

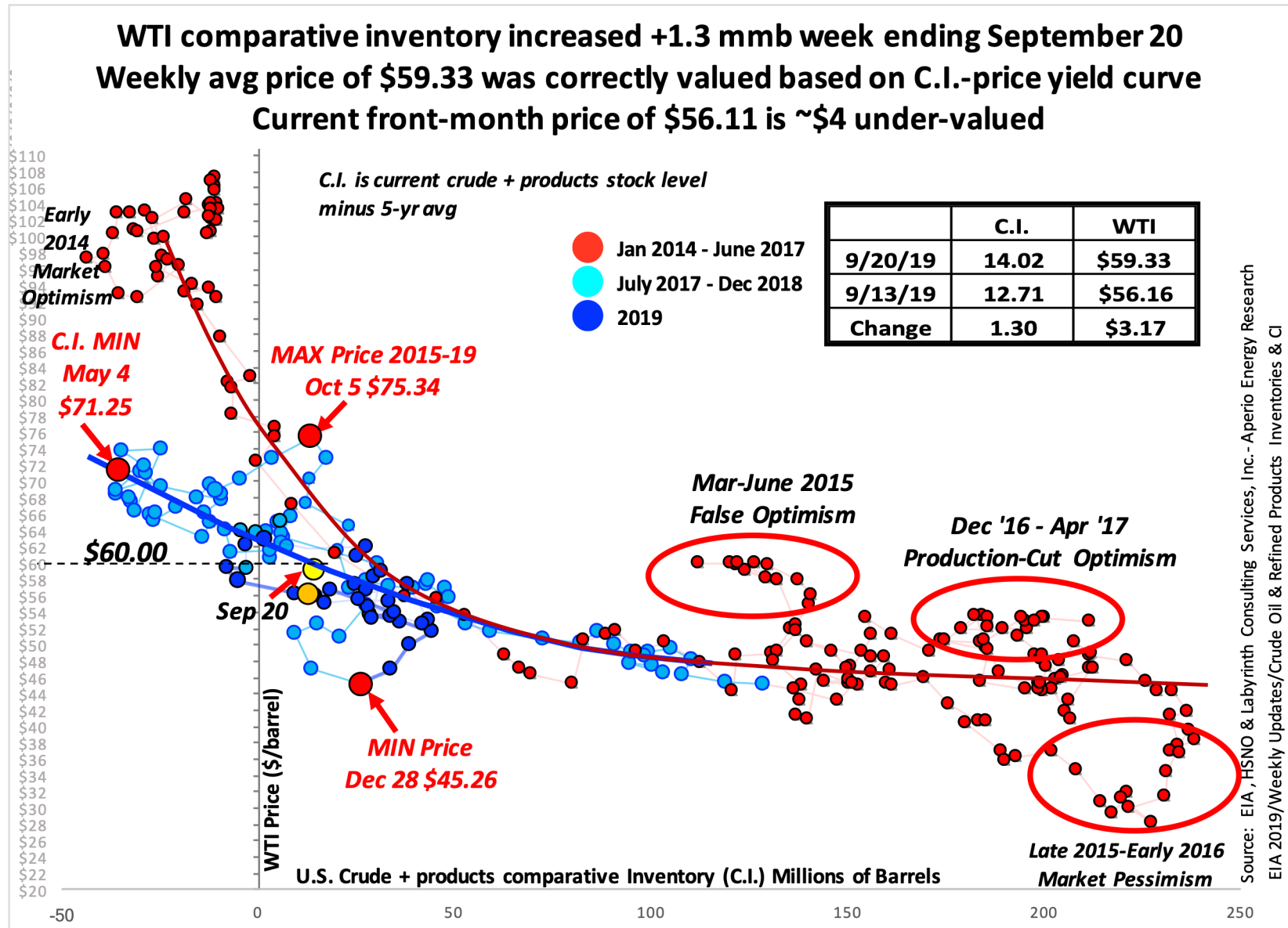
MacroVoices

September 25, 2019

Art Berman
Labyrinth Consulting Services, Inc.

WTI was correctly priced at \$59.33 weekly average for week ending Sept 20

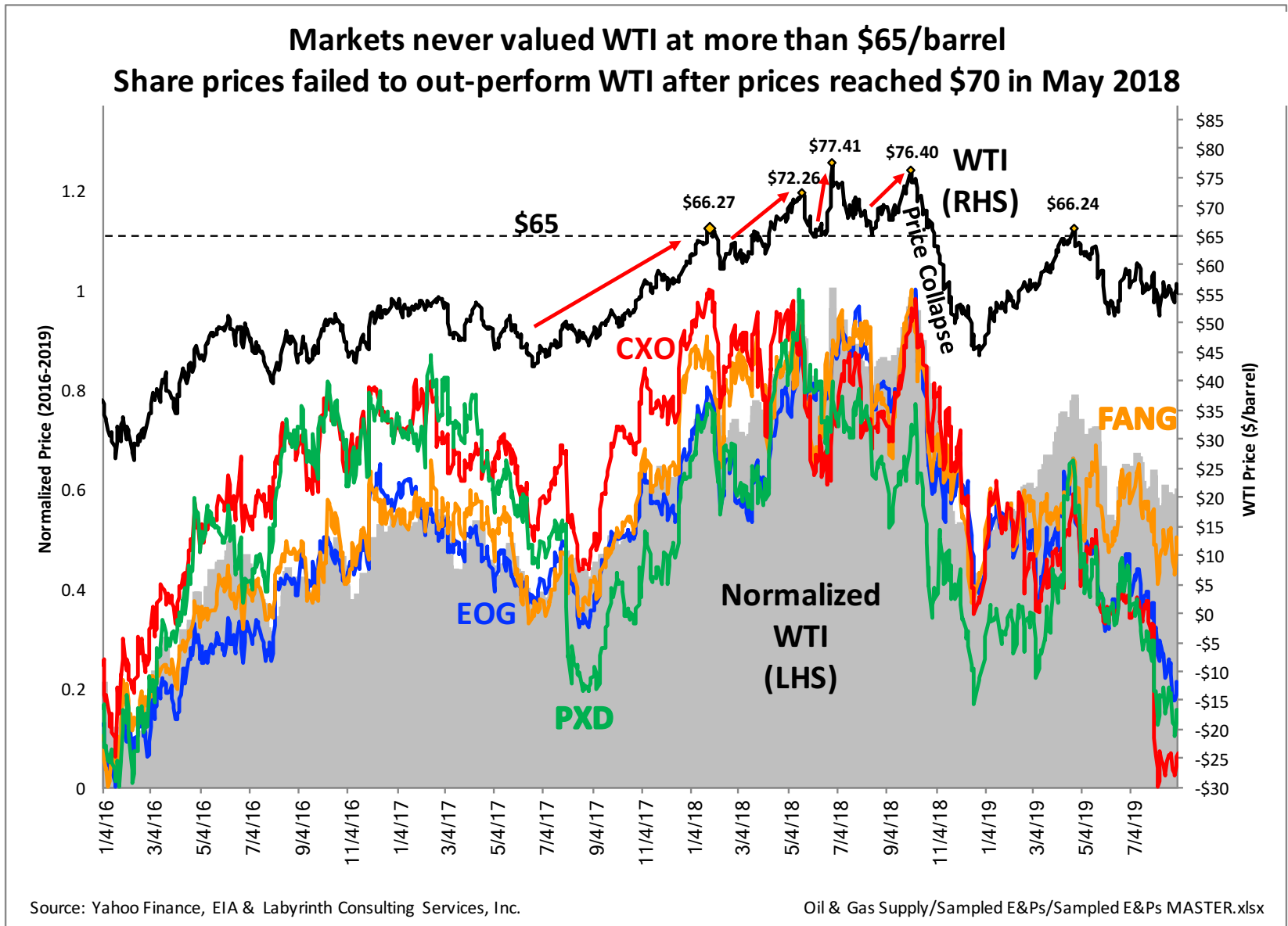
Current front-month price of \$55.91 is ~\$4 under-valued



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

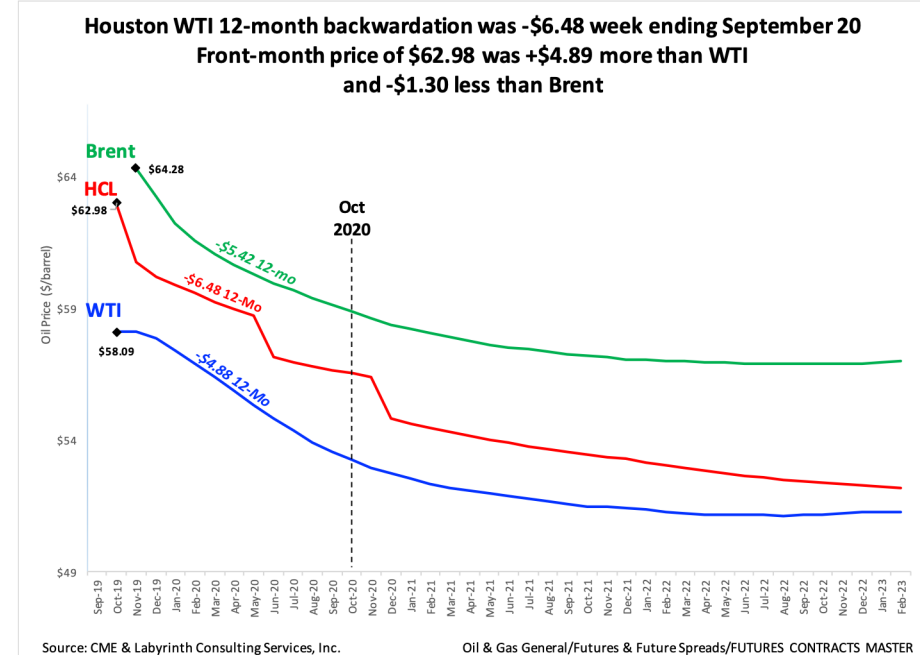
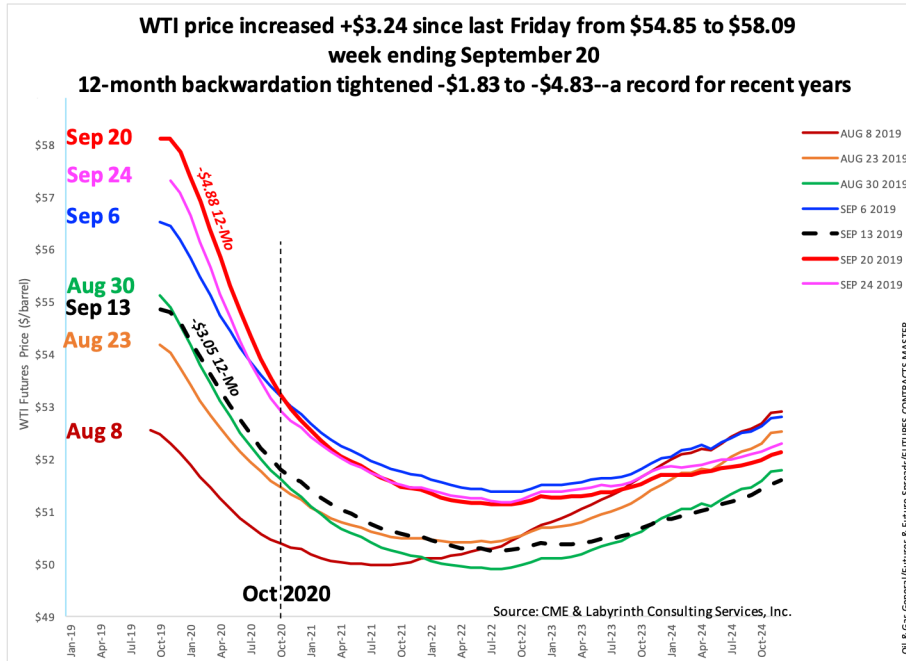
Markets never valued WTI at more than \$65/barrel

Share prices failed to out-perform WTI after prices reached \$70 in May 2018



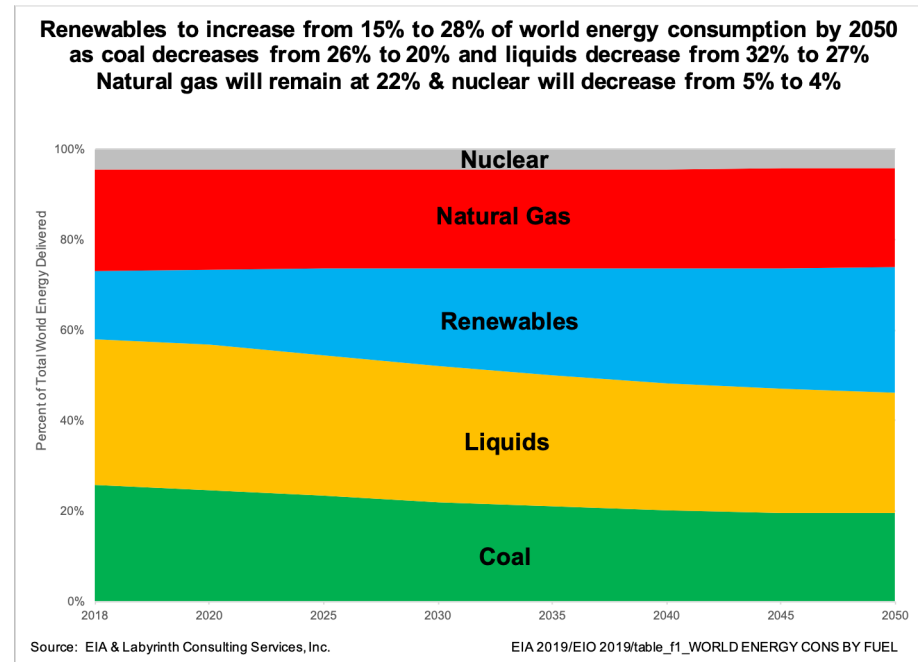
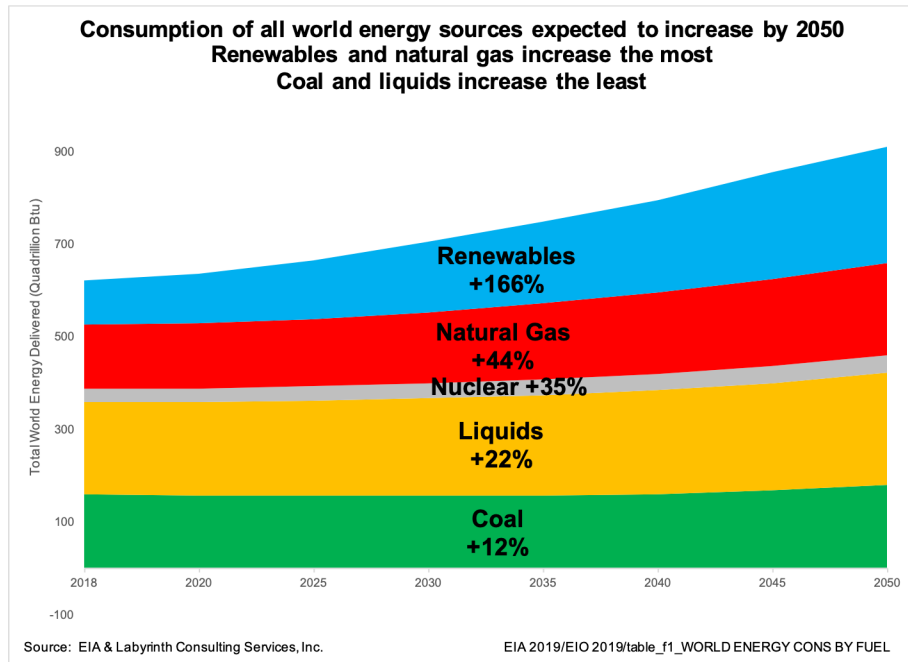
Many analysts focused on lack of price response to Saudi refinery attacks

Forward curves tell a somewhat different story



- All crude futures in “super-backwardation.”
- Brent 12-month spreads are -\$5.42.
- WTI are -\$4.88.
- HCL are -\$6.48.

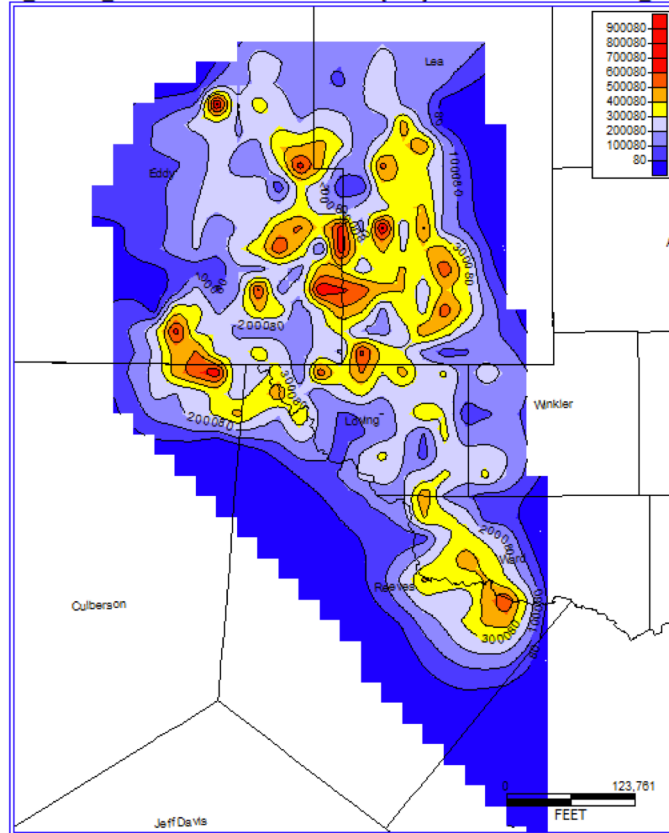
End of the Age of Oil?



- Consumption of all world energy sources expected to increase by 2050.
- Renewables and natural gas increase the most.
- Coal and liquids increase the least.
- Renewables to increase from 15% to 28% of world energy consumption by 2050.
- Coal decreases from 26% to 20% and liquids decrease from 32% to 27%.
- Natural gas will remain at 22% & nuclear will decrease from 5% to 4%.

Concerns about Permian “Tier 1” production

BONE_SPRING_WELL - BONESPRINGEURBOE [AEB] - BONESPRINGEURBOE_LAR



BONE SPRING	EUR OIL	EUR GAS	BOE 14
CONCHO	432,818	2,538,811	614,161
DEVON	252,900	883,664	316,019
EOG	349,415	1,214,138	436,139
ANADARKO	178,606	296,505	199,784
MEWBOURNE	423,646	749,279	477,166
ANADARKO 2015	169,158	718,613	220,488
ANADARKO 2016	161,952	238,123	178,961
ANADARKO 2017	542,807	1,065,665	618,926
ANADARKO 2018	520,891	1,160,817	603,807

- Bone Spring evaluation indicates that weighted-average well for Concho, EOG & Mewbourne are more than commercial limit of 380 kboe.
- Anadarko average well is sub-commercial but 2017 & 2018 well performance has been excellent.
- Bone Spring commercial area is 1.2 mm acres with 3,807 wells = ~300 acre/well spacing—lots of room for “Tier 1” infill.

World liquids demand has increased 1.25 mmb/d last 49 years

2019 estimate is 1.1 - 1.3 mmb/d

World demand growth has been remarkably consistent
at average of 1.25 mmb/d annually since 1970
Only 7 out of 49 years of negative demand growth (1980-83, 1985, 2008-09)

