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Energy Tidbits

When Will Israel Act? US says Iran is 1 or 2 Weeks from Breakout Capacity to Produce Nuclear Material for a Weapon

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Demand for U.S. Natural Gas Projected to Grow

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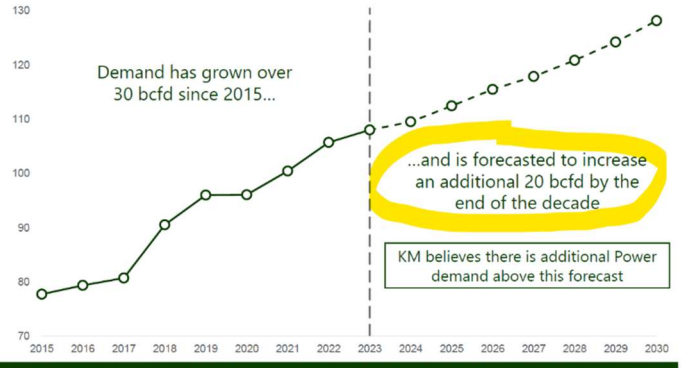
U.S. NATURAL GAS DEMAND bcfd



Existing infrastructure is highly utilized; new investment will be needed to meet projected incremental demand

Source: Wood Mackenzie, North America Gas Strategic Planning Outlook, April 2024

2023 – 2030 Natural Gas Demand

+19%
Increase in total U.S. demand

+92%
Increase in LNG & Mexican exports

+11%
Increase in industrial demand

LNG Exports Drive Natural Gas Demand

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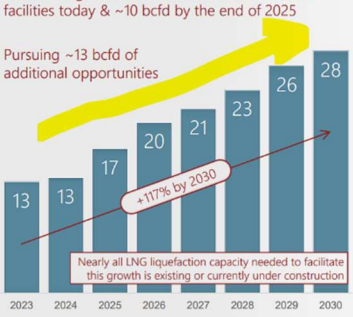
Growth Primarily Along the Texas & Louisiana Gulf Coast with Great Overlap with Our Assets

U.S. LNG FEEDGAS in bcfd

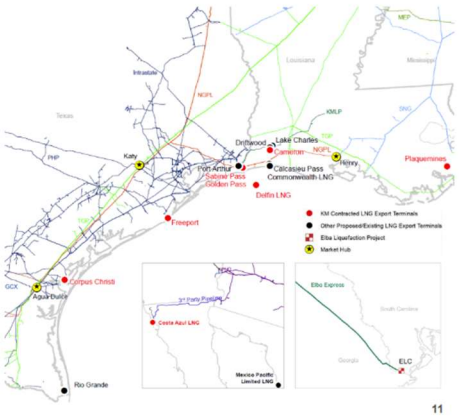
KM has long-term contracts to move ~7 bcfd to facilities today & ~10 bcfd by the end of 2025

Pursuing ~13 bcfd of additional opportunities



Nearly all LNG liquefaction capacity needed to facilitate this growth is existing or currently under construction

Note: Wood Mackenzie, North America Gas Strategic Planning Outlook, April 2024.



Data Centers Drive Additional Natural Gas Demand

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AI-DRIVEN DATA CENTERS LEADING TO SURGE IN POWER DEMAND

U.S. electricity demand projected to increase **2% – 3%** annually through 2030

Coal plants continue to be retired at a rapid pace

*Currently account for **16%** of U.S. power generation*

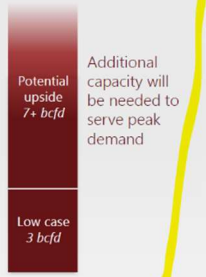
Dependable natural gas fired power is **essential** for **must-run** data centers, serving as either primary or backup generation

*Potentially **3 – 10+ bcfd** of incremental demand by 2030*

Data Center Demand Not Yet Captured in Most Natural Gas Projections

Source: Demand projections are a composite of outlooks sourced from BCG, McKinsey, Bernstein, and Wells Fargo. Coal-fired power generation data per the EIA.

PROJECTED INCREMENTAL NATURAL GAS DEMAND FOR DATA CENTERS



Additional capacity will be needed to serve peak demand

Highlights for the month

- Indigenous crude oil and condensate production during June 2024 was 2.4 MMT. OIL registered a production of 0.3 MMT, ONGC registered a production of 1.6 MMT whereas PSC/RSC registered production of 0.5 MMT during June 2024. There is a degrowth of 2.7 % in crude oil and condensate production during June 2024 as compared to June 2023.
- Total Crude oil processed during June 2024 was 22.2 MMT which is 3.1% higher than June 2023, where PSU/JV refiners processed 15.1 MMT and private refiners processed 7.1 MMT of crude oil. Total indigenous crude oil processed was 2.1 MMT and total Imported crude oil processed was 20.1 by all Indian refineries (PSU+JV+PVT). There was a growth of 1.7 % in total crude oil processed in April-June FY 2024 – 25 as compared to same period of FY 2023 – 24.
- Crude oil imports decreased by 5.1% and increased by 3.1% during June 2024 and April-June FY 2024-25 respectively as compared to the corresponding period of the previous year.As compared to net import bill for Oil & Gas for June 2023 of $ 9.2 billion, the net import bill for Oil & Gas for June 2024 was $ 10.2 billion. Out of which, crude oil imports constitutes $ 11.1 billion, LNG imports $1.1 billion and the exports were $ 3.7 billion during June 2024.
- The price of Brent Crude averaged $82.61/bbl during June 2024 as against $82.05/bbl during May 2024 and $74.70/bbl during June 2023. The Indian basket crude price averaged $82.55/bbl during June 2024 as against $83.62/bbl during May 2024 and $74.93 /bbl during June 2023.
- Production of petroleum products was 22.7 MMT during June 2024 which is 1.5% lower than June 2023. Out of 22.7 MMT, 22.4 MMT was from refinery production & 0.3 MMT was from fractionator. There was a growth of 1.5 % in production of petroleum products in April-June FY 2024 – 25 as compared to same period of FY 2023 – 24. Out of total POL production, in June 2024, share of HSD is 41.7 %, MS 16.6 %, Naphtha 6.5 %, ATF 6.3 %, Pet Coke 5.2 %, LPG 4.5% which are of major products and rest are shared by Bitumen, FO/LSHS, LDO, Lubes & others.
- POL products imports decreased by 3.1% and increased by 6.6% during June 2024 and April-June FY 2024-25 respectively as compared to the corresponding period of the previous year. Increase in POL products imports during April-June FY 2024-25 were mainly due to increase in imports of liquified petroleum gas (LPG), petcoke etc.

•	Exports of POL products increased by 1.1% and 2.7% during June 2024 and April-June FY 2024-25 respectively as compared to the corresponding period of the previous year. Increase in POL products exports during April-June FY 2024-25 were mainly due to increase in exports of aviation turbine fuel (ATF), petcoke, fuel oil (FO) etc.
•	The consumption of petroleum products during April-June 2024, with a volume of 60.9 MMT, reported a growth of 3.4 % compared to the volume of 58.9 MMT during the same period of the previous year. This growth was led by 11.4% growth in ATF, 7.1% growth in MS, 1.6% in HSD and 5.0% in LPG consumption besides growth in Lubes, Petcoke, bitumen and others during the period. The Consumption of petroleum products for the month of Jun-2024 recorded a growth of 2.6% with a volume of 20.0 MMT compared to the same period of the previous year.
•	Ethanol blending with Petrol was achieved at 15.9% during June 2024 and cumulative ethanol blending during November 2023- June 2024 was 13.0%. As on 01.07.2024, 14,476 PSU outlets out of 81,963 total PSU Retail Outlets are dispensing E20 Ethanol Blended MS.
•	Total Natural Gas Consumption (including internal consumption) for the month of June 2024 was 5594 MMSCM which was 7.1 % higher than the corresponding month of the previous year. The cumulative consumption of 16707 MMSCM for the current financial year till June 2024 was higher by 3.8 % compared with the corresponding period of the previous year.
•	Gross production of natural gas for the month of June 2024 (P) was 2993 MMSCM which was higher by 2.9% compared with the corresponding month of the previous year. The cumulative gross production of natural gas of 9056 MMSCM for the current financial year till June 2024 was higher by 5.7 % compared with the corresponding period of the previous year.
•	LNG import for the month of June 2024 (P) was 2648 MMSCM which was 11.3% higher than the corresponding month of the previous year. The cumulative import of 7796 (P) MMSCM for the current financial year till June 2024 is higher by 0.6 % compared with the corresponding period of the previous year.

2. Crude oil, LNG and petroleum products at a glance

	Details	Unit/ Base	2022-23 (P)	2023-24 (P)	June		April-June	
					2023-24 (P)	2024-25 (P)	2023-24 (P)	2024-25 (P)
1	Crude oil production in India#	MMT	29.2	29.4	2.4	2.4	7.3	7.3
2	Consumption of petroleum products*	MMT	223.0	234.3	19.5	20.0	58.9	60.9
3	Production of petroleum products	MMT	266.5	276.1	23.1	22.7	69.4	70.7
4	Gross natural gas production	MMSCM	34,450	36,438	2,910	2,993	8,564	9,056
5	Natural gas consumption	MMSCM	59,969	67,512	5,224	5,594	16,101	16,707
6	Imports & exports:							
	Crude oil imports	MMT	232.7	233.1	19.6	18.5	60.2	62.0
		$ Billion	157.5	132.8	10.0	11.1	31.5	37.5
	Petroleum products (POL) imports*	MMT	44.6	48.7	3.8	3.7	11.2	11.9
		$ Billion	26.9	23.0	1.7	1.7	5.1	5.6
	Gross petroleum imports (Crude + POL)	MMT	277.3	281.8	23.3	22.2	71.3	73.9
		$ Billion	184.4	155.9	11.7	12.8	36.6	43.1
	Petroleum products (POL) export	MMT	61.0	62.4	5.0	5.1	14.7	15.1
		$ Billion	57.3	47.7	3.4	3.7	10.3	11.2
	LNG imports*	MMSCM	26,304	31,795	2,380	2,648	7,748	7,796
		$ Billion	17.1	13.3	1.0	1.1	3.4	3.2
	Net oil & gas imports	$ Billion	144.2	121.5	9.2	10.2	29.7	35.1
7	Petroleum imports as percentage of India's gross imports (in value terms)^^	%	25.8	23.0	7.3	7.4	15.3	16.7
8	Petroleum exports as percentage of India's gross exports (in value terms)	%	12.7	10.9	10.0	10.6	10.0	10.2
9	Import dependency of crude oil (on POL consumption basis)	%	87.4	87.8	87.5	88.8	88.3	88.8

#Includes condensate; *Private direct imports are prorated for the period April'24 to May'24 for POL. LNG Imports figure from DGCIS are prorated for May'24 to June 2024.Total may not tally due to rounding off.

3. Indigenous crude oil production (Million Metric Tonnes)

Details	2022-23 (P)	2023-24 (P)	June			April-June		
			2023-24 (P)	2024-25 Target*	2024-25 (P)	2023-24 (P)	2024-25 Target*	2024-25 (P)
ONGC	18.4	18.1	1.5	1.6	1.5	4.6	4.9	4.4
Oil India Limited (OIL)	3.2	3.3	0.3	0.3	0.3	0.8	0.9	0.9
Private / Joint Ventures (JVs)	6.2	5.7	0.5	0.6	0.4	1.5	1.8	1.4
Total Crude Oil	**27.8**	**27.2**	**2.3**	**2.5**	**2.2**	**6.9**	**7.6**	**6.7**
ONGC condensate	1.0	1.1	0.1	0.0	0.1	0.3	0.0	0.3
PSC condensate	0.3	1.1	0.1	0.0	0.1	0.2	0.0	0.3
Total condensate	**1.4**	**2.2**	**0.2**	**0.0**	**0.2**	**0.5**	**0.0**	**0.6**
Total (Crude + Condensate) (MMT)	**29.2**	**29.4**	**2.4**	**2.5**	**2.4**	**7.3**	**7.6**	**7.3**
Total (Crude + Condensate) (Million Bbl/Day)	0.59	0.59	0.59	0.61	0.58	0.59	0.61	0.58

*Provisional targets inclusive of condensate.

4. Domestic and overseas oil & gas production (by Indian Companies)

Details	2022-23 (P)	2023-24 (P)	June		April-June	
			2023-24 (P)	2024-25 (P)	2023-24 (P)	2024-25 (P)
Total domestic production (MMTOE)	63.6	65.8	5.3	5.4	15.9	16.3
Overseas production (MMTOE)	19.5	19.9	1.6	1.6	5.0	4.8

Source: ONGC Videsh, GAIL, OIL , IOCL, HPCL & BPRL

5. High Sulphur (HS) & Low Sulphur (LS) crude oil processing (MMT)

	Details	2022-23 (P)	2023-24 (P)	June		April-June	
				2023-24 (P)	2024-25 (P)	2023-24 (P)	2024-25 (P)
1	High Sulphur crude	197.9	205.2	16.7	17.0	51.4	53.3
2	Low Sulphur crude	57.4	56.3	4.8	5.2	14.3	13.6
Total crude processed (MMT)		**255.2**	**261.5**	**21.5**	**22.2**	**65.7**	**66.8**
Total crude processed (Million Bbl/Day)		5.13	5.25	5.26	5.42	5.29	5.38
Percentage share of HS crude in total crude oil processing		**77.5%**	**78.5%**	**77.6%**	**76.7%**	**78.3%**	**79.7%**

6. Quantity and value of crude oil imports			
Year	**Quantity (MMT)**	**$ Million**	**Rs. Crore**
2021-22	212.4	120675	9,01,262
2022-23	232.7	157531	12,60,372
2023-24 (P)	233.1	132838	11,00,589
April-June 2024-25(P)	62.0	37481	3,12,839

7. Self-sufficiency in petroleum products (Million Metric Tonnes)							
Particulars		**2022-23 (P)**	**2023-24(P)**	**June**		**April-June**	
				2023-24 (P)	**2024-25 (P)**	**2023-24 (P)**	**2024-25 (P)**
1	Indigenous crude oil processing	26.5	26.9	2.3	2.1	6.5	6.4
2	Products from indigenous crude (93.3% of crude oil processed)	24.7	25.1	2.2	1.9	6.0	6.0
3	Products from fractionators (Including LPG and Gas)	3.5	3.5	0.3	0.3	0.9	0.9
4	Total production from indigenous crude & condensate **(2 + 3)**	28.2	28.6	2.4	2.2	6.9	6.8
5	Total domestic consumption	223.0	234.3	19.5	20.0	58.9	60.9
% Self-sufficiency (4 / 5)		**12.6%**	**12.2%**	**12.5%**	**11.2%**	**11.7%**	**11.2%**

8. Refineries: Installed capacity and crude oil processing (MMTPA / MMT)										
Sl. no.	Refinery	Installed capacity (01.04.2024) MMTPA	Crude oil processing (MMT)							
			2022-23 (P)	2023-24 (P)	June			April-June		
					2023-24 (P)	2024-25 (Target)	2024-25 (P)	2023-24 (P)	2024-25 (Target)	2024-25 (P)
1	Barauni (1964)	6.0	6.8	6.6	0.5	0.5	0.6	1.6	1.6	1.7
2	Koyali (1965)	13.7	15.6	15.2	1.3	1.3	1.3	3.7	3.9	3.9
3	Haldia (1975)	8.0	8.5	8.1	0.7	0.7	0.7	2.1	2.2	2.0
4	Mathura (1982)	8.0	9.6	9.2	0.8	0.8	0.8	2.5	2.6	2.5
5	Panipat (1998)	15.0	13.8	14.3	1.3	1.3	1.3	3.8	4.0	3.9
6	Guwahati (1962)	1.2	1.1	1.0	0.1	0.1	0.1	0.3	0.3	0.3
7	Digboi (1901)	0.65	0.7	0.7	0.1	0.1	0.1	0.2	0.2	0.2
8	Bongaigaon(1979)	2.70	2.8	3.0	0.3	0.2	0.2	0.8	0.5	0.5
9	Paradip (2016)	15.0	13.6	15.2	1.3	0.9	0.9	3.8	3.5	3.1
	IOCL-TOTAL	**70.3**	**72.4**	**73.3**	**6.3**	**6.0**	**6.0**	**18.8**	**18.8**	**18.2**
10	Manali (1969)	10.5	11.3	11.6	0.8	1.0	0.9	2.7	3.0	2.8
11	CBR (1993)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	CPCL-TOTAL	**10.5**	**11.3**	**11.6**	**0.8**	**1.0**	**0.9**	**2.7**	**3.0**	**2.8**
12	Mumbai (1955)	12.0	14.5	15.1	1.4	1.2	1.1	4.0	3.7	3.8
13	Kochi (1966)	15.5	16.0	17.3	1.5	1.4	1.5	4.3	4.2	4.4
14	Bina (2011)	7.8	7.8	7.1	0.6	0.6	0.7	1.8	1.8	2.0
	BPCL-TOTAL	**35.3**	**38.4**	**39.5**	**3.4**	**3.2**	**3.3**	**10.1**	**9.8**	**10.2**
15	Numaligarh (1999)	3.0	3.1	2.5	0.01	0.2	0.2	0.1	0.7	0.8

Sl. no.	Refinery	Installed capacity (01.04.2024) MMTPA	Crude oil processing (MMT)							
			2022-23 (P)	2023-24 (P)	June			April-June		
					2023-24 (P)	2024-25 (Target)	2024-25 (P)	2023-24 (P)	2024-25 (Target)	2024-25 (P)
16	Tatipaka (2001)	0.07	0.07	0.07	0.006	0.006	0.006	0.02	0.01	0.02
17	MRPL-Mangalore (1996)	15.0	17.1	16.5	1.5	1.5	1.5	4.4	4.3	4.4
	ONGC-TOTAL	**15.1**	**17.2**	**16.6**	**1.5**	**1.5**	**1.5**	**4.4**	**4.3**	**4.4**
18	Mumbai (1954)	9.5	9.8	9.6	0.8	0.8	0.9	2.4	2.2	2.2
19	Visakh (1957)	13.7	9.3	12.7	1.0	1.1	1.3	3.0	3.2	3.5
20	HMEL-Bathinda (2012)	11.3	12.7	12.6	1.1	1.0	1.1	3.2	3.0	3.3
	HPCL- TOTAL	**34.5**	**31.8**	**35.0**	**2.9**	**2.9**	**3.3**	**8.6**	**8.3**	**9.0**
21	RIL-Jamnagar (DTA) (1999)	33.0	34.4	34.4	2.8	2.8	2.8	8.5	8.5	8.6
22	RIL-Jamnagar (SEZ) (2008)	35.2	27.9	28.3	2.3	2.3	2.6	7.5	7.5	7.8
23	NEL-Vadinar (2006)	20.0	18.7	20.3	1.6	1.6	1.6	5.0	5.0	5.0
All India (MMT)		**256.8**	**255.2**	**261.5**	**21.5**	**21.3**	**22.2**	**65.7**	**65.9**	**66.8**
All India (Million Bbl/Day)		**5.02**	**5.13**	**5.24**	**5.26**	**5.20**	**5.42**	**5.29**	**5.31**	**5.38**

Note: Provisional Targets; Some sub-totals/ totals may not add up due to rounding off at individual levels. The Inputs to Refinery includes both Crude Oil and Other Inputs (OI), however Other Inputs (OI) do not form part of the above data.

9. Major crude oil and product pipeline network (as on 01.07.2024)

Details		ONGC	OIL	Cairn	HMEL	IOCL	BPCL	HPCL	Others*	Total
Crude Oil	Length (KM)	1,284	1,193	688	1,017	5,822	937			**10,941**
	Cap (MMTPA)	60.6	9.0	10.7	11.3	53.8	7.8			**153.1**
Products	Length (KM)		654			12,581	2,600	5,133	2,399	**23,367**
	Cap (MMTPA)		1.7			70.6	22.6	35.2	10.2	**140.3**

*Others include GAIL and Petronet India. HPCL and BPCL lubes pipeline included in products pipeline data

OIL & GAS MAP OF INDIA

LEGENDS

Refineries

Refineries (Capacity in MMTPA)

Producing Fields

Major Producing Fields

LNG Terminals

Dahej, Dabej, Hazira, Kochi, Mundra, Ennore

(Upcoming Terminals) Dhamra, Jafrabad, Jaigarh, Others

LEGENDS

Pipelines Network

- Crude Oil Pipeline
- Ongoing Crude Oil Pipeline
- Product Pipeline
- Ongoing Product Pipeline
- LPG Pipeline
- Ongoing LPG Pipeline
- Gas Pipeline
- Ongoing Gas Pipeline

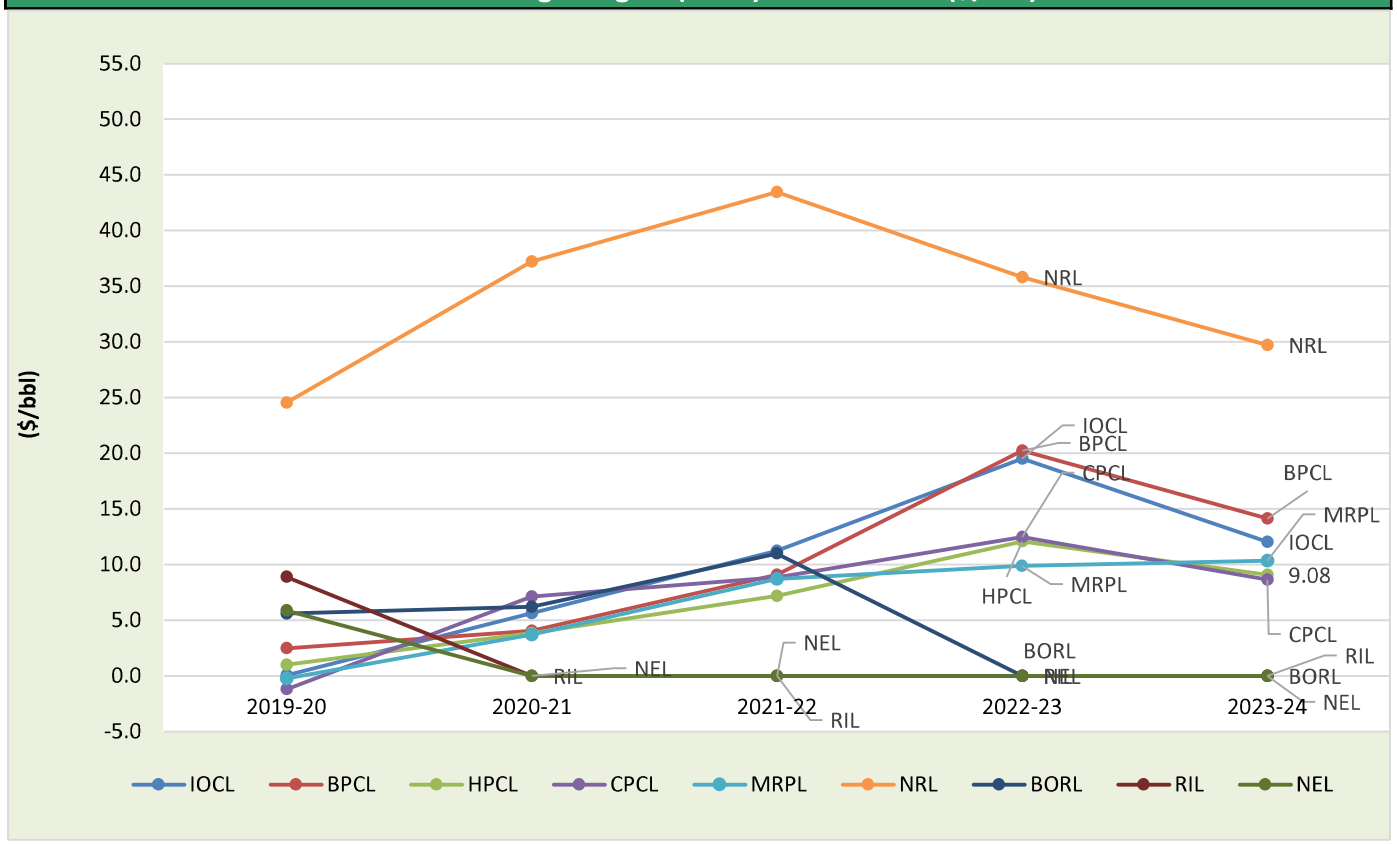
10. Gross Refining Margins (GRM) of refineries ($/bbl)					
Company	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
IOCL	0.08	5.64	11.25	19.52	12.05
BPCL	2.50	4.06	9.09	20.24	14.14
HPCL	1.02	3.86	7.19	12.09	9.08
CPCL	-1.18	7.14	8.85	12.48	8.64
MRPL	-0.23	3.71	8.72	9.88	10.36
NRL	24.55	37.23	43.46	35.82	29.72
BORL	5.60	6.20	11.00	#	#
RIL	8.90	*	*	*	*
NEL	5.88	*	*	*	*

GRM of North Eastern refineries are including excise duty benefit

BPCL figures effective 2022-23 includes BORL also after its merger with BPCL

*Not available

Gross Refining Margins (GRM) of refineries ($/bbl)



GRM of North Eastern refineries are including excise duty benefit

11. Production and consumption of petroleum products (Million Metric Tonnes)												
Products	2022-23 (P)		2023-24 (P)		June-23 (P)		June-24 (P)		Apr-June 2023 (P)		Apr-June 2024 (P)	
	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons	Prod	Cons
LPG	12.8	28.5	12.8	29.7	1.1	2.2	1.1	2.3	3.3	6.7	3.2	7.1
MS	42.8	35.0	45.1	37.2	3.8	3.2	3.8	3.3	11.2	9.4	11.7	10.0
NAPHTHA	17.0	12.2	18.3	13.8	1.5	1.1	1.5	1.1	4.5	3.3	4.6	3.4
ATF	15.0	7.4	17.1	8.2	1.4	0.6	1.4	0.7	4.2	2.0	4.4	2.2
SKO	0.9	0.5	1.0	0.5	0.1	0.05	0.12	0.04	0.21	0.12	0.3	0.09
HSD	113.8	85.9	115.9	89.6	9.8	7.9	9.3	8.0	29.3	23.9	29.5	24.3
LDO	0.6	0.7	0.7	0.8	0.06	0.1	0.0	0.1	0.1	0.2	0.1	0.2
LUBES	1.3	3.7	1.4	4.1	0.1	0.3	0.1	0.4	0.4	0.9	0.3	1.1
FO/LSHS	10.4	7.0	10.3	6.5	0.9	0.5	0.9	0.5	2.8	1.7	2.8	1.6
BITUMEN	4.9	8.0	5.2	8.8	0.5	0.8	0.5	0.8	1.5	2.5	1.6	2.5
PET COKE	15.4	18.3	15.1	20.3	1.2	1.6	1.2	1.6	3.8	4.8	3.7	5.1
OTHERS	31.5	15.8	33.3	14.7	2.7	1.2	2.7	1.2	8.1	3.3	8.3	3.3
ALL INDIA	**266.5**	**223.0**	**276.1**	**234.3**	**23.1**	**19.5**	**22.7**	**20.0**	**69.4**	**58.9**	**70.7**	**60.9**
Growth (%)	**4.8%**	**10.6%**	**3.6%**	**5.0%**	**4.6%**	**5.2%**	**-1.5%**	**2.6%**	**2.0%**	**6.4%**	**1.8%**	**3.4%**

Note: Prod - Production; Cons - Consumption

15. LPG consumption (Thousand Metric Tonne)

LPG categorv	2021-22	2022-23	June			April-June		
			2023-24	2024-25(P)	Growth (%)	2023-24	2024-25 (P)	Growth (%)
1. PSU Sales :								
LPG-Packed Domestic	25,501.6	25,381.5	1,973.6	2,054.0	4.1%	5,991.6	6,310.8	5.3%
LPG-Packed Non-Domestic	2,238.8	2,606.0	218.0	204.0	-6.4%	633.5	603.5	-4.7%
LPG-Bulk	390.9	408.9	33.4	38.8	16.3%	85.8	118.3	37.9%
Auto LPG	122.0	106.7	7.9	5.9	-25.8%	23.0	18.1	-21.1%
Sub-Total (PSU Sales)	28,253.3	28,503.1	**2,232.9**	**2,302.7**	**3.1%**	**6,733.9**	**7,050.9**	**4.7%**
2. Direct Private Imports*	0.1	0.1	0.00	2.26	#DIV/0!	0.04	17.54	45569.3%
Total (1+2)	28,253.4	28,503.2	**2,232.9**	**2,305.0**	**3.2%**	**6,733.9**	**7,068.4**	**5.0%**

*May'24-June-24 DGCIS data is prorated.

16. LPG marketing at a glance

Particulars (As on 1st of April)	Unit	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	01.07.24 (P)
LPG Active Domestic Customers	(Lakh)			1486	1663	1988	2243	2654	2787	2895	3053	3140	3242	3268.2
	Growth				11.9%	19.6%	12.8%	18.3%	5.0%	3.9%	5.5%	2.9%	3.2%	3.7%
LPG Coverage (Estimated)	(Percent)			56.2	61.9	72.8	80.9	94.3	97.5	99.8	-	-	-	-
	Growth				10.1%	17.6%	11.1%	16.5%	3.4%	2.3%	-	-	-	-
PMUY Beneficiaries	(Lakh)					200.3	356	719	802	800	899.0	958.6	1032.7	1033
	Growth						77.7%	101.9%	11.5%	-0.2%	12.2%	6.6%	7.7%	7.8%
LPG Distributors	(No.)	12610	13896	15930	17916	18786	20146	23737	24670	25083	25269	25386	25481	25495
	Growth	9.8%	10.2%	14.6%	12.5%	4.9%	7.2%	17.8%	3.9%	1.7%	0.7%	0.5%	0.4%	0.4%
Auto LPG Dispensing Stations	(No.)	667	678	681	676	675	672	661	657	651	601	526	468	449
	Growth	2.3%	1.6%	0.4%	-0.7%	-0.1%	-0.4%	-1.6%	-0.6%	-0.9%	-8.5%	-12.5%	-11.0%	-9.5%
Bottling Plants	(No.)	185	187	187	188	189	190	192	196	200	202	208	210	211
	Growth	0.5%	1.1%	0.0%	0.5%	0.5%	0.5%	1.1%	2.1%	2.0%	1.0%	4.5%	1.0%	1.4%

Source: PSU OMCs (IOCL,BPCL and HPCL)

1.Growth rates as on 01.07.2024 are with respect to figs as on 01.07.2023. Growth rates as on 1 April of any year are with respect to figs as on 1 April of previous year.

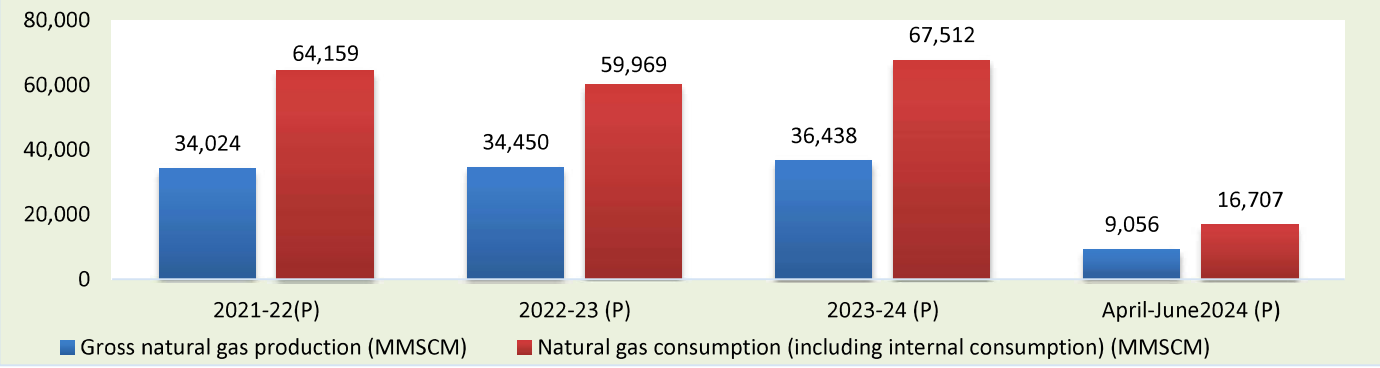
2. The LPG coverage is calculated by PSU OMCs based upon the active LPG domestic connections and the estimated number of households. The number of households has been projected by PSU OMCs based on 2011 census data. Factors like increasing nuclearization of families, migration of individuals/ families due to urbanization and reduction in average size of households etc. impact the growth of number of households. Due to these factors, the estimated no. of households through projection of 2011 census data may slightly differ from the actual no. of households in a State/UT. Further, this methodology does not include PNG (domestic) connections.

18. Natural gas at a glance

(MMSCM)

Details	2022-23	2023-24	June			April-June		
			2023-24 (P)	2024-25 (Target)	2024-25 (P)	2023-24 (P)	2024-25 (Target)	2024-25 (P)
(a) Gross production	34,450	36,438	2,910	3,162	2,993	8,564	9,647	9,056
- ONGC	19,969	19,316	1,588	1,608	1,545	4,878	4,876	4,677
- Oil India Limited (OIL)	3,041	3,090	245	317	260	733	942	792
- Private / Joint Ventures (JVs)	11,440	14,032	1,077	1,237	1,188	2,952	3,830	3,587
(b) Net production (excluding flare gas and loss)	33,664	35,717	2,844		2,945	8,353		8,911
(c) LNG import#	26,304	31,795	2,380		2,648	7,748		7,796
(d) Total consumption including internal consumption (b+c)	59,969	67,512	5,224		5,594	16,101		16,707
(e) Total consumption **(in BCM)**	60.0	67.5	5.2		5.6	16.1		16.7
(f) Import dependency based on consumption (%), {c/d*100}	43.9	47.1	45.6		47.3	48.1		46.7

May-Jun'24 LNG data from DGCIS is prorated.



19. Coal Bed Methane (CBM) gas development in India

Prognosticated CBM resources		91.8	TCF
Established CBM resources		10.4	TCF
CBM Resources (33 Blocks)		62.8	TCF
Total available coal bearing areas (India)		32760	Sq. KM
Total available coal bearing areas with MoPNG/DGH		12254*	Sq. KM
Area awarded		21,177**	Sq. KM
Blocks awarded*		39	Nos.
Exploration initiated (Area considered if any boreholes were drilled in the awarded block)		11008	Sq. KM
Production of CBM gas	April-June 2024 (P)	173.10	MMSCM
Production of CBM gas	June 2024 (P)	59.63	MMSCM

*ST CBM Block awarded & relinquished twice- in CBM Round II and Round IV -Area considered if any boreholes were drilled in the awarded block. **MoPNG awarded 04 new CBM Blocks (Area 3862 sq. km) under Special CBM Bid Round 2021 in September 2022. ***Area considered if any boreholes were drilled in the awarded block.

19a. Status of Compressed Bio Gas (CBG) projects under SATAT (as on 01.07.2024) (Provisional)

Particulars	Units	IOCL	HPCL	BPCL	GAIL#	IGL	Total
No. of CBG plants commissioned and initiated sale of CBG	No. of plants	32*	9	8	15	6	**69***
Start of CBG sale from retail outlet(s)	Nos.	95	60	58	1	0	**214**
Sale of CBG in 2022-23	Tons	5,822	77	6	5322		**11,227**
Sale of CBG in 2023-24	Tons	6500	309	102	12813		**19724**
Sale of CBG in 2024-25 (up to May 2024)	Tons	1926	568	134	6526		**9154**
Sale of CBG in CGD network	GA Nos.				33		**33**

Sale of CBG sourced under CBG-CGD synchronization scheme by GAIL through its own marketing channels as well as other CGDs/OMCs..*2 LOI holders of IndianOil are supplying CBG produced at their plants to two other OGMCs and hence they are counted only once in cumulative CBG plants commissioned on industry basis.

20. Common Carrier Natural Gas pipeline network as on 31.03.2024

Nature of pipeline		GAIL	GSPL	PIL	IOCL	AGCL	RGPL	GGL	DFPCL	ONGC	GIGL	GITL	Others*	Total
Operational	Length	10,983	2,722	1,483	143	107	304	73	42	24				**15,881**
	Capacity	233.2	43.0	85.0	20.0	2.4	3.5	5.1	0.7	6.0				-
Partially commissioned#	Length	4,933			1,080						1,302	364		**7,679**
	Capacity	0.0												-
Total operational length		**15,916**	**2,722**	**1,483**	**1,223**	**107**	**304**	**73**	**42**	**24**	**1,302**	**364**	**0**	**23,560**
Under construction	Length	2,605	100		65						0	220	2,640	**5,630**
	Capacity	26.3	3.0		1.0						0.0	36.0	42.0	-
Total length		**18,521**	**2,822**	**1,483**	**1,288**	**107**	**304**	**73**	**42**	**24**	**1,302**	**584**	**2,640**	**29,190**

Source: PNGRB; Length in KMs ; Authorized Capacity in MMSCMD (Arithmetic sum taken for each entity -capacity may vary from pipeline to pipeline); *Others-APGDC, , IGGL, IMC,GTIL,HPPL Consortium of H-Energy. Total authorized Natural Gas pipelines including Tie-in connectivity, dedicated & STPL is 33,347 Kms (P),however total operational and Under Construction Pipeline length is 35,217 Kms (P)

21. Existing LNG terminals

Location	Promoters	Capacity as on 01.07.2024 (MMTPA)	% Capacity utilisation (April- May 2024)
Dahej	Petronet LNG Ltd (PLL)	17.5	107.2
Hazira	Shell Energy India Pvt. Ltd.	5.2	38.3
Dabhol	Konkan LNG Limited*	5	73.8
Kochi	Petronet LNG Ltd (PLL)	5	20.6
Ennore	Indian Oil LNG Pvt Ltd	5	25.8
Mundra	GSPC LNG Limited	5	34.4
Dhamra	Adani Total Private Limited	5	25.0
Total Capacity		**47.7**	

* To increase to 5 MMTPA with breakwater. Only HP stream of capacity of 2.9 MMTPA is commissioned

22. Status of PNG connections and CNG stations across India (Nos.) as on 01.06.2024(P)				
State/UT (State/UTs are clubbed based on the GAs authorised by PNGRB)	CNG Stations	PNG connections		
		Domestic	Commercial	Industrial
Andhra Pradesh	193	273,788	483	43
Andhra Pradesh, Karnataka & Tamil Nadu	43	10,268	8	6
Arunachal Pradesh	0	0	0	0
Assam	22	61,834	1,394	462
Bihar	133	161,760	130	12
Bihar & Jharkhand	15	8,660	5	0
Bihar & Uttar Pradesh	26	7,717	0	0
Chandigarh (UT), Haryana, Punjab & Himachal Pradesh	28	27,313	173	50
Chhattisgarh	18	3,499	0	0
Dadra & Nagar Haveli (UT)	6	12,398	57	63
Daman & Diu (UT)	5	5,278	80	54
Daman and Diu & Gujarat	15	6,993	25	0
Goa	12	14,463	32	46
Gujarat	1,004	3,319,325	23,641	5,820
Haryana	415	378,960	1,018	2,437
Haryana	25	26,936	139	67
Haryana & Himachal Pradesh	10	48	1	0
Haryana & Punjab	27	1,456	0	0
Himachal Pradesh	13	7,900	27	1
Jammu & Kashmir, Ladakh	0	0	0	0
Jharkhand	102	138,156	32	6
Karnataka	382	448,391	595	370
Kerala	137	87,509	77	28
Kerala & Puducherry	13	4,273	0	0
Madhya Pradesh	305	242,362	481	527
Madhya Pradesh and Chhattisgrah	9	0	0	0
Madhya Pradesh and Rajasthan	35	1,011	0	0
Madhya Pradesh and Uttar Pradesh	20	0	0	3
Maharashtra	907	3,467,808	7,446	1,130

State/UT (State/UTs are clubbed based on the GA's authorised by PNGRB)	CNG Stations	PNG connections		
		Domestic	Commercial	Industrial
Maharashtra & Gujarat	71	187,645	10	35
Maharashtra and Madhya Pradesh	16	0	0	0
Manipur	0	0	0	0
Meghalaya	0	0	0	0
Mizoram	0	0	0	0
Nagaland	0	0	0	0
National Capital Territory of Delhi (UT)	491	1,579,198	4,111	1,904
Odisha	108	123,953	11	0
Puducherry	2	0	0	0
Puducherry & Tamil Nadu	8	363	1	0
Punjab	217	88,532	673	305
Punjab & Rajasthan	19	5,059	0	0
Rajasthan	322	322,180	248	1,717
Sikkim	0	0	0	0
Tamil Nadu	318	30,477	11	18
Telangana	184	212,557	111	119
Telangana and Karnataka	8	122	0	1
Tripura	18	62,536	508	62
UT of Jammu and Kashmir	1	0	0	0
Uttar Pradesh	986	1,640,358	2,764	3,451
Uttar Pradesh	28	7,320	16	8
Uttar Pradesh & Rajasthan	46	23,196	56	350
Uttar Pradesh and Uttrakhand	29	15,487	0	0
Uttarakhand	36	73,616	102	115
West Bengal	131	28,186	5	1
Grand Total	**6,959**	**13,118,891**	**44,471**	**19,211**

Note: 1. All the GAs where PNG connections/CNG Stations have been established are considered as Operational, 2. Under normal conditions. Operation of any particular GA commences within around one year of authorization. 3. State/UTs wherever clubbed are based on the GAs authorised by PNGRB.

23. Domestic Natural Gas price and Gas price ceiling (GCV basis)

Period	Domestic Natural Gas price in US$/MMBTU	Gas price ceiling in US$/MMBTU
April 2017 - September 2017	2.48	5.56
October 2017 - March 2018	2.89	6.30
April 2018 - September 2018	3.06	6.78
October 2018 - March 2019	3.36	7.67
April 2019 - September 2019	3.69	9.32
October 2019 - March 2020	3.23	8.43
April 2020 - September 2020	2.39	5.61
October 2020 - March 2021	1.79	4.06
April 2021 - September 2021	1.79	3.62
October 2021 - March 2022	2.90	6.13
April 2022 - September 2022	6.10	9.92
October 2022 - March 2023	8.57	12.46
1 April 2023 - 7 April 2023	9.16	12.12

Period	Domestic Gas calculated price in US$/MMBTU	Domestic Gas ceiling price for ONGC/OIL in US$/MMBTU	Period	HP-HT Gas price ceiling in US$/MMBTU
8 April 2023- 30 April 2023	7.92	6.50	April 2023-September 2023	12.12
1 May 2023 - 31May 2023	8.27	6.50		
1 June 2023 - 30 June 2023	7.58	6.50		
1 July 2023 - 31 July 2023	7.48	6.50		
1 Aug 2023 - 31 Aug 2023	7.85	6.50		
1 Sept 2023 - 30 Sept 2023	8.60	6.50		
1 Oct 2023 - 31 Oct 2023	9.20	6.50	October'2023 - March 2024	9.96
1 Nov 2023 - 30 Nov2023	9.12	6.50		
1 Dec 2023 - 31 Dec 2023	8.47	6.50		
1 Jan 2024 - 31 Jan 2024	7.82	6.50		
1 Feb 2024- 29 Feb 2024	7.85	6.50		
1 Mar 2024- 31 Mar 2024	8.17	6.50		
1 April 2024 - 30 April 2024	8.38	6.50	April 2024-September 2024	9.87
1 May 2024 - 31 May 2024	8.90	6.50		
1 June 2024 - 30 June 2024	8.44	6.50		
1 July 2024 - 31 July 2024	8.24	6.50		

Natural Gas prices are on GCV basis

24. CNG/PNG prices

City	CNG (Rs/Kg)	PNG (Rs/SCM)	Source
Delhi	75.09	48.59	IGL website (12.07.2024)
Mumbai	75.00	48.00	MGL website (12.07.2024)

Indian Natural Gas Spot Price for Physical Delivery

IGX Price Index Month	Avg. Price		Volume (MMSCM)	Source
	INR/MMBtu	$/MMBtu		
`June 2024	1068	12.80	160.00	As per IGX website:

*Prices are weighted average prices|$1=INR 83.47| 1 MMBtu=25.2 SCM (Data Excluding Ceiling Price Gas)

https://www.ft.com/content/f7a34e3e-bce9-4db9-ac49-a092f382c526

Russia-China gas pipeline deal stalls over Beijing's price demands

Power of Siberia 2 project would offer lifeline to exporter Gazprom as Moscow's dependence on its neighbour grows

A deal on the pipeline was one of Russian President Vladimir Putin's top requests for Chinese leader Xi Jinping when they met last month, according to people familiar with the issue © Alexandr Demyanchuk/Sputnik/Pool/AP

Max Seddon in Riga, Anastasia Stognei in Tbilisi, Henry Foy in Brussels and Joe Leahy in Beijing YESTERDAY

Russia's attempts to conclude a major gas pipeline deal with China have run aground over what Moscow sees as Beijing's unreasonable demands on price and supply levels, according to three people familiar with the matter.

Beijing's tough stance on the Power of Siberia 2 pipeline underscores how Russia's invasion of Ukraine has left President Vladimir Putin increasingly dependent on Chinese leader Xi Jinping for economic support.

The people familiar with the matter said China had asked to pay close to Russia's heavily subsidised domestic prices and would only commit to buying a small fraction of the pipeline's planned annual capacity of 50bn cubic metres of gas.

Approval for the pipeline would transform the dire fortunes of Gazprom, Russia's state gas export monopoly, by linking the Chinese market to gasfields in western Russia that once supplied Europe.

Gazprom suffered a loss of Rbs629bn ($6.9bn) last year, its biggest in at least a quarter of a century, amid plummeting gas sales to Europe, which has had greater success than expected in diversifying away from Russian energy.

While Russia has insisted it is confident of agreement on Power of Siberia 2 "in the near future", two of the people said the impasse was the reason Alexei Miller, Gazprom's chief executive, had not joined Putin on the Russian leader's state visit to Beijing last month.

Miller, who was instead on a trip to Iran, would have been essential for any serious negotiations with China and his absence was "highly symbolic", said Tatiana Mitrova, a research fellow at Columbia University's Center on Global Energy Policy.

A deal on the pipeline was one of three main requests Putin made to Xi when they met, according to the people familiar with the matter, along with more Chinese bank activity in Russia and for China to snub a peace conference being organised by Ukraine this month.

China announced on Friday it would skip Ukraine's summit in Switzerland. Two of the people said Beijing and Moscow were discussing ringfencing one or more banks that would finance trade in components for Russia's defence industry — all but certainly incurring US sanctions that would cut any such bank out of the broader global financial system.

An agreement on the pipeline, however, remains distant, while the proposed co-operation with Chinese banks remains at a far smaller scale than Russia had requested, the people added.

Dmitry Peskov, Putin's spokesman, said Russia and China were still in talks on the pipeline.

"It's totally normal for each side to defend their own interests. Negotiations will continue, because the leaders of both countries have the political will for it, and commercial issues will continue to be worked out, and we have no doubt all the necessary agreements will be made," Peskov told reporters on Monday.

"As far as aspects of ongoing commercial negotiations go, they are, of course, not public," Peskov added. Gazprom declined to comment.

Asked about the gas talks, the Chinese foreign ministry said only that "the presidents of China and Russia agreed to look for areas where our interests converge . . . and enable each other's success".

China would "work with Russia to deliver on important common understandings reached between our two leaders and deepen our all-round cooperation [for] mutual benefit", the ministry said.

Russia's failure to secure the deal underscores how the war in Ukraine has made China the senior partner in the countries' relationship, according to Alexander Gabuev, director of the Carnegie Russia Eurasia Center in Berlin.

"China could need Russian gas strategically as a secure source of supply not based on maritime routes that would be affected in case of a maritime conflict around Taiwan or the South China Sea," Gabuev said. "But to make that worthwhile, China really needs a very cheap price and flexible obligations."

China's demand for imported gas is expected to reach about 250 bcm by 2030, up from less than 170 bcm in 2023, according to a paper published by Columbia's CGEP in May.

That paper said the 2030 level of demand could still be largely or entirely met through existing contracts for pipeline supply and for liquefied natural gas. However, by 2040, the gap between China's import demand and existing commitments would reach 150 bcm, it said.

Russia's lack of an alternative overland route for its gas exports means Gazprom would probably have to accept China's conditions, Gabuev said.

"China believes time's on its side. It has room to wait to squeeze the best conditions out of the Russians and wait for attention on the China-Russia relationship to move elsewhere," he said. "The pipeline can be built rather quickly, since the gasfields are already developed. Ultimately the Russians don't have any other option to market this gas."

Before the war in Ukraine, Gazprom relied on selling gas to Europe at high prices in order to subsidise Russia's domestic market.

China already pays Russia less for gas than to its other suppliers, with an average price of $4.4 per million British thermal units, compared with $10 for Myanmar and $5 for Uzbekistan, the CGEP researchers calculated from 2019-21 customs data.

During the same years Russia exported gas to Europe at about $10 per million Btu, according to data published by the Russian central bank.

Gazprom's exports to Europe fell to 22 bcm in 2023 from an average 230 bcm a year in the decade before the full-scale invasion of Ukraine. These are likely to dwindle further once a trans-shipment agreement with Ukraine expires at the end of this year.

Failure to agree increased supplies to China would be a hefty further blow. An unreleased report by a major Russian bank, seen by the Financial Times, recently excluded Power of Siberia 2 from its baseline forecast for Gazprom. That reduced the company's expected profit for 2029 — when the bank expected the project to launch — by almost 15 per cent.

China did not immediately respond to a request for comment.

This article has been amended since initial publication to reflect that the Ukraine peace summit is taking place at the Bürgenstock resort in Switzerland, not Geneva

For Immediate Release
July 16, 2024
Mark Bohrer, Assistant Director ND Department of Mineral Resources
Oil and Gas Division

NORTH Dakota | Mineral Resources
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North Dakota Department of Mineral Resources July 2024 Director's Cut and Release May 2024 Production Numbers

Oil Production Numbers

April	37,310,344 barrels	= 1,243,678 barrels/day (final) **RF +13%**
May	37,048,725 barrels	= 1,195,120 barrels/day **-3.9%** **RF +9%**
	1,519,037	all-time high Nov 2019
	1,163,147 barrels/day	= 97% from Bakken and Three Forks
	31,973 barrels/day	= 3% from Legacy Pools

Revenue Forecast **1,100,000 barrels/day**

Crude Price ($barrel)	**ND Light Sweet**	**WTI**	**ND Market**	
April	76.01	85.35	78.04	**RF +11%**
May	71.04	80.12	72.32	**RF +3%**
Today	76.25	80.62	78.44	**RF +12% est**
All-time high (6/2008)	125.62	134.02	126.75	
Revenue Forecast			**70.00**	

Gas Production and Capture

April	104,714,280 MCF	=	3,490,476 MCF/Day	
95% Capture	99,843,115 MCF	=	3,328,104 MCF/Day	
May	108,737,983 MCF	=	3,507,677 MCF/Day	**+0.5%**
95% Capture	103,541,960 MCF	=	3,340,063MCF/Day	

3,582,821 MCF/day all-time high production Dec 2023

3,355,110 MCF/day all-time high capture Dec 2023

Wells Permitted

April	79	
May	95	
June	78	All-time high 370 in 10/2012

Rig Count

April	38	
May	37	
June	37	
Today	39	All-time high 218 on 5/29/2012
Federal Surface	0	

Waiting on Completions

April	352
May	339

Inactive

April	1,522
May	1,560

Completed

April	56
May	67
June	55 (Preliminary)

Producing

April	18,972	
May	19,079 (Preliminary)	**NEW** All-time high 19,079 May/2024
	16,912 wells	89% are now unconventional Bakken/Three Forks Wells
	2,167 wells	11% produced from legacy conventional pools

IIJA Initial Grant	Wells PA	Sites Reclaimed
January 2023	1	0
February	4	0
March	1	0
April	8	0
May	17	0
June	12	1
July	15	5
August	15	13
September	0	14
October	0	10
November	0	0
December	0	1
January 2024	0	0
February	0	0
March	0	0
April	0	0
May	0	0
Total	73	44

Weekly updates are available at Initial Grant Information - Plugging and Reclamation | Department of Mineral Resources, North Dakota

Fort Berthold Reservation Activity

	Total	Fee Land	Trust Land
Oil Production (barrels/day)	191,802	70,428	121,374
Drilling Rigs	2	2	0
Active Wells	2,934	701	2,233
Waiting on Completion	20		
Approved Drilling Permits	106	5	101

Comments:

The drilling rig count remains low due to mergers and acquisitions but is expected to return to the mid-forties with a gradual increase expected over the next 2 years.

There are 14 frac crews currently active.

Drilling - activity is expected to increase slightly and operators continue to maintain a permit inventory of approximately 12 months.

Seismic - 0 active, 0 recording, 0 NDIC reclamation projects, 0 remediating, 1 permitted, and 4 suspended surveys, 0 pending.

The state-wide gas flared volume from April to May increased 5.2 MMCFD to 167.6 MMCF per day, the statewide gas capture remained 95% while Bakken gas capture decreased to 95%. The historical high flared percent was 36% in 09/2011.

Gas capture details are as follows:

Statewide	95%
Statewide Bakken	95%
Non-FBIR Bakken	95%
FBIR Bakken	97%
Trust FBIR Bakken	97%
Fee FBIR	95%
Fertile Valley	68%
Burg	89%
Hanks	60%
Bar Butte	41%
Zahl	54%
Green Lake	67%
Little Muddy	78%
Round Prairie	97%
Painted Woods	89%
Ft. Buford	91%
Lake Trenton	84%
Sixmile	37%
Buford	53%
Briar Creek	81%
Assiniboine	100%
Lone Butte	80%
Ranch Creek	79%
Twin Buttes	48%
Charlson	84%

The Commission has established the following gas capture goals:
74% October 1, 2014 through December 31, 2014
77% January 1, 2015 through March 31, 2016
80% April 1, 2016 through October 31, 2016
85% November 1, 2016 through October 31, 2018
88% November 1, 2018 through October 31, 2020
91% beginning November 1, 2020

MONTHLY UPDATE

JULY 2024 PRODUCTION & TRANSPORTATION

Published: July 16, 2024

Justin J. Kringstad, Director
North Dakota Pipeline Authority
Office: 701.220.6227
www.northdakotapipelines.com

MONTHLY UPDATE

JULY 2024 PRODUCTION & TRANSPORTATION

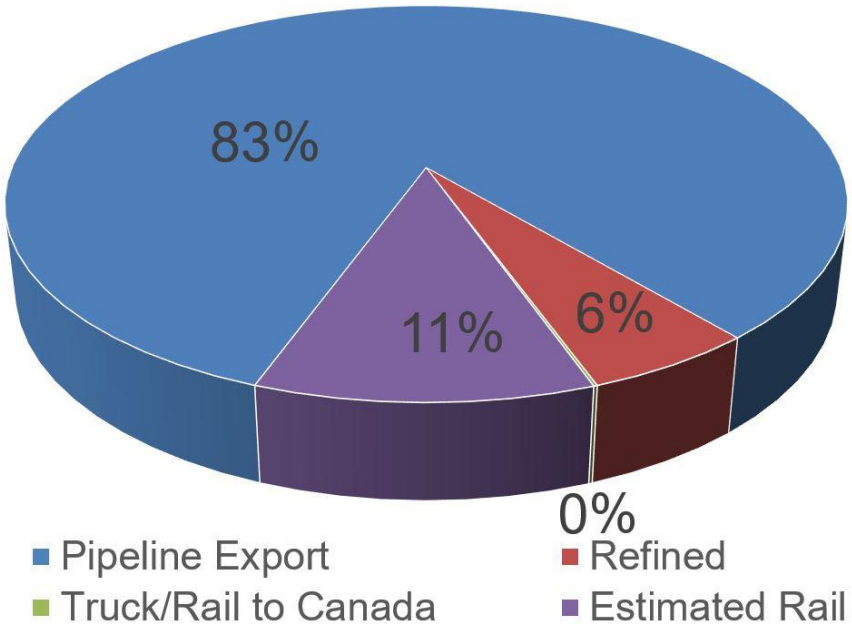
North Dakota Oil Production

Month	Monthly Total, BBL	Average, BOPD
Apr. 2024 - Final	37,310,344	1,243,678
May 2024 - Prelim.	37,048,725	1,195,120

North Dakota Natural Gas Production

Month	Monthly Total, MCF	Average, MCFD
Apr. 2024 - Final	104,495,171	3,483,172
May 2024 - Prelim.	108,737,983	3,507,677

Estimated Williston Basin Oil Transportation, May 2024



CURRENT DRILLING ACTIVITY:

NORTH DAKOTA[1]

39 Rigs

EASTERN MONTANA[2]

1 Rigs

SOUTH DAKOTA[2]

0 Rigs

SOURCE (JULY 16, 2024):

1. ND Oil & Gas Division
2. Baker Hughes

PRICES:

Crude (WTI): $81.00

Crude (Brent): $84.08

NYMEX Gas: $2.21

SOURCE: BLOOMBERG (JULY 16, 2024 11AM EST)

GAS STATS*

95% CAPTURED & SOLD

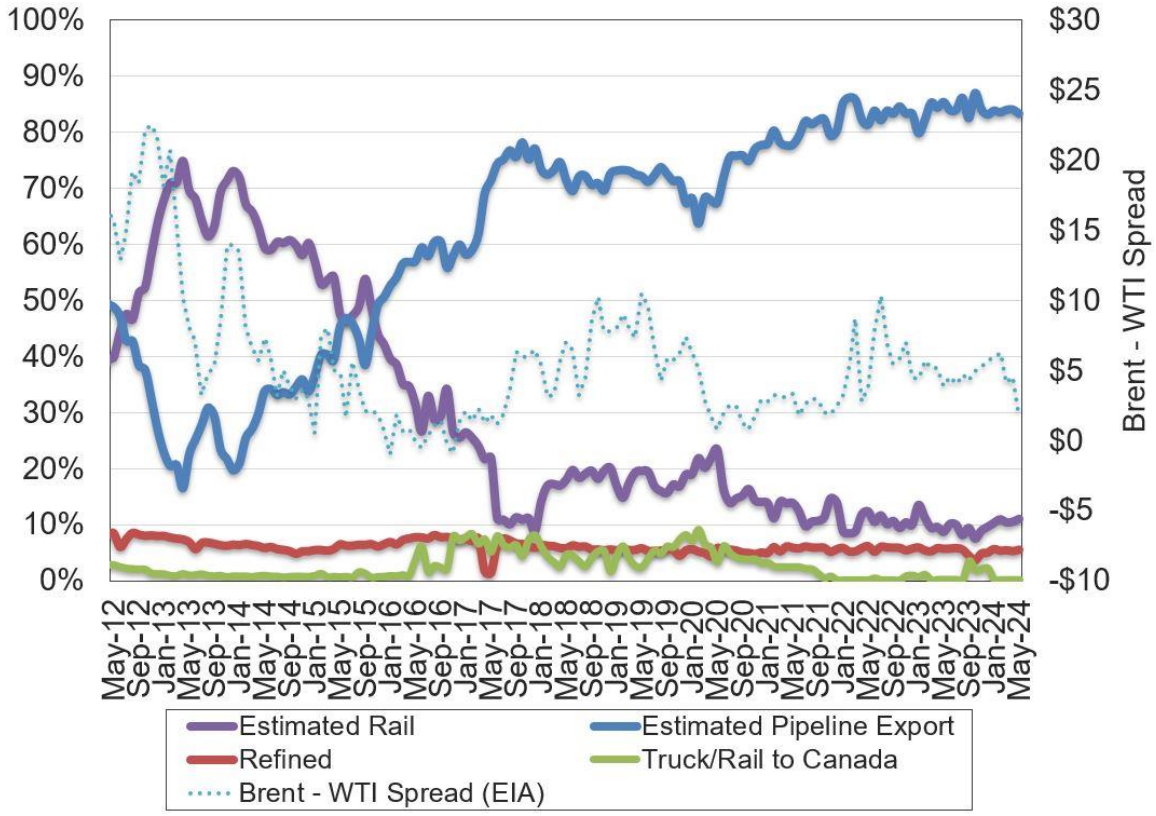
4% FLARED DUE TO CHALLENGES OR CONSTRAINTS ON EXISTING GATHERING SYSTEMS

1% FLARED FROM WELL WITH ZERO SALES

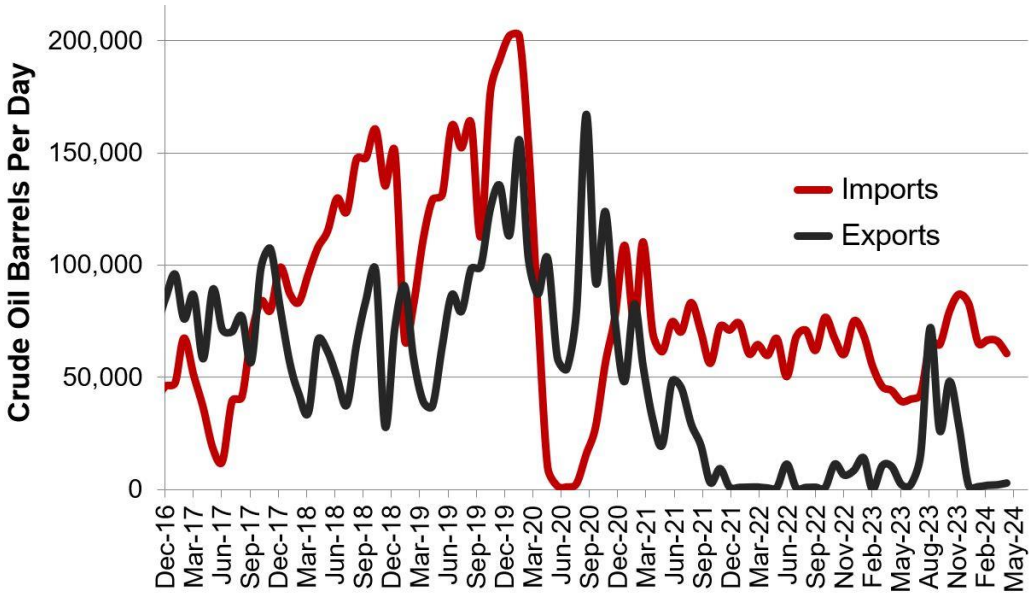
MAY 2024 NON-CONF DATA

Estimated North Dakota Rail Export Volumes

Estimated Williston Basin Oil Transportation

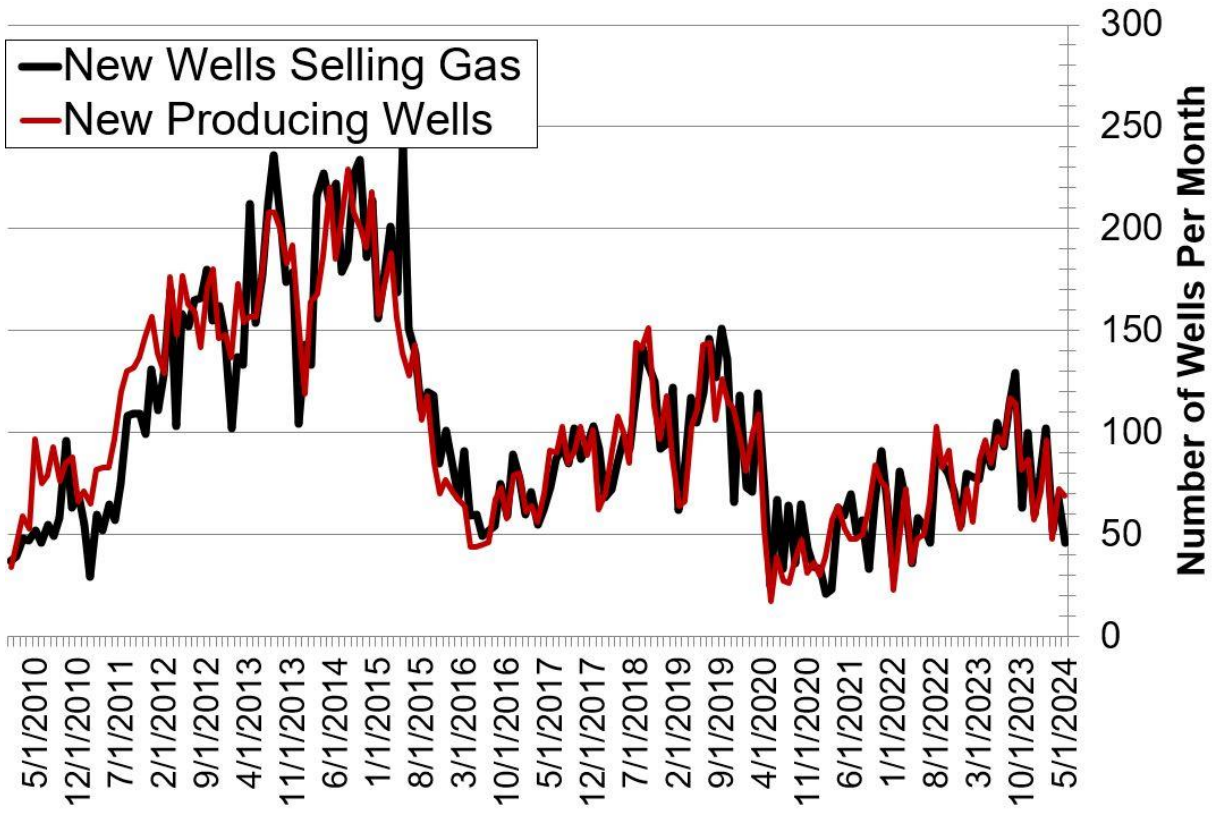


Williston Basin Truck/Rail Imports and Exports with Canada



Data for imports/exports chart is provided by the US International Trade Commission and represents traffic across US/Canada border in the Williston Basin area.

New Gas Sales Wells per Month



US Williston Basin Oil Production, BOPD

2023

MONTH	ND	EASTERN MT*	SD	TOTAL
January	1,062,924	62,114	2,610	1,127,648
February	1,158,988	63,558	2,475	1,225,021
March	1,124,917	64,596	2,652	1,192,165
April	1,135,872	61,956	2,557	1,200,385
May	1,140,253	61,310	2,560	1,204,123
June	1,174,603	59,744	2,275	1,236,621
July	1,187,084	56,986	2,311	1,246,381
August	1,219,832	62,383	2,540	1,284,756
September	1,290,356	62,815	2,504	1,355,675
October	1,255,517	62,611	2,452	1,320,579
November	1,279,103	63,090	2,448	1,344,642
December	1,275,004	63,272	2,496	1,340,772

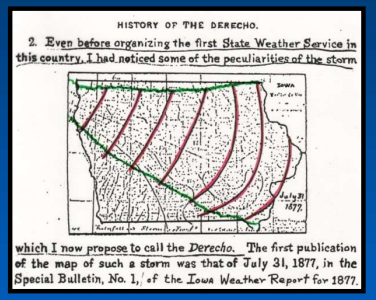
2024

MONTH	ND	EASTERN MT*	SD	TOTAL
January	1,105,424	59,194	2,312	1,166,930
February	1,252,501	66,037	2,411	1,320,949
March	1,229,540	69,796	2,589	1,301,925
April	1,243,678	70,196		
May	1,195,120			
June				
July				
August				
September				
October				
November				
December				

**** Eastern Montana production composed of the following Counties: Carter, Daniels, Dawson, Fallon, McCone, Powder River, Prairie, Richland, Roosevelt, Sheridan, Valley, Wibaux***

What is a Derecho?

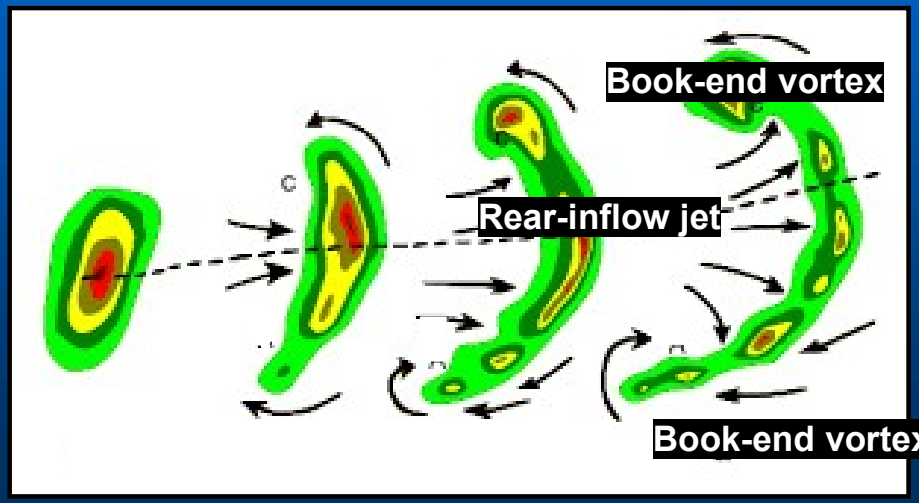
- A widespread, long-lived windstorm associated with a band of rapidly-moving showers or thunderstorms


HISTORY OF THE DERECHO.

2. Even before organizing the first State Weather Service in this country, I had noticed some of the peculiarities of the storm

which I now propose to call the *Derecho*. The first publication of the map of such a storm was that of July 31, 1877, in the Special Bulletin, No. 1, of the Iowa Weather Report for 1877.

- Term coined by Gustavus Hinrichs, Iowa State Climatologist, in 1888
- "Derecho," a Spanish word meaning "direct" or "straight ahead," chosen to reflect their relatively straight damage swaths
- Greatest damage associated with embedded ***downbursts*** --- concentrated, convectively-induced downdrafts
- Downbursts typically occur in clusters produced by arc-shaped bands of storms called ***bow echoes***
- Bow echoes often contain a pair of embedded circulations known as ***book-end vortices;*** the strongest and most sustained winds typically occur with ***rear-inflow jets*** that arise between such vortices



Temporal evolution (approx. 1-hour, left to right) of a typical bow echo, as seen via radar reflectivity

Left: After COMET

Official (AMS) definition

The "official" (AMS) derecho definition includes both size and meteorological criteria:

1) *A widespread, convectively induced straight-line windstorm; specifically, a family of particularly damaging downbursts produced by a mesoscale convective system (MCS)*

2) *Derecho-producing MCSs have sustained bow echoes, with book-end vortices and/or rear-inflow jets that produce damaging straight-line (i.e., non-tornadic) winds*

3) *Damage occurs continuously or intermittently over a swath at least 650 km (~400 miles) long and 100 km (~60 km) wide*

4) *Persistence!!!*

Notable recent derechos

- **6 June 2020: Colorado / Wyoming to North Dakota**
  1) *Formed in eastern Utah, crossed the Continental Divide, then continued northeast to the Dakotas*
  2) *Wind gusts ~100 kts along 750-mile path length*
  3) *Occurred in relatively dry environment*

- **10 August 2020: Eastern Nebraska to northern Illinois**
  1) *$11+ billion damage, most costly thunderstorm event in U.S. history; 4 fatalities*
  2) *Recorded wind gusts to 110 kts; estimates as high as 120 kts*
  3) *High winds persisted up to an hour (vs. usual 10-20 minutes); storm moved with a forward speed of 50 kts*
  4) *45% of Iowa's crops affected, especially over the eastern part of the state*
  5) *Near-complete electrical outage in Cedar Rapids, Iowa; outage lasted for weeks in some parts of the city*

- **15 December 2021: Eastern Nebraska to southwest Wisconsin**
  1) *Accompanied an intense extratropical cyclone that also produced a dust storm and numerous tornadoes*
  2) *Most prolific wind-producing thunderstorm system in December on record*
  3) *100-kt gusts; damage swath more than 600 miles long; 2 fatalities*

- **21 May 2022: Southern Ontario / Western Quebec**
  1) *$875 million damage; 12 fatalities*
  2) *Sixth-largest insurance loss event in Canada*
  3) *100-kt gusts; damage swath more than 600 miles long*

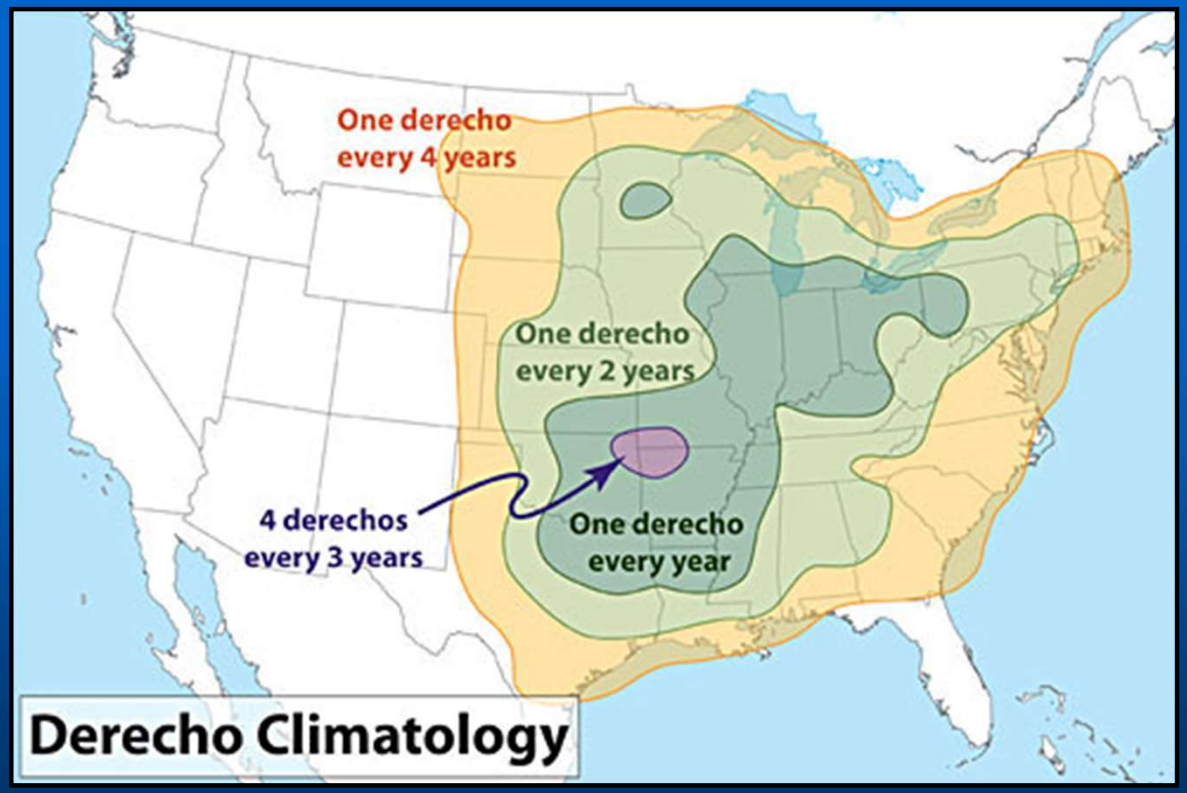
Derecho climatology in the United States

- Primarily warm-season, May- August, although serial derechos may occur at any time of the year

- Two corridors of maximum frequency:

  1) Upper Mississippi Valley to Ohio Valley

  2) Southern Plains / Ozarks



After Coniglio and Stensrud (2004)

Two main classes of derechos: Progressive and Serial

…Based on the primary physical processes responsible for their development

(A) Progressive

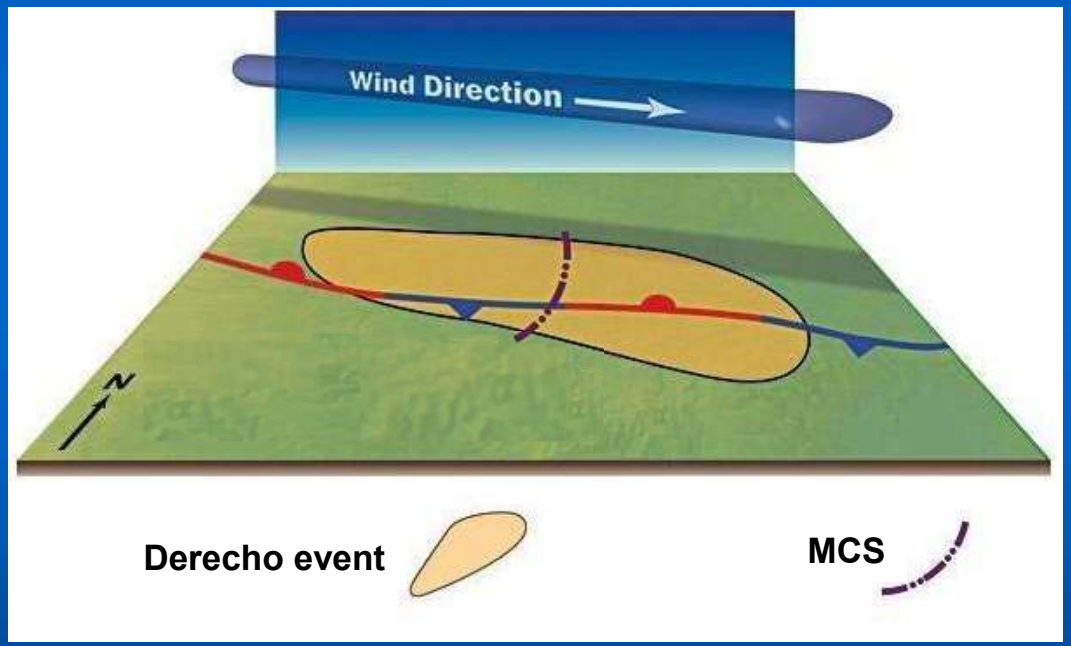
1) *Associated with expansive regions of very moist, unstable air*

2) *Typically evolve from a single bow echo or storm cluster that grows into a forward-propagating MCS as new cell development occurs rapidly and sequentially down-shear*

3) *Derecho-producing MCS is oriented perpendicular to the upper-level wind, and moves faster than the mean flow*

4) *Primarily warm-season (late spring through summer)*

5) *At some locations, high winds can persist for up to an hour after system gust front has passed*



Adapted from illustration by Dennis Cain

Two main classes of derechos: Progressive and Serial

…Based on the primary physical processes responsible for their development

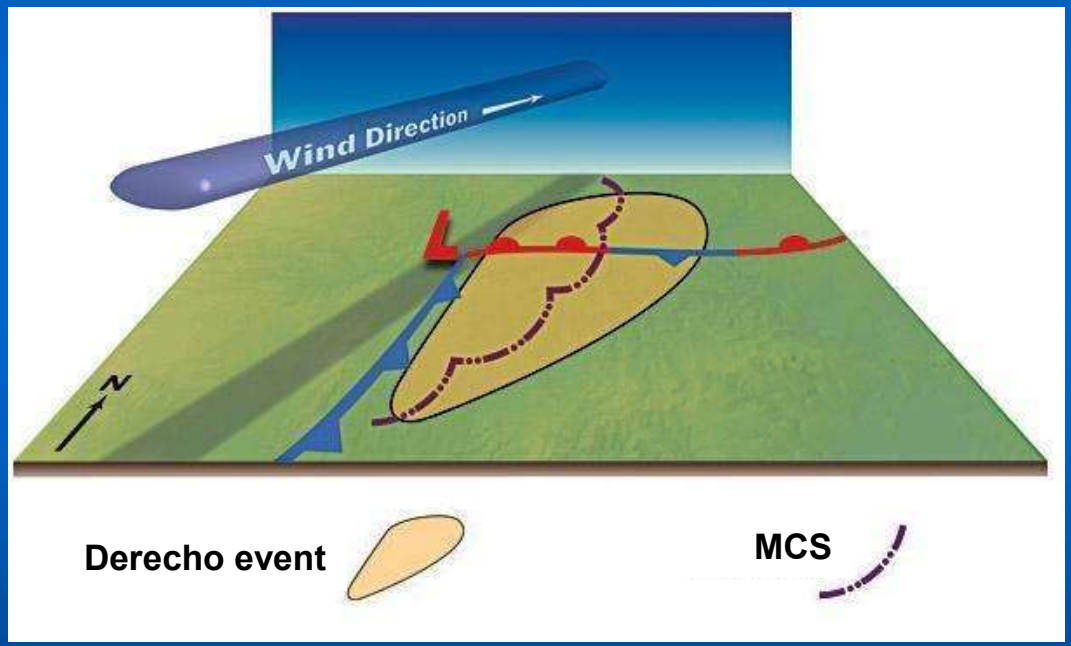
(B) Serial

1) *Associated with strong, fast-moving upper-level troughs and surface lows*

2) *Consist of a series of bow echoes embedded within an extensive squall line along or ahead of cold front, with the bows moving roughly parallel to the cloud-layer flow*

3) *Derecho-producing MCS moves with or more slowly than mean cloud-layer flow*

4) *Primarily cool-season (fall, winter, and spring)*



Adapted from illustration by Dennis Cain

07/15/2024 07:53:55 [BN] Bloomberg News

Russia's Oil Processing So Far in July Jumps to 6-Month High (1)

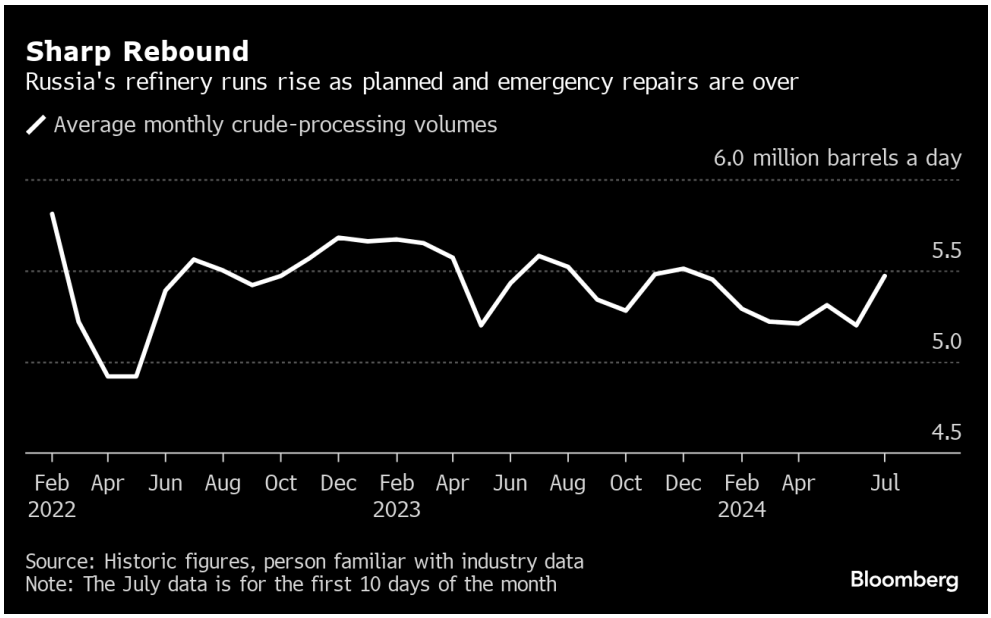
- Nation's refinery runs averaged 5.47 million b/d on July 1-10
- Higher domestic processing comes amid lower crude exports

By Bloomberg News

(Bloomberg) -- Russia's daily crude processing rates so far this month have rebounded to the highest level since mid-January after refineries emerged from seasonal works and emergency repairs following Ukrainian drone strikes.

Russia churned through an average 5.47 million barrels a day of crude on July 1-10, according to a person with knowledge of industry data. That's almost 270,000 barrels a day above the average for most of June and the highest level since the first weeks of January – just before Ukraine started targeting Russia's downstream industry in retaliation for the invasion.

Should Russia's refinery runs remain at this level the rest of this month, July activity will be strongest so far this year.



Refinery runs are seeing sharp growth as the nation's seaborne crude exports in the first seven days of the month shrank by the most since before the 2022 invasion of Ukraine. Crude-processing rates and flows to foreign markets remain key gauges scrutinized by oil market watchers to follow trends in Russia's oil industry, after the government classified official output data.

Oil refining, a key source of revenue for the Kremlin, has been a target for Ukrainian drone attacks. Kyiv aims to curb fuel supplies to Russian troops on the front line and cut the inflow of petrodollars. The latest strike, which targeted

several independent facilities at the end of June, was one of the largest since the war in Ukraine began.

Daily refinery runs fell by over 80,000 barrels on July 6–10 compared with the first three days of the month, according to the person.

Russia's domestic fuel market is fully supplied with gasoline and diesel, the government said last week, following Deputy Prime Minister Alexander Novak's meeting with oil producers as well as officials from the energy, finance and agriculture ministries.

The nation has accumulated sufficient fuel inventories to pass the period of peak demand, Novak said on Monday, according to media reports. "Repairs are underway at some refineries" that should be completed in the near future, and production volumes of class-5 gasoline will soon be restored, according to Novak.

(Updates with Novak's comments in the last paragraph.)

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James Herron at jherron9@bloomberg.net
Carolynn Look

07/16/2024 06:28:39 [BN] Bloomberg News

Russia's Crude Shipments Slump to Lowest Since January

The drop is concentrated on Russia's Baltic and Black Sea ports

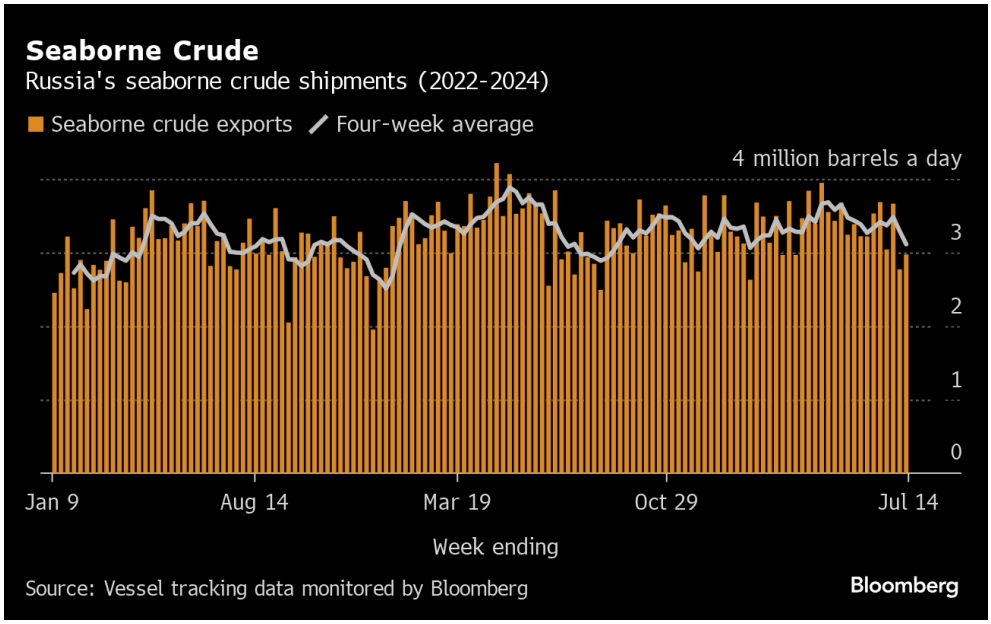
By Julian Lee

(Bloomberg) -- Russia's four-week average crude exports fell to their lowest since January, continuing a plunge that's seen them drop by about about 570,000 barrels a day from their recent peak in April. The fall continued despite a small recovery in the weekly flow.

Most of the drop – 11% in two weeks – has been in shipments from the country's Baltic ports of Primorsk and Ust-Luga, where flows are down by nearly 30% from their recent high, and the Black Sea terminal at Novorossiysk, where shipments have nearly halved. There is no evidence of maintenance work or storms to explain the slump.

The decline mostly came about because of a huge retreat last week. It likely stems from Russia's improving compliance with an OPEC+ output target and a recovery in domestic refining.

On a week-on-week basis, there was a tiny gain in flows. That helped to boost the gross value of Russia's crude shipments a little during a period in which the price of the nation's barrels retreated slightly.

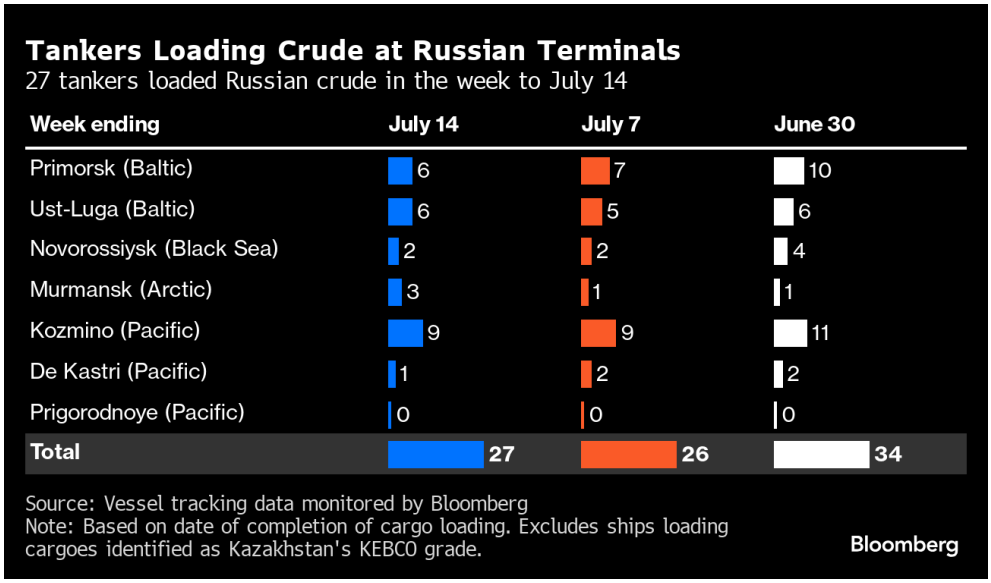


Separately, the UK and European nations are set to endorse a plan to coordinate responses to the risks posed by Russia's shadow fleet ships and their facilitators. The countries are trying to make it harder for Russia to profit from its oil exports and measures could include sanctions on more of the aging tankers that Moscow relies on to haul its oil to Asia.

All but three of the 53 oil tankers sanctioned by the US, the UK or the European Union since October for their involvement in the Russian oil trade have remained idle since being designated. The first to load, the SCF Primorye, subsequently transferred its cargo onto the Ocean Hermana in the Riau archipelago in early June. The oil may have been moved onto a third ship, according to TankerTrackers.com Inc, which specializes in detecting secretive cargo movements. The other two, the Bratsk and the Belgorod, disappeared from automated tracking systems south of India last month. One has reappeared in the Gulf of Oman where it has transferred its cargo onto another supertanker, the firm says.

Crude Shipments

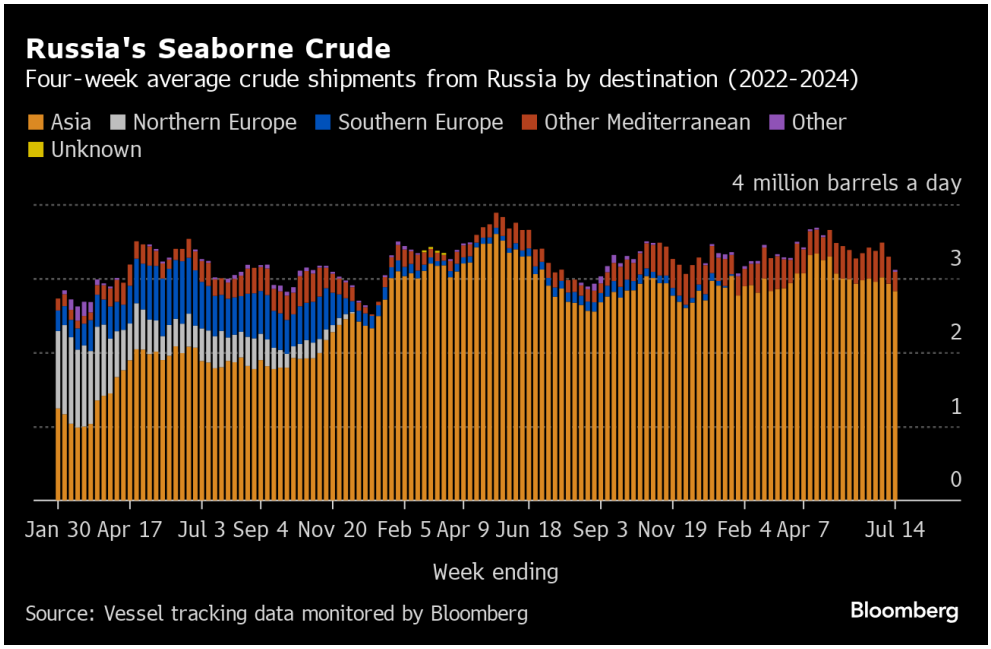
A total of 27 tankers loaded 20.8 million barrels of Russian crude in the week to July 14, vessel-tracking data and port agent reports show. That was up slightly from a revised 19.4 million barrels on 26 ships the previous week.



It means Russia's seaborne daily crude flows in the week to July 14 rose by about 200,000 barrels to reach 2.97 million, up from a revised 2.77 million barrels the previous week. The less volatile four-week average continued to fall, down by about 180,000 barrels a day to 3.11 million, its lowest since January.

The only region to see an increase in shipments was the Arctic, with three Suezmax tankers leaving Murmansk. Flows out of the Baltic remained muted, with just 12 vessels loading at Primorsk and Ust-Luga. That's down from 16 or 17 ships a week in April. The Sakhalin Island terminal of Prigorodnoye saw no shipments for a third week.

Crude shipments so far this year are about 10,000 barrels a day below the average for the whole of 2023.



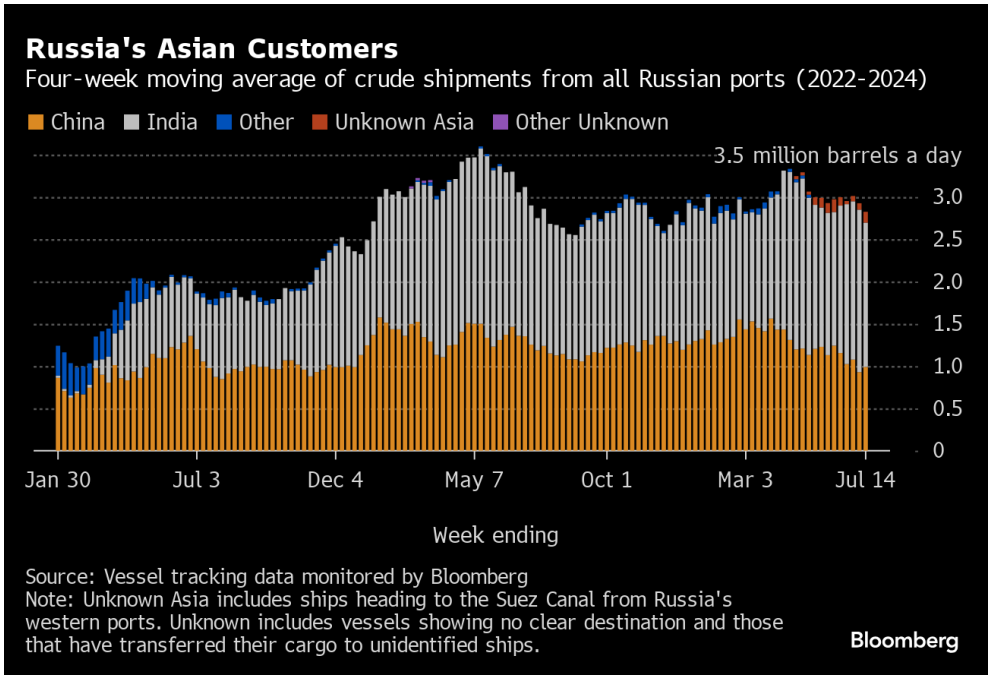
Russia terminated its export targets at the end of May, opting instead to restrict production, in line with its partners in the OPEC+ oil producers' group. The country's output target is set at 8.978 million barrels a day until the end of September, after which it is scheduled to rise at a rate of 39,000 barrels a day each month until September 2025, as long as market conditions allow.

No cargoes of Kazakhstan's KEBCO were loaded during the week.

Flows by Destination

- **Asia**

Observed shipments to Russia's Asian customers, including those showing no final destination, fell to a five-month low of 2.83 million barrels a day in the four weeks to July 14.



About 990,000 barrels a day of crude was loaded onto tankers heading to China. The Asian nation's seaborne imports are boosted by about 800,000 barrels a day of crude delivered from Russia by pipeline, either directly, or via Kazakhstan.

Flows on ships signaling destinations in India averaged about 1.71 million barrels a day, down from the revised figure of 1.92 million for the period to July 7.

Both the Chinese and Indian figures are likely to rise as the discharge ports become clear for vessels that are not currently showing final destinations.

The equivalent of about 130,000 barrels a day was on vessels signaling Port Said or Suez in Egypt. Those voyages typically end at ports in India or China and show up as "Unknown Asia" until a final destination becomes apparent.

Most shipments from Russia's western ports go on to transit the Suez Canal, but some could end up in Turkey. Others may be moved from one vessel to another, with the majority of such transfers now taking place in the Mediterranean, most recently off Morocco, or near Sohar in Oman.

Russia's oil flows continue to be complicated by the Greek navy carrying out exercises in an area that's become associated with the transfer of the nation's crude. These activities have now been extended to Sep. 15.

Crude Shipments to Asia
Shipments of Russian crude to Asian buyers in million barrels a day

4 weeks ending	China	India	Other	Unknown Asia	Other Unknown	Total
June 9, 2024	1.24	1.58	0.00	0.15	0.00	2.97
June 16, 2024	1.16	1.74	0.00	0.10	0.00	3.00
June 23, 2024	1.02	1.89	0.00	0.04	0.00	2.95
June 30, 2024	1.08	1.87	0.00	0.06	0.00	3.01
July 7, 2024	0.93	1.92	0.00	0.08	0.00	2.93
July 14, 2024	0.99	1.71	0.00	0.13	0.00	2.83

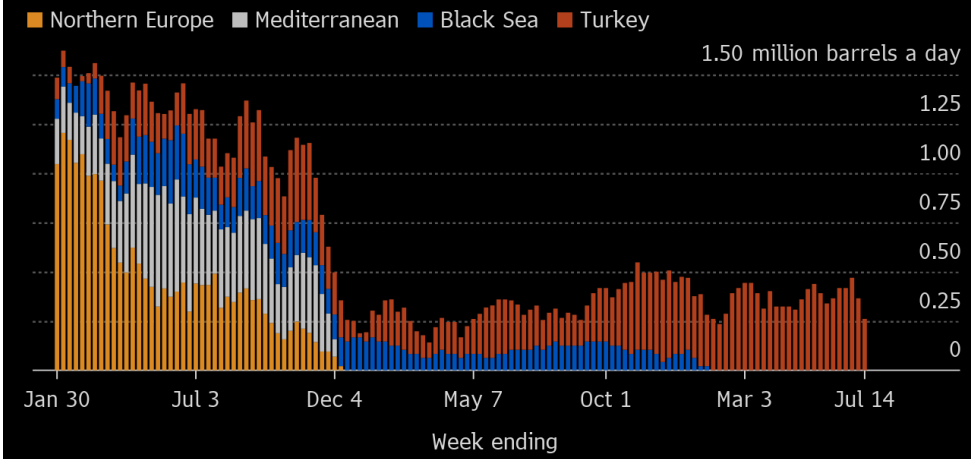
Source: Vessel tracking data compiled by Bloomberg Bloomberg

- **Europe and Turkey**

Russia's seaborne crude exports to European countries have ceased, with flows to Bulgaria halted at the end of last year. Moscow also lost about 500,000 barrels a day of pipeline exports to Poland and Germany at the start of 2023, when those countries stopped purchases.

Turkey is now the only short-haul market for shipments from Russia's western ports, with flows in the 28 days to July 14 falling to about 260,000 barrels a day, their lowest since February.

Russia's Crude Shipments to Europe and Turkey
Four-week average crude shipments from Russia (2022-2024)



Source: Vessel tracking data monitored by Bloomberg
Note: Four-week moving average of crude shipments from all Russian ports. Bloomberg

Export Value

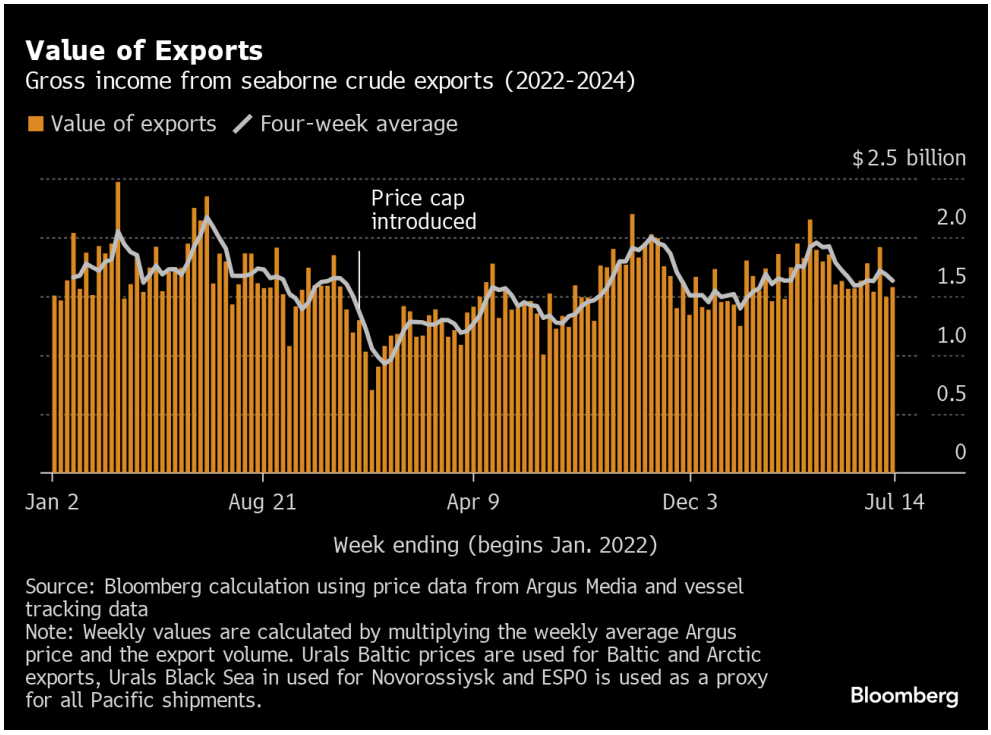
The gross value of Russia's crude exports edged up to $1.58 billion in the seven days to July 14, from a revised $1.49

billion in the period to July 7. The small increase in flows was partly offset by a drop in prices for Russia's major crude streams to lessen the rise in revenues.

Export values at Baltic and Black Sea ports were down week-on-week by about 50 cents a barrel, while key Pacific grade ESPO fell by about $1.30 a barrel. Delivered prices in India also dropped, down by about $1 a barrel, all according to numbers from Argus Media.

Despite the higher weekly figure, four-week average income was down again, falling by about $50 million to $1.63 billion a week. The four-week average peak of $2.17 billion a week was reached in the period to June 19, 2022.

During the first four weeks after the Group of Seven nations' price cap on Russian crude exports came into effect in early December 2022, the value of seaborne flows fell to a low of $930 million a week, but soon recovered.



NOTES

This story forms part of a weekly series tracking shipments of crude from Russian export terminals and the gross value of those flows. The next update will be on Tuesday, July 23 .

All figures exclude cargoes identified as Kazakhstan's KEBCO grade. Those are shipments made by KazTransoil JSC that transit Russia for export through Novorossiysk and Ust-Luga and are not subject to European Union sanctions or a price cap. The Kazakh barrels are blended with crude of Russian origin to create a uniform export stream. Since Russia's invasion of Ukraine, Kazakhstan has rebranded its cargoes to distinguish them from those shipped by Russian companies.

Vessel-tracking data are cross-checked against port agent reports as well as flows and ship movements reported by

other information providers including Kpler and Vortexa Ltd.

If you are reading this story on the Bloomberg terminal, click for a link to a PDF file of four-week average flows from Russia to key destinations.

--With assistance from Sherry Su.

To contact the author of this story:
Julian Lee in London at jlee1627@bloomberg.net

Excerpt from Blomberg posted:
Secretary Antony J. Blinken At Aspen Security Forum Fireside Chat Moderated by Mary Louise Kelly of National..,sked FINAL
2024-07-19 19:54:14.649 GMT

TRANSCRIPT

SECRETARY ANTONY J. BLINKEN AT ASPEN SECURITY FORUM FIRESIDE CHAT MODERATED BY MARY LOUISE KELLY OF NATIONAL PUBLIC RADIO, AS RELEASED BY THE STATE DEPARTMENT

JULY 19, 2024

SPEAKERS:
SECRETARY ANTONY J. BLINKEN

MS KELLY: Thank you for making the case for hope. Iran, you mentioned - stay there. They just held presidential elections of their own. What opportunities do you see with this new reformist president, President Pezeshkian?

SECRETARY BLINKEN: Well, I think we'll of course look to see what policies Iran pursues. But the reality is, the bottom line is the supreme leader continues to call the shots. So I can't say that we have any great expectations, but let's see what he and his team actually do once they're in office.

As you know, when this administration came in, we tried to pursue again nuclear diplomacy with Iran, because if you can at least take one problem off the board, which is Iran potentially with a nuclear weapon, that's inherently a good thing. We had, as you know, well, an agreement reached during the Obama administration that actually put Iran's nuclear program in a box. And one of the biggest mistakes that we've made in recent years, was throwing out that agreement and allowing Iran to get out of the box that we put it in. So we were testing the proposition about whether we could at least recreate something that looked like that, but --

MS KELLY: Every time I've interviewed you as Secretary, I have asked you the same question: Is U.S. policy still that Iran must not be allowed to get a nuclear weapon?

SECRETARY BLINKEN: It is, resolutely.

MS KELLY: Which is what you always answer. And then I always ask: So how are you going to stop them? How are you going to stop them?

SECRETARY BLINKEN: Well, there are - by far, the preferable way to do it would be through diplomacy. Where we are now is not in a good place. Iran, because the nuclear agreement was thrown out, instead of being at least a year away from having the breakout capacity of producing fissile material for a nuclear weapon, is now probably one or two weeks away from doing that. Now, they haven't developed a weapon itself --

MS KELLY: Just one or two weeks, that's what --

SECRETARY BLINKEN: One or two weeks is probably what the realistic breakout time is. They are - they haven't produced a weapon itself, but that's something of course that we track very, very carefully. And you put those two things together - the fissile material, an explosive device - and you have a nuclear weapon.

So we're focused on that. What we've seen in the last weeks and months is Iran that's actually moving forward with its program. So the first thing we need to see if Iran is serious about engaging is actually pulling back on the work that it's doing on its program.

Second, we of course have been maximizing pressure on Iran across the board. We've imposed more than 600 sanctions on Iranian persons, entities of one kind or another. We haven't lifted a single sanction. And we have much closer coordination now with European partners and allies.

MS KELLY: I guess that gets to my question, though. You're applying every tool in the toolkit, and yet you just told us they are moving forward.

SECRETARY BLINKEN: Well, they're moving forward in terms of the capacity to break out in producing fissile material. We're looking very carefully at anything they might be doing on weaponization. But it's important here as well to make sure that in doing this, we're acting in close concert with partners in Europe, in the region, and we've built that kind of approach in ways that we didn't have a few years ago.

https://www.tehrantimes.com/news/501077/My-message-to-the-new-world

By Iranian President-elect Masoud Pezeshkian

My message to the new world

1. Politics

July 12, 2024 - 20:59

TEHRAN – On May 19, 2024, the untimely passing of President Ebrahim Raisi- a deeply respected and dedicated public servant- in a tragic helicopter crash precipitated early elections in Iran, marking a pivotal moment in our nation's history.

Amidst war and turbulence in our region, Iran’s political system demonstrated remarkable stability by conducting elections in a competitive, peaceful, and orderly manner, dispelling insinuations made by some “Iran experts” in certain governments. This stability, and the dignified manner in which the elections were conducted, underscore the discernment of our Supreme Leader, Ayatollah Khamenei, and the dedication of our people to democratic transition of power even in the face of adversity.

I ran for office on a platform of reform, fostering national unity, and constructive engagement with the world, ultimately earning the trust of my compatriots at the ballot box, including those young women and men dissatisfied with the overall state of affairs. I deeply value their trust and am fully committed to cultivating consensus, both domestically and internationally, to uphold the promises I made during my campaign.

I wish to emphasize that my administration will be guided by the commitment to preserving Iran's national dignity and international stature under all circumstances. Iran’s foreign policy is founded on the principles of "dignity, wisdom, and prudence", with the formulation and execution of this state-policy being the responsibility of the president and the government. I intend to leverage all authority granted to my office to pursue this overarching objective.

With this in mind, my administration will pursue an opportunity-driven policy by creating balance in relations with all countries, consistent with our national interests, economic development, and requirements of regional and global peace and security. Accordingly, we will welcome sincere efforts to alleviate tensions and will reciprocate good-faith with good-faith.

Under my administration, we will prioritize strengthening relations with our neighbors. We will champion the establishment of a "strong region" rather than one where a single country pursues hegemony and dominance over the others. I firmly believe that neighboring and brotherly nations should not waste their valuable resources on erosive competitions, arms races, or the unwarranted containment of each other. Instead, we will aim to create an environment where our resources can be devoted to the progress and development of the region for the benefit of all.

We look forward to cooperating with Turkiye, Saudi Arabia, Oman, Iraq, Bahrain, Qatar, Kuwait, the United Arab Emirates, and regional organizations to deepen our economic ties, bolster trade relations, promote joint-venture investment, tackle common challenges, and move towards establishing a regional framework for dialogue, confidence building and development. Our region has been plagued for too long by war, sectarian conflicts, terrorism and extremism, drug trafficking, water scarcity, refugee crises, environmental degradation, and foreign interference. It is time to tackle these common challenges for the benefit of future generations. Cooperation for regional development and prosperity will be the guiding principle of our foreign policy.

As nations endowed with abundant resources and shared traditions rooted in peaceful Islamic teachings, we must unite and rely on the power of logic rather than the logic of power. By leveraging our normative influence, we can play a crucial role in the emerging post-polar global order by promoting peace, creating a calm environment conducive to sustainable development, fostering dialogue, and dispelling Islamophobia. Iran is prepared to play its fair share in this regard.

In 1979, following the Revolution, the newly established Islamic Republic of Iran, motivated by respect for international law and fundamental human rights, severed ties with two apartheid regimes, Israel and South Africa. Israel remains an apartheid regime to this day, now adding "genocide" to a record already marred by occupation, war crimes, ethnic cleansing, settlement-building, nuclear weapons possession, illegal annexation, and aggression against its neighbors.

As a first measure, my administration will urge our neighboring Arab countries to collaborate and utilize all political and diplomatic leverages to prioritize achieving a permanent ceasefire in Gaza aiming to stop the massacre and prevent the broadening of the conflict. We must then diligently work to end the prolonged occupation that has devastated the lives of four generations of Palestinians. In this context, I want to emphasize that all states have a binding duty under the 1948 Genocide Convention to take measures to prevent genocide; not to reward it through normalization of relations with the perpetrators.

Today, it seems that many young people in Western countries have recognized the validity of our decades-long stance on the Israeli regime. I would like to take this opportunity to tell this brave generation that we regard the allegations of antisemitism against Iran for its principled stance on the Palestinian issue as not only patently false but also as an insult to our culture, beliefs, and core values. Rest assured that these accusations are as absurd as the unjust claims of antisemitism directed at you while you protest on university campuses to defend the Palestinians' right to life.

China and Russia have consistently stood by us during challenging times. We deeply value this friendship. Our 25-year roadmap with China represents a significant milestone towards establishing a mutually beneficial "comprehensive strategic partnership," and we look forward to collaborating more extensively with Beijing as we advance towards a new global order. In 2023, China played a pivotal role in facilitating the normalization of our relations with Saudi Arabia, showcasing its constructive vision and forward-thinking approach to international affairs.

Russia is a valued strategic ally and neighbor to Iran and my administration will remain committed to expanding and enhancing our cooperation. We strive for peace for the people of Russia and Ukraine, and my government will stand prepared to actively support initiatives aimed at achieving this objective. I will continue to prioritize bilateral and multilateral cooperation with Russia, particularly within frameworks such as BRICS, the Shanghai Cooperation Organization and Eurasia Economic Union.

Recognizing that the global landscape has evolved beyond traditional dynamics, my administration is committed to fostering mutually beneficial relations with emerging international players in the Global South, especially with African nations. We will strive to enhance our collaborative efforts and strengthen our partnerships for the mutual benefit of all involved.

Iran's relations with Latin America are well-established and will be closely maintained and deepened to foster development, dialogue and cooperation in all fields. There is significantly more potential for cooperation between Iran and the countries of Latin America than what is currently being realized, and we look forward to further strengthening our ties.

Iran’s relations with Europe have known its ups and downs. After the United States’ withdrawal from the JCPOA (Joint Comprehensive Plan of Action) in May 2018, European countries made eleven commitments to Iran to try to salvage the agreement and mitigate the impact of the United States’ unlawful and unilateral sanctions on our economy. These commitments involved ensuring effective banking transactions, effective protection of companies from U.S. sanctions, and the promotion of investments in Iran. European countries have reneged on all these commitments, yet unreasonably expect Iran to unilaterally fulfill all its obligations under the JCPOA.

Despite these missteps, I look forward to engaging in constructive dialogue with European countries to set our relations on the right path, based on principles of mutual respect and equal footing. European countries should realize that Iranians are a proud people whose rights and dignity can no longer be overlooked. There are numerous areas of cooperation that Iran and Europe can explore once European powers come to terms with this reality and set aside self-arrogated moral supremacy coupled with manufactured crises that have plagued our relations for so long. Opportunities for collaboration include economic and technological cooperation, energy security, transit routes, environment, as well as combating terrorism and drug trafficking, refugee crises, and other fields, all of which could be pursued to the benefit of our nations.

The United States also needs to recognize the reality and understand, once and for all, that Iran does not—and will not—respond to pressure. We entered the JCPOA in 2015 in good faith and fully met our obligations. But the United States unlawfully withdrew from the agreement motivated by purely domestic quarrels and vengeance, inflicting hundreds of billions of dollars in damage to our economy, and causing untold suffering, death and destruction on the Iranian people—particularly during the Covid

pandemic—through the imposition of extraterritorial unilateral sanctions. The U.S. deliberately chose to escalate hostilities by waging not only an economic war against Iran but also engaging in state terrorism by assassinating General Qassem Soleimani, a global anti-terrorism hero known for his success in saving the people of our region from the scourge of ISIS and other ferocious terrorist groups. Today, the world is witnessing the harmful consequences of that choice.

The U.S. and its Western allies, not only missed a historic opportunity to reduce and manage tensions in the region and the world, but also seriously undermined the Non-Proliferation Treaty (NPT) by showing that the costs of adhering to the tenets of the non-proliferation regime could outweigh the benefits it may offer. Indeed, the U.S. and its Western allies have abused the non-proliferation regime to fabricate a crisis regarding Iran's peaceful nuclear program - openly contradicting their own intelligence assessment - and use it to maintain sustained pressure on our people, while they have actively contributed to and continue to support the nuclear weapons of Israel, an apartheid regime, a compulsive aggressor and a non-NPT member and a known possessor of illegal nuclear arsenal.

I wish to emphasize that Iran’s defense doctrine does not include nuclear weapons and urge the United States to learn from past miscalculations and adjust its policy accordingly. Decision-makers in Washington need to recognize that a policy that consists of pitting regional countries against each other has not succeeded and will not succeed in the future. They need to come to terms with this reality and avoid exacerbating current tensions.

The Iranian people have entrusted me with a strong mandate to vigorously pursue constructive engagement on the international stage while insisting on our rights, our dignity and our deserved role in the region and the world. I extend an open invitation to those willing to join us in this historic endeavor.

https://www.maersk.com/news/articles/2024/07/17/continued-impact-of-the-red-sea-situation-on-supply-chains

Maersk Asia Pacific Market Update - July 2024

17 July 2024

Asia Pacific All the Way Ocean Transport Market update

Share

Market insights to power your logistics decisions

Maersk Asia Pacific July Market Update has the latest information to stay updated and keep your cargo moving.

The resilience of your supply chain is always our top priority. We are confronted by a range of challenges which include geopolitical tensions, climate change, and unpredictable events, as well as the ongoing situation in the Red Sea and the supply chain disruptions that we face together. In this July Market Update for Asia Pacific, we will provide you with insights to navigate this period of heightened volatility together and keep your supply chain moving.

Trending Topic of the Month: The continued impact of the Red Sea situation on supply chains

The fallout of the Red Sea situation is continuing to cascade across the world, creating challenges for supply chains and our customers. It has caused industry-wide disruptions since December 2023, forcing vessels to temporarily divert and take longer routes around the Cape of Good Hope and causing unprecedented challenges for global supply chains.

Maersk CEO Vincent Clerc explained that the coming months will be challenging for carriers and businesses alike, as the Red Sea situation stretches into the third quarter of 2024.

Speaking at a recent online event with customers, Vincent Clerc talked about the challenges the continuing attacks on ships in the Red Sea / Gulf of Aden have created for logistics and supply chains. For the time being, Maersk ships are continuing to divert around Africa via the Cape of Good

Hope. He acknowledged the situation is difficult for both carriers and businesses needing their cargo transported.

"We are faced with these challenges together and we need to make sure that we stay close to them as we handle the new set of circumstances that continues to unfold in front of us. These disruptions, and the impact they are having on your business, is not something that I, nor any colleagues at Maersk, take lightly. We know it is hard. We know it is difficult for you. We know it puts you under a lot of pressure."

Vincent Clerc

CEO, A.P. Moller – Maersk

Vincent Clerc talked about the "massive impacts" of the Red Sea situation since it began in December 2023. Extending rotations to travel the longer route around Africa takes two to three ships, depending on the trade in question, he said. The availability of additional capacity was low to begin with and, across the industry, carriers' ability to bring in extra tonnage has been limited. At the same time, demand for container transport has remained strong.

"*Today, all ships that can sail and all ships that were previously not well utilised in other parts of the world have been redeployed to try to plug holes. It has alleviated part of the problem, but far from all the problems across the industry, including for Maersk. We are going to have in the coming month missing positions or ships that are sailing that are significant different size from what we normally would have on that string, which will also imply reduced ability for us to carry all the demand that there is."*

Vincent Clerc CEO,

A.P. Moller – Maersk

Asian exports are more impacted than Asian imports by the ongoing situation in the Red Sea. This is primarily because Asian countries are major global exporters, and China is the largest exporter to many Asian countries. Routes between the Far East and Europe via the Suez Canal have been directly impacted, with disruptions in the Red Sea affecting most trade routes. However, the disruptions have extended beyond Far East-Europe routes to the entire ocean network.

Take the Oceania network, for example. Oceania's ocean network is impacted by congestion in Southeast Asian hubs as these ports are crucial to connect Oceania's cargo to Maersk's global network. This is due to equipment shortages and constrained capacity from the Red Sea disruptions, which affects both alternative routes and transshipment hubs. The delays in Southeast Asian hubs pose a risk of disruption at Australian ports due to vessel bunching on arrival, resulting in longer waiting times and other delays. The congestion and disruption have extended beyond the hubs and

into Northeast Asia and Greater China ports, causing delays. Oceania exporters should factor in additional lead time as part of supply chain planning during this time.

There are multiple reasons behind the domino impacts in these regions. First, hubs in Asia are being impacted with congestion across key ports, causing delays and bottlenecks to ripple through the entire system. Second, ocean networks have been reorganised with vessels being moved to different regions to better meet demand for capacity. This has led to a widening global impact that has affected regions that weren't originally directly affected by the Red Sea disruption.

Maersk is working to minimise disruptions to our customers through key investments as well as through ongoing operational adjustments. These include securing additional containers as well as exploring further capacity enhancements. We are preparing for continued disruptions by adjusting our network and supply strategies accordingly. This includes doing our best efforts to bring supply in line with businesses' demand for capacity.

Ocean Key Updates

Highlights

Our cargo demand remains robust globally, driven by strong Asian exports to North America and Europe. Despite the significant challenges, our focus remains on securing coverage, equipment and reliable capacity solutions. For time-sensitive goods that need to be moved quickly, our air freight service, including sea-air solution, may be used as a transport alternative.

The cascading impact of these disruptions extends beyond the primary affected routes, causing congestion at alternative routes and transshipment hubs essential for trade with Far East Asia, West Central Asia, and Europe. Ports across Asia, including Singapore, Australia, and Shanghai, are experiencing delays as ships reroute and schedules are disrupted, caused by ripple effects from the Red Sea.

We are also approaching typhoon season, which is expected to impact East China and South China, creating further risks of congestion.

Far East to North Europe: Capacity for routes from the Far East to Northern Europe remains tight due to the ongoing situation in the Red Sea. Current estimates indicate a capacity loss across the industry, while demand for shipments continues to be strong.

Far East to Mediterranean: Capacity remains tight due to rerouting and port congestion. Current estimates indicate an industry-wide capacity loss, expected to continue into Q3 2024, while demand continues to be strong.

Far East to US West Coast and US East Coast: Demand remains strong, and the capacity remains tight even though there has been extra capacity injected for Far East to US West Coast trade.

Far East to East Coast South America and West Coast South America: Capacity remains tight, while demand growth has remained strong since Q1.

Far East to West Central Asia: Strong demand for routes into India persists, limiting the available capacity. Similarly, the Middle Eastern market remains dynamic and faces limited capacity.

Far East to Africa: The market remains dynamic with strong demand but limited capacity despite additional space added on to Far East to East Africa routes in June.

Asia to Australia and New Zealand: The Oceania network continues to face disruptions due to congestion at major hub ports in Asia. Over the past three months, the total capacity has been reduced as vessels are diverted to higher-demand trade routes. Demand growth remains robust, with a significant increase in Q1.

Australia and New Zealand to Worldwide: Routes from Oceania to Europe and Middle East continue to experience tight capacity supply due to rerouting and port congestion. Market demand into India has significantly increased following the free trade agreement between India and Australia.

For Oceania to the Americas, strong demand for routes to the US East Coast and Latin America is indirectly impacted by disruptions in the Red Sea as the demand is expected to remain strong in the foreseeable future.

At Maersk we maintain a keen focus on protecting our vessel's schedule reliability to limit impact to your supply chain, despite the current disruption. We are pleased to advise that both the Triple Star and Southern Star Services, connecting New Zealand with Greater China Area and South East Asia, are continuing to achieve above-industry-average performance, with schedule reliability in June reaching over 80%.

Intra-Asia: Intra-Asia routes are also experiencing equipment shortages, particularly out of China. This is an industry-wide issue that initially affected long-haul shipping but now has extended to intra-Asia routes. The demand for export containers in China is placing a difficult balance for carriers such as Maersk, in deciding whether to prioritise limited vessel capacity in carrying empty containers back to China or carrying laden containers to other destinations, bearing in mind the increased shipping costs. The decision, either way, contributes further to supply chain inefficiencies.

Product Spotlight of the Month

Maersk Air Cargo took delivery of the first Boeing 777 owned by a Danish airline

On 12 July 2024, Maersk Air Cargo (MAC) took delivery of its first of two new Boeing 777F. It's the first Boeing 777 owned by a Danish airline.

Especially Maersk's air freight customers in China and Europe will benefit from increased capacity and efficiency by the introduction of the two Boeing 777F. Both will be deployed on Maersk's existing Europe-China route with initially three weekly flights, and later up to six weekly flights. Besides more capacity on direct routes the 777Fs will ensure shorter transit times as well as faster handling times and quality at origin and destination. Maersk ordered the two 777Fs in November 2021 as part of the modernization of its fleet. The delivery of the second aircraft is scheduled later in Q3. Maersk Air Cargo's owned controlled fleet will then comprise of two Boeing 777F and 20 Boeing 767F. Please click here to learn more details.

Did you find this market update useful? Click below to stay updated on relevant information.

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Please do reach out to us if you have any further questions about your supply chain. We are here to navigate you through the current situation.

Reach our expert

Discuss and get closer to the answers you need to navigate efficiently around the Red Sea challenge.

Baylie Zhang

Digital Media Manager, Marketing Asia Pacific

Email Baylie Zhang

https://www.maersk.com/news/articles/2024/07/01/maersk-ceo-vincent-clerc-speaks-to-massive-impact-of-the-red-sea-situation

Maersk CEO Vincent Clerc speaks to 'massive impact' of the Red Sea situation on global supply chains

1 July 2024

Maersk CEO Vincent Clerc has said that the coming months will be challenging for carriers and businesses alike, as the Red Sea situation stretches into the third quarter of 2024.

Speaking at a recent online event with customers, Vincent Clerc talked about the challenges the continuing attacks on ships in the Red Sea / Gulf of Aden have created for logistics and supply chains. For the time being, Maersk ships are continuing to divert around the Africa via the Cape of Good Hope in South Africa. He acknowledged the situation is difficult for both carriers and businesses needing their cargo transported.

"We are faced with these challenges together and we need to make sure that we stay close to them as we handle the new set of circumstances that continues to unfold in front of us. These disruptions, and the impact they are having on your business, is not something that I, nor any colleagues at Maersk, take lightly. We know it is hard. We know it is difficult for you. We know it puts you under a lot of pressure.
Vincent Clerc
CEO, A.P. Moller – Maersk

The impact on supply chains
Vincent Clerc talked about the 'massive impacts' of the Red Sea situation since it began in December 2023. Extending rotations to travel the longer route around Africa takes two to three ships, depending on the trade in question, he said. The availability of additional capacity was low to begin with and, across the industry, carriers' ability to bring in extra tonnage has been limited. At the same time, demand for container transport has remained strong.

"Today, all ships that can sail and all ships that were previously not well utilised in other parts of the world have been redeployed to try to plug holes. It has alleviated part of the problem, but far from all the problem across the industry, including for Maersk. We are going to have in the coming month missing positions or ships that are sailing that are significant different size from what we normally would have on that string, which will also imply reduced ability for us to carry all the demand that there is."
Vincent Clerc
CEO, A.P. Moller – Maersk

Planning for demand peaks around Lunar New Year helped soften the impacts of the Red Sea situation in the first quarter of 2024. However, since April and May the challenges have intensified.

Another major challenge for carriers has been increased costs. With cargo journeys lengthened and capacity squeezed, the price per container has risen significantly. Maersk has taken on these costs knowing that many

of them will remain beyond the Red Sea situation. For example, ships cannot be chartered for a few months to fill the current gaps. Instead, carriers are having to sign up to several years at the higher charter rates. Vincent Clerc said that this is one of the reasons freight rates are temporarily higher.

"The longer that this lasts, the more our costs will get deeply ingrained. We don't know yet exactly how much of these costs we will recover and for how long. The higher rates we are seeing right now are of a temporary nature. We will see eventually that they go back to market as some of these problems get alleviated either by the new tonnage being phased gradually in or by us resuming normal sailing routes in the near future."
Vincent Clerc
CEO, A.P. Moller – Maersk

Vincent Clerc stressed that Maersk would only return to sailing via the Red Sea / Gulf of Aden when the safety of seafarers, vessels, and cargo was guaranteed. He said that once a resolution is found, ships could return to sailing their usual routes through the Suez Canal almost immediately. Others would need to complete their journey around the Cape of Good Hope first. Vincent Clerc warned that there would be a period during which the ships on these different routes would be arriving at ports at similar times. He expected this to cause congestion at ports, before returning to a more stable scenario.

Building resilience longer term

Maersk has asked governments internationally for a stronger presence in the Red Sea / Gulf of Aden. Vincent Clerc added that so far 'this has been unsuccessful'. He said that businesses around the world can help by ensuring their governments understand they are being crippled by increased costs. In some regions like Europe, he said that governments need to understand the possibility that this will reignite inflation.

With no 'crystal ball' to say how long the situation will last, Maersk is working to alleviate the impact of the disruptions. This includes doing whatever it reasonably can to bring supply in line with businesses' demand for capacity.

"Nobody has the supply chain of their customers more at heart than Maersk. It doesn't mean that we can insulate you from problems, but I can tell you that you are in the best possible hands, even if right now it's some difficult conversations that you're having and we are truly taking into consideration the amount of trust that you're putting into us and we'll won't stop at anything to try to do the best that we can to help you."
Vincent Clerc
CEO, A.P. Moller – Maersk

Revenge Travel Runs Out of Force, Hurting Airlines' Profit Goals
2024-07-18 11:07:54.762 GMT

By Kate Duffy and Siddharth Philip
(Bloomberg) -- Just as the annual summer vacation gets underway in Europe, airlines in the region are feeling a cold chill wafting over the Atlantic from their US counterparts.
On Wednesday, United Airlines Holdings Inc. became the latest carrier cautioning weakening profitability, joining the likes of Alaska Airlines Group Inc. and Delta Air Lines in offering a muted outlook. Airlines have warned of falling ticket prices amid a fare war that's weighing on their profit, hurting carriers during a time of the year that normally marks an industry peak.
Some of that pessimism on display in the US has already taken hold in Europe and beyond. Last week, Deutsche Lufthansa AG cut its profit outlook for the full year and warned that breaking even at its namesake German unit will be challenging. Qatar Airways has cautioned that higher capacity in the market is putting pressure on fares.
It's a reversal from the post-pandemic rush, when ticket prices soared as people splurged on holidays after two years of home confinement, in what was dubbed "revenge travel." Corporate travel, which typically balances out deal-seeking holidaymakers, also hasn't rebounded properly post-pandemic, adding more uncertainty to the airlines' outlooks.
As travel trends normalize, and after two years of rising cost of living, people are less willing to pay steep fares go on holiday, and airlines in turn are being forced into discounts to fill extra seat capacity. Adding to the mix in Europe are air-traffic control issues and wage disputes at airlines like Aer Lingus that are creating disruption to schedules and putting people off flying.
"The vigorous post-Covid recovery in global demand is now running out of steam," Oddo BHF analysts Olfa Taamallah and Yan Derocles wrote on Thursday in a note. They cut their ratings on Ryanair Holdings Plc, EasyJet Plc and Lufthansa, saying that more uncertain demand with moderate fare increases and delivery delay issues were behind their adjustments.
Excess capacity is emerging as a key pain point for airlines as they bring back services that were put on pause because of the pandemic. Lufthansa is growing capacity too quickly, Stifel Nicolaus & Co. analyst Johannes Braun said this week following the German company's warning, predicting that the airline faces long-running "profound" problems ahead.
"It's price that's the weakness," Sheila Kahyaoglu, an aviation analyst at Jefferies said on Bloomberg Television. "Airlines are blaming it on overcapacity, and not on consumer weakness. I think it's a case of the latter rather than the

former.”

Read More: United Sees Profit Below Estimates as Deep Discounts Sting (2)

The subdued mood is visible in airlines’ share-price performance. Lufthansa has lost about 27% this year, putting it on track for the worst annual return since 2020. Air France-KLM has fared even worse, dropping 38% so far in 2024 as the airline group’s French subsidiaries face additional disruption from people avoiding Paris during the Summer Olympic Games.

The notable outlier is IAG SA, owner of British Airways, Iberia and Aer Lingus, whose stock has gained 12% this year. The more optimistic view stems from expectations that the company’s transatlantic segment will continue to perform well, according to Oddo BHF analysts.

The health of the industry will be put to the test next week when aviation executives meet at the Farnborough Air Show near London. The venue is typically the site of large dealmaking, though this year’s expo stands to be slower as Boeing Co. and Airbus SE contend with production issues and in return put less focus on new sales.

Airbus cautioned just a few weeks ago that it would have to revise its delivery and production plans, adding more evidence to the subdued mood in the industry.

Read More: Airbus Missing Parts Everywhere Forces Cutback of Targets (2)

Discount specialists Ryanair and EasyJet also report earnings next week, providing key insights into travel demand at the budget spectrum of the market. Ryanair has laid on several rounds of discounts to stimulate demand, and Chief Executive Officer Michael O’Leary has cautioned that summer fares will be lower than previously estimated.

Still, given the rapid drop in airline shares this year, some analysts say the worst for the sector may be over.

“At this stage, I think a lot of the bad news is priced in to the sector,” said Dudley Shanley, head of research at Goodbody. “While the fare environment in Q2 was weaker, I am expecting peak summer fares to be higher.”

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- 16 Jul 2024 | 16:12 UTC

Experts call for 'serious' debate about fracking Mexico's vast unconventional oil, gas deposits

-
- Author**Sheky Espejo**
- Editor**Joe Fisher**

HIGHLIGHTS

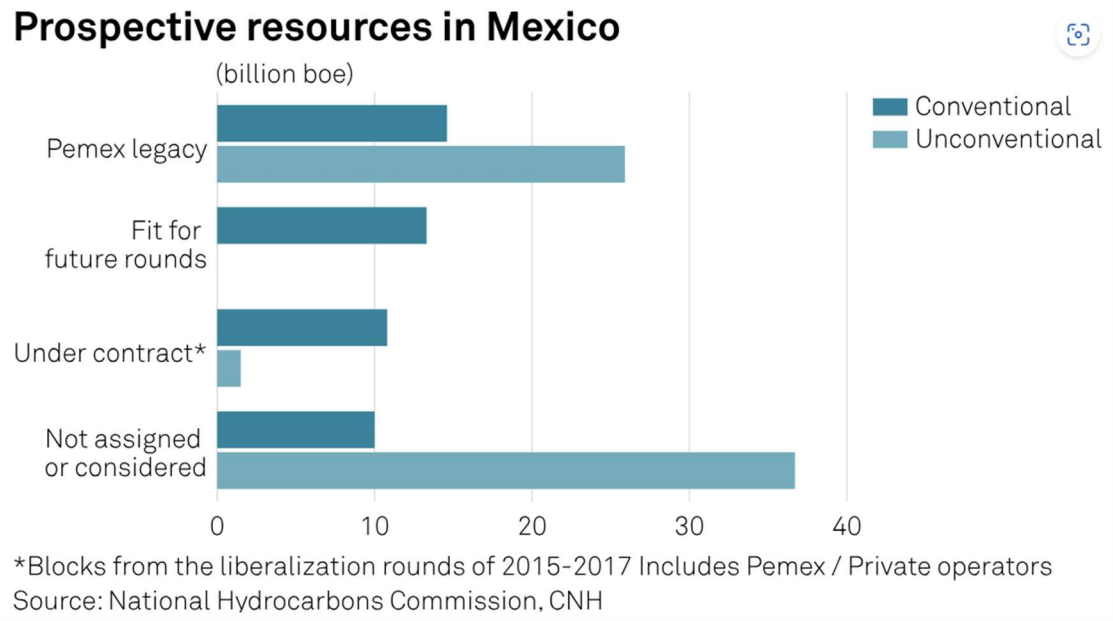
Neglecting unconventional without debate would be a 'mistake'

Country needs investment in fracking technology to exploit reserves

Natural gas industry requires long-term planning and incentives

Given the large amount of unconventional hydrocarbon resources found in Mexico and how much fracking technology has advanced, the country cannot afford to neglect their exploitation without a serious debate, experts said at an energy forum held at the Mexican Senate.

According to data from the National Hydrocarbons Commission, or CNH, the Mexican upstream regulator, Mexico has roughly 113 billion barrels of oil equivalent in prospective resources, 57% in unconventional deposits. Most of those resources, however, have either never been assigned for exploration or have never even been included in any of the liberalization plans.



Under the administration of outgoing President Andres Manuel López Obrador, state oil and gas company Pemex was instructed to focus on shallow-water and onshore deposits to boost national production, abandoning the exploration in unconventional and deepwater deposits, which are riskier, take longer to mature and where Pemex does not have a successful track record. In particular, López Obrador specifically said the country would refrain from using fracking under his government.

But given the amount of unconventional resources that the country has, the new administration of Claudia Sheinbaum Pardo, who will take office in October, should make a thorough analysis of their potential, panelists said during the July 15 forum, which covered the oil and gas industry as well as the power sector.

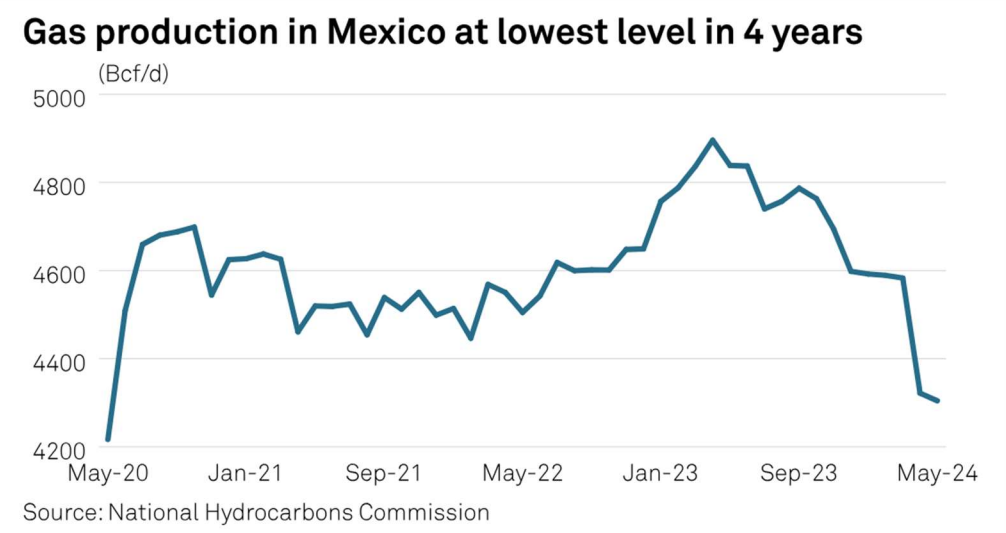
"It is a mistake to refuse to debate about fracking when 57% of your reserves are in unconventional deposits," said Enrique Silva Pérez, a partner at Procura Regulatory Consulting.

Mexico must set the ground for a new petroleum era for the country, one in which production is in decline, he said, noting that the country needs investment in technology.

"There are already many technologies for fracking that have been proven in the US and which we could adopt," Silva Pérez said. The priority of the country should be to fuel its growth with its own resources, he added.

Fluvio Ruíz Alarcón, an independent analyst, agreed that a "serious" debate was needed about the use of fracking to tap the vast unconventional resources and pointed that Mexico's dependency on foreign gas is larger than the dependency on foreign gasoline, which the Lopez Obrador administration has tried to curb by building a new refinery.

"If we consider that the little gas production from Pemex is mostly for their own consumption, the country's dependency on foreign gas is above 90%," Ruíz Alarcón said. For a few quarters in the current administration, Pemex was able to increase output, but that it did not last long, he added.



The challenges Mexico faces in terms of gas have mostly to do with a lack of investment and a lack of long-term planning, Ruíz Alarcón said. This lack of infrastructure has prevented Pemex from properly treating the gas and so a major portion of it is wasted, he added.

"At some point, the country burned as much as 13% of its production; now we are at around 6%, which is a reduction, but it is still three times the norm of 2%," Ruíz Alarcón said.

The only way to have a successful gas industry is to have long-term planning and probably an independent subsidiary inside Pemex dedicated to gas, he said, adding that this subsidiary should be given financial incentives. Currently, the production of gas is treated under the same fiscal regime that applies to the crude industry, but the economics of both markets are very different, he noted.

Pemex pays 30% of its profits as a special royalty to the Mexican government, down from 65% at the beginning of the López Obrador administration, but the company continues to report financial losses.

https://www.eca.europa.eu/en/news/NEWS-SR-2024-11

EUROPEAN COURT OF AUDITORS

Renewable hydrogen-powered EU: auditors call for a reality check

16/07/2024

Energy, environment and climate action

Research and innovation

- 2030 goals for renewable hydrogen production and demand were overly ambitious
- Chicken-and-egg problem: supply depends on demand, and vice versa
- Risk of less competitive key industries and new strategic dependencies

The EU has had mixed success in providing the building blocks for the emerging renewable hydrogen market, according to a report by the European Court of Auditors. While the European Commission has taken a number of positive steps, challenges remain all along the hydrogen value chain, and the EU is unlikely to meet its 2030 targets for the production and import of renewable hydrogen. The auditors call for a reality check to ensure that the EU's targets are realistic, and that its strategic choices on the way ahead will not impair the competitiveness of key industries or create new dependencies.

Renewable or "green" hydrogen carries significant implications for the future of key EU industries, as it can help to decarbonise especially hard-to-electrify sectors such as steel production, petrochemicals, cement, and fertilisers. It can also help the EU to meet its 2050 climate goals of zero carbon emissions and further reduce the EU's reliance on Russian fossil fuels.

"*The EU's industrial policy on renewable hydrogen needs a reality check,*" said Stef Blok, the ECA Member in charge of the audit. "*The EU should decide on the strategic way forward towards decarbonisation without impairing the competitive situation of key EU industries* or *creating new strategic dependencies*."

To start with, the Commission set overly ambitious targets for the production and import of renewable hydrogen, i.e. 10 million tonnes each by 2030. These targets were not based on a robust analysis, but were driven by political will. Moreover, achieving them has had a bumpy start. Firstly, member states' differing ambitions were not always aligned with the targets. Secondly, in coordinating with the member states and industry, the Commission failed to ensure that all parties were pulling in the same direction.

On the other hand, the auditors give credit to the Commission for proposing most legal acts within a short period of time: the legal framework is almost complete, and has provided certainty that is key to establishing a new market. However, agreeing on the rules that define renewable hydrogen took time, and many investment decisions were deferred. Project developers also defer investment decisions because supply depends on demand, and vice versa.

Building up an EU hydrogen industry requires massive public and private and investment, but the Commission does not have a full overview of needs or of the public funding available. At the same time, EU funding – estimated by the auditors at 18.8 billion euros for the 2021-2027 period – is scattered between several programmes, thus making it difficult for companies to determine the type of funding best suited for a given project. The bulk of EU funding is used by those member states with a high share of hard-to-decarbonise industry, and which are also more advanced in terms of planned projects, i.e. Germany, Spain, France, and the Netherlands. However, there is still no guarantee that the EU's hydrogen production potential can be fully harnessed, or that public funding will allow the EU to transport green hydrogen across the bloc from countries with good production potential to those with high industrial demand.

The auditors call on the Commission to update its hydrogen strategy, based on a careful assessment of three important areas: how to calibrate market incentives for renewable hydrogen production and use; how to prioritise scarce EU funding and which parts of the value chain to focus on; and which industries the EU wants to keep and at what price, given the geopolitical implications of EU production compared to imports from non-EU countries.

Background information

Hydrogen can be produced in different ways, e.g. from water using electricity (electrolysis), or from (reforming) natural gas. Renewable hydrogen – i.e. hydrogen produced using either renewable electricity or biomass – is one way to make the EU's heavy industries climate-friendly.

However, renewable hydrogen comes with its own challenges, including the cost of production, and the need for renewable electricity and water. In 2022, hydrogen accounted for less than 2 % of Europe's energy consumption, with the largest share of demand coming from refineries. According to the report, the demand that is expected to be stimulated will not even reach 10 million tonnes by 2030, let alone the 20 million tonnes initially envisaged by the Commission. The auditors also note that, as things stand, there is no overall EU hydrogen import strategy.

Special report 11/2024, "The EU's industrial policy on renewable hydrogen: legal framework has been mostly adopted – time for a reality check", is available on the ECA website. The ECA has previously issued several reports on the EU's industrial policy, including on energy storage technologies and on batteries.

Related links

Executive summary

I The EU is committed to becoming climate neutral by 2050, meaning that all sectors that emit greenhouse gases are called on to decarbonise. The Commission saw renewable hydrogen as one way to decarbonise hard-to-electrify industries in particular. It published an EU Hydrogen Strategy in mid-2020 and updated it with its REPowerEU plan in 2022. The Commission also set the course for creating a renewable hydrogen market in the EU through setting targets for hydrogen production and import. It also recognised that low-carbon hydrogen could play a role in the transition towards climate neutrality.

II For the 2021-2027 period, total EU funding for hydrogen-related projects is currently estimated at €18.8 billion. This financial support is allocated through multiple programmes. Two major funding sources are the Recovery and Resilience Facility and the Innovation Fund.

III We decided to carry out an audit on how effective the Commission has been in creating the right conditions for the emerging renewable and low-carbon hydrogen markets, given the significant implications of this transition for the future of key EU industries. To this end, we assessed whether the EU is on track for achieving its targets and whether it has adopted the necessary legal acts to effectively provide timely support for the hydrogen market. We also assessed whether the EU has a comprehensive set of funding programmes to allow the hydrogen value chain to develop across the EU. Lastly, we assessed whether the Commission has appropriately coordinated market creation between its own services, with member states and with industry.

IV Overall, we conclude that the Commission was partially successful in creating the necessary conditions for the emerging hydrogen market and the hydrogen value chain in the EU. We are calling for a reality check now as nearly 4 years have passed since the publication of the Hydrogen Strategy and first lessons can be drawn.

V The Commission did not undertake robust analyses before setting the EU's renewable hydrogen **production and import targets**. These were not broken down into binding targets for member states and not all member states set their own targets. When they did so, these national targets were not necessarily aligned with the Commission's targets. In fact, the EU targets turned out to be overly ambitious: based on the available information from member states and industry, the EU is unlikely to meet them by 2030. The Commission did not set any EU targets for low-carbon hydrogen.

VI The renewable hydrogen **legal framework** is now mostly complete, while for low-carbon hydrogen some acts still need to be proposed and adopted. However, the renewable hydrogen production rules, which are key for market development, were set by a directive and supplemented by a delegated act without prior assessment of their impact (for example on production cost). Agreeing on the renewable hydrogen rules took time and many investment decisions were deferred during this period. In 2023, the EU adopted measures to increase the cost competitiveness of renewable and low-carbon hydrogen, but the effect of these measures will not be immediate and certain aspects were not included.

VII Work on standardisation and certification is still required. Progress in market development will depend on several factors, including whether member states will (i) meet the demand targets which in turn depends on progress made by industry, and (ii) manage to reduce permitting timelines for renewable hydrogen and renewable energy projects.

VIII Investment needs are huge, but the Commission does not have a complete overview of these **needs or the public funding** available. Industry is faced by a set of different EU funding programmes with different rules, making it difficult to determine the best-suited programme for a given project. There is still no guarantee that the EU's hydrogen production potential can be fully harnessed. So far, those member states with a high share of hard-to-decarbonise industry are more advanced in terms of planned projects (either at an advanced or in the feasibility study stage).

IX The Commission took steps to **coordinate** the ramp-up of the hydrogen value chain, but has not yet used the existing fora to discuss important strategic issues, such as how best to move forwards without creating new strategic dependencies.

X We recommend that the Commission:

(1) following a reality check, make strategic choices on the way ahead without creating new strategic dependencies;

(2) set out an EU roadmap and monitor progress;

(3) obtain reliable national funding data and assess the appropriateness of EU funding arrangements accordingly;

(4) monitor the permitting process in the member states;

(5) take a clear decision on support and coordination actions with and for the hydrogen industry.

Conclusions and recommendations

120 With the publication of the Hydrogen Strategy for the EU, for the first time the Commission had a central role to play in creating a new market. Our overall conclusion is that the Commission was partially successful in creating the necessary conditions for this market. While the Commission took a number of positive steps, challenges remain all along the hydrogen value chain.

121 With its 2020 Hydrogen Strategy and the 2022 REPowerEU plan, the Commission set targets at EU level for renewable hydrogen production and for importing renewable hydrogen. Both documents are Commission communications, and as such are therefore non-binding. There was less focus on low-carbon hydrogen at the time: although it was mentioned, no targets were set (see paragraph ***24***).

122 We found that the renewable hydrogen targets were not clearly defined. Moreover, they were driven by political will rather than being based on robust analyses. In addition, at the time of writing, it is unlikely that these targets for 2030 can be achieved (see paragraphs ***25-30*** and ***38-45***).

123 It is not mandatory for member states to prepare hydrogen strategies, but they did have to provide updated national energy and climate plans by mid-2023 (final versions have to be submitted by mid-2024), including reporting on measures to achieve the non-binding EU targets. The Commission reviewed the draft national plans and issued recommendations to member states. However, it did not ask them to set targets in line with the EU's targets. The Commission did not establish a coordination process with member states to ensure a certain degree of alignment. In fact, member states did not necessarily align their targets and measures with those of the EU. They are not all moving at the same speed or with the same level of ambition. In late 2023, the Commission president announced that the Commission will assess how member states plan to implement the national hydrogen commitments to provide a clear roadmap towards 2030 in each member state (see paragraphs ***31-37***).

124 Within a relatively short period of time, the Commission has proposed most of the legal acts to regulate the hydrogen market. An act defining the methodology for assessing greenhouse gas emissions savings for low-carbon hydrogen is still outstanding. Work on standardisation and certification is still required (see paragraphs ***47-50***).

125 Industry representatives indicated to us that they had deferred investment decisions until the rules for producing renewable hydrogen (Delegated Act) were published in June 2023. Once published, these rules delivered the much needed legal certainty. However, the Commission had not yet assessed the impact of these rules on either the cost or the timing for rolling out renewable hydrogen. The Commission is now required to carry out such an assessment before mid-2028. In fact, several public studies show that the temporal correlation (hourly correlation) rule increases the production cost for renewable hydrogen, thereby reducing its competitiveness compared to fossil-based hydrogen (see paragraphs ***42*** and ***61***).

126 On the positive side, we found the following.

- Targets for the use of renewable hydrogen in industry and transport as introduced by several EU legal acts boost demand (see paragraphs ***28*** and ***63***).

- The Commission asked member states to address the slowness of domestic permitting processes in their national energy and climate plans and took several legislative measures requiring member states to accelerate the process (see paragraphs ***64***-***66***).

127 The timelines established in the various legal acts relating to the permitting process varied. The Commission has not yet established a plan to monitor member states' implementation of permitting process reforms (see paragraphs ***66***-***68***).

128 The speed and degree of implementation of the legal requirements relating to demand targets and permitting depend on the member states. For example, some member states consider that certain demand targets are unrealistic and very difficult to achieve. Apart from lengthy and time-consuming infringement proceedings, the Commission has no means to ensure that member states adhere to these targets or requirements (see paragraphs ***63*** and ***68***).

129 The Commission estimated the amount of investment that would be needed to create a market for renewable hydrogen, but did not consider all parts of the hydrogen value chain. Our analysis showed that the demand side was not properly considered and that the Commission's estimates across different documents were not consistent (see paragraphs ***80***-***82***).

130 The Commission does not have complete data on allocated or planned national public funding for renewable hydrogen. For the 2021-2027 period, total EU funding for hydrogen-related projects is currently estimated at €18.8 billion, mostly funded by the

Recovery and Resilience Facility. EU funding is available for the supply and demand side of the hydrogen value chain. On the demand side, the Commission has not yet developed the key scheme announced in its Hydrogen Strategy, namely "Carbon Contracts for Difference". Regarding the innovative Hydrogen Bank, there is still no clarity in terms of the budget that will be available beyond 2024 (see paragraphs ***83***-***86***, ***91***-***97*** and ***106***).

131 EU funding is scattered over several programmes with different funding rules. This makes it difficult for hydrogen project developers to determine which programme is best suited to their project. The Commission has developed a webpage to provide information on various EU funding programmes, but at the time of our audit this webpage was not yet fully operational. In late 2023, the Commission president announced that the Commission would relaunch a one-stop shop solution to guide project developers on EU funding (see paragraphs ***83***-***90***).

132 In the years to come, large amounts of investments will be required all along the hydrogen value chain, the bulk of which will have to be provided by the private sector. In an emerging market like hydrogen, there is a case to incentivise and support industry in making these investments, be it through national and EU public funding or through public authorities that build the essential infrastructure.

- The Commission amended certain state aid rules to ease the provision of state aid and support the green transition. However, long approval times for state aid, which was the case for some notifications, can negatively affect projects' planned costs and start dates (see paragraphs ***69***-***77***).

- Furthermore, even when the Commission allows state aid to be provided, it does not mean that member states actually have to deliver it (see paragraphs ***76*** and ***103***).

- Member states set their own priorities on how to use some of the most important EU funding sources for hydrogen, namely the Recovery and Resilience Facility and cohesion policy funding. Given their specific situation and the importance they attach to renewable hydrogen, some member states use the Facility significantly more than others (see paragraphs ***93***-***94***, ***101***-***102*** and ***104***).

- While the eastern and central EU member states (plus Portugal and Greece) can use the Modernisation Fund, so far only two member states have put multi-technology grant schemes in place, which can include hydrogen projects (see paragraph ***104***).

133 So far, planned projects (at an advanced and in the feasibility study stage) for renewable hydrogen (production and networks) have been concentrated in a limited number of member states, in particular those where hard-to-decarbonise industries are primarily located. The same applies to the bulk of the EU funding allocated. However, not all of the member states which are currently more advanced with regard to renewable hydrogen have sufficient potential for renewable energy production and consequently renewable hydrogen production. As yet, there is therefore no guarantee that available public funding allows the EU to (i) fully harness member states' hydrogen production potential and (ii) transport hydrogen across the EU (see paragraphs ***98***-***106***).

134 The Commission took steps to coordinate the ramp-up of the hydrogen value chain, but coordination within the Commission and between the Commission and member states does not yet ensure that all parties are moving in the same direction. Numerous Commission directorates-general are responsible for specific aspects of the hydrogen value chain and pursue objectives which are not always aligned. The Commission has not yet used the existing fora to discuss key strategic issues on the future of the hydrogen value chain in the EU with member states. Moreover, the Commission did not provide guidance or support to member states about how to establish their national hydrogen strategies. With regard to coordination with industry, the Commission set up the European Clean Hydrogen Alliance, but after a promising start, momentum slowed (see paragraphs ***107***-***119***).

Recommendation 1 – Following a reality check, make strategic choices on the way ahead without creating new strategic dependencies

In close collaboration with the member states, the Commission should decide on the strategic way forward towards decarbonisation without altering the competitive situation of key EU industries, which could potentially result in further deindustrialisation. In particular, the Commission should

(a) update its Hydrogen Strategy based on a careful assessment of the following aspects:

  (i) how to calibrate market incentives for renewable and low-carbon hydrogen production and use, taking recent legislative changes into account,

  (ii) how to prioritise scarce EU funding (e.g. focusing on which parts of the value chain),

  (iii) the geopolitical implications of EU production compared to imports from non-EU countries (i.e. which industries does the EU want to keep and at what price),

(b) update the renewable hydrogen production and import targets set by the REPowerEU plan so that they are ambitious but realistic. In so doing, it should consider regional and industrial sector specificities and the role of low-carbon hydrogen.

Target implementation date: end-2025

Recommendation 2 – Set out an EU roadmap and monitor progress

In close collaboration with the member states, the Commission should

(a) set out and publish an EU roadmap for the development of a hydrogen value chain towards 2030 and beyond, based on its assessment of the national energy and climate plans and its updated Hydrogen Strategy,

(b) monitor the EU's and member states' progress in achieving binding and non-binding targets by means of a scoreboard.

Target implementation date: mid-2026

Recommendation 3 – Obtain reliable national funding data and assess the appropriateness of EU funding arrangements accordingly

The Commission should do the following.

(a) Work in close cooperation with member states and if necessary, propose reporting obligations to obtain information on investment plans and on planned and actual national public funding for the market ramp-up – at least for the industries to be identified under Recommendation 1. It should report on this overview, for example in the reports on the state of the Energy Union. The overview should cover all parts of the hydrogen value chain.

(b) Assess whether the current EU funding arrangements are appropriate for the future development of the hydrogen value chain across the EU.

Target implementation date: end-2025

Recommendation 4 – Monitor permitting processes in the member states

The Commission should monitor permitting processes in the member states and check whether they adhere to the timelines set in various legal acts, potentially including this aspect in the European Semester process.

Target implementation date: end-2025 (or later if the relevant legal acts set deadlines for transposing the legislation into national law that are after the end of 2025)

Recommendation 5 – Take a clear decision on support and coordination actions with and for the hydrogen industry

The Commission should do the following.

(a) Create a one-stop shop solution for stakeholders under the European Hydrogen Bank and guide hydrogen project developers on available EU funding.

(b) Decide on the future of the Clean Hydrogen Alliance in terms of its scope and number of roundtables and adopt a clear and time-bound mandate for its future work.

Target implementation date: mid-2025

This report was adopted by Chamber II, headed by Mrs Annemie Turtelboom, Member of the Court of Auditors, in Luxembourg at its meeting of 5 June 2024.

For the Court of Auditors

Tony Murphy
President

Annexes

Annex I – Support for renewable hydrogen in the United States

The US adopted two legal acts which are particularly relevant to renewable hydrogen:

— the Bipartisan Infrastructure Law (2021) includes $9.5 billion for clean hydrogen initiatives, of which $8 billion is for regional clean hydrogen hubs and $1 billion is for a clean hydrogen electrolysis programme;

— the Inflation Reduction Act (2022) provides for a hydrogen production and investment tax credit.

The Inflation Reduction Act provides the following relating to hydrogen production.

— A tax credit[60] for the production of clean hydrogen, which is uncapped and available for 10 years from the moment a production facility comes into operation, but construction must start before 1 January 2033.

— Technology-neutral support, which is based on carbon intensity, meaning that the higher the carbon intensity, the lower the support. The highest carbon intensity for which support can be obtained is 4 kilogrammes (kg) of CO_2 equivalent per kilogramme of hydrogen. The amount of support ranges from $0.6 to $3 per kg of hydrogen produced. According to a study[61] by the *Institut der deutschen Wirtschaft*, the defined carbon intensity is such that (i) hydrogen produced using the current electricity mix in the grid is not within the carbon intensity range for which support can be obtained, and (ii) the highest support is currently only possible by operating using exclusively renewable electricity.

— A tax credit for carbon oxide sequestration[62].

— Local content requirements: a 10 % increase in the tax credit is possible where an electrolyser is manufactured with US materials.

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[60] See Article 45V of the Internal Revenue Code.

[61] Küper, Malte, 2023, *Wasserstoff im Inflation Reduction Act. Was ist drin für Deutschland und die EU?*, IW-Kurzbericht, Nr. 8, Köln.

[62] See Article 45Q of the Internal Revenue Code.

Annex II – Renewable Energy Directive (RED III): targets

The Directive sets targets for the use of renewable fuels of non-biological origin (RFNBOs) (including renewable hydrogen) in industry and in the transport sector, as shown in the following table.

2030 and 2035 targets

Sector	Targets
Overall	Increase the share of renewable energy in the EU's overall energy consumption to 42.5 % by 2030, with an additional 2.5 % indicative top-up so that the 45 % target can be achieved.
Industry	Industry will need to annually increase its use of renewable energy by 1.6 %. 42 % of the hydrogen used in industry should come from RFNBOs by 2030 and 60 % from this source by 2035. Member states will be able to discount the RFNBOs' contribution for industrial use by 20 % if: o the member state's national contribution to the binding overall EU target tallies with their expected contribution; o the share of hydrogen from fossil fuels consumed in the member state does not exceed 23 % in 2030 and 20 % in 2035.
Transport	Member states will have the possibility to choose between: o a binding target of a 14.5 % cut in greenhouse gas intensity from transport by using renewables (by 2030); or o a binding share of at least 29 % from renewables in the transport sector's final energy consumption (by 2030). The new rules establish a binding combined sub-target of 5.5 % for advanced biofuels (generally derived from non-food-based feedstocks) and RFNBOs (mostly renewable hydrogen and hydrogen-based synthetic fuels) in the share of renewable energies supplied to the transport sector. Within this target, there is a minimum requirement of 1 % from RFNBOs in the share of renewable energy supplied to the transport sector in 2030.

Source: EU legal acts.

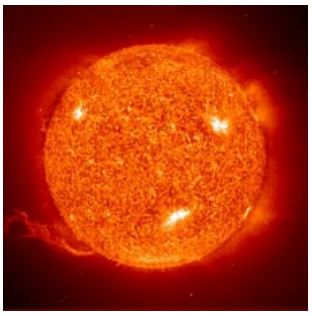
https://www.eia.gov/energyexplained/hydrogen/#:~:text=Hydrogen%20is%20an%20energy%20carrier&text=Hydrogen%2C%20like%20electricity%2C%20is%20an,source%20of%20energy%20or%20fuel.

Independent Statistics & Analysis
U.S. Energy Information Administration

Hydrogen explained
What is hydrogen?

Hydrogen is the simplest element. Each atom of hydrogen has only one proton. Hydrogen is also the most abundant element in the universe. Stars such as the sun consist mostly of hydrogen. The sun is essentially a giant ball of hydrogen and helium gases.

Hydrogen occurs naturally on earth only in compound form with other elements in liquids, gases, or solids. Hydrogen combined with oxygen is water (H_2O). Hydrogen combined with carbon forms different compounds—or hydrocarbons—found in natural gas, coal, and petroleum.



The sun is essentially a giant ball of hydrogen gas undergoing fusion into helium gas. This process causes the sun to produce vast amounts of energy.

Source: NASA (public domain)
?

Hydrogen is the lightest element. Hydrogen is a gas at normal temperature and pressure, but hydrogen condenses to a liquid at minus 423 degrees Fahrenheit (minus 253 degrees Celsius).

Hydrogen is an energy carrier

Energy carriers allow the transport of energy in a usable form from one place to another. Hydrogen, like electricity, is an energy carrier that must be produced from another substance. Hydrogen can be produced—separated—from a variety of sources including water, fossil fuels, or biomass and used as a source of energy or fuel. Hydrogen has the highest energy content of any common fuel by weight (about three times more than gasoline), but it has the lowest energy content by volume (about four times less than gasoline).

It takes more energy to produce hydrogen (by separating it from other elements in molecules) than hydrogen provides when it is converted to useful energy. However, hydrogen is useful as an energy source/fuel because it has a high energy content per unit of weight, which is why it is used as a rocket fuel and in fuel cells to produce electricity on some spacecraft. Hydrogen is not widely used as a fuel now, but it has the potential for greater use in the future.

Last updated: January 20, 2022

https://www.osc.ny.gov/press/releases/2024/07/dinapoli-improved-planning-needed-new-york-achieve-its-clean-energy-goals

NEWS from the Office of the New York State Comptroller
Contact: Press Office 518-474-4015

DiNapoli: Improved Planning Needed for New York To Achieve Its Clean Energy Goals

July 17, 2024

The Public Service Commission (PSC) and the New York State Energy Research and Development Authority (NYSERDA) have taken considerable steps in planning for New York State's transition to renewable energy but must take stronger action to meet the state's clean energy goals, according to an audit released today by New York State Comptroller Thomas P. DiNapoli. The audit found inadequate planning, monitoring and assessment of risks and challenges in the PSC's efforts to help the state meet the Climate Leadership and Community Protection Act's (Climate Act) targets, which seek 70% renewably sourced electricity by 2030 and net-zero emissions by 2040.

"New York is moving in the right direction to transition to renewable energy, but we found better planning, monitoring of progress and timely assessment of risks by PSC is needed to achieve our ambitious clean energy goals," DiNapoli said. "New York has been a leader in its efforts to reduce greenhouse gas emissions and the threats caused by climate change, and identifying existing and emerging challenges will improve the likelihood that we succeed."

Planning

Auditors found that the PSC, tasked under the Climate Act with establishing and reviewing the state's renewable energy program, sometimes used outdated data and wrong calculations to determine if the state could reach 70% renewably sourced electricity by 2030. The PSC did not update their calculations based on new laws and directives, which may drive clean energy demand and supply up, like electric vehicles, new green buildings, or electric cooling and heating.

PSC also did not fully account for other potential risks, and did not consider certain challenges that could delay meeting the state's clean energy targets. For example, according to the Independent System Operator, the state would need new technology not yet developed to account for the weather-related intermittency of renewables, as well as expanded transmission capability to get clean energy to consumers, to achieve the 2040 goal of 100% renewable statewide electric generation.

The audit found that the PSC did not develop a back-up plan if the Climate Act's goals were not met within prescribed timeframes, except for the continued reliance on fossil fuels, including "peaker plants," which generally operate at a higher monetary and environmental cost.

Project Cancellations & Delays

Cancellations of renewable energy projects have slowed progress toward meeting the Climate Act's goals, and auditors determined that the PSC did not plan properly for the historical project cancellation rate. As of April 2023, there were 230 large-scale renewable projects awarded contracts within the Climate Act program, and 28 projects were cancelled from 2005 to 2023. Of the remaining 202 projects, only 30% were completed, and on average it takes 5 years for a large-scale renewable project to be up and running, as a 2030 deadline looms to achieve 70% renewably sourced electricity.

Renewable Energy Contracts

The PSC also did not fully plan for expiring contracts, which could lead to higher costs. Most contracts for renewable energy sources have a 10 to a 20 year span. Between 2007 and 2022, 81 contracts expired, which could lead to New York paying more than the original price once the contract expires. Additionally, there is no guarantee these facilities will then sell the renewable electricity they generate into the New York power grid

and contribute to achieving the Climate Act goals. These situations, for example, were not factored into PSC's planning to develop a program to meet the goals.

Projected Costs

The PSC did not reasonably estimate or verify other entities' estimates of the cost of the transition to renewable energy. Undertaking a project without knowing the costs increases the risk that the project will not succeed. The absence of cost estimates also makes it difficult, if not impossible, to assess its impact on New Yorkers, including those who are currently struggling to pay their utility bills and who have faced rising costs over the past two decades. PSC officials stated that they expect the cost for renewable energy to decrease as time goes on, but did not produce an analysis that demonstrated how quickly they expect these costs to decline.

Other Issues Affecting State's Ability to Meet Goals

Auditors identified other factors that could delay achievement of the Climate Act goals, including increasingly severe weather, renewable electricity demands, a delayed Champlain Hudson Power Express line and potential limitations on the hydroelectric power it is expected to provide, and material availability and supply chain issues.

While the PSC is not solely responsible for ensuring the state is prepared to meet the Climate Act's goals, it should discuss the potential effects of these issues with the agencies responsible for ensuring a smooth transition, determine the effects of these concerns and include this information in its projections to increase the likelihood of meeting the Climate Act's goals.

DiNapoli's audit recommended the PSC:

- Begin a comprehensive review of the Climate Act, including an assessment of progress towards the goals and annual funding commitments and expenditures;
- Analyze and address existing and emerging risks and known issues on a continual basis to minimize the impact on the state's ability to meet Climate Act goals;
- Provide a more accurate representation of the likelihood of meeting targets by assessing expected renewable energy generation and timing of projects not yet operable; and,
- Perform a detailed analysis of cost estimates and periodically report results to the public, and assess the extent to which ratepayers will be responsible for Climate Act implementation costs.

The audit also recommends NYSERDA:

- Take steps to ensure proposals are evaluated consistently and contracts are awarded to the most qualified proposers.

In response, PSC did not agree with several of the audit's findings, including that it uses outdated or incorrect calculations for planning purposes. It also referred to events such as the COVID-19 pandemic impacting cost analysis. NYSERDA generally agreed with the audit's recommendations and said it had implemented changes to its procedures.

Audit
Climate Act Goals – Planning, Procurements, and Progress Tracking

Other related work
Application Review and Site Permitting for Major Renewable Energy Projects
Renewable Electricity in New York State: Review and Prospects

Public Service Commission

New York State Energy Research and Development Authority

Climate Act Goals – Planning, Procurements, and Progress Tracking

Report 2022-S-4 | July 2024

OFFICE OF THE NEW YORK STATE COMPTROLLER
Thomas P. DiNapoli, State Comptroller

Division of State Government Accountability

Audit Findings and Recommendations

For Climate Act implementation to be successful, the following are all essential: proper procurement, assessment of progress toward goals, development of alternate plans in the event goals are not achievable according to established time frames, reasonable estimation of costs and identification of funding sources, and identification of existing and emerging risks.

While PSC and NYSERDA have taken considerable steps to plan for the transition to renewable energy in accordance with the Climate Act, their plans did not include all essential components. PSC is using outdated data for planning purposes and has not adequately addressed all current and emerging issues, such as increased push to transition to electric vehicles and the switch to use of electric for all residential heating and cooling, which will likely increase electricity demand significantly. Further, PSC is relying on yet-undeveloped technology that will be required to store renewable energy long term to meet 2040 goals and did not correctly take into consideration the historical cancellation rate for renewable energy contracts (between 2005 and 2023, 12% of contracted large-scale renewable projects were canceled) when projecting electricity generation estimates, increasing the risk that decision-makers are not using the most accurate information to support the achievement of program goals.

When we asked PSC officials what they were currently doing to assess issues that could affect Climate Act goals, they noted that they are not required to issue a formal assessment until July 2024 and did not provide any documentation to show that they have begun assessing the State's transition to renewable energy or potential obstacles to achieving goals. However, waiting to conduct a formal assessment of all efforts and costs of the transition to renewable energy might leave too little time to sufficiently plan to meet the Climate Act's ambitious goals.

Additionally, the costs of transitioning to renewable energy are not known or have not been reasonably estimated by PSC, nor has PSC verified the cost estimates developed by other entities that they use for analyses. Further, funding sources to cover those costs have not been identified, leaving the ratepayers as the primary source of funding. According to data from the U.S. Energy Information Administration, utility costs have already risen sharply over the last two decades. Governor Hochul issued a press statement in March 2022 about efforts her administration is taking due to the high number of New Yorkers having difficulty paying their utility bills.

Further, a formal backup plan has not been established in the event that Climate Act goals are found to be unachievable within the prescribed time frames, other than PSC suspending or modifying the obligations under the Climate Act and relying on fossil fuels. However, the default plan to rely on fossil fuels not only fails to address Climate Act goals, but it also means that, in addition to maintaining and growing the existing infrastructure for the transmission of renewable energy, the infrastructure for safely transporting fossil fuels must be maintained, which also may present costs to ratepayers.

Lastly, while we found that, overall, NYSERDA's procurements followed the Orders issued by PSC, areas of the procurement process could be improved. Our sample

review of large-scale renewable projects found that NYSERDA did not always fully document the rationale for scores awarded to proposers or for scores that deviated from the established guidelines. While NYSERDA asserts that all scores were appropriate, documenting the rationale is important for explaining decisions to bidders that did not win projects. When information that supports the evaluation and scoring of the proposal is not documented during the evaluation, the basis for important decisions could be lost and NYSERDA might not be able to adequately support that the appropriate contracts were awarded.

Climate Act Planning and Progress

PSC and NYSERDA have taken considerable steps to plan for Climate Act implementation, but insufficient analysis of the impact of emerging issues and other factors could have an effect on the implementation of Climate Act goals.

Planning and Assessments

NYISO is responsible for managing New York's electric grid and its competitive wholesale electric marketplace and for conducting comprehensive long-term planning for the State's electric power system. After the Climate Act was signed into law, NYISO was asked to provide relevant information on the grid's ability and readiness to handle the additional capacity within the Climate Act's time frame. According to NYISO, after the Council was created, NYISO met with the Council and provided relevant information. However, NYISO said this information was not used in establishing the Climate Act goals or time frames for implementation.

Nonetheless, NYISO officials stated that the grid is on track to be able to handle the Climate Act goal of 70% of the State's electric needs generated from renewable sources by 2030 based on the production data reported by PSC and NYSERDA. However, meeting the Climate Act's 70% goal by 2030 is contingent on the provided data being complete, accurate, and updated. PSC's most current projections of energy demand and generation were completed in 2020 based on 2019 data, meaning the data and projections are, therefore, outdated in terms of recent legislation and regulations that may increase electrical demand, including:

- A September 2022 regulation to eliminate the sale of new passenger cars, pick-up trucks, and SUVs that are not zero-emission vehicles by 2035.
- The 2022 Environmental Bond Act funding green building projects for State-owned buildings and public schools.
- 2023 legislation prohibiting the installation of fossil fuel equipment and building systems in certain new buildings beginning in 2026.

Further, we reviewed and discussed the projections with PSC officials, who also agreed that they contained calculation errors—the most notable being the allowance for a 0.2% capacity cushion to mitigate the risk of project cancellations instead of the intended 20%. When further questioned about these calculation errors, PSC officials stated the spreadsheet originally provided was not support for their application of

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the 20% capacity cushion. Additionally, DPS provided a PowerPoint presentation on the projections to PSC, but this also contained errors related to the Climate Act goals. PSC already does projections of energy demand every 6 months to help identify peak demand during summer and winter months, but does not utilize those projections to update the analysis of projected consumption versus projected supply of renewable energy. Decision-makers need accurate, complete, and current data to make the best decisions; without it, it is less likely that Climate Act goals will be achieved, especially within the currently required time frames.

As part of its duties, NYISO prepares an annual Reliability Needs Assessment (Assessment) that evaluates electric system reliability according to resource adequacy and transmission security criteria. The 2022 Assessment evaluated the reliability of the New York bulk electric grid from 2026 through 2032, taking into consideration forecasts of peak power demand, planned upgrades to the transmission system, and changes to the generation mix over the next 10 years. While the Assessment did not find any long-term actionable reliability needs for the New York State Bulk Power Transmission facilities, significant shifts are expected in both the demand and supply sides of the electric grid due to New York State clean energy policies and goals, such as the electrification of buildings, restrictions on fossil fuel use in certain new buildings, and increased requirements to get more electric vehicles on the road—as, by 2035, only new passenger cars, pick-up trucks, and SUVs that are zero-emission vehicles will be able to be sold in New York. These shifts will affect how the current power system is planned and operated.

Within its 2022 Assessment, NYISO states that the New York City area faces the greatest reliability risk due to limited generation and transmission to serve forecasted demand. The reliability reserve margins within New York City may not be sufficient, even for expected weather conditions, if forecasted demand in the City increases by as little as 60 MWh in 2025—if the approved (but not yet operable) Champlain Hudson Power Express line to bring electricity from Quebec to New York City experiences a significant delay or there are additional generator deactivations beyond what is already planned. In 2023, NYISO reported that the peak daily load in NYC was 10,372 MWh on September 6.

While the potential risks and resource needs identified in the analyses may be resolved by new resources coming into service, construction of additional transmission facilities, and/or increased energy efficiency and integration of demand-side resources, this illustrates the potential issues that could result from lack of planning to proactively address risk and other issues. The current plan to address these issues is to keep “peaker plants” (fossil fuel power plants that grid operators generally call upon only at times of high demand) operating until the Champlain Hudson Power Express project is completed. However, these peaker plants generally come at a higher cost, both monetarily and environmentally.

It is also important to note that there is not just one plan guiding the State to achieving the goals of the Climate Act. There is a complex coordination of several plans and programs to accomplish this ambitious target.

Energy Storage and Transmission Constraints

NYISO officials stated that they believe the 2030 Climate Act goals might be achievable. NYISO also stated that the 2040 goal will be far more difficult to meet and that a technology that has not yet been developed or approved will be necessary to achieve that goal. According to NYISO's 2022 Power Trends report (a publication that summarizes key grid issues), NYISO concluded that the grid of the future will require significant amounts of on-demand, zero-emission, flexible resources that can account for the weather-related intermittency of renewables. Another challenge to future grid planning is the constraints of the existing transmission system, which limit the ability to deliver renewable energy to consumers. Additional transmission capability would maximize the potential contribution of these renewable resources to meet electric demand and achieve public policy goals. However, this additional transmission capability needs to be planned, constructed, and put into service in a timely manner, which could be a difficult task—even with the progress PSC and NYSERDA have made with planning—as any delays could significantly impact reaching the Climate Act goals in the established time frames.

According to PSC, fossil fuel resources will primarily be used for reliability until on-demand emission-free resources become available as effective replacements. NYISO reports that current dispatchable emission-free technologies under development include green hydrogen and renewable natural gas. These resources must have long-term energy output capabilities and the ability to be dispatched immediately for extended time periods, and would need to be developed and deployed on a large scale well before 2040. Currently, storage capacity for renewable energy is short term (i.e., 4 to 8 hours according to the 2020 Energy Storage Annual Report), and NYISO experts don't believe this will be rectified in the short term. As PSC said at the beginning of the audit, it can procure and generate energy, but it's worthless if it can't go on the grid. Long-term energy storage is necessary when relying on intermittent weather-dependent renewable energy sources. This need means the State's emission-free electricity system must not only produce enough power to meet demand but must also provide sufficient charging capability to meet the large amount of storage required. The risk of failing to meet Climate Act goals increases when having to rely on an undeveloped technology that might take years to advance to its ultimate usable form. The State has taken steps to increase the amount of energy that can be stored for future use, but the issue of how long that energy can be stored is the most limiting factor.

Project Cancellations

Project cancellations have already slowed progress toward meeting Climate Act goals. Per NYSERDA reporting, between 2005 and 2023, 28 projects totaling 1,319 MW were canceled—12% of contracted large-scale renewable projects. PSC officials stated they included a 20% capacity cushion to mitigate project cancellations. However, this 20% capacity cushion only applies to Tier 1 projects, which are the expected source of less than half of the renewable energy procured to meet the 70% Climate Act goal. Therefore, this cushion may not be sufficient to cover the

historical project cancellation rate. Not correctly factoring in the potential cancellation of projects deprives decision-makers of the best or most accurate data on which to base important decisions.

As of July 2023, NYSERDA had executed four contracts for offshore wind generation to produce 4,230 MW of renewable energy. NYSERDA issued the first RFP to procure ORECs over 5 years ago on November 8, 2018. However, due to a variety of delays, generators have not produced a single OREC. In early June 2023, the developers responsible for constructing New York's offshore wind projects filed a petition with PSC seeking inflation adjustments to contracts already in place. This petition was denied by PSC in October 2023. One generator, a party to a joint venture, sold its stake in the project. Two other projects resubmitted bids under the 2023 solicitation for offshore winds projects and were provisionally awarded contracts. The amount of energy they proposed to provide (between 1.65 GW and 1.82 GW) was the same, but the price increased over 30% and the projects' operational dates were pushed back from 2024 to 2026. Additionally, as of April 2024, it was announced that three other offshore wind projects totaling over 4 GW of capacity that were provisionally awarded under the 2022 solicitation could not reach a final agreement and will not be entering into a contract. Such projects also face public opposition for various reasons, which can cause significant delays. A large portion of New York City's renewable energy is expected to come from offshore wind, so these issues could dramatically affect the achievement of Climate Act goals and will impact ratepayer costs.

Expiring Contracts and REC Price Agreements

When contracts for renewable energy sources were first approved, some sources were contracted for a 10- to 20-year span. After the contracts expire, facilities will need market revenues to support continued operation, and this is understood by facility proposers upon application. Revenue could come from wholesale market sales, or facilities would be free to contract with any individual energy consumer for both energy and RECs at an agreed-upon price. When contracts expire, there is no guarantee that the energy produced by those New York facilities will stay in New York, threatening Climate Act goals. Between 2007 and 2029, 81 contracts expired or will expire with a production capacity of 1,431 MW and a bid quantity (the amount of energy the contractor commits to generating for the contract) of 4.8 million MWh. To put this in context, New York's average annual electricity consumption from 2018 to 2022 was 154.4 million MWh. Consumption is expected to steadily increase every year and reach 204.0 million MWh by 2040. This could lead to New York paying more than the originally contracted price once the contracts expire because of additional competition for that renewable energy and RECs. Again, these potential situations should be factored into the determination of whether New York will meet Climate Act goals.

Other Issues Affecting State's Ability to Meet Goals

Several additional existing and emerging issues that may affect New York's ability to meet Climate Act goals should be considered, including:

- Severe weather dangers are becoming more common, and they affect renewable energy electric systems/grids. The State is not immune to such events, which could lead to greater electricity demand and more forced outages than currently forecasted. Heating and cooling needs in the State make it increasingly important for energy to be available during peak demand times. According to the National Centers for Environmental Information, between 1980 and June 2024, there have been 90 confirmed weather/climate disaster events with losses exceeding $1 billion each in New York. The 1980–2023 annual average is 1.9 events, with the annual average for the last 5 years (2019–2023) at 4.4 events. The increasing risk of severe weather puts the availability of necessary electricity in jeopardy during and after these events, especially with growing supplies of intermittent generation that may not be available when needed.
- California is, at times, able to generate enough renewable electricity to cover 100% of its demand. However, because of the inability to store renewable energy long enough to use it as an on-demand source—a challenge New York also faces—California is still reliant on fossil fuels to produce the energy necessary to meet demand. Sometimes, because of timing, there isn't enough energy to meet peak demand. Despite California adding more renewable energy, it is still having issues during peak demand times, which has led the state to ask residents not to charge their cars or lower the temperature on their air conditioning.
- New York has approved the Champlain Hudson Power Express line to bring electricity from Quebec to New York City. However, there are concerns this hydroelectric power might not be available during the winter months because Canadian needs take priority over New York's. This means that as New York increases its winter electric demand by increasing the electrification of building heating systems, it will need to find additional sources of emission-free electricity. Further, more recent studies show that Quebec's surplus of electricity could be eliminated as soon as 2033 by increasing demand within the province, a situation that could undercut New York's ability to rely on this source of electricity. Hydro-Quebec (the utility generating and selling this energy) is searching for ways to increase its renewable energy production.
- Recently enacted or proposed legislation could have the potential to increase electric demand in New York State. This includes the requirement to transition to zero-emission vehicles and the electrification of housing. If Climate Act goals are not reached, fossil fuels will continue to be used to produce the necessary energy. This would either put increased pressure on the aging infrastructure or increase costs even more to maintain the fossil fuel infrastructure. Further, this could potentially continue the negative effect on the environment, as fossil fuels would be needed to produce the additional electricity.

- Replacement of solar panels and wind turbines at the end of their useful life ensures the continuation of renewable energy. However, delays could result from supply chain issues as well as availability of materials, leading to lower generation of renewable energy.

While PSC is not solely responsible for ensuring the State is prepared to meet Climate Act goals, as the entity tasked with establishing and reviewing the State's renewable energy program, PSC should discuss the potential effects of these issues with the agencies responsible for ensuring a smooth transition and should ensure all parties are aware of the impacts to their area of responsibilities. PSC should then determine the effect these concerns could have on energy demand and include that information in its projections to provide the best possible chances of meeting Climate Act goals.

Gap Between Renewable Energy Projections and Current Generation

As of November 2021, the State needed to more than double its renewable energy generation to meet the 70% by 2030 goal. According to data from the U.S. Energy Information Administration, for November 2021, total net electricity generation in New York was 10,096 thousand MWh, of which about 30.1% (3,039 thousand MWh) came from renewables with another 23.6% (2,383 thousand MWh) from nuclear. (For the purposes of the Climate Act, nuclear energy isn't considered renewable energy but is counted toward the 2030 and 2040 goals as zero emissions.) The single largest source of electricity (45.7%) came from natural gas.

The Council's Scoping Plan anticipates annual electricity demand will more than double by 2050, depending on the scale and timing of electrification and whether there are other clean alternatives for the transportation and building sectors. The increase in demand is due in part to changes or expected changes in the electrification of buildings and transportation.

According to Open NY, as of April 2023, there were 230 total large-scale renewable projects (facilities) awarded within the Climate Act program. Twenty-eight of these projects were canceled at various stages, leaving 202 facilities. Of these, only 40 (20%) were operational. As of April 2023, Open NY listed 101 (50%) as under development; however, this status can mean anything, including a contract with final terms still being negotiated, a contract without final site approval, a developer still finalizing financing, or actual construction. Finally, 61 projects (30%) were listed as completed and the contract duration for RECs had ended. Currently, less than 6 years remain until 2030 to finalize all these projects to meet the 2030 goal and, on average, it takes 5 years to complete a large-scale renewable project. See Table 1 for details.

Table 1 – Large-Scale Renewable Project Status as of April 2023

Category	Description	Project Status
Tier 1	Primary method for acquiring renewable energy	114 total projects with 20 (18%) operational
Tier 2	Baseline resources: facilities already in the generation stage, but upgrades or repairs may be needed. May be competitive or maintenance based.	13 total projects with 6 (46%) operational
Tier 3	ZECs are related to nuclear power generation	No new projects
Tier 4	Renewable energy into New York City	2 total projects with 0 operational
Offshore Wind	Related to offshore wind	4 total NYSERDA projects with 0 operational (Long Island Power Authority has 1 additional project under construction)

Note: This chart details only the projects using the Tier system (133) that we discuss throughout the report. The other 69 projects were in place before the Climate Act and are not in a Tier.

New York has a long way to go to meet its renewable energy goals, complicated by failure to use the most accurate data available for demand forecasts and the history of project cancellation in planning. The goals may be more difficult to achieve given the challenges presented by New York City energy needs and the obstacles involved in the transmission of renewable energy to the City.

PSC has taken some steps to address these issues, such as using the Power Grid Study and Accelerated Renewable Energy Growth Act to implement the transmission plan, which led to the approval of several transmission projects to ensure the electric grid is ready to meet the growing electricity demand. Further, PSC officials stated they included a 20% cushion to address project cancellations. However, this 20% capacity cushion only applies to Tier 1 projects, which are the expected source of less than half of the renewable energy procured to meet the 70% Climate Act goal. While PSC has taken actions to examine and resolve issues, more actions and planning are necessary. PSC must ensure construction time lines are accurate and that the facilities will be able to produce the amount of electricity they are contracted to provide.

When we asked PSC officials what they were currently doing to assess the risks and impacts of current and emerging issues that could affect Climate Act goals, they noted that they are not required to issue a formal assessment until 2024 and did not provide any documentation to show that they have begun assessing the State's transition to renewable energy or potential obstacles to achieving goals. Further, PSC has stated that:

> For those efforts overseen by the PSC, we apply an ongoing monitoring and continuous improvement approach that includes a detailed review of annual achievements made under every applicable effort, followed by recognizing and acting on any necessary changes moving forward. The Department and Commission have established successful processes that allow us to be

> flexible to changing market conditions, incorporate stakeholder feedback into its decisions, and ensure we continue to take advantage of innovation and leveraging of private sector investments. In sum, we are not waiting until the benchmark dates to determine if the goals are achieved. Instead, we are taking action now to mitigate the risk of not meeting any of the statutory deadlines set forth in the CLCPA [Climate Act], including a multifaceted strategy where we are implementing clean energy initiatives across virtually every sector of the State's economy.

While the Climate Act does not require PSC to formally assess these impacts until July 2024, at that point it might be too late to make sufficient changes to meet the established goals. PSC stated it does evaluate the performance and cost of specific renewable energy programs, but this is not done for all efforts and costs of the transition to renewable energy. Undertaking a project without identifying and assessing potential risks, including estimating the costs to complete that project, increases the risk that the project's goals will not be successfully achieved.

In October 2023, the Executive announced a 10-point plan with steps that address some of the issues cited above regarding Climate Act planning. For example, the plan indicates NYSERDA would announce "historic awards" of renewable energy projects and expedite the assessment of the impacts of the Large-Scale Renewable Program and the projects' ability to meet obligations, and the State will otherwise seek more public engagement, expand the offshore wind supply chain, build out transmission infrastructure to connect Long Island with the rest of the State, and seek federal support in the form of offshore wind tax credits and revenue sharing with other states.

Additional proactive steps to improve project planning would improve the State's chances of meeting ambitious Climate Act goals, and identifying potential problem areas as early as possible would leave more time to pursue alternative strategies for implementing renewable energy.

Incomplete Cost Assessment and Ratepayer Burden

In addition to ensuring a sufficient supply of renewable energy and the electric grid's ability to handle the transmission of renewable energy, successful implementation of the Climate Act requires recognition of the cost to achieve and maintain these goals. PSC emphasizes that the consideration of cost was not required in the Climate Act, nor were any sources of funding identified in it. The only source of funding available for PSC comes directly from the ratepayers. A report from the Council indicated that implementing and meeting Climate Act goals will cost between $280 and $340 billion. The Council has also estimated the benefits of the Climate Act to be between $420 and $430 billion, with roughly half of the presumed benefits coming from global reductions in harm caused by climate change. During the 2022 budget process, about $559 million was allocated. However, this money was not used to offset the cost of procuring renewable electricity for ratepayers, but instead was used for other

clean energy programs such as the electrification of building systems and to promote and improve energy efficiency in schools.

PSC Orders show that stakeholder feedback was solicited and reviewed after the Climate Act was enacted and that those Orders authorized funding for the CES and Climate Act to be borne by the ratepayers. However, at least one PSC Commissioner stated the cost of the renewable energy conversion is greater than the capacity to finance it through ratepayers.

Compared to the 50 states and the District of Columbia, New York had the ninth highest price for electricity, at 21.2 cents per kilowatt hour (kWh) as of November 2022. Ten states have a price above 20 cents per kWh, including northeastern states such as New Hampshire, Massachusetts, Connecticut, Rhode Island, Maine, and Vermont. However, during the roughly 6-year period between the adoption of the CES in 2016 and September 2022, the average electricity prices in New York increased by 45%, while the average electricity price across the U.S. has only increased by 36%. This is not to imply that the CES is the sole contributor to increasing electric rates, but to show that electric prices are increasing substantially, which should be a concern for PSC.

Prior to the COVID-19 pandemic, there were almost 1 million customers in the State with unpaid utility bills, totaling over $800 million. As of March 2022, that number was 1.2 million customers, owing a total of $1.8 billion. While some of this can be attributed to the pandemic and the State's moratorium on energy shutoffs, some can also be attributed to the rising cost of utility services and supply. Most of these unpaid bills are being paid for by the remaining ratepayers through a surcharge on their utility bills or by State taxpayers through on-budget funding approved by the Executive and Legislature to assist residents and small business customers with the bills in arrears. Further, the Enacted Budget for State Fiscal Year 2023-24 included a provision to hold to 6% of household income the electric bills of low-income customers who participate in State programs to electrify home heating and appliances and undertake efficiency upgrades.

As New York pursues clean energy programs to fulfill the obligations of the Climate Act, it is imperative to identify sources of funding other than increased utility rates to mitigate impacts on ratepayers. Relying primarily on customer rate assessments to pay for these programs may increase the number of utility customers in arrears on their utility bills and/or Climate Act goals will not be met timely due to the lack of availability of resources.

The 10-point plan announced in October 2023 indicates that cost savings realized through federal support may be shared with ratepayers; however, PSC may need to pursue additional ideas to address expected rate increases as the State pursues Climate Act goals.

Reliance on Fossil Fuels

PSC asserted that New York is on track to reach the 2030 goal of 70% of the State's electric needs generated from renewable sources. However, this depended on the renewable energy projects under contract being completed in a timely manner and operating at or near capacity and on no other issues arising, such as an unforeseen or unplanned spike in demand or contracts being canceled (or the entity being otherwise unable to fulfill its obligations under the contract). In DPS's Draft Clean Energy Standard Biennial Review issued July 1, 2024, DPS states that it is behind in projects to achieve the 70% goal by 2030, which is now projected to be achievable in 2033.

When asked what the plan is in the event that Climate Act goals cannot be achieved, PSC responded:

> The Clean Energy Standard (CES) programs fund the addition and continued operation of eligible technologies and does not require the retirement of the existing firm generators. It should also be noted that the CLCPA [Climate Act] provides the Commission with the authority to suspend or modify the CES (referred to as the "Renewable Energy Program" in the CLCPA – Section 4, Public Service Law § 66-p) if it determines the programs "impedes the provision of safe and adequate electric service." Therefore, if the reliability planning processes described above identify an emergent or imminent reliability concern, the Commission has the legal authority to temporarily suspend or modify the CLCPA programs where necessary.
>
> We also note that there are current requirements in place for duel [sic] fuel/interruptible customers in utility tariffs to ensure that backup fuel supply is available in the event of any supply disruptions/outages. Similar requirements will be developed as needed though the statewide gas planning proceeding as we continue to transition the gas system to meet the CLCPA goals.

While PSC noted it can simply suspend or modify requirements of the renewable energy program to maintain a safe and adequate electric supply, that does not come without consequences, including potential additional increases in the cost of electricity. Further, the default plan is to rely on fossil fuels. This means that, in addition to the costs of incentivizing new renewable generation and building new required transmission infrastructure, fossil-fuel generation must be kept available, which may increase costs to ratepayers. Again, this adds to the growing costs of the transition, which so far have been almost totally borne by the ratepayers.

Undertaking a project without knowing the costs increases the risk that the project will not succeed. The absence of cost estimates also makes it difficult, if not impossible, to assess its impact on New Yorkers, including those who are currently struggling to pay their utility bills and who have faced rising costs over the past two decades. PSC officials stated that they expect the cost for renewable energy to decrease as time goes on, but that is not a certainty at this point. Further, PSC has not established a time line for decreasing costs of renewable energy.

Procurement Process Inconsistencies

Regarding the Large-Scale Renewable Program, NYSERDA issues RFPs that specify resource eligibility, price and non-price evaluation criteria, and the number of RECs or ORECs NYSERDA seeks to procure.

We reviewed projects in four of the five areas for which NYSERDA issued RFPs for procurement: Tier 1 - Primary method for acquiring renewable energy; Tier 2 - Baseline resources: facilities already in the generation stage, but upgrades or repairs may be needed (competitive or maintenance based); Tier 4 - Renewable energy into New York City; and Offshore Wind. We did not review projects for Tier 3, as ZECs are related to nuclear energy generation, and nuclear energy is not considered to be renewable for the purposes of the Climate Act, although it is counted as zero emissions.

Overall, we found that NYSERDA's procurements followed the Orders issued by PSC. However, we found NYSERDA did not always ensure the guidelines used from the RFP complied with internal procurement guidelines, and areas of the procurement process could be improved. During our review of the large-scale renewable projects, we found the rationales provided for the scores awarded to proposers and for scores that deviated from the established guidelines were not fully or consistently documented. While NYSERDA asserts that all scores were appropriate, documented rationale is important for explaining decisions to bidders whose proposals were not selected. When information that supports the evaluation and scoring of the proposal is not documented during the evaluation, the basis for important decisions could be lost and NYSERDA might not be able to adequately support that the appropriate contracts were awarded. NYSERDA did not follow certain aspects of its internal procurement guidelines when developing the RFPs, with instances of vague scoring guidance that could have led to inconsistent scoring of proposals.

During Tier 1, Tier 4, and Offshore Wind procurements, evaluators review and score proposals and identify a preliminary award group. A Panel of NYSERDA and DPS senior management then conduct a portfolio risk assessment of the preliminary award group, reach a final consensus score through discussion, and select the final award group for the procurement. If the Panel determines non-standard evaluation practices led to an anomaly in results, they may request the evaluators review and resubmit scores, if necessary. Ultimately, the Panel approves the final results and award contracts.

Our review of Tier 1 procurement RFPs issued in 2017 and 2018 found they did not fully comply with NYSERDA's internal procurement guidelines. NYSERDA produced emails explaining that the internal scoring guidance was found not to conform to the RFPs (the public-facing source of authority on how scoring should be performed) and that it deemed a change was necessary. After extensive discussions, NYSERDA used the RFP guidelines to score the proposals received in response to the 2017 and 2018 RFPs but did not officially amend the internal procurement guidelines until

2019. The discrepancy involved NYSERDA averaging the scores awarded by each evaluator in this category to conform to the RFPs' language instead of using the sum of ranks to calculate and award final scores, as required by the internal guidance.

NYSERDA's scoresheets include reference scores (suggested score based on meeting specific evaluation criteria, which NYSERDA provides to evaluators via procurement scoring sheets) and a matrix based on RFP guidance to help Panel members adhere to the evaluation methodology. Both the scoresheet and scoring guidelines allow Panel members to deviate from the reference scores up to the maximum allowable score in each project's subcategory. See Table 2 for scoresheet subcategory descriptions.

Table 2 – NYSERDA Scoresheet Subcategories

Subcategory	Description
Project Viability	Considers a series of factors that demonstrate whether the proposed project can reasonably be expected to be in service on or before the proposed commercial operation date.
Operational Flexibility and Peak Coincidence	Evaluates a generation facility's ability to produce energy at times and in locations where production can be problematic, and the facility's ability to mitigate future system integration burdens.
Incremental Economic Benefits	Evaluates the amount and type of economic benefits to NY which as the result of an REC contract and that would not have accrued but for the award of a contract.
Percent of Site Control	Evaluated according to the proportion of the project and interconnection site under a proposer's control through ownership, executed lease or executed binding option for ownership or lease, and the progress towards right-of way control the proposer has achieved through ownership, executed lease, or executed option.
Resource Assessment	Evaluates the level of progress in assessing the quality and accessibility of the renewable resource for the proposed bid facility.
Project Labor Agreement (PLA)	Considers the proposer's commitment to entering into a PLA and whether the PLA covers all necessary infrastructure.

According to the guidelines, deviation from reference scores should occur only when evaluators disagree with underlying data provided by the proposer, and evaluators must provide a rationale for any scoring deviation. However, neither the guidelines nor the scoresheets explained the number of fractional points (tenths and/or hundredths of a point awarded when evaluators believe a proposer has met and surpassed the criteria for the lower of two reference scores and has not met the criteria for the higher of the two reference scores) an evaluator should award when deviating from a reference score.

From the four project areas, we reviewed the 48 scoresheets that six evaluators completed while evaluating the eight proposals included in our review and found:

- 23 (5%) of the 432 scores awarded for Project Viability deviated from reference scores.
- Evaluators failed to provide sufficient rationale for 20 (87%) of the 23 deviations.

- 15 of the 23 deviations did not express disagreement with the underlying data, although all reviewer and consensus notes included related commentary in varying degree of detail.

We also identified variability in scores created by vague and easily misinterpreted scoring guidance in two scoresheet subcategories. We recognize that these scoresheets record preliminary individual scores that inform the Panel's final consensus score, which is reached through discussion, but this issue reflects a need for further clarity in NYSERDA scoring guidance. For instance, while evaluating the Percent of Site Control subcategory, six evaluators awarded two different scores using two different interpretations of the scoring guidance.

Similarly, NYSERDA provided vague scoring guidance for the Resource Assessment subcategory. The RFP established a minimum threshold and a standard for the subcategory. The scoresheet instructed evaluators to use professional judgment to award a score within a specific points range to determine if the proposer had an assessment done determining the availability of the resource (sun or wind) to produce renewable energy. While one evaluator believed the proposer had met the criteria for receiving one point, the other five evaluators awarded a different score.

In accordance with the relevant PSC orders, the RFP also allowed proposers to earn up to 10 points for the Project Viability subcategory and up to another 10 for the Operational Flexibility and Peak Coincidence subcategory. The evaluation protocol for the procurement required Panel members to evaluate and score the non-price components of each proposal. Once Panel members completed their individual evaluations, they met to discuss the scores awarded to each proposal. The award model used Panel scores to generate a total score for each proposal, which NYSERDA converted to points. Our review of NYSERDA's scoring of the Project Viability and Operational Flexibility and Peak Coincidence subcategories found that it calculated both scores by summing the average of the Panel scores (not the consensus scores) awarded in each subcategory and failed to convert the scores to points using the award model, as required by the guidelines. This could change the score the proposer received for this subcategory, which could potentially change the ranking. However, NYSERDA asserts that this did not occur in this instance. NYSERDA acknowledges that it populated the award model using the individual reviewer's scores within the Incremental Economic Benefits subcategory, and that the scoring committee also made consensus decisions on the dollar amount of benefits that informed consensus scores but disagrees that this was out of alignment with the scoring guidance. However, NYSERDA agrees that the process by which Panel members provided final scores to award economic benefit scores in accordance with the established guidelines could have been clearer. The process of translating eligible economic benefit dollars to a points score was completed, but the process would benefit from a clearer description in the guidelines and clearer sequence of scores resulting in a final consensus score in the award model.

We did not have any findings for our review of Tier 2 projects. For Tier 4, we reviewed one successful proposal from the 37 proposals from the award model and determined the evaluators did not fully document support for five (25%) of the

20 factors for Project Viability and Operational Flexibility and Peak Coincidence subcategories evaluated. NYSERDA management asserts that the consensus score supports the final score given but agreed more documentation is needed regarding how the Panel reached that consensus. Additionally, NYSERDA management stated that they reviewed these instances of unsupported scores and determined the correct score was given. However, the documentation supporting the score should have been recorded at the time the scorers reviewed the proposal. This would not only document the basis for their score but would aid NYSERDA when it communicates results with unsuccessful proposers.

NYSERDA also provided vague scoring criteria for evaluators to use while evaluating the Project Labor Agreement (PLA) subcategory. The guidance required evaluators to award points depending on the specificity of the documentation provided and extent of the commitment made to a PLA. However, the guidance provided did not explain the difference between, for example, an affirmation of intent and a firm commitment to enter into a PLA, nor did the guidance specify whether letters of intent demonstrate an affirmation or a commitment.

We found evaluators interpreted and applied the PLA criteria inconsistently. For example:

- Three of the six evaluators awarded different points based on review of the same information in the proposal. One evaluator commented the proposer was committed to PLAs across the entire project, while the two evaluators commented that a statement in the proposal, “we will require … to negotiate and sign a PLA,” demonstrated a firm commitment.
- One evaluator awarded the number of points appropriate for providing an affirmation of intent, even though this evaluator determined the proposal did not reference PLAs.
- One evaluator mentioned letters of intent to execute PLAs but awarded 0 points.
- One evaluator awarded the points appropriate for a proposer who provided memoranda of understanding to execute a PLA without comments or an explanation.

NYSERDA acknowledged that the guidance could have been clearer and stated it would better define PLA scoring guidance should another Tier 4 solicitation be issued in the future. However, NYSERDA stated that any inconsistencies regarding scoring guidance interpretation among individual evaluator scores did not affect the scoring committee consensus scores that counted toward project selection because, as part of scoring committee sessions, the scoring committee adopted consensus scores based on shared and consistent interpretation of the guidance.

PSC issued its Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement in July 2018. This Order adopted the goal of procuring ORECs associated with 2.4 GW of offshore wind capacity by 2030 and authorized NYSERDA to implement Phase 1 of the program. Phase 1 required the procurement of ORECs

associated with approximately 800 MW of offshore wind to be contracted in 2018 and 2019. Accordingly, NYSERDA released an RFP on November 8, 2018 to procure ORECs produced by one or more offshore wind generation facilities located in the ocean waters of the United States and evaluated proposals based on price and non-price factors.

We compared the 20 consensus scores (20 categories for three different projects) awarded to three proposers for offshore wind projects to the scoring guideline guidance and determined that support or basis for the consensus scores was not fully documented in 12 of the 60 scores. Although NYSERDA stated that it, in response to our findings, reran the model and, as a result, found no changes, unsupported scores could result in other scores changing in the future. NYSERDA officials stated they reviewed the issues for offshore wind projects that we identified in the scoring and determined all the scores awarded were appropriate.

In summary, without fully documenting the Panel's decision-making process and discussions, NYSERDA may not be able to fully support how contracts were awarded or that the State has received the greatest amount of economic and environmental benefits intended through the RFP process for large-scale renewable projects.

In response to our audit, NYSERDA stated it has taken or plans to take steps to improve the procurement process deficiencies we identified, including:

- Developing streamlined, complete, and specific scoring guidelines for evaluators.
- Utilizing an aggregation of the scorers' individual preliminary scoresheets to populate the scoring rubric used for consensus scoring.
- Eliminating the use of the reference score.
- Requiring NYSERDA to capture any deviations from the scoring guidance, which should be rare, in the Team Memo or other memo to file.
- Reviewing preliminary scores and consensus scores for all RFPs to verify evaluators adhered to scoring guidelines, justified deviations, and only awarded points for eligible economic benefits.
- Requiring all scorers to certify in affirmation of the final consensus score.
- Including specific language in an appendix to the RFPs, providing additional details for eligible economic benefits.
- Requiring detailed consensus meeting notes describing all discussions for each non-price criteria, including the Project Viability criteria.
- Engaging an external auditor to evaluate alignment among all RFP documentation and processes for the 2022 Tier 1 and Offshore Wind awards.
- Hiring a dedicated Contracts Manager to support the large-scale renewables portfolio.

Further, the 10-point plan announced in October 2023 includes a point to accelerate and streamline the bidding process, which may have an effect on some of the concerns detailed above.

Any steps taken to address inconsistencies and vague guidelines in the proposal scoring process would provide greater assurance that proposals are being scored consistently and that projects are being awarded appropriately, promoting the chances of the State's success in reaching Climate Act emission reduction goals through carefully procured renewable energy projects.

Recommendations

For PSC:

1. Begin the required comprehensive review of the Climate Act, including assessment of progress toward the goals, distribution of systems by load and size, and annual funding commitments and expenditures.
2. Continuously analyze the existing and emerging risks and known issues to ensure they are evaluated and addressed to minimize impact on the State's ability to meet Climate Act goals.
3. Analyze the expected renewable energy generation of projects that are not yet operable, taking into consideration the possibility of project cancellation (e.g., using the known historic cancellation rate) to provide a more accurate representation of the likelihood of and progress toward achieving Climate Act goals. Additionally, update the expected dates for when the projects under construction will be operational.
4. Conduct a detailed analysis of cost estimates to transition to renewable energy sources and meet Climate Act goals. Periodically update and report the results of the analysis to the public.
5. Assess the extent to which ratepayers can reasonably assume the responsibility for covering Climate Act implementation costs. Identify potential alternative funding sources.

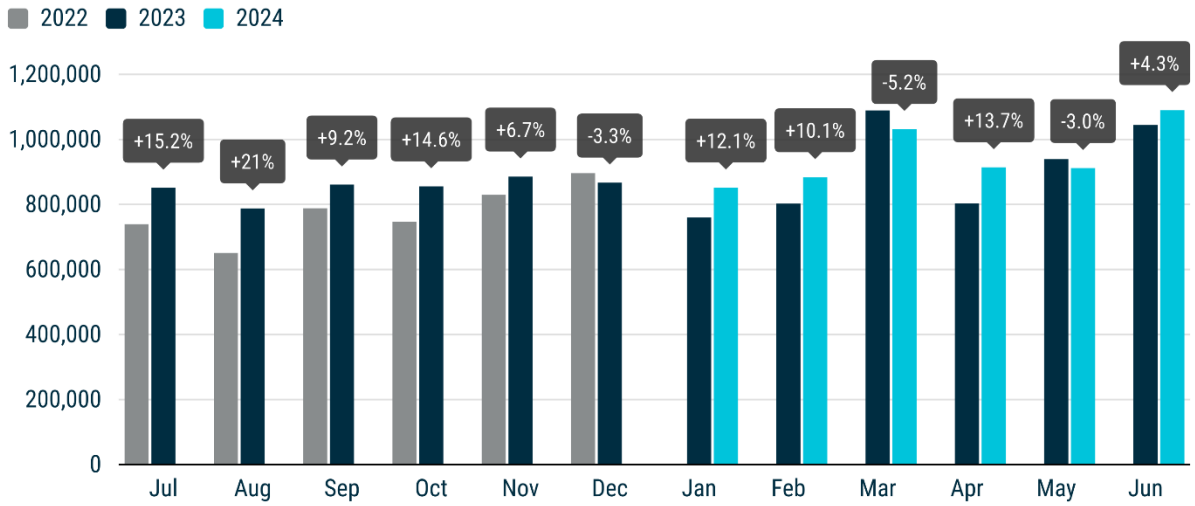
For NYSERDA:

6. Take steps to ensure proposals are evaluated consistently and contracts are awarded to the most qualified proposers, including:
    - Adequately documenting the scoring process.
    - Requiring all evaluators to provide justification for their individual and consensus scores.
    - Developing more complete and specific scoring guidelines for evaluators.

NEW CAR REGISTRATIONS, EUROPEAN UNION

EMBARGOED PRESS RELEASE
6.00 CEST (4.00 GMT), 18 June 2024

New car registrations: +4.3% in June 2024; battery electric 14.4% market share



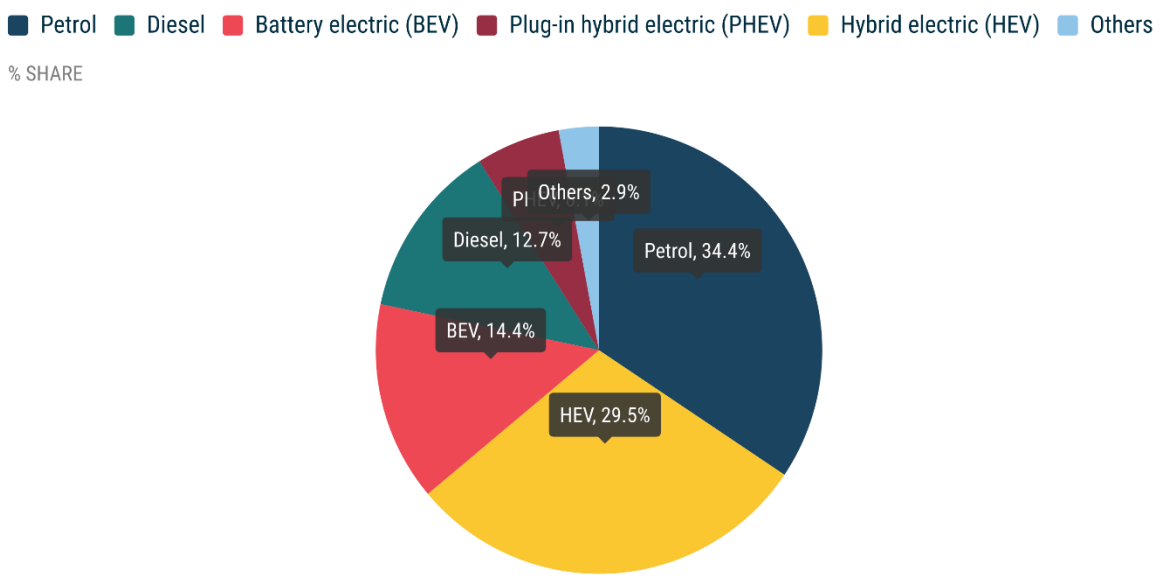
In **June 2024**, EU car registrations increased by 4.3%, driven by gains in three out of the region's four major markets: Italy (+15.1%), Germany (+6.1%), and Spain (+2.2%). In contrast, France saw a decline of 4.8% last month.

In the **first half of 2024**, new car registrations increased by 4.5%, reaching nearly 5.7 million units. However, registration volumes remain relatively low (-18%) compared to pre-pandemic levels. The bloc's largest markets all showed positive but modest performance, with Spain (+5.9%), Germany (+5.4%), Italy (+5.4%), and France (+2.8%) all recording growth.

NEW EU CAR REGISTRATIONS BY POWER SOURCE

In **June**, battery-electric cars accounted for 14.4% of the EU car market, down from 15.1% the previous year. At the same time, hybrid-electric vehicles increased their market share, growing from 24.4% to 29.5%. The combined share of petrol and diesel cars fell to 47.1%, down from 49.6%.

Data source: the European Automobile Manufacturers' Association (ACEA), based on aggregated data provided by national automobile associations, ACEA members and S&P Global Mobility.



Electric cars

In **June 2024**, registrations of battery-electric (BEV) cars declined by 1% to 156,408 units, with their total market share dropping to 14.4% from 15.1%. Despite significant growth in Belgium (+50.4%) and Italy (+117.4%), these gains could not offset double-digit declines in the other top markets: Germany (-18.1%), the Netherlands (-15%), and France (-10.3%). As a result, a total of 712,637 new battery-electric cars were registered in the first half of the year. This marks a modest 1.3% increase from the same period the previous year, and represents 12.5% of the market.

Plug-in hybrid car registrations saw a strong decline of 19.9% last month, with significant decreases in three of the largest markets: Belgium (-49.2%), France (-21.7%), and Germany (-3.4%). In June, plug-in hybrids accounted for 6.1% of the total car market, down from 7.9% last year, with 66,482 units sold.

Hybrid-electric vehicles were the only powertrain category to post growth, with car registrations increasing by 26.4% in June to 321,959 units. All four of the largest markets for this segment recorded double-digit gains: France (+34.9%), Italy (+27.2%), Spain (+23%), and Germany (+16.5%). This growth pushed the hybrid-electric market share to 29.5%, up from 24.4% in June 2023.

Petrol and diesel cars

In **June 2024**, petrol car sales remained relatively stable, decreasing by just 0.7%. Declines in key markets such as France (-20.2%) and Spain (-7.5%) were counterbalanced by growth in Germany (+12.1%) and Italy (+6.9%). As a result, petrol cars now represent 34.4% of the market, down from 36.2% in June last year.

The diesel car market saw a similar situation, with a slight decline of 0.9%, resulting in a 12.7% share of the market last June. While Germany experienced a gain of 12.4%, decreases were observed in other major markets like Italy (-18.3%), France (-8.3%), and Spain (-2.1%).

NEW CAR REGISTRATIONS BY MARKET AND POWER SOURCE

MONTHLY

	BATTERY ELECTRIC			PLUG-IN HYBRID			HYBRID ELECTRIC[1]			OTHERS[2]			PETROL			DIESEL			TOTAL		
	June 2024	June 2023	% change 24/23	June 2024	June 2023	% change 24/23	June 2024	June 2023	% change 24/23	June 2024	June 2023	% change 24/23	June 2024	June 2023	% change 24/23	June 2024	June 2023	% change 24/23	June 2024	June 2023	% change 24/23
Austria	4,696	4,612	+1.8	1,807	1,799	+0.4	7,267	5,003	+45.3	0	7	-100.0	11,017	7,989	+37.9	5,906	5,101	+15.8	30,693	24,511	+25.2
Belgium	13,714	9,119	+50.4	5,950	11,716	-49.2	4,802	4,197	+14.4	310	490	-36.7	22,603	21,877	+3.3	2,283	4,361	-47.6	49,662	51,760	-4.1
Bulgaria	162	159	+1.9	33	24	+37.5	104	95	+9.5	0	0	#DIV/0!	3,104	2,771	+12.0	707	742	-4.7	4,110	3,791	+8.4
Croatia	298	114	+161.4	128	88	+45.5	1,725	1,396	+23.6	87	192	-54.7	4,385	4,166	+5.3	1,749	1,499	+16.7	8,372	7,455	+12.3
Cyprus	62	72	-13.9	49	25	+96.0	636	538	+18.2	0	0	#DIV/0!	630	429	+46.9	40	46	-13.0	1,417	1,110	+27.7
Czechia	1,524	633	+140.8	531	525	+1.1	4,156	3,240	+28.3	371	471	-21.2	10,473	10,727	-2.4	5,279	4,884	+8.1	22,334	20,480	+9.1
Denmark	9,941	6,350	+56.6	618	2,266	-72.7	3,619	3,359	+7.7	0	1	-100.0	4,267	5,343	-20.1	1,086	983	+10.5	19,531	18,302	+6.7
Estonia	120	138	-13.0	61	61	+0.0	889	809	+9.9	5	10	-50.0	498	979	-49.1	239	264	-9.5	1,812	2,261	-19.9
Finland	1,902	3,092	-38.5	1,067	1,723	-38.1	2,189	2,345	-6.7	26	54	-51.9	1,163	1,468	-20.8	418	482	-13.3	6,765	9,164	-26.2
France	29,837	33,280	-10.3	14,044	17,935	-21.7	62,204	46,098	+34.9	4,913	7,551	-34.9	54,480	68,275	-20.2	16,231	17,708	-8.3	181,709	190,847	-4.8
Germany	43,412	52,988	-18.1	15,391	15,930	-3.4	72,579	62,319	+16.5	1,491	2,360	-36.8	111,768	99,682	+12.1	52,688	46,860	+12.4	297,329	280,139	+6.1
Greece	752	637	+18.1	590	695	-15.1	6,445	4,065	+58.5	103	319	-67.7	5,227	5,874	-11.0	1,030	1,803	-42.9	14,147	13,393	+5.6
Hungary	864	386	+123.8	431	502	-14.1	4,676	3,340	+40.0	9	50	-82.0	4,144	3,873	+7.0	1,600	1,314	+21.8	11,724	9,465	+23.9
Ireland	685	1,432	-52.2	110	114	-3.5	250	435	-42.5	0	0	#DIV/0!	230	556	-58.6	213	453	-53.0	1,488	2,990	-50.2
Italy	13,365	6,148	+117.4	5,592	7,404	-24.5	61,358	48,244	+27.2	16,261	11,916	+36.5	42,630	39,886	+6.9	20,776	25,431	-18.3	159,982	139,029	+15.1
Latvia	111	193	-42.5	59	44	+34.1	615	570	+7.9	26	51	-49.0	555	772	-28.1	250	303	-17.5	1,616	1,933	-16.4
Lithuania	112	193	-42.0	127	93	+36.6	1,223	1,240	-1.4	30	40	-25.0	1,012	1,037	-2.4	299	463	-35.4	2,803	3,066	-8.6
Luxembourg	1,227	1,095	+12.1	307	514	-40.3	900	829	+8.6	0	0	#DIV/0!	1,350	1,638	-17.6	540	691	-21.9	4,324	4,767	-9.3
Malta	202	110	+83.6	45	60	-25.0	156	163	-4.3	0	0	#DIV/0!	292	252	+15.9	64	79	-19.0	759	664	+14.3
Netherlands	11,537	13,566	-15.0	5,268	4,974	+5.9	10,330	9,343	+10.6	206	303	-32.0	7,677	11,609	-33.9	368	392	-6.1	35,386	40,187	-11.9
Poland	2,115	1,809	+16.9	1,252	1,275	-1.8	22,164	15,082	+47.0	773	1,177	-34.3	18,954	17,614	+7.6	4,963	4,624	+7.3	50,221	41,581	+20.8
Portugal	3,820	3,291	+16.1	2,316	2,542	-8.9	2,735	2,814	-2.8	1,124	1,030	+9.1	8,093	9,880	-18.1	2,105	2,484	-15.3	20,193	22,041	-8.4
Romania	861	1,575	-45.3	0	0	#DIV/0!	7,696	4,098	+87.8	2,482	1,542	+61.0	7,371	4,402	+67.4	2,948	1,556	+89.5	21,358	13,173	+62.1
Slovakia	215	230	-6.5	182	268	-32.1	2,651	2,059	+28.8	141	209	-32.5	4,020	4,025	-0.1	1,440	1,580	-8.9	8,649	8,371	+3.3
Slovenia	225	328	-31.4	80	135	-40.7	490	588	-16.7	42	39	+7.7	2,785	2,733	+1.9	1,161	846	+37.2	4,783	4,669	+2.4
Spain	5,531	5,474	+1.0	5,204	6,439	-19.2	37,520	30,499	+23.0	2,633	2,657	-0.9	40,440	43,734	-7.5	12,029	12,282	-2.1	103,357	101,085	+2.2
Sweden	9,118	10,958	-16.8	5,240	5,796	-9.6	2,580	2,025	+27.4	386	632	-38.9	6,225	6,592	-5.6	1,852	2,282	-18.8	25,401	28,285	-10.2
EUROPEAN UNION	**156,408**	**157,982**	**-1.0**	**66,482**	**82,947**	**-19.9**	**321,959**	**254,793**	**+26.4**	**31,419**	**31,101**	**+1.0**	**375,393**	**378,183**	**-0.7**	**138,264**	**139,513**	**-0.9**	**1,089,925**	**1,044,519**	**+4.3**
Iceland	213	904	-76.4	275	227	+21.1	384	488	-21.3	0	0	#DIV/0!	439	308	+42.5	289	641	-54.9	1,600	2,568	-37.7
Norway	14,001	12,800	+9.4	931	1,354	-31.2	2,050	823	+149.1	8	1	+700.0	172	231	-25.5	350	357	-2.0	17,512	15,566	+12.5
Switzerland	4,216	5,226	-19.3	1,802	2,302	-21.7	7,921	6,748	+17.4	1	5	-80.0	6,497	8,476	-23.3	2,252	2,457	-8.3	22,689	25,214	-10.0
EFTA	**18,430**	**18,930**	**-2.6**	**3,008**	**3,883**	**-22.5**	**10,355**	**8,059**	**+28.5**	**9**	**6**	**+50.0**	**7,108**	**9,015**	**-21.2**	**2,891**	**3,455**	**-16.3**	**41,801**	**43,348**	**-3.6**
United Kingdom	34,034	31,700	+7.4	16,604	12,770	+30.0	63,980	56,208	+13.8	0	0	#DIV/0!	59,942	70,367	-14.8	4,703	6,221	-24.4	179,263	177,266	+1.1
EU + EFTA + UK	**208,872**	**208,612**	**+0.1**	**86,094**	**99,600**	**-13.6**	**396,294**	**319,060**	**+24.2**	**31,428**	**31,107**	**+1.0**	**442,443**	**457,565**	**-3.3**	**145,858**	**149,189**	**-2.2**	**1,310,989**	**1,265,133**	**+3.6**

[1] Includes full and mild hybrids
[2] Includes fuel-cell electric vehicles, natural gas vehicles, LPG, E85/ethanol, and other fuels

NEW CAR REGISTRATIONS BY MARKET AND POWER SOURCE

YEAR TO DATE

	BATTERY ELECTRIC			PLUG-IN HYBRID			HYBRID ELECTRIC[1]			OTHERS[2]			PETROL			DIESEL			TOTAL		
	Jan-Jun 2024	Jan-Jun 2023	% change 24/23	Jan-Jun 2024	Jan-Jun 2023	% change 24/23	Jan-Jun 2024	Jan-Jun 2023	% change 24/23	Jan-Jun 2024	Jan-Jun 2023	% change 24/23	Jan-Jun 2024	Jan-Jun 2023	% change 24/23	Jan-Jun 2024	Jan-Jun 2023	% change 24/23	Jan-Jun 2024	Jan-Jun 2023	% change 24/23
Austria	22,178	23,372	-5.1	8,695	8,812	-1.3	31,163	26,079	+19.5	12	13	-7.7	46,395	43,136	+7.6	26,670	25,278	+5.5	135,113	126,690	+6.6
Belgium	64,404	43,578	+47.8	45,464	50,942	-10.8	24,280	19,768	+22.8	2,043	2,317	-11.8	113,083	121,153	-6.7	14,134	26,717	-47.1	263,408	264,475	-0.4
Bulgaria	871	871	+0.0	247	120	+105.8	467	319	+46.4	0	1	-100.0	16,450	12,235	+34.5	5,012	4,070	+23.1	23,047	17,616	+30.8
Croatia	792	929	-14.7	711	487	+46.0	9,788	7,171	+36.5	746	944	-21.0	19,304	17,942	+7.6	8,250	7,098	+16.2	39,591	34,571	+14.5
Cyprus	496	308	+61.0	349	194	+79.9	3,975	2,782	+42.9	0	0	#DIV/0!	3,723	4,069	-8.5	248	289	-14.2	8,791	7,642	+15.0
Czechia	4,146	2,992	+38.6	2,913	2,622	+11.1	24,075	18,515	+30.0	2,475	2,153	+15.0	59,372	62,423	-4.9	26,240	26,843	-2.2	119,221	115,548	+3.2
Denmark	38,961	26,152	+49.0	3,764	9,192	-59.1	16,342	16,599	-1.5	0	1	-100.0	23,905	28,277	-15.5	3,390	4,091	-17.1	86,362	84,312	+2.4
Estonia	649	644	+0.8	367	276	+33.0	4,496	4,577	-1.8	67	40	+67.5	2,952	5,080	-41.9	1,636	1,514	+8.1	10,167	12,131	-16.2
Finland	10,569	15,301	-30.9	7,817	8,833	-11.5	13,110	12,715	+3.1	129	238	-45.8	5,519	7,578	-27.2	2,010	2,209	-9.0	39,154	46,874	-16.5
France	158,402	137,919	+14.9	73,688	77,990	-5.5	280,520	205,113	+36.8	36,236	36,879	-1.7	293,683	337,982	-13.1	72,357	93,893	-22.9	914,886	889,776	+2.8
Germany	184,125	220,244	-16.4	89,549	79,065	+13.3	363,966	324,078	+12.3	8,071	8,269	-2.4	550,578	512,451	+7.4	275,352	252,763	+8.9	1,471,641	1,396,870	+5.4
Greece	3,341	3,212	+4.0	4,031	3,620	+11.4	30,638	19,974	+53.4	1,125	1,844	-39.0	31,726	31,711	+0.05	7,159	10,000	-28.4	78,020	70,361	+10.9
Hungary	4,653	2,918	+59.5	2,871	2,761	+4.0	28,728	22,115	+29.9	81	378	-78.6	19,511	21,549	-9.5	7,493	6,873	+9.0	63,337	56,594	+11.9
Ireland	10,738	14,307	-24.9	7,169	6,251	+14.7	16,937	16,191	+4.6	0	0	#DIV/0!	26,017	23,808	+9.3	18,065	17,045	+6.0	78,926	77,602	+1.7
Italy	34,932	32,660	+7.0	29,014	38,908	-25.4	342,616	296,436	+15.6	81,394	75,144	+8.3	269,736	236,598	+14.0	128,039	160,912	-20.4	885,731	840,658	+5.4
Latvia	587	990	-40.7	250	192	+30.2	3,083	2,769	+11.3	192	199	-3.5	3,225	4,270	-24.5	1,397	1,590	-12.1	8,734	10,010	-12.7
Lithuania	849	1,036	-18.1	699	497	+40.6	6,715	5,374	+25.0	269	251	+7.2	4,514	5,754	-21.6	1,742	1,865	-6.6	14,788	14,777	+0.1
Luxembourg	6,437	5,284	+21.8	2,011	2,546	-21.0	5,281	4,864	+8.6	0	0	#DIV/0!	7,973	9,397	-15.2	3,380	4,403	-23.2	25,082	26,494	-5.3
Malta	1,331	579	+129.9	291	586	-50.3	859	902	-4.8	1	1	+0.0	1,634	1,519	+7.6	313	383	-18.3	4,429	3,970	+11.6
Netherlands	60,338	57,940	+4.1	27,574	26,737	+3.1	56,500	45,973	+22.9	1,239	1,036	+19.6	45,658	66,524	-31.4	2,308	2,382	-3.1	193,617	200,592	-3.5
Poland	8,861	8,497	+4.3	7,277	6,769	+7.5	128,560	88,433	+45.4	7,602	6,399	+18.8	100,445	104,776	-4.1	24,212	23,800	+1.7	276,957	238,674	+16.0
Portugal	19,214	17,074	+12.5	14,218	12,240	+16.2	18,331	16,693	+9.8	8,414	5,136	+63.8	45,962	44,737	+2.7	10,278	14,275	-28.0	116,417	110,155	+5.7
Romania	5,743	6,998	-17.9	0	0	#DIV/0!	29,208	20,933	+39.5	8,391	10,090	-16.8	27,859	27,168	+2.5	12,304	8,456	+45.5	83,505	73,645	+13.4
Slovakia	1,232	1,086	+13.4	1,075	1,267	-15.2	14,129	11,942	+18.3	966	990	-2.4	21,687	22,302	-2.8	7,956	7,870	+1.1	47,045	45,457	+3.5
Slovenia	1,649	2,164	-23.8	568	630	-9.8	2,982	3,951	-24.5	218	293	-25.6	17,592	15,453	+13.8	5,328	4,819	+10.6	28,337	27,310	+3.8
Spain	25,141	23,892	+5.2	30,742	31,651	-2.9	191,167	151,951	+25.8	15,736	11,632	+35.3	217,366	219,012	-0.8	55,091	67,286	-18.1	535,243	505,424	+5.9
Sweden	41,998	52,445	-19.9	30,930	29,131	+6.2	13,165	11,841	+11.2	3,850	3,382	+13.8	32,073	31,156	+2.9	10,278	12,705	-19.1	132,294	140,660	-5.9
EUROPEAN UNION	**712,637**	**703,392**	**+1.3**	**392,284**	**402,319**	**-2.5**	**1,661,081**	**1,358,058**	**+22.3**	**179,257**	**167,630**	**+6.9**	**2,007,942**	**2,018,060**	**-0.5**	**730,642**	**789,429**	**-7.4**	**5,683,843**	**5,438,888**	**+4.5**
Iceland	956	3,921	-75.6	1,047	1,101	-4.9	1,520	2,169	-29.9	0	0	#DIV/0!	1,368	1,268	+7.9	1,465	1,807	-18.9	6,356	10,266	-38.1
Norway	52,018	55,275	-5.9	2,104	4,688	-55.1	4,853	4,124	+17.7	8	2	+300.0	633	840	-24.6	1,642	1,618	+1.5	61,258	66,547	-7.9
Switzerland	21,387	23,164	-7.7	10,623	10,633	-0.1	38,573	33,952	+13.6	14	58	-75.9	38,400	44,081	-12.9	12,221	11,865	+3.0	121,218	123,753	-2.0
EFTA	**74,361**	**82,360**	**-9.7**	**13,774**	**16,422**	**-16.1**	**44,946**	**40,245**	**+11.7**	**22**	**60**	**-63.3**	**40,401**	**46,189**	**-12.5**	**15,328**	**15,290**	**+0.2**	**188,832**	**200,566**	**-5.9**
United Kingdom	167,096	152,968	+9.2	81,522	62,155	+31.2	351,640	299,564	+17.4	0	0	#DIV/0!	376,615	397,577	-5.3	29,890	37,456	-20.2	1,006,763	949,720	+6.0
EU + EFTA + UK	**954,094**	**938,720**	**+1.6**	**487,580**	**480,896**	**+1.4**	**2,057,667**	**1,697,867**	**+21.2**	**179,279**	**167,690**	**+6.9**	**2,424,958**	**2,461,826**	**-1.5**	**775,860**	**842,175**	**-7.9**	**6,879,438**	**6,589,174**	**+4.4**

[1] Includes full and mild hybrids
[2] Includes fuel-cell electric vehicles, natural gas vehicles, LPG, E85/ethanol, and other fuels

NEW CAR REGISTRATIONS BY MANUFACTURER

EUROPEAN UNION (EU)

	JUNE					JANUARY-JUNE				
	% share[1]		Units		% change	% share[1]		Units		% change
	2024	2023	2024	2023	24/23	2024	2023	2024	2023	24/23
Volkswagen Group	**26.3**	**26.2**	**286,226**	**273,352**	**+4.7**	**26.0**	**26.1**	**1,478,052**	**1,420,444**	**+4.1**
Volkswagen	11.4	11.3	124,507	118,199	+5.3	10.8	11.0	611,238	598,177	+2.2
Skoda	5.5	5.1	60,117	52,750	+14.0	5.8	5.4	329,867	292,943	+12.6
Audi	4.7	5.5	50,684	57,458	-11.8	4.7	5.4	268,598	295,207	-9.0
Seat	2.1	2.0	22,980	21,254	+8.1	2.2	2.1	124,444	115,157	+8.1
Cupra	1.9	1.6	20,943	16,549	+26.6	1.7	1.4	94,650	77,090	+22.8
Porsche	0.6	0.6	6,253	6,469	-3.3	0.8	0.7	45,846	38,139	+20.2
Others[2]	0.1	0.1	742	673	+10.3	0.1	0.1	3,410	3,731	-8.6
Stellantis	**17.3**	**18.0**	**188,930**	**188,127**	**+0.4**	**18.0**	**18.7**	**1,024,079**	**1,019,391**	**+0.5**
Peugeot	4.8	5.6	51,978	58,576	-11.3	5.4	5.9	307,794	321,610	-4.30
Citroen	3.7	3.2	40,609	33,126	+22.6	3.6	3.3	205,853	178,551	+15.3
Opel/Vauxhall	3.3	3.5	36,391	36,307	+0.2	3.3	3.5	186,077	188,929	-1.5
Fiat[3]	3.4	3.2	36,534	33,373	+9.5	3.3	3.5	186,151	188,998	-1.5
Jeep	1.1	1.1	11,476	11,340	+1.2	1.2	1.1	66,307	61,164	+8.4
Lancia/Chrysler	0.4	0.4	4,164	4,517	-7.8	0.4	0.4	24,826	23,933	+3.7
Alfa Romeo	0.3	0.5	3,649	5,169	-29.4	0.4	0.5	23,502	25,767	-8.8
DS	0.3	0.5	3,679	4,929	-25.4	0.4	0.5	20,706	26,139	-20.8
Others[4]	0.0	0.1	450	790	-43.0	0.1	0.1	2,863	4,300	-33.4
Renault Group	**12.1**	**11.9**	**131,875**	**124,140**	**+6.2**	**10.9**	**11.1**	**617,563**	**605,230**	**+2.0**
Renault	6.8	6.8	74,388	71,466	+4.1	5.8	6.1	330,471	329,065	+0.4
Dacia	5.2	5.0	56,686	52,148	+8.7	5.0	5.0	284,811	274,660	+3.7
Alpine	0.1	0.1	801	526	+52.3	0.0	0.0	2,281	1,505	+51.6
Toyota Group	**7.0**	**6.4**	**76,096**	**66,951**	**+13.7**	**7.8**	**6.8**	**446,127**	**369,715**	**+20.7**
Toyota	6.5	6.0	70,718	62,510	+13.1	7.4	6.4	419,069	349,163	+20.0
Lexus	0.5	0.4	5,378	4,441	+21.1	0.5	0.4	27,058	20,552	+31.7
Hyundai Group	**7.3**	**8.2**	**79,841**	**85,803**	**-6.9**	**7.8**	**8.4**	**443,909**	**456,691**	**-2.8**
Hyundai	3.9	4.0	42,172	42,062	+0.3	4.0	4.0	226,828	217,268	+4.4
Kia	3.5	4.2	37,669	43,741	-13.9	3.8	4.4	217,081	239,423	-9.3
BMW Group	**5.7**	**6.2**	**61,915**	**64,931**	**-4.6**	**6.3**	**6.5**	**360,149**	**354,756**	**+1.5**
BMW	5.0	5.0	54,267	52,045	+4.3	5.5	5.3	313,940	288,360	+8.9
Mini	0.7	1.2	7,648	12,886	-40.7	0.8	1.2	46,208	66,396	-30.4
Mercedes-Benz	**4.7**	**5.0**	**51,331**	**52,747**	**-2.7**	**5.0**	**5.3**	**283,129**	**290,188**	**-2.4**
Mercedes	4.6	4.8	50,546	50,534	+0.0	4.8	5.1	272,321	277,951	-2.0
Smart	0.1	0.2	785	2,213	-64.5	0.2	0.2	10,808	12,237	-11.7
Ford	**2.7**	**3.4**	**29,223**	**35,023**	**-16.6**	**2.9**	**3.6**	**165,771**	**194,546**	**-14.8**
Volvo Cars	**2.4**	**1.9**	**25,890**	**20,211**	**+28.1**	**2.7**	**2.0**	**154,098**	**110,877**	**+39.0**
Tesla	**3.1**	**3.4**	**33,680**	**35,863**	**-6.1**	**2.2**	**2.5**	**125,791**	**138,327**	**-9.1**
Nissan	**1.8**	**1.7**	**19,961**	**18,090**	**+10.3**	**2.1**	**1.8**	**117,274**	**99,950**	**+17.3**
Suzuki	**1.7**	**1.3**	**18,320**	**13,654**	**+34.2**	**1.7**	**1.4**	**98,105**	**74,916**	**+31.0**
SAIC Motor	**1.9**	**1.7**	**20,924**	**17,556**	**+19.2**	**1.4**	**1.2**	**80,324**	**64,352**	**+24.8**
Mazda	**1.4**	**1.3**	**15,405**	**13,868**	**+11.1**	**1.3**	**1.4**	**75,774**	**74,439**	**+1.8**
Mitsubishi	**0.6**	**0.4**	**6,592**	**4,173**	**+58.0**	**0.6**	**0.3**	**36,206**	**18,995**	**+90.6**
Jaguar Land Rover Group	**0.6**	**0.6**	**6,217**	**6,689**	**-7.1**	**0.6**	**0.6**	**34,683**	**34,465**	**+0.6**
Land Rover	0.5	0.5	5,617	5,556	+1.1	0.5	0.5	31,116	29,114	+6.9
Jaguar	0.1	0.1	600	1,133	-47.0	0.1	0.1	3,567	5,351	-33.3
Honda	**0.3**	**0.2**	**3,516**	**2,342**	**+50.1**	**0.4**	**0.2**	**21,129**	**13,351**	**+58.3**

[1] ACEA estimation based on total by market
[2] Bentley, Bugatti, Lamborghini, and MAN
[3] Includes Abarth
[4] Dodge, Maserati, and RAM

NEW CAR REGISTRATIONS BY MANUFACTURER

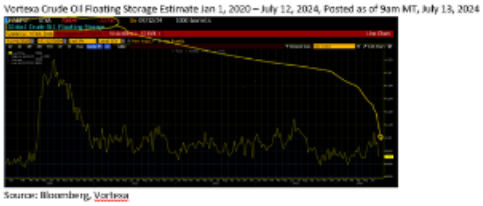
EU + EFTA + UK

	JUNE					JANUARY-JUNE				
	% share[1]		Units		% change	% share[1]		Units		% change
	2024	2023	2024	2023	24/23	2024	2023	2024	2023	24/23
Volkswagen Group	**25.8**	**25.9**	**337,618**	**327,291**	**+3.2**	**25.6**	**25.9**	**1,761,533**	**1,703,602**	**+3.4**
Volkswagen	11.0	11.0	143,651	138,574	+3.7	10.4	10.6	714,063	701,266	+1.8
Skoda	5.3	4.9	68,972	62,259	+10.8	5.5	5.2	380,627	341,529	+11.4
Audi	5.0	5.7	64,917	72,369	-10.3	5.0	5.7	344,459	376,367	-8.5
Seat	2.0	1.9	26,738	24,164	+10.7	2.2	2.0	148,153	133,981	+10.6
Cupra	1.8	1.5	24,205	19,608	+23.4	1.6	1.4	111,241	92,072	+20.8
Porsche	0.6	0.7	8,192	9,382	-12.7	0.8	0.8	58,338	53,224	+9.6
Others[2]	0.1	0.1	943	935	+0.8	0.1	0.1	4,651	5,163	-9.9
Stellantis	**15.7**	**16.6**	**205,884**	**209,719**	**-1.8**	**16.6**	**17.4**	**1,144,814**	**1,143,665**	**+0.1**
Peugeot	4.3	5.1	57,023	64,117	-11.1	5.0	5.4	345,604	356,536	-3.1
Opel/Vauxhall	3.3	3.7	43,039	47,088	-8.6	3.4	3.7	233,601	241,490	-3.3
Citroen	3.3	2.8	43,148	35,169	+22.7	3.2	3.0	223,382	196,211	+13.8
Fiat[3]	2.9	2.8	38,087	35,138	+8.4	2.9	3.0	196,908	200,883	-2.0
Jeep	0.9	0.9	12,177	11,948	+1.9	1.0	1.0	70,834	64,050	+10.6
Alfa Romeo	0.3	0.4	3,937	5,496	-28.4	0.4	0.4	24,840	27,315	-9.1
Lancia/Chrysler	0.3	0.4	4,164	4,519	-7.9	0.4	0.4	24,826	23,937	+3.7
DS	0.3	0.4	3,789	5,292	-28.4	0.3	0.4	21,454	28,074	-23.6
Others[4]	0.0	0.1	520	952	-45.4	0.0	0.1	3,365	5,169	-34.9
Renault Group	**10.9**	**10.5**	**143,053**	**133,010**	**+7.6**	**9.8**	**9.8**	**672,318**	**647,778**	**+3.8**
Renault	6.2	6.1	81,823	76,834	+6.5	5.3	5.3	364,036	351,077	+3.7
Dacia	4.6	4.4	60,395	55,594	+8.6	4.4	4.5	305,713	294,962	+3.6
Alpine	0.1	0.0	835	582	+43.5	0.0	0.0	2,569	1,739	+47.7
Hyundai Group	**7.8**	**8.4**	**102,078**	**106,541**	**-4.2**	**8.2**	**8.7**	**563,862**	**575,322**	**-2.0**
Kia	3.7	4.3	48,951	54,611	-10.4	4.1	4.6	282,344	304,757	-7.4
Hyundai	4.1	4.1	53,127	51,930	+2.3	4.1	4.1	281,518	270,565	+4.0
Toyota Group	**7.2**	**6.5**	**93,758**	**81,719**	**+14.7**	**7.6**	**6.8**	**522,585**	**450,122**	**+16.1**
Toyota	6.6	5.9	86,623	75,237	+15.1	7.1	6.4	486,202	421,884	+15.2
Lexus	0.5	0.5	7,135	6,482	+10.1	0.5	0.4	36,383	28,238	+28.8
BMW Group	**6.3**	**6.6**	**82,136**	**83,876**	**-2.1**	**6.8**	**6.8**	**467,047**	**445,481**	**+4.8**
BMW	5.4	5.2	70,499	66,396	+6.2	5.8	5.4	397,851	354,035	+12.4
Mini	0.9	1.4	11,637	17,480	-33.4	1.0	1.4	69,196	91,446	-24.3
Mercedes-Benz	**4.8**	**5.0**	**62,280**	**63,239**	**-1.5**	**5.0**	**5.3**	**344,809**	**347,045**	**-0.6**
Mercedes	4.7	4.8	61,493	60,966	+0.9	4.8	5.1	333,495	334,471	-0.3
Smart	0.1	0.2	787	2,273	-65.4	0.2	0.2	11,314	12,574	-10.0
Ford	**2.9**	**4.0**	**38,326**	**50,867**	**-24.7**	**3.3**	**4.1**	**226,365**	**272,477**	**-16.9**
Volvo Cars	**2.6**	**2.1**	**34,607**	**26,251**	**+31.8**	**2.8**	**2.2**	**194,780**	**144,442**	**+34.8**
Tesla	**3.4**	**3.8**	**45,141**	**48,639**	**-7.2**	**2.4**	**2.8**	**164,740**	**187,157**	**-12.0**
Nissan	**2.3**	**2.1**	**29,875**	**26,865**	**+11.2**	**2.6**	**2.3**	**176,450**	**149,289**	**+18.2**
SAIC Motor	**2.4**	**2.0**	**31,482**	**25,584**	**+23.1**	**1.9**	**1.6**	**129,058**	**105,529**	**+22.3**
Suzuki	**1.6**	**1.3**	**21,505**	**16,683**	**+28.9**	**1.7**	**1.4**	**115,210**	**90,292**	**+27.6**
Mazda	**1.5**	**1.4**	**19,043**	**17,347**	**+9.8**	**1.4**	**1.4**	**93,352**	**93,740**	**-0.4**
Jaguar Land Rover Group	**1.0**	**1.1**	**13,442**	**13,648**	**-1.5**	**1.2**	**1.1**	**83,244**	**73,653**	**+13.0**
Land Rover	0.9	0.9	11,626	11,030	+5.4	1.0	0.9	68,929	61,307	+12.4
Jaguar	0.1	0.2	1,816	2,618	-30.6	0.2	0.2	14,315	12,346	+15.9
Honda	**0.5**	**0.4**	**6,057**	**4,825**	**+25.5**	**0.6**	**0.4**	**41,294**	**28,635**	**+44.2**
Mitsubishi	**0.5**	**0.3**	**6,794**	**4,389**	**+54.8**	**0.5**	**0.3**	**37,665**	**20,022**	**+88.1**

[1] ACEA estimation based on total by market
[2] Bentley, Bugatti, Lamborghini, and MAN
[3] Includes Abarth
[4] Dodge, Maserati, and RAM

Dan Tsubouchi @Energy_Tidbits · 2h

Still no Vortexa crude oil floating storage data as of July 19 posted on Bloomberg as of 7am MT. normally it's posted by early Sat morning

> **Dan Tsubouchi** @Energy_Tidbits · Jul 14
>
> Vortexa #oil floating storage est down huge -22.71 mmb WoW to 70.89 mmb at Jul 12.
>
> **BUT** big upward revisions: Jul 5 +15.41 mmb (incl Asia revised +12.88), Jun 28 +12.92. Jun 21 +9.82 to 108.46 mmb, 1st >100 since Aug 2023....
> Show more
>
> 
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> Source: Bloomberg, Vortexa
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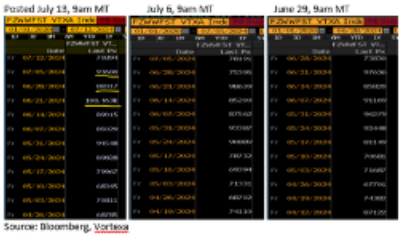
> 
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> Source: Bloomberg, Vortexa
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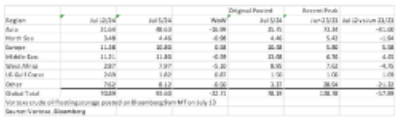
> 
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> Prepared by SAF Group: https://safgroup.ca/news-insights/

1 · 6 · 1.4K

Dan Tsubouchi @Energy_Tidbits · 2h

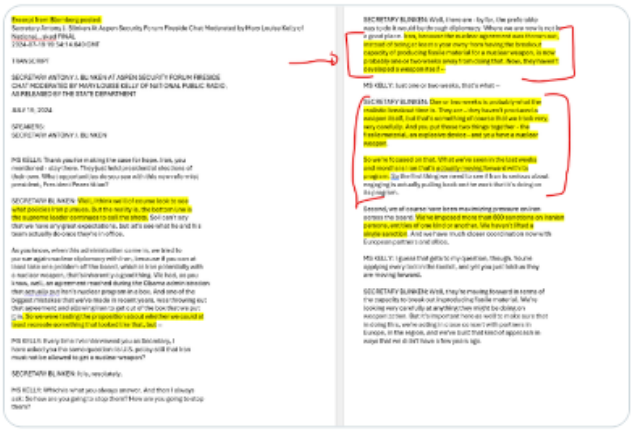
Go Time for Israel?

Overlooked major geopolitical and #Oil risk factor!

Blinken: Iran now 1 or 2 weeks from breakout capacity to produce nuclear material for a weapon.

If Israel won't let Iran reach breakout potential, when will it take action?

#OOTT



2 6 15 5.9K

Dan Tsubouchi @Energy_Tidbits · 16h

Only Israel knows!

Was Houthis drone on Tel Aviv able to get by IDF radar as Houthis claim **OR** as Israel says "*including the reason of why no alerts were sounded. This is not a stealth UAV. This is an Iranian UAV. It was detected by our systems.*"

#OOTT

x.com/IDF/status/181...

> **The Jerusalem Post** @Jerusalem_Post · Jul 19
>
> The drone that exploded in Tel Aviv on Thursday night was an upgraded Iranian Samad-3 UAV capable of flying from Yemen to Israel, IDF Spokesperson R.-Adm. Daniel Hagari said Friday morning.
> jpost.com/breaking-news/...

2 6 2.4K

jpw3.75

Dan Tsubouchi @Energy_Tidbits · 16h

Escalation!

Houthis response to major Israel attack on Hodeida port.

"*the upcoming strikes will be painful, more damaging to the Zionist entity until it ceases its massacres against women, children in Gaza.*"

Reminder Israel track record is to always hit back harder.

#OOTT

https://english.almasirah.net.ye/post/41285/Yemeni-Commander-Threatens-Painful%2C-Damaging-Strikes-Against-Israel-Until-Gaza-Massacres-End

Yemeni Commander Threatens Painful, Damaging Strikes Against Israel Until Gaza Massacres End

News - Yemen: The commander of the Al-Wahbi Brigades, Major General Bakil Saleh Al-Wahbi, confirmed that the upcoming strikes will be painful, more damaging to the Zionist entity until it ceases its massacres against women, children in Gaza.

He stated in a statement to Almasirah that Yemen has a target bank for all military sites and Zionist headquarters in Yafa (Tel Aviv) and the occupied Palestinian cities.

He pointed out that the success of the recent operation in Yafa, which shocked the Zionist entity and the world, is just the beginning of the pleasant surprises that the Yemeni Armed Forces have in store for the people of Palestine, all freedom-loving people around the world.

Al-Wahbi explained that Yemeni missiles, drones are manufactured using the latest military technologies, which make them undetectable by defense systems and radars, allowing them to accurately hit their targets.

He noted that the Zionist enemy faced unprecedented disappointment in front of the world, falling into a disgraceful and humiliating position both domestically, internationally after the Yafa drone successfully hit a target in the most important occupied city, where the entity has established over a thousand air defense systems that failed to intercept the Yemeni drone (Yafa).

On Friday morning, Yemeni Armed Forces announced an operation against Tel Aviv as a powerful explosion hit an area near a US consular facility amid the failure of Israeli air defenses to intercept the drone.

The blast occurred in the city's Ben Yehuda Street on Friday, Israeli media outlets reported.

Yemeni Armed Forces spokesperson Brigadier General Yahya Saree announced that the country employed for the first time an advanced and radar-evading unmanned aerial vehicle (UAV), dubbed "Yafa," to strike Tel Aviv.

Saree described the operation as successful, noting that it had accomplished the desired objectives.

About 2 hours

> **Dan Tsubouchi** @Energy_Tidbits · 21h
>
> Israel hits Houthis harder in one attack than US/UK have over last several months.
>
> Does this have potential to be a pivot point?
>
> ---

2 6 12 5.2K

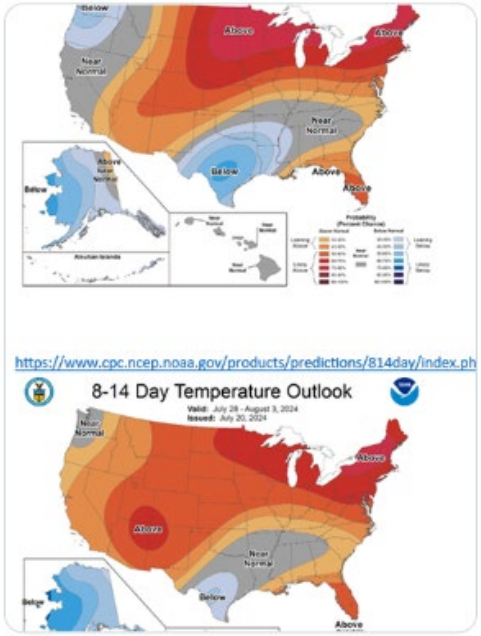
Dan Tsubouchi @Energy_Tidbits · 19h

HH #NatGas prices were -$0.20 WoW to close at $2.13.

@NOAA's updated 6-10 & 8-14 day temperature outlook covers July26-Aug 3 calls for warmer than normal temps in key Great Lakes, NE US, East Coast.

But storage is still +250 bcf YoY & above the high end of 5-yr range.

#OOTT



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Dan Tsubouchi @Energy_Tidbits · 21h

Israel hits Houthis harder in one attack than US/UK have over last several months.

Does this have potential to be a pivot point?

Did it severely impact Houthis drone/missile capability?

If not, will Houthis come back at Israel?

How will Iran & others help Houthis?...
Show more

> **South China Morning Post** @SCMPNews · 21h
> Israel says warplanes hit Houthi military targets in Yemen
> scmp.com/news/world/mid...

1 6 15 8.6K

Dan Tsubouchi @Energy_Tidbits · 23h

Daily Europe air traffic still stuck below pre-Covid

7-day moving average as of:
Jul 18: -2.6% below pre-Covid
Jul 11: -2.9%
Jul 4: -3.3%
Jun 27: -2.9%
Jun 20: -2.5%
Jun 13: -2.6%
Jun 6: -3.2% ...
Show more

1 1 6 1K

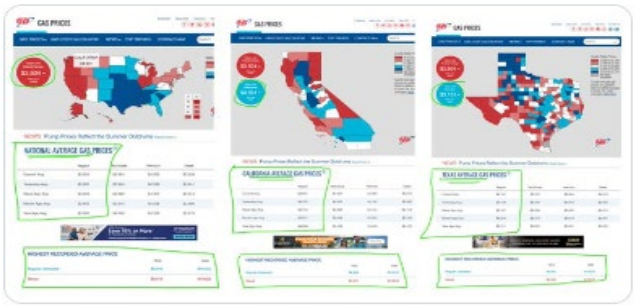
Dan Tsubouchi @Energy_Tidbits · 23h

AAA National average prices -$0.03 WoW to $3.50 on July 20, +$0.04 MoM & -$0.08 YoY.

Texas was -$0,07 WoW to $3.10 with no lasting gasoline supply impact from Hurricane Beryl.

California at $4.69 on July 20,, which was -$0.07 WoW, -$0.13 MoM & -$0.20 YoY.

Thx @AAAnews #OOTT



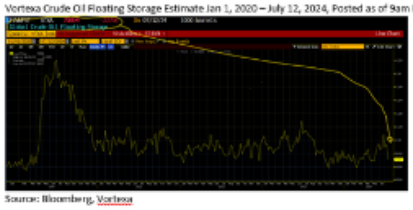
1 1 4 998

Dan Tsubouchi @Energy_Tidbits · Jul 20

FYI, as of 9am MT, @business has not posted any @Vortexa floating oil storage data for July 19.

Normally, I pull the data at 9am MT every Saturday.

I will check every hour or so.

> **Dan Tsubouchi** @Energy_Tidbits · Jul 14
>
> Vortexa #oil floating storage est down huge -22.71 mmb WoW to 70.89 mmb at Jul 12.
>
> **BUT** big upward revisions: Jul 5 +15.41 mmb (incl Asia revised +12.88), Jun 28 +12.92. Jun 21 +9.82 to 108.46 mmb, 1st >100 since Aug 2023....
> Show more
>
> Vortexa Crude Oil Floating Storage Estimate Jan 1, 2020 – July 12, 2024, Posted as of 9am MT, July 13, 2024
>
> 
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> Source: Bloomberg, Vortexa
>
> Posted July 13, 9am MT | July 6, 9am MT | June 29, 9am MT
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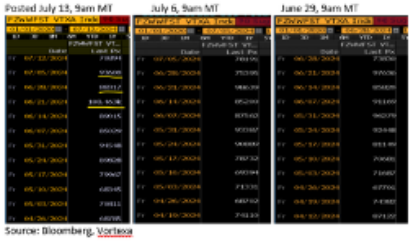
> 
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> Source: Bloomberg, Vortexa
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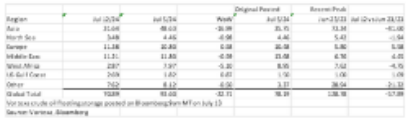
> 
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> Prepared by SAF Group: https://safgroup.ca/news-insights/

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Dan Tsubouchi @Energy_Tidbits · Jul 19

Waha #NatGas +$0.21 WoW to $0.30 today.

Better than the recent negative prices but still very low.

Remember Permian #Oil wells produce associated #NatGas.

So low or negative Waha prices may not impact big Permian players oil drilling plans but expected to cause small Permian

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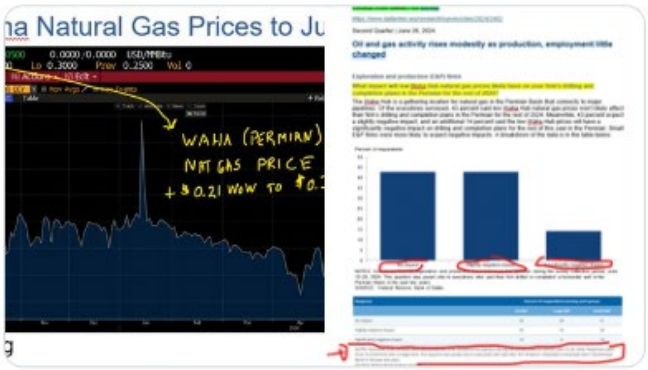


2 3 12 3.1K

Dan Tsubouchi @Energy_Tidbits · Jul 19

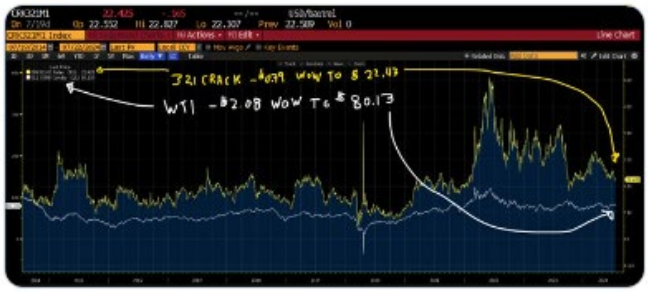
321 crack -$0.79 WoW to $22.43 on Jul 19.

WTI was -$2.08 WoW to $80.13.

No surprise, cracks dropped as Beryl hit Houston on July 8 & other refinery shut ins ie. XOM Joliet has led to reduced crude input into refineries.

Thx @business

#OOTT



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Dan Tsubouchi @Energy_Tidbits · 7m

Houthis long range drone hit on Tel Aviv also reminds that it has range to to hit any part of Saudi Arabia and UAE.

#OOTT

2 · 2 · 386

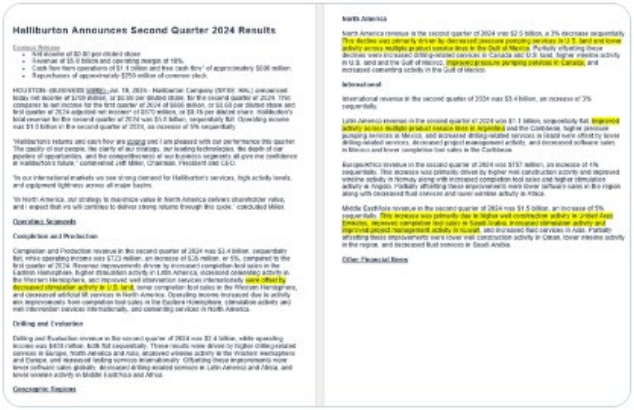
Dan Tsubouchi @Energy_Tidbits · 9h

Another major fracker, Halliburton, on decreasing US fracking.

"*decline was primarily driven by decreased pressure pumping services in U.S. land and lower activity across multiple product service lines in the Gulf of Mexico*"

Q2 call 630am MT.

See Liberty Energy 👇 Q2
#OOTT


Halliburton Announces Second Quarter 2024 Results

North America

Operating Segments

Completion and Production

Drilling and Evaluation

Geographic Regions

> **Dan Tsubouchi** @Energy_Tidbits · Jul 18
>
> 
>
> Flat US #Oil #NatGas production at best in H2.
>
> Major US fracker, Liberty Energy CEO says:
>
> "*got to have more activity to just keep US* #NatGas ...

1 · 5 · 19 · 3.2K

Dan Tsubouchi @Energy_Tidbits · 10h

Big question from Houthi drone hit on Tel Aviv.

👇IDF: public info on Samad-3 doesn't indicate it has special capabilities for avoiding IDF radar, IDF "***acknowledged that Israel's air defense detection systems broke down in this case but did not explain the specific reason why***."

Show more

> **The Jerusalem Post** @Jerusalem_Post · 12h
>
> The drone that exploded in Tel Aviv on Thursday night was an upgraded Iranian Samad-3 UAV capable of flying from Yemen to Israel, IDF Spokesperson R.-Adm. Daniel Hagari said Friday morning.
> jpost.com/breaking-news/...

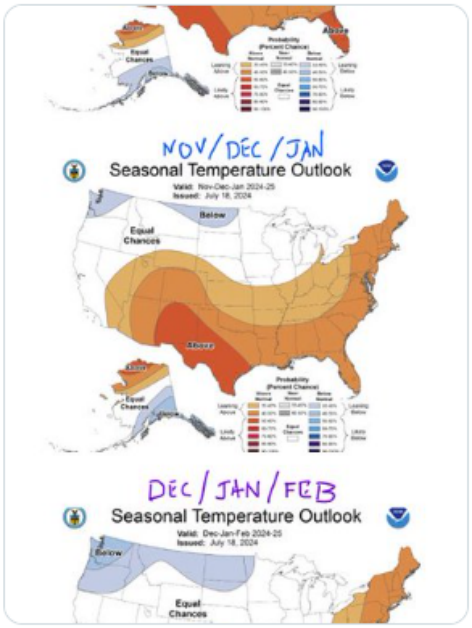
1.3K

Dan Tsubouchi @Energy_Tidbits · 22h

It's still only July but @NOAA's updated seasonal temperature outlook calls for a warm start to winter.

And a warm start to winter is always a hold back on #NatGas prices.

#OOTT



4 3 11 3.9K

Dan Tsubouchi @Energy_Tidbits · Jul 18

Flat US #Oil #NatGas production at best in H2.

Major US fracker, Liberty Energy CEO says:

"*got to have more activity to just keep US #NatGas production flat, let alone a bit of growth*"

"*haven't seen a production trend reflective of today's frac activity. It's probably flat at*

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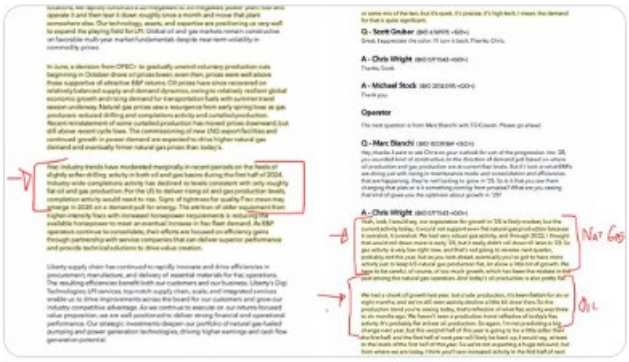

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Dan Tsubouchi @Energy_Tidbits · 16h

North Dakota #Oil production expected flat M/J/J before growth in Aug.

👇ND #Oil production -3.9% MoM in May to 1.195 mmb/d, June expected similar, July still up in the air and real growth not until A/S/O/N. Per M. Bohrer & J. Kringstad on NDIC Director's Cut webcast.

#OOTT

1 7 1.6K

Dan Tsubouchi @Energy_Tidbits · 17h

Big holes in New York clean energy plan = #NatGas will be needed for longer.

"***PSC is using outdated data f****or planning purposes and has not adequately addressed all current and emerging issues"*

"*Further, **PSC is relying on yet-undeveloped technology** that will be required to*
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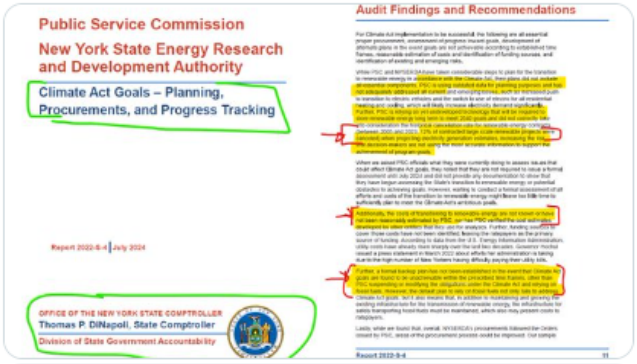

> **Dan Tsubouchi** @Energy_Tidbits · May 16, 2021
>
> #JohnKerry "I am told by scientists that 50% of the reductions we have to make to get to net zero are going to come from technologies that we don't yet have. That's just a reality". This means other reality is will need #NatGas #Oil for longer. #OTTT
> ...

4 · 11 · 3.2K

Dan Tsubouchi @Energy_Tidbits · 23h

China added 1.48 mmb/d to either commercial or strategic oil stockpiles in June as lower refinery throughput outweighed soft crude imports, reports @ClydeCommods.

Good thing now in big seasonal pickup in global #Oil consumption.

IEA fcasts Q2/24 demand +1.6 mmb/d QoQ, and
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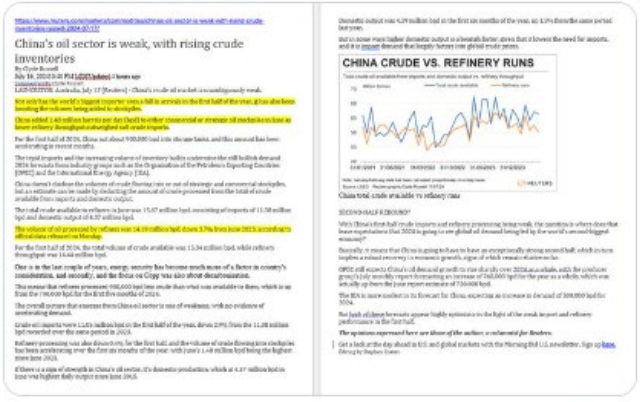

3 · 9 · 1.2K

Dan Tsubouchi @Energy_Tidbits · Jul 17

For those, like me, who weren't near their laptop, @EIAgov released #Oil #Gasoline #Distillates inventory as of July 12 at 8:30am MT. Table below compares EIA data vs @business expectations and vs @APIenergy yesterday.. #OOTT

Oil/Products Inventory July 12: EIA, Bloomberg Survey Expectations, API			
(million barrels)	EIA	Expectations	API
Oil	-4.87	-1.08	-4.44
Gasoline	3.33	-1.23	0.37
Distillates	3.45	0.20	4.92
	1.91	-2.11	0.85

Note: Oil is commercial. So excludes a +0.6mmb build in SPR for the July 12 week
Note: Included in the oil data, Cushing had a 0.88 mmb draw for July 12 week
Source EIA, Bloomberg
Prepared by SAF Group https://safgroup.ca/news-insights/

1 · 1 · 4 · 1K

Dan Tsubouchi @Energy_Tidbits · Jul 16

Busted!

No real analysis = EU unrealistic green hydrogen targets!

"*EU's industrial* ***policy on renewable hydrogen needs a reality check***"

"*set overly ambitious targets for the production and import of renewable hydrogen.... These* ***targets were not based on a robust analysis,*** *but*
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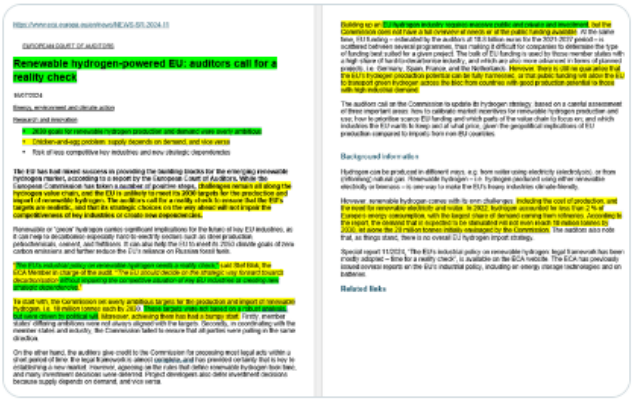

Renewable hydrogen-powered EU: auditors call for a reality check

2 · 6 · 13 · 6.5K

Dan Tsubouchi @Energy_Tidbits · Jul 15

Foreign investors keep leaving China.

6th straight wk of outflows from US ETFs tracking Chinese equities. Weaker economic data & implications of a Trump victory spooked investors. Net outflows of $229.4 million from this group of ETFs last wk. reports @thatsleda

#OOTT

1 · 6 · 10 · 2.7K

Dan Tsubouchi @Energy_Tidbits · Jul 15

Less EV buyers than expected

"*we are seeing a little bit of a slowdown right now, we won't get to a million [GM EVs target in 2025] just because the market is not developing but it will get there. And so, we're going to be guided by the customer*" GM CEO Barra to @LesliePicker.

Show more

***"And so we are seeing a little bit of a slowdown right now, we won't get to a million [EVs in 2025] just because the market is not developing but it will get there. And so, we're going to be guided by the customer"* GM CEO Barra**

SAF Group created a transcript of an interview of GM CEO Mary Barra speaking CNBC's Leslie Picker at the CNBC CEO Council event on July 15, 2024. https://www.cnbc.com/video/2024/07/15/gm-ceo-mary-barra-speaks-at-cnbc-ceo-council-event-about-slowing-ev-growth-and-production.html

Items in "*italics*" are SAF Group created transcript.

Prepared by SAF Group https://safgroup.ca/news-insights/

Picker "*... and now Mary, you have these very ambitious goals toward electric vehicles, one million produced by next year and then a full electric fleet in I believe it's 2035?* Barra "*2035*." Picker "*So how do you analogize kind of what you are overseeing to what Jenny talked about in the book in terms of taking these, I mean I think you have 229 years between IBM and GM as companies, you've got these old companies, these old giant companies that you are pivoting, how do you think about leading through change, especially compared to what Jenny went through with AI and cloud?*" Barra: "*I think almost every industry, every company is going through some type of transformation because of technology, and now AI is accelerating for everyone. You know at General Motors moving to an all-electric future and almost what's more important is that the vehicle really is a software platform. And so we are seeing a little bit of a slowdown right now, we won't get to a million just because the market is not developing but it will get there. And so, we're going to be guided by the customer, but what I like to tell people is get in an electric vehicle and drive it. It is a lot of fun it is instant torque it opens up new design language for the vehicle so as the charging infrastructure gets more robust, as EVs become more affordable, I definitely think we are going to see that growth, in the next 10, 11, 12 years is going to be pretty transformative in the way people move.*"

Prepared by SAF Group https://safgroup.ca/news-insights/

1 3 10 3.5K

Dan Tsubouchi @Energy_Tidbits · Jul 15

Houthis one uncrewed surface vessel (USV) hit & caused damage to #Oil tanker in Red Sea confirms @CENTCOM

Also Houthis launched multiple attacks against MT Bentley I, a tanker in Red Sea carrying vegetable oil from RUS to China. Used used 3 surface vessels in this attack, one

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1 3 9 2.8K

Dan Tsubouchi @Energy_Tidbits · Jul 15

Freeport LNG 3-train ~2.1 bcf/d restart post Beryl will not be at full capacity.

@LngPrime reports "She said that Freeport LNG is "completing initial repairs on the damage sustained to our fin fan air coolers in the hurricane and anticipate restarting the first train this

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7 1.3K

Dan Tsubouchi @Energy_Tidbits · Jul 14

Continued big negative to getting Chinese back to spending - their home values keep going down.

June new home prices: 13th straight MoM drop, -0.67% M/M (May -0.71% M/M).

June 2nd hand home prices: 14th straight M/M drop, -0.85% M/M (May -1.00% M/M).

Thx @business...

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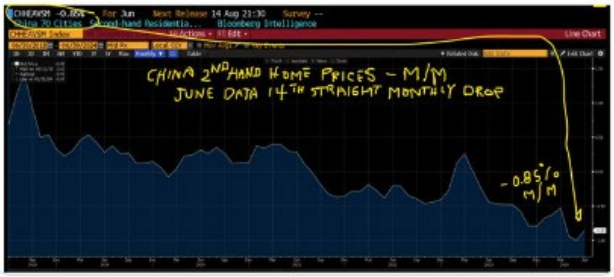

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