

Menno Hulshof, CFA^  
 Aaron Bilkoski^  
 Aaron MacNeil, CA^  
 Dustin Besaw, CFA^  
 Jenna Weir, CFA^  
 Samuel Babarinde, CFA^

## THE CRUDE FACTS

### THE TD COWEN INSIGHT

#### Weekly Oil Charts

In the following charts, we summarize the key data-points for the global crude oil supply/demand outlook. We highlight the following weekly trends:

**1) Spot WTI up modestly on U.S. Fed rate decision:** Spot WTI is hovering around the US\$70/bbl mark following the Fed's interest rate decision, where it cut rates by 0.50% (vs. market expectations for a 0.25%-0.50% cut). Typically, a U.S. rate cut is supportive of oil prices and today's more muted commodity reaction indicates to us that a cut of this magnitude was already largely priced in.

**2) U.S refining utilization falls on Hurricane Francine impacts:** U.S. refining utilization fell 1% w/w to 92% (although still +6% vs. norms), with PADD 3 (GoM) utilization down 2% to 91% as refiners braced for the impacts of Hurricane Francine. ~100mmbbl/d of GoM crude production remains offline, down from a peak of ~730mmbbl/d late last week. Recall, hurricane season runs through November, so we may see further U.S. supply disruptions through Q4/24.

**3) Heightened geopolitical tensions and weak Chinese demand continue to spur volatility:** Tensions in the Middle East continue to escalate following this week's pager attacks and spot commodity prices could remain volatile over the mid-term as a result. In addition, we expect continued weak China demand data-points to weigh on global oil benchmarks, and further contribute to the volatility.

Figure 1. Weekly Summary

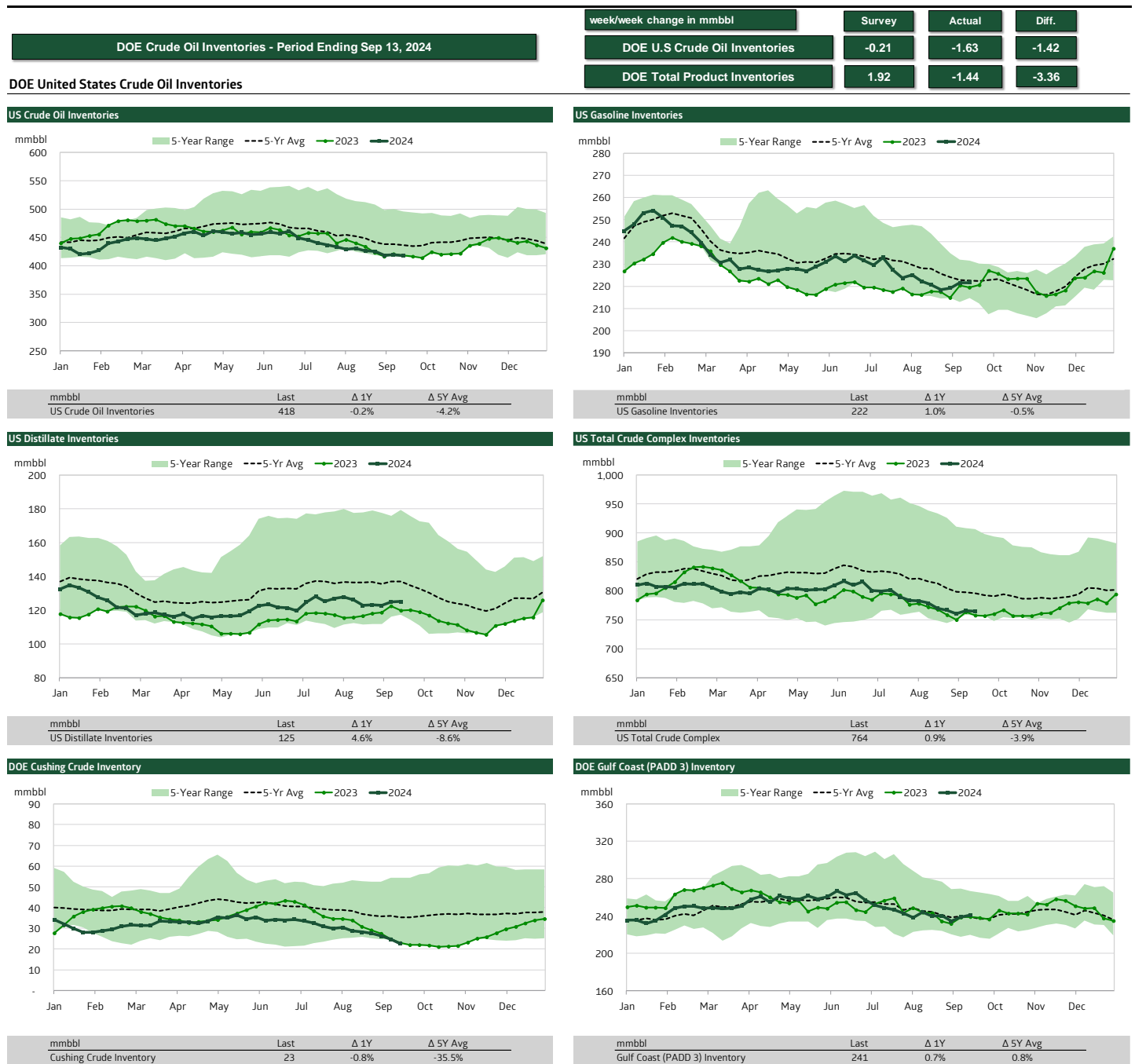
Crude Oil Pricing (US\$/bbl)	Last	Δ 1M	Δ 1Y
Brent - International	\$74.65	-9%	-2%
WTI	\$71.19	-6%	1%
Ed. Light	\$68.25	-7%	11%
LLS	\$72.65	-7%	0%
WCS	\$55.23	-10%	7%
Urals	\$62.65	11%	2%
US Resource Play Production (mmbbl/d)	Last	Δ 1M	Δ 1Y
Total US	13.2	-2%	2%
Lower 48	12.8	-1%	2%
Eagle Ford	1.2	-1%	3%
Permian	6.7	0%	4%
Bakken	1.4	0%	3%
Niobrara	0.7	-1%	3%
US Crude Inventories (mmbbl)	Last	Δ 1Y	Δ 5 Yr Avg
US Crude	418	0%	-4%
US Gasoline	222	1%	0%
US Distillate	125	5%	-9%
Total US Crude Oil Complex	764	1%	-4%
US Crude Oil Demand (mmbbl/d)	Last	Δ 1Y	Δ 5 Yr Avg
US Total Refined Product Demand	19.8	-5%	2%
US Gasoline Demand	8.8	4%	2%
US Distillate Demand	3.8	-9%	5%
US Jet Fuel Demand	1.7	7%	22%
Refining Crack Spreads (US\$/bbl) & Utilization	Last	Δ 1Y	Δ 5 Yr Avg
US Mid-continent 3-2-1 Crack Spread	\$16.52	-54%	-33%
US Gulf Coast 3-2-1 Crack Spread	\$11.90	-64%	-40%
US NYH 3-2-1 Crack Spread	\$17.41	-48%	-10%
Refinery Utilization	92%	0%	6%

Source: Bloomberg, TD Cowen

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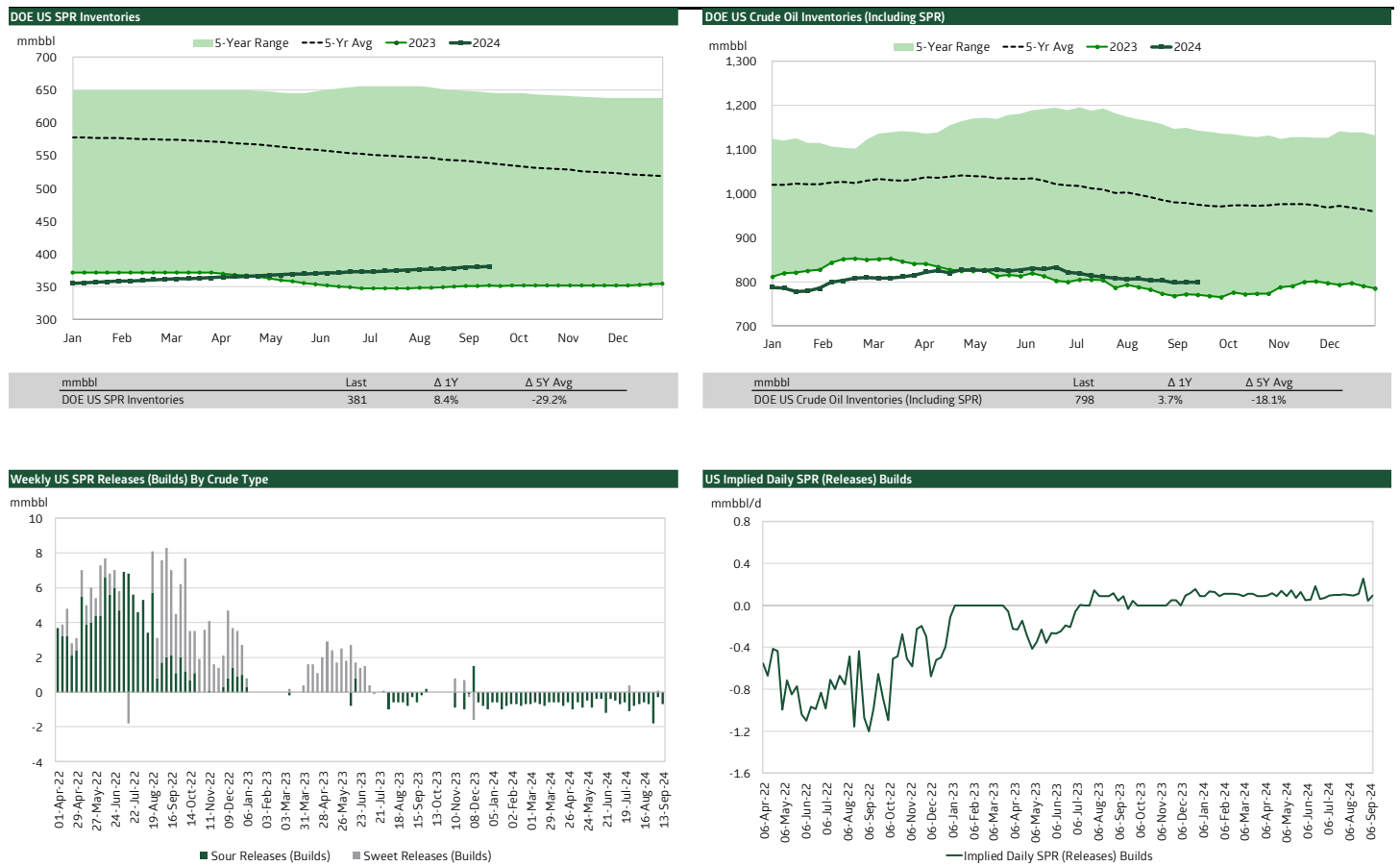
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Figure 2 - United States Oil and Oil Product Inventories



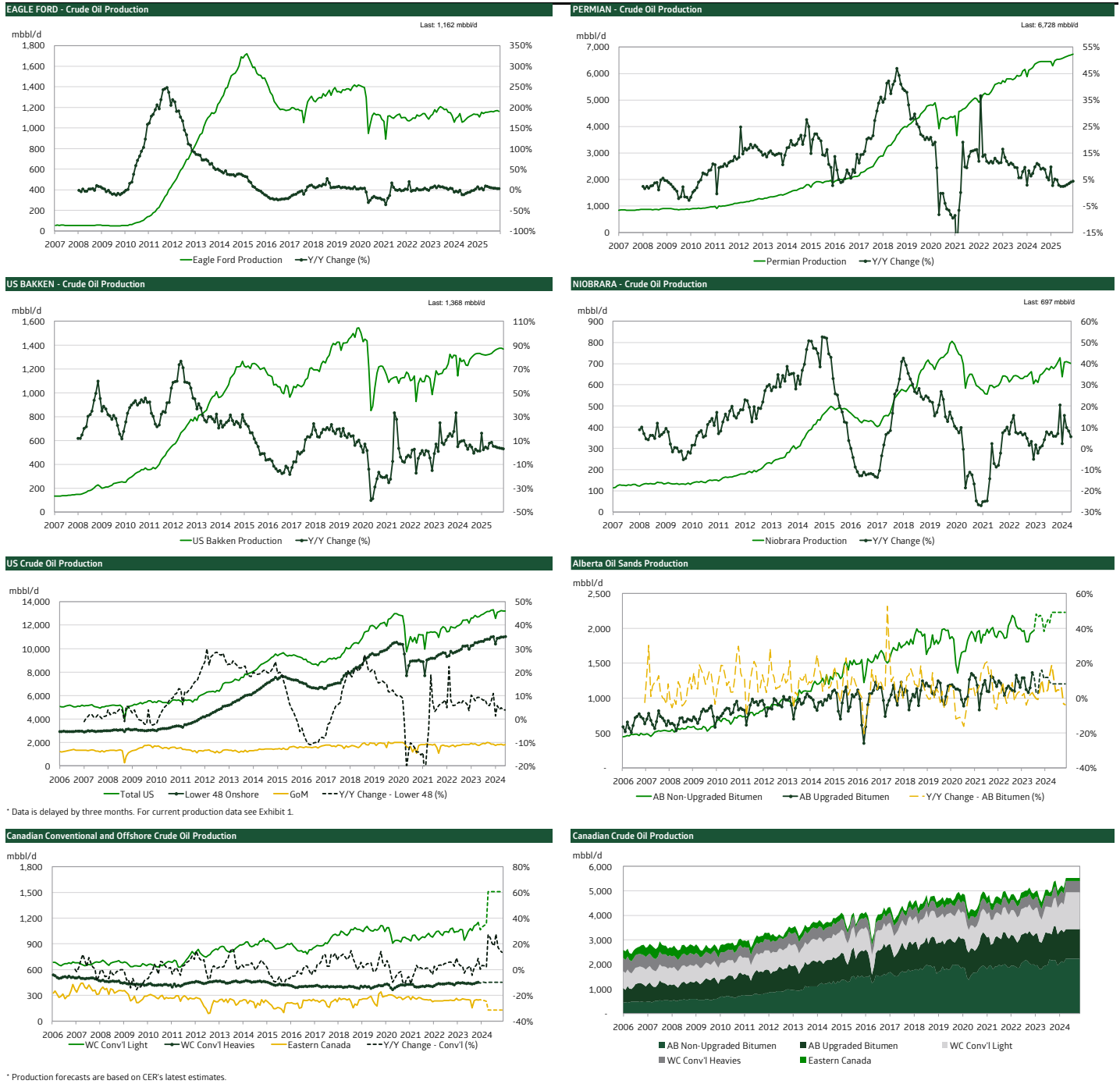
Source: Bloomberg, TD Cowen

Figure 3 - United States Oil and Oil Product Inventories Cont'd (SPR Inventories and Releases)



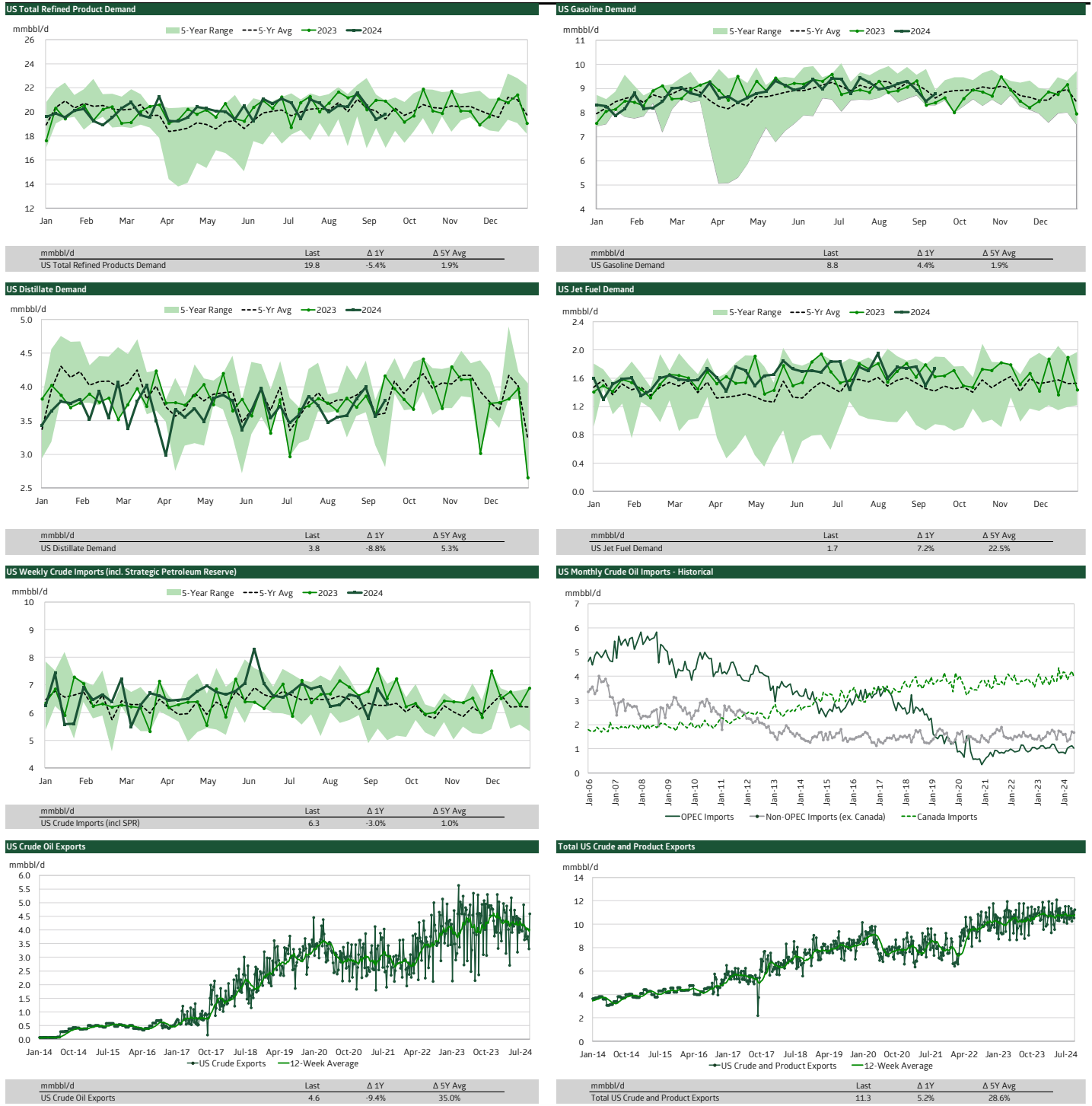
Source: Bloomberg, TD Cowen

Figure 4 - Key Drivers of North American Supply Growth



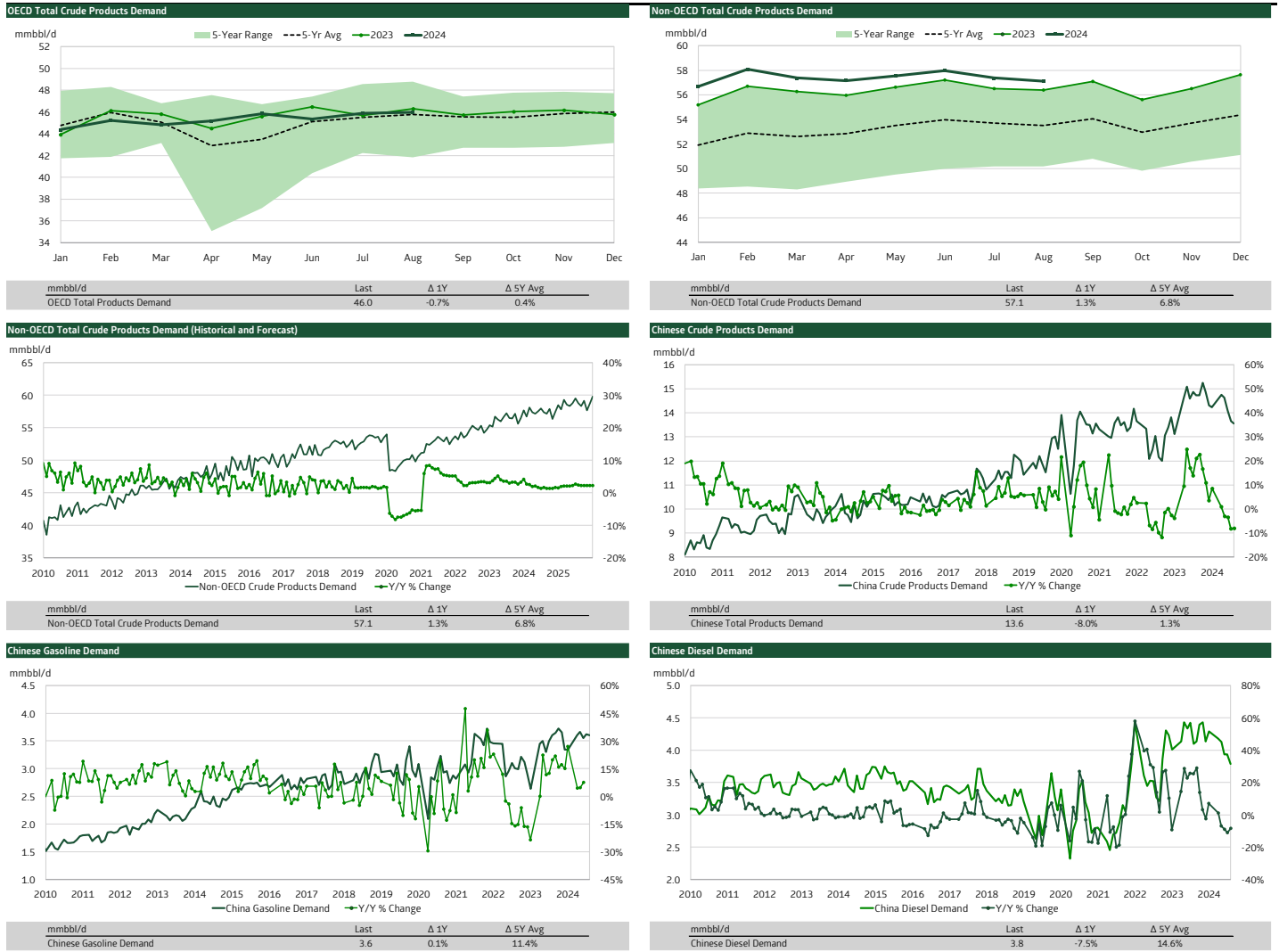
Source: Bloomberg, CER, TD Cowen

Figure 5 - United States Oil and Oil Product Demand



Source: Bloomberg, TD Cowen

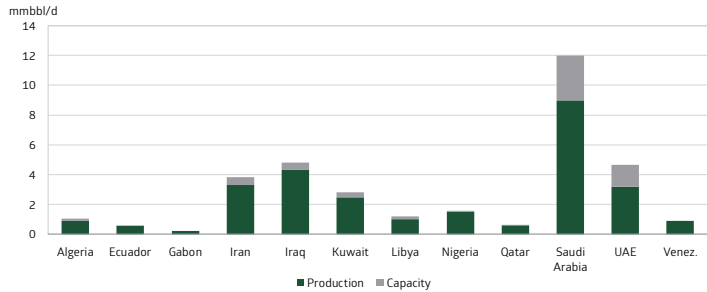
Figure 6 - International Oil and Oil Product Demand



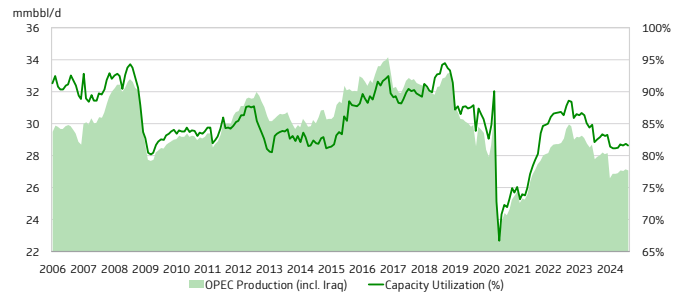
Source: Bloomberg, TD Cowen

Figure 7 - Global Supply Outlook

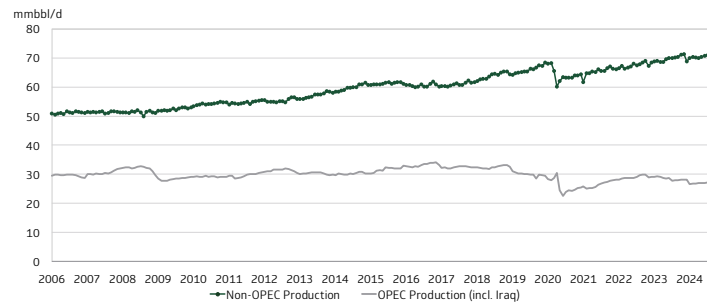
OPEC Production and Excess Capacity



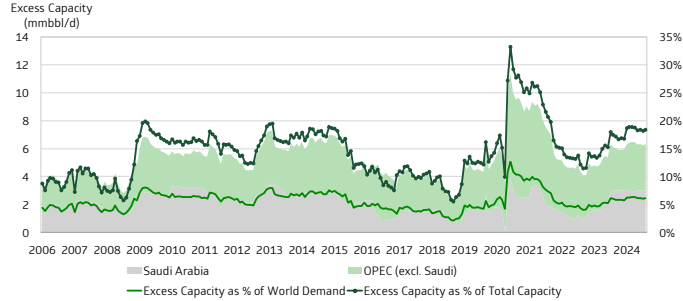
OPEC Utilization



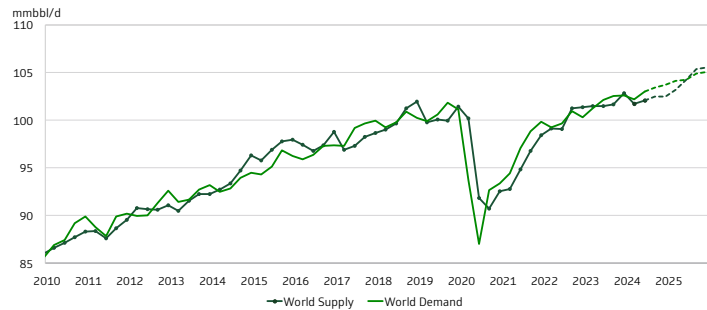
OPEC vs. non-OPEC Production



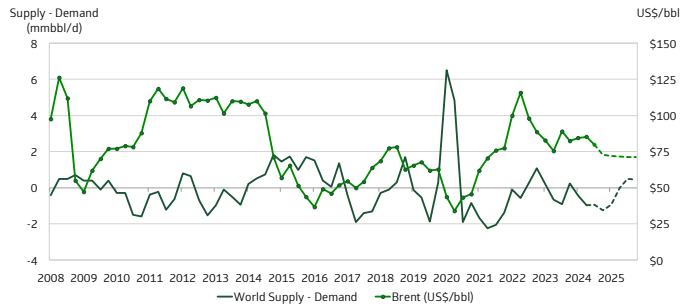
OPEC Excess Capacity



World Supply & Demand



World Supply & Demand vs. Brent Pricing



OPEC Production (Excluding Liquids)

Country (mmb/d)	Aug-22	Aug-23	Jun-24	Jul-24	Aug-24	Δ Y/Y	Δ M/M	Est. Capacity	Capacity Utilization
Saudi Arabia	10,930	8,980	8,990	9,000	8,990	0.1%	-0.1%	12,000	75%
Iraq	4,430	4,260	4,250	4,320	4,320	1.4%	0.0%	4,800	90%
Iran	2,520	3,100	3,310	3,300	3,300	6.5%	0.0%	3,830	86%
UAE	3,350	3,120	3,170	3,170	3,170	1.6%	0.0%	4,650	68%
Kuwait	2,810	2,560	2,440	2,450	2,470	-3.5%	0.8%	2,820	88%
Nigeria	1,130	1,340	1,430	1,430	1,480	10.4%	3.5%	1,600	93%
Libya	1,080	1,140	1,160	1,150	1,000	-12.3%	-13.0%	1,200	83%
Venezuela	640	800	890	890	900	12.5%	1.1%	890	101%
Algeria	1,030	940	900	900	890	-5.3%	-1.1%	1,060	84%
Republic of The Congo *	270	240	250	240	250	4.2%	4.2%	250	100%
Gabon	200	220	210	220	220	0.0%	0.0%	220	100%
Equatorial Guinea *	100	90	50	60	70	-22.2%	16.7%	70	100%
<b>OPEC 12<sup>(1)</sup></b>	<b>28,490</b>	<b>26,790</b>	<b>27,050</b>	<b>27,130</b>	<b>27,060</b>	<b>1.0%</b>	<b>-0.3%</b>	<b>33,390</b>	<b>81%</b>

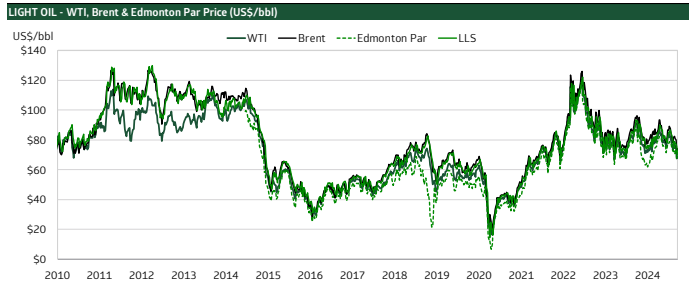
<sup>(1)</sup> Qatar, Ecuador and Angola left OPEC as of January 1, 2019, January 1, 2020 and January 1, 2024, respectively and we have excluded them from this list. Equatorial Guinea and Republic of The Congo joined OPEC during 2017 and 2018.

Non-OPEC Production (Including Liquids)

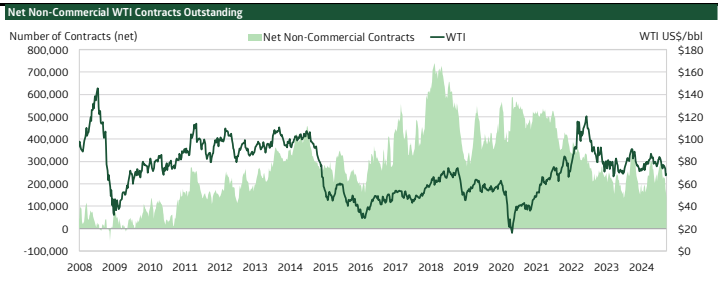
Country/Region (mmb/d)	Aug-22	Aug-23	Jun-24	Jul-24	Aug-24	Δ Y/Y	Δ M/M
United States	20,470	22,200	22,810	22,682	22,743	2.4%	0.3%
Russia	10,870	10,540	10,283	10,284	10,235	-2.9%	-0.5%
Canada	5,750	5,840	5,796	6,081	6,129	4.9%	0.8%
China	5,020	5,200	5,348	5,277	5,313	2.2%	0.7%
Brazil	4,170	4,740	4,699	4,881	4,836	2.0%	-0.9%
Other Asia & Oceania	3,820	3,890	4,077	4,089	4,050	4.1%	-1.0%
Middle East *	3,340	3,250	3,128	3,134	3,132	-3.6%	0.0%
Africa	2,710	2,650	2,525	2,475	2,566	-3.2%	3.7%
Other S. America	2,400	2,450	2,459	2,455	2,457	0.3%	0.1%
Norway	2,010	2,020	1,967	2,085	2,122	5.0%	1.8%
Mexico	1,900	2,110	2,013	2,000	1,998	-5.3%	-0.1%
Kazakhstan	1,590	1,800	1,909	1,935	1,910	6.1%	-1.3%
Other Europe	1,100	1,130	1,098	1,101	1,115	-1.3%	1.3%
Other Eurasia	1,010	1,010	1,002	1,001	1,006	-0.4%	0.5%
United Kingdom	720	700	636	871	772	10.3%	-11.3%
Guyana	340	360	610	427	555	54.2%	30.0%
<b>Non-OPEC</b>	<b>67,220</b>	<b>69,890</b>	<b>70,361</b>	<b>70,778</b>	<b>70,940</b>	<b>1.5%</b>	<b>0.2%</b>

Source: Bloomberg, TD Cowen

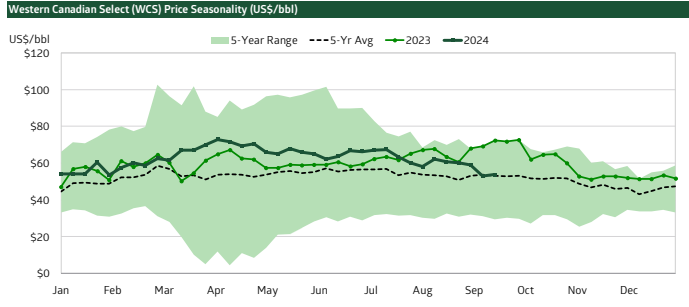
Figure 8 - Pricing for Domestic and Global Benchmarks



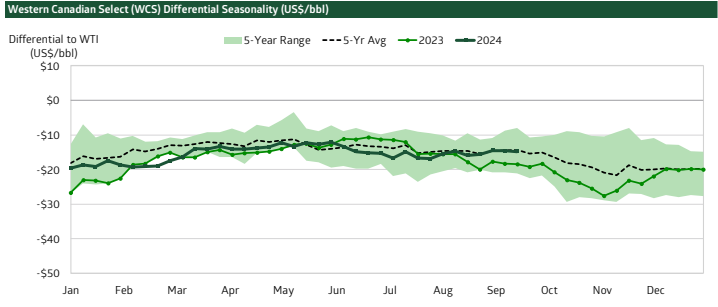
US\$/bbl	Last	Δ 1M	Δ 1Y
WTI	\$71.19	-6.2%	1.2%
Brent	\$74.65	-9.4%	-1.6%
Edmonton Par	\$68.25	-6.8%	11.2%
LLS	\$72.65	-6.6%	-0.5%



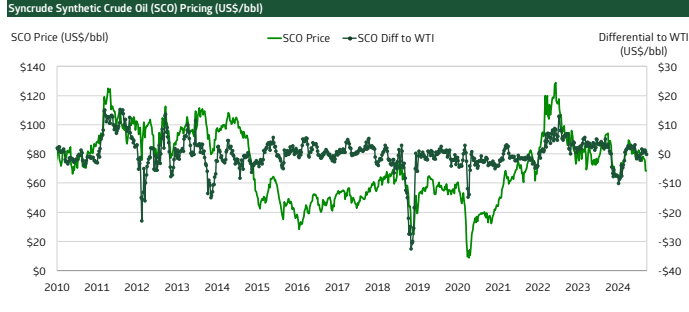
US\$/bbl	Last	Δ 1M	Δ 1Y
WTI	\$71.19	-6.2%	1.2%
Net Non-Commercial	140,014	-39.5%	-57.2%



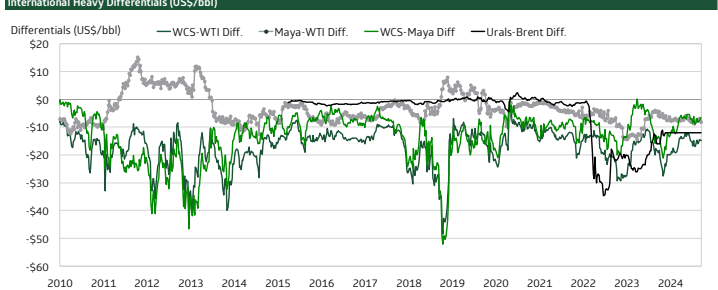
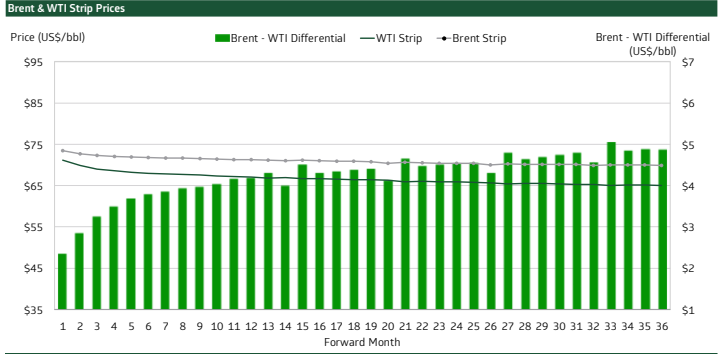
US\$/bbl	Last	Δ 1Y	Δ 5 Yr Avg
WCS Price	\$55.23	7.5%	1.8%



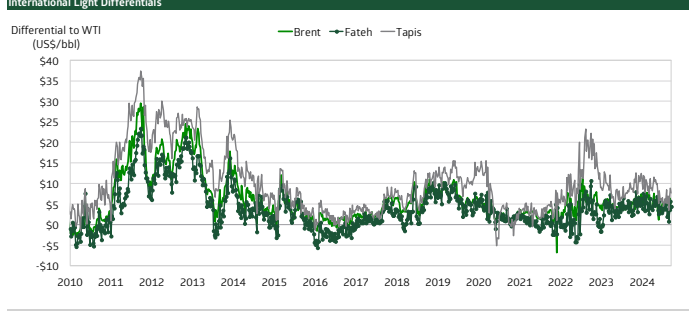
Diff. to WTI (US\$/bbl)	Last	Δ 1Y	Δ 5 Yr Avg
WCS Price Differential	-\$15.96	16.0%	3.9%



US\$/bbl	Last	Δ 1M	Δ 1Y
Synthetic	\$69.03	-11.5%	10.9%



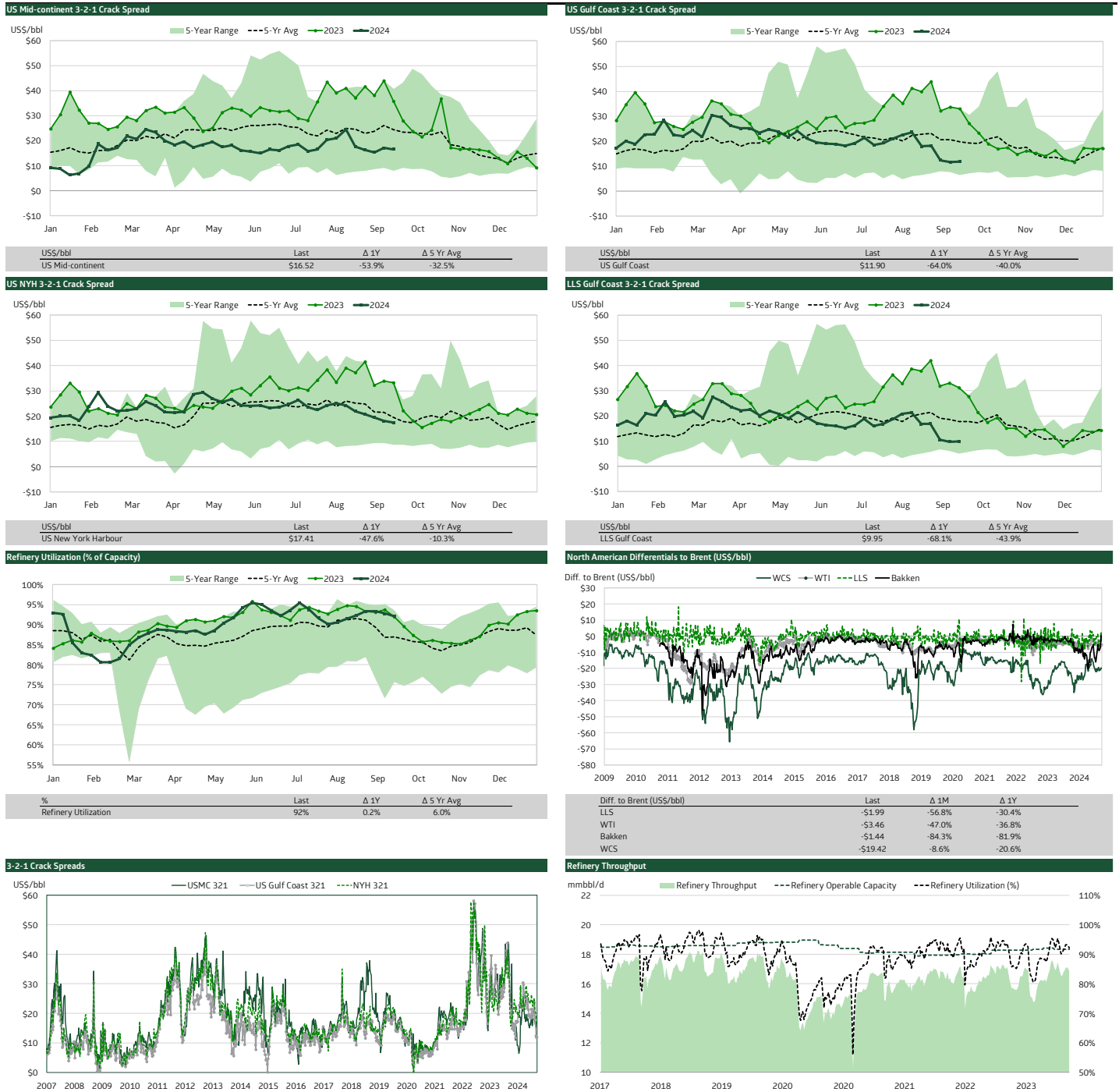
Differentials (US\$/bbl)	Last	Δ 1M	Δ 1Y
WCS-WTI	-\$15.96	-8.4%	16.0%
Maya-WTI	-\$8.58	-17.7%	-14.6%
WCS-Maya	-\$7.38	0.8%	35.9%
Urals-Brent	-\$12.00	0.0%	0.0%



Diff. to WTI (US\$/bbl)	Last	Δ 1M	Δ 1Y
Brent	\$3.46	-47.0%	-36.8%
Fateh (Dubai)	\$1.56	nmf	-79.6%
Tapis (Malaysia)	\$4.65	58.2%	-61.4%

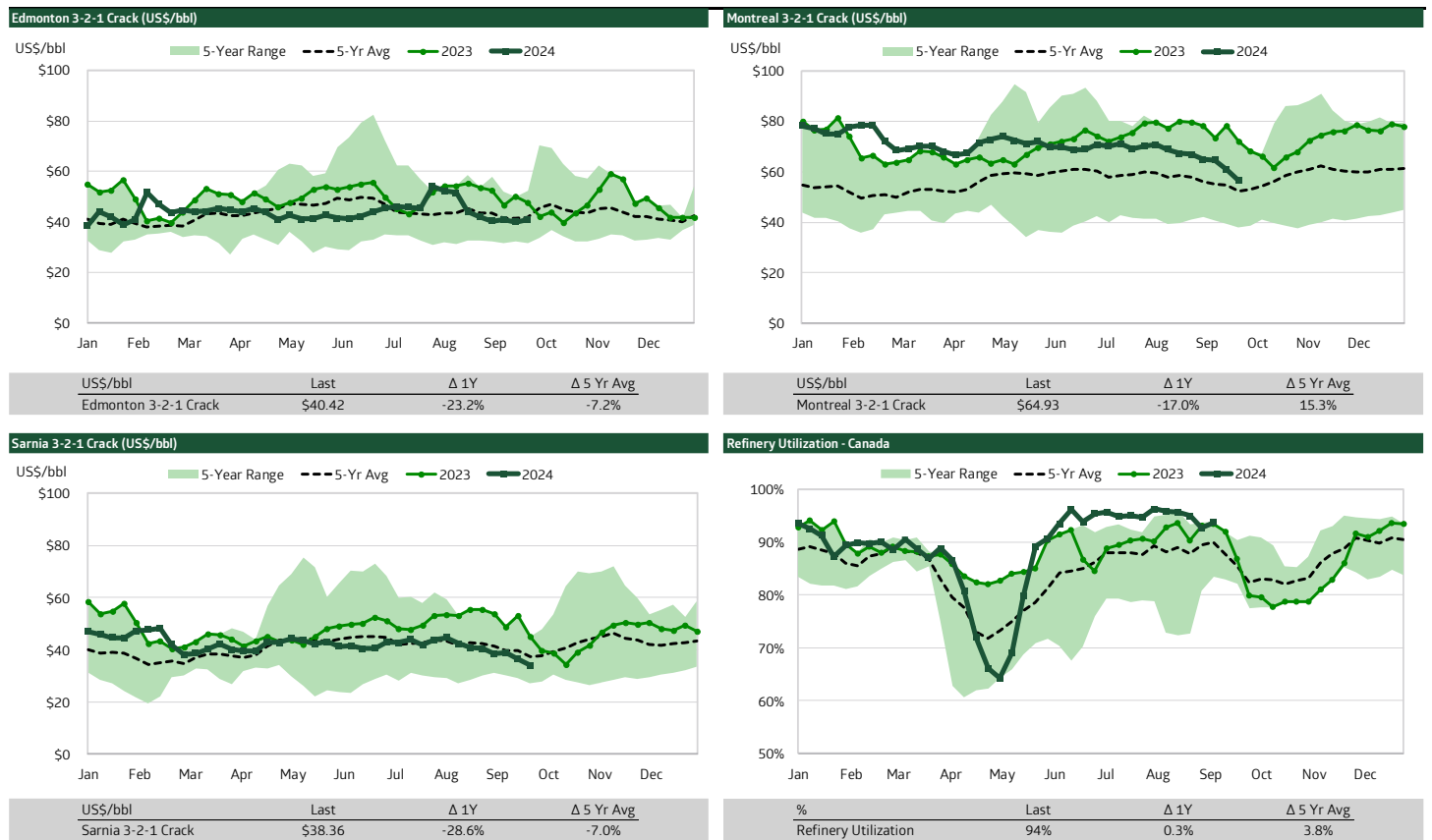
Source: Bloomberg, TD Cowen

Figure 9 - Refinery Profitability and Utilization



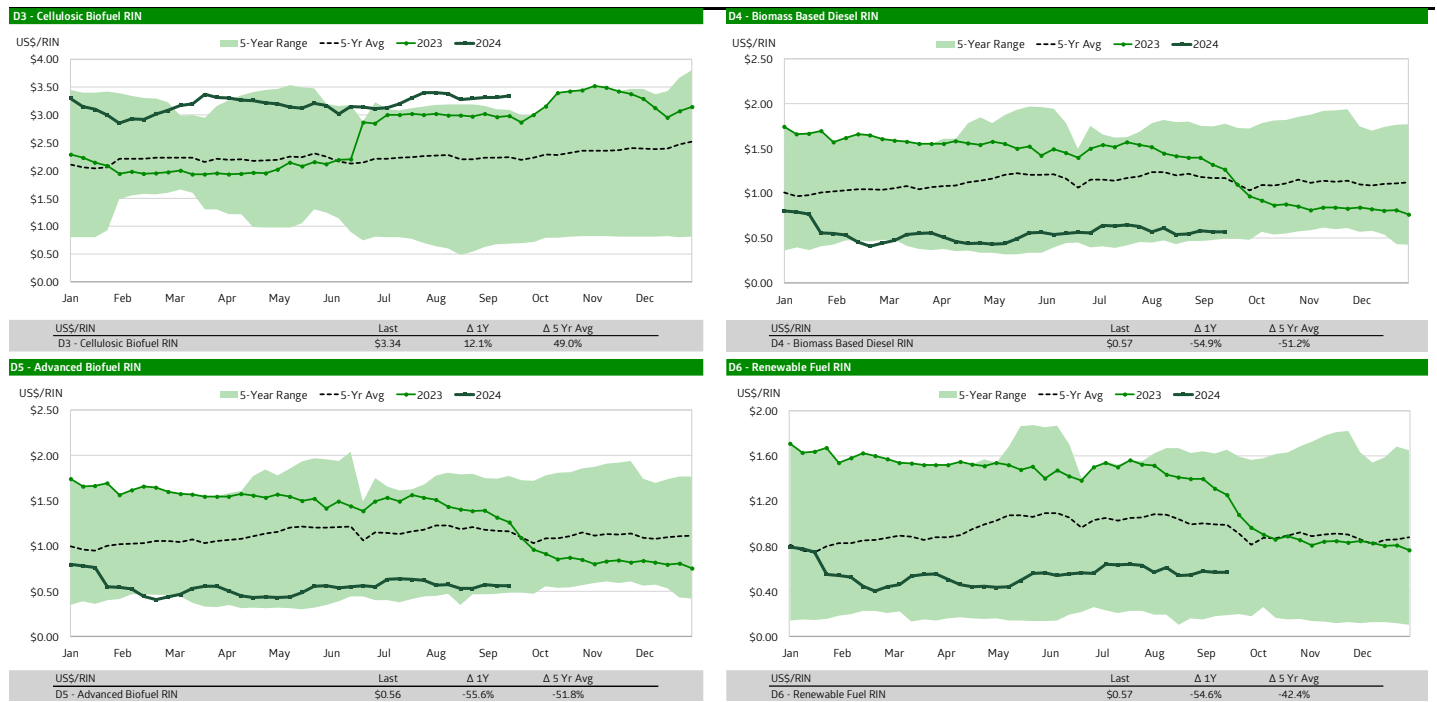
Source: Bloomberg, TD Cowen

Figure 10 - Refinery Profitability and Utilization - Canada



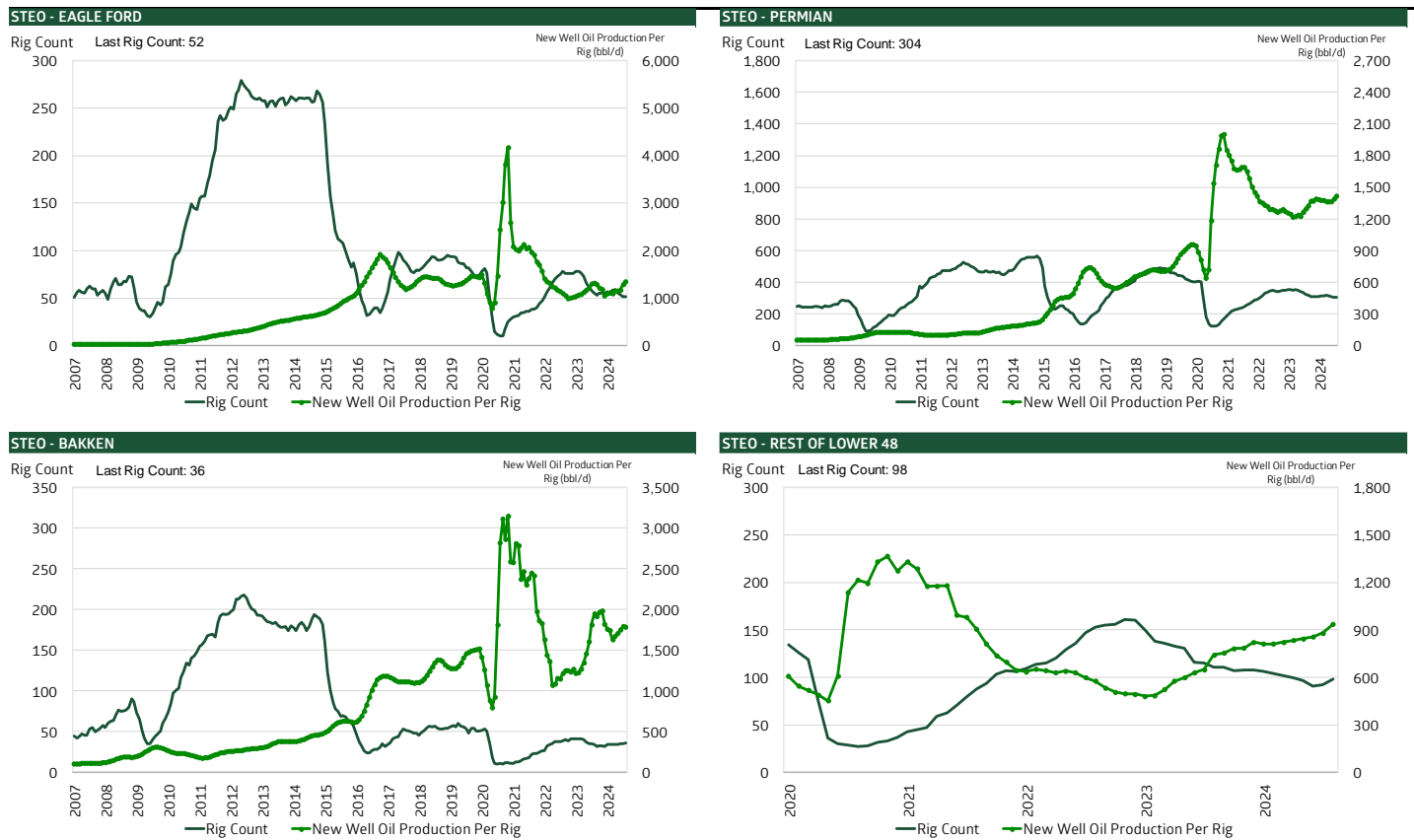
Source: Bloomberg, CER, TD Cowen

Figure 11 - U.S. Renewable Identification Numbers (RIN) Trading Prices



Source: Bloomberg, TD Cowen

Figure 12 - U.S. and International Rig Counts & Rig Productivity for Select U.S. Oil Plays



NORTH AMERICA ROTARY RIG COUNT					
	9/15/2023	9/6/2024	9/13/2024	Δ W/W	Δ Y/Y
<b>U.S.</b>					
U.S. Land	619	562	568	1%	-8%
U.S. Inland Waters	3	1	1	0%	-67%
U.S. Offshore	19	19	21	11%	11%
<b>Total U.S.</b>	<b>641</b>	<b>582</b>	<b>590</b>	<b>1%</b>	<b>-8%</b>
<b>Canada</b>					
Canada Oil	119	152	150	-1%	26%
Canada Gas	71	67	67	0%	-6%
<b>Total Canada</b>	<b>190</b>	<b>219</b>	<b>217</b>	<b>-1%</b>	<b>14%</b>
<b>Total North America</b>	<b>831</b>	<b>801</b>	<b>807</b>	<b>1%</b>	<b>-3%</b>

INTERNATIONAL ROTARY RIG COUNT					
	8/31/2023	7/31/2024	8/31/2024	Δ M/M	Δ Y/Y
<b>Latin America</b>					
Oil	158	137	144	5%	-9%
Gas	15	17	16	-6%	7%
<b>Europe</b>					
Oil	57	52	48	-8%	-16%
Gas	56	58	59	2%	5%
<b>Africa</b>					
Oil	91	89	88	-1%	-3%
Gas	9	12	9	-25%	0%
<b>Middle East</b>					
Oil	259	268	262	-2%	1%
Gas	66	72	70	-3%	6%
<b>Asia</b>					
Oil	164	150	156	4%	-5%
Gas	41	38	38	0%	-7%
<b>Total International</b>	<b>952</b>	<b>934</b>	<b>931</b>	<b>0%</b>	<b>-2%</b>

\* Charts are now based on STEO data (was previously based on DPR data) and the Rest of Lower 48 includes Anadarko and Niobrara

\* Regional totals include miscellaneous rigs not classified as an oil rig or a gas rig.

Source: Bloomberg, TD Cowen

## **VALUATION METHODOLOGY AND RISKS**

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### **Valuation Methodology**

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Energy Producers:

Our target prices for the Canadian Integrations, E&Ps and Energy Royalties are derived through a combination of: i) a multiple (based on historical trading ranges) applied to forward Debt Adjusted Cash Flow (DACF), and ii) a DCF-based Net Asset Value estimate (NAV).

### **Investment Risks**

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Energy Producers:

Risks include: the loss of key employees, disappointing drilling results, volatile commodity prices, operating cost increases, capital cost overruns, product supply and demand, unplanned third-party infrastructure outages, financing/access to capital, government regulations, legislation, royalties, taxes, exchange rates, interest rates and environment and weather concerns.

## ADDENDUM

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**Buy (1):** The stock is expected to achieve total return of +15% or more over the next 12 months

**Hold (2):** The stock is expected to achieve a total return that falls between -10% to +15% over the next 12 months

**Sell (3):** The stock is expected to achieve a total return of -10% or below over the next 12 months

**Suspended (4):** Due to evolving circumstances and potential conflicts of interest, we can no longer generate what we consider a defensible rating at the current time

**Assumption:** The expected total return calculation includes annual return and forecasted dividend yield

**Cowen and Company, LLC Equity Research Rating Definitions applicable from 6:00PM ET March 22, 2024**

**Buy (1):** The stock is expected to achieve total return of +15% or more over the next 12 months

**Hold (2):** The stock is expected to achieve a total return that falls between -10% to +15% over the next 12 months

**Sell (3):** The stock is expected to achieve a total return of -10% or below over the next 12 months

**Suspended (4):** Due to evolving circumstances and potential conflicts of interest, we can no longer generate what we consider a defensible rating at the current time

**Assumption:** The expected total return calculation includes annual return and forecasted dividend yield

**Cowen and Company, LLC Equity Research Rating Definitions applicable until 5:59PM ET March 22, 2024**

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**Market Perform (2):** The stock is expected to have a total return that falls between the parameters of an Outperform and Underperform over the next 12 months

**Underperform (3):** Stock is expected to achieve a total negative return of at least 10% over the next 12 months

**Assumption:** The expected total return calculation includes anticipated dividend yield

**TD Securities, Inc. Equity Research Rating Definitions applicable from 6:00PM ET March 22, 2024**

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**Hold (2):** The stock is expected to achieve a total return that falls between -10% to +15% over the next 12 months

**Sell (3):** The stock is expected to achieve a total return of -10% or below over the next 12 months

**Suspended (4):** Due to evolving circumstances and potential conflict of interest, we can no longer generate what we consider a defensible rating at the current time.

**Assumption:** The expected total return calculation includes annual return and forecasted dividend yield

**TD Securities, Inc. Equity Research Rating Definitions applicable until 5:59PM ET March 22, 2024**

**Action List Buy:** The stock's total return is expected to exceed a minimum of 15% (with higher thresholds for less liquid, more risky securities) over the next 12 months and it is a top pick in the Analyst's sector.

**Buy:** The stock's total return is expected to exceed a minimum of 10% (with higher thresholds for less liquid, more risky securities) over the next 12 months.

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**Suspended:** Due to evolving circumstances, we can no longer generate what we consider a defensible target price and rating at the current time.

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### TD Cowen Equity Research Rating Distribution

#### Distribution of Ratings/Investment Banking Services (IB) as of 06/30/24

Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy	833	67.34%	284	34.09%
Hold	395	31.93%	89	22.53%
Sell	9	0.73%	1	11.11%

TD Cowen Equity Research Rating Distribution Table does not include any subject company for which the equity research rating is currently suspended.

## POINTS OF CONTACT

### Analyst Profiles



**Menno Hulshof, CFA^**  
Calgary

Menno Hulshof is a managing director and senior research analyst covering the Canadian energy sector. He first joined TD Cowen in 2003.



**Dustin Besaw, CFA^**  
Calgary

Dustin Besaw, CFA is a Vice President covering Energy. He joined TD Cowen in 2015 and has been in capital markets since 2008.



**Aaron Bilkoski^**  
Calgary

Aaron Bilkoski is a Calgary-based senior analyst covering Canadian E&Ps and North American energy royalties. He joined TD Cowen in 2009.



**Jenna Weir, CFA^**  
Calgary

Jenna Weir is an associate covering the Canadian energy sector. She joined TD Cowen in 2022 and is a CFA charterholder.



**Aaron MacNeil, CA^**  
Calgary

Aaron MacNeil is a director covering the energy services and cleantech sectors. He joined TD Cowen in 2017.



**Samuel Babarinde, CFA^**  
Calgary

Samuel Babarinde is an associate covering the Canadian energy sector. He joined TD Cowen in 2022 and holds an MBA from Rotman.

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### North American Locations

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<b>Atlanta</b> 3424 Peachtree Road NE Suite 2200 Atlanta, GA 30326 866 544 7009	<b>Boston</b> Two International Place Boston, MA 02110 617 946 3700 800 343 7068	<b>Calgary</b> 36th Floor, TD Canada Trust Tower 421 - 7th Avenue, S.W. Calgary, Alberta T2P 4K9 403 299 8572	<b>Chicago</b> 181 West Madison Street Suite 3135 Chicago, IL 60602 312 577 2240
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### International Location

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#### Cowen Execution Services Limited

**London**  
1 Snowden Street - 11th  
Floor  
London EC2A 2DQ  
United Kingdom  
44 20 7071 7500

