting Services, Inc.

Rig Count/Rig Count 2019/MONTHLY SHALE GAS-TIGHT OIL RIG COUNT

U.S. oil production will probably flatten or decrease by April 2020

Q1 2020 will probably average about 13 mmb/d

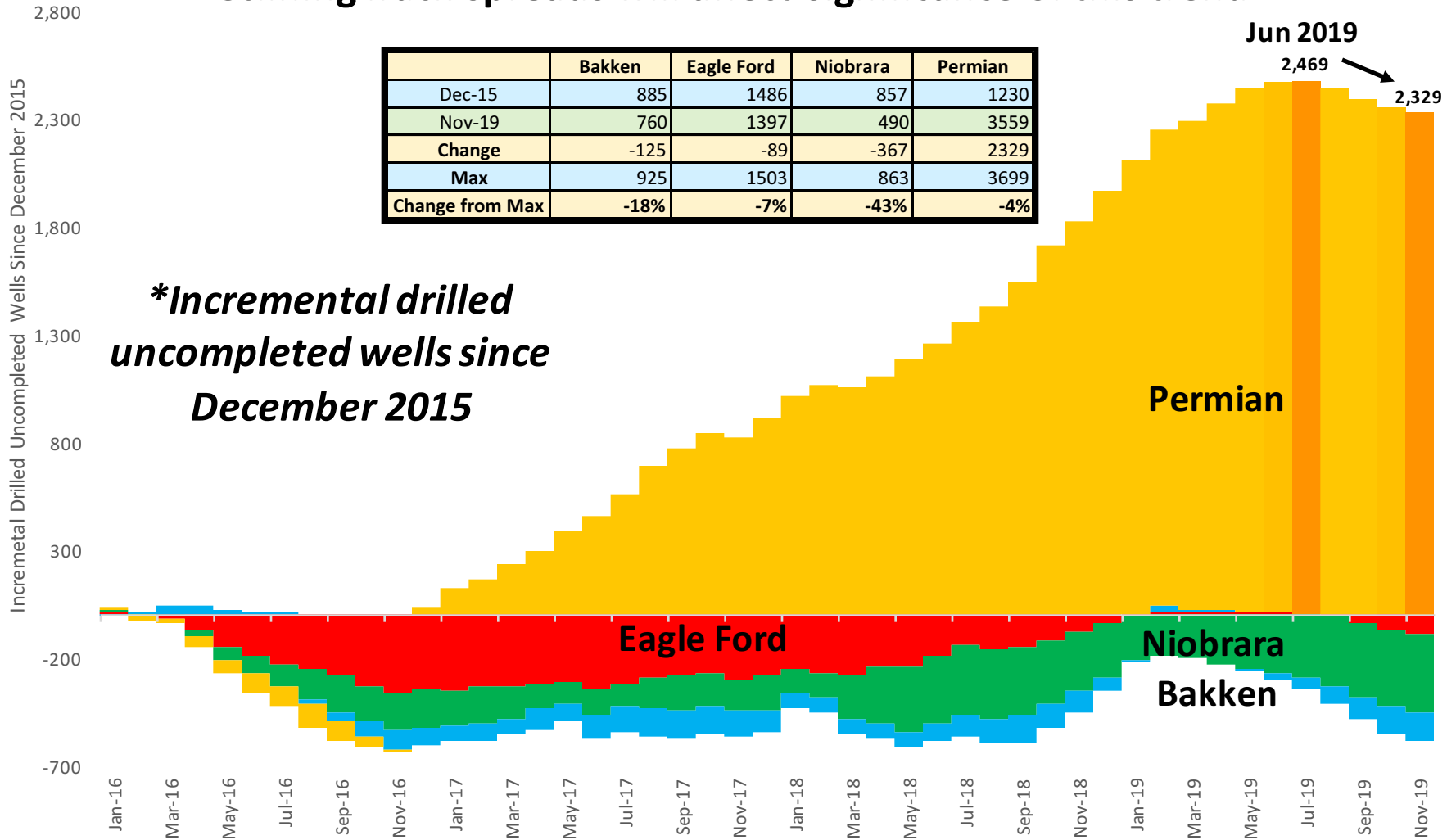


Source: Baker Hughes, EIA DPR, Drilling Info & Labyrinth Consulting Services, Inc.

Rig Count/Rig Count 2019/MONTHLY SHALE GAS-TIGHT OIL RIG COUNT

Permian tight oil DUCs* are decreasing and may account for 20% of monthly completions since June 2019

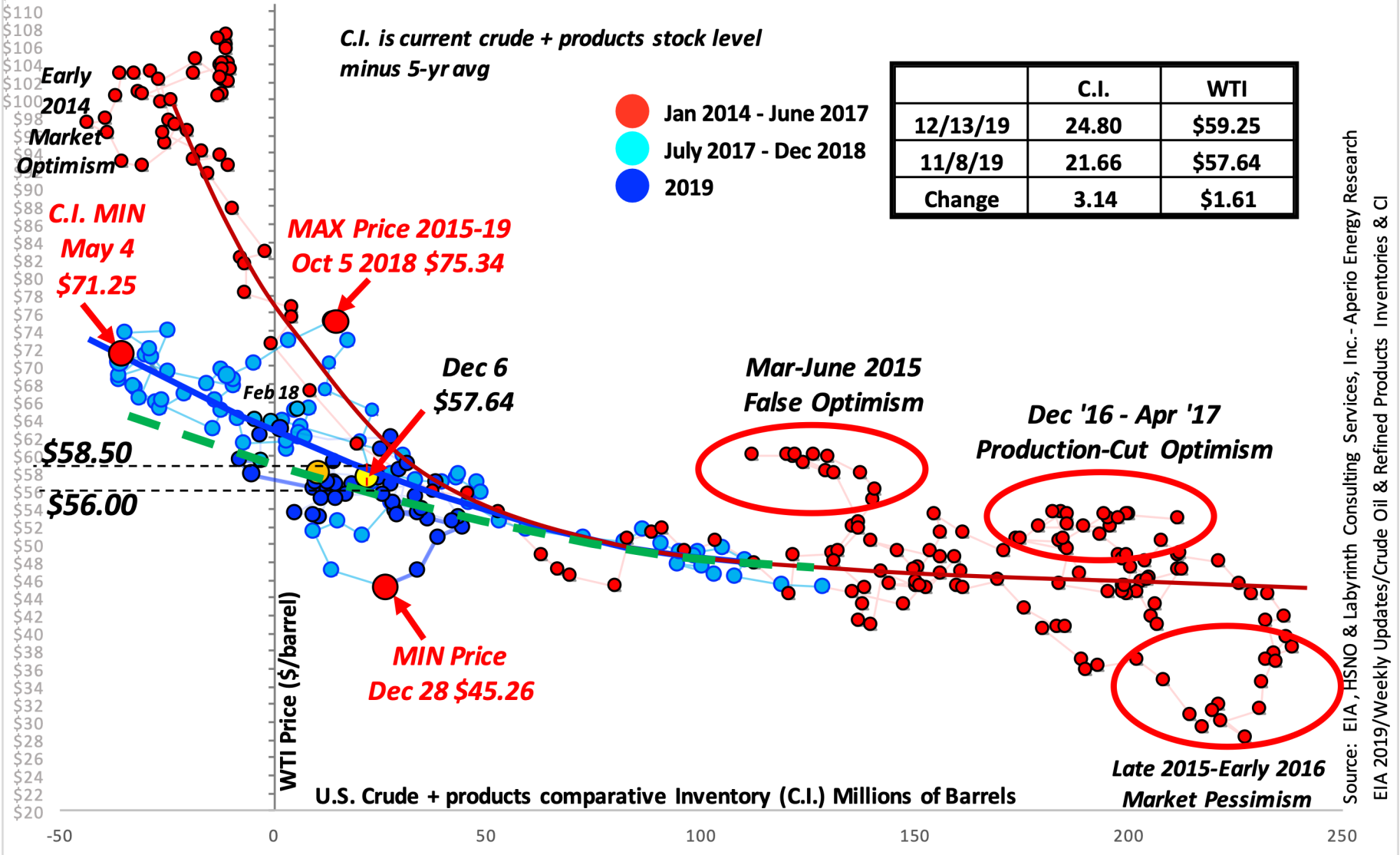
Declining frack spreads will affect significance of this trend



Source: EIA & Labyrinth Consulting Services, Inc

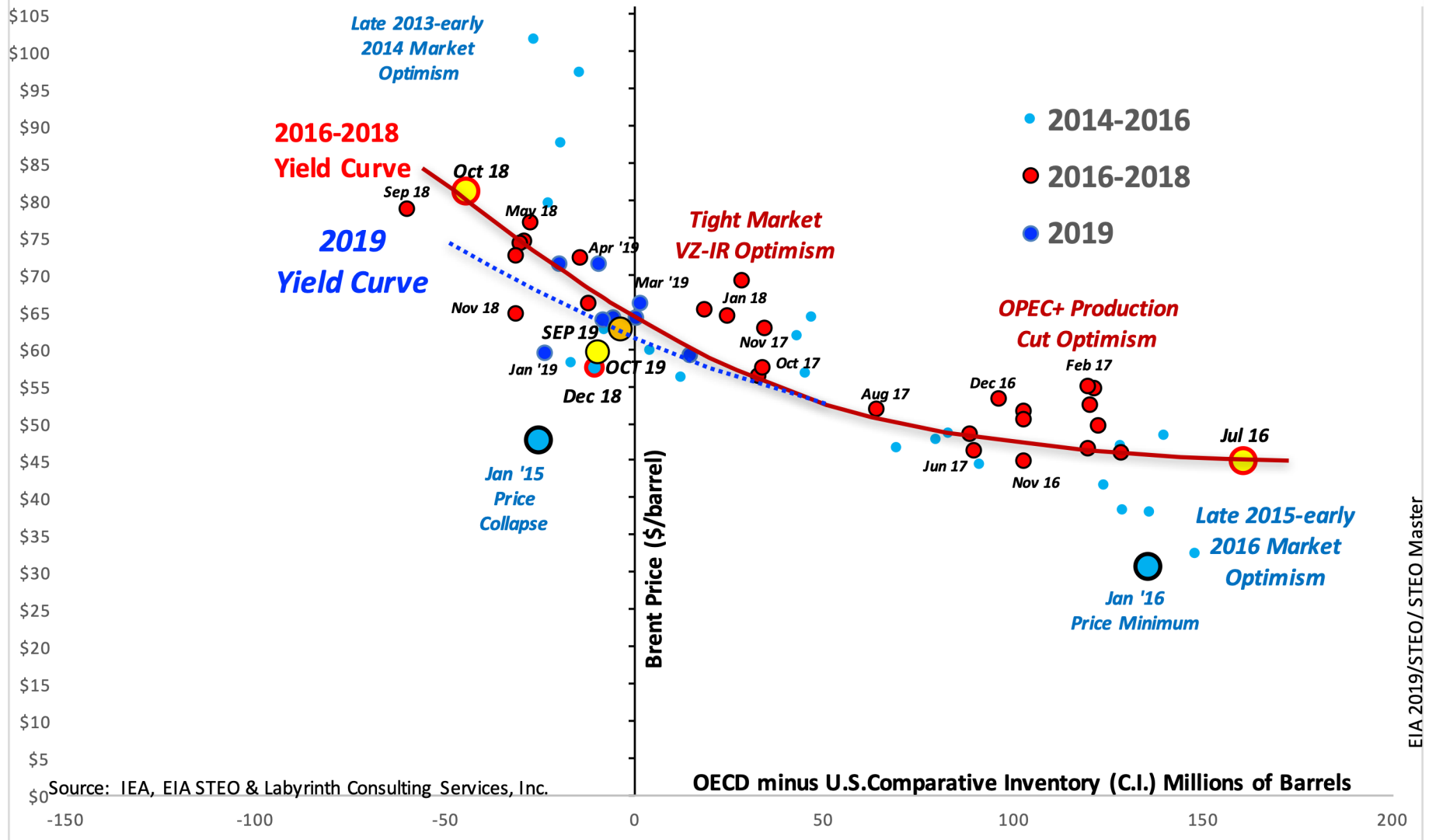
EIA 2019/ DUC-DPR/ duc-data_MASTER

WTI comparative inventory increased +11.3 mmb week ending December 6
WTI ~\$1.00 under-valued on on current blue C.I. yield curve
or ~\$1.50 over-valued on potential new green C.I. yield curve



Source: EIA, HSNO & Labyrinth Consulting Services, Inc. - Aperio Energy Research
 EIA 2019/Weekly Updates/Crude Oil & Refined Products Inventories & CI

Current Brent front-month price of \$66 is at least \$2 over-valued October Brent price of \$59.71 ~\$2.50 under-valued based on 2019 comparative inventory yield curve



EIA 2019/STEO/STEO Master