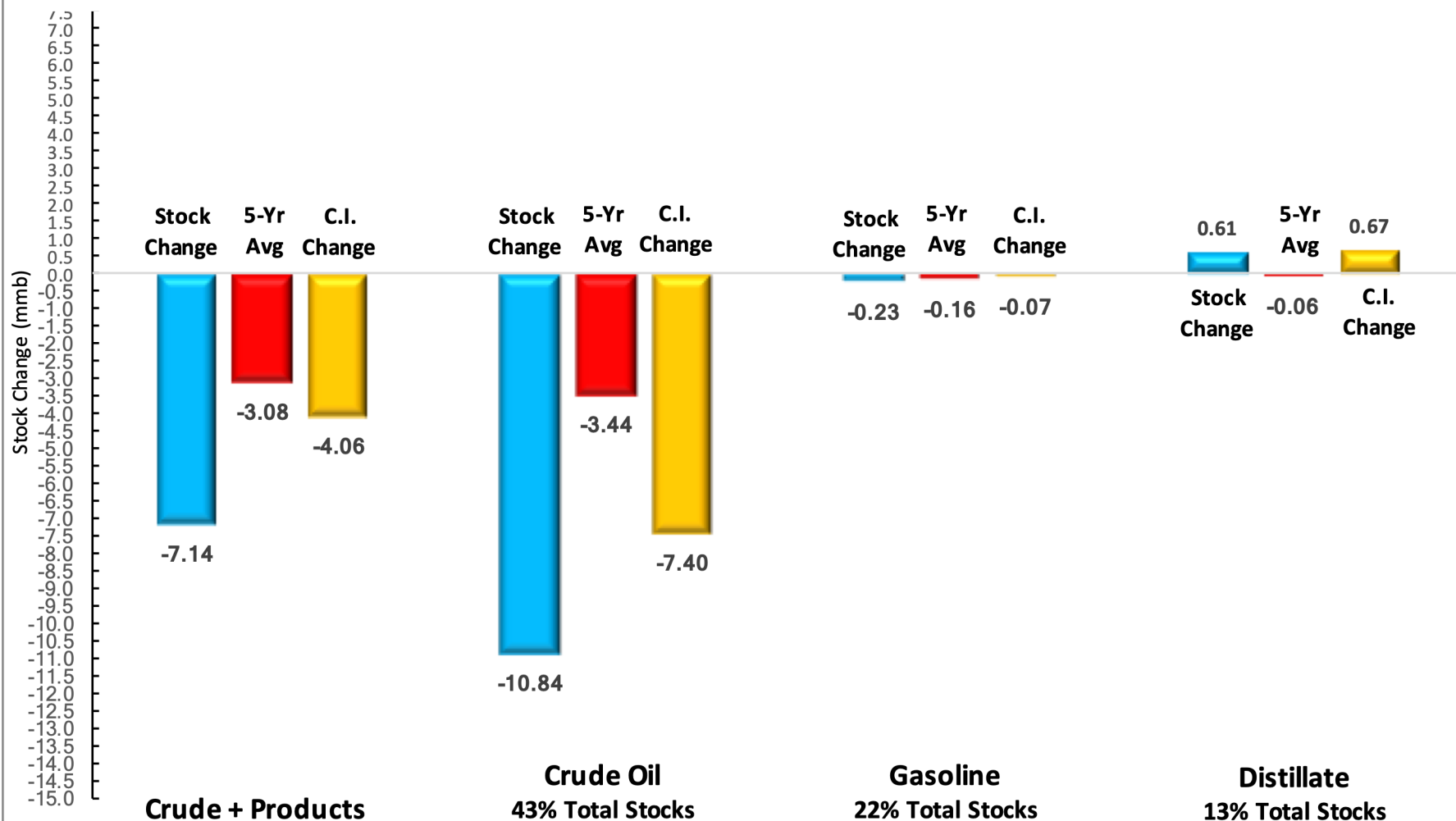




MacroVoices July 24, 2019

**Art Berman
Labyrinth Consulting Services, Inc.**

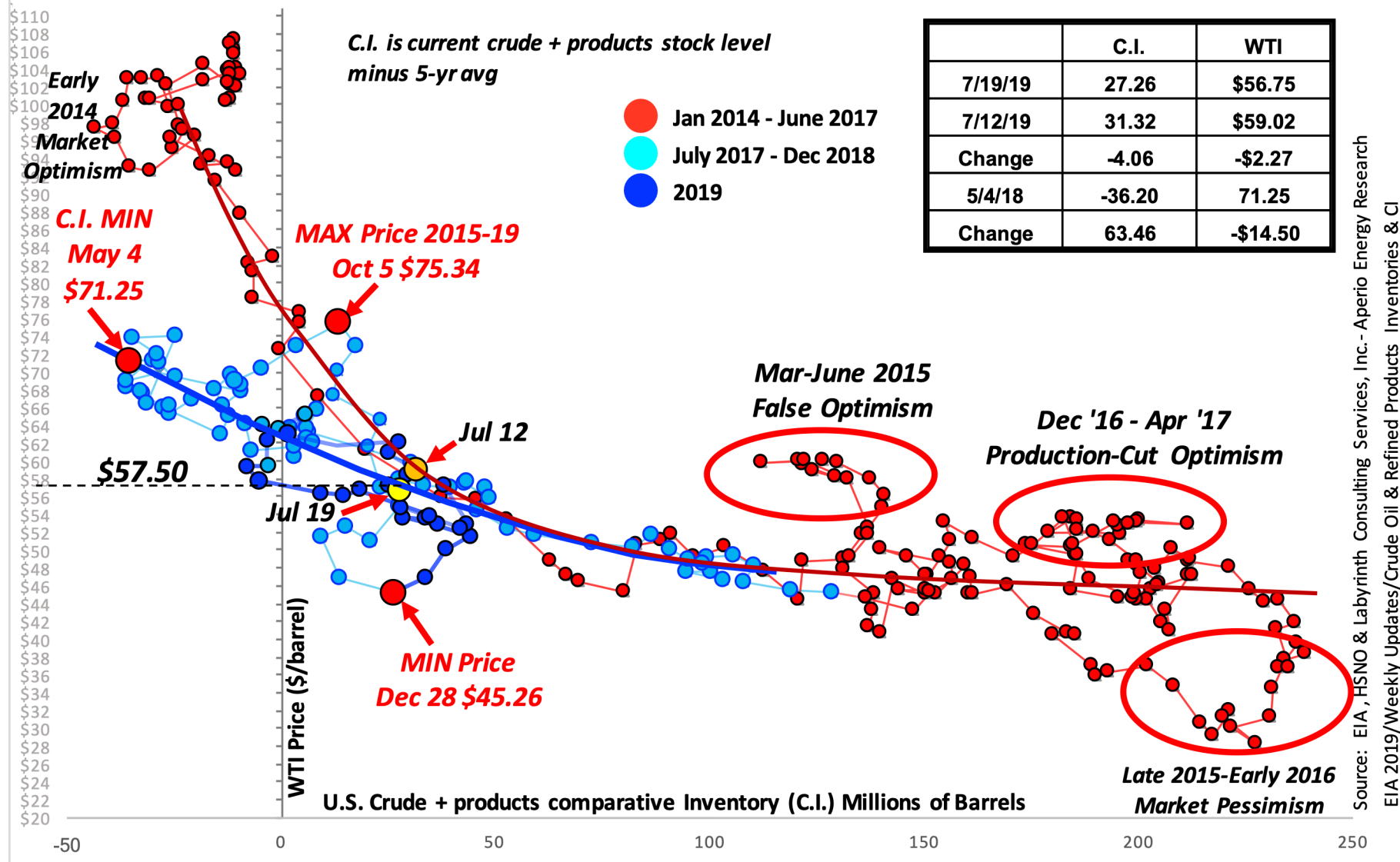
WTI crude + product comparative inventory decreased -4.06 mmb week ending July 19
A -10.84 mmb crude oil withdrawal dominated stock changes
Significantly, comparative inventories of *all* refined products increased
including gasoline, distillate, unfinished oil, propane, kerosene & residual



Source: EIA & Labyrinth Consulting Services, Inc.

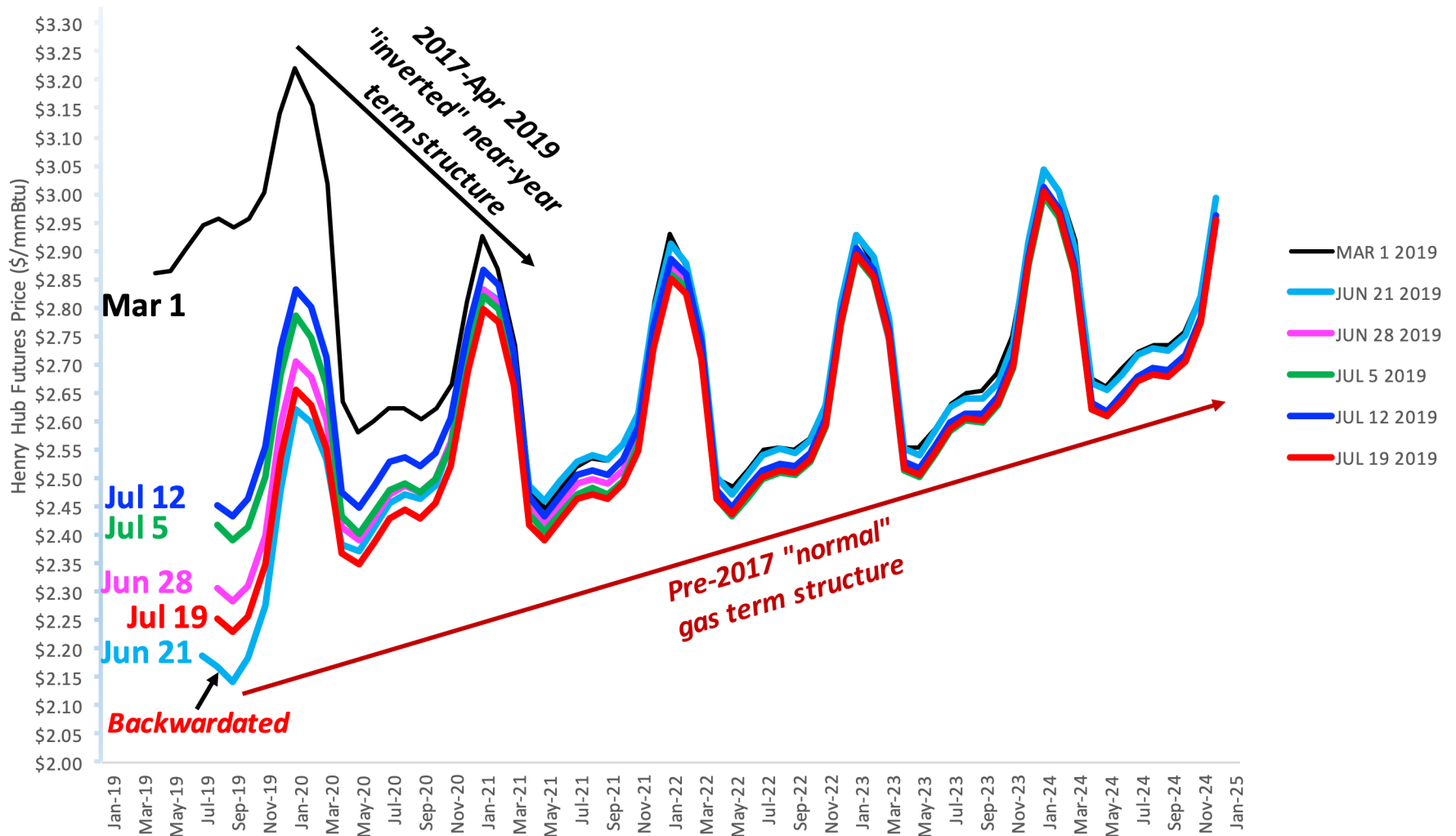
EIA 2019/Weekly Updates/Crude Oil & Refined Products Inventories & CI

**WTI comparative inventory decreased -4.06 mmb
to +27 mmb more than 5-yr average for week ending July 19**
Weekly avg \$56.75 price correctly valued & \$57.42 front-month price ~\$1 over-valued



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

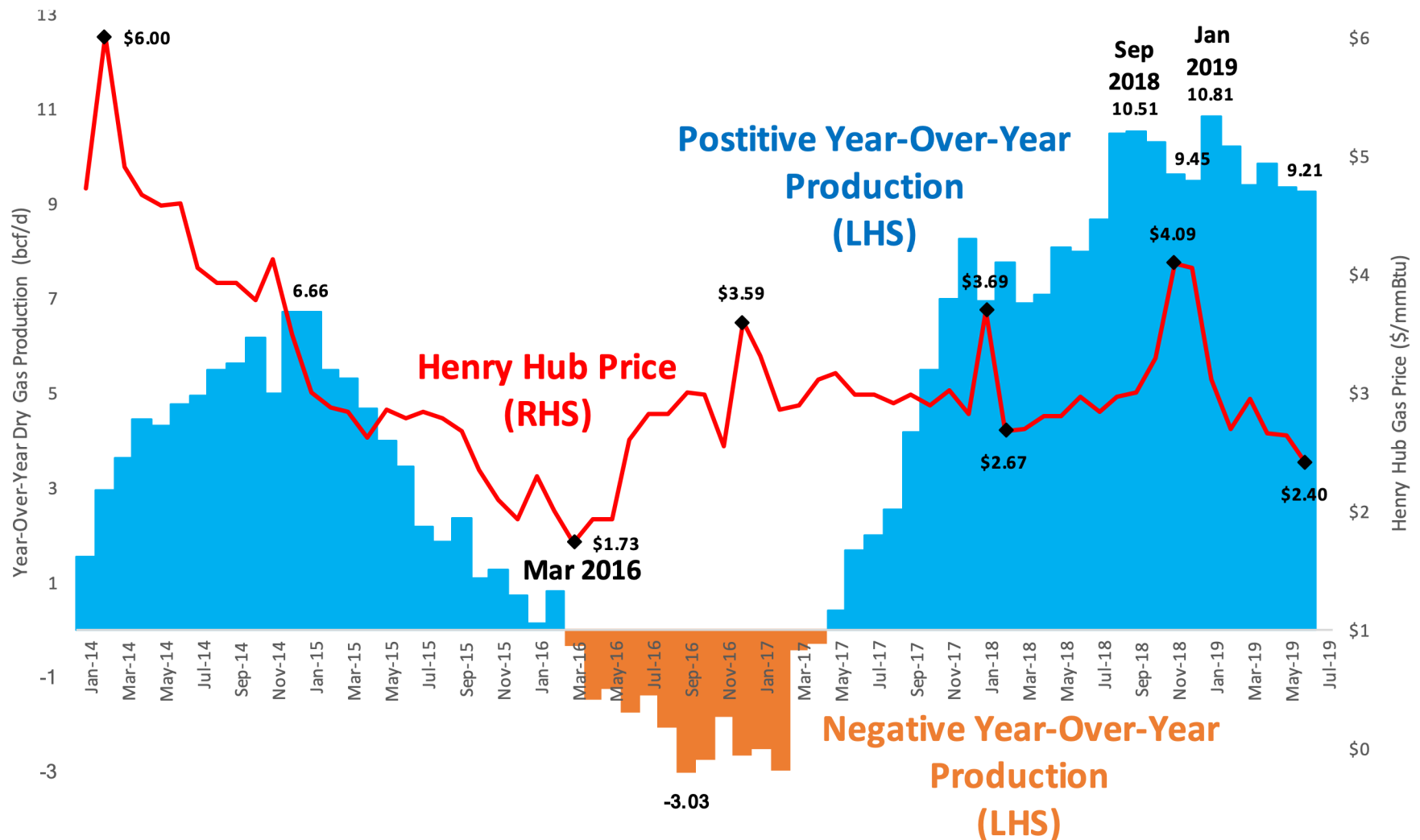
Henry Hub price decreased -\$0.12 to \$2.25 week ending July 19
Inverted (backwardated) near-year term structure is gone suggesting increased seasonal supply security concerns despite short-term confidence



Source: CME & Labyrinth Consulting Services, Inc.

Oil & Gas General/Futures & Future Spreads/FUTURES CONTRACTS MASTER

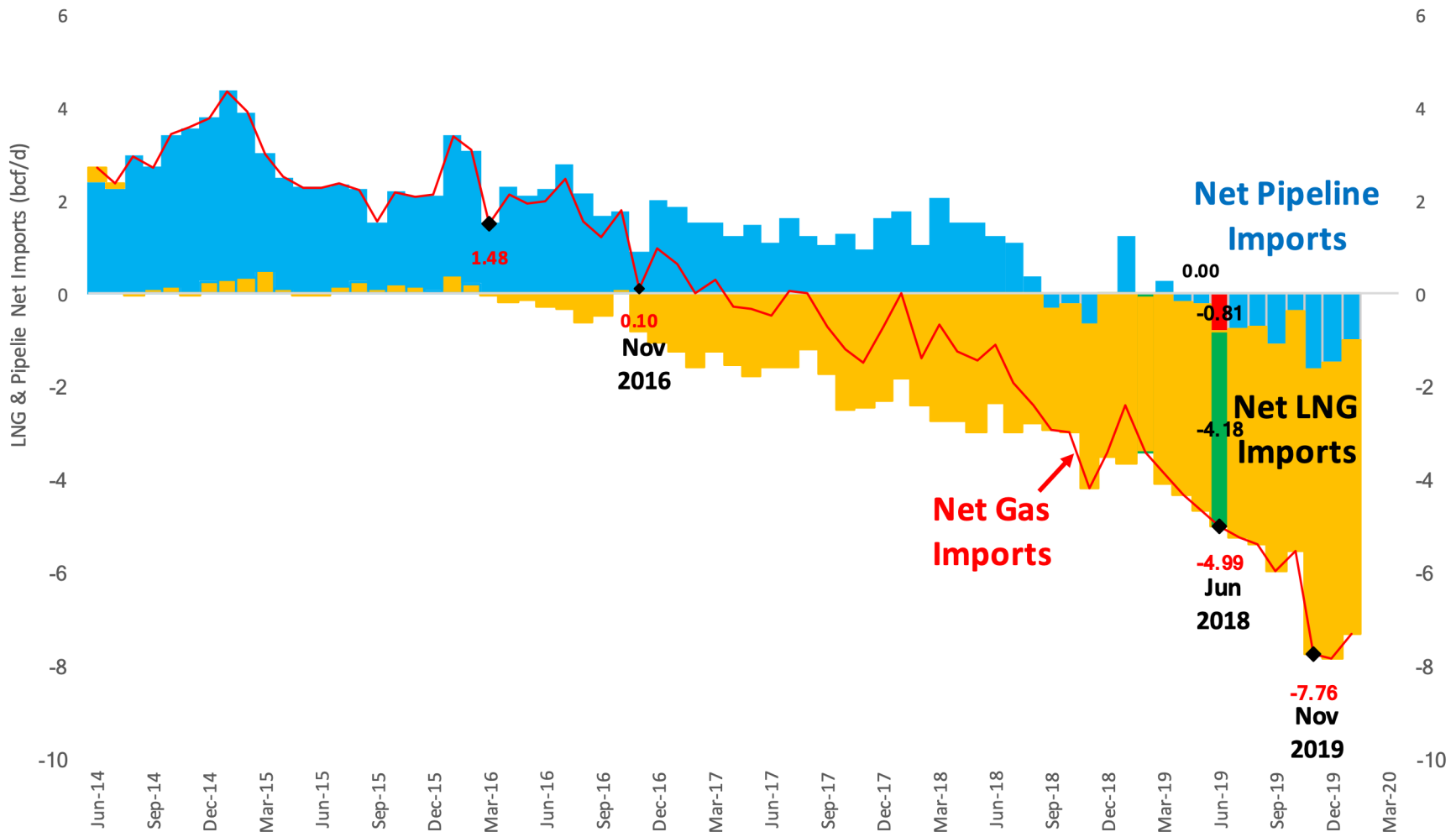
U.S. dry gas production growth is slowing but remained at almost +9 bcf/d in June
Growth peaked at +10.82 bcf/d in January 2019
Henry Hub prices reached a 3-year monthly low of \$2.50 in June



Source: EIA STEO & Labyrinth Consulting Services, Inc.

EIA 2019/STEO/ STEO NATURAL GAS MASTER.xlsx

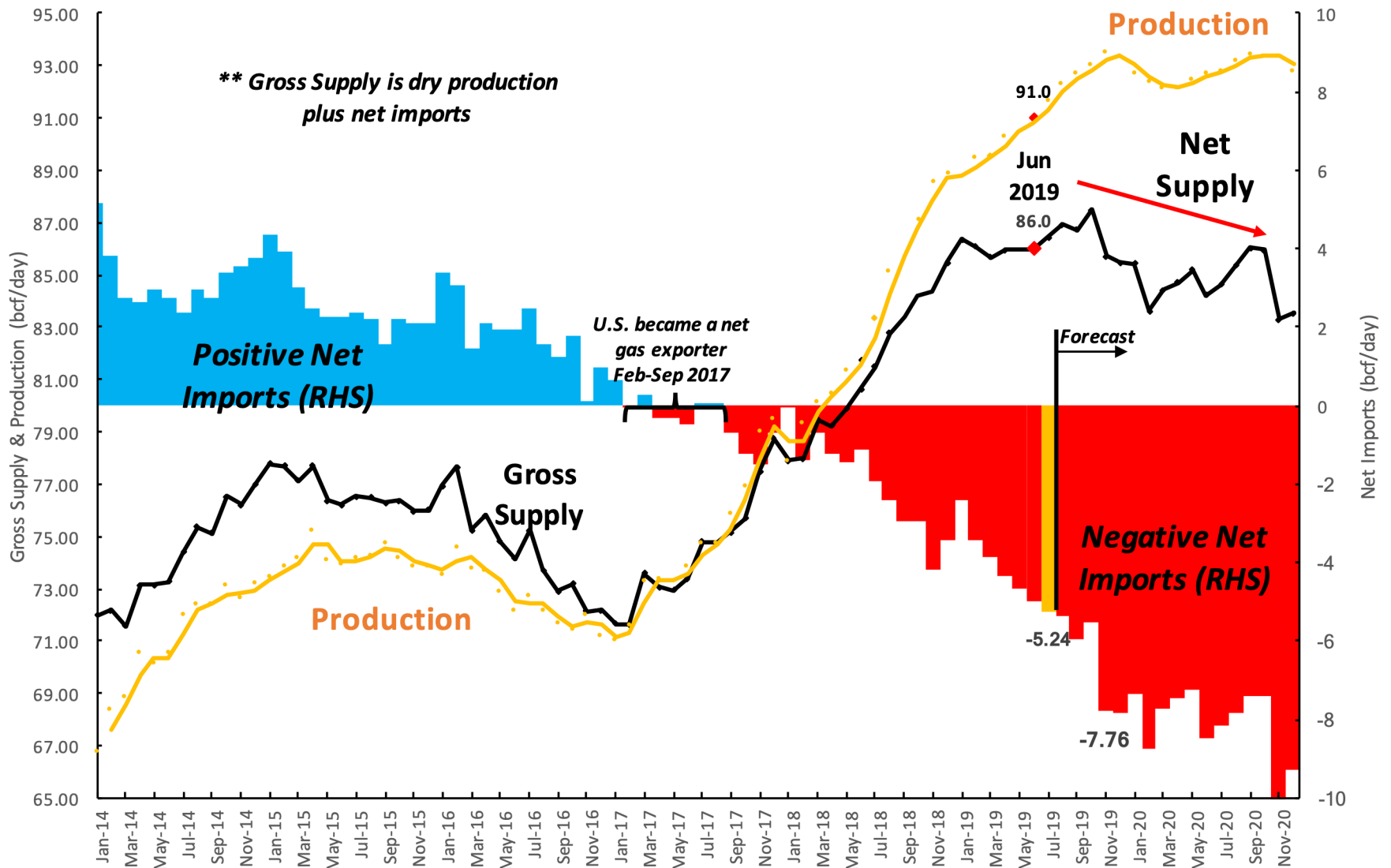
June U.S. net natural gas imports were -4.99 bcf/d
-4.18 bcf/d were LNG & -0.81 bcf/d were net pipeline imports
Net gas imports expected to reach -7.76 bcf/d by November 2019



Source: EIA STEO & Labyrinth Consulting Services, Inc.

Monthly Updates/ DRY GAS PRODUCTION_MASTER.xlsx

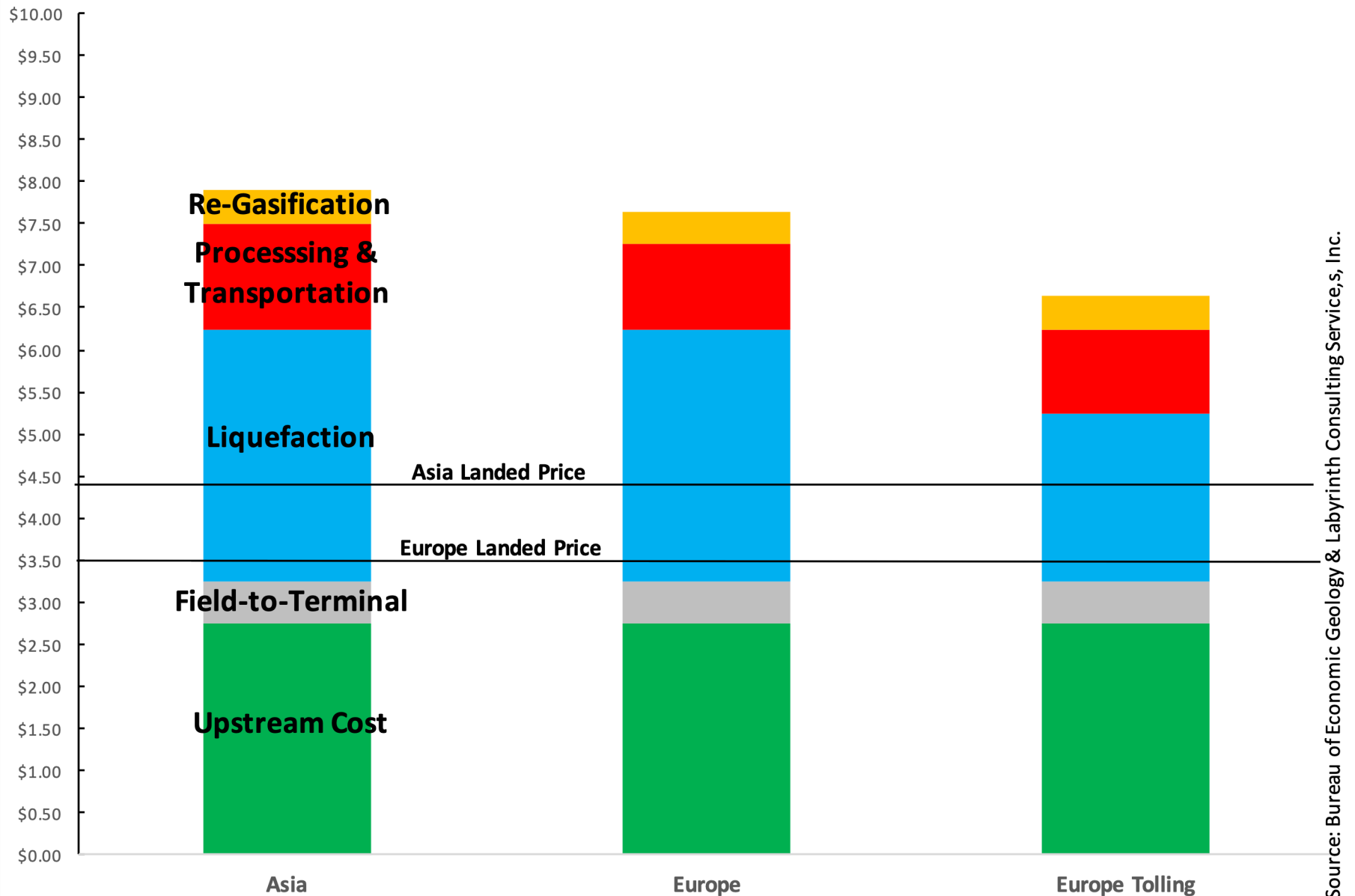
Natural gas net supply expected to decline through 2019 despite continuing production increases because of increased exports



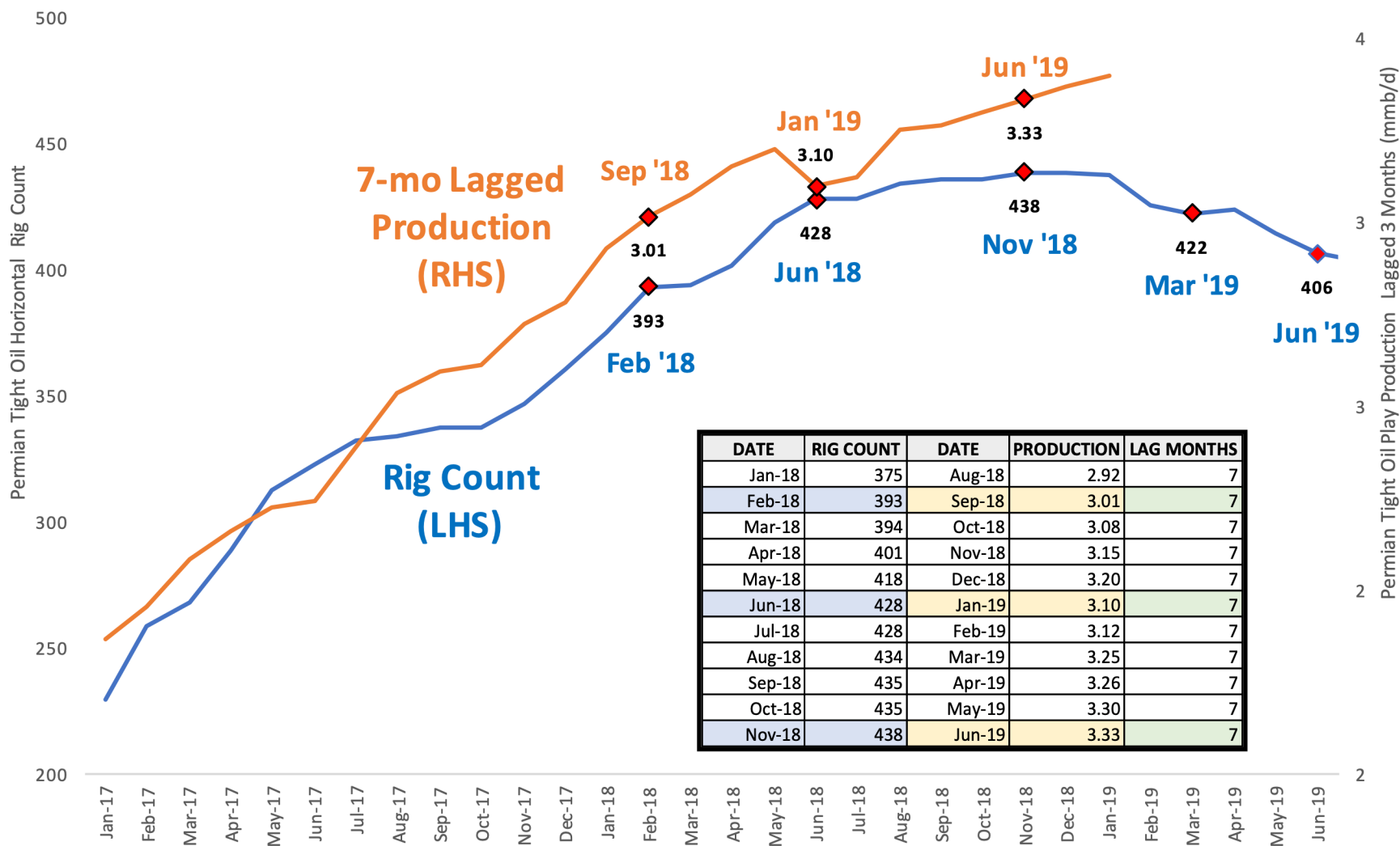
Source: EIA STEO & Labyrinth Consulting Services, Inc.

Monthly Updates/ DRY GAS PRODUCTION_MASTER.xlsx

Optimistic Asia vs. Europe Greenfield & Europe Tolling LNG Cost Comparison



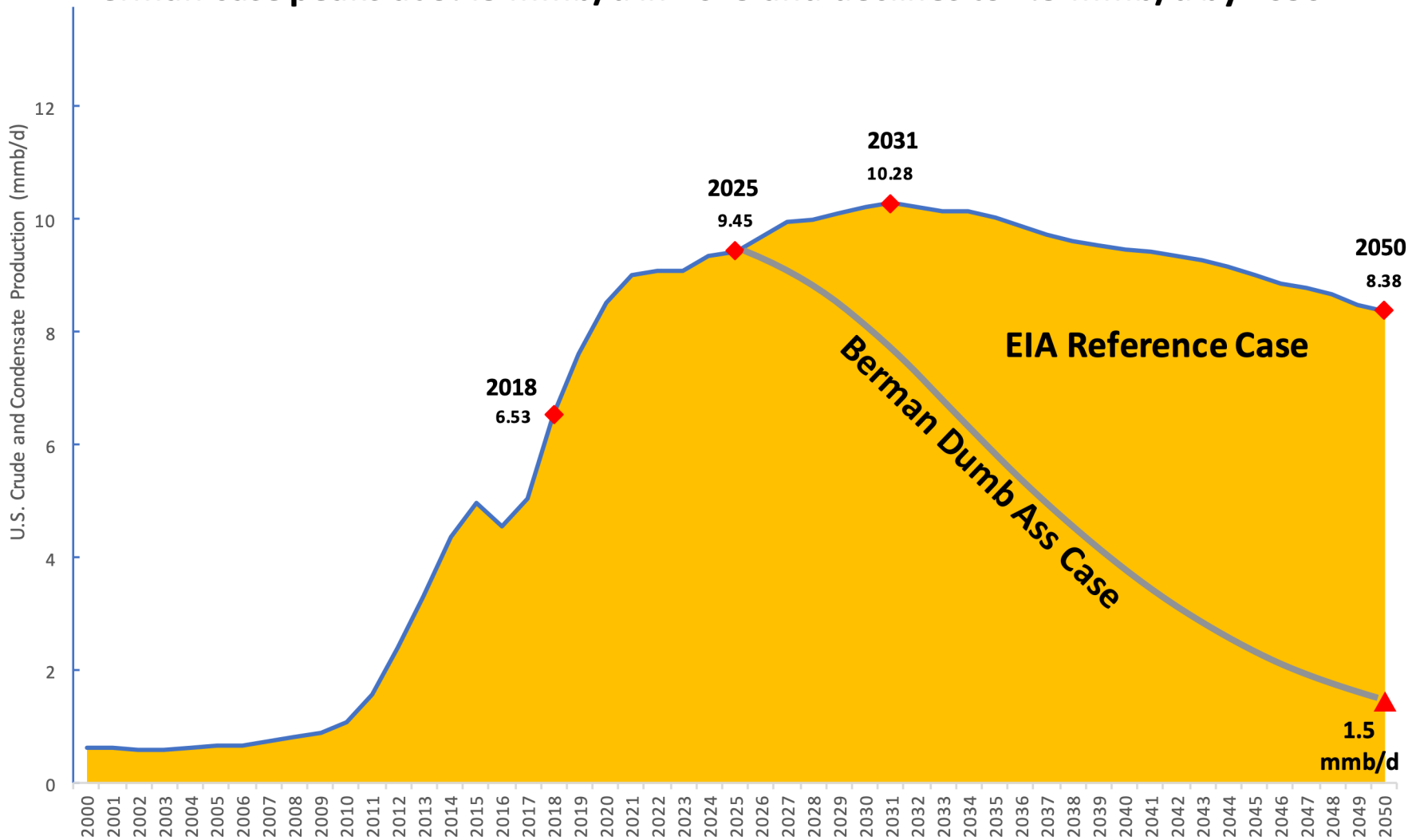
Permian tight oil production should flatten based on correlation of rig count and 7-month lagged production



Source: Baker Hughes, EIA DPR, Drilling Info & Labyrinth Consulting Services, Inc.
Rig Count/Rig Count 2019/MONTHLY SHALE GAS-TIGHT OIL RIG COUNT

**EIA tight oil reference case peaks at 10.28 mmb/d in 2031
and declines to 8.38 mmb/d by 2050**

Berman case peaks at 9.45 mmb/d in 2025 and declines to 1.5 mmb/d by 2050



Source: EIA & Labyrinth Consulting Services, Inc.

EIA 2019/AEO 2019/CRUDE OIL PRODUCTION ANNUAL_FORECAST TO 2030