



**MOBIUS**

RISK GROUP

**TXOGA Ad Valorem Tax Conference**  
**March 1, 2023**  
**Austin, Texas**



# About MOBIUS

**Mobius Risk Group** is an independent commodity and energy enterprise, risk, compliance and advisory firm providing market strategic analysis, guidance, enterprise velocity and scale to producers, consumers, and capital participants needing timely, actionable and impactful insight for commodities and energy impacted commodities.

- Founded: 2002
- Annual Transactions: \$30 Billion in 2020
- Ownership: Privately Held
- Office Headquarters: Houston, Texas
- SSAE 18 Attestation
- SOC I Type II (Formerly SAS 70) Report
- > 950 curves and proprietary curves marked daily
- Average Employee Industry Experience: 20 Years
- RiskNet – Deal capture/CTRM Solution
- M-Risk™ – Industry Leading Proprietary Risk Module
- G-Risk™ – ESG Strategy, Visualization, and Management
- Corporate Confidentiality Policy
- Corporate Conflict of Interest Policy
- Non-Conflicted Advice
- 100% Retainer Based Services
- Named 2022 Commodity Research House of the year by *Energy Risk Magazine*



**Energy Risk**  
Awards 2022  
Winner

Commodities research  
house of the year  
Mobius Risk Group



# Key Points of Discussion

- **Demand**

- Potential fuel switching from nat gas to oil eliminated for Winter 22-23 on much lower nat gas price
- Global recession widely anticipated, and in increasingly discounted, at this point. Some forecasts predicting EU avoids
- Recovery in global air travel underway, now including China re-open
- Large impact from China “reopening “ in 2023 on top of economic stimulus there
- Status of SPR refill or SPR “Put” remains in limbo with CXL of 3 million “trial balloon” purchase for Feb plus deal to sell 26 million over Q2
- More forecasts now have global oil demand growth at or above 2 million bpd in 2023

- **Supply & Inventory**

- OPEC agreement to reduce quotas by 2 million bpd yields actual supply cuts of 1.1million bpd since Nov
- OPEC meeting in early March likely to continue status quo until better gauge on China recovery 2H23
- Easing of sanction in Venezuela could help Chevron lift production there by 200,000 bpd in 2023
- US/EU deal on Iran nuclear program/sanctions is dead for foreseeable future
- US onshore shale growth remains weak but showing some signs of life late 2022
- Underinvestment/ESG/supply chain/labor headwinds LT global issue for Non-OPEC growth
- Global inventories continue to decline vs 2016 -2019 “norms”



## Key Oil Prices & Spreads



# Crude Flat Price

	WTI	Δ 30 D	Brent	Δ 30D	WTI/Brent	Δ 30D	NYULSD	Δ 30D	RBOB	Δ 30D
Cal 2023	\$74.88	(\$6.10)	\$80.34	(\$5.83)	(\$5.46)	(\$0.27)	\$2.64	(\$0.46)	\$2.39	(\$0.21)
Cal 2024	\$71.47	(\$4.18)	\$76.54	(\$4.02)	(\$5.07)	(\$0.16)	\$2.53	(\$0.25)	\$2.22	(\$0.10)
Cal 2025	\$68.15	(\$2.53)	\$73.36	(\$2.66)	(\$5.21)	\$0.13	\$2.46	(\$0.21)	\$2.14	(\$0.09)
Cal 2026	\$65.33	(\$1.43)	\$70.78	(\$1.76)	(\$5.45)	\$0.33	\$2.37	(\$0.21)	\$2.06	(\$0.09)

	LLS	MEH	WTI Mid	Mid v MEH	MEH vs LLS
Cal 2023	\$2.90	(\$1.82)	\$2.12	(\$0.65)	(\$0.79)
Cal 2024	\$2.73	(\$1.99)	\$2.03	(\$0.68)	(\$0.70)
Cal 2025	\$2.58	(\$2.40)	\$1.83	(\$0.80)	(\$0.75)

CME WTI Brent



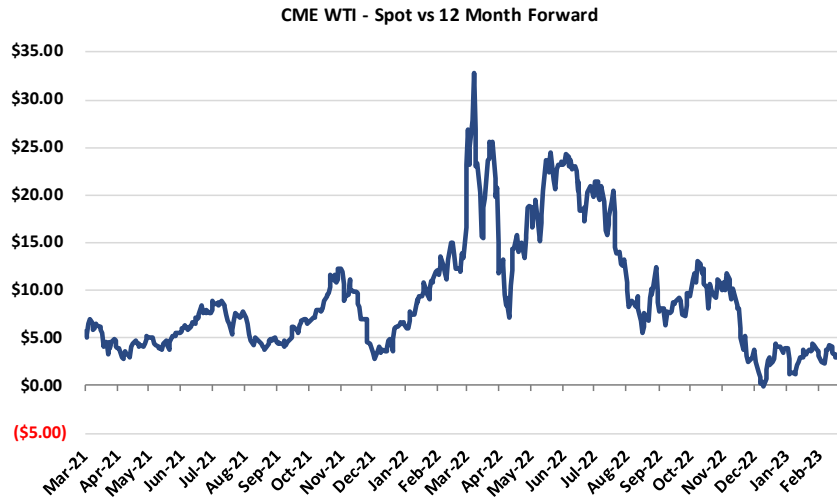
ICE Brent



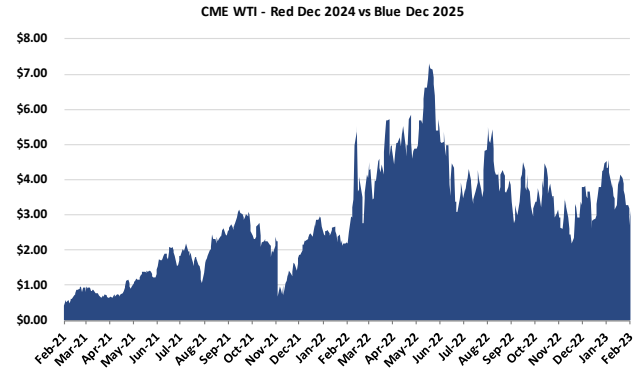
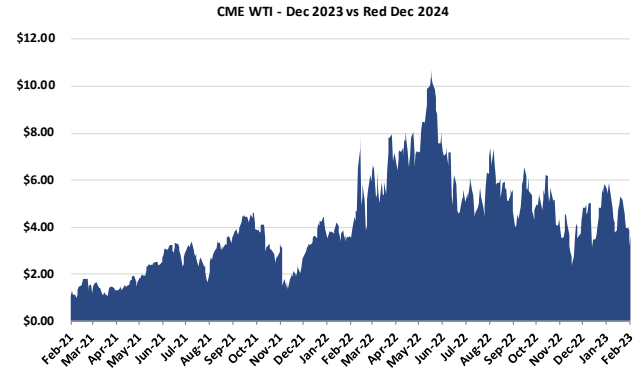
Source: CME, Bloomberg



# WTI Term Structure



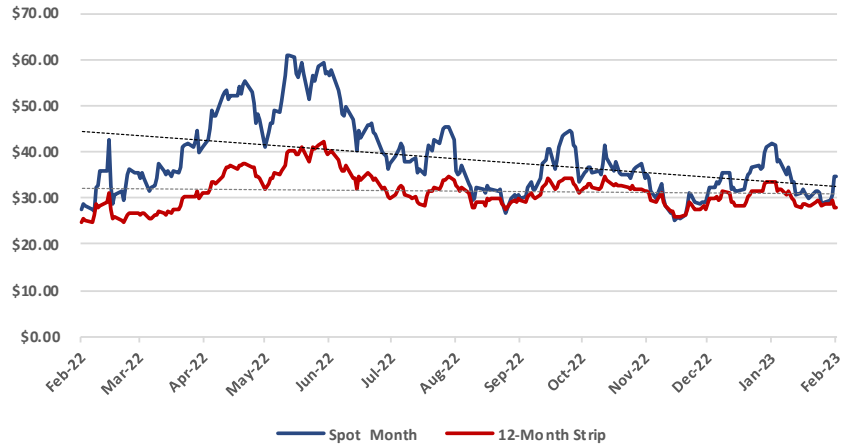
(\$5.00)





# Product Crack Spreads

CME NYMEX 3:2:1 Crack



CME NYMEX ULSD Crack



CME NYMEX RBOB Crack





## Key Supply/Demand Variables



# OPEC Production

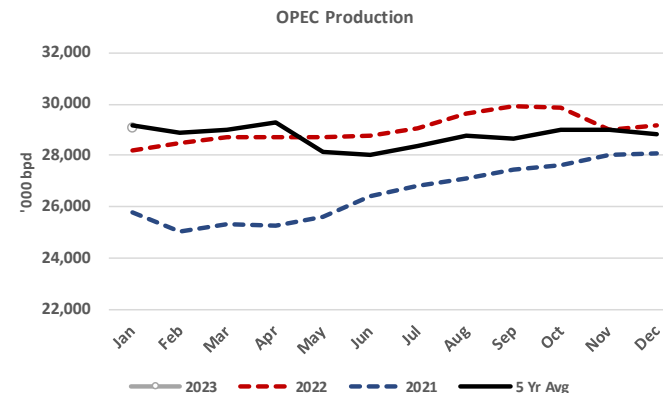
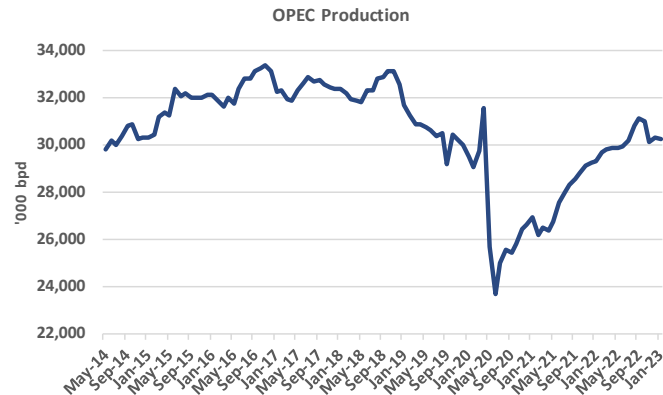
## OPEC Production

	2018	2019	2020	2021	2022	2023	Vs '19	Vs '22	5 Yr Avg	High	Low
Jan	32,360	31,060	28,370	25,790	28,170	29,120	(1,940)	950	29,150	32,360	25,790
Feb	32,210	30,680	27,910	25,030	28,510				28,868	32,210	25,030
Mar	31,970	30,275	28,630	25,320	28,690				28,977	31,970	25,320
Apr	31,900	30,260	30,440	25,240	28,720				29,312	31,900	25,240
May	31,800	30,130	24,550	25,610	28,720				28,162	31,800	24,550
Jun	32,300	30,000	22,530	26,400	28,780				28,002	32,300	22,530
Jul	32,320	29,790	23,870	26,820	29,050				28,370	32,320	23,870
Aug	32,800	29,910	24,390	27,130	29,660				28,778	32,800	24,390
Sep	32,900	28,590	24,270	27,440	29,950				28,630	32,900	24,270
Oct	33,140	29,810	24,650	27,650	29,840				29,018	33,140	24,650
Nov	33,150	29,640	25,260	28,000	28,990				29,008	33,150	25,260
Dec	32,550	28,870	25,480	28,090	29,180				28,834	32,550	25,480

Avg	32,450	29,918	25,863	26,543	29,022	29,120
Avg Chg	30	(2,532)	(4,055)	681	2,478	98
Avg %	0.1%	-7.8%	-13.6%	2.6%	9.3%	0.3%
YTD	32,048	30,481	27,980	25,398	28,562	
YTD Chng	(81)	(1,567)	(2,501)	(2,582)	3,164	
YTD %	-0.3%	-4.9%	-8.2%	-9.2%	12.5%	

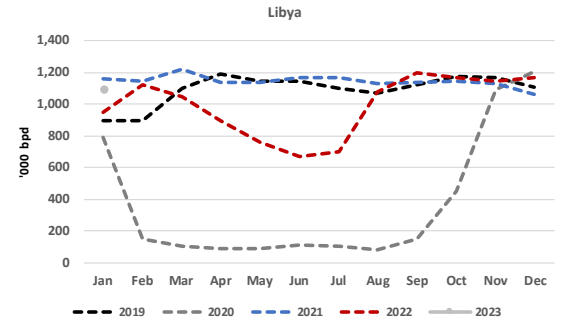
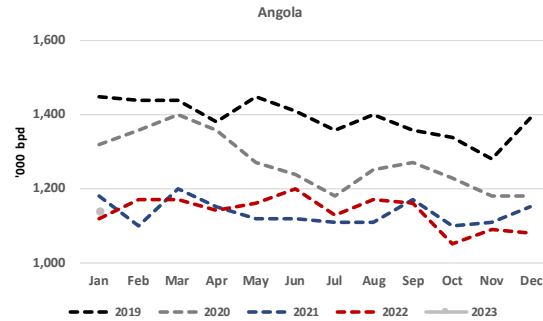
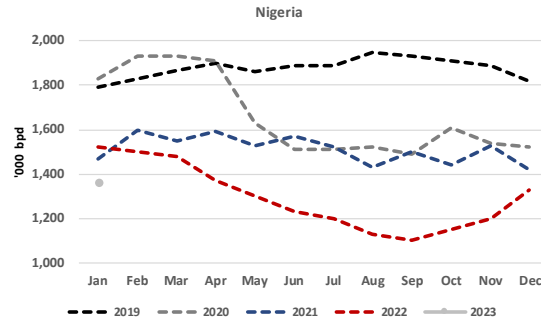
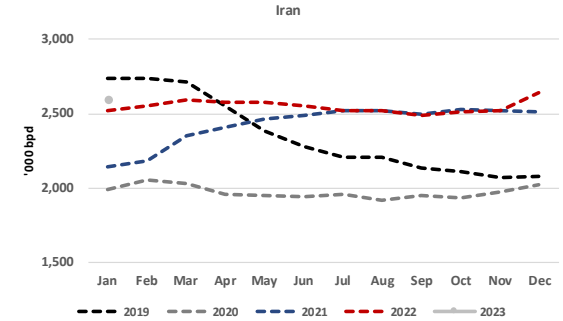
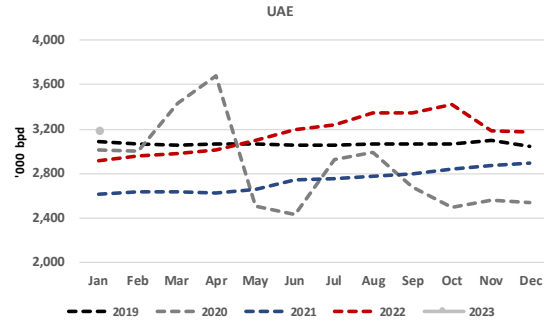
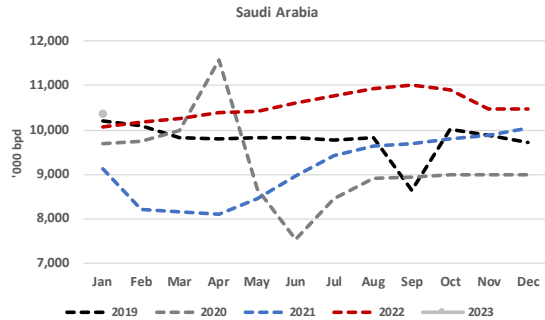
	Spare '000 bpd	% Capacity
Saudi Arabia	1,620	86.5%
Venezuela	40	94.4%
Iran	1,230	67.9%
Iraq	330	93.1%
Libya	100	91.7%
Nigeria	240	85.0%
Kuwait	130	95.4%
Algeria	50	95.3%
Equatorial Guinea	60	50.0%
UAE	1,010	76.0%
Angola	60	95.0%
DR Congo	40	86.7%
Gabon	30	86.4%
<b>Total</b>	<b>4,940</b>	
<b>Ex Iran +Venezuela</b>	<b>3,670</b>	

Source: Bloomberg





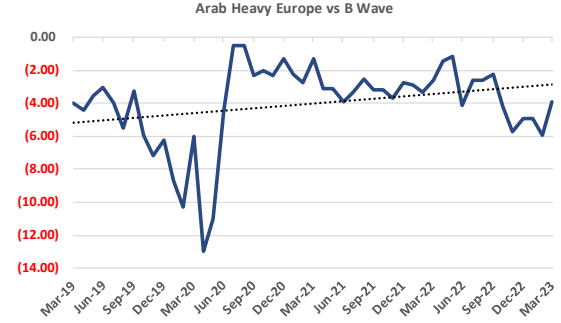
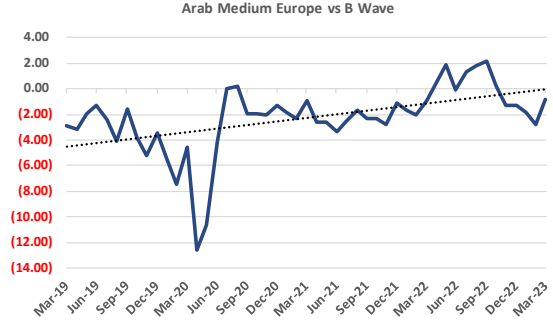
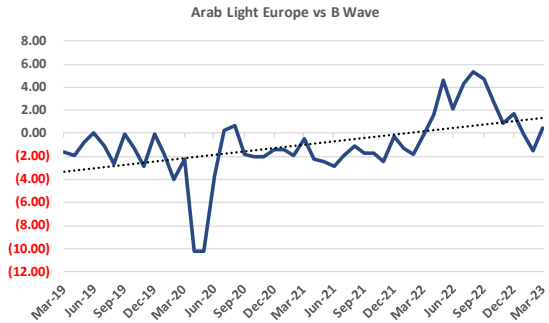
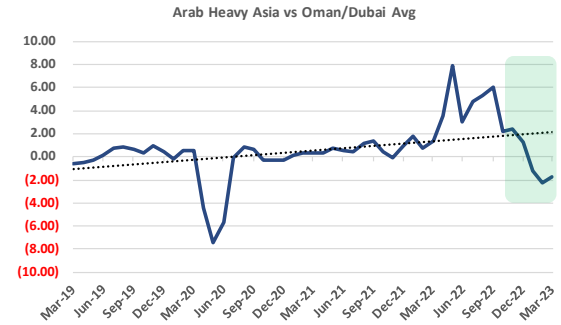
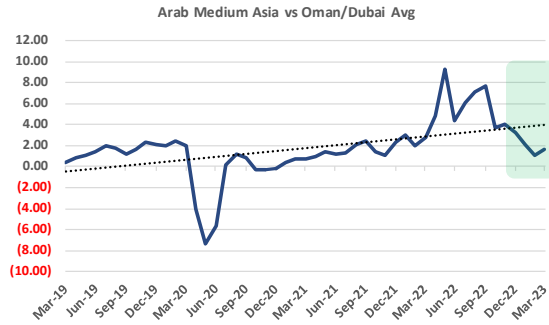
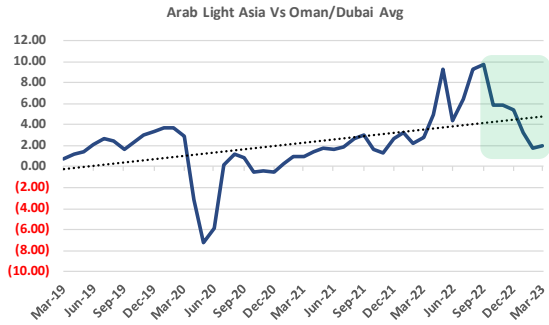
# OPEC Production by Key Member



Source: Bloomberg



# Saudi Contract Differentials





# Global Demand Forecasts

Key Global Demand Forecasts								
	2016	2017	2018	2019	2020	2021	2022	2023
IEA (Feb 2023 OMR)	96.3	98.1	99.2	99.9	90.7	97.5	100.0	101.9
OPEC (Feb 2023 OMR)	95.7	97.7	99.2	100.2	91.2	97.0	99.5	101.9
DOE-EIA (Feb 2023 STEO)	96.8	98.8	100.1	100.9	91.8	97.6	99.4	100.5

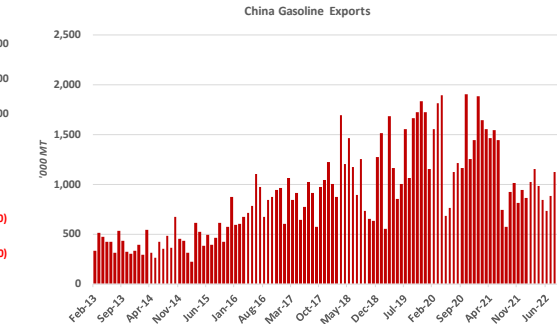
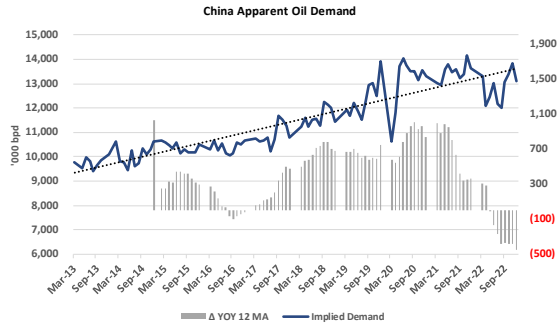
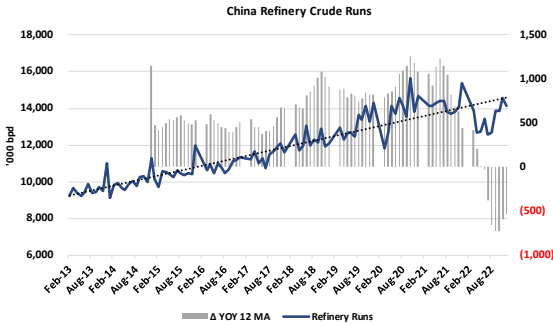
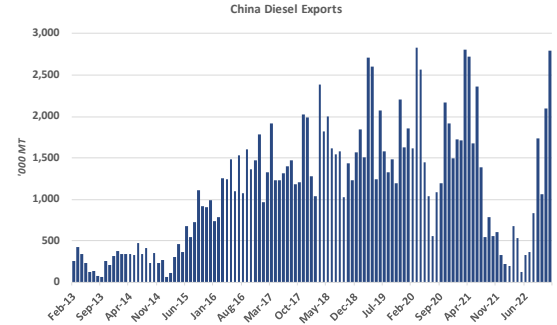
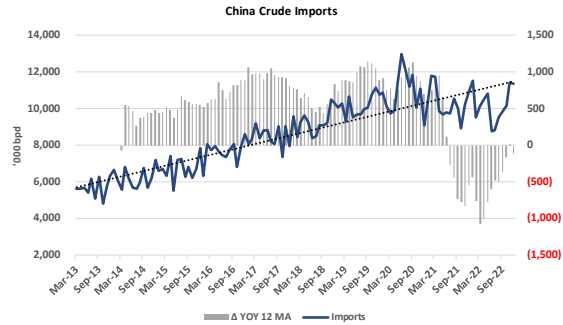
  

YOY Δ	2017	2018	2019	2020	2021	2022	2023
IEA	1.8	1.1	0.7	(9.2)	6.8	2.55	1.90
OPEC	2.0	1.5	1.0	(9.0)	5.8	2.47	2.37
DOE-EIA	2.0	1.4	0.7	(9.0)	5.7	1.89	1.05

Source: IEA, OPEC, EIA



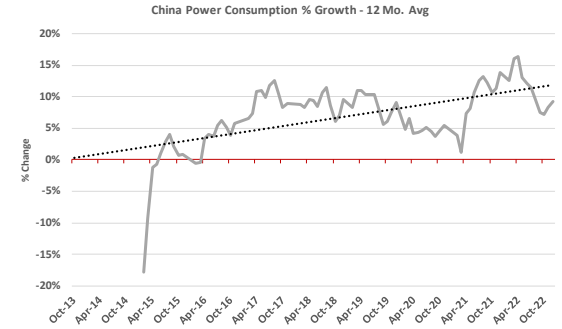
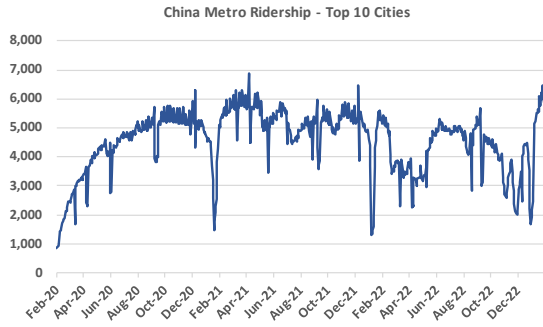
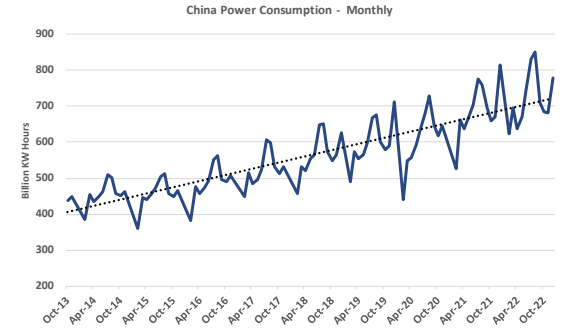
# China Metrics Oil



Source: IEA, OPEC, EIA



# China Metrics Other



Source: BBG, Weibo, Chinese Customs



# US Product Supplied 2022 YTD

EIA Demand by Product

000 bpd	Gasoline	Distillate	Jet/Kero	Other Oils
03-Feb-23	8,061	3,854	1,475	4,360
27-Jan-23	8,061	3,854	1,475	4,360
20-Jan-23	7,817	3,631	1,439	4,485
13-Jan-23	8,113	3,631	1,466	4,873

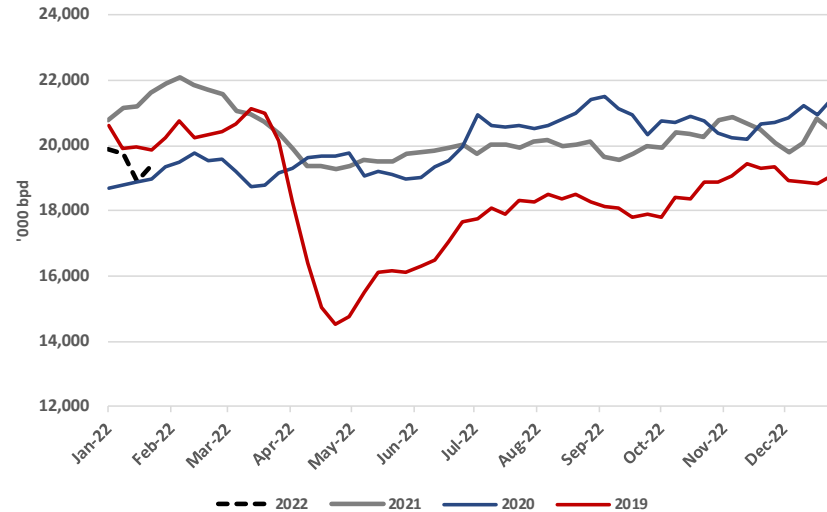
000 bpd vs 21	Gasoline	Distillate	Jet/Kero	Other Oils
03-Feb-23	(2,532)	(459)	(715)	60
27-Jan-23	(2,269)	(154)	(578)	9
20-Jan-23	(2,312)	(385)	(569)	(27)
13-Jan-23	(1,419)	(394)	(393)	(78)

% Δ vs 21	Gasoline	Distillate	Jet/Kero	Other Oils
03-Feb-23	-29.72%	-10.05%	-50.53%	1.22%
27-Jan-23	-27.62%	-3.47%	-39.43%	0.17%
20-Jan-23	-28.19%	-9.17%	-38.81%	-0.53%
13-Jan-23	-16.68%	-9.79%	-25.45%	-1.59%

000 bpd vs 19	Gasoline	Distillate	Jet/Kero	Other Oils
03-Feb-23	168	(303)	390	(47)
27-Jan-23	249	(128)	339	(122)
20-Jan-23	88	(37)	261	81
13-Jan-23	310	139	294	516

% Δ vs 19	Gasoline	Distillate	Jet/Kero	Other Oils
03-Feb-23	2.13%	-7.29%	35.94%	-1.07%
27-Jan-23	3.19%	-3.21%	29.84%	-2.72%
20-Jan-23	1.14%	-1.01%	22.16%	1.84%
13-Jan-23	3.97%	3.98%	25.09%	11.84%

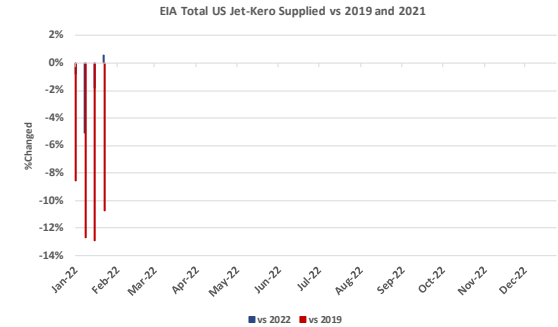
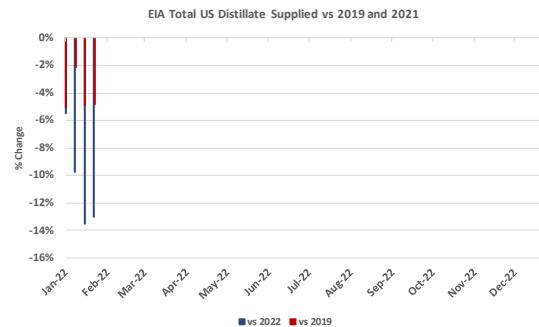
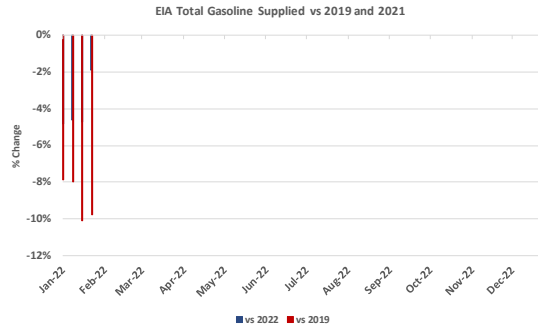
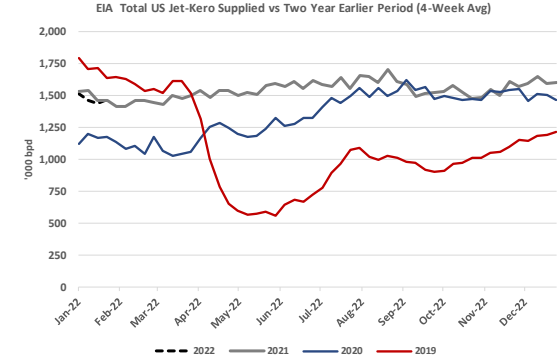
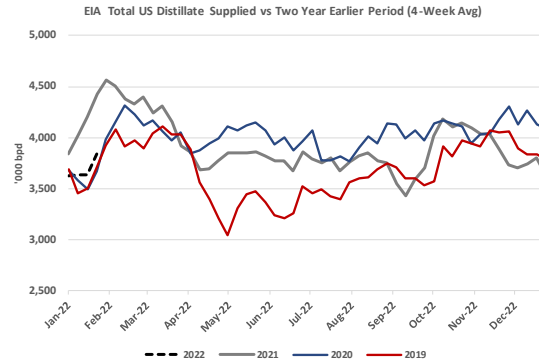
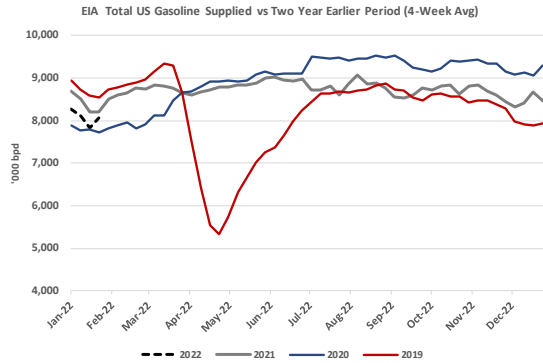
EIA Total US Product Supplied vs Two Year Earlier Period (4-Week Avg)



Source: EIA WPSR



# EIA US Gasoline & Diesel Supplied

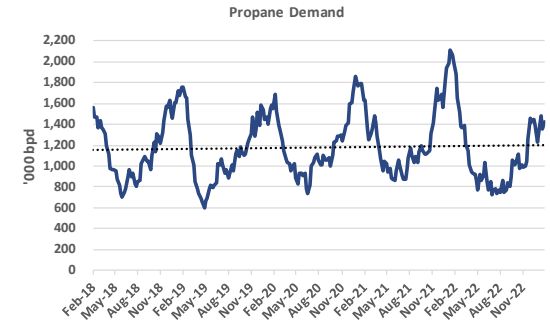
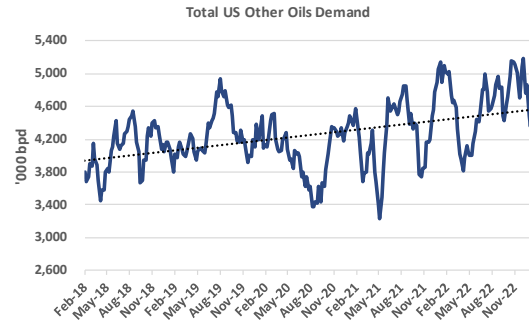
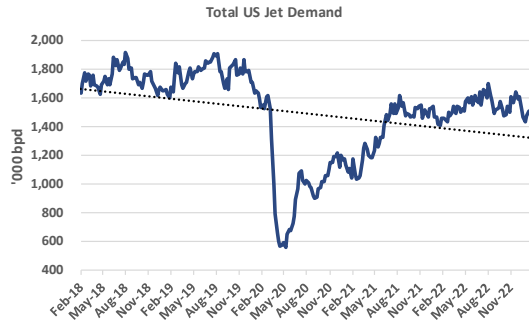
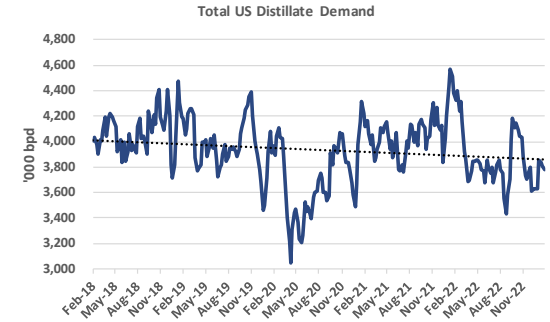
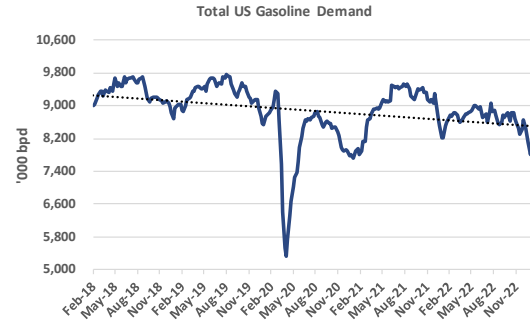
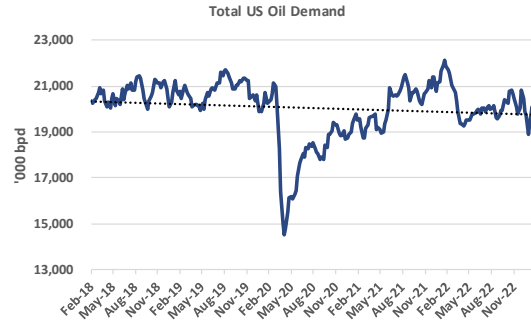


Source: EIA WPSR



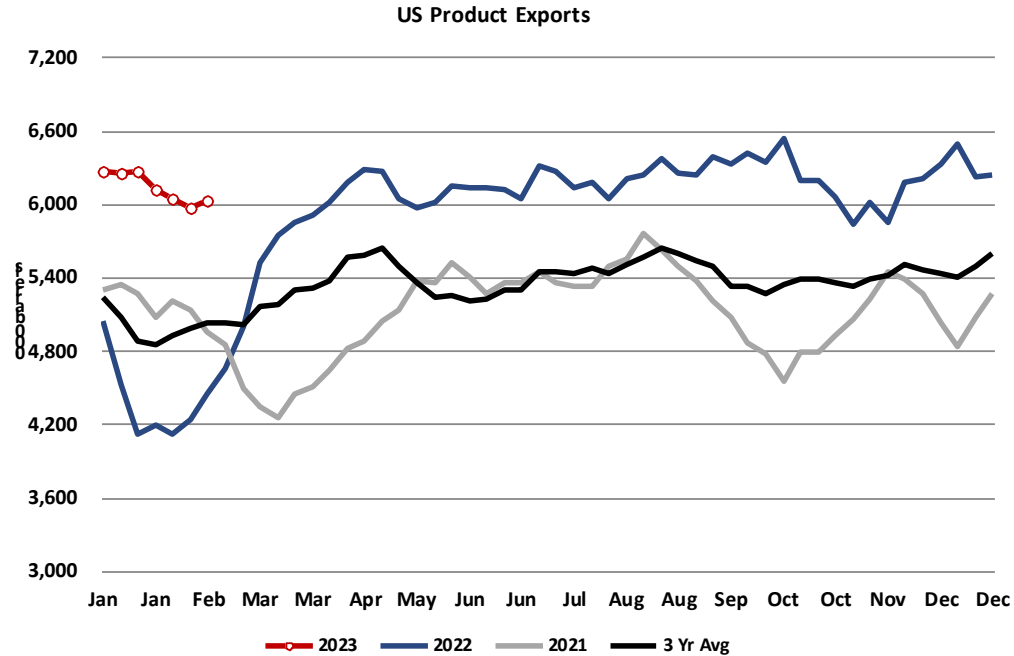


# US Demand Trajectory by Product





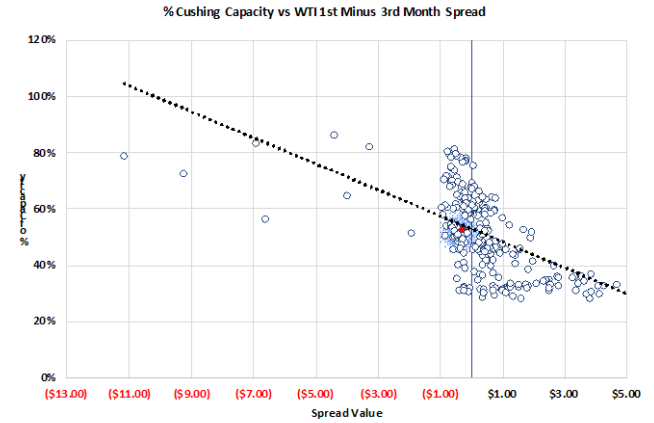
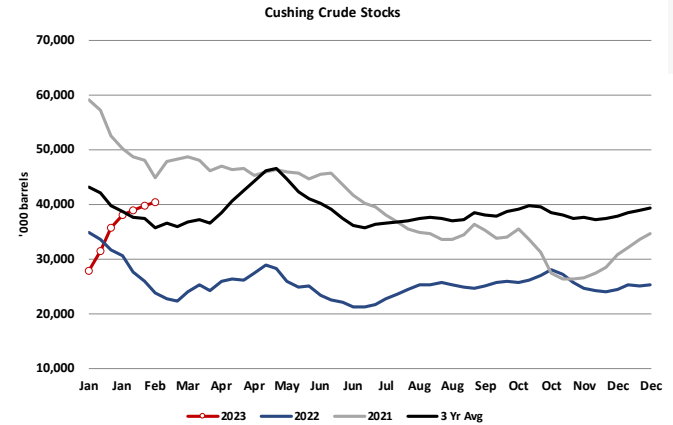
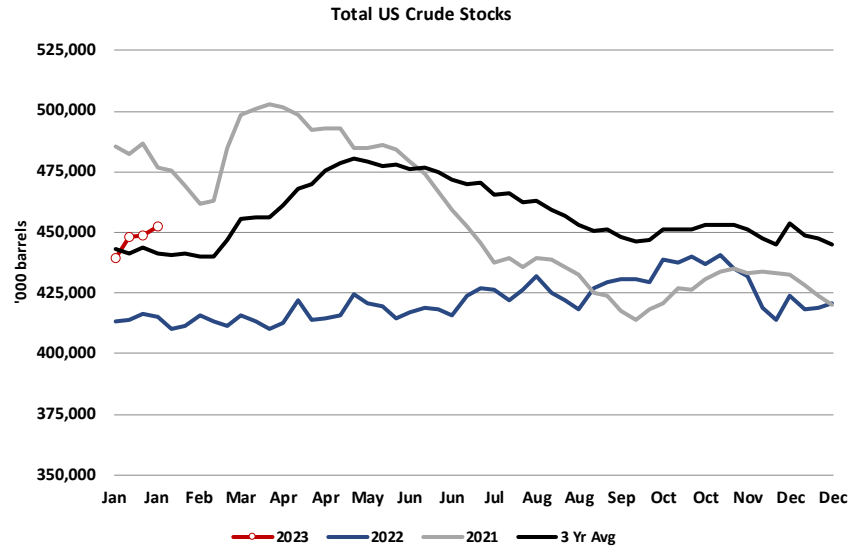
# US Refined Product Exports



Source: EIA WPSR



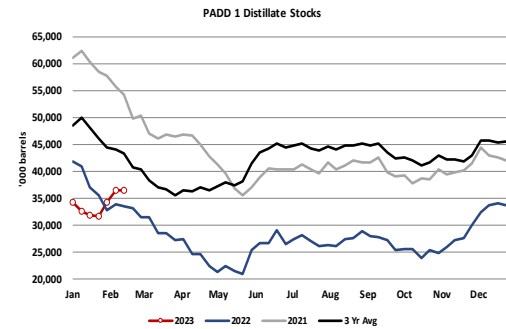
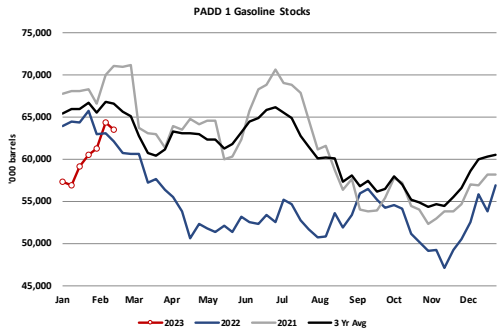
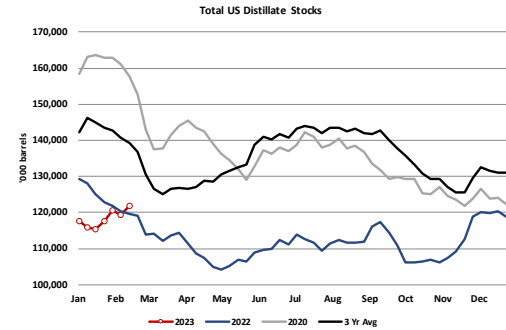
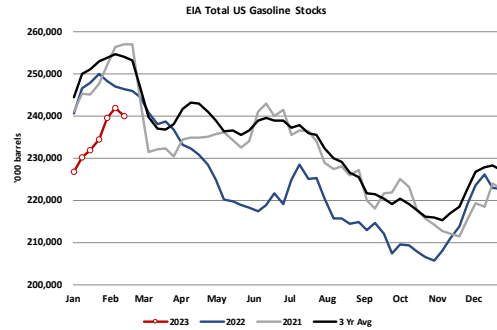
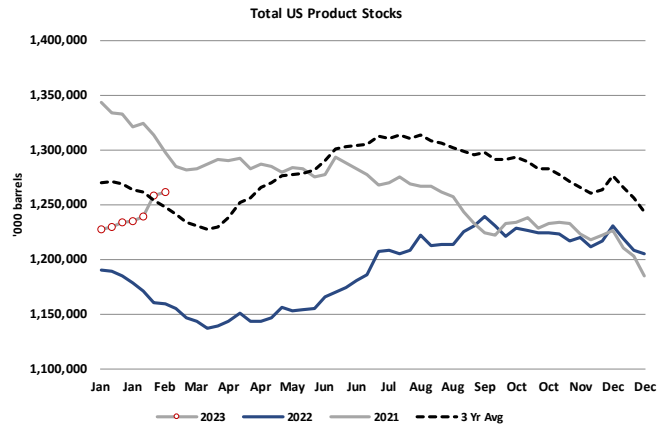
# EIA Crude & Cushing Inventories



Source: EIA WPSR



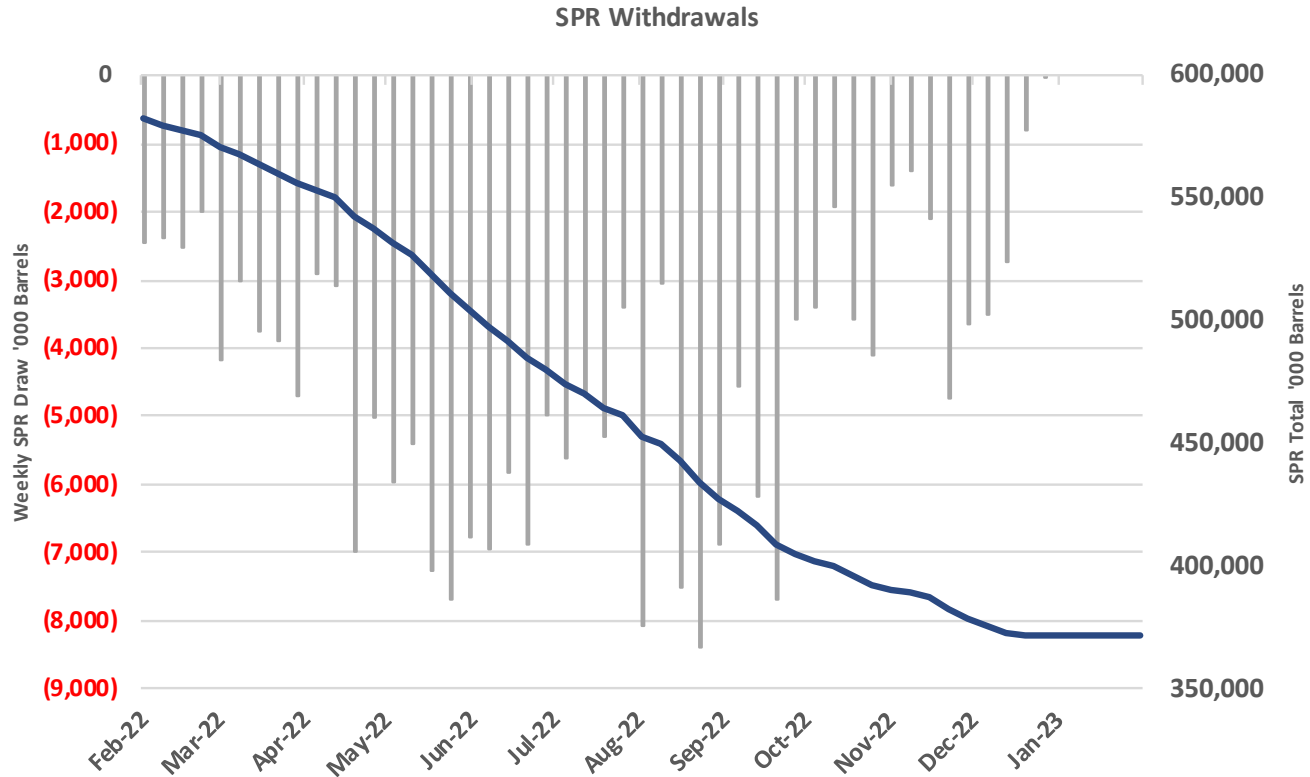
# EIA Product Inventories



Source: EIA WPSR



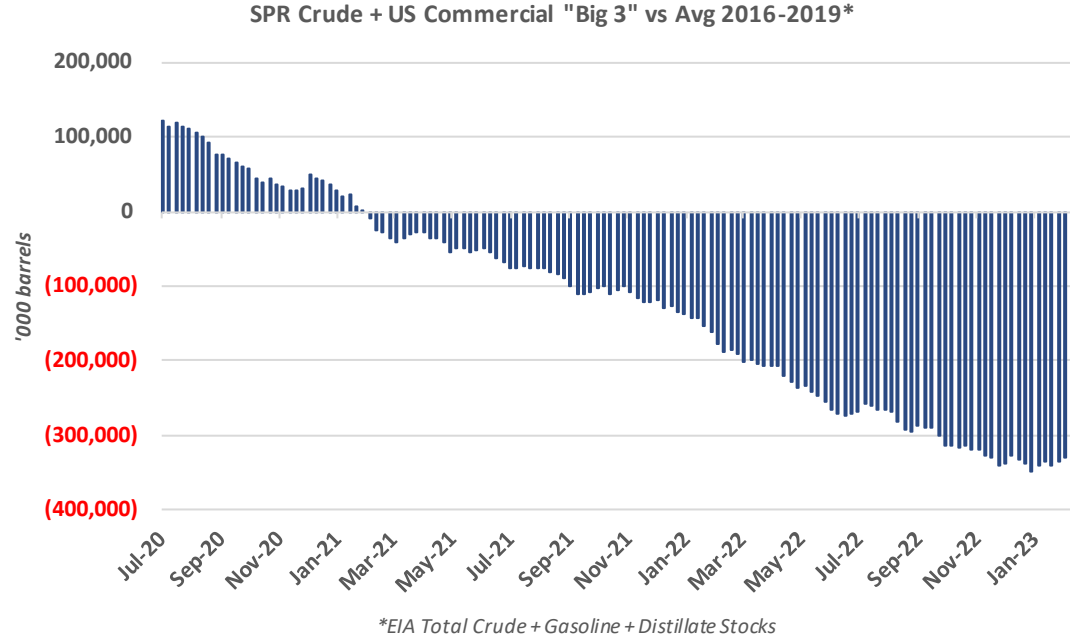
# Strategic Petroleum Reserve (SPR)



Source: EIA WPSR

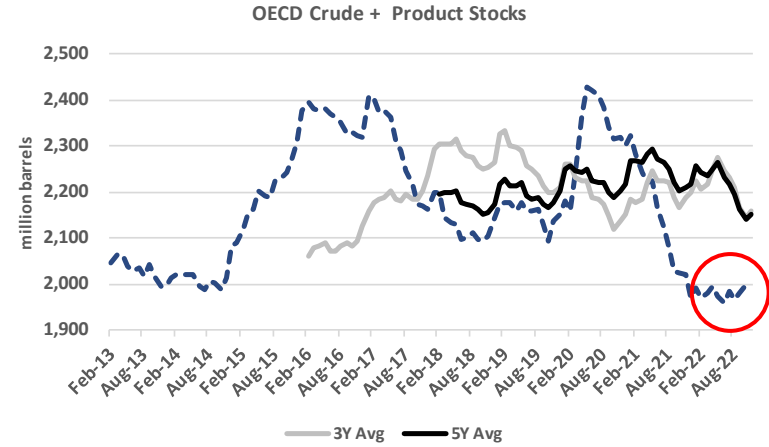
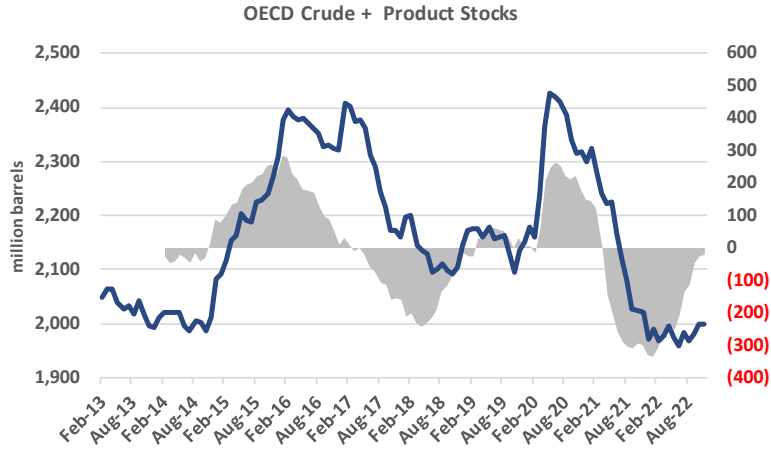


# SPR + US Commercial "Big 3"



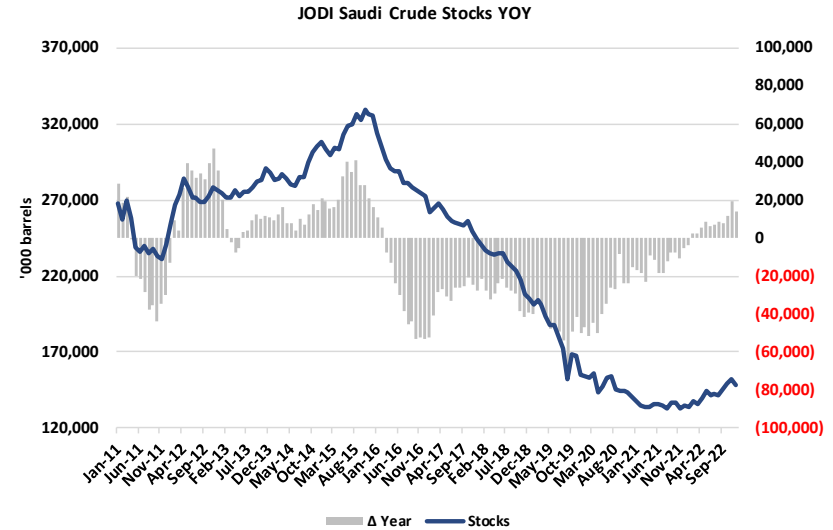
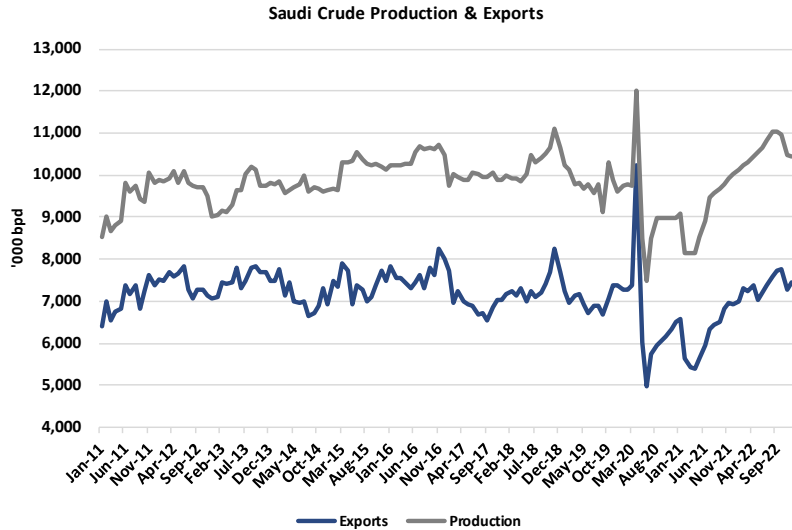


# OECD Commercial Oil Stocks





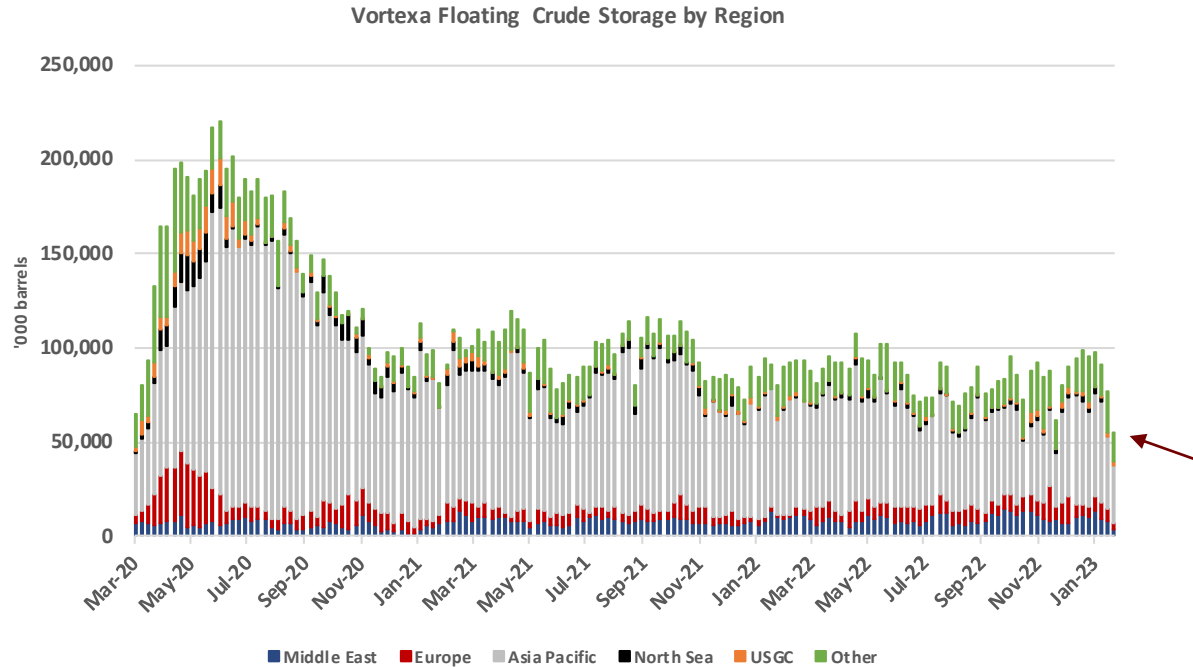
# Saudi Production, Exports & Inventory - JODA







# Global Floating Stocks



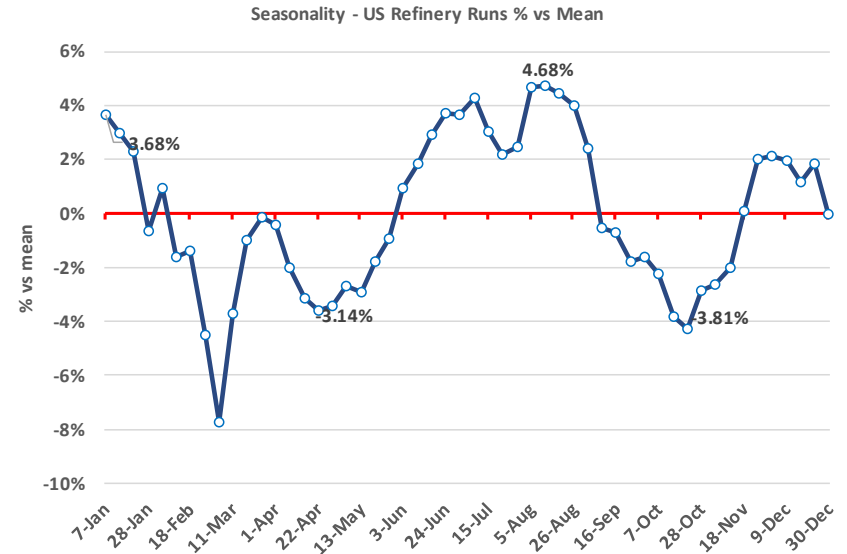
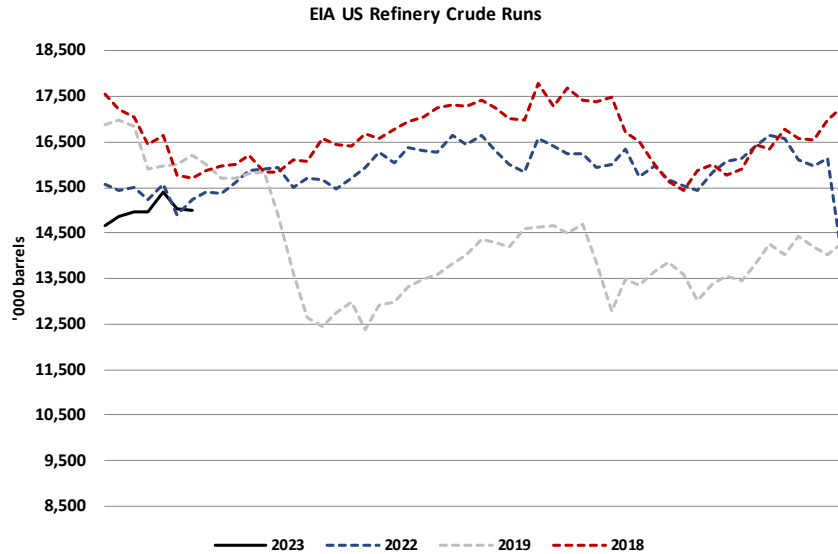
Source: Vortexa



## Petroleum Seasonal Patterns

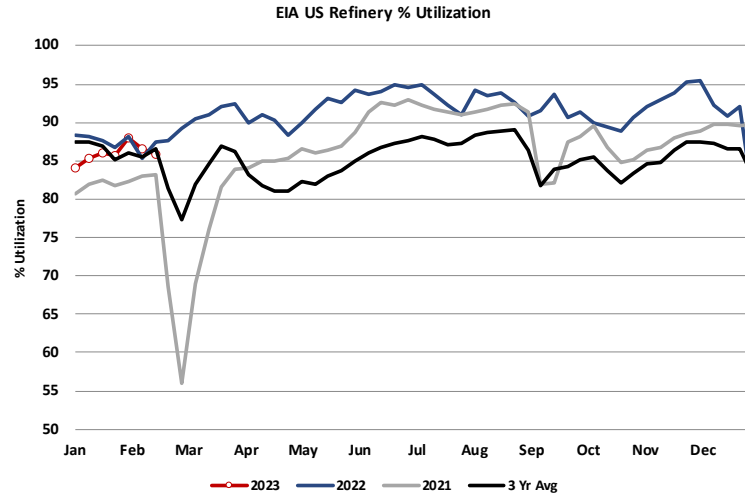
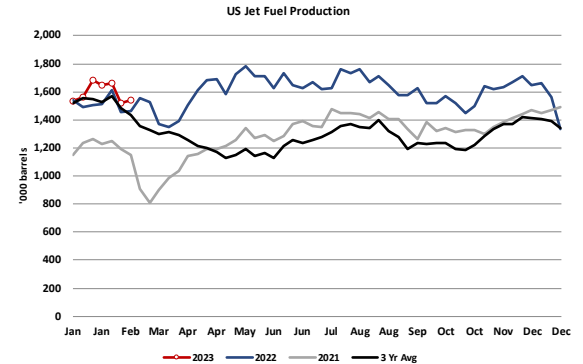
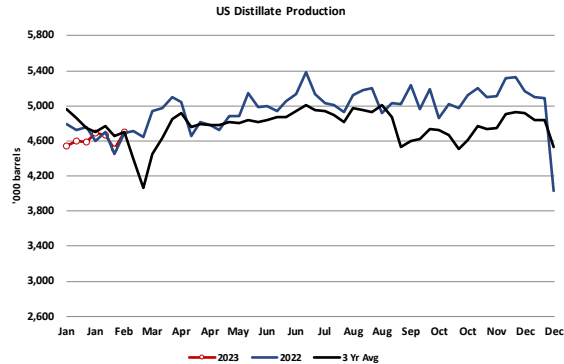
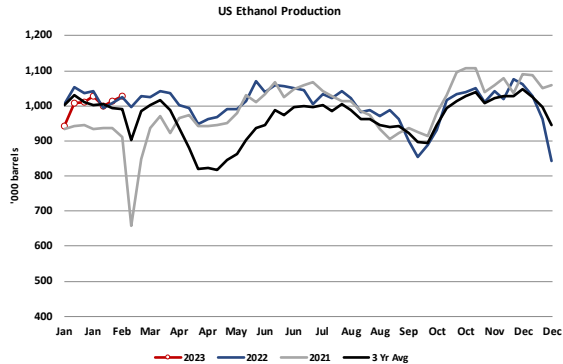
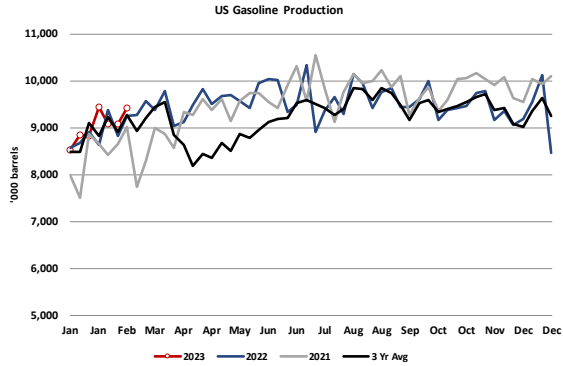


# US Refinery Crude Runs/Seasonality





# US Refinery Utilization & Output

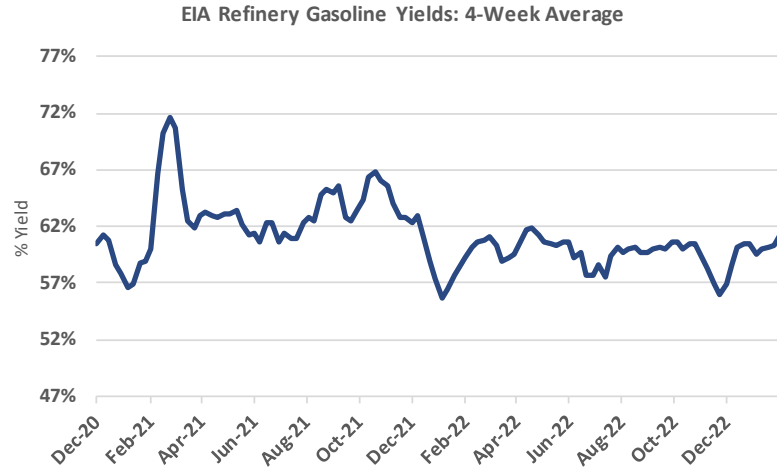
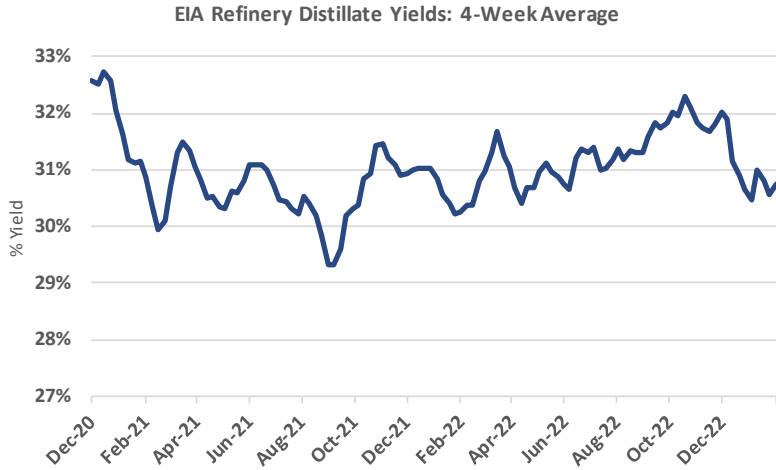


Source: EIA WPSR



# US Refinery Yields

	EIA Refinery Yield (4-Week Avg)				
	<u>Gasoline</u>	<u>Distillate</u>	<u>Jet-Kero</u>	<u>Residual</u>	<u>Other</u>
10-Feb-23	60.39%	30.57%	10.78%	1.71%	-3.45%
03-Feb-23	60.19%	30.81%	10.89%	1.76%	-3.65%
27-Jan-23	60.00%	31.00%	10.81%	1.90%	-3.71%
20-Jan-23	59.53%	30.46%	10.47%	1.94%	-2.40%



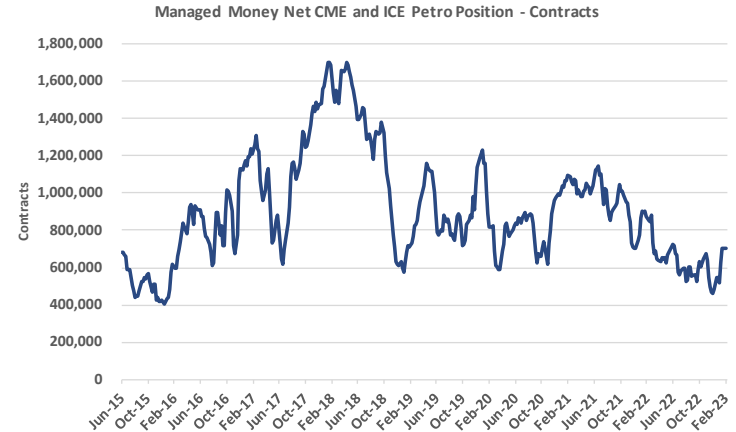
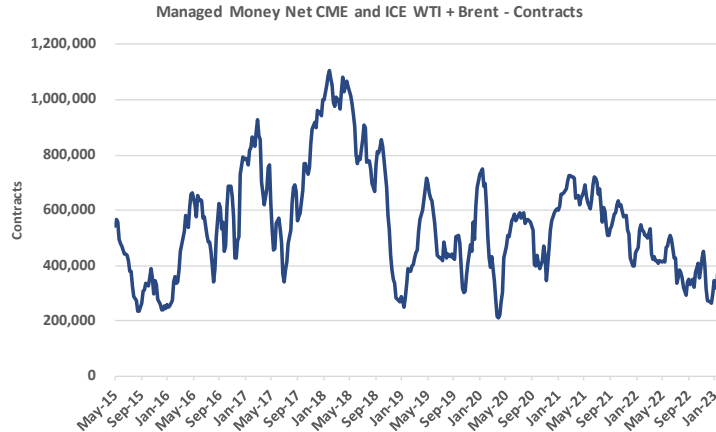


## **Transactional Considerations**



# CFTC Commitment of Traders Report

	Current	Δ Week	Δ 4-Week	Δ Year	52 Week Avg	Δ vs Current	52-Week Hi	Δ vs Current	52-Week Lo	Δ vs Current
<b>CME WTI</b>	283,326	0	14,264	(137,442)	319,458	(36,132)	433,958	(150,632)	232,146	51,180
<b>CME Diesel</b>	25,060	0	6,950	19,883	11,888	13,172	29,946	(4,886)	(14,002)	39,062
<b>CME RBOB</b>	63,577	0	6,964	289	46,573	17,004	45,581	17,996	27,945	35,632
<b>CME Total</b>	371,963	0	28,178	(117,270)	377,919	(5,956)	499,967	(128,004)	305,994	65,969
<b>ICE Brent</b>	252,142	0	39,690	28,789	177,651	74,491	254,794	(2,652)	89,393	162,749
<b>ICE Gasoil</b>	80,266	0	9,924	3,857	69,981	10,285	134,339	(54,073)	38,039	42,227
<b>ICE Total</b>	332,408	0	49,614	(31,576)	247,631	84,777	381,874	(49,466)	127,954	204,454
<b>CME/ICE All</b>	<b>704,371</b>	<b>0</b>	<b>77,792</b>	<b>(148,846)</b>	<b>625,550</b>	<b>78,821</b>	<b>881,841</b>	<b>(177,470)</b>	<b>433,948</b>	<b>270,423</b>



Source: US CFTC



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