

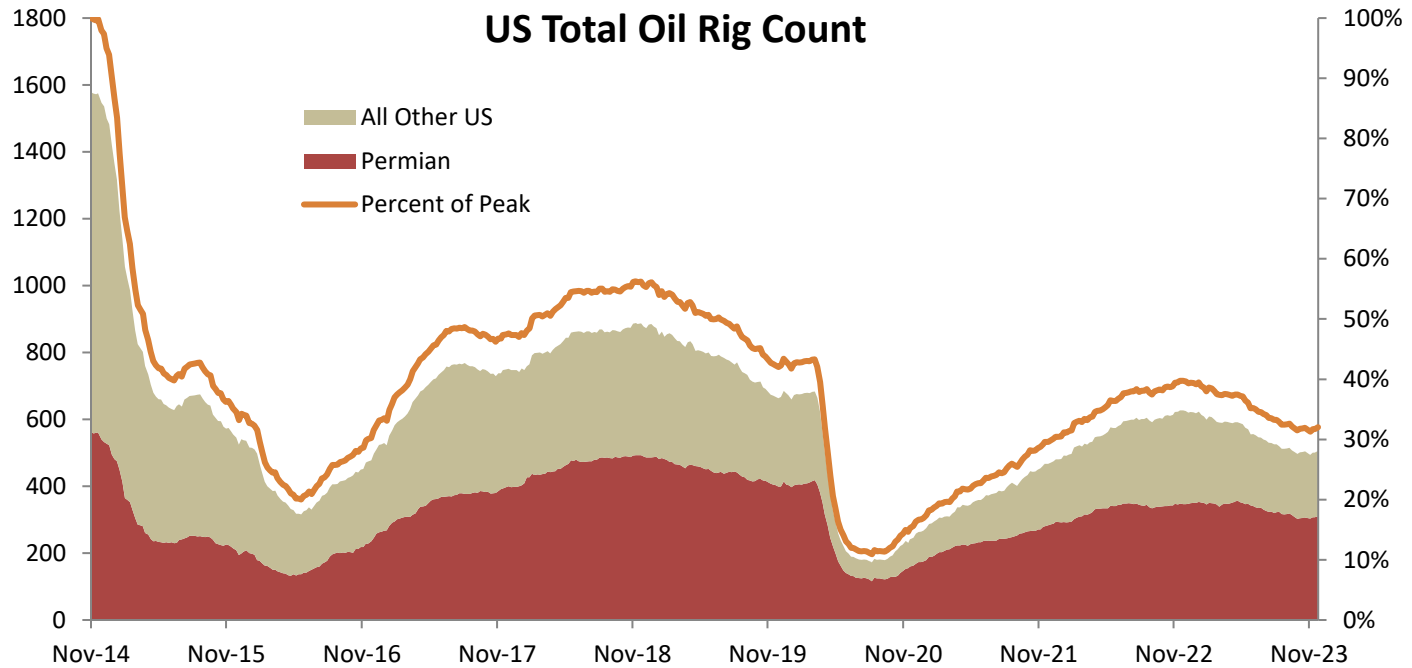
Baker Hughes Oil Rig and Primary Vision Frac Spread Counts

1 December 2023

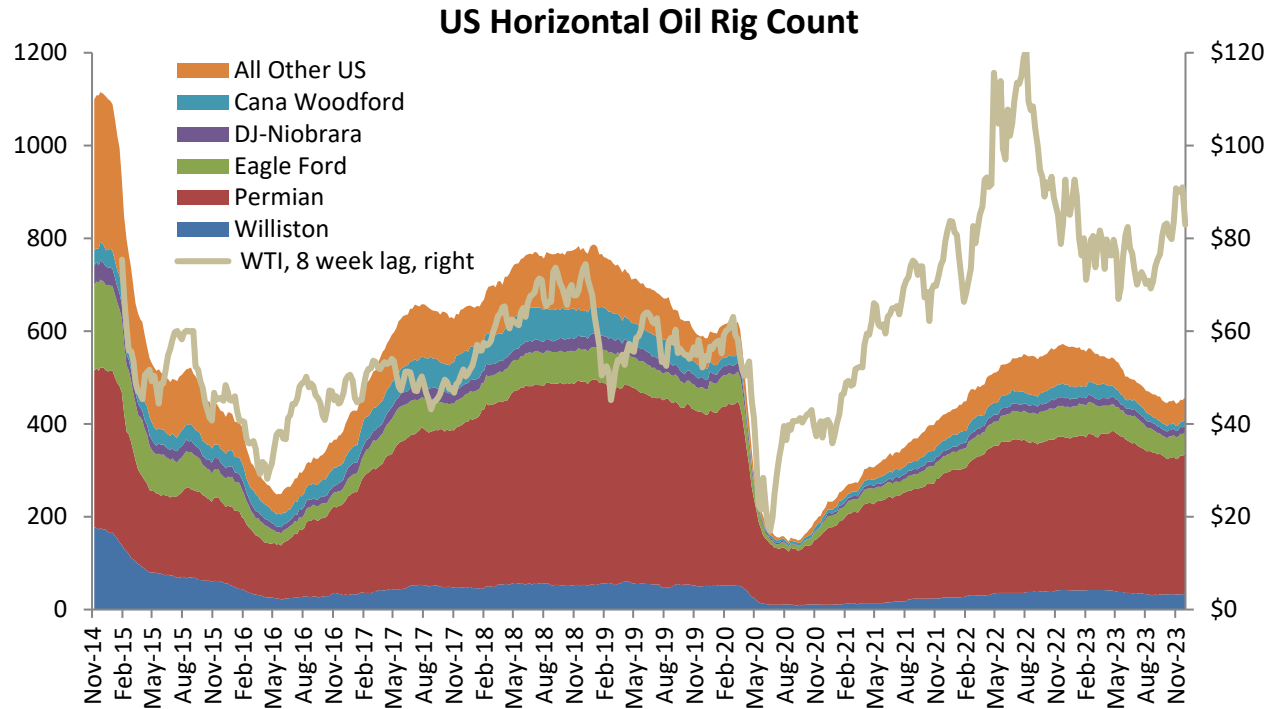
PRINCETON
ENERGY
ADVISORS



- Horizontal rig counts rose by 6 this past week, closing the best four week stretch in a year. WTI at \$90 appears sufficient to bring incremental rigs into operation. Alas, oil prices have been dropping for the last several weeks, and while we may still see rig gains next week, counts should start to fall as we head towards year-end. Indeed, they should fall at a fairly rapid pace into January, assuming our breakeven analysis holds up.
- Rig counts
 - Total oil rig counts: +5 to 505
 - Horizontal oil rig counts: +6 to 457
 - The Permian horizontal oil rig count: +3
- The US horizontal oil rig count is rising at a pace of +3.50 / week, the best in a year
- Frac spreads fell, -5 to 276
 - DUC inventory, as measured in days of turnover, fell to a new low of 12.4 weeks
 - More rebalancing of the rig-to-spread ratio is required; this week is suggestive of trends to come, with rigs rising and spreads falling
- The Brent Spread (Brent – WTI) remains near \$5 / barrel, suggesting US production growth remains solid

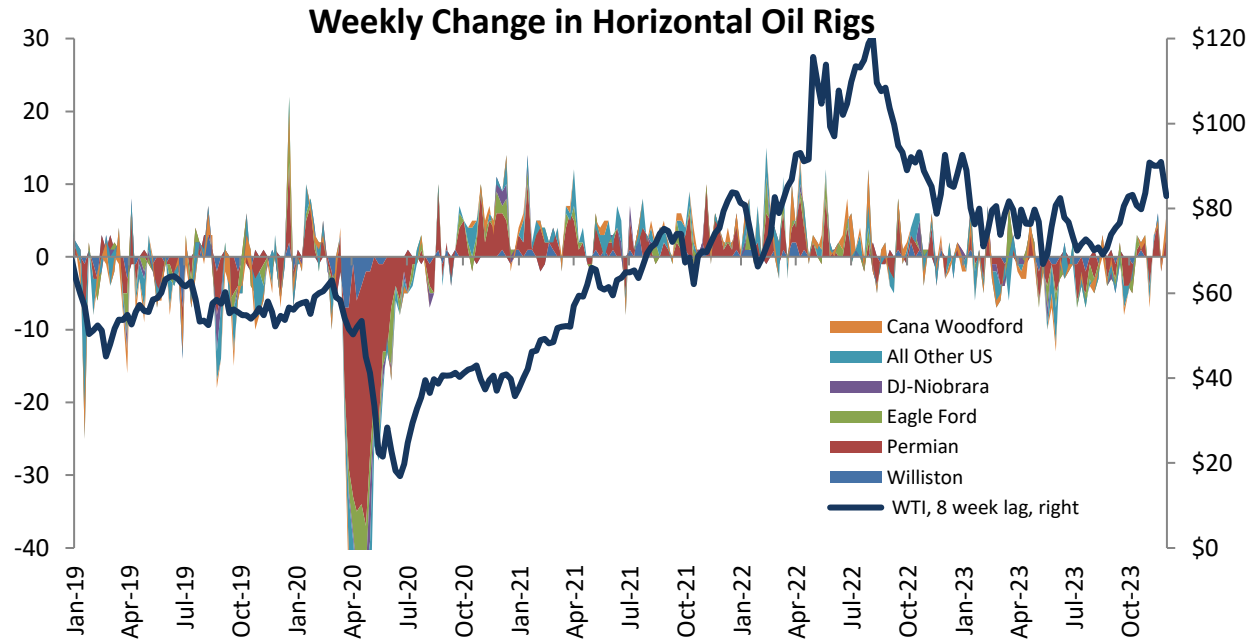


- Total oil rigs: +5 to 505
- Permian: +3
- All Other US: +2



- Horizontal oil rigs: +6 to 457
- Permian: +3
- All Other US: +3

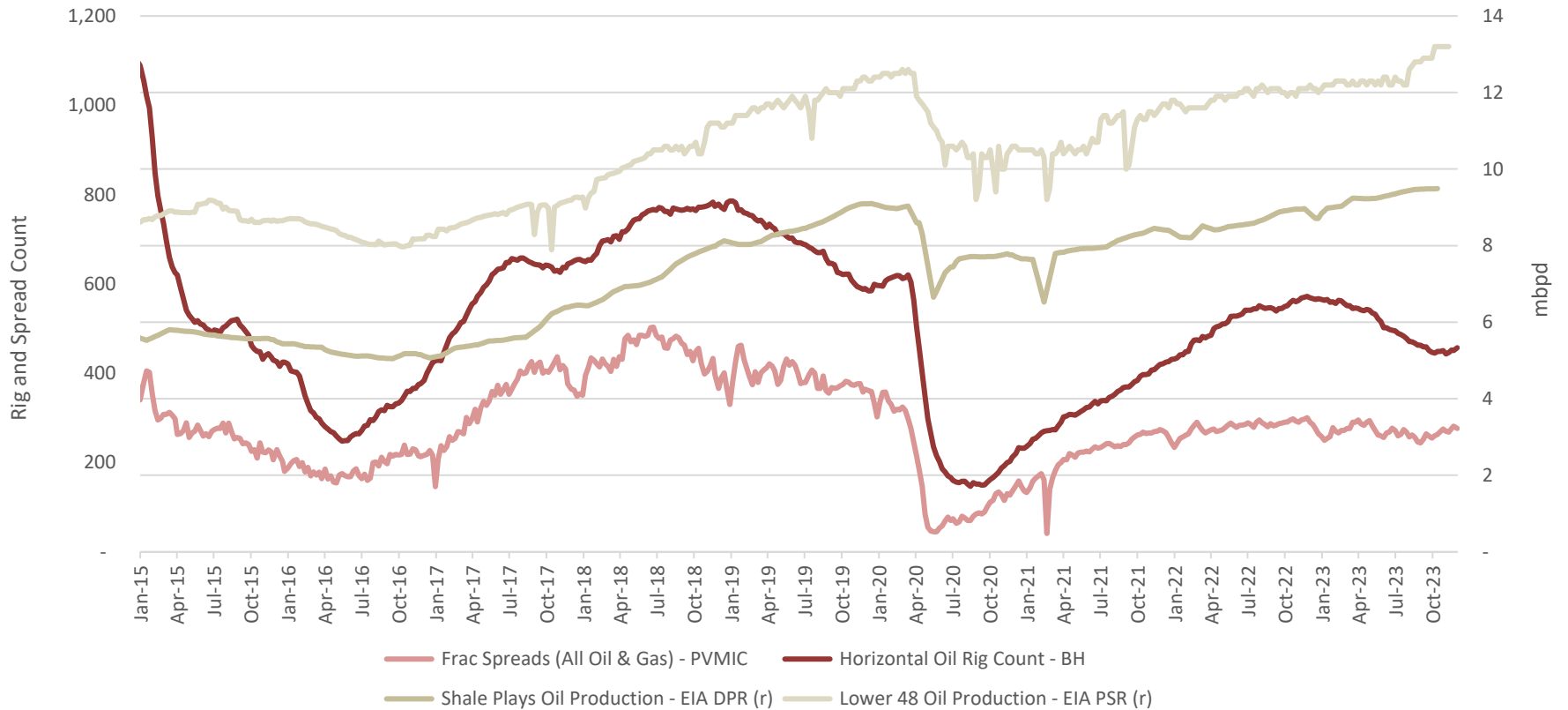
Weekly Change in Horizontal Oil Rig Count by Basin



By Basin	Change	Count
- Williston	0	33
- Permian	+3	301
- Eagle Ford	0	47
- DJ Niobrara	0	14
- Cana Wdford	+3	15
- Other US	0	47
- Total	+6	457

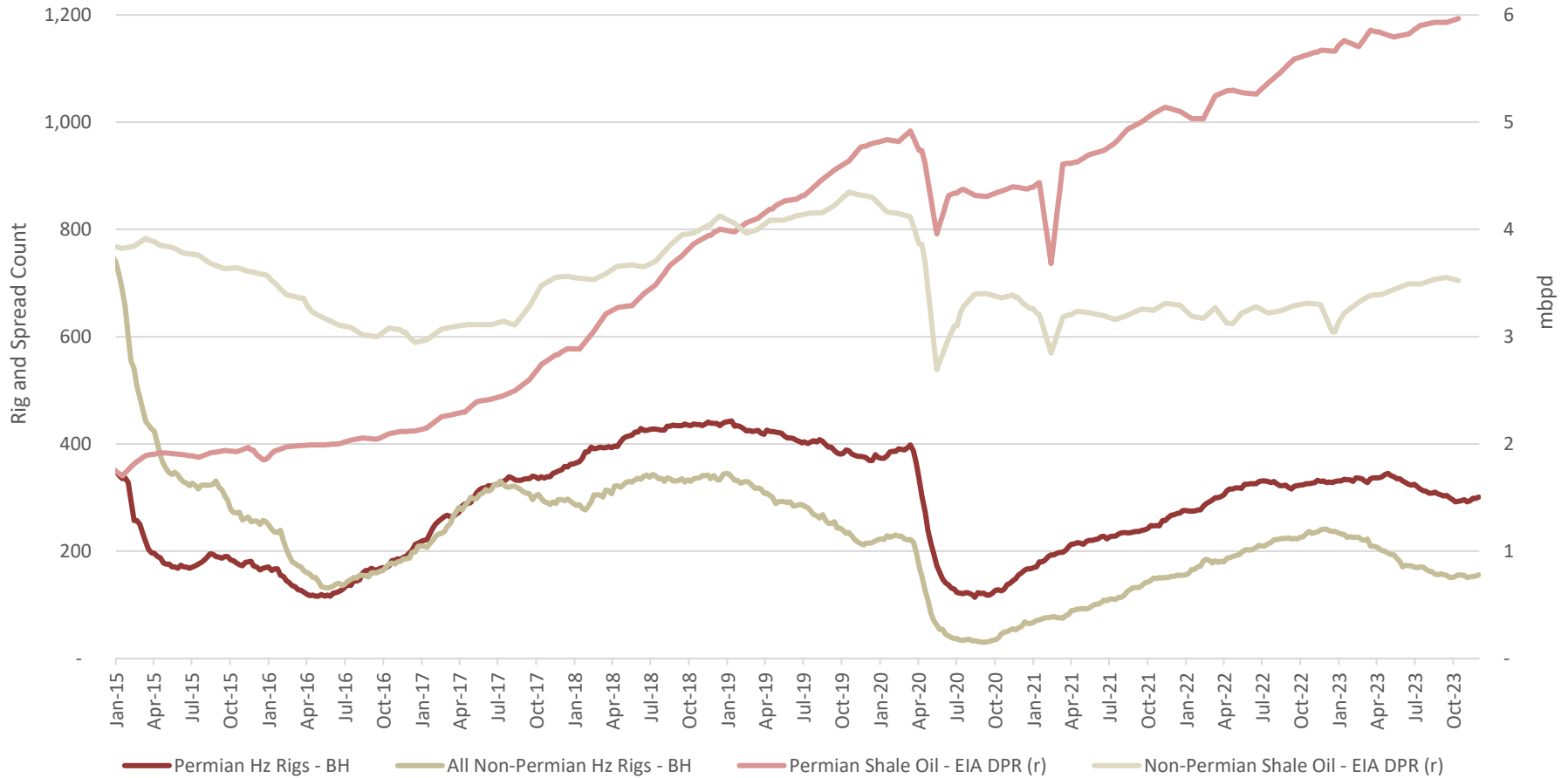
Rigs, Spreads and US Oil Production

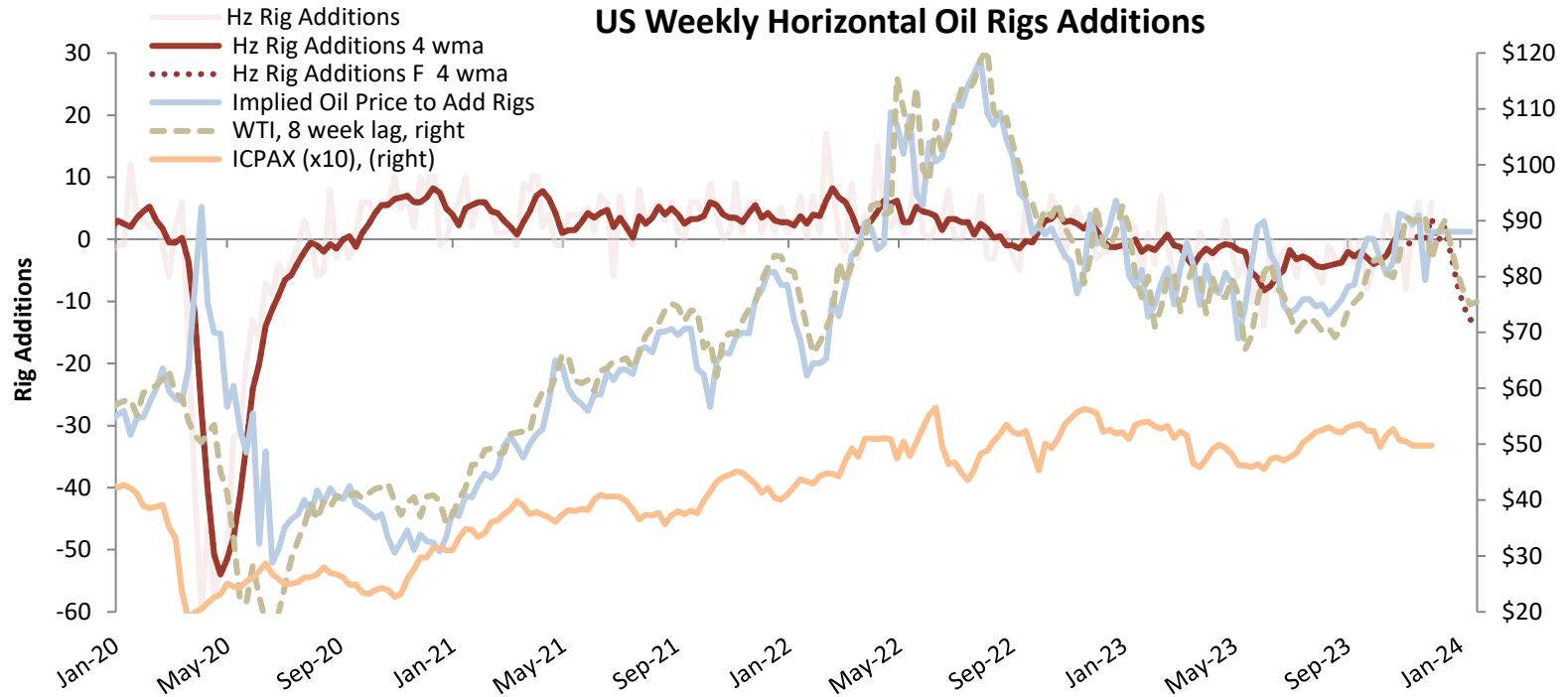
Rigs, Spreads and US Crude and Condensate Production



Permian & Non-Permian Shale Oil Production and Hz Oil Rigs

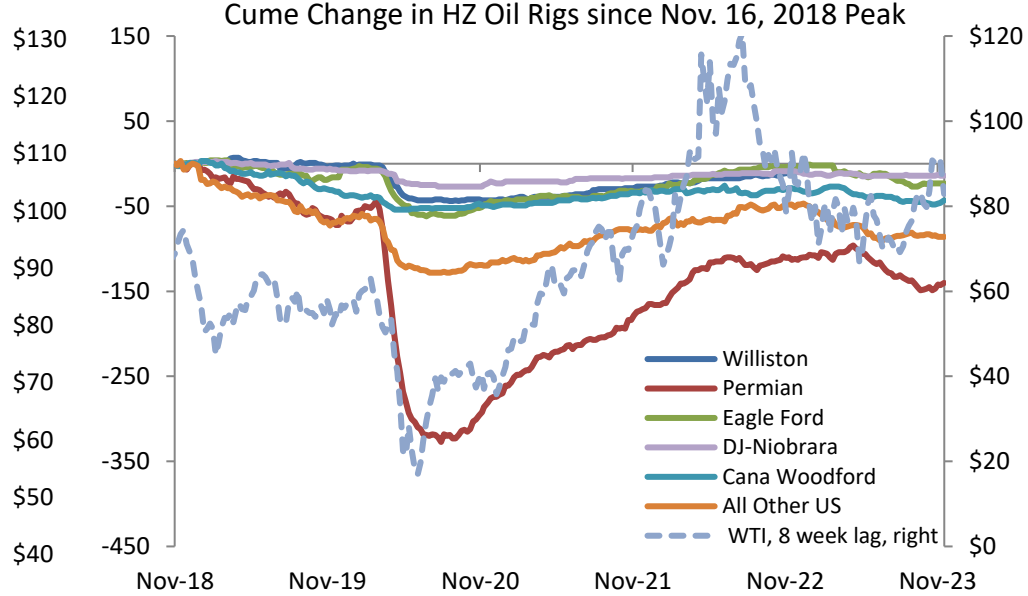
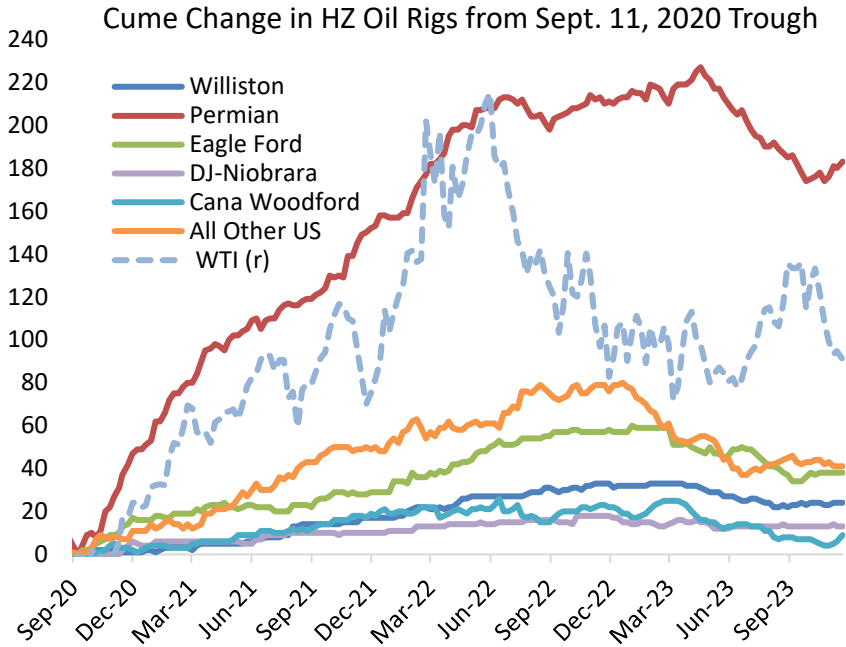
Permian and Non-Permian Shale Oil Production and Horizontal Rigs





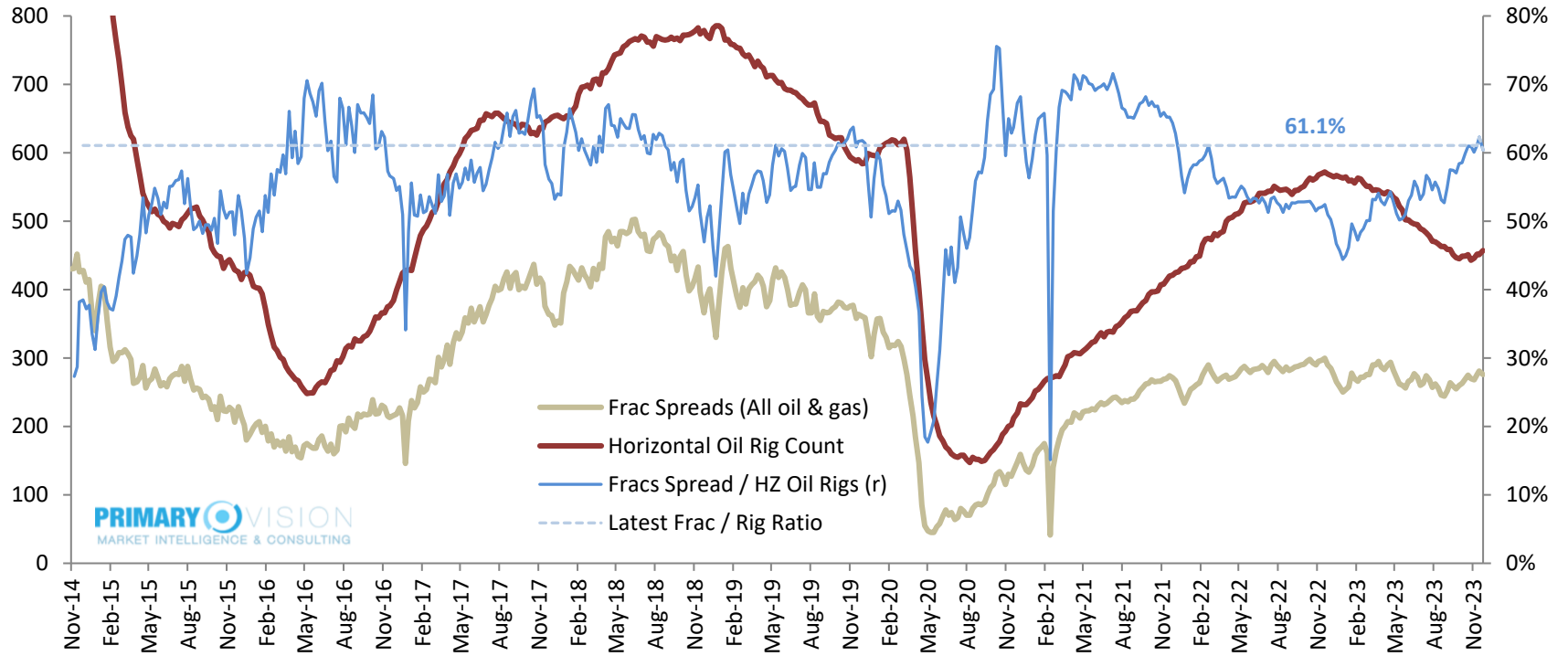
- The 4 wma pace of horizontal rig additions rose to +3.5 / week, the highest in a year
- With an eight-week lag, the breakeven to add horizontal oil rigs stands at a horrific WTI \$80 / barrel with \$74 on the screen at writing

US Horizontal Oil Rig Change from Peak and Trough

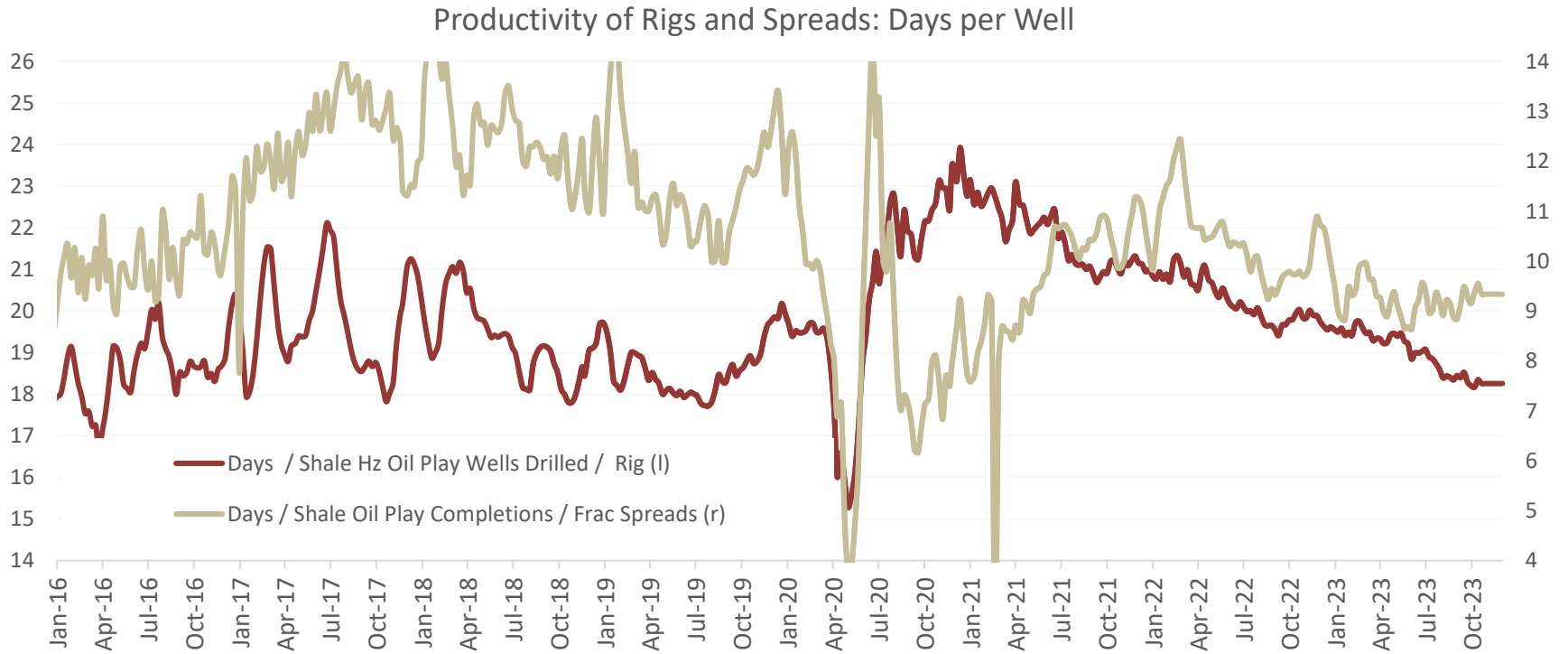


	Latest HZ Rig Count	Trough August 14, 2020				Prior Peak Nov. 16, 2018			
		Trough Count	Rig Change	Percent Change	Pct of Rig Gained	Peak Count	Rig Change	Percent Change	Pct of Rigs Lost
- Williston	33	11	22	200%	7%	53	(20)	-38%	6%
- Permian	301	114	187	164%	60%	441	(140)	-32%	43%
- Eagle Ford	47	10	37	370%	12%	70	(23)	-33%	7%
- DJ Niobrara	14	1	13	1300%	4%	28	(14)	-50%	4%
- Cana Wdford	15	6	9	150%	3%	58	(43)	-74%	13%
- Other US	47	5	42	840%	14%	133	(86)	-65%	26%
- Total	457	147	310	211%	100%	783	(326)	-42%	100%
		<i>05/22/20</i>							
- Frac Spreads	276	45	231	513%		433	(157)	-36%	
<i>Spread Ratio</i>	60.4%	30.6%				55.3%			

Frac Spreads and Horizontal Oil Rigs



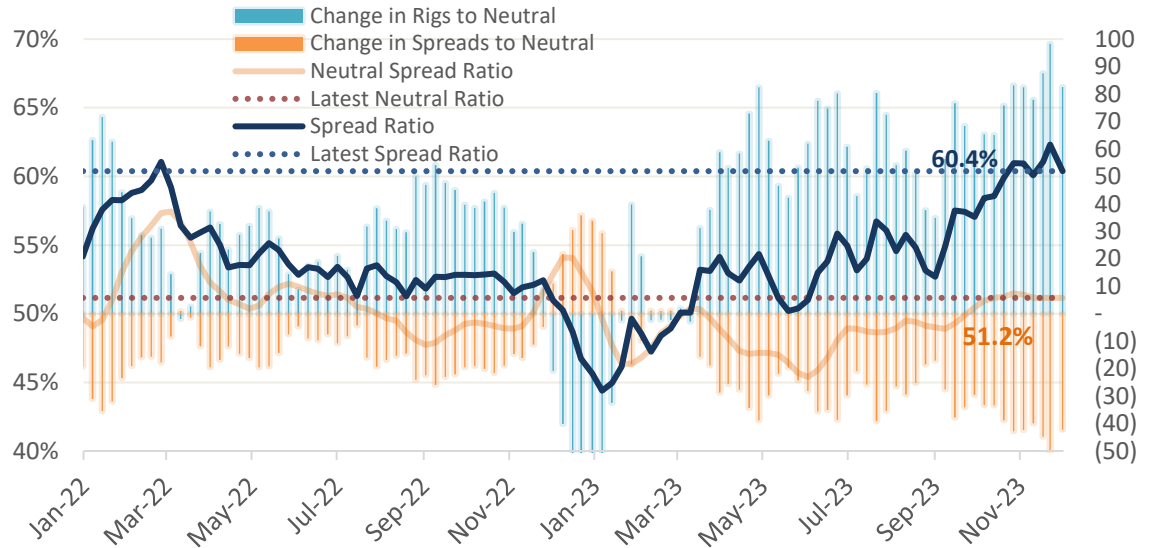
- Frac spreads were -5 to 276



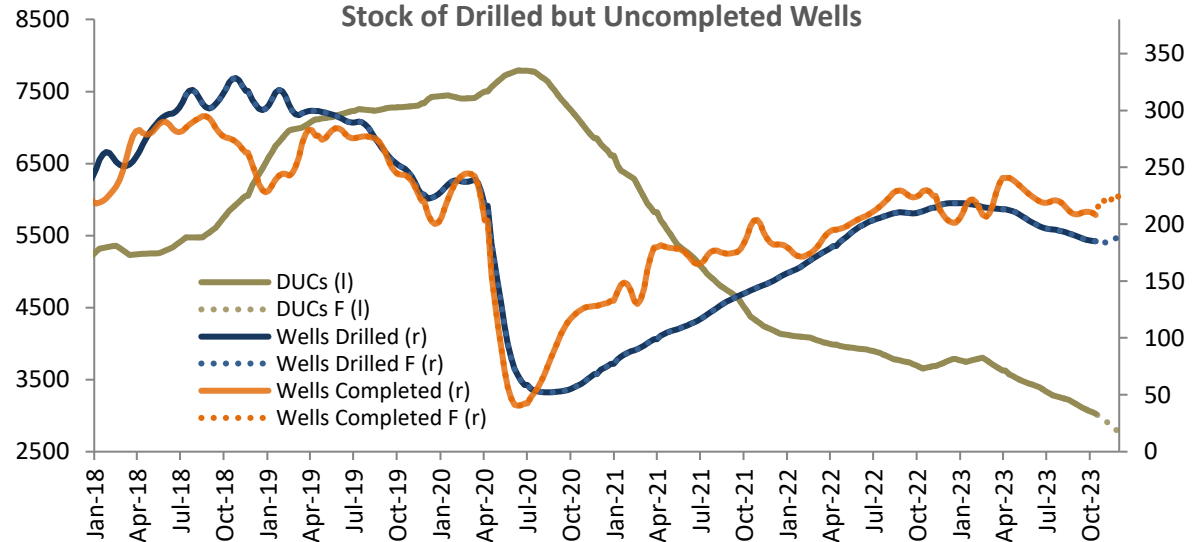
Rig and Spread Productivity

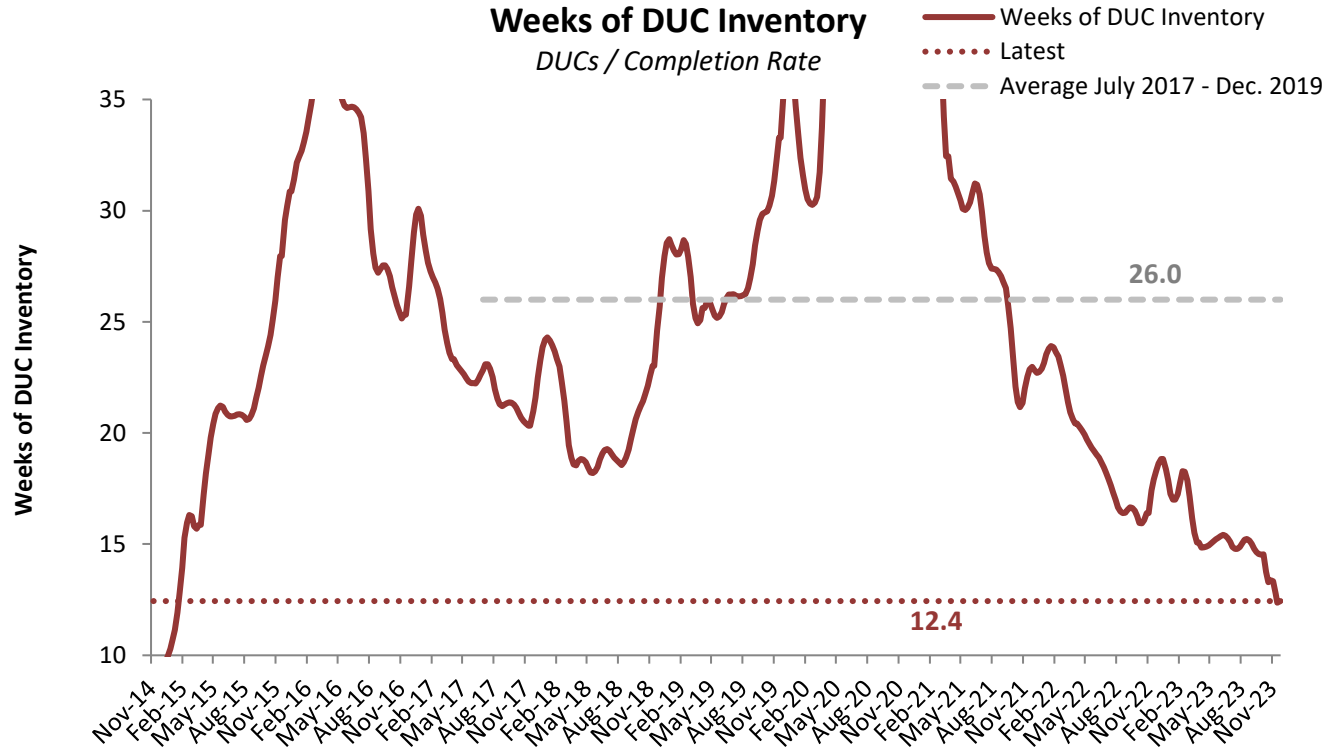
- At estimated productivity levels and current rig and spread counts, the DUC inventory is declining
- To hold DUCs constant, rigs would have to fall by 83 or spreads would have to rise by 42

The Spread Ratio and Rigs and Spreads for DUC Neutrality



Horizontal Oil Wells Drilled and Completed per Week
Stock of Drilled but Uncompleted Wells

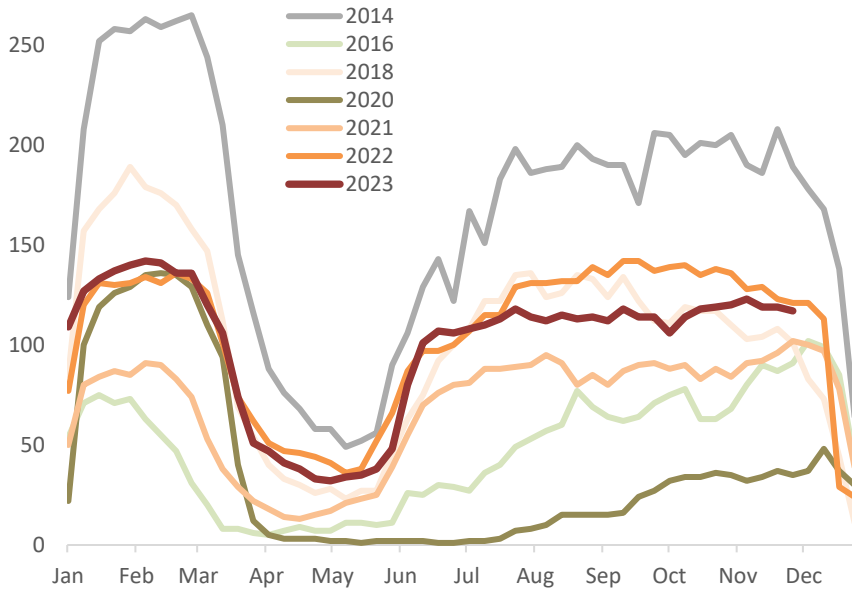




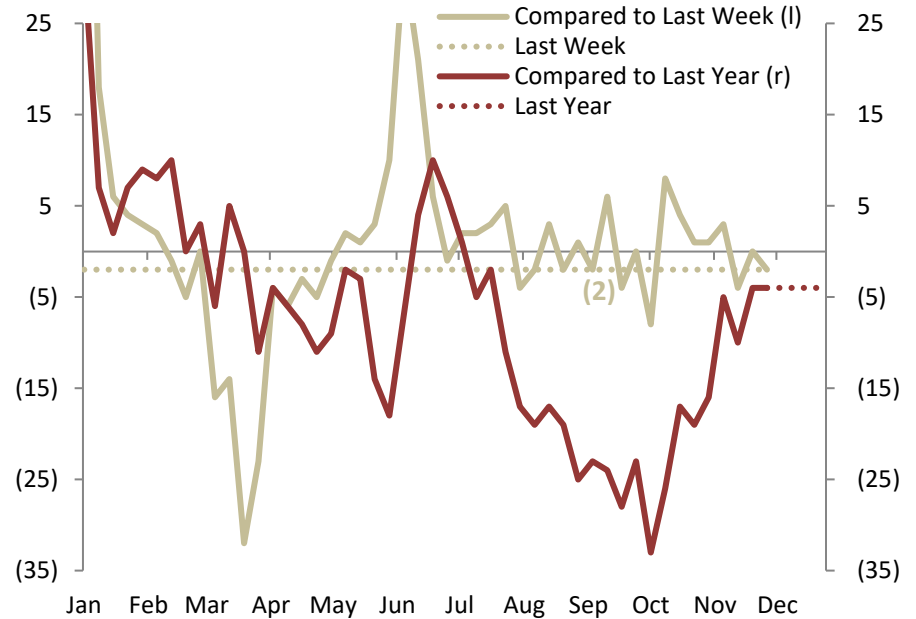
- DUC inventories fell to 12.8 weeks

Canada Horizontal Oil Rig Count

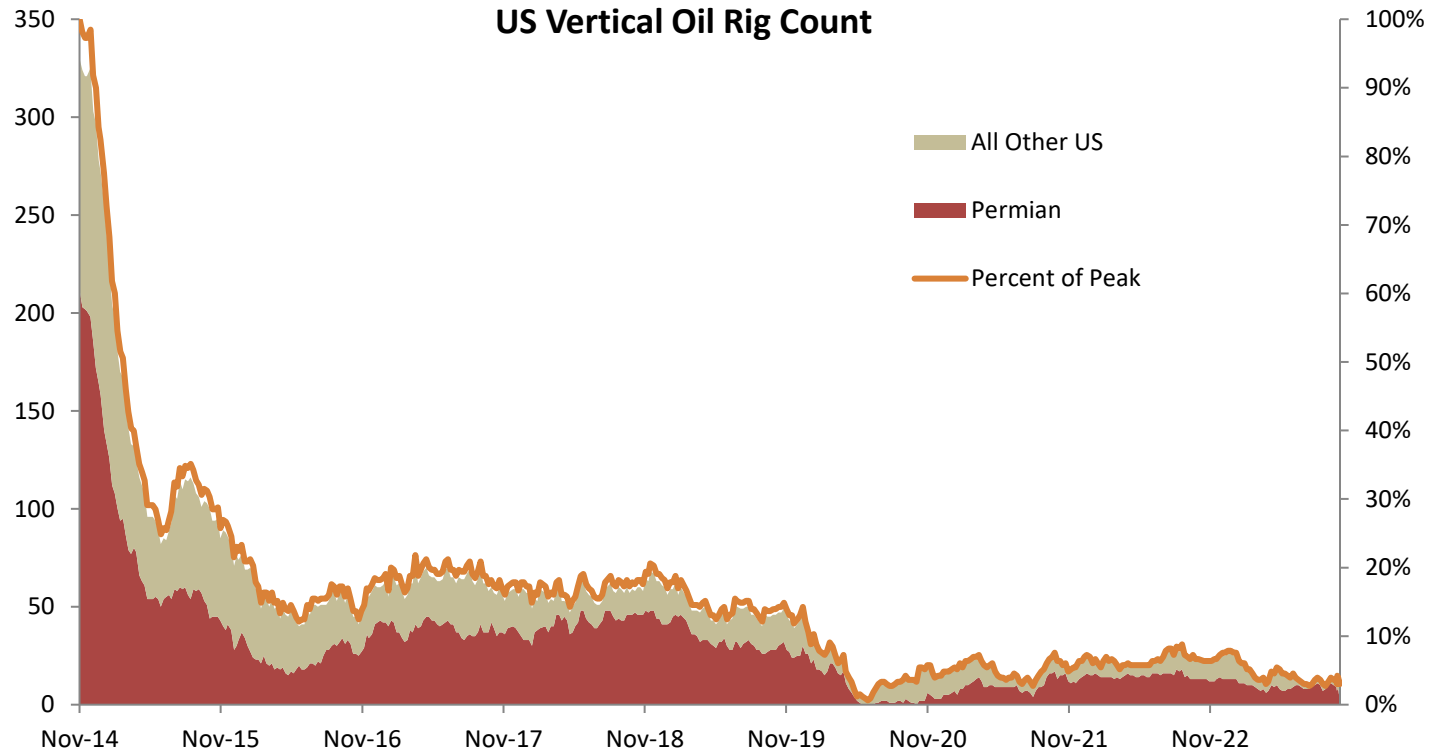
Canada Horizontal Oil Rigs



Compared to Previous Week, Previous Year

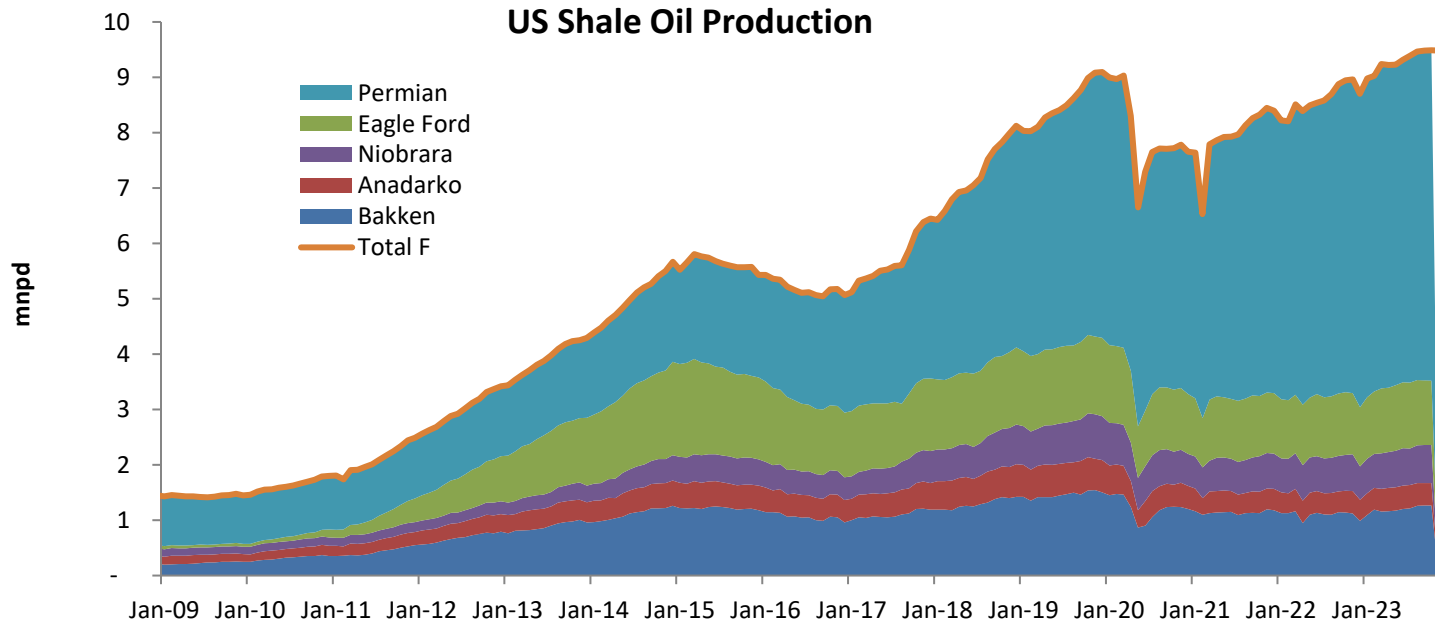


- Canada horizontal oil rigs were -2 to 117 last week
- Rigs counts were -4 compared to the same week last year



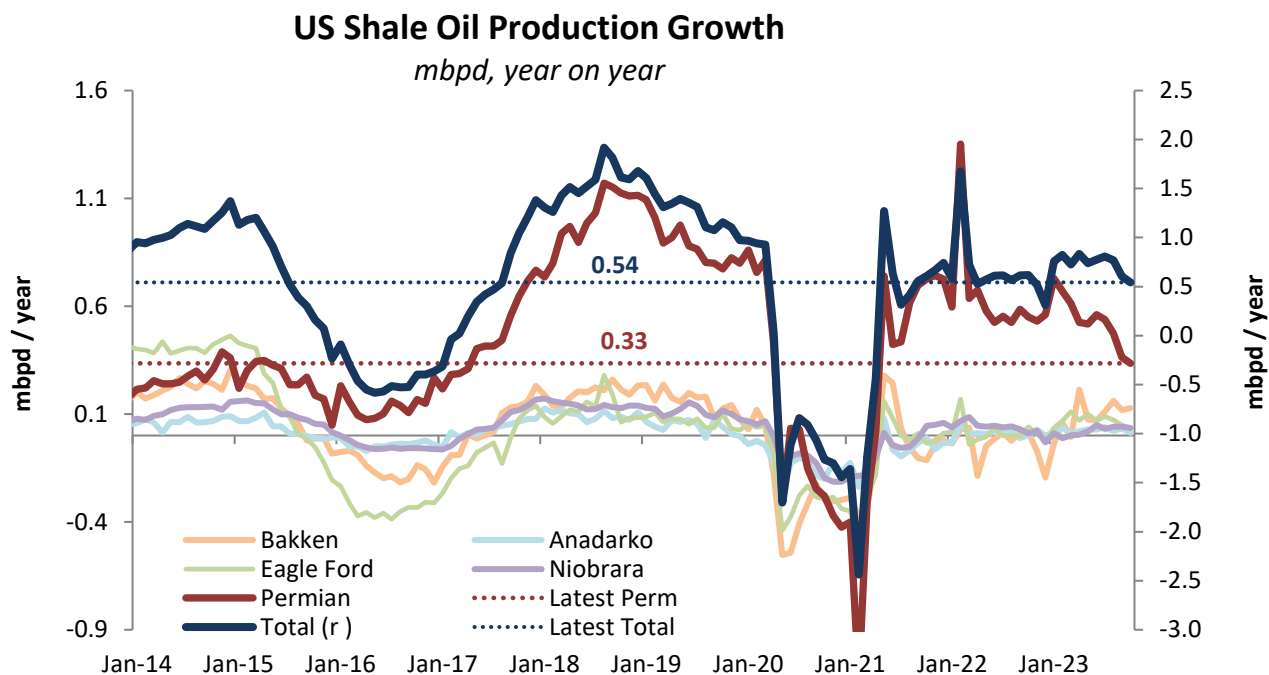
- Vertical oil rigs: -1 to 10
- Permian: +0
- All Other US: -1

US Shale Production Growth (Nov. DPR)



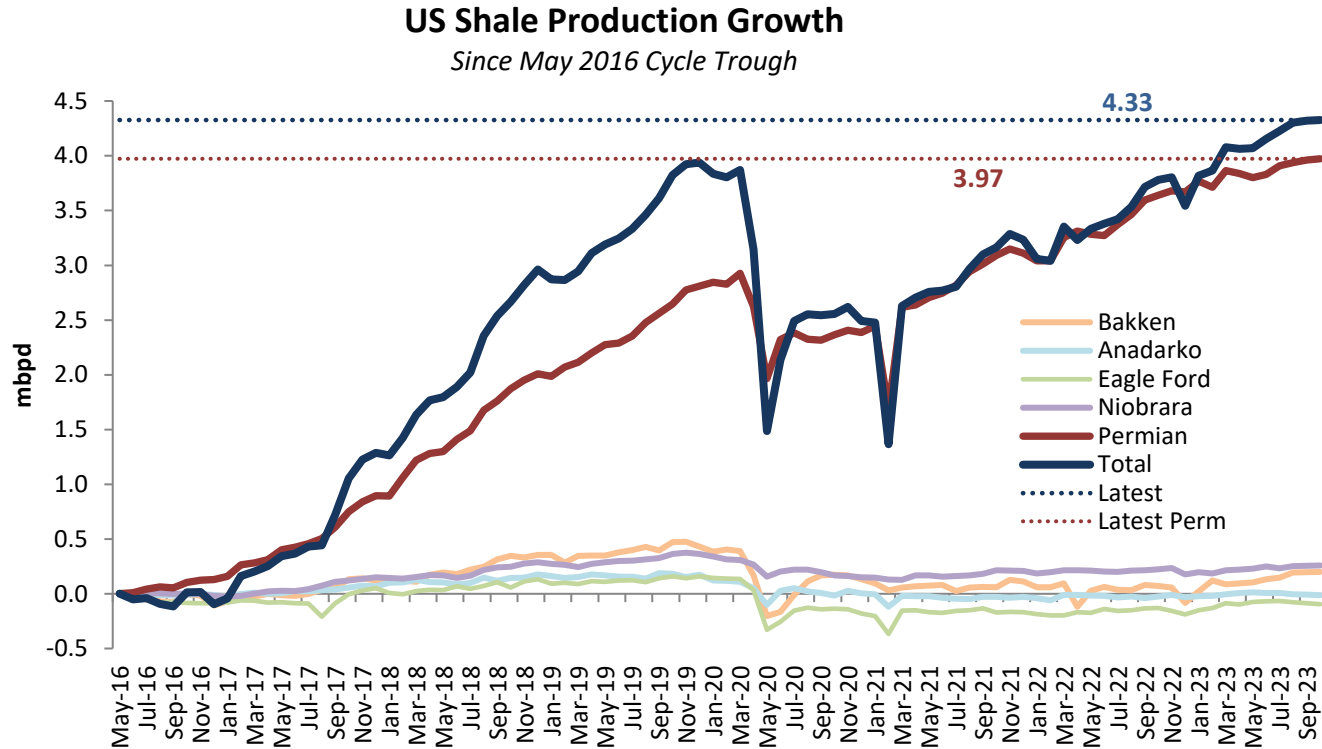
- In the November DPR report, October crude and condensate production from key shale plays fell to 9.488 mbpd, up 6 kbpd from September.
- Shale C+C production was revised down 77 kbpd on average for the April to August period, with September revised up marginally
- The EIA continues to see peak shale oil output, but with the peak delayed from July to October. As I noted above, both the Brent Spread and unaccounted-for barrels suggest another upward revision may be in the cards.

US Shale Production Growth (Nov. DPR)



- Compared to last year, total shale oil production is up 0.5 mbpd
- The Permian is up 0.3 mbpd
- As before, annual Permian growth is rapidly decelerating

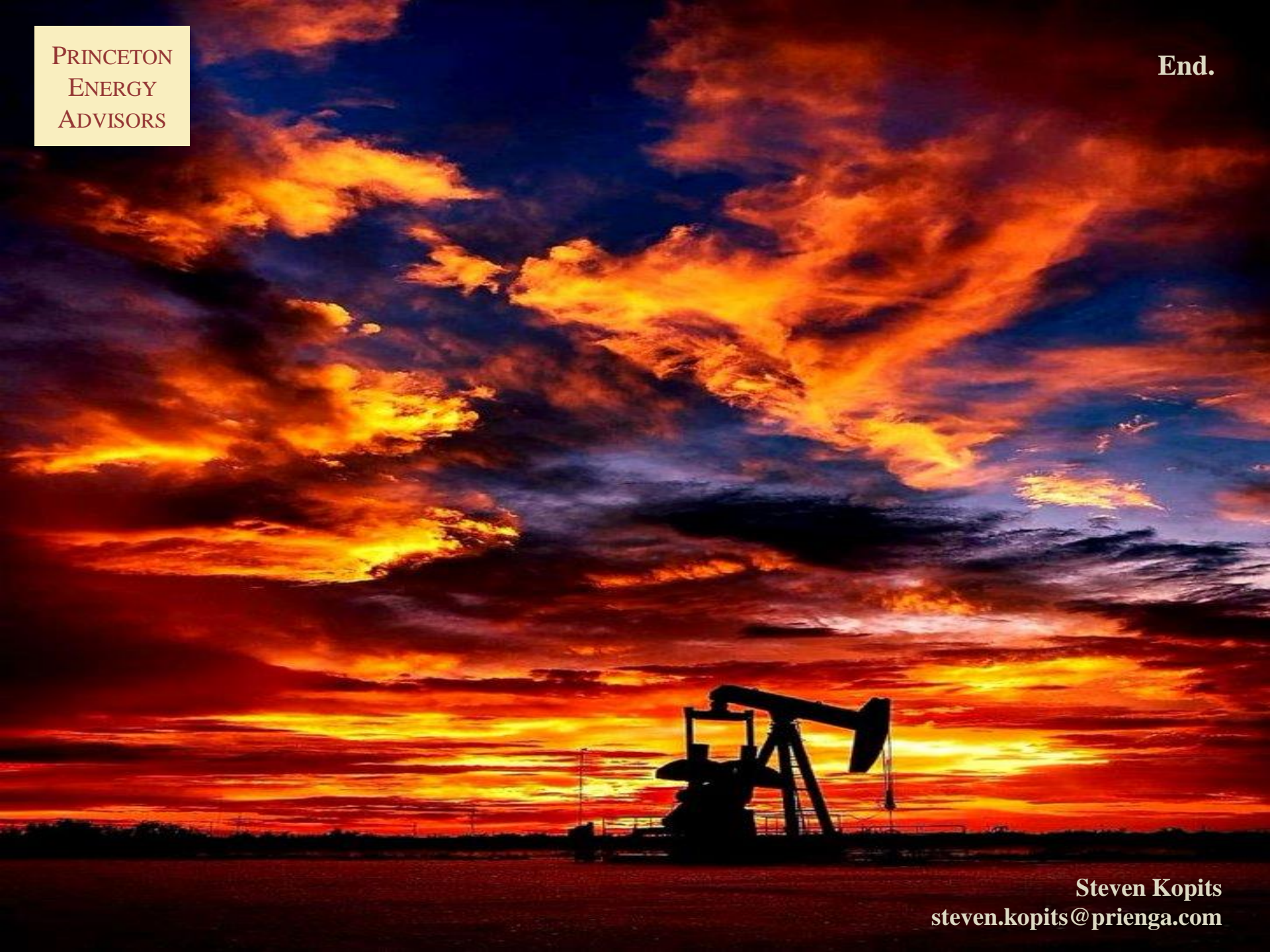
US Shale Production Growth from May '16 (Nov. DPR)



- Since the prior cyclical trough in May 2016, total shale oil production from the key plays is up 4.3 mbpd
- All but 360,000 bpd of this growth comes from the Permian basin

PRINCETON
ENERGY
ADVISORS

End.



Steven Kopits
steven.kopits@prienga.com