Energy Tidbits

Ukraine Declares Waters Around Six Russian Black Sea Ports, Including Its Oil Export Port Navorossiysk, are “War Risk Areas”

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Table 1. Summary of natural gas supply and disposition in the United States, 2018-2023

billion cubic feet

Year and month	Gross withdrawals	Marketed production	NGPL production[a]	Dry gas production[b]	Supplemental gaseous fuels[c]	Net imports	Net storage withdrawals[d]	Balancing item[e]	Consumption[f]
2018 total	**37,326**	**33,009**	**2,235**	**30,774**	**69**	**-719**	**314**	**-300**	**30,139**
2019 total	**40,780**	**36,447**	**2,548**	**33,899**	**61**	**-1,916**	**-503**	**-408**	**31,132**
2020 total	**40,614**	**36,202**	**2,710**	**33,493**	**63**	**-2,734**	**-180**	**-129**	**30,513**
2021									
January	3,517	3,118	235	2,884	6	-279	719	16	3,344
February	2,950	2,609	196	2,412	5	-152	795	40	3,099
March	3,518	3,144	237	2,907	6	-357	64	30	2,649
April	3,438	3,069	231	2,838	5	-356	-180	-42	2,265
May	3,535	3,168	239	2,930	6	-373	-424	-21	2,117
June	3,400	3,056	230	2,826	5	-331	-254	-8	2,238
July	3,514	3,182	240	2,943	6	-338	-175	-23	2,412
August	3,545	3,196	241	2,956	6	-343	-164	-20	2,434
September	3,423	3,087	232	2,854	5	-315	-398	-4	2,142
October	3,600	3,245	244	3,001	6	-317	-368	-60	2,263
November	3,545	3,170	239	2,931	6	-315	137	-66	2,693
December	3,680	3,284	247	3,037	6	-368	330	3	3,007
Total	**41,666**	**37,328**	**2,811**	**34,518**	**66**	**-3,845**	**82**	**-157**	**30,665**
2022									
January	E3,591	E3,199	246	E2,953	7	-315	994	-47	3,592
February	E3,227	E2,870	223	E2,647	6	-288	658	38	3,061
March	E3,614	E3,225	267	E2,958	6	-380	163	33	2,781
April	E3,520	E3,152	257	E2,895	6	-342	-214	23	2,367
May	E3,667	E3,296	266	E3,030	6	-386	-403	-5	2,242
June	E3,557	E3,215	259	E2,956	4	-325	-324	7	2,318
July	E3,690	E3,330	276	E3,055	6	-303	-180	5	2,583
August	E3,699	E3,349	270	E3,079	6	-322	-206	3	2,560
September	E3,638	E3,281	265	E3,016	4	-293	-436	-4	2,289
October	E3,769	E3,394	275	E3,119	5	-315	-422	-21	2,366
November	E3,683	E3,297	269	E3,029	4	-308	71	-23	2,773
December	E3,729	E3,328	249	E3,079	5	-304	573	29	3,382
Total	**E43,385**	**E38,936**	**3,120**	**E35,816**	**65**	**-3,880**	**275**	**37**	**32,314**
2023									
January	E3,820	E3,419	264	E3,156	6	-332	455	R23	3,309
February	E3,456	E3,094	242	E2,852	5	-329	399	R26	R2,952
March	RE3,858	RE3,465	281	RE3,184	6	-399	224	R-1	R3,013
April	RE3,730	RE3,353	279	RE3,074	5	R-399	R-261	R2	R2,422
May	E3,863	E3,484	287	E3,196	5	-418	-454	-15	2,314
2023 5-month YTD	**E18,726**	**E16,815**	**1,353**	**E15,462**	**27**	**-1,877**	**363**	**35**	**14,010**
2022 5-month YTD	**E17,619**	**E15,742**	**1,258**	**E14,484**	**30**	**-1,711**	**1,199**	**42**	**14,044**
2021 5-month YTD	**16,958**	**15,108**	**1,138**	**13,970**	**27**	**-1,517**	**974**	**21**	**13,475**

[a] We derive monthly natural gas plant liquid (NGPL) production, gaseous equivalent, from sample data reported by gas processing plants on Form EIA-816, *Monthly Natural Gas Liquids Report*, and Form EIA-64A, *Annual Report of the Origin of Natural Gas Liquids Production*.

[b] Equal to marketed production minus NGPL production.

[c] We only collect supplemental gaseous fuels data on an annual basis except for the Dakota Gasification Co. coal gasification facility, which provides data each month. We calculate the ratio of annual supplemental fuels (excluding Dakota Gasification Co.) to the sum of dry gas production, net imports, and net withdrawals from storage. We apply this ratio to the monthly sum of these three elements. We add the Dakota Gasification Co. monthly value to the result to produce the monthly supplemental fuels estimate.

[d] Monthly and annual data for 2018 through 2020 include underground storage and liquefied natural gas storage. Data for January 2021 forward include underground storage only. Appendix A, Explanatory Note 5, contains a discussion of computation procedures.

[e] Represents quantities lost and imbalances in data due to differences among data sources. Net imports and balancing item excludes net intransit deliveries. These net intransit deliveries were (in billion cubic feet): 212 for 2021; 209 for 2020; -8 for 2019; and -12 for 2018. Appendix A, Explanatory Note 7, contains a full discussion of balancing item calculations.

[f] Consists of pipeline fuel use, lease and plant fuel use, vehicle fuel, and deliveries to consuming sectors as shown in Table 2.

[R] Revised data.

[E] Estimated data.

[RE] Revised estimated data.

Source: 2018-2021: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2021*. January 2022 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; Form EIA-191, *Monthly Underground Gas Storage Report*; EIA computations and estimates; and Office of Fossil Energy and Carbon Management, *Natural Gas Imports and Exports*. Table 7 includes detailed source notes for Marketed Production. Appendix A, Notes 3 and 4, includes discussion of computation and estimation procedures and revision policies.

Note: Data for 2018 through 2020 are final. All other data are preliminary unless otherwise indicated. Geographic coverage is the 50 states and the District of Columbia. Totals may not equal sum of components because of independent rounding.

Table 5. U.S. natural gas exports, 2021-2023

volumes in million cubic feet; prices in dollars per thousand cubic feet

	2023 5-month YTD	2022 5-month YTD	2021 5-month YTD	2023 May	April	March	February
Exports							
Volume (million cubic feet)							
Pipeline							
Canada	453,601	420,970	399,554	75,245	R74,535	104,893	94,530
Mexico	855,958	862,834	869,259	192,344	R168,634	177,150	152,318
Total pipeline exports	**1,309,559**	**1,283,804**	**1,268,813**	**267,590**	**R243,169**	**282,043**	**246,848**
LNG							
Exports							
By vessel							
Antigua and Barbuda	12	8	0	3	3	2	2
Argentina	43,096	30,044	22,949	26,930	11,536	2,343	2,287
Bahamas	209	185	187	45	43	53	27
Bangladesh	6,931	12,663	23,880	3,561	0	0	0
Barbados	0	92	98	0	0	0	0
Belgium	27,669	50,004	5,584	3,809	4,844	8,053	7,322
Brazil	9,128	48,968	87,568	4,196	3,598	1,334	0
Chile	16,997	19,849	65,519	6,419	0	7,271	0
China	35,613	21,101	159,037	6,593	3,426	5,132	2,565
Colombia	2,847	486	892	2,847	0	0	0
Croatia	18,709	33,617	14,397	2,932	3,163	3,694	6,006
Dominican Republic	22,805	21,786	26,349	7,871	6,901	876	3,514
Egypt	0	0	0	0	0	0	0
Finland	13,785	0	0	6,935	0	6,850	0
France	207,031	257,639	100,162	51,658	53,211	28,581	39,457
Germany	81,932	0	0	16,002	R18,546	24,841	8,229
Greece	21,547	27,999	14,201	4,498	3,905	3,156	6,781
Haiti	50	66	47	12	11	8	11
India	52,976	45,888	93,534	7,140	14,585	10,230	14,064
Indonesia	805	717	0	0	0	0	0
Israel	0	0	6,051	0	0	0	0
Italy	77,255	64,969	20,558	18,542	17,378	13,699	17,555
Jamaica	1,128	568	13,826	289	31	540	161
Japan	93,467	86,694	164,090	27,923	13,687	20,102	14,058
Jordan	0	0	0	0	0	0	0
Kuwait	7,509	26,779	7,526	3,802	3,707	0	0
Lithuania	20,772	37,355	16,206	7,048	R3,412	3,599	0
Malaysia	0	0	0	0	0	0	0
Malta	2,592	2,345	2,928	0	0	0	0
Mexico	6,270	0	13,354	0	0	3,051	0
Netherlands	257,697	130,088	93,600	60,691	60,234	61,017	39,301
Nicaragua	0	0	0	0	0	0	0
Pakistan	0	3,074	10,426	0	0	0	0
Panama	9,215	9,053	6,136	3,289	0	3,209	0
Poland	53,708	47,107	21,569	17,422	7,165	7,236	10,347
Portugal	33,748	27,818	21,483	10,424	4,237	6,133	6,138
Singapore	0	6,725	13,740	0	0	0	0
South Korea	93,678	99,954	173,950	10,958	24,734	10,807	22,672
Spain	110,166	228,557	53,219	12,266	13,680	38,096	32,138
Taiwan	40,374	50,003	40,521	10,262	9,774	10,311	6,557
Thailand	14,041	11,789	10,841	0	4,225	4,249	1,829
Turkiye	75,344	119,325	53,947	0	13,908	11,866	13,444
United Arab Emirates	0	0	0	0	0	0	0
United Kingdom	313,442	192,544	97,682	32,374	75,836	70,499	71,702
By truck							
Canada	20	40	33	7	7	7	0
Mexico	418	685	261	26	58	96	106
Re-exports							
By vessel							
Argentina	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0
Total LNG exports	**1,772,988**	**1,716,583**	**1,456,352**	**366,774**	**R375,843**	**366,941**	**326,275**
CNG							
Canada	1	*	154	0	0	*	*
Total CNG exports	**1**	*****	**154**	**0**	**0**	*****	*****
Total exports	**3,082,548**	**3,000,387**	**2,725,319**	**634,364**	**R619,012**	**648,984**	**573,122**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2021-2023

volumes in million cubic feet; prices in dollars per thousand cubic feet – continued

	2023						2022
	January	Total	December	November	October	September	August
Exports							
Volume (million cubic feet)							
Pipeline							
Canada	104,399	959,630	98,718	90,179	72,738	61,926	75,220
Mexico	165,511	2,078,627	158,638	160,986	171,766	169,159	182,596
Total pipeline exports	**269,910**	**3,038,257**	**257,355**	**251,165**	**244,505**	**231,086**	**257,816**
LNG							
Exports							
By vessel							
Antigua and Barbuda	4	22	1	2	2	3	2
Argentina	0	66,939	0	0	0	0	2,202
Bahamas	42	489	42	35	40	43	53
Bangladesh	3,369	12,663	0	0	0	0	0
Barbados	0	93	0	1	0	0	0
Belgium	3,640	80,245	3,274	0	7,190	9,165	3,589
Brazil	0	71,998	0	0	3,439	0	10,542
Chile	3,307	30,131	0	0	0	3,365	0
China	17,896	96,659	6,992	17,308	22,598	10,275	10,272
Colombia	0	5,703	0	0	3,699	0	606
Croatia	2,913	77,286	6,204	5,122	2,922	9,073	7,824
Dominican Republic	3,643	50,824	6,644	0	3,469	3,196	3,357
Egypt	0	0	0	0	0	0	0
Finland	0	329	329	0	0	0	0
France	34,124	571,399	38,311	50,655	41,959	57,943	33,885
Germany	14,314	7,113	7,112	1	0	0	0
Greece	3,207	69,031	2,869	421	4,424	0	10,763
Haiti	8	115	9	0	0	8	11
India	6,956	122,518	14,139	10,138	7,005	10,528	10,265
Indonesia	805	6,579	3,256	505	625	509	967
Israel	0	0	0	0	0	0	0
Italy	10,082	116,034	6,992	3,205	0	8,355	15,462
Jamaica	107	1,516	147	137	144	240	110
Japan	17,696	209,220	20,535	24,396	10,684	7,005	20,156
Jordan	0	0	0	0	0	0	0
Kuwait	0	57,018	0	0	3,299	7,038	6,415
Lithuania	6,713	77,212	3,281	3,708	7,072	3,541	7,579
Malaysia	0	0	0	0	0	0	0
Malta	2,592	5,273	0	2,928	0	0	0
Mexico	3,219	3,832	539	0	0	0	0
Netherlands	36,453	378,329	39,893	20,645	39,703	30,924	50,020
Nicaragua	0	0	0	0	0	0	0
Pakistan	0	3,074	0	0	0	0	0
Panama	2,718	13,759	249	3,833	0	0	0
Poland	11,538	127,404	13,885	3,453	7,095	16,917	6,885
Portugal	6,816	69,583	10,025	3,732	7,005	5,806	3,202
Singapore	0	22,980	0	0	6,628	0	0
South Korea	24,507	292,732	24,700	14,069	38,844	19,736	36,033
Spain	13,987	426,657	33,847	26,445	26,369	21,263	26,140
Taiwan	3,471	106,738	9,203	3,592	9,041	9,753	8,901
Thailand	3,738	25,988	0	0	0	3,673	3,607
Turkiye	36,126	192,067	17,979	31,430	10,333	5,458	0
United Arab Emirates	0	0	0	0	0	0	0
United Kingdom	63,032	464,462	69,332	76,693	46,040	51,467	21,263
By truck							
Canada	0	76	8	0	19	0	0
Mexico	133	1,552	160	153	175	94	103
Re-exports							
By vessel							
Argentina	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0
Total LNG exports	**337,155**	**3,865,643**	**339,960**	**302,608**	**309,823**	**295,379**	**300,215**
CNG							
Canada	*	2	0	*	1	*	*
Total CNG exports	*	**2**	**0**	*	**1**	*	*
Total exports	**607,065**	**6,903,902**	**597,316**	**553,774**	**554,328**	**526,465**	**558,031**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2021-2023

volumes in million cubic feet; prices in dollars per thousand cubic feet – continued

							2022
	July	June	May	April	March	February	January
Exports							
Volume (million cubic feet)							
Pipeline							
Canada	69,774	70,105	79,214	80,475	105,074	74,630	81,577
Mexico	189,652	182,995	186,003	176,447	169,885	155,032	175,467
Total pipeline exports	**259,426**	**253,100**	**265,217**	**256,922**	**274,958**	**229,662**	**257,045**
LNG							
Exports							
By vessel							
Antigua and Barbuda	2	3	2	3	2	0	2
Argentina	9,448	25,246	20,111	9,933	0	0	0
Bahamas	45	47	42	34	43	31	34
Bangladesh	0	0	3,346	0	3,421	5,896	0
Barbados	0	0	0	0	34	31	28
Belgium	0	7,023	3,441	7,341	17,743	7,691	13,786
Brazil	5,192	3,857	15,303	3,448	2,236	10,660	17,322
Chile	6,917	0	9,943	3,530	3,214	0	3,162
China	784	7,329	0	10,217	7,527	3,357	0
Colombia	0	912	0	0	0	0	486
Croatia	4,600	7,925	8,543	6,763	3,358	5,870	9,084
Dominican Republic	6,532	5,838	4,964	3,645	6,530	0	6,647
Egypt	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0
France	53,443	37,564	47,150	56,343	64,415	39,646	50,084
Germany	0	0	0	0	0	0	0
Greece	12,922	9,633	12,650	1,336	4,116	8,094	1,802
Haiti	8	13	9	11	10	16	20
India	13,902	10,653	7,152	14,223	10,438	7,210	6,866
Indonesia	0	0	0	0	0	717	0
Israel	0	0	0	0	0	0	0
Italy	9,914	7,137	21,696	15,519	7,088	13,629	7,037
Jamaica	121	48	144	135	92	111	86
Japan	18,189	21,561	24,024	13,231	17,697	10,214	21,527
Jordan	0	0	0	0	0	0	0
Kuwait	5,382	8,105	14,204	7,298	0	5,277	0
Lithuania	7,947	6,729	11,237	13,770	5,700	3,131	3,518
Malaysia	0	0	0	0	0	0	0
Malta	0	0	0	0	0	2,345	0
Mexico	0	3,292	0	0	0	0	0
Netherlands	32,637	34,420	28,902	28,395	24,922	31,591	16,279
Nicaragua	0	0	0	0	0	0	0
Pakistan	0	0	0	3,074	0	0	0
Panama	0	623	1,192	1,536	0	3,069	3,255
Poland	17,780	14,282	18,224	13,882	3,831	7,475	3,695
Portugal	6,412	5,582	3,888	6,632	10,728	3,703	2,868
Singapore	6,275	3,352	0	0	6,725	0	0
South Korea	34,342	25,054	17,538	13,813	19,289	27,489	21,824
Spain	34,396	29,639	40,337	40,259	59,224	39,359	49,379
Taiwan	9,353	6,892	15,975	9,541	12,161	6,115	6,211
Thailand	0	6,920	3,419	0	0	4,880	3,490
Turkiye	0	7,542	7,281	6,637	16,629	43,697	45,081
United Arab Emirates	0	0	0	0	0	0	0
United Kingdom	3,797	3,326	10,608	39,775	56,799	25,301	60,060
By truck							
Canada	0	8	8	15	0	4	13
Mexico	76	105	115	122	144	157	148
Re-exports							
By vessel							
Argentina	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0
Total LNG exports	**300,415**	**300,659**	**351,448**	**330,463**	**364,116**	**316,766**	**353,791**
CNG							
Canada	1	*	0	0	*	0	0
Total CNG exports	**1**	*****	**0**	**0**	*****	**0**	**0**
Total exports	**559,842**	**553,760**	**616,665**	**587,385**	**639,074**	**546,428**	**610,836**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2021-2023

volumes in million cubic feet; prices in dollars per thousand cubic feet – continued

							2021
	Total	December	November	October	September	August	July
Exports							
Volume (million cubic feet)							
Pipeline							
Canada	937,124	108,568	85,136	62,464	72,023	71,586	68,264
Mexico	2,154,457	166,956	165,449	184,472	178,746	193,710	197,623
Total pipeline exports	**3,091,580**	**275,524**	**250,585**	**246,936**	**250,769**	**265,296**	**265,887**
LNG							
Exports							
By vessel							
Antigua and Barbuda	8	3	2	0	3	0	0
Argentina	83,449	2,077	0	0	1,950	14,363	22,798
Bahamas	486	36	34	36	43	56	46
Bangladesh	37,734	0	0	0	3,276	7,085	0
Barbados	297	34	27	25	33	27	31
Belgium	5,584	0	0	0	0	0	0
Brazil	307,714	24,246	10,715	40,769	38,282	34,204	39,637
Chile	121,881	2,938	2,956	6,364	7,929	16,262	19,913
China	453,304	17,050	50,228	42,202	48,584	51,662	42,222
Colombia	2,247	0	0	0	436	919	0
Croatia	36,133	3,117	9,416	0	0	2,980	3,299
Dominican Republic	53,095	5,969	2,780	5,619	0	5,901	1,806
Egypt	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0
France	170,780	33,892	10,021	9,333	6,578	7,111	0
Germany	0	0	0	0	0	0	0
Greece	39,708	5,305	7,629	1,515	799	3,607	6,651
Haiti	137	4	8	17	10	24	8
India	196,218	3,203	14,807	10,548	23,941	20,592	13,090
Indonesia	3,269	1,218	456	477	1,118	0	0
Israel	8,906	0	0	0	2,855	0	0
Italy	34,210	0	0	0	0	3,401	6,826
Jamaica	25,276	113	715	1,858	2,931	2,907	0
Japan	354,948	24,297	33,947	37,666	10,290	19,979	24,895
Jordan	0	0	0	0	0	0	0
Kuwait	34,476	0	0	6,193	10,333	3,298	0
Lithuania	30,919	0	0	0	3,282	1,677	6,469
Malaysia	0	0	0	0	0	0	0
Malta	5,427	0	0	0	2,498	0	0
Mexico	15,200	0	0	1,088	0	0	758
Netherlands	174,339	23,354	8,829	17,157	10,424	7,347	10,597
Nicaragua	1	0	0	0	0	0	1
Pakistan	45,818	0	2,490	3,138	9,642	3,319	13,428
Panama	8,436	0	0	911	0	1,390	0
Poland	56,320	7,159	7,068	3,270	0	0	6,619
Portugal	65,865	9,630	5,380	10,459	3,696	6,382	3,296
Singapore	20,918	0	3,728	0	0	0	3,449
South Korea	453,483	38,201	30,787	33,836	31,375	50,101	39,314
Spain	215,062	32,579	22,821	35,638	31,274	23,068	8,630
Taiwan	99,350	12,034	3,404	7,123	5,789	6,728	20,653
Thailand	14,548	0	0	0	0	3,707	0
Turkiye	188,849	38,420	47,330	19,385	24,176	0	5,591
United Arab Emirates	0	0	0	0	0	0	0
United Kingdom	195,046	60,315	30,648	3,302	3,099	0	0
By truck							
Canada	128	20	8	8	19	18	16
Mexico	1,250	148	160	182	150	147	97
Re-exports							
By vessel							
Argentina	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0
Total LNG exports	**3,560,818**	**345,363**	**306,397**	**298,119**	**284,813**	**298,262**	**300,143**
CNG							
Canada	211	0	0	0	0	14	16
Total CNG exports	**211**	**0**	**0**	**0**	**0**	**14**	**16**
Total exports	**6,652,609**	**620,886**	**556,982**	**545,055**	**535,583**	**563,572**	**566,046**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2021-2023

volumes in million cubic feet; prices in dollars per thousand cubic feet – continued

	2021					
	June	May	April	March	February	January
Exports						
Volume (million cubic feet)						
Pipeline						
Canada	69,528	70,561	74,567	91,301	78,198	84,927
Mexico	198,242	192,549	182,918	183,051	137,381	173,360
Total pipeline exports	**267,770**	**263,110**	**257,485**	**274,352**	**215,579**	**258,287**
LNG						
Exports						
By vessel						
Antigua and Barbuda	0	0	0	0	0	0
Argentina	19,312	16,226	4,485	2,238	0	0
Bahamas	48	45	46	39	29	28
Bangladesh	3,493	6,948	10,219	3,566	0	3,148
Barbados	22	19	30	14	19	17
Belgium	0	2,100	0	3,484	0	0
Brazil	32,293	19,726	11,615	21,977	13,118	21,132
Chile	0	17,598	10,293	21,320	6,524	9,784
China	42,319	37,731	50,474	28,476	3,415	38,940
Colombia	0	0	892	0	0	0
Croatia	2,923	3,364	3,666	7,367	0	0
Dominican Republic	4,670	5,283	2,905	5,577	5,689	6,895
Egypt	0	0	0	0	0	0
Finland	0	0	0	0	0	0
France	3,683	11,926	36,120	33,678	14,851	3,587
Germany	0	0	0	0	0	0
Greece	0	6,796	0	6,805	0	600
Haiti	18	12	3	10	11	12
India	16,503	28,259	13,752	17,381	13,776	20,367
Indonesia	0	0	0	0	0	0
Israel	0	0	3,225	2,826	0	0
Italy	3,425	2,923	6,896	10,739	0	0
Jamaica	2,927	2,925	2,370	2,458	2,365	3,708
Japan	39,783	25,058	28,756	27,673	18,271	64,331
Jordan	0	0	0	0	0	0
Kuwait	7,126	0	3,705	3,821	0	0
Lithuania	3,285	3,049	3,078	3,228	6,851	0
Malaysia	0	0	0	0	0	0
Malta	0	0	2,928	0	0	0
Mexico	0	0	0	0	13,354	0
Netherlands	3,030	26,611	17,060	24,204	22,777	2,949
Nicaragua	0	0	0	0	0	0
Pakistan	3,376	0	3,323	3,421	0	3,682
Panama	0	2,341	0	3,279	0	516
Poland	10,635	3,581	7,382	3,507	7,099	0
Portugal	5,538	10,765	7,358	0	3,360	0
Singapore	0	3,089	3,660	3,303	0	3,688
South Korea	55,918	46,033	21,683	32,203	18,094	55,936
Spain	7,833	5,234	22,974	13,900	3,733	7,377
Taiwan	3,097	10,157	6,594	13,450	0	10,319
Thailand	0	3,453	7,388	0	0	0
Turkiye	0	3,017	0	3,619	20,652	26,659
United Arab Emirates	0	0	0	0	0	0
United Kingdom	0	10,586	13,877	17,440	34,343	21,436
By truck						
Canada	7	18	15	0	0	0
Mexico	105	48	48	19	63	83
Re-exports						
By vessel						
Argentina	0	0	0	0	0	0
Brazil	0	0	0	0	0	0
Japan	0	0	0	0	0	0
South Korea	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0
Total LNG exports	**271,368**	**314,922**	**306,818**	**321,023**	**208,394**	**305,196**
CNG						
Canada	27	25	29	36	32	32
Total CNG exports	**27**	**25**	**29**	**36**	**32**	**32**
Total exports	**539,165**	**578,056**	**564,333**	**595,411**	**424,004**	**563,515**

See footnotes at end of table.

Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2018-2023

million cubic feet

Year and month	Alaska	Arkansas	California	Colorado	Kansas	Louisiana	Montana	New Mexico	North Dakota	Ohio
2018 total	**341,315**	**589,985**	**202,617**	**1,847,402**	**201,391**	**2,832,404**	**43,530**	**1,493,082**	**706,552**	**2,403,382**
2019 total	**329,361**	**524,757**	**196,823**	**1,986,916**	**183,087**	**3,212,318**	**43,534**	**1,769,086**	**850,826**	**2,651,631**
2020 total	**338,329**	**480,982**	**170,579**	**1,990,462**	**163,356**	**3,206,163**	**37,963**	**1,948,168**	**882,443**	**2,378,902**
2021										
January	31,667	39,285	11,467	160,766	12,900	276,873	3,292	173,929	83,193	193,911
February	28,365	30,183	10,846	143,192	10,142	223,268	2,859	144,804	70,129	175,146
March	31,483	42,466	12,136	157,254	13,251	282,668	3,299	180,669	83,243	193,911
April	29,514	37,756	11,791	156,092	12,842	273,643	3,078	178,912	82,917	185,964
May	29,005	38,563	12,342	162,416	13,063	283,576	3,328	187,994	85,384	192,163
June	27,715	36,918	11,885	154,617	12,716	276,142	2,975	184,732	82,520	185,964
July	26,280	38,045	12,141	160,287	13,215	299,939	3,321	195,904	80,072	189,515
August	27,864	37,753	12,076	158,586	13,224	292,784	3,343	199,365	84,297	189,515
September	28,534	36,508	11,617	153,270	12,769	290,606	3,283	194,290	85,041	183,401
October	30,458	37,626	11,655	160,291	13,213	307,744	3,460	200,567	87,446	199,379
November	30,735	36,079	11,279	155,653	12,722	310,363	3,291	195,365	87,089	192,947
December	33,039	37,006	11,371	157,031	12,928	313,823	3,163	201,176	87,692	199,379
Total	**354,660**	**448,187**	**140,604**	**1,879,457**	**152,986**	**3,431,429**	**38,693**	**2,237,706**	**999,025**	**2,281,193**
2022										
January	32,865	[E]37,302	[E]11,186	[E]151,815	[E]12,255	[E]311,786	[E]3,092	[E]196,780	[E]81,699	[E]196,005
February	30,014	[E]33,465	[E]9,336	[E]138,369	[E]10,930	[E]284,177	[E]2,801	[E]183,345	[E]74,429	[E]172,829
March	32,473	[E]37,518	[E]11,388	[E]155,246	[E]12,194	[E]313,229	[E]3,214	[E]219,028	[E]86,190	[E]187,872
April	30,910	[E]36,247	[E]11,212	[E]151,319	[E]12,037	[E]313,229	[E]3,042	[E]215,953	[E]68,484	[E]179,444
May	31,677	[E]37,042	[E]11,489	[E]155,982	[E]12,469	[E]340,363	[E]3,152	[E]223,843	[E]80,563	[E]189,214
June	28,644	[E]35,573	[E]11,057	[E]150,046	[E]12,037	[E]335,290	[E]3,464	[E]214,602	[E]86,013	[E]190,021
July	29,654	[E]36,446	[E]11,651	[E]153,067	[E]12,457	[E]345,647	[E]3,465	[E]227,099	[E]89,572	[E]193,519
August	29,380	[E]36,659	[E]11,970	[E]154,806	[E]12,526	[E]355,454	[E]3,634	[E]230,690	[E]88,700	[E]196,604
September	29,288	[E]34,405	[E]11,100	[E]151,415	[E]11,565	[E]346,479	[E]3,572	[E]233,548	[E]88,797	[E]189,795
October	31,122	[E]35,354	[E]11,358	[E]155,354	[E]12,749	[E]363,490	[E]3,540	[E]247,855	[E]90,617	[E]195,926
November	30,934	[E]33,777	[E]10,905	[E]151,562	[E]12,036	[E]354,732	[E]3,342	[E]237,280	[E]84,563	[E]195,571
December	36,181	[E]33,198	[E]11,167	[E]150,545	[E]11,556	[E]355,671	[E]3,277	[E]249,384	[E]76,094	[E]186,258
Total	**373,141**	**[E]426,986**	**[E]133,818**	**[E]1,819,526**	**[E]144,811**	**[E]4,019,547**	**[E]39,595**	**[E]2,679,408**	**[E]995,720**	**[E]2,273,058**
2023										
January	33,391	[E]34,788	[E]11,061	[E]151,836	[E]11,783	[E]363,830	[E]3,526	[E]252,664	[E]82,392	[E]198,189
February	30,726	[E]31,085	[E]10,048	[E]135,227	[E]10,528	[E]352,432	[E]3,221	[E]231,359	[E]79,805	[E]174,917
March	32,676	[RE]34,429	[E]10,906	[RE]150,125	[E]11,441	[RE]370,124	[RE]3,553	[RE]266,229	[RE]87,680	[RE]199,571
April	31,313	[RE]32,936	[E]10,657	[RE]146,973	[RE]11,228	[RE]363,689	[RE]3,469	[RE]257,597	[RE]86,898	[RE]187,565
May	31,262	[E]33,735	[E]11,223	[E]152,717	[E]11,519	[E]380,361	[E]3,572	[E]260,705	[E]90,968	[E]193,533
2023 5-month YTD	**159,367**	**[E]166,972**	**[E]53,896**	**[E]736,880**	**[E]56,498**	**[E]1,830,435**	**[E]17,341**	**[E]1,268,555**	**[E]427,743**	**[E]953,775**
2022 5-month YTD	**157,938**	**[E]181,574**	**[E]54,610**	**[E]752,731**	**[E]59,886**	**[E]1,562,784**	**[E]15,301**	**[E]1,038,949**	**[E]391,365**	**[E]925,364**
2021 5-month YTD	**150,034**	**188,253**	**58,581**	**779,721**	**62,199**	**1,340,028**	**15,857**	**866,307**	**404,867**	**941,094**

See footnotes at end of table.

Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2018-2023

million cubic feet – continued

Year and month	Oklahoma	Pennsylvania	Texas	Utah	West Virginia	Wyoming	Other states	Federal Gulf of Mexico	U.S. total
2018 total	**2,875,787**	**6,264,832**	**8,041,010**	**295,826**	**1,771,698**	**1,637,517**	**485,675**	**974,863**	**33,008,867**
2019 total	**3,036,052**	**6,896,792**	**9,378,489**	**271,808**	**2,155,214**	**1,488,854**	**456,024**	**1,015,343**	**36,446,918**
2020 total	**2,786,366**	**7,148,295**	**9,336,110**	**241,989**	**2,592,319**	**1,306,368**	**404,391**	**789,262**	**36,202,446**
2021									
January	221,544	652,640	798,426	19,392	234,432	97,657	35,223	71,772	3,118,370
February	163,094	585,371	609,757	18,126	208,571	89,337	31,366	64,024	2,608,580
March	220,130	645,407	826,381	20,404	227,218	95,164	34,671	74,200	3,143,955
April	214,334	615,899	820,570	19,783	229,075	92,340	34,427	69,762	3,068,700
May	223,372	635,584	844,723	20,313	234,118	94,341	35,868	72,053	3,168,206
June	213,314	616,270	815,947	19,502	227,987	90,259	29,234	67,429	3,056,126
July	221,002	638,200	858,526	20,601	229,376	93,644	30,467	71,744	3,182,278
August	222,329	646,169	863,509	20,347	241,373	89,749	32,659	61,377	3,196,320
September	216,455	622,275	855,425	19,928	216,452	91,662	30,611	34,559	3,086,687
October	223,093	645,126	873,479	20,457	240,446	93,162	37,663	60,037	3,245,301
November	214,361	646,233	836,104	20,014	229,812	90,176	32,023	65,610	3,169,856
December	218,805	677,331	872,543	20,538	241,569	91,741	36,962	67,903	3,283,998
Total	**2,571,834**	**7,626,504**	**9,875,390**	**239,405**	**2,760,429**	**1,109,232**	**401,172**	**780,471**	**37,328,378**
2022									
January	[E]213,419	[E]660,345	[E]853,214	[E]20,789	[E]234,795	[E]85,192	[E]31,292	[E]65,454	[E]3,199,287
February	[E]192,596	[E]581,432	[E]766,441	[E]18,966	[E]209,707	[E]76,605	[E]28,839	[E]55,884	[E]2,870,165
March	[E]219,732	[E]635,076	[E]871,961	[E]21,315	[E]239,344	[E]84,319	[E]31,519	[E]63,547	[E]3,225,163
April	[E]223,078	[E]616,181	[E]856,759	[E]21,254	[E]235,580	[E]81,405	[E]29,705	[E]65,810	[E]3,151,649
May	[E]237,032	[E]640,189	[E]887,465	[E]22,840	[E]247,179	[E]82,036	[E]31,011	[E]62,326	[E]3,295,871
June	[E]230,337	[E]616,632	[E]862,817	[E]22,278	[E]240,568	[E]80,395	[E]31,237	[E]63,627	[E]3,214,637
July	[E]239,295	[E]641,726	[E]887,919	[E]23,066	[E]251,625	[E]85,506	[E]32,355	[E]66,393	[E]3,330,463
August	[E]238,265	[E]632,014	[E]897,401	[E]23,500	[E]255,603	[E]81,633	[E]32,294	[E]68,280	[E]3,349,415
September	[E]236,726	[E]613,657	[E]882,979	[E]22,110	[E]245,734	[E]81,528	[E]31,485	[E]66,585	[E]3,280,768
October	[E]241,688	[E]629,461	[E]915,309	[E]22,164	[E]251,647	[E]87,030	[E]31,961	[E]67,352	[E]3,393,976
November	[E]235,873	[E]605,505	[E]885,128	[E]21,326	[E]255,298	[E]84,565	[E]30,838	[E]63,917	[E]3,297,153
December	[E]236,429	[E]611,037	[E]914,687	[E]22,688	[E]253,533	[E]81,550	[E]30,737	[E]63,662	[E]3,327,655
Total	**[E]2,744,470**	**[E]7,483,257**	**[E]10,482,08**	**[E]262,297**	**[E]2,920,613**	**[E]991,764**	**[E]373,272**	**[E]772,838**	**[E]38,936,202**
2023									
January	[E]241,437	[E]646,645	[E]928,236	[E]22,346	[E]256,931	[E]80,638	[E]31,512	[E]67,908	[E]3,419,111
February	[E]217,813	[E]572,742	[E]835,949	[E]19,000	[E]231,585	[E]70,453	[E]27,351	[E]59,703	[E]3,093,944
March	[RE]240,498	[E]642,354	[RE]953,243	[RE]22,789	[RE]266,638	[RE]79,606	[RE]27,899	[RE]65,103	[RE]3,464,863
April	[RE]232,670	[RE]619,658	[RE]924,770	[RE]22,636	[RE]256,075	[RE]76,188	[RE]30,086	[RE]58,625	[RE]3,353,033
May	[E]235,754	[E]648,105	[E]967,407	[E]23,795	[E]268,410	[E]83,358	[E]30,678	[E]56,487	[E]3,483,589
2023 5-month YTD	**[E]1,168,172**	**[E]3,129,504**	**[E]4,609,605**	**[E]110,565**	**[E]1,279,638**	**[E]390,243**	**[E]147,525**	**[E]307,827**	**[E]16,814,541**
2022 5-month YTD	**[E]1,085,856**	**[E]3,133,223**	**[E]4,235,841**	**[E]105,165**	**[E]1,166,605**	**[E]409,557**	**[E]152,366**	**[E]313,021**	**[E]15,742,136**
2021 5-month YTD	**1,042,476**	**3,134,900**	**3,899,856**	**98,018**	**1,133,414**	**468,840**	**171,554**	**351,812**	**15,107,811**

[E] Estimated data.

[RE] Revised estimated data.

Source: 2018-2021: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2021*, Bureau of Safety and Environmental Enforcement (BSEE), IHS Markit, and Enverus. January 2022 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; and EIA computations.

Note: For 2022 forward, we estimate state monthly marketed production from gross withdrawals using historical relationships between the two. We collect data for Arkansas, California, Colorado, Kansas, Louisiana, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia, Wyoming, and federal offshore Gulf of Mexico individually on the EIA-914 report. The "other states" category comprises states/areas not individually collected on the EIA-914 report (Alabama, Arizona, Federal Offshore Pacific, Florida, Idaho, Illinois, Indiana, Kentucky, Maryland, Michigan, Mississippi, Missouri, Nebraska, Nevada, New York, Oregon, South Dakota, Tennessee, and Virginia). Before 2022, Federal Offshore Pacific is included in California. We obtain all data for Alaska directly from the state. Monthly preliminary state-level data for all states not collected individually on the EIA-914 report are available after the final annual reports for these series are collected and processed. Final annual data are generally available in the third quarter of the following year. The sum of individual states may not equal total U.S. volumes because of independent rounding.

Summary

Overview of Activity for May 2022

- **Top five countries of destination, representing 46.4% of total U.S. LNG exports in May 2022**
  - France (47.8 Bcf), Spain (40.3 Bcf), Netherlands (28.9 Bcf), Japan (24.0 Bcf), and Italy (21.7 Bcf)
- **351.1 Bcf of exports in May 2022**
  - 6.4% increase from April 2022
  - 11.5% more than May 2021
- **114 cargos shipped in May 2022**
  - Sabine Pass (39), Corpus Christi (23), Freeport (22), Cameron (20), Cove Point (8), Elba Island (2)
  - 107 cargos in April 2022
  - 102 cargos in May 2021

1a. Table of Exports of Domestically-Produced LNG Delivered by Region (Cumulative from February 2016 through May 2022)

Region	Number of Countries Receiving Per Region	Volume Exported (Bcf)	Percentage Receipts of Total Volume Exported (%)	Number of Cargos*
East Asia and Pacific	8	3,993.4	34.9%	1163
Europe and Central Asia	13	4,343.8	37.9%	1348
Latin America and the Caribbean**	13	2,021.6	17.7%	715
Middle East and North Africa	5	346.4	3.0%	101
South Asia	3	746.8	6.5%	223
Sub-Saharan Africa	0	0.0	0.0%	0
Total LNG Exports	**42**	**11,452.0**	**100.0%**	**3,550**

*Split cargos counted as both individual cargos and countries

**Number of cargos does not include the shipments by ISO container

1b. Shipments of Domestically-Produced LNG Delivered – by Country (Cumulative from February 2016 through May 2022)

	Country of Destination	Region	Number of Cargos	Volume (Bcf of Natural Gas)	Percentage of Total U.S LNG Exports (%)
1.	South Korea*	East Asia and Pacific	440	1,532.3	13.4%
2.	Japan*	East Asia and Pacific	325	1,120.1	9.8%
3.	China*	East Asia and Pacific	264	906.8	7.9%
4.	Spain*	Europe and Central Asia	270	852.8	7.4%
5.	United Kingdom*	Europe and Central Asia	209	717.4	6.3%
6.	France*	Europe and Central Asia	202	655.4	5.7%
7.	Brazil*	Latin America and the Caribbean	208	585.3	5.1%
8.	India*	South Asia	164	553.5	4.8%
9.	Mexico*	Latin America and the Caribbean	162	543.0	4.7%
10.	Turkey*	Europe and Central Asia	159	519.6	4.5%
11.	Netherlands*	Europe and Central Asia	147	486.6	4.2%
12.	Chile*	Latin America and the Caribbean	129	409.0	3.6%
13.	Taiwan*	East Asia and Pacific	79	266.8	2.3%
14.	Italy*	Europe and Central Asia	80	263.5	2.3%
15.	Argentina*	Latin America and the Caribbean	94	228.3	2.0%
16.	Portugal*	Europe and Central Asia	69	219.7	1.9%
17.	Poland*	Europe and Central Asia	56	188.5	1.6%
18.	Greece*	Europe and Central Asia	56	133.8	1.2%
19.	Pakistan*	South Asia	40	128.9	1.1%
20.	Dominican Republic*	Latin America and the Caribbean	56	128.7	1.1%
21.	Kuwait	Middle East and North Africa	36	126.1	1.1%
22.	Jordan*	Middle East and North Africa	36	124.2	1.1%
23.	Belgium*	Europe and Central Asia	34	111.4	1.0%
24.	Lithuania	Europe and Central Asia	34	107.5	0.9%
25.	Singapore*	East Asia and Pacific	28	91.1	0.8%
26.	Croatia	Europe and Central Asia	23	73.0	0.6%
27.	Thailand*	East Asia and Pacific	19	68.7	0.6%
28.	Bangladesh*	South Asia	19	64.5	0.6%
29.	Jamaica*	Latin America and the Caribbean	25	57.3	0.5%
30.	United Arab Emirates	Middle East and North Africa	15	51.1	0.4%
31.	Panama*	Latin America and the Caribbean	26	47.3	0.4%
32.	Israel*	Middle East and North Africa	9	28.0	0.2%
33.	Colombia*	Latin America and the Caribbean	15	19.0	0.2%
34.	Egypt*	Middle East and North Africa	5	16.9	0.1%
35.	Malta*	Europe and Central Asia	9	14.6	0.1%
36.	Indonesia*	East Asia and Pacific	7	4.0	0.0%
37.	Malaysia	East Asia and Pacific	1	3.7	0.0%
	Total Exports by Vessel		**3,550**	**11,448.3**	
38.	Barbados	Latin America and the Caribbean	304	1.3	0.0%
39.	Bahamas	Latin America and the Caribbean	547	1.2	0.0%
	Jamaica	Latin America and the Caribbean	73	0.8	0.0%
40.	Haiti	Latin America and the Caribbean	116	0.4	0.0%
41.	Antigua and Barbuda	Latin America and the Caribbean	1	0.0	0.0%
42.	Nicaragua	Latin America and the Caribbean	1	0.0	0.0%
	Total Exports by ISO		**1040**	**3.7**	
	Total Exports by Vessel and ISO		**4,590**	**11,452.0**	

Note:

Volume and Number of Cargos are the cumulative totals of each individual Country of Destination by Region starting from February 2016.

Jamaica has received U.S. LNG exports by both vessel and ISO container. The volumes are totaled separately

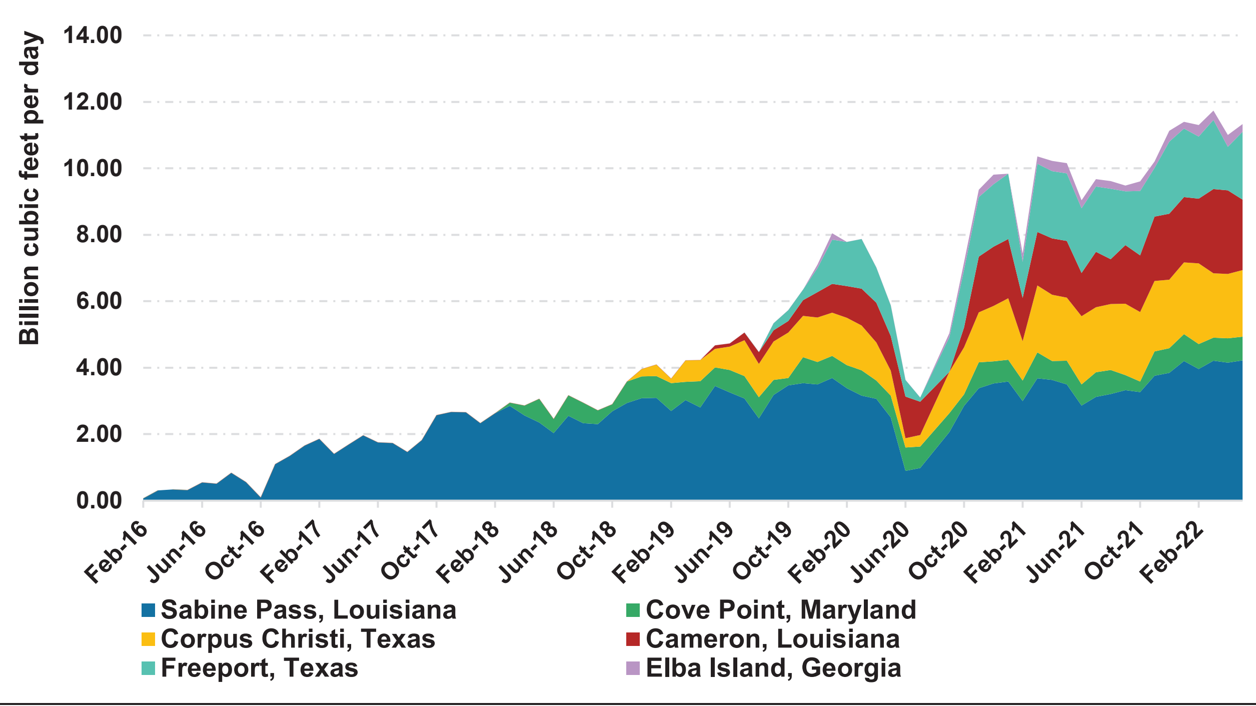
* Split cargos counted as both individual cargos and countries.

Vessel = LNG Exports by Vessel and ISO container = LNG Exports by Vessel in ISO Containers.

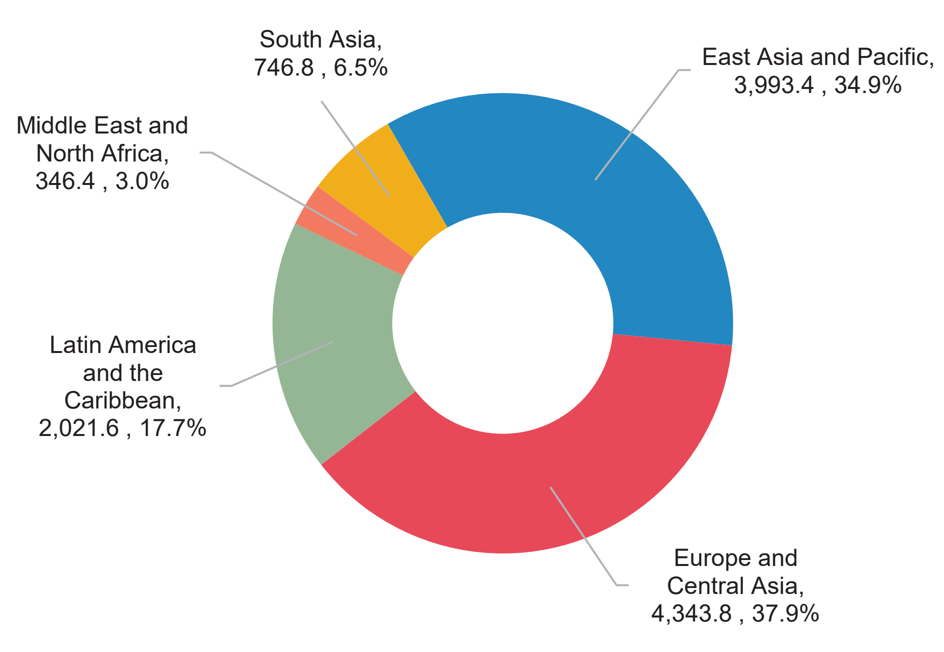
Does not include re-exports of previously-imported LNG. See table 2c for re-exports data.

Totals may not equal sum of components because of independent rounding.

1c. Domestically-Produced LNG Exported by Terminal
(February 2016 through May 2022)



1d. Domestically-Produced LNG Exported by Region
(Cumulative from February 2016 through May 2022)
(Bcf, %)



https://mexicopacific.com/mexico-pacific-concludes-long-term-lng-sales-and-purchase-agreements-across-three-trains-with-conocophillips/

Mexico Pacific Concludes Long-Term LNG Sales and Purchase Agreements Across Three Trains with ConocoPhillips

03 August 2023

Mexico Pacific and ConocoPhillips (NYSE: COP) announced today that they have signed sales and purchase agreements for ConocoPhillips to offtake approximately 2.2 million tonnes per year (MTPA) in aggregate of liquefied natural gas (LNG) across trains 1, 2 and 3 of Mexico Pacific's anchor LNG export facility, Saguaro Energia, located in Puerto Libertad on the west coast of Mexico. ConocoPhillips also has an option to contract further expansion train volumes.

Under the sales and purchase agreements, ConocoPhillips will purchase LNG on a free on-board basis over a term of 20 years. When fully operational, the first phase of the facility will have three trains with a combined capacity of 15 MTPA.

"We are delighted to welcome ConocoPhillips as yet another world-class partner for Trains 1, 2 and 3," said Ivan Van der Walt, Chief Executive Officer of Mexico Pacific. "While our sales volumes exceed our Train 1 and 2 FID requirements, we are excited to move into oversubscribed territory with one of the strongest Permian Basin and LNG market participants in the market – a validation of our project's fundamentals and position. We look forward to continuing the collaborative relationship we have with ConocoPhillips as we focus on delivering a final investment decision (FID) on our first two trains with Train 3 to follow shortly thereafter."

"ConocoPhillips is excited to pursue this opportunity with Mexico Pacific as we continue to focus on LNG market development to meet growing global natural gas demand," said Bill Bullock, Executive Vice President and Chief Financial Officer. "LNG is a fuel that is crucial to providing reliable, lower-carbon energy for the long term. Expanding our LNG footprint with agreements like this further enhances a balanced, diversified, and attractive portfolio as we progress our global LNG strategy."

"We're proud to be the first project to have an initial FID independently anchored by three majors," said Sarah Bairstow, President & Chief Commercial Officer at Mexico Pacific. "This unprecedented market milestone is a testament to our compelling ability to bridge competitive Permian Gas with the largest LNG market, Asia, free of Panama Canal risk and unnecessary incremental shipping emissions and costs when compared to the US Gulf Coast. While trains 1 and 2 sales are now closed, we remain committed to providing further LNG supply to meet global energy security and energy transition needs and will now turn to execute against the contracting momentum in place for a subsequent train 3 FID as quickly as possible."

About Mexico Pacific

Mexico Pacific's anchor project, the 15 MTPA Saguaro Energia LNG Facility, is the most advanced LNG development project on the West Coast of North America. The Saguaro Energia LNG Facility achieves significant cost and logistical advantages resulting in the lowest landed price of North American LNG into Asia by, leveraging low-cost natural gas sourced from the nearby Permian Basin, and a significantly shorter shipping route avoiding Panama Canal transit risk for Asian markets. More information can be found at http://www.mexicopacific.com.

Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?

Posted Wednesday April 28, 2021. 9:00 MT

The next six months will determine the size and length of the new LNG supply gap that is hitting harder and faster than anyone expected six months ago. Optimists will say the Mozambique government will bring sustainable security and safety to the northern Cabo Delgado province and provide the confidence to Total to quickly get back to LNG development such that its LNG in-service delay is a matter of months and not years. We hope so for Mozambique's domestic situation, but will it be that easy for Total's board to quickly look thru what just happened? Total suspended LNG development for 3 months, restarted development on March 25, but then 3 days of violence led it to suspend development again on March 28, and announce force majeure on Monday April 26. Even if the optimists are right, Mozambique LNG is counted on for LNG supply and the major LNG supply project that are in LNG supply forecasts are now all delayed – Total Phase 1 of 1.7 bcf/d and its follow on Phase 2 of 1.3 bcf/d, and Exxon's Rozuma Phase 1 of 2.0 bcf/d. It is important to remember this 5.0 bcf/d of major LNG supply is being counted in LNG supply forecasts and starting in 2024. At a minimum, we think the more likely scenario is a delay of at least 2 years in this 5.0 bcf/d from the pre-Covid timelines. And this creates a much bigger and sooner LNG supply gap starting ~2025 and stronger outlook for LNG prices. Thermal coal in Asia will play a role in keeping a lid on LNG prices. But there will be the opportunity for LNG suppliers to at least review the potential for brownfield LNG projects to fill the growing supply gap. The thought of increasing capex was a non-starter six months ago, but there is a much stronger outlook for global oil and gas prices. Oil and gas companies are pivoting from cutting capex to small increases in 2021 capex and expecting for higher capex in 2022. We believe this sets the stage for looking at potential FID of brownfield LNG projects before the end of 2021 to be included in 2022 capex budgets. Mozambique is causing an LNG supply gap that someone will try to fill. And if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? Cdn natural gas producers hope so as this would mean more Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub.

Total declares force majeure on Mozambique LNG, Yesterday, Total announced [LINK] "*Considering the evolution of the security situation in the north of the Cabo Delgado province in Mozambique, Total confirms the withdrawal of all Mozambique LNG project personnel from the Afungi site. This situation leads Total, as operator of Mozambique LNG project, to declare force majeure. Total expresses its solidarity with the government and people of Mozambique and wishes that the actions carried out by the government of Mozambique and its regional and international partners will enable the restoration of security and stability in Cabo Delgado province in a sustained manner".* Total is working Phase 1 is ~1.7 bcf/d (Train 1 + 2, 6.45 mtpa/train) and was originally expected to being LNG deliveries in 2024. There was no specific timeline for Phase 2 of 1.3 bcf/d (Train 3 + 4, 5.0 mtpa/train), but was expected to follow Phase 1 in short order to keep capital costs under control with a continuous construction process with a potential onstream shortly after 2026.

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Total Mozambique Phase 1 and 2

Mozambique LNG: unlocking world-class gas resources

3 $/MBtu cost delivered Asia
~1 B$/y CFFO At 60 $/b 2025+
> 60 Tcf Resources (100%)

Tanzania
Mozambique LNG ~13 Mt/y Total 26.5% Op.
AREA 1
AREA 4
Mozambique
AFRICA
Area 1 Resources
Ph1 18 Tcf 2 trains
Future expansion
Train 3&4

Giant high quality resources
- Gas composition well adapted to liquefaction
- Well productivity ~30 kboe/d

Mozambique LNG: leveraging large scale to lower costs
- Upstream: **subsea to shore**
- **2 x 6.4 Mt/y** LNG plant **< 850 $/t**
- **Onshore synergies** with Rovuma LNG
- **FID June 2019**, first LNG in 2024
- Launching studies on train 3&4 in 2020

~90% volume sold under long term contracts largely **oil indexed**

Note: Subject to closing

Developing a global and profitable LNG portfolio 15 TOTAL

Source: Total Investor Day September 24, 2019

Total's Mozambique force majeure is no surprise, especially the need to the restoration of security and stability "in a sustained manner". Yesterday, Total announced [LINK] "*Considering the evolution of the security".* No one should be surprised by the force majeure or the sustained manner caveat. SAF Group posts a weekly Energy Tidbits research memo [LINK], wherein we have, in multiple weekly memos, that Total had shut down development in December for 3 months due to the violent and security risks. It restarted development on Wed March 24, violence/attacks immediately resumed for 3 consecutive days, and then Total suspended development on Sat March 27. Local violence/attacks shut development down in Dec, the situation gets settled enough for Total to restart in March, only to be shut down 3 days thereafter. No one should be surprised especially with Total's need to see security and stability "in a sustained manner".

Does anyone really think Total will risk another quick 2-3 month restart or even in 2021? The Mozambique government will be working hard to convince Total to restart soon. We just find it hard to believe Total board will risk a replay of March 24-27 in 2021. Unfortunately, Mozambique has had internal conflict for years. It reached a milestone to the positive in August 2019. Our SAF Group August 11, 2019 Energy Tidbits memo [LINK] highlighted the signing of a peace pact between Mozambique President Nyusi and leader of the Renamo opposition Momade. This was the official end to a 2013 thru 2016 conflict following a failure to hold up the prior peace pact. At that time, FT reported [LINK] "Mr Nyusi has said that "*the government and Renamo will come together and hunt" rebels who fail to disarm. The government has struggled to stem the separate insurgency in the north, which has killed or displaced hundreds near the gas-rich areas during the past two years. While the roots of the conflict remain murky, it is linked to a local Islamist group and appears to be drawing on disaffection over sharing gas investment benefits, say analysts*." This is just a reminder this is not a new issue. LNG is a game changer to Mozambique's economic future. It is, but also has been, a government priority to have the security and safety for Total and Exxon to move on their LNG developments. Its hard to believe the Mozambique government will be able to quickly convince Total and Exxon boards that they can be comfortable there is a sustained security/safety situation and they can send their people back in to develop the LNG. Total's board would allow any resumption of development before year end 2021. The last thing Total wants is a replay of March 24-27. The first question is how long will it take before the Total board is convinced its safe to restart. Could you imagine them doing a replay of what just happened? Wait three months, restart development and have to stop again right away? We have to believe that could lead the Total board to believe it is unfixable for years. We just don't think they are to prepared to risk that decision in 3 months. Its why we have to think there isn't a restart approval until at least in 2022 at the earliest ie. why we think the likely scenario is a delay of 2-3 years, and not a matter of months.

Mozambique's security issues pushes back 5.0 bcf/d of new LNG supply at least a couple years. The global LNG issue is that 5 bcf/d of new Mozambique LNG supply (apart from the Eni Coral FLNG of 0.45 bcf/d) won't start up in 2024 and

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continuing thru the 2020s. And we believe all LNG forecasts included this 5.0 bcf/d to be in service in the 2020s as Mozambique had been considered the best positioned LNG supply to access Asia after Australia and Papua New Guinea. (i) Eni Coral Sul (Rovuma Basin) FLNG of 0.45 bcf/d planned in service in 2022. [LINK] This is an offshore floating LNG vessel that is still expected to be in service in 2022. (ii) Total Phase 1 to add 1.7 bcf/d with an in service originally planned for 2024. We expect the in service data to be pushed back to at least 2026 assuming Total gives a development restart approval in Dec 2021. In theory, this would only be a 1 year loss of time. However, Total has let services go, the project will be idle for 9 months, it isn't clear if the need to get people out quickly let them do a complete put the project on hold, and how many people will be on site maintaining the status of the development during the force majeure. Also what new procedures and safety will be put in place for a restart. These all mean there will be added time needed to get the project back to where it was when force majeure was declared ie. why we think a 12 month time delay will be more like an 18 month project delay. (iii) Exxon's Rozuma Phase 1 LNG will add 2.0 bcf/d and, pre-Covid, was expected to be in service in 2025. We believe the delays related to security and safety at Total are also going to impact Exxon. We find it highly unlikely the Exxon board would take a different security and safety decision than Total. Pre-pandemic, Exxon's March 6, 2019 Investor Day noted their operated Mozambique Rovuma LNG Phase 1 was to be 2 trains each with 1.0 bcf/d capacity for total initial capacity of 2.0 bf/d with FID expected in 2019 and first LNG deliveries in 2024. The 2019 FID expectation was later pushed to be expected just before the March 2020 investor day. But the pandemic hit, and on March 21, 2020, we tweeted [LINK] on the Reuters story "*Exclusive: Coronavirus, gas slump put brakes on Exxon's giant Mozambique LNG plan"* [LINK] that noted Exxon was expected to delay the Rovuma FID. There was no timeline, but the expectation was that FID would now be in 2022 (3 years later than original timeline0 and that would push first LNG likely to 2027. (iv) Total Phase 2 was to add 1.3 bcf/d. There was no firm in service date but it was expected to follow closely behind Phase 1 to maintain services. That would have put it originally in the 2026/2027 period. But if Phase 1 is pushed back 2 years, so will Phase 2 so more likely 2028/2029.. (v) Total Phase 1 + 2 and Exxon Rozuma Phase 1 total 5.0 bcf/d and would have been (and still are) in all LNG supply forecasts for the 2020s. (vi) We aren't certain if the LNG supply forecasts include Exxon Rozuma Phase 2 ,which would be an additional 2.0 bcf/d on top of the 5.0 bcf/d noted above. Exxon Rozuma has always been expected to be at least 2 Phases. This has been the plan since the Anadarko days given the 85 tcf size of the resource on Exxon's Area 4. There was no firm in service data for Phase 2, but it was expected they would also closely follow Phase 1 to maintain services. We expect that original timeline would have been 2026/2027 and that would not be pushed back to 2029/2030. (vii) It doesn't matter if its only 5 bcf/ of Mozambique that is delayed 2 to 3 years, it will cause a bigger LNG supply gap and sooner. The issue for LNG markets is this is taking projects that are in development effectively out of the queue for some period.

Exxon Mozambique LNG

Source: Exxon Investor Day March 6, 2019

<u>Won't LNG and natural gas get hit by Biden's push for carbon free electricity?</u> Yes, in the US. For the last 9 months, we have warned on Biden's climate change plan that were his election platform and now form his administration's energy transition map. We posted our July 28, 2020 blog "*Biden To Put US On "Irreversible Path to Achieve Net-Zero Emissions, Economy-Wide" Is a Major Negative To US Natural Gas in 2020s* "[LINK] on Biden's platform "*The Biden Plan to Build a Modern, Sustainable Infrastructure and an Equitable Clean Energy Future*" [LINK]. Biden's new American Jobs Plan

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[LINK] lines up with his campaign platform including to put the US "*on the path to achieving 100 percent carbon-free electricity by 2035.*". Our July 28, 2020 blog noted that it would require replacing ~60% of US electricity generation with more renewable and it could eliminate ~40% (33.5 bcf/d) of 2019 US natural gas consumption. If Biden is 25% successful by 2030, it would replace ~6.3 bcf/d of natural gas demand. It would be a negative to US natural gas and force more US natural gas to export markets. The wildcard when does US natural gas start to decline if producers are faced with the reality of natural gas being phased out for electricity. The other hope is that when Biden says "carbon-free", its not what ends up in the details of any formal policy statement ie. carbon electricity will be allowed with Biden's push for CCS.

Will Cdn natural gas be similarly hit by if Trudeau move to "emissions free" and not "net zero emissions" electricity? Yes and No. Our SAF Group April 25, 2021 Energy Tidbits memo [LINK] was titled ""*Bad News For Natural Gas, Trudeau's Electricity Goal is Now 100% "Emissions Free" And Not "Net Zero Emissions*". On Thursday, PM Trudeau spoke at Biden's global climate summit [LINK] and looks like he slipped in a new view on electricity than was in last Monday's budget and his Dec climate plan. Trudeau said "*In Canada, we've worked hard to get to over 80% emissions-free electricity, and we're not going to stop until we get to 100%."* Speeches, especially ones made on a global stage are checked carefully so this had to be deliberate. Trudeau said "*emissions free*" and not net zero emissions electricity. It seems like this language is carefully written to exclude any fossil fuels as they are not emissions free even if they are linked to CCS. Recall in Liberals big Dec 2020 climate announcement [LINK], Liberals said ""*Work with provinces, utilities and other partners to ensure that Canada's electricity generation achieves net-zero emissions before 2050.*" There is no way Trudeau changed the language unless he meant to do so. And this is a major change as it would seem to indicate his plan to eliminate all fossil fuels used for electricity. If so this would be a negative to Cdn natural gas that would be stuck within Western Canada and/or continuing to push into the US when Biden is trying to switch to carbon free electricity. We recognize that there is still some ambiguity in what will be the details of policy and the Liberals aren't changing to no carbon sourced electricity at all. Let's hope so. But let's also be careful that politicians don't change language without a reason or at least with a view to setting up for some future hit. Plus Trudeau had a big warning in that same speech saying "*we will make it law to respect our new 2030 target and achieve net-zero emissions by 2050*". They plan to make it the law that Canada has to be on track for the Liberals 2030 emissions targets. This means that the future messaging will be that the Liberals have no choice but to take harder future emissions actions as it is the law. They will be just obeying the law as they will be obligated to obey the law. Everyone knows the messaging will be we have to do more get to Net Zero, that in itself will inevitably mean it will be the law if he actually does move to eliminate any carbon based electricity. So yes it's a negative, that is unless more Cdn natural gas can be exported via LNG to Asia. We believe this would be a plus to be priced against global LNG instead of Henry Hub.

Biden's global climate summit reminded there is too much risk to skip over natural gas as the transition fuel. Apart from the US and Canada, we haven't seen a sea shift to eliminating natural gas for power generation, especially from energy import dependent countries. There is a strong belief that hydrogen and battery storage will one day be able to scale up at a competitive cost to lead to the acceleration away from fossil fuels. But that time isn't yet here, at least not for energy import dependent countries. One of the key themes from last week's leader's speeches at the Biden global climate summit – to get to Net Zero, the world is assuming there wilt be technological advances/discoveries that aren't here today and that have the potential to immediately ramp up in scale. IEA Executive Director Faith Birol was blunt in his message [LINK] saying "*Right now, the data does not match the rhetoric – and the gap is getting wider.*" And "*IEA analysis shows that about half the reductions to get to net zero emissions in 2050 will need to come from technologies that are not yet ready for market. This calls for massive leaps in innovation. Innovation across batteries, hydrogen, synthetic fuels, carbon capture and many other technologies.* US Special Envoy for Climate John Kerry said a similar point that half of the emissions reductions will have to come from technologies that we don't yet have at scale. UK PM Johnson [LINK] didn't say it specifically, but points to this same issue saying "*To do these things we've got to be constantly original and optimistic about new technology and new solutions whether that's crops that are super-resistant to drought or more accurate weather forecasts like those we hope to see from the UK's new Met Office 1.2bn supercomputer that we're investing in.*" It may well be that the US and other self sufficient energy countries are comfortable going on the basis of assuming technology developments will occur on a timely basis. But, its clear that countries like China, India, South Korea and others are not prepared to do so. And not prepared to have the confidence to rid themselves of coal power generation. This is why there hasn't been any material change in the LNG demand outlook

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We expect the IEA's blunt message that the gap is getting wider will be reinforced on May 18. We have had a consistent view on the energy transition for the past few years. We believe it is going to happen, but it will take longer, be a bumpy road and cost more than expected. This is why we believe the demise of oil and natural gas won't be as easy and fast as hoped for by the climate change side. The IEA's blunt warning on the gap widening should not be a surprise as they warned on this in June 2020. Birol's climate speech also highlighted that the IEA will release on May 18 its roadmap for how the global energy sector can reach net zero by 2050. Our SAF Group June 11, 2020 blog "*Will The Demise Of Oil Take Longer, Just Like Coal? IEA and Shell Highlight Delays/Gaps To A Smooth Clean Energy Transition*" [LINK] feature the IEA's June 2020 warning that the critical energy technologies needed to reduce emissions are nowhere near where they need to be. In that blog, we said "there was an excellent illustration of the many significant areas, or major pieces of the puzzle, involved in an energy transition by the IEA last week. The IEA also noted the progress of each of the major pieces and the overall conclusion is that the vast majority of the pieces are behind or well behind where they should be to meet a smooth timely energy transition. It is important to note that these are just what the IEA calls the "*critical energy technologies*" and does not get into the wide range of other considerations needed to support the energy transition. The IEA divides these "critical energy technologies "into major groupings and then ranked the progress of each of these pieces in its report "*Tracking Clean Energy Progress*" [LINK] by on track, more efforts needed, or not on track". Our blog included the below IEA June 2020 chart.

IEA's Progress Ranking For "Critical Energy Technologies" For Clean Energy Transition

Power	Renewable Power	Geothermal
	Solar PV	Ocean Power
	Onshore Wind	Nuclear Power
	Offshore Wind	Natural Gas-Fired Power
	Hydropower	Coal-Fired Power
	Bioenergy Power Generation	CCUS in Power
	Concentrating Solar Power	
Fuel Supply	Methane Emissions from O&G	Flaring Emissions
Industry	Chemicals	Pulp and Paper
	Iron and Steel	Aluminum
	Cement	CCUS in Industry and Transformation
Transport	Electric Vehicles	Transport Biofuels
	Rail	Aviation
	Fuel Consumption of Cars and Vans	International Shipping
	Trucks and Busses	
Buildings	Building Envelopes	Lighting
	Heating	Appliances and Equipment
	Heat Pumps	Data Centres and Data Transmission Networks
	Cooling	
Energy Integration	Energy Storage	Demand Response
	Hydrogen	Direct Air Capture
	Smart Grids	

Source: IEA

On Track | More Efforts Needed | Not on Track

Source: IEA Tracking Clean Energy Progress, June 2020

We are referencing Shell's long term outlook for LNG We recognize there are many different forecasts for LNG, but are referencing Shell' LNG Outlook 2021 from Feb 25, 2021 for a few reasons. (i) Shell's view on LNG is the key view for when and what decision will be made for LNG Canada Phase 2. (ii) Shell is one of the global leaders in LNG supply and trading. (iii) Shell provides on the record LNG outlooks every year so there is the ability to compare and make sure the outlook fits the story. It does. (iv) Shell, like other supermajors, has had to make big capex cuts post pandemic and that certainly wouldn't put any bias to the need for more capex.

Shell's March 2021 long term outlook for LNG demand was basically unchanged vs 2020 and leads to a LNG supply gap in mid 2020s Shell does not provide the detailed numbers in their Feb 25, 2021 LNG forecast. We would assume they

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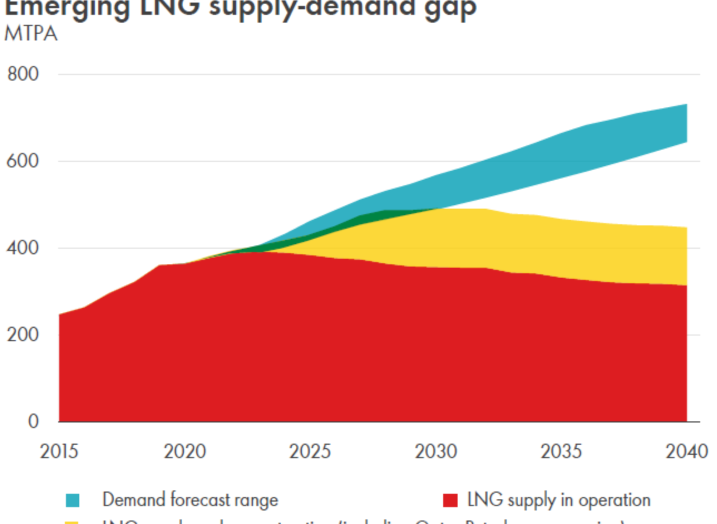
would have reflected some delay, perhaps 1 year, at Mozambique but would be surprised if they put a 2-3 year delay in for the 5 bcf/d from Total Phase 1 +2 and Exxon Rozuma Phase 1. Compared to their LNG Outlook 2020, it looks like there was no change for their estimate of global natural gas demand growth to 2040, which looked relatively unchanged at approx. 5,000 bcm/yr or 484 bcf/d. Similarly, long term LNG demand looked unchanged to 2040 of ~700 mm tonnes (92 bcf/d) vs 360 mm tonnes (47 bcf/d) in 2020. In the 2021 outlook, Shell highlighted that the pandemic delayed project construction timelines and that the "*lasting impact expected on LNG supply not demand*". And that Shell sees a LNG "*supply-demand gap estimated to emerge in the middle of the current decade as demand rebounds*". Comparing to 2020, it looks like the supply-demand gap is sooner.

Supply-demand gap estimated to emerge in the middle of the current decade



Source: Shell LNG Outlook 2021, Feb 25, 2021

<u>Mozambique delays are redefining the LNG markets for the 2020s: Delaying 5 bcf/d of Mozambique new LNG supply 2-3 years means a much bigger supply gap starting in 2025..</u> Even if the optimists are right, there are now delays to all major Mozambique LNG supply from LNG supply forecasts. We don't have the detail, but we believe all LNG forecasts, including Shell's LNG Outlook 2021, would have included Total's Phase 1 and Phase 2 and Exxon Rozuma Phase 1. As noted earlier, we believe that the likely impact of the Mozambique security concerns is that these forecasts would likely have to push back 1.7 bcf/d from Total Phase 1 to at least 2026, 2.0 bcf/d Exxon Rozuma Phase 1 to at least 2027, and 1.3 bcf/d Total Phase 2 to at least 2028/2029 with the real risk these get pushed back even further. 5.0 bcf/d is equal to 38 mtpa. These delays would mean there is an increasing LNG supply gap in 2025 and increasingly significantly thereafter. And even if a new greenfield LNG project is FID's right away, it wouldn't be able to step in to replace Total Phase 1 prior startup timing for 2024 or likely the market at all until at least 2027. Its why the decision on filling the gap will fall on brownfield LNG projects.

<u>And does this bigger, nearer supply gap force LNG players to look at what brownfield LNG projects they could advance?</u> A greenfield LNG project would likely take at least until 2027 to be in operations. Its why we believe the Mozambique delays will effectively force major LNG players to look to see if there are brownfield LNG projects they should look to advance. Prior to the just passed winter, no one would think Shell or other major LNG players would be considering any new LNG FIDs in 2021. All the big companies are in capital reduction mode and debt reduction mode. But Brent oil is now solidly over $60 and LNG prices hit record levels in Jan and the world's economic and oil and gas demand outlook are increasing with vaccinations. And we are starting to see companies move to increasing capex with the higher cash flows. We would not expect any major LNG players to move to FID right away. But we see them watching to see if 2021 plays out to still support this increasing LNG supply gap. And unless new mutations prevent vaccinations from returning the world to normal, we suspect that major LNG players, like other oil and gas companies, will be looking to increase

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capex as they approve 2022 budgets. The outlook for the future has changed dramatically in the last 5 months. The question facing Shell and others, should they look to FID new LNG brownfield projects in the face of an increasing LNG supply gap that is going to hit faster and harder than expected a few months ago. We expect these decisions to be looked at before the end of 2021. LNG prices will be stronger, but we expect the limiting cap in Asia will be that thermal coal will be used to mitigate some LNG price pressure.

Back to Shell, does increasing LNG supply gap provide the opportunity to at least consider a LNG Canada Phase 2 FID over the next 9 months? Shell is no different than any other major LNG supplier in always knowing the market and that the oil and gas outlook is much stronger than 6 months ago. No one has been or is talking about this Mozambique impact and how it will at least force major LNG players to look at if they should FID new brownfield LNG projects to take advantage of this increasing supply gap. We don't have any inside contacts at Shell or LNG Canada, but that is no different than when we looked at the LNG markets in September 2017 and saw the potential for Shell to FID LNG Canada in 2018. We posted a September 20, 2017 blog *"China's Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG*" [LINK]. Last time, it was a demand driven supply gap, this time, it's a supply driven supply gap. We have to believe any major LNG player, including Shell, will be at least looking at their brownfield LNG project list and seeing if they should look to advance FID later in 2021. Shell has LNG Canada Phase 2, which would add 2 additional trains or approx. 1.8 bcf/d. And an advantage to an FID would be that Shell would be able to commit to its existing contractors and fabricators for a continuous construction cycle following on LNG Canada Phase 1 ie. to help keep a lid on capital costs. No one is talking about the need for these new brownfield LNG projects, but, unless Total gets back developing Mozambique and keeps the delay to a matter of months, its inevitable that these brownfield LNG FID internal discussions will be happening in H2/21. Especially since the oil and gas price outlook is much stronger than it was in the fall and companies will be looking to increase capex in 2022 budgets

A LNG Canada Phase 2 would be a big plus to Cdn natural gas. A LNG Canada Phase 2 FID would be a big plus for Cdn natural gas. It would allow another ~1.8 bcf/d of Cdn natural gas to be priced against Asian LNG prices and not against Henry Hub. And it would provide demand offset versus Trudeau if he moves to make electricity "emissions free" and not his prior "net zero emissions". Mozambique may be in Africa, but, unless sustained peace and security is attained, it is a game changer to LNG outlook creating a bigger and sooner LNG supply gap. And with a stronger tone to oil and natural gas prices in 2021, the LNG supply gap will at least provide the opportunity for Shell to consider FID for its brownfield LNG Canada Phase 2 and provide big support to Cdn natural gas for back half of the 2020s. And perhaps if LNG Canada is exporting 3.6 bcf/d from two phases, it could help flip Cdn natural gas to a premium to US natural gas especially if Biden is successful in reducing US domestic natural gas consumption for electricity. The next six months will be very interesting to watch for LNG markets.

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Asian LNG Buyers Abruptly Change and Lock in Long Term Supply – Validates Supply Gap, Provides Support For Brownfield LNG FIDs

Posted 11am on July 14, 2021

The last 7 days has shown there is a sea change as Asian LNG buyers have made an abrupt change in their LNG contracting and are moving to lock in long term LNG supply. This is the complete opposite of what they were doing pre-Covid when they were trying to renegotiate Qatar LNG long term deals lower and moving away from long term deals to spot/short term sales. Why? We think they did the same math we did in our April 28 blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" and saw a much bigger and sooner LNG supply gap driven by the delay of 5 bcf/d of Mozambique LNG that was built into most, if not all LNG supply forecasts. Asian LNG buyers are committing real dollars to long term LNG deals, which we believe is the best validation for the LNG supply gap. Another validation, Shell, Total and others are aggressively competing to invest long term capital to partner in Qatar Petroleum's massive 4.3 bcf/d LNG expansion despite plans to reduce fossil fuels production in the 2020s. And even more importantly to LNG suppliers, the return to long term LNG contracts provides the financing capacity to commit to brownfield LNG FIDs. The abrupt change by Asian LNG buyers to long term contracts is a game changer for LNG markets and sets the stage for brownfield LNG FIDs likely as soon as before year end 2021. It has to be brownfield LNG FIDs if the gap is coming bigger and sooner. And we return to our April 28 blog point, if brownfield LNG is needed, what about Shell looking at 1.8 bcf/d brownfield LNG Canada Phase 2? LNG Canada Phase 1 at 1.8 bcf/d capacity is already a material positive for Cdn natural gas producers. A FID on LNG Canada Phase 2 would be huge, meaning 3.6 bcf/d of Cdn natural gas will be tied to Asian LNG markets and not competing in the US against Henry Hub. And with a much shorter distance to Asian LNG markets. This is why we focus on global LNG markets for our views on the future value of Canadian natural gas.

Sea change in Asian LNG buyers is also the best validation of the LNG supply gap and big to LNG supply FIDs. Has the data changed or have the market participants changed in how they react to the data? We can't recall exactly who said that on CNBC on July 12, it's a question we always ask ourselves. In the LNG case, the data has changed with Mozambique LNG delays and that has directly resulted in market participants changing and entering into long term contracts. We can't stress enough how important it is to see Asian LNG buyers move to long term LNG deals. (i) Validates the sooner and bigger LNG supply gap. We believe LNG markets should look at the last two weeks of new long term deals for Asian LNG buyers as being the validation of the LNG supply gap that clearly emerged post Total declaring force majeure on its 1.7 bcf/d Mozambique LNG Phase 1 that was under construction and on track for first LNG delivery in 2024. Since then, markets have started to realize the Mozambique delays are much more than 1.7 bcf/d. They have seen major LNG suppliers change their outlook to a more bullish LNG outlook and, most importantly, are now seeing Asian LNG buyers changing from trying to renegotiate long term LNG deals lower to entering into long term LNG deals to have security of supply. Asian LNG buyers are cozying up to Qatar in a prelude to the next wave of Asian buyer long term deals. What better validation is there than companies/countries putting their money where their mouth is. (ii) Provides financial commitment to help push LNG suppliers to FID. We believe these Asian LNG buyers are doing much more than validating a LNG supply gap to markets. The big LNG suppliers can move to FID based on adding more LNG supply to their portfolio, but having more long term deals provides the financial anchor/visibility to long term capital commitment from the buyers. Long term contracts will only help LNG suppliers get to FID.

It was always clear that the Mozambique LNG supply delay was 5.0 bcf/d, not just 1.7 bcf/d from Total Phase 1. LNG markets didn't really react to Total's April 26 declaration of force majeure on its 1.7 bcf/d Mozambique LNG Phase 1. This was an under construction project that was on time to deliver first LNG in 2024. It was in all LNG supply forecasts. There was no timeline given but, on the Apr 29 Q1 call, Total said that it expected any restart decision would be least a year away. If so, we believe that puts any actual construction at least 18 months away. There will be work to do just to get back to where they were when they were forced to stop development work on Phase 1. Surprisingly, markets didn't look the broader implications, which is why we posted our 7-pg Apr 28 blog "*Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?*" [LINK] We highlighted that Mozambique LNG delays were actually 5 bcf/d, not 1.7 bcf/d. And this 5 bcf/d of Mozambique LNG supply was built into most, if not all, LNG supply forecasts. The delay in Total Phase 1 would lead to a commensurate delay in its Mozambique LNG Phase 2 of 1.3 bcf/d. Total Phase 2 was to add 1.3 bcf/d. There was no firm in service date, but it was expected to

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follow closely behind Phase 1 to maintain services. That would have put it originally in the 2026/2027 period. But if Phase 1 is pushed back at least 2 years, so will the follow on Phase 2, so more likely, it will be at least 2028/2029. The assumption for most, if not all, LNG forecasts was that Phase 2 would follow Phase 1. Exxon Rozuma Phase 1 of 2.0 bcf/d continues to be pushed back in timeline especially following Total Phase 1. Exxon's Mozambique Rozuma Phase 1 LNG will add 2.0 bcf/d and, pre-Covid, was originally expected to be in service in 2025. The project was being delayed and Total's force majeure has added to the delays. Rozuma onshore LNG facilities are right by Total. On June 20, we tweeted [LINK] on the Reuters report "*Exclusive: Galp says it won't invest in Rovuma until Mozambique ensures security*" [LINK]. Galp is one of Exxon's partners in Rozuma. Reuters reported that Galp said they won't invest in Exxon's Rozuma LNG project until the government ensures security, that this may take a while, they won't be considering the project until after Total has reliably resumed work on its Phase 1, which likely puts any Rozuma decision until at least end of 2022 at the earliest. Galp has taken any Rozuma Phase 1 capex out of their new capex plans thru 2025 and will have to take out projects in their capex plan if Rozuma does come back to work. This puts Rozuma more likely 2028 at the earliest as opposed to before the original expectations of before 2025. Pre-pandemic, Exxon's March 6, 2019 Investor Day noted their operated Mozambique Rovuma LNG Phase 1 was to be 2 trains each with 1.0 bcf/d capacity for total initial capacity of 2.0 bf/d with FID expected in 2019 and first LNG deliveries sometime before 2025. LNG forecasts had been assuming Exxon Rozuma would be onstream around 2025. The 2019 FID expectation was later pushed to be expected just before the March 2020 investor day. But the pandemic hit, and on March 21, 2020, we tweeted [LINK] on the Reuters story "*Exclusive: Coronavirus, gas slump put brakes on Exxon's giant Mozambique LNG plan"* [LINK] that noted Exxon was expected to delay the Rovuma FID. There was no timeline, but now, any FID is not expected until late 2022 at the earliest, that would push first LNG likely to at least 2028. What this means is that the Mozambique LNG delays are not 1.7 bcf/d but 5.0 bcf/d of projects that were in all, if not most, LNG supply forecasts. There is much more in our 7-pg blog. But Mozambique is what is driving a much bigger and sooner LNG supply gap starting ~2025 and stronger outlook for LNG prices

<u>One of the reasons why it went under the radar is that major LNG suppliers played stupid on the Mozambique impact.</u> It makes it harder for markets to see a big deal when the major LNG suppliers weren't making a big deal of Mozambique or playing stupid in the case of Cheniere in their May 4 Q1 call. In our May 9, 2021 Energy Tidbits memo, we said we had to chuckle when we saw Cheniere's response in the Q&A to its Q1 call on May 4 that they only know what we know from reading the Total releases on Mozambique and its impact on LNG markets. It's why we tweeted [LINK] "*Hmm! $LNG says only know what we read on #LNG market impact from $TOT $XOM MZ LNG delays*. *Surely #TohokuElectric & other offtake buyers are reaching out to #Cheniere. MZ LNG delays is a game changer to LNG in 2020s, see SAF Group blog. Thx @olympe_mattei @TheTerminal #NatGas".* How could they not be talking to LNG buyers for Total and /or Exxon Mozambique LNG projects. In the Q1 Q&A, mgmt was asked about Mozambique and didn't know any more than what you or I have read. Surely, they were speaking to Asian LNG buyers who had planned to get LNG supply from Total Mozambique or Exxon Rozuma Mozambique or both. Mgmt is asked "*wanted to just kind of touch on the color use talking about for these supply curve. And are you able to kind of provide any thoughts on the Mozambique and a deferral with the project of that size on 13 and TPA being deferred by we see you have you noticed any impact to the market has is there any impact for stage 3 with that capacity? Thanks*." Mgmt replies "*No. Look, I only know about the Mozambique delay with what I read as well as what you read that from total and an Exxon. And it's a sad situation and I hope everybody is safe and healthy that were there to experience that unrest but no I don't think it's, again it's a different business paradigm than what we offer. So, we offer a full value product, the customer doesn't have to invest in equity, customer doesn't have to worry about the E&P side of the business because, we've been able to both the by at our peak almost 7 Dee's a day of US NAT gas from almost a 100 different producers on 26 different pipelines and deliver it to our to facilities. So we take care of a lot of what the customer needs".*

<u>There are other LNG supply delays/interruptions beyond Mozambique.</u> There have been a number of other smaller LNG delay or existing supply interruptions that add to Asian LNG buyers feeling less secure about the reliability of mid to long term LNG supply. Here are just a few examples. (i) Total Papua LNG 0.74 bcf/d. On June 8, we tweeted [LINK] *"Timing update Papua #LNG project. $OSH June 8 update "2022 FEED, 2023 FID targeting 2027 first gas". $TOT May 5 update didn't forecast 1st gas date. Papua is 2 trains w/ total capacity 0.74 bcf/d."* We followed the tweet saying [LINK] *"Bigger #LNG supply gap being created >2025. Papua #LNG originally expected FID in 2020 so 1st LNG is 2 years delayed.*

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Common theme - new LNG supply is being delayed ie. [Total] Mozambique. Don't forget need capacity>demand due to normal maintenance, etc. Positive for LNG." (ii) Chevron's Gorgon. A big LNG story in H2/20 was the emergence of weld quality issues in the propane heat exchangers at Train 2, which required additional downtime for repair. Train 2 was shut on May 23 with an original restart of July 11, but the repairs to the weld quality issues meant it didn't restart until late Nov. The same issue was found in Train 1 but repairs were completed. However extended downtime for the trains led to lower LNG volumes. Gorgon produced ~2.3 bcf/d in 2019 but was down to 2.0 bcf/d in 2020. (iii) Equinor's Melkoeya 0.63 bcf/d shut down for 18 months due to a fire. A massive fire led to the Sept 28, 2020 shutdown of the 0.63 bcf/d Melkoeya LNG facility in Norway. On April 26, Equinor released "*Revised start-up date for Hammerfest LNG*" [LINK] with regard to the 0.63 bcf/d Melkoeya LNG facility. The original restart date was Oct 1, 2021 (ie. a 12 month shut down), but Equinor said "*Due to the comprehensive scope of work and Covid-19 restrictions, the revised estimated start-up date is set to 31 March 2022"*. When we read the release, it seemed like Equinor was almost setting the stage for another potential delay in the restart date. Equinor had two qualifiers to this March 31, 2022 restart date. Equinor said "*there is still some uncertainty related to the scope of the work*" and "*Operational measures to handle the Covid-19 situation have affected the follow-up progress after the fire. The project for planning and carrying out repairs of the Hammerfest LNG plant must always comply with applicable guidelines for handling the infection situation in society. The project has already introduced several measures that allow us to have fewer workers on site at the same time than previously expected. There is still uncertainty related to how the Covid-19 development will impact the project progress."*

Cheniere stopped the game playing the game on June 30. Our July 4, 2021 Energy Tidbits memo noted that it looks like Cheniere has stopped playing stupid with respect to the strengthening LNG market in 2021. We can't believe they thought they were fooling anyone, especially their competitors. Bu that week, they came out talking about how commercial discussions have picked up in 2021 and it's boosted their hope for a Texas (Corpus Christi) LNG expansion. On Wednesday, Platts reported "*Pickup in commercial talks boosts Cheniere's hopes on mid-scale LNG project*" [LINK] Platts wrote "*Cheniere Energy expects to make a "substantial dent" by the end of 2022 in building sufficient buyer support for a proposed mid-scale expansion at the site of its Texas liquefaction facility, Chief Commercial Officer Anatol Feygin said June 30 in an interview." " As a result, he said, " The commercial engagement, I think it is very fair to say, has really picked up steam, and we are quite optimistic over the coming 12-18 months to make a substantial dent in that Stage 3 commercialization."* Platts also reported that Cheniere noted this has been a tightening market all year (ie would have been known by the May 4 Q1 call). Platts wrote "*We obviously find ourselves at the beginning of this year and throughout in a very tight market where prices today into Asia and into Europe are at levels that we frankly haven't seen in a decade-plus," Feygin said. "We've surpassed the economics that the industry saw post the Fukushima tragedy in March 2011, and that's happened in the shoulder period."* It's a public stance as to a more bullish LNG outlook

But we still see major LNG suppliers like Australia hinting but not outright saying that LNG supply gap is coming sooner. We have to believe Australia will be unveiling a sooner LNG supply gap in their September forecast. On June 28, we tweeted [LINK] on Australia's Resources and Energy Quarterly released on Monday [LINK] because there was a major change to their LNG outlook versus their March forecast. We tweeted "*#LNGSupplyGap. AU June fcast now sees #LNG mkt tighten post 2023 vs Mar fcast excess supply thru 2026. Why? $TOT Mozambique delays. See below SAF Apr 28 blog. Means brownfield LNG FID needed ie. like #LNGCanada Phase 2. #OOTT #NatGas"*. Australia no longer sees supply exceeding demand thru 2026. In their March forecast, Australia said "*Nonetheless, given the large scale expansion of global LNG capacity in recent years, demand is expected to remain short of total supply throughout the projection period."* Note this is thru 2026 ie. a LNG supply surplus thru 2026. But on June 28, Australia changed that LNG outlook and now says the LNG market may tighten beyond 2023. Interestingly, the June forecast only goes to 2023 and not to 2026 as in March. Hmmm! On Monday, they said "*Given the large scale expansion of global LNG capacity in recent years, import demand is expected to remain short of export capacity throughout the outlook period. Beyond 2023, the global LNG market may tighten, due to the April 2021 decision to indefinitely suspend the Mozambique LNG project, in response to rising security issues. This project has an annual nameplate capacity of 13 million tonnes, and was previously expected to start exporting LNG in 2024*." 13 million tonnes is 1.7 bcf/d so they are only referring to Total Mozambique LNG Phase 1. So no surprise the change is Mozambique LNG driven but we have to believe the reason why they cut their forecast off this time at 2023 is that they are looking at trying to figure out what to forecast beyond 2023 in addition to Total Phase 1. And, importantly, we believe they will be changing their LNG forecast for more than Mozambique ie. India

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demand that we highlight later in the blog. They didn't say anything else specific on Mozambique but, surely they have to also be delaying the follow on Total Phase 2 of 1.3 bcf/d and Exxon Rozuma Phase 1 of 2.0 bcf/d.

Australia's LNG Outlook: March 2021 vs June 2021 Forecasts

March 2021 LNG Outlook

Figure 7.1: LNG demand and world supply capacity

Source: Nexant (2021) World Gas Model; Department of Industry, Science, Energy and Resources (2021)

June 2021 LNG Outlook

Figure 7.1: LNG demand and world supply capacity

Source: Nexant (2021) World Gas Model; Department of Industry, Science, Energy and Resources (2021)

Source: Australia Resources and Energy Quarterly

Clearly Asian LNG buyers did the math, saw the new LNG supply gap and were working the phones in March/April/May trying to lock up long term supply. We wrote extensively on the Total Mozambique LNG situation before the April 26 force majeure as it was obvious that delays were coming to a project counted on for first LNG in 2024. Total had shut down Phase 1 development in December for 3 months due to the violence and security risks. It restarted development on Wed March 24, violence/attacks immediately resumed for 3 consecutive days, and then Total suspended development on Sat March 27. That's why no one should have been surprised by the April 26 force majeure. Asian LNG buyers were also seeing this and could easily do the same math we were doing and saw a bigger and sooner LNG supply gap. They were clearly working the phones with a new priority to lock up long term LNG supply. Major long term deals don't happen overnight, so it makes sense that we started to see these new Asian long term LNG deals start at the end of June.

A big pivot from trying to renegotiate down long term LNG deals or being happy to let long term contracts expire and replace with spot/short term LNG deals. This is a major pivot or abrupt turn on the Asian LNG buyers contracting strategy for the 2020s. There is the natural reduction of long term contracts as contracts reach their term. But with the weakness in LNG prices in 2019 and 2020, Asian LNG buyers weren't trying to extend long term contracts, rather, the push was to try to renegotiate down its long term LNG deals. The reason was clear, as spot prices for LNG were way less than long term contract prices. And this led to their LNG contracting strategy – move to increase the proportion of spot LNG deliveries out of total LNG deliveries. Shell's LNG Outlook 2021 was on Feb 25, 2021 and included the below graphs. The spot LNG price derivation from long term prices in 2019 and 2020 made sense for Asian LNG buyers to try to change their contract mix. Yesterday, Maeil Business News Korea reported on the new Qatar/Kogas long term LNG deal with its report "*Korea may face LNG supply cliff or pay hefty price after long-term supplies run out*" [LINK], which highlighted this very concept – Korea wasn't worried about trying to extend expiring long term LNG contracts. Maeil wrote "*Seoul in 2019 secured a long-term LNG supply contract with the U.S. for annual 15.8 million tons over a 15-year period. But even with the latest two LNG supply contracts, the Korean government needs extra 6 million tons or more of LNG supplies to keep up the current power pipeline. By 2024, Korea's long-term supply contracts for 9 million tons of LNG will expire - 4.92 million tons on contract with Qatar and 4.06 million tons from Oman, according to a government official who asked to be unnamed.*"

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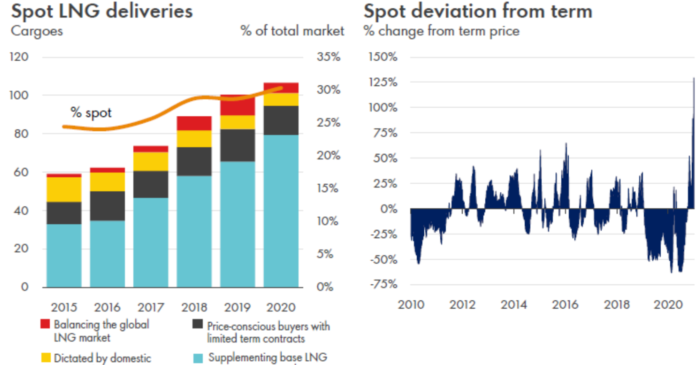
Spot LNG deliveries and Spot deviation from term price



Source: Shell LNG Outlook 2021 on Feb 25, 2021

Asian LNG buyers moving to long term LNG deals provide financing capacity for brownfield LNG FIDs. We believe this abrupt change and return to long term LNG deals is even more important to LNG suppliers who want to FID new projects. The big LNG players like Shell can FID new LNG supply without new long term contracts as they can build into their supply options to fill their portfolio of LNG contracts. But that doesn't mean the big players don't want long term LNG supply deals, as having long term LNG contracts provide better financing capacity for any LNG supplier. It takes big capex for LNG supply and long term deals make the financing easier.

Four Asian buyer long term LNG deals in the last week. It was pretty hard to miss a busy week for reports of new Asian LNG buyer long term LNG deals. There were two deals from Qatar Petroleum, one from Petronas and one from BP. The timing fits, it's about 3 months after Total Mozambique LNG problems became crystal clear. And as noted later, there are indicators that more Asian buyer LNG deals are coming.

Petronas/CNOOC is 10 yr supply deal for 0.3 bcf/d. On July 7, we tweeted [LINK] on the confirmation of a big positive to Cdn natural gas with the Petronas announcement [LINK] of a new 10 year LNG supply deal for 0.3 bcf/d with China's CNOOC. The deal also has special significance to Canada. (i) Petronas said "*This long-term supply agreement also includes supply from LNG Canada when the facility commences its operations by middle of the decade*". This is a reminder of the big positive to Cdn natural gas in the next 3 to 4 years – the start up of LNG Canada Phase 1 is ~1.8 bcf/d capacity. This is natural gas that will no longer be moving south to the US or east to eastern Canada, instead it will be going to Asia. This will provide a benefit for all Western Canada natural gas. (ii) First ever AECO linked LNG deal. It's a pretty significant event for a long term Asia LNG deal to now have an AECO link. Petronas wrote "*The deal is for 2.2 million tonnes per annum (MTPA) for a 10-year period, indexed to a combination of the Brent and Alberta Energy Company (AECO) indices. The term deal between PETRONAS and CNOOC is valued at approximately USD 7 billion over ten years.*" 2.2 MTPA is 0.3 bcf/d. (iii) Reminds of LNG Canada's competitive advantage for low greenhouse gas emissions. Petronas said "*Once ready for operations, the LNG Canada project paves the way for PETRONAS to supply low greenhouse gas (GHG) emission LNG to the key demand markets in Asia.*"

Qatar Petroleum/CPC (Taiwan) is 15 yr supply deal for 0.16 bcf/d. Pre Covid, Qatar was getting pressured to renegotiate lower its long term LNG contract prices. Now, it's signing a 15 year deal. On July 9, they entered in a new small long term LNG sales deal [LINK], a 15-yr LNG Sale and Purchase Agreement with CPC Corporation in Taiwan to supply it ~0.60 bcf/d of LNG. LNG deliveries are set to begin in January 2022. H.E. Minister for Energy Affairs & CEO of Qatar Petroleum Al-Kaabi said *"We are pleased to enter into this long term LNG SPA, which is another milestone in our relationship with CPC, which dates back to almost three decades. We look forward to commencing deliveries under this SPA and to continuing our supplies as a trusted and reliable global LNG provider."* The pricing was reported to be vs a basket of crudes.

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BP/Guangzhou Gas, a 12-yr supply deal for 0.13 bcf/d. On July 9, there was a small long term LNG supply deal with BP and Guangzhou Gas (China). Argus reported [LINK] BP had signed a 12 year LNG supply deal with Guangzhou Gas (GG), a Chinese city's gas distributor, which starts in 2022. The contract prices are to be linked to an index of international crude prices. Although GG typically gets its LNG from the spot market, it used a tender in late April for ~0.13 bcf/d starting in 2022. BP's announcement looks to be for most of the tender, so it's a small deal. But it fit into the trend this week of seeing long term LNG supply deals to Asia. This was intended to secure deliveries to the firm's Xiaohudao import terminal which will become operational in August 2022.

Qatar/Korea Gas is a 20-yr deal to supply 0.25 bcf/d. On Monday, Reuters reported [LINK] "*South Korea's energy ministry said on Monday it had signed a 20-year liquefied natural gas (LNG) supply agreement with Qatar for the next 20 years starting in 2025. South Korea's state-run Korea Gas Corp (036460.KS) will buy 2 million tonnes of LNG annually from Qatar Petroleum".* There was no disclosure of pricing.

More Asian buyer long term LNG deals (ie. India) will be coming. There are going to be more Asian buyer long term LNG deals coming soon. Our July 11, 2021 Energy Tidbits highlighted how India's new petroleum minister Hardeep Singh Puri (appointed July 8) hit the ground running with what looks to be a priority to set the stage for more India long term LNG deals with Qatar. On July 10, we retweeted [LINK] "*New India Petroleum Minister hits ground running. What else w/ Qatar but #LNG. Must be #Puri setting stage for long term LNG supply deal(s). Fits sea change of buyers seeing #LNGSupplyGap (see SAF Apr 28 blog http://safgroup.ca) & wanting to tie up LNG supply. #OOTT".* It's hard to see any other conclusion after seeing what we call a sea change in LNG buyer mentality with a number of long term LNG deals this week. Puri tweeted [LINK] "*Discussed ways of further strengthening mutual cooperation between our two countries in the hydrocarbon sector during a warm courtesy call with Qatar's Minister of State for Energy Affairs who is also the President & CEO of @qatarpetroleum HE Saad Sherida Al-Kaabi".* As noted above, we believe there is a sea change in LNG markets that was driven by the delay in 5 bcf/d of LNG supply from Mozambique (Total Phase 1 & Phase 2, and Exxon Rozuma Phase 1) that was counted on all LNG supply projections for the 2020s. Puri's tweet seems to be him setting the stage for India long term LNG supply deals with Qatar.

Supermajors are aggressively competing to commit 30+ year capital to Qatar's LNG expansion despite stated goal to reduce fossil fuels production. It's not just Asian LNG buyers who are now once again committing long term capital to securing LNG supply, it's also supermajors all bidding to be able to commit big capex to part of Qatar Petroleum's 4.3 bcf/d LNG expansion. Qatar Petroleum received a lot of headlines following the their June 23 announcement on its LNG expansion [LINK] on how they received bids for double the equity being offered. And there were multiple reports that these are on much tougher terms for Qatar's partners. Qatar Petroleum CEO Saad Sherida Al-Kaabi specifically noted that, among the bidders, were Shell, Total and Exxon. Shell and Total have two of the most ambitious plans to reduce fossil fuels production in the 2020's, yet are competing to allocate long term capital to increase fossil fuels production. And Shell and Total are also two of the global LNG supply leaders. It has to be because they are seeing a bigger and sooner LNG supply gap.

Remember Qatar's has a massive expansion but India alone needs 3x the Qatar expansion LNG capacity. In addition to the competition to be Qatar Petroleum's partners, we remind that, while this is a massive 4.3 bcf/d LNG expansion, India alone sees its LNG import growing by ~13 bcf/d to 2030. The Qatar announcement reminded they see a LNG supply gap and continued high LNG prices. We had a 3 part tweet. (i) First, we highlighted [LINK] "*1/3. #LNGSupplyGap coming. big support for @qatarpetroleum expansion to add 4.3 bcf/d LNG. but also say "there is a lack of investments that could cause a significant shortage in gas between 2025-2030" #NatGas #LNG".* This is after QPC accounts for their big LNG expansion. The QPC release said "*However, His Excellency Al-Kaabi voiced concern that during the global discussion on energy transition, there is a lack of investment in oil and gas projects, which could drive energy prices higher by stating that "while gas and LNG are important for the energy transition, there is a lack of investments that could cause a significant shortage in gas between 2025-2030, which in turn could cause a spike in the gas market."* (ii) Second, this is a big 4.3 bcf/d expansion, but India alone has 3x the increase in LNG import demand. We tweeted [LINK] "*2/3. Adding 4.3 bcf/d is big, but dwarfed by items like India. #Petronet gave 1st specific forecast for what it means if #NatGas is to be 15%*

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of energy mix by 2030 - India will need to increase #LNG imports by ~13 bcf/d. See SAF Group June 20 Energy Tidbits memo." (iii) Third, Qatar's supply gap warning is driven by the lack of investments in LNG supply. We agree, but note that the lack of investment is in great part due to the delays in both projects under construction and in FIDs that were supposed to be done in 2019. We tweeted [LINK] "*3/3. #LNGSupplyGap is delay driven. $TOT Mozambique Phase 1 delay has chain effect, backs up 5 bcf/d. See SAF Group Apr 28 blog Multiple Brownfield LNG FIDs Now Needed To Fill New #LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2? #NatGas*."

Seems like many missed India's first specific LNG forecast to 2030. Our June 20, 2021 Energy Tidbits memo highlighted the first India forecast that we have seen to estimate the required growth in natural gas consumption and LNG imports if India is to meet its target for natural gas to be 15% of its energy mix by 2030. India will need to increase LNG imports by ~13 bcf/d or 3 times the size of the Qatar LNG expansion. Our June 6, 2021 Energy Tidbits noted the June 4 tweet from India's Energy Minister Dharmendra Pradhan [LINK] reinforcing the 15% goal "*We are rapidly deploying natural gas in our energy mix with the aim to increase the share of natural gas from the current 6% to 15% by 2030."* But last week, Petronet CEO AK Singh gave a specific forecast. Reuters report "*LNG's share of Indian gas demand to rise to 70% by 2030: Petronet CEO"* [LINK] included Petronet's forecast if India is to hit its target for natural gas to be 15% of energy mix by 2030. Singh forecasts India's natural gas consumption would increase from current 5.5 bcf/d to 22.6 bcf/d in 2030. And LNG shares would increase from 50% to 70% of natural gas consumption ie. an increase in LNG imports of ~13 bcf/d from just under 3 bcf/d to 15.8 bcf/d in 2030. Singh did not specifically note his assumption for India's natural gas production, but we can back into the assumption that India natural gas production grows from just under 3 bcf/d to 6.8 bcf/d. It was good to finally see India come out with a specific forecast for 2030 natural gas consumption and LNG imports if India is to get natural gas to 15% of its energy mix in 2030. Petronet's Singh forecasts India natural gas consumption to increase from 5.5 bcf/d to 22.6 bcf/d in 2030. This forecast is pretty close to our forecast in our Oct 23, 2019 blog "*Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030*". Here part of what we wrote in Oct 2019. "*It's taken a year longer than we expected, but we are finally getting visibility that India is taking significant steps towards India's goal to have natural gas be 15% of its energy mix by 2030. On Wednesday, we posted a SAF blog [LINK] "Finally, Some Visibility That India Is Moving Towards Its Target For Natural Gas To Be 15% Of Its Energy Mix By 2030".* Our 2019 blog estimate was for India natural gas demand to be 24.0 bcf/d in 2030 (vs Singh's 22.6 bcf/d) and for LNG import growth of +18.4 bcf/d to 2030 (vs Singh's +13 bcf/d). The difference in LNG would be due to our Oct 2019 forecast higher natural gas consumption by 1.4 bcf/d plus Singh forecasting India natural gas production +4 bcf/d to 2030. Note India production peaked at 4.6 bcf/d in 2010.

Bigger, nearer LNG supply gap + Asian buyers moving to long term LNG deals = LNG players forced to at least look at what brownfield LNG projects they could advance and move to FID. All we have seen since our April 28 blog is more validation of the bigger, nearer LNG supply gap. And now market participants (Asian LNG buyers) are reacting to the new data by locking up long term supply. Cheniere noted how the pickup in commercial engagement means they "*are quite optimistic over the coming 12-18 months to make a substantial dent in that Stage 3 commercialization."* Cheniere can't be the only LNG supplier having new commercial discussions. It's why we believe the Mozambique delays + Asian LNG buyers moving to long term deals will effectively force major LNG players to look to see if there are brownfield LNG projects they should look to advance. Prior to March/April, no one would think Shell or other major LNG players would be considering any new LNG FIDs in 2021. Covid forced all the big companies into capital reduction mode and debt reduction mode. But Brent oil is now solidly over $70, and LNG prices are over $13 this summer and the world's economic and oil and gas demand outlook are increasing with vaccinations. And we are starting to see companies move to increasing capex with the higher cash flows. The theme in Q3 reporting is going to be record or near record oil and gas cash flows, reduced debt levels and increasing returns to shareholders. And unless new mutations prevent vaccinations from returning the world to normal, we suspect that major LNG players, like other oil and gas companies, will be looking to increase capex as they approve 2022 budgets. The outlook for the future has changed dramatically in the last 8 months. The question facing major LNG players like Shell is should they look to FID new LNG brownfield projects in the face of an increasing LNG supply gap that is going to hit faster and harder and Asian LNG buyers prepared to do long term deals. We expect these decisions to be looked at before the end of 2021 for 2022 capex budget/releases. One wildcard that could force these decisions sooner is the already stressed out global supply chain. We have to believe that discussion there will be pressure for more Asian LNG buyer long term deals sooner than later.

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For Canada, does the increasing LNG supply gap provide the opportunity to at least consider a LNG Canada Phase 2 FID over the next 6 months? Our view on Shell and other LNG players is unchanged since our April 28 blog. Shell is no different than any other major LNG supplier in always knowing the market and that the oil and gas outlook is much stronger than 9 months ago. Even 3 months post our April 28 blog, we haven't heard any significant talks on how major LNG players will be looking at FID for new brownfield LNG projects. We don't have any inside contacts at Shell or LNG Canada, but that is no different than when we looked at the LNG markets in September 2017 and saw the potential for Shell to FID LNG Canada in 2018. We posted a September 20, 2017 blog *"China's Plan To Increase Natural Gas To 10% Of Its Energy Mix Is A Global Game Changer Including For BC LNG*" [LINK]. Last time, it was a demand driven supply gap, this time, it's a supply driven supply gap. We have to believe any major LNG player, including Shell, will be at least looking at their brownfield LNG project list and seeing if they should look to advance FID later in 2021. Shell has LNG Canada Phase 2, which would add 2 additional trains or approx. 1.8 bcf/d. And an advantage to an FID would be that Shell would be able to commit to its existing contractors and fabricators for a continuous construction cycle following on LNG Canada Phase 1 ie. to help keep a lid on capital costs. We believe maintaining a continuous construction cycle is even more important given the stressed global supply chain. No one is talking about the need for these new brownfield LNG projects, but, unless some major change in views happen, we believe its inevitable that these brownfield LNG FID internal discussions will be happening in H2/21. Especially since the oil and gas price outlook is much stronger than it was in the fall and companies will be looking to increase capex in 2022 budgets.

A LNG Canada Phase 2 would be a big plus to Cdn natural gas. LNG Canada Phase 1 is a material natural gas development as its 1.8 bcf/d capacity represents approx. 20 to 25% of Cdn gas export volumes to the US. The EIA data shows US pipeline imports of Cdn natural gas as 6.83 bcf/d in 2020, 7.36 bcf/d in 2019, 7.70 bcf/d in 2018, 8.89 bcf/d in 2017, 7.97 bcf/d in 2016, 7.19 bcf/d in 2015 and 7.22 bcf/d in 2014. A LNG Canada Phase 2 FID would be a huge plus for Cdn natural gas. It would allow another ~1.8 bcf/d of Cdn natural gas to be priced against pricing points other than Henry Hub. And it would provide demand offset versus Trudeau if he moves to make electricity "emissions free" and not his prior "net zero emissions". Mozambique has been a game changer to LNG outlook creating a bigger and sooner LNG supply gap. And with a stronger tone to oil and natural gas prices in 2021, the LNG supply gap will at least provide the opportunity for Shell to consider FID for its brownfield LNG Canada Phase 2 and provide big support to Cdn natural gas for the back half of the 2020s. And perhaps if LNG Canada is exporting 3.6 bcf/d from two phases, it could help flip Cdn natural gas to a premium vs US natural gas especially if Biden is successful in reducing US domestic natural gas consumption for electricity. The next six months will be very interesting to watch for LNG markets and Cdn natural gas valuations. Imagine the future value of Cdn natural gas is there was visibility for 3.6 bcf/d of Western Canada natural gas to be exported to Asia.

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https://www.transmountain.com/news/2023/update-august-2023-capacity-announcement-for-the-trans-mountain-pipeline-system

Update: August 2023 Capacity Announcement for the Trans Mountain Pipeline System

Tags Operations

Aug. 1, 2023

Total system nominations for the Trans Mountain Pipeline system are apportioned by 6 percent for August 2023. The pipeline will be running full at its maximum capacity.

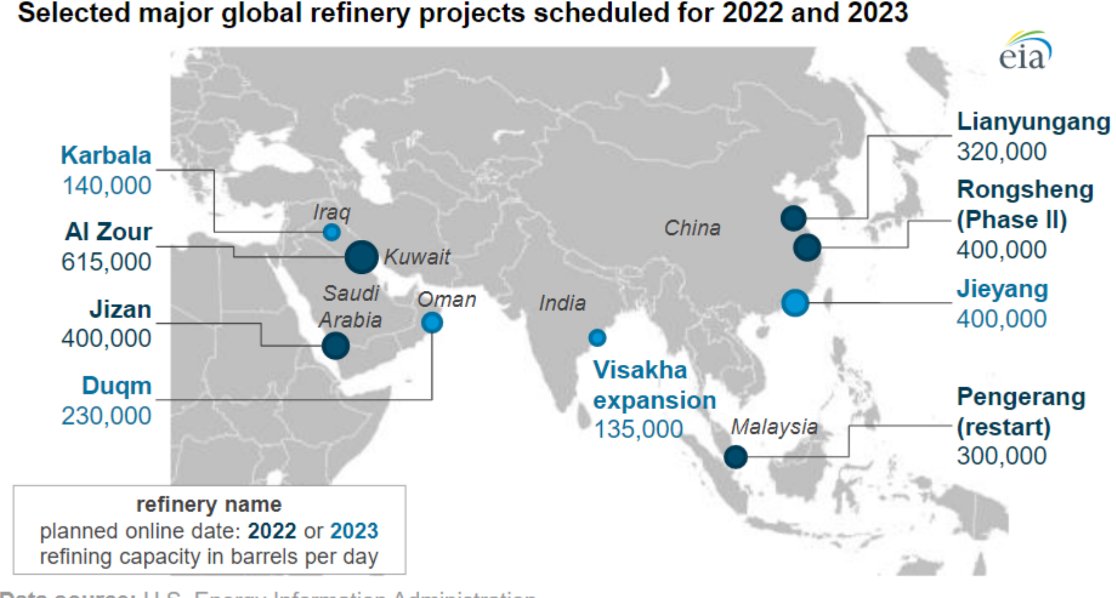
What is pipeline 'apportionment' and why is it important?

The energy sector around the world works on a monthly cycle. The Trans Mountain Pipeline is part of that cycle. Apportionment describes the amount of demand shippers place on the pipeline in excess of its available capacity. Here's a step-by-step guide to the apportionment determination that's carried out every month for the existing Trans Mountain Pipeline system.

- Each month our shippers submit requests for how much petroleum (crude oil and refined products) they want to ship through the pipeline to service their customers. These requests are called 'nominations'.
- Based on shippers' nominations, we then determine the 'capacity' available on the pipeline for the month. Determining pipeline capacity is complex. Capacity is affected by, among other things, the types of products that have been nominated, any pipeline system maintenance activities that will reduce flows that month and carry-over volumes that haven't completed their transit of the pipeline by month's end.
- Based on available pipeline capacity and the volume of shipper nominations we received, we calculate apportionment using a method accepted by the Canada Energy Regulator and forming part of our tariff. A tariff includes the terms and conditions under which the service of a pipeline is offered or provided, including the tolls, the rules and regulations, and the practices relating to specific services.
- If shipper nominations are less than pipeline capacity, the apportionment percentage to that destination is "zero" and all the product volumes nominated by shippers are accepted to be transported that month.
- If shipper nominations exceed pipeline capacity, the apportionment is a percentage greater than zero.

https://www.eia.gov/todayinenergy/detail.php?id=53279
AUGUST 2, 2022

Several refining projects are scheduled in Asia and the Middle East



Data source: U.S. Energy Information Administration

In Asia and the Middle East, at least nine refinery projects are beginning operations or are scheduled to come online before the end of 2023. At their current planned capacities, they will add 2.9 million barrels per day (b/d) of global refinery capacity once fully operational. In the International Energy Agency's (IEA) June 2022 *Oil Market Report*, the IEA expects net global refining capacity to expand by 1.0 million b/d in 2022 and by an additional 1.6 million b/d in 2023. Net capacity additions reflect total new capacity minus capacity that has closed.

The scheduled expansions follow a period of reduced global refining capacity. Net global capacity declined in 2021 for the first time in 30 years, according to the IEA. The new refinery projects would increase production of refined products, such as gasoline and diesel, and in turn, they might reduce the current high prices for these products.

China's refinery capacity is scheduled to increase significantly this year. The Shenghong Petrochemical facility in Lianyungang has an estimated capacity of 320,000 b/d, and they report that trial crude oil-processing operations began in May 2022. In addition, PetroChina's 400,000 b/d Jieyang refinery is expected to come online in the third quarter of 2022. A planned 400,000 b/d Phase II capacity expansion also began operations earlier this year at Zhejiang Petrochemical Corporation's (ZPC) Rongsheng facility. More information on these expansions is available in our *Country Analysis Executive Summary: China*.

Outside of China, the 300,000 b/d Malaysian Pengerang refinery (also known as the RAPID refinery) restarted in May 2022 after a fire forced the refinery to shut down in March 2020. In India, the Visakha Refinery is undergoing a major expansion, scheduled to add 135,000 b/d by 2023.

New projects in the Middle East are also likely to be an important source of new refining capacity. The 400,000 b/d Jizan refinery in Saudi Arabia reportedly came online in late 2021 and began exporting petroleum products earlier this year. More recently, the 615,000 b/d Al Zour refinery in Kuwait—the largest in the country when it becomes fully operational—began initial operations earlier this year. A new 140,000 b/d refinery is scheduled to come online in Karbala, Iraq, this September, targeting fully operational status by 2023. A new 230,000 b/d refinery is set to come online in Duqm, Oman, likely in early 2023.

These estimates do not necessarily include all ongoing refinery capacity expansions. Moreover, many of these projects have already been subject to major delays, and the possibility of partial starts or continued delays related to logistics, construction, labor, finances, political complications, or other factors may cause these projects to come online later than estimated. Although the potential for project complications and cancellations is always a significant risk, these projects could otherwise account for an increase of nearly 3.0 million b/d of new refining capacity by the end of 2023.

https://www.argusmedia.com/en//news/2475585-venezuela-oil-production-rises-in-july?backToResults=true

Venezuela oil production rises in July

Published date: 02 August 2023
Share:

Venezuela crude production rose to 843,700 b/d in July based on oil ministry figures, returning to an increase after June's drop that was one of the first such declines so far this year.

The US eased sanctions on Venezuela late last year, allowing some increased investment from outside partners in Venezuela's fields.

The July figure includes condensates and natural gas liquids (NGLs), the ministry reported. Once those byproducts are deducted — as Opec figures typically reflect — production was about 808,000 b/d, still an increase from the comparable figure of 788,000 b/d in June, an industry source estimated.

June's production was about 806,300 b/d including condensates and NGLs, oil ministry Menpet said last month.

Most outside sources report lower monthly production figures for the country. *Argus* estimated Venezuelan production in June at about 760,000 b/d.

The Orinoco oil belt, known as the *faja*, remains the top oil-producing region in Venezuela, with a 503,600 b/d average in July, up from 485,500 b/d in June. Oriente production also rose, to 164,900 b/d, from 156,100 b/d in June, while Occidente output was up as well, to 175,200 b/d from 164,700 b/d in June.

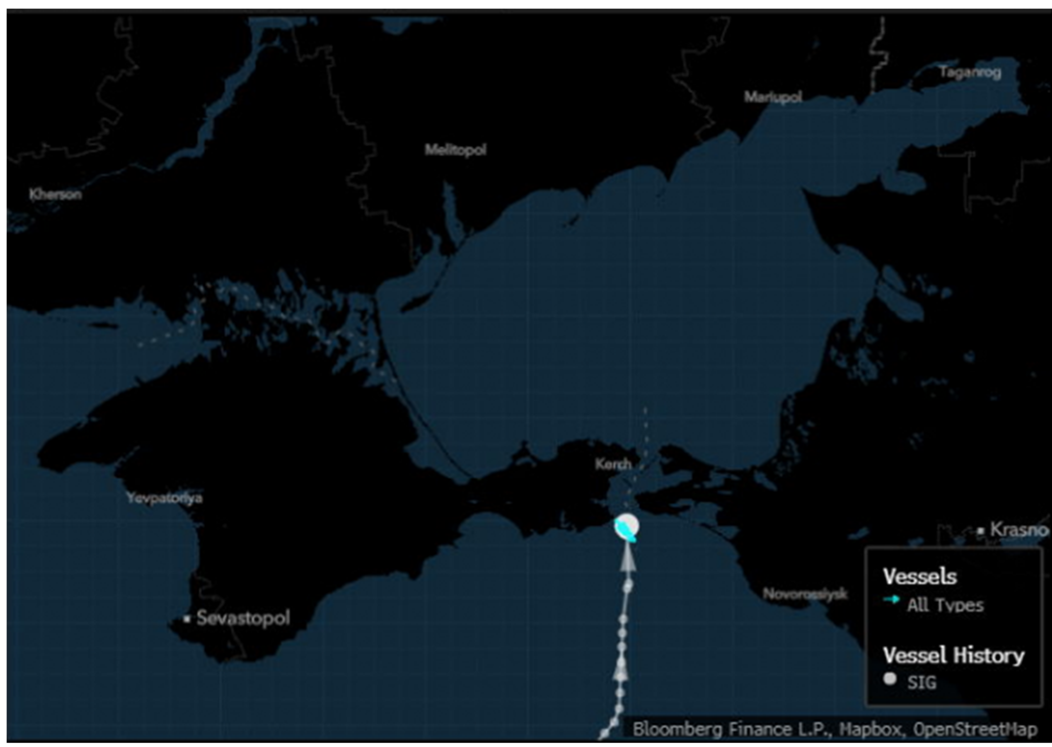
In Maracaibo, ChemStrategy consultants also reported around 173,000 b/d from Occidente in July, separate from the ministry.

Increased gasoline production from state-owned PdV's refineries and renewed export activity out of the Paraguana refining complex (CRP) — with a far underutilized capacity of 971,000 b/d — have supported the boost in crude output, analysts in Caracas and Maracaibo told *Argus*.

By Carlos Camacho

Ukraine Hits Russian Oil Tanker, Says Black Sea Ports at Risk
2023-08-05 08:37:36.780 GMT

By Áine Quinn and Daryna Krasnolutska
(Bloomberg) -- Ukraine attacked an oil tanker it said was supplying Russian forces and warned that ports, including commodity hubs, may be at risk in the latest escalation in the area around the Black Sea.
The hull of the tanker was pierced after an attack by a sea drone in the Kerch Strait, Russia's Federal River and Marine Transportation Agency said on Telegram. There were no casualties and the vessel is still afloat, the agency said. Ukraine's state security service was responsible for the drone strike, according to a Ukrainian official familiar with the matter.
The attack — the first case of a vessel carrying commodities in the Black Sea being targeted by Kyiv's forces — highlights the growing risk to the flow of raw materials through the key shipping route. Moscow is seeking to further cripple Ukraine's ability to export grains, while Kyiv has threatened commensurate action against Russia.



Ukraine's state sea and river transport service also issued a warning on Saturday that six Russian ports including commodity hubs Novorossiysk, Tuapse and Taman are part of the "war risk area" until further notice.
Novorossiysk in the Black Sea was closed for several hours on Friday after a Ukrainian drone attack on a naval vessel, the first time that operations at the key shipment point for oil and grains have been disrupted by the war. Last month explosions damaged the Kerch Strait bridge which links Russia-annexed Crimea to Russia's Krasnodar region.

Logical Step

Any explosions or damage to Russian ships or the bridge
“are an absolutely logical and effective step in relation to the
enemy.” Ukraine’s state security service chief Vasyl Malyuk said
on Saturday. He did not say whether the oil tanker had been hit
by Ukraine.
The Russian oil vessel, called the ‘Sig’ was being assisted
by two tug boats after its engine compartment was damaged, the
River and Marine Transportation Agency said.
The Sig was sanctioned earlier by the US for participating
in a “sanctions evasion scheme” to enable the “delivery of jet
fuel to Russian forces operating in Syria,” according to a
statement from the US Treasury’s Office of Foreign Assets
Control .
Ships sail from the Black Sea through the Kerch strait to
the Sea of Azov and onward to ports in Russia and parts of
Ukraine that are occupied by Russia. Kavkaz anchorage on the
Kerch strait is key for Russian exports of grains, while Russia
ships commodities from oil to fertilizers and coal through the
Black Sea. Russia had already restricted navigation through the
strait.
Tass had earlier reported that explosions were heard near
the bridge connecting Russia to Crimea across the Kerch Strait.

--With assistance from Eduard Gismatullin and Shiyin Chen.

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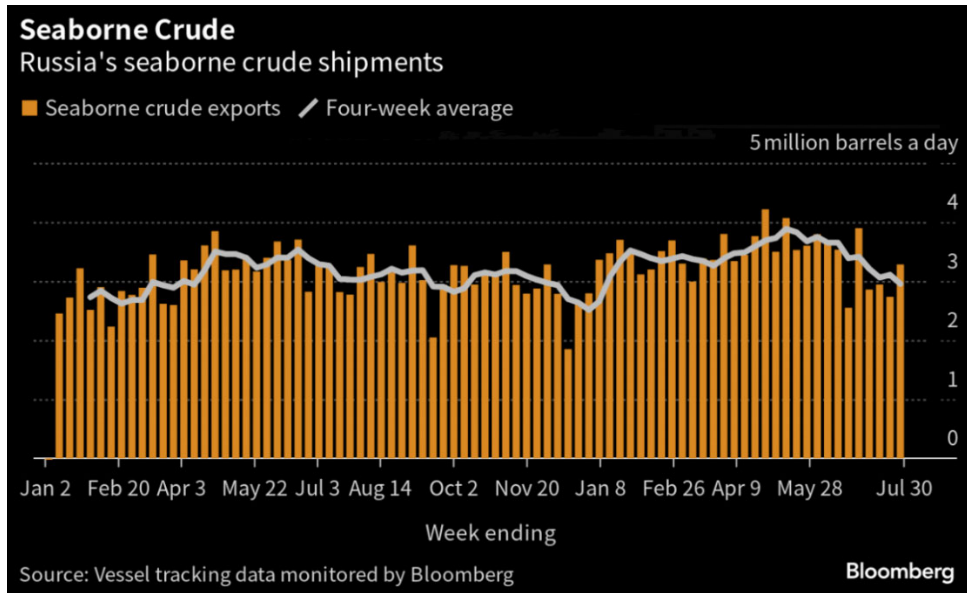
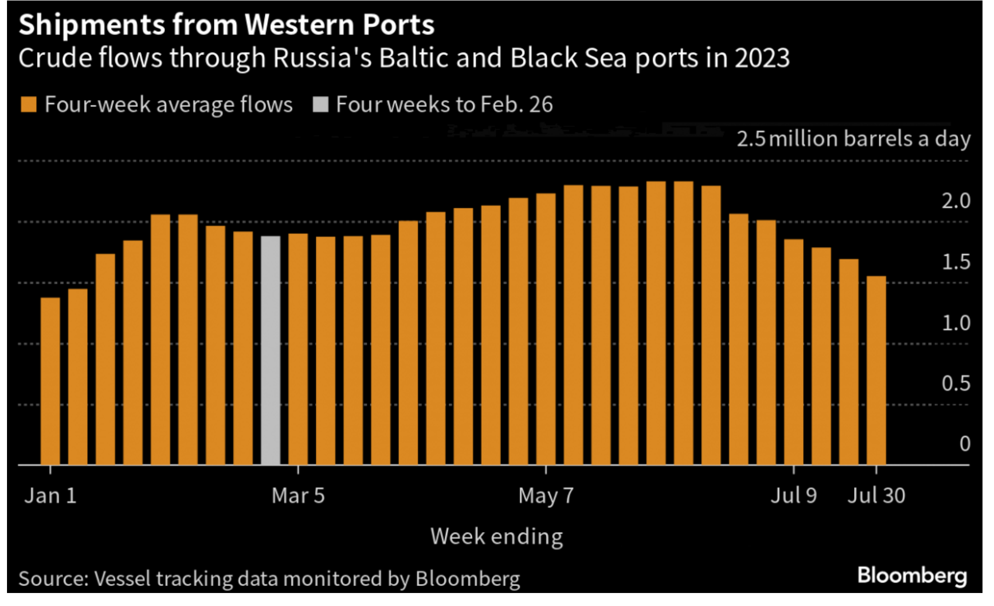
Russia's Seaborne Crude Flows Slump to the Lowest Since January
2023-08-01 12:03:33.411 GMT

By Julian Lee
(Bloomberg) -- Russia's seaborne crude flows in the four weeks to July 30 fell to the lowest since early January, shortly after a European Union import ban and a wider price cap on the country's exports came into effect.
Four-week average shipments dropped to 2.98 million barrels a day, the smallest since the 28-day period ending Jan. 8 and down by more than 900,000 barrels a day from the peak seen in mid-May. More volatile weekly flows rose, with record-equaling shipments from the Arctic.
As overseas shipments fell, more crude was processed in Russia's refineries in July, with several plants completing major maintenance.
The figures support the notion that Moscow is honoring a pledge to keep supply off the global market alongside its allies in the OPEC+ producer coalition. Russia initially said that it would cut oil production in retaliation for Western sanctions and price caps on its oil imposed after the invasion of Ukraine, using February as a baseline. But seaborne flows continued to rise, only dropping significantly in the last few weeks.
Now, the tighter availability of Russian crude alongside fewer barrels from the Middle East has narrowed discounts offered for ESPO crude deliveries to Chinese buyers for September delivery. More generally, rising prices and a narrowing discount against international benchmarks is also making Russia's crude less attractive to Indian refiners, whose purchases declined for a second month in July.
Warming temperatures are allowing Russia to use the shorter route along its northern coast to China. At least four tankers are hauling crude along the Northern Sea Route from ports in the Arctic and Baltic. But it remains unlikely that many of the shadow fleet of aging tankers used to ship Russian crude will be able to use the route, which still requires ice breaker assistance at some points.



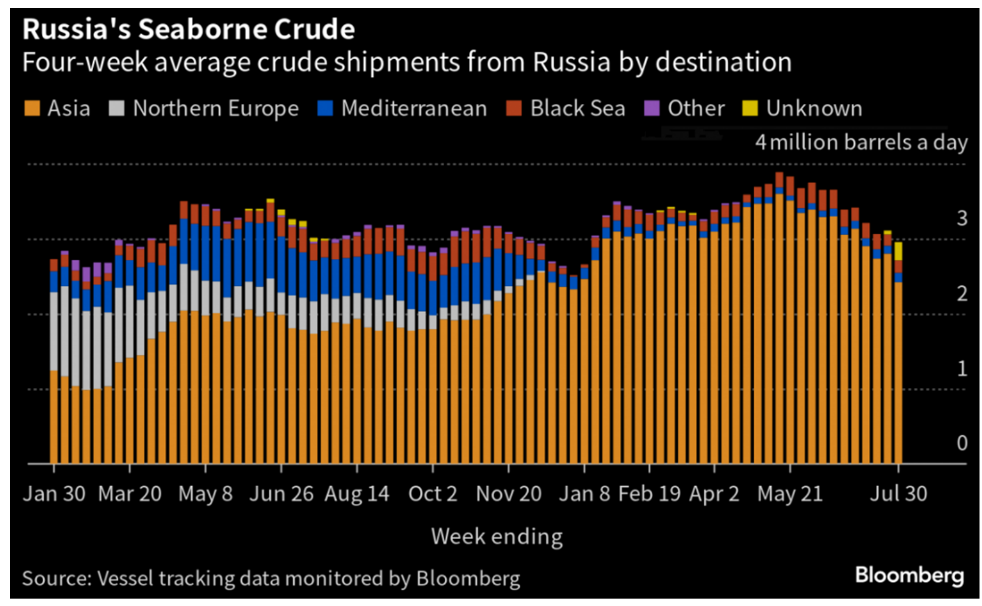
Weekly data are affected by the scheduling of tankers and loading delays caused by bad weather. Port and pipeline maintenance can also disrupt exports for several days at a time. Four-week average shipments, which smooth out some of the volatility in the weekly numbers, fell by 154,000 barrels a day. The very high shipments seen in the seven days to July 2 dropped out of the calculation, though the effect was partly offset by a rebound in shipments from Ust-Luga last week.



Overseas shipments of Russian crude from Baltic and Black Sea ports increased after the output cut was due to come into effect, peaking in late May. The reduction being seen now comes after fellow OPEC+ oil producer Saudi Arabia extended its own unilateral output cut. Russia’s export curtailment was hailed as meaningful by Saudi Energy Minister Prince Abdulaziz bin Salman, who had urged Moscow to provide greater transparency on its oil flows.

Crude Flows by Destination

With few buyers left in Europe, the impact of the lower flows is being felt in shipments to Asia, which dropped again in the four weeks to July 30 to their lowest since early January. On a four-week average basis, overall seaborne exports to Asian countries, plus the volumes on ships showing no final destination, have fallen by about 940,000 barrels a day since their peak in mid-May.



All figures exclude cargoes identified as Kazakhstan's KEBCO grade. Those are shipments made by KazTransoil JSC that transit Russia for export through the Baltic ports of Ust-Luga and Novorossiysk.

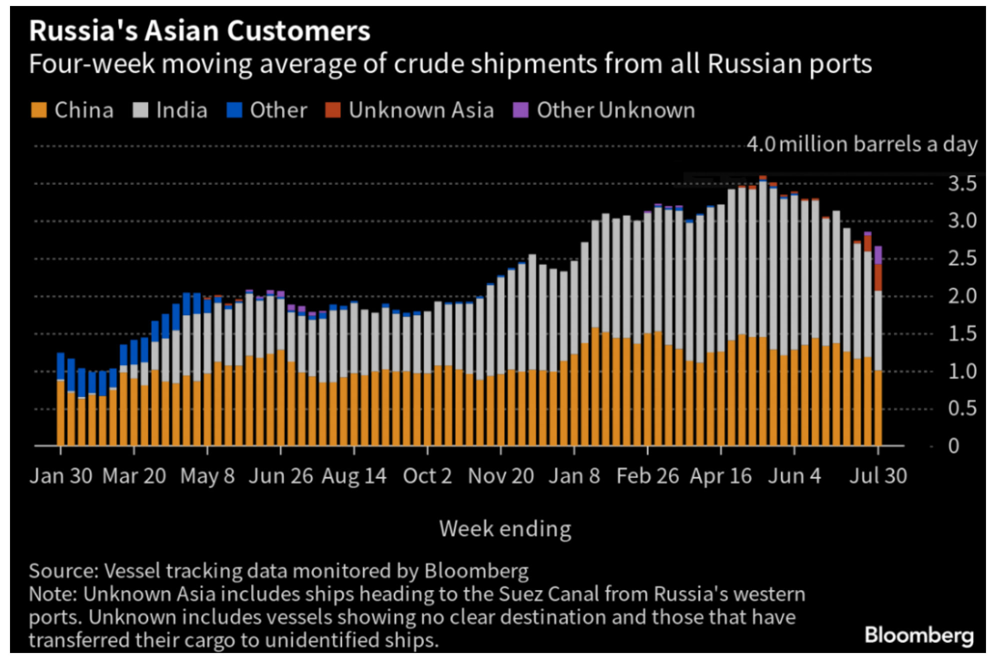
The Kazakh barrels are blended with crude of Russian origin to create a uniform export grade. Since Russia's invasion of Ukraine, Kazakhstan has rebranded its cargoes to distinguish them from those shipped by Russian companies. Transit crude is specifically exempted from European Union sanctions.

*** Asia**

Four-week average shipments to Russia's Asian customers, plus those on vessels showing no final destination, fell to 2.66 million barrels a day in the period to July 30 from a revised 2.85 million barrels a day in the four weeks to July 23. That took flows to Asian buyers to their lowest since January on both a weekly and four-week average basis.

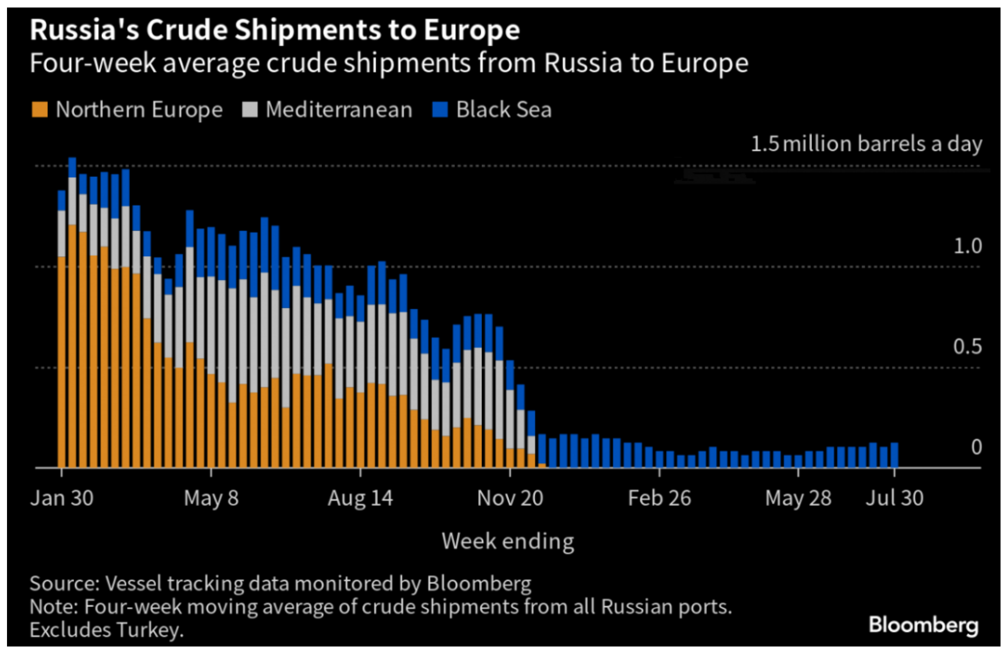
Most of the cargoes on ships without an initial destination eventually end up in India. Even so, the volumes heading to the country that has become the biggest buyer of Russia's seaborne crude are down from their recent highs. Adding the "Unknown Asia" and "Other Unknown" volumes to the total for India gives a figure of 1.66 million barrels a day in the four weeks to July 30. That's down from a high of 2.2 million barrels a day in the four weeks to May 21.

The equivalent of 352,000 barrels a day was on vessels showing destinations as either Port Said or Suez in Egypt, or which already have been or are expected to be transferred from one ship to another off the South Korean port of Yeosu. Those voyages typically end at ports in India or China and show up in the chart below as “Unknown Asia” until a final destination becomes apparent.
The “Other Unknown” volumes, running at 243,000 barrels a day in the four weeks to July 30, are those on tankers showing no clear destination. Most of those cargoes originate from Russia’s western ports and go on to transit the Suez Canal, but some could end up in Turkey, while other cargoes are transferred from one vessel to another, either in the Mediterranean or, more recently, in the Atlantic Ocean.

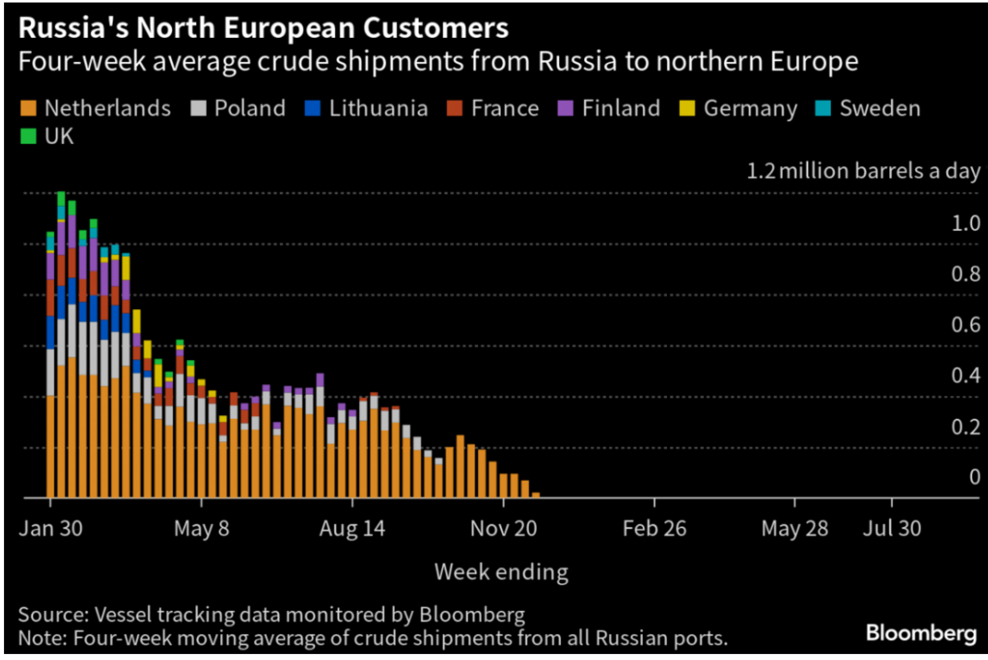


* **Europe**

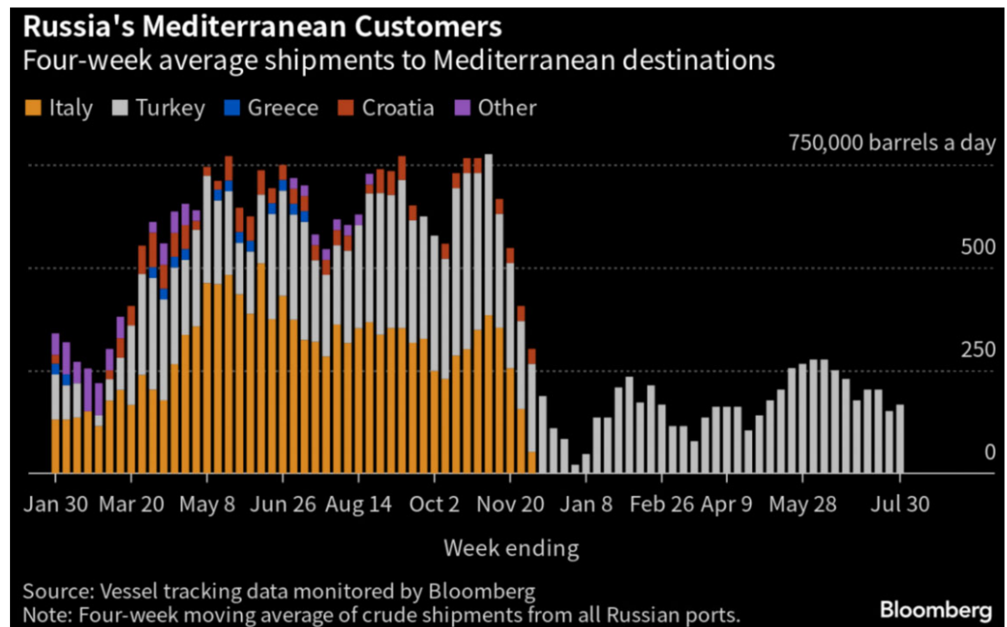
Russia’s seaborne crude exports to European countries edged up to 125,000 barrels a day in the 28 days to July 30, with Bulgaria the sole destination. These figures do not include shipments to Turkey.
A market that consumed about 1.5 million barrels a day of short-haul seaborne crude, coming from export terminals in the Baltic, Black Sea and Arctic has been lost almost completely, to be replaced by long-haul destinations in Asia that are much more costly and time-consuming to serve.



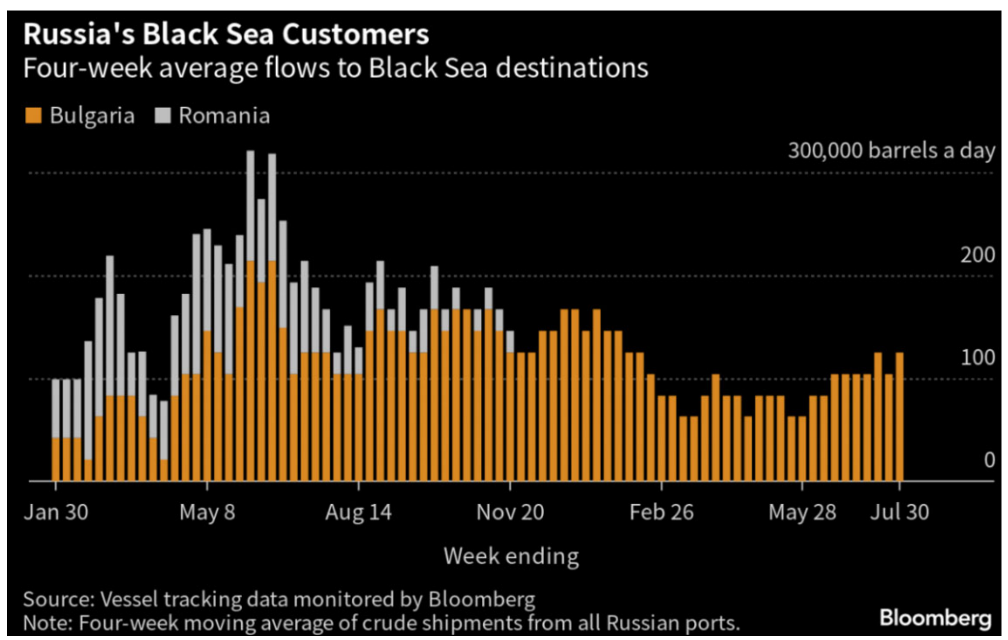
No Russian crude was shipped to northern European countries in the four weeks to July 30.



Exports to Turkey, Russia's only remaining Mediterranean customer, edged higher to 167,000 barrels a day in the four weeks to July 30. Flows to the country had topped 425,000 barrels a day in October.



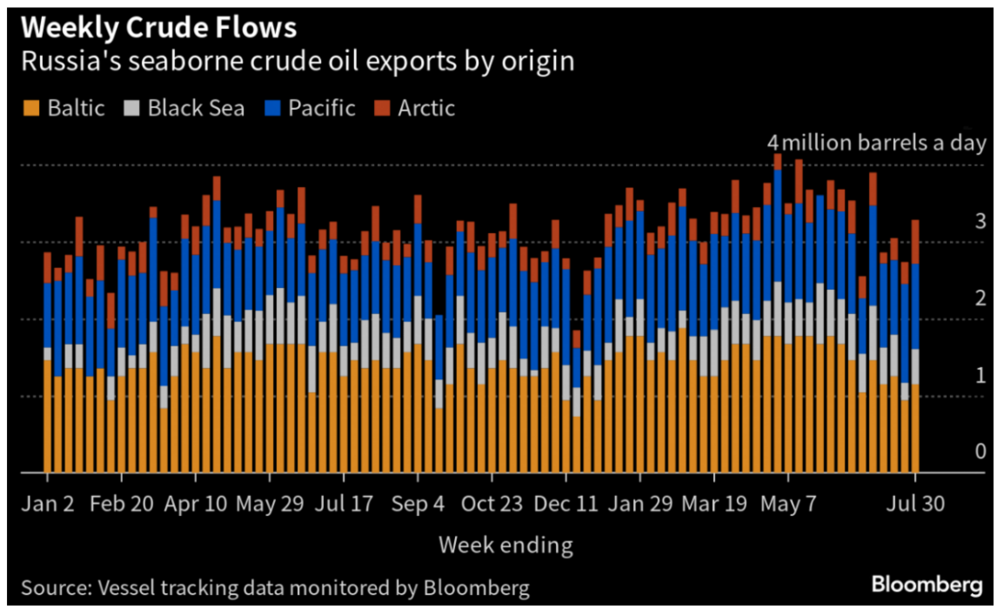
Flows to Bulgaria, now Russia's only Black Sea market for crude, recovered to 125,000 barrels a day, equaling their highest since January.



Flows by Export Location

Aggregate flows of Russian crude rose to 3.28 million barrels a day in the seven days to July 30, from 2.73 million barrels a day the previous week. The jump took shipments to their highest in four weeks. The increases came from western ports, with higher flows from the Baltic, Black Sea and Arctic partly offset by a drop in flows from the Pacific.

Figures exclude volumes from Ust-Luga and Novorossiysk identified as Kazakhstan's KEBCO grade.

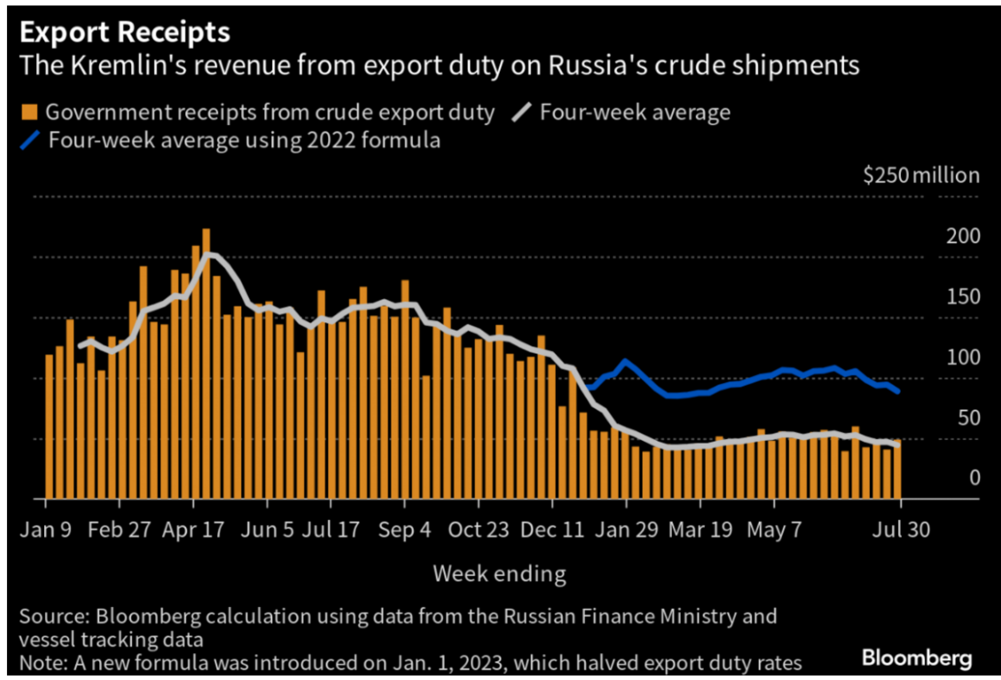


Vessel-tracking data are cross-checked against port agent reports as well as flows and ship movements reported by other information providers including Kpler SAS and Vortexa Ltd.

Export Revenue

Inflows to the Kremlin's war chest from its crude-export duty rose to $49 million in the seven days to July 30, an increase of $8 million or 20%. Four-week average income fell to just above $44 million, with the very high value for the week ending July 2 dropping out of the calculation.

Russia’s government calculates oil taxes, including export duty, using a discount to Brent, which sets the floor price for the nation’s crude for budget purposes. If Russian oil trades above that threshold, the Finance Ministry uses the market price for tax calculations, as has been the case in recent months. The discount is set at $25 a barrel for July and August, but President Vladimir Putin signed amendments to the tax code that will narrow it to $20 a barrel from September to calculate taxes including export duty.



The duty rate for July has been set at $2.13 a barrel, based on an average Urals price of $54.57, which was $20.89 a barrel below Brent during the period between May 15 and June 14. The levy will be increased to about $2.31 a barrel for August, based on an average Urals price of $58.03, which was $18.02 a barrel below Brent during the period between June 15 and July 14.

Origin-to-Location Flows

The following charts show the number of ships leaving each export terminal and the destinations of crude cargoes from the four export regions.

A total of 31 tankers loaded 22.97 million barrels of Russian crude in the week to July 30, vessel-tracking data and port agent reports show. That's up by 3.83 million barrels from the previous week's figure and the most in four weeks. Shipments from Ust-Luga rebounded, adding weight to the circumstantial evidence suggesting that work at Ust-Luga, or the pipeline serving it, may have reduced flows from the port the previous week.

Destinations are based on where vessels signal they are heading at the time of writing, and some will almost certainly change as voyages progress. All figures exclude cargoes identified as Kazakhstan's KEBCO grade.

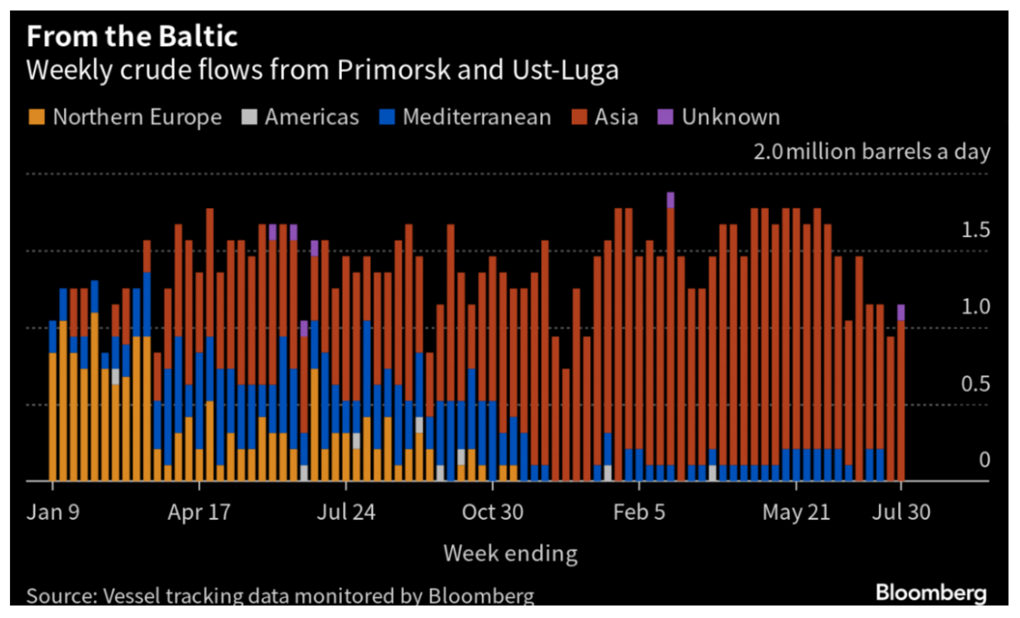
Tankers Loading Crude at Russian Terminals

31 tankers loaded Russian crude in the week to July 30

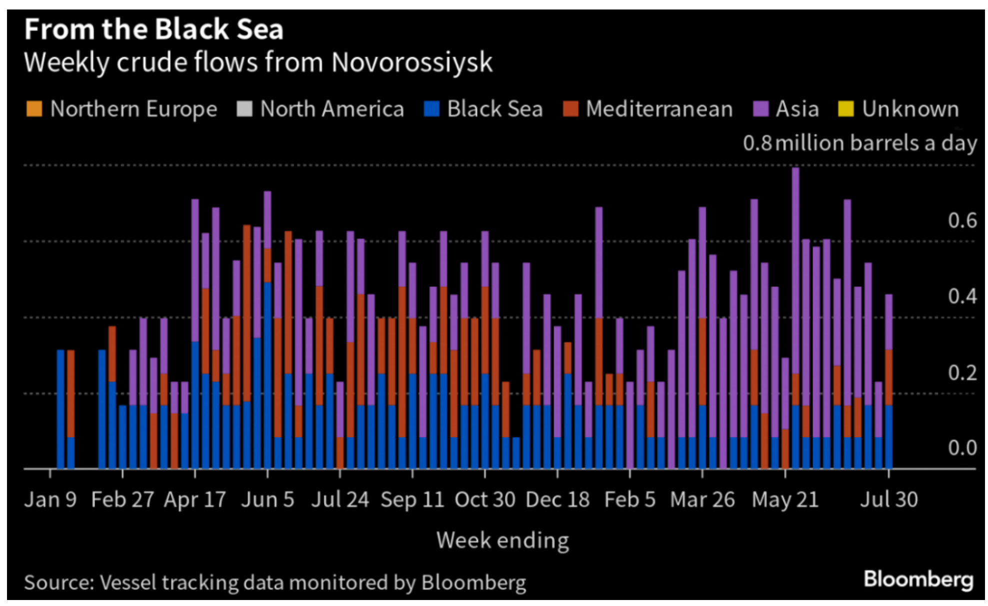
Week ending	July 30	July 23	July 16
Primorsk (Baltic)	5	7	6
Ust-Luga (Baltic)	6	2	6
Novorossiysk (Black Sea)	4	2	5
Murmansk (Arctic)	4	2	2
Kozmino (Pacific)	8	10	7
De Kastri (Pacific)	2	2	2
Prigorodnoye (Pacific)	2	1	1
Total	**31**	**26**	**29**

Source: Vessel tracking data monitored by Bloomberg
Note: Based on date of completion of cargo loading. Excludes ships loading cargoes identified as Kazakhstan's KEBCO grade.
Bloomberg

The total volume on ships loading Russian crude from the Baltic terminals rebounded from the previous week's dip below 1 million barrels a day. One cargo of Kazakhstani crude was loaded at Ust-Luga during the week. Shipments from the Baltic are down by about 625,000 barrels a day from the highs seen between April and June.



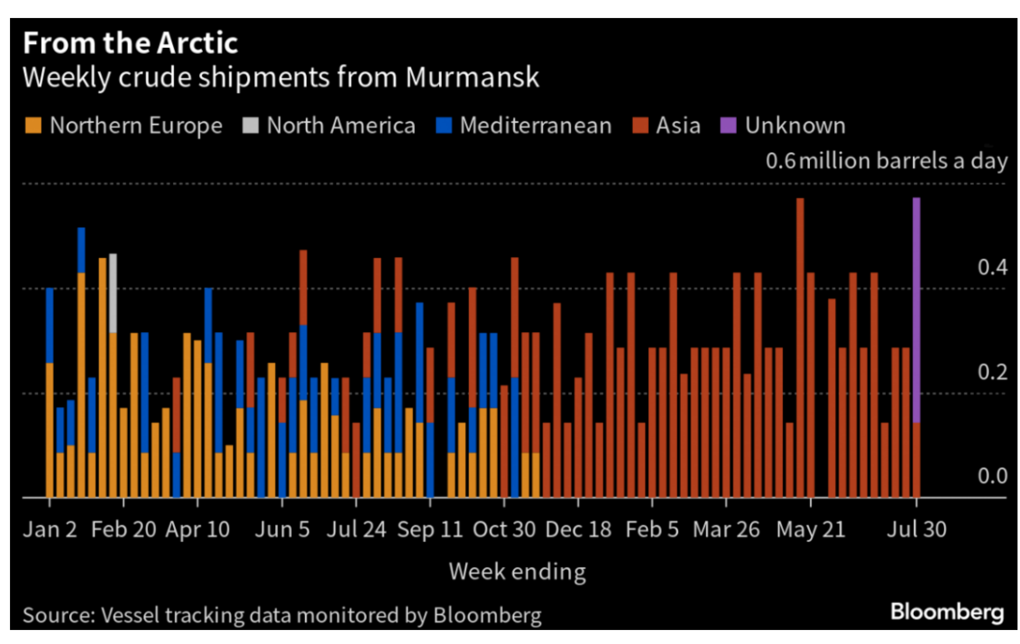
Shipments of Russian crude from Novorossiysk in the Black Sea also rebounded, recovering most of the previous week's drop. One cargo of Kazakhstani crude was also loaded at the port during the week.



Arctic shipments soared in the week to July 30, jumping to 572,000 barrels a day, equaling the highest weekly volume in data going back to the start of 2022. Three Suezmax tankers and one Aframax completed loading at Murmansk during the week ended July 30.

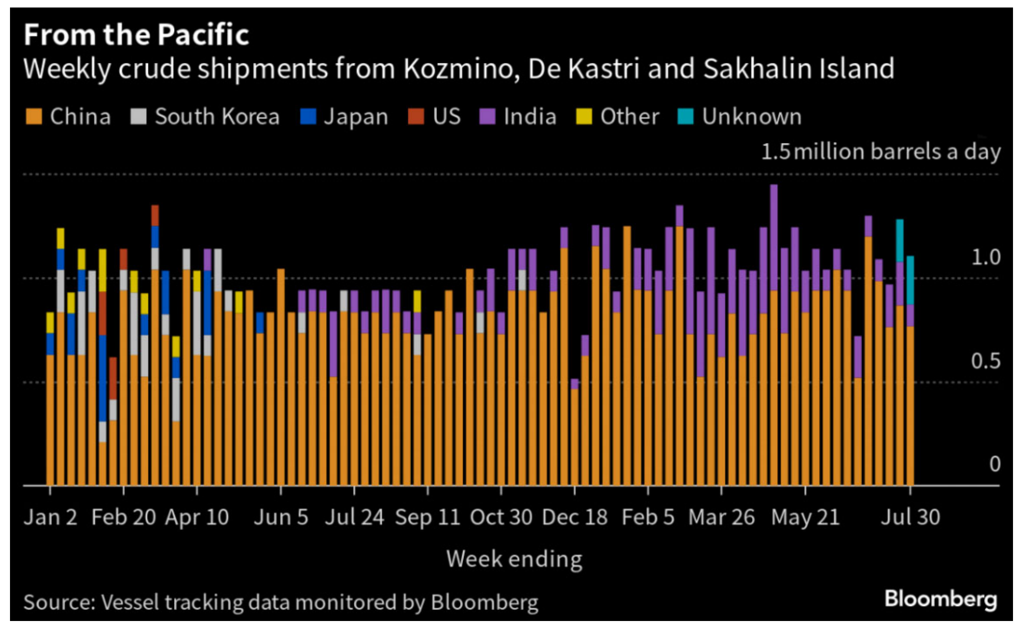
Volumes from Russia's Arctic ports were boosted further by a direct shipment of about 300,000 barrels from Gazprom Neft PJSC's Arctic Gates terminal to China via the Northern Sea Route. The shuttle tanker Shturman Koshelev, which usually carries oil from the terminal to Murmansk, turned east when it entered the Kara Sea from the Ob Gulf on Sunday. This shipment is included in the chart below.

The SCF Baltica, which loaded about 1 million barrels of crude at Murmansk last week, is also taking the northerly route to China.



Twelve tankers loaded at Russia's three Pacific export

terminals, down from 13 the previous week. The volume of crude shipped from the region slipped to 1.1 million barrels a day. Shipments from the Sakhalin Island terminal remained low last week due to maintenance at one of the Sakhalin 2 project's oil production platforms. The work is due to run until September. Two vessels loaded part cargoes of Sakhalin Blend crude from the terminal.



The volumes heading to unknown destinations are mostly Sokol cargoes that recently have been transferred to other vessels at Yeosu, or are currently being shuttled to an area off the South Korean port from the loading terminal at De Kastri. Most of these are ending up in India.

Some Sokol cargoes are now being transferred a second time in the waters off southern Malaysia. A small number of ESPO shipments are also being moved from one vessel to another in the same area. All bar one of these cargoes have, so far, gone on to India. That one cargo was transferred onto a floating storage vessel off Malaysia. It was then transferred onto another tanker, which is now showing a destination in China, though the vessel remains anchored off Johor, to the east of Singapore.

Shipments of flagship Sokol crude to India have slumped since April, when they were running at more than 200,000 barrels a day. No ESPO crude went to India in June and shipments in July are running at less than 120,000 barrels a day.NOTES

Note: This story forms part of a regular weekly series tracking shipments of crude from Russian export terminals and the export duty revenues earned from them by the Russian government.

Note: All figures exclude cargoes owned by Kazakhstan's KazTransOil JSC, which transit Russia and are shipped from Novorossiysk and Ust-Luga as KEBCO grade crude.

Note: Weeks have been revised to run from Monday to Sunday, rather than Saturday to Friday. This change has been implemented throughout the data series and previous weeks' figures have been

revised.
Note: The next update will be published on Tuesday Aug. 8, with future updates also to be published on Tuesdays

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

--With assistance from Sherry Su.

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49th Meeting of the Joint Ministerial Monitoring Committee

No 13/2023
Vienna, Austria
04 Aug 2023

The 49th Meeting of the Joint Ministerial Monitoring Committee (JMMC) took place via videoconference on Friday, 04 August 2023.

The JMMC reviewed the crude oil production data for the months of May and June 2023 and noted the overall conformity for participating OPEC and non-OPEC countries of the Declaration of Cooperation (DoC). The committee urged all participating countries to achieve full conformity and adhere to the compensation mechanism.

The committee reaffirmed the commitment of its member countries to the DoC which extends to the end of 2024 as agreed in the 35th OPEC and non-OPEC Ministerial Meeting (ONOMM) on 4th of June 2023. It also noted to adjust of the frequency of the monthly meetings to become every two months for the JMMC and the authority of the JMMC to hold additional meetings, or to request an OPEC and non-OPEC Ministerial Meeting as agreed on in the 33rd OPEC and non-OPEC Ministerial Meeting (ONOMM) on 5th of October 2022.

The committee will continue to closely assess market conditions noting the willingness of the DoC countries to address market developments and stand ready to take additional measures at any time, building on the strong cohesion of OPEC and participating non-OPEC oil-producing countries. The committee also expressed its full recognition and support for the efforts of the Kingdom of Saudi Arabia aimed at supporting the stability of the oil market and reiterated its appreciation for the Kingdom’s additional voluntary cut of 1 million barrels per day and for extending it for the month of September. The committee also acknowledged the Russian Federation for its additional voluntary reduction of exports by 300 kbd for the month of September.

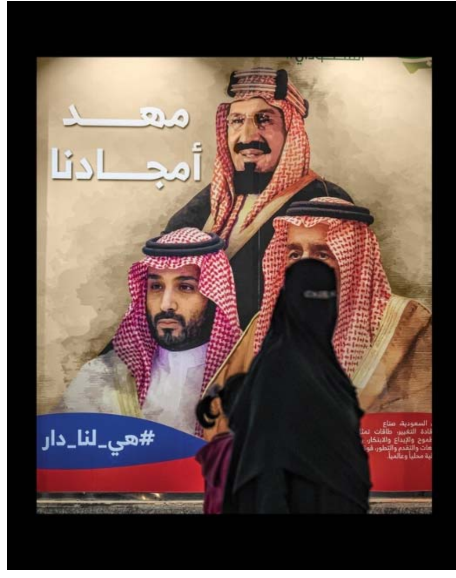
The next meeting of the JMMC (50th) is scheduled for 04 October 2023.

https://www.theatlantic.com/magazine/archive/2022/04/mohammed-bin-salman-saudi-arabia-palace-interview/622822/

GLOBAL

ABSOLUTE POWER

Asked about the murder of Jamal Khashoggi, Mohammed bin Salman said, “If that’s the way we did things, Khashoggi would not even be among the top 1,000 people on the list.”
By Graeme Wood
Photographs by Lynsey Addario



A woman walks past a poster showing Crown Prince Mohammed bin Salman (*left*) with his father (*right*) and grandfather (*top*), at the old market in Taif, Saudi Arabia. (Lynsey Addario for The Atlantic)

MARCH 3, 2022, 6 AM ET

SHARE

MOHAMMED BIN SALMAN, the crown prince of Saudi Arabia, is 36 years old and has led his country for almost five years. His father, the 86-year-old King Salman, has rarely been seen in public since 2019, and even MBS—as he is universally known—has faced the world only a few times since the pandemic began. Once, he was ubiquitous, on a never-ending publicity tour to promote his plan to modernize his father’s kingdom. But soon after the murder of the *Washington Post* columnist Jamal Khashoggi in 2018, MBS curtailed his travel. His last interview with non-Saudi press was more than two years ago. The CIA concluded that he had ordered Khashoggi’s murder, and Saudi Arabia’s own prosecutors found that it had been conducted by some of the crown prince’s closest aides. They are thought to have dismembered Khashoggi and disintegrated his corpse.

MBS had already developed a reputation for ruthlessness. In 2017, he rounded up hundreds of members of his own family and other wealthy Saudis and imprisoned them in Riyadh’s Ritz-Carlton hotel on informal charges of corruption. The Khashoggi murder fixed a view of the crown prince as brutish, thin-skinned, and psychopathic. Among those who share a dark appraisal of MBS is President Joe Biden, who has so far refused to speak with him. Many in Washington and other Western capitals hope his rise to the throne might still be averted.

But within the kingdom, MBS's succession is understood as inevitable. "Ask any Saudi, anyone at all, whether MBS will be king," a senior Saudi diplomat told me. "If there are people in Washington who think he will not be, then I cannot help them. I am not a psychiatrist."

His father's eventual death will leave him as the absolute monarch of the birthplace of Islam and the owner of the world's largest accessible oil reserves. He will also be the leader of one of America's closest allies and the source of many of its headaches.

I've been traveling to Saudi Arabia over the past three years, trying to understand if the crown prince is a killer, a reformer, or both—and if both, whether he can be one without the other.

Even MBS's critics concede that he has roused the country from an economic and social slumber. In 2016, he unveiled a plan, known as Vision 2030, to convert Saudi Arabia from—allow me to be blunt—one of the world's weirdest countries into a place that could plausibly be called normal. It is now open to visitors and investment, and lets its citizens partake in ordinary acts of recreation and even certain vices. The crown prince has legalized cinemas and concerts, and invited notably raw hip-hop artists to perform. He has allowed women to drive and to dress as freely as they can in dens of sin like Dubai and Bahrain. He has curtailed the role of reactionary clergy and all but abolished the religious police. He has explored relations with Israel.

He has also created a climate of fear unprecedented in Saudi history. Saudi Arabia has never been a free country. But even the most oppressive of MBS's predecessors, his uncle King Faisal, never presided over an atmosphere like that of the present day, when it is widely believed that you place yourself in danger if you criticize the ruler or pay even a mild compliment to his enemies. MBS's critics—not regicidal zealots or al-Qaeda sympathizers, just ordinary people with independent thoughts about his reforms—have gone into exile. Some fear that if he keeps getting his way, the modernized Saudi Arabia will oppress in ways the old Saudi Arabia never imagined. Khalid al-Jabri, the exiled son of one of MBS's most prominent critics, warned me that worse was yet to come: "When he's King Mohammed, Crown Prince MBS is going to be remembered as an angel."

For about two years, MBS hid from public view, as if hoping the Khashoggi murder would be forgotten. It hasn't been. But the crown prince still wants to convince the world that he is saving his country, not holding it hostage—which is why he met twice in recent months with me and the editor in chief of this magazine, Jeffrey Goldberg.

In our meetings, the crown prince was charming, warm, informal, and intelligent. But even at its most affable, absolute monarchy cannot escape weirdness. For our first meeting, MBS summoned us to a remote palace by the Red Sea, his family's COVID bunker. The protocols were multilayered: a succession of PCR tests by nurses from the Royal Clinics; a Gulfstream jet in the middle of the night from Riyadh; a convoy from a deserted airstrip; a surrender of electronic devices; a stopover at a mysterious guesthouse visible in satellite photos but unmarked on Google Maps. He invited us to his palace at about 1:30 a.m., and we spoke for nearly two hours.

For the second meeting, in his palace in Riyadh, we were told to be ready by 10 a.m. It also began after midnight. The halls were astir. The crown prince had just returned after nearly two years of remote work, and aides and ministers padded red carpets seeking meetings, their first in months, with the boss. Neglected packages and documents had piled up on the desks and tables in his office, which was large but hardly opulent. The most obvious concession to high taste was an old-fashioned telescope on a tripod, its altitude set shallow enough that it appeared to be pointed not at the heavens but at Riyadh, the sprawling and unsightly desert metropolis from which the Saud family has ruled for most of the past three centuries.

At the outset of both conversations, MBS said he was saddened that the pandemic precluded giving us hugs. He apologized that we all had to wear masks. (Each meeting was attended by multiple, mainly silent princes wearing identical white robes and masks, leaving us unsure, to this day, who exactly was present.) The crown prince left his tunic unbuttoned at the collar, in a casual style now favored by young Saudi men, and he gave relaxed, nonpsychopathic answers to questions about his personal habits. He tries to limit his Twitter use. He eats breakfast every day with his kids. For fun, he watches TV, avoiding shows, like *House of Cards*, that remind him of work. Instead, he said without apparent irony, he prefers to watch series that help him escape the reality of his job, such as *Game of Thrones*.

Before the meetings, I asked one of MBS's advisers if there were any questions I could ask his boss that he himself could not. "None," he answered, without pausing—"and that is what makes him different from every crown prince who has come before him." I was told he derives energy from being challenged.

MBS said it was "obvious" he had not ordered the killing of Khashoggi. "It hurt me a lot," he said. "It hurt me and it hurt Saudi Arabia, from a feelings perspective."

During our Riyadh encounter, Jeff asked MBS if he was capable of handling criticism. "Thank you very much for this question," the prince said. "If I couldn't, I would not be sitting with you today listening to that question."

"I'd be in the Ritz-Carlton," Jeff suggested.

"Well," he said, "at least it's a five-star hotel."

Difficult questions caused the crown prince to move about jumpily, his voice vibrating at a higher frequency. Every minute or two he performed a complex motor tic: a quick backward tilt of the head, followed by a gulp, like a pelican downing a fish. He complained that he had endured injustice, and he evinced a level of victimhood and grandiosity unusual even by the standards of Middle Eastern rulers.

When we asked if he had ordered the killing of Khashoggi, he said it was "obvious" that he had not. "It hurt me a lot," he said. "It hurt me and it hurt Saudi Arabia, from a feelings perspective."

"From a feelings perspective?"

"I understand the anger, especially among journalists. I respect their feelings. But we also have feelings here, pain here."

The crown prince has told two people close to him that "the Khashoggi incident was the worst thing ever to happen to me, because it could have ruined all of my plans" to reform the country.

In our Riyadh interview, the crown prince said that his *own* rights had been violated in the Khashoggi affair. "I feel that human-rights law wasn't applied to me," he said. "Article XI of the Universal Declaration of Human Rights states that any person is innocent until proven guilty." Saudi Arabia had punished those responsible for the murder, he said—yet comparable atrocities, such as bombings of wedding parties in Afghanistan and the torture of prisoners in Guantánamo Bay, have gone unpunished.

The CIA concluded that Mohammed bin Salman ordered the murder of the *Washington Post* columnist Jamal Khashoggi. Saudi Arabia's own prosecutors found that it had been conducted by some of the crown prince's closest aides. (Moises Saman / Magnum)

The crown prince defended himself in part by asserting that Khashoggi was not important enough to kill. "I never read a Khashoggi article in my life," he said. To our astonishment, he added that if he *were* to send a kill squad, he'd choose a more valuable target, and more competent assassins. "If that's the way we did things"—murdering authors of critical op-eds—"Khashoggi would not even be among the top 1,000 people on the list. If you're going to go for another operation like that, for another person, it's got to be professional and it's got to be one of the top 1,000." Apparently, he had a hypothetical hit list, ready to go. Nevertheless, he maintained that the Khashoggi killing was a "huge mistake."

"Hopefully," he said, no more hit squads would be found. "I'm trying to do my best."

If his best is not good enough for Joe Biden, MBS said, then the consequences of running a moralistic foreign policy would be the president's to discover. "We have a long, historical relationship with America," he said. "Our aim is to keep it and strengthen it." Biden and Vice President Kamala Harris have called for "accountability" for Khashoggi's murder, as well as the humanitarian disaster in Yemen, due to war between Saudi Arabia and Iranian-backed Houthi rebels. The Americans also refuse to treat him as Biden's counterpart—Biden's peer is the king, they insist—even though the crown prince rules the country with his father's blessing. This stings. MBS has lines open to the Chinese. "Where is the potential in the world today?" he said. "It's in Saudi Arabia. And if you want to miss it, I believe other people in the East are going to be super happy."

We asked whether Biden misunderstands something about him. "Simply, I do not care," he replied. Alienating the Saudi monarchy, he suggested, would harm Biden's position. "It's up to him to think about the interests of America." He gave a shrug. "Go for it."

Also risible to the crown prince was the notion that his citizens fear speaking out against him. We need dissent, he said, "if it's objective writing, without any ideological agenda." In practice, I noted, dissent seemed to be nonexistent. In September 2017, MBS ordered a boycott of Qatar, citing the country's support for the Iranian government, the Muslim Brotherhood, al-Qaeda, and other Islamist organizations in the region. His tiny neighbor suddenly transformed from official friend into official villain, and those expressing a kind word toward it disappeared into prison.

These sentiments, apparently, did not count as objective or nonideological. Qatar, MBS said, was comparable to Nazi Germany. "What do you think [would have happened] if someone was praising and trying to push for Hitler in World War II?" he asked. "How would America take that?" Of course Saudis would react strongly to Nazi sympathizers in their midst. Three years later, however, the countries reconciled, and the Saudi government tweeted out a photo of MBS and Hitler—that is, Qatari Emir Tamim Al Thani—wearing board shorts and smiling at MBS's Red Sea palace. "Sheikh Tamim's an amazing person," MBS said. The fight between them had been no big deal, "a fight between brothers." The relationship is now "better than ever in history." The dissenters remain in prison, however, and I do not mean the Ritz-Carlton.

As for the actual Ritz-Carlton prisoners: They had it coming, the crown prince said. Overnight he'd rounded up hundreds of the most prominent Saudis, delivered them to Riyadh's most lavish hotel, and refused to let them go until they confessed and paid up. I said that sounded like he was eliminating rivals. MBS looked incredulous. "How can you eliminate people who don't have any power to begin with?" If they had power, he would not have been able to force them into the Ritz.

Does Joe Biden misunderstand something about him? “Simply, I do not care,” MBS replied. “It’s up to him to think about the interests of America.” He gave a shrug. “Go for it.”

The Ritz operation, MBS said, was a blitzkrieg against corruption, and wildly successful and popular because it started at the top and did not stop there. “Some people thought Saudi Arabia was, you know, just trying to get the big whales,” MBS said. They assumed that after the government extracted settlements from the likes of Alwaleed bin Talal, the kingdom’s richest man, corruption at lower levels would resume. MBS noted, proudly, that even the minnows had been hooked. By 2019, everyone “understood that even if you steal $100, you’re going to pay for it.” In just a few months, he claims to have recovered $100 billion directly, and says that he will recover much more indirectly, as dividends of deterrence.

MBS acknowledged that to outsiders the Ritz operation may have looked thuggish. But to him it was an elegant, and by the way nonviolent, solution to the problem of vampires feasting on the kingdom’s annual budget. (An adviser to MBS told me that one alternative his aides had suggested was executing a few prominent corrupt officials.) During the months that the Ritz served as a prison, the kingdom’s financial regulator was essentially made king pro tempore, to devote the full power of the government to bleeding the vampires dry. But the Ritz guests had not, MBS said, been placed under arrest. That would imply that they had entered the court system and faced charges. Instead, he said, they had been invited to “negotiate”—and to his pleasure, 95 percent did so. “That was a strong signal,” he said. I’m sure it was.

THE SAUDI THRONE does not, like the British throne once did, just pass to the next male heir. The king chooses his successor, and ever since the founding king of the modern Saudi state, Abdulaziz, chose his son Saud as crown prince in 1933, each king has chosen another son of Abdulaziz. (He had 36 sons—with multiple wives and concubines—who survived to adulthood.) All were old enough to remember the camels-and-tents days, before extreme wealth, and they ruled conservatively, as if to lock in their gains. Even the shrewdest and most ambitious kings accomplished little. Abdullah, who took power in 2005, began as a reformer, but much of the momentum of the first half of his reign was lost as he doddered in the second, and the royal treasury was looted. (One notorious alleged thief in the Ritz, a major figure in the Royal Court, was said to have stolen tens of billions of dollars during His Majesty’s decline.)

Salman, the current king and at 86 one of the youngest of Abdulaziz’s brood, saw the perils of unchecked gerontocracy and anointed a successor from the next generation. His choice of Mohammed was not obvious. King Salman’s sons include Faisal, 51, who has a doctorate in international relations from Oxford; and Sultan, 65, a former Royal Saudi Air Force pilot who in 1985 spent a week on the space shuttle Discovery as a payload specialist. Either of these competent and educated men, citizens of the world, might have been a natural successor. But Salman had an inkling that the next king would need a certain grit and fluency with power that cannot be acquired in a seminar or a flight simulator. The new generation, born into luxury, tended to be soft, and the next king would need to be a modern version of a desert warlord like his grandfather.

Outside the immediate family, Salman considered his nephew Mohammad bin Nayef, who is known as MBN, appointing him crown prince in 2015, when he was 55. As a spymaster and security official in the 2000s, MBN had led the country’s domestic war against al-Qaeda, and in the process had become well connected with counterparts in Washington and London. In 2009, MBN was injured when an al-Qaeda bomber packed his underpants with explosives and approached him at an event.

Foreign governments considered MBN a safe pick: old enough but not too old, a proven fighter, respected overseas. But for Salman he was merely a throne-warmer for his son. (MBS had held no high office prior to his father’s coronation and needed a couple of years as defense minister to burnish his CV.) In 2017, Salman fired MBN. When you fire a prince, you fire all those who staked their fortunes on his rise; among the opponents of MBS are foreign governments who had planned for the reign of King MBN, and Saudis whose wealth and influence flowed from him. MBN’s chief adviser, Saad al-Jabri, fled to Canada. He alleges that MBS sent a

team there to kill him. MBS's government alleges that al-Jabri stole a massive fortune and is bankrolling efforts to defame the crown prince. (Both parties deny the claims.) "MBN survived al-Qaeda," al-Jabri's son Khalid told me. "But he couldn't survive his own cousin."

Others have suggested Salman's younger brother Ahmed, a well-liked former deputy interior minister, as a throne-worthy alternative to MBS. Ahmed reportedly opposed MBS's appointment as crown prince. In 2020, he was arrested on suspicion of treason.

HAVING CONSOLIDATED POWER, MBS focused on Vision 2030. He is exasperated by the rest of the world's failure to acknowledge how well it has gone. "Saudi Arabia is a G20 country," he said. "You can see our position five years ago: It was almost 20. Today, we are almost 17." He noted strong non-oil GDP growth, and reeled off statistics about foreign direct investment, Saudi overseas investment, and the share of world trade that passes through Saudi waters. The economic success, the concerts, the social reform—these are all done deals, he said. "If we were having this interview in 2016, you would say I'm making assumptions," he said. "But we did it. You can see it now with your eyes."

He was not lying. Between my first visit to Saudi Arabia, in 2019, and this conversation two years later, I had gone to the movies in Riyadh and sat next to a Saudi woman I had never met. She wore jeans and canvas sneakers, and she bounced her bare ankle while we watched *Zombieland: Double Tap*. When I first visited, I ate at restaurants that had cinder-block walls dividing single men on one side from women and families on the other. These were sledgehammered down—a little Berlin 1989 in every restaurant—and now men and women can eat together without eliciting so much as a sideways glance from fellow diners.

Many of the crown prince's most persistent critics approve of these changes, and wish only that they had come sooner. (Khashoggi was such a critic. When I met him in London for brunch, shortly before his death, I asked him to list MBS's failings. He said "90 percent" of the reforms were prudent and overdue.) The most famous Saudi women's-rights activist, Loujain al-Hathloul, campaigned for women's right to drive, and against the Saudi "guardianship law," which prevented women from traveling or going out in public without a male relative. Al-Hathloul was thrown in prison on terrorism charges in 2018—*after* MBS and his father had announced the imminent end of both policies. In prison, her family says, she was electrocuted, beaten, and—this was just a few months before Khashoggi's murder—threatened with being chopped up and thrown in a sewer, never to be found. (The Saudi government has previously denied allegations of torturing prisoners.)

Left: Saudi Crown Prince Mohammed bin Salman is greeted by Qatar's Emir Sheikh Tamim Al Thani in Doha, Qatar, in 2021. *Center:* The Saudi activist Loujain al-Hathloul in 2021. *Right:* MBS and his father, King Salman, in 2017. (Saudi Press Agency / Reuters; Ahmed Yosri / Reuters; Saudi Press Agency / AP)

Al-Hathloul and other activists had demanded rights, and the ruler had granted them. Their error was in thinking those rights were theirs to take, rather than coming from the monarch, who deserved credit for having bestowed them. Al-Hathloul was released in February 2021, but her family says she is forbidden from traveling abroad or speaking publicly.

Another dissident, Salman al-Awda, is a preacher with a massive following. His original crime, too, was to utter publicly a thought that would later be shared by the crown prince himself. When MBS began squabbling with his counterpart in Qatar, al-Awda tweeted, “May God harmonize between their hearts, for the good of their people.” He was imprisoned, and actual harmony between the two leaders has not freed him. His son Abdullah, now in the United States, claims that his father, who is 65, is being held in solitary confinement and has been tortured.

The crown prince, one of his admirers told me, “put the Wahhabis in a cage, then he reached in with gardening shears and he cut their balls off.”

Saudi authorities say al-Awda is a terrorist and a member of the Muslim Brotherhood, which is supported by Qatar and intent on overthrowing the monarchy and replacing it with a theocracy. (The Muslim Brotherhood plays a bogeyman role in the Saudi imagination similar to the role of Communists in America during the Red Scare. Also like Communists, the Muslim Brotherhood really has worked covertly to undermine state rule, just not to the extent imagined.) Al-Awda’s defenders say he is being punished for daring to speak with a moral voice independent of the monarchy’s. He faces death by beheading.

Would MBS consider pardoning those who’d spoken out in favor of women driving and normalization with Qatar—both now the policy of the country? “That’s not my power. That’s His Majesty’s power,” MBS said. But, he added, “no king has ever used” the pardon power, and his father does not intend to be the first.

The issue, he said, is not a lack of mercy. It is a problem of balance. Yes, there are liberals and kumbaya types who have run afoul of state security—and perhaps some could be candidates for a royal pardon. But some of the others in his jails are bad hombres indeed, and pardons cannot be meted out selectively. “You have, let’s say, extreme left and extreme right,” he said. “If you give forgiveness in one area, you have to give it to some very bad people. And that will take everything backward in Saudi Arabia.”

Left: Saudi women attend a live music performance in Riyadh in January. The crown prince has legalized cinemas and concerts and permitted women to dress as freely as they can in places like Dubai and Bahrain. *Bottom:* A tenth-grade girls’ basketball team in Jeddah. Until recently, a man would have been forbidden to coach a girls’ team. (Lynsey Addario for *The Atlantic*)

On one side are liberals, tugging on the sympathies of Westerners; on the other, Islamists who are also opposed to the monarchy. Letting this latter group out would not just mean the end of rock concerts and coed dining. They would not stop until they brought down the House of Saud, seized the country’s estimated 268 billion barrels of oil and the holy cities of Mecca and Medina, and established a terrorist state. In private conversations with others, MBS has likened Saudi Arabia before the Saud family’s conquest in the 18th

century to the anarchic wasteland of the *Mad Max* films. His family unified the peninsula and slowly developed a system of law and order. Without them, it would be *Mad Max* all over again—or Afghanistan.

Still, the crown prince's argument—that if he extended forgiveness to good people who deserved it, he would have to extend it equally to bad people who did not—struck me as bizarre. Why would one require the other? Then I realized that MBS was not saying that the failure of his plan to remake the kingdom *might* lead to catastrophe. He was saying that he'd guarantee it would. Many secular Arab leaders before him have made the same dark implication: Support everything I do, or I will let slip the dogs of jihad. This was not an argument. It was a threat.

ALI SHIHABI, A Saudi financier and pro-MBS commentator, told me that the changes in Saudi Arabia could be compared to those in revolutionary France. An old order had been overturned, a priestly class crushed; a new order was struggling to be born.

The priestly class in particular interested me. The brand of conservative Islam practiced in Saudi Arabia—called Wahhabism, after the sect's 18th-century founder, Muhammad ibn Abd al-Wahhab—once wielded great power and enjoys at least some popular support. I asked Shihabi if MBS really had diminished the Wahhabis' role. "Diminished their role?" Shihabi asked me. "He put the Wahhabis in a cage, then he reached in with gardening shears"—here he made the universal *snip snip* gesture with his fingers—"and he cut their balls off."

My flight into Riyadh was packed with foreigners attending Stan Lee's Super Con. Ahead of me in the passport line I saw Lou Ferrigno, the Incredible Hulk.

In France, revolution worked out just as badly for the House of Bourbon as it did for the clergy. (Diderot famously wrote that the entrails of the priests would be woven into ropes to strangle kings.) The House of Saud wanted the anticlerical revolution while conveniently omitting the antiroyalist one. I wanted to see how that alliance between monarch and sansculottes was working.

Vision 2030 made modernization easier to observe now than it would have been just a few years ago. Until October 2019, tourist visas to Saudi Arabia did not exist. Then the Saudis realized that to attract crowds to the concerts they had legalized, they'd need to let in visitors. Overnight, a visa to Saudi Arabia went from one of the hardest in the world to get to one of the easiest. In minutes I had one valid for a whole year. My flight into Riyadh was packed with foreigners attending Stan Lee's Super Con. Ahead of me in the passport line I saw Lou Ferrigno, the Incredible Hulk, on his way to an autograph signing.

The new system arrived so fast that the first visitors were like an invasive species, an unnatural fit in the rigid social order of the kingdom. For years, almost every non-Saudi in the country had needed a document called an *iqama*. It was a sort of license to exist: Your *iqama* identified your Saudi patron, the local national whom you were visiting or working for, and who controlled your fate. Every Saudi patron had his own patron, too—sometimes a tribal leader, sometimes a regional one. Even those bigwigs paid obeisance to someone and, eventually, by the transitive property of Saudi deference, to the king himself. Saudi Arabia, MBS explained, "is not one monarchy. You have beneath it more than 1,000 monarchies—town monarchies, tribal monarchies,

semitribal monarchies." The *iqama* guaranteed that every sentient creature fit into this scheme of Saudi society.

MBS batted away my suggestion that this system is antiquated and might be replaced with a constitutional monarchy—one where citizens have freestanding rights not granted by a monarch or a demi-monarch. "No," he said. "Saudi Arabia is based on pure monarchy," and he, as crown prince, would preserve the system. To remove himself from it would amount to a betrayal of all the monarchies and Saudis beneath him. "I can't stage a coup d'état against 14 million citizens."

But he has already forced that system to adapt. Nearly every day someone asked for my *iqama*, and I had to explain that I had none. They reacted as if I'd told them that I had no name. Renting a car, buying a train ticket, checking into a hotel—all of these interactions left some poor clerk baffled. But in the new Saudi Arabia I was free to wander, to listen, to overhear.

Left: Men talk over coffee in Riyadh. *Right:* Young women at a Formula E racing event. (Lynsey Addario for *The Atlantic*)

In Riyadh I found, effortlessly, young people thrilled by the reforms. Like the other major Saudi cities, Dammam and Jeddah, Riyadh has specialty coffee shops in abundance—little outposts of air-conditioning and caffeine, in an environment otherwise characterized by heat and boredom. Many of the Saudis I met professed a deep love for America. "I spent seven years at Cal State Northridge," one told me, before rattling off a list of cities he had visited. He was one of several hundred thousand Saudi students who'd attended U.S. universities on government scholarships in the 2000s. "I studied finance," he said. "But I never graduated. I had a wonderful time." He listed his American friends, who had names like Mike and Emilio. "I drank and did too much meth, and my grades weren't good."

"Is it possible to do just the right amount of meth?" I asked.

"When I came back, I stopped." He looked out the window of the coffee shop at the parched cityscape. "This country is the best rehab center on the planet."

Now he was studying again, at a Saudi university, and planning to open his own business. He had already attended concerts, and he said his fondest wish was to listen to music in the open air and smoke a joint—just one, he promised. He asked if I thought that would happen. I said I did not think that was explicitly part of Vision 2030, but he'd probably get his wish. Later, with him in mind, I asked the crown prince whether alcohol would soon be sold in the kingdom. It was the only policy question that he refused to answer.

In another café, in the northern city of Ha'il, a man pointed to a mural, freshly painted, of the Lebanese singer Fairouz, her hair flowing beautifully over her shoulders. Next to her were her lyrics (in Arabic): "Bring me the flute and sing, for song is the secret to eternity."

"One year ago," he said, "that would not be possible." By "that," he meant pretty much everything: a woman's hair; a celebration of song; a celebration of a song about singing; and, on top of all this, the music playing in the café as we spoke. Before the rise of MBS, every component of this scene would have violated long-standing canons of Saudi morality enforcement. The religious police, known in Arabic as the *hay'a* or *mutawwi'in*, would have busted the joint. They used to show up in ankle-length white *thobes*, their beards curly and unkempt. They yelled at people for dressing immodestly, or thwacked at them with sticks to goad them to the mosque for one of the five daily prayers. For the flagrancy of the Fairouz sins, the café's managers would have been detained, questioned, and punished. "Screw those guys," the man said, in a succinct expression of the most common sentiment I heard about the religious police.

Encounters with the *hay'a* have provided many an appalling story for foreign visitors. When Maureen Dowd of *The New York Times* went to Riyadh in 2002, the *hay'a* spotted her in a shopping mall and objected to being able to see the outline of her body. Her host, the future foreign minister Adel al-Jubeir, pleaded with them, but they were unimpressed by his status as a prominent diplomat, and she fled to her hotel room. "I fretted that I was in one of those movies where an American makes one mistake in a repressive country and ends up rotting in a dungeon," Dowd wrote.

"Saudi Arabia is based on pure monarchy," MBS said. To remove himself from that system would amount to a betrayal of all the Saudis beneath him. "I can't stage a coup d'état against 14 million citizens."

I told one of MBS's advisers that the religious police had been an international PR problem. "May I be impolite?" he asked me. "I don't give a fuck about the *foreigners*. They terrorized *us*." He likened the religious police to J. Edgar Hoover's FBI, operating with unchecked authority. (The religious police's official Arabic name dates back hundreds of years, but still sounds Orwellian in English: the Committee for the Prevention of Vice and Promotion of Virtue.) Anyone who wished to drag down a professional or political rival could scrutinize him for sins, then call the religious police to set up a sting. Or the *hay'a* could flex its authority on its own, either for political reasons—toppling a prince they disliked—or for recreation.

"The religious police were the losers in school," Ali Shihabi told me. "Then they got these jobs and were empowered to go and stop the cute girls, break into the parties no one wanted them at, and shut them down. It attracted a very nasty group of people." The Saudi diplomat told me that he did not miss them, and that Saudi Arabia had needed someone with the crown prince's mettle to get rid of them. "When someone hits you because he does not like what you are wearing," he said, "that is not just a form of harassment. It is abuse."

Left: Golf at the Boulevard in Riyadh. *Right:* A couple, newly engaged, dine at a restaurant in Jeddah in January. In the recent past, many restaurants had cinder-block walls dividing single men on one side from women and families on the other. (Lynsey Addario for *The Atlantic*)

MBS ordered the religious police to stand down, and one of the enduring mysteries of contemporary Saudi Arabia is what these thwackers do, now that they are invisible on the streets. Fuad al-Amri, who runs

the *hay'a* in Mecca province, confessed to me that since the reforms, one of his main activities has been vetting his own employees, to ensure that they aren't fanatics loyal to the Muslim Brotherhood.

MBS'S GRANDFATHER KING Abdulaziz founded the modern Saudi state with the support of the clergy. But he also cracked down on them, hard, when they outlived their usefulness. MBS has recounted a famous anecdote about his grandfather. In 1921, Abdulaziz attended the funeral of the most senior religious scholar in the kingdom. The king told the assembled clerics that they were dear to his heart—in the Arabic idiom, "on my *iqal*," the black cord that holds a Najd headdress in place. But then he warned them: "I can always shake my *iqal*," he said, "and you will fall."

For the past 50 years, Abdulaziz's successors have taken a softer line with the Wahhabis. The Saudi clerical class's power grew, and their imprimatur mattered. In 1964, they sealed the fate of the inept King Saud when his brothers Faisal and Mohammed sought and received religious approval for ousting him. To oppose the religious conservatives was risky. Peter Theroux, a former National Security Council director who worked on the Saudi portfolio during the 2000s, recalls being aghast at the vicious sermons still being preached by government-paid imams years after September 11. Theroux told me he confronted a senior Saudi official about the sermons. "You know," the official apologized, "the big beards are kind of our constituency." The rulers of Saudi Arabia put almost no limits on the speech or behavior of conservative clerics, and in return those clerics exempted the rulers from criticism. "That was the drug deal that the Saudi state was based upon for many years," Theroux told me. "Until Mohammed bin Salman."

Who could resist cheering on MBS as he renegotiated this relationship? One of MBS's most persistent critics in Washington, Senator Chris Murphy, a Democrat from Connecticut, told me the concerts and Comic-Cons in Riyadh have not yet translated into defunding Wahhabi intolerance overseas. "When I'm traveling the world, I still hear story after story of Gulf money and Saudi money fueling very conservative, intolerant Wahhabist mosques," he said. A hallmark of traditional Wahhabism is hatred for non-Wahhabi Muslims, whom the Wahhabis view as even worse than unbelievers for perverting the faith. With little modification, Wahhabi teachings can lead to Osama bin Laden–style jihadism. Murphy said he thinks that isn't over. "The money that flows from Saudi Arabia into conservative Islam isn't as transparent as it was 10 years ago—much of it has been driven underground—but it still exists."

Yet after spending hours in MBS's company, and in the company of his allies and enemies, I was convinced that neutering the clergy was not just symbolic. He was fighting them avidly, and personally. "The kings have historically stayed away from religion," Bernard Haykel, a scholar of Islamic law at Princeton and an acquaintance of MBS's, told me. Outsourcing theology and religious law to the big beards was both an expedient and a necessity, because no ruler had any training in religious law, or indeed a beard of any significant size.

By contrast, MBS has a law degree from King Saud University and flaunts his knowledge and dominance over the clerics. "He's probably the only leader in the Arab world who knows anything about Islamic epistemology and jurisprudence," Haykel told me.

“In Islamic law, the head of the Islamic establishment is *wali al-amr*, the ruler,” MBS explained. He was right: As the ruler, he is in charge of implementing Islam. Typically, Saudi rulers have sought opinions from clerics, occasionally leaning on them to justify a policy the king has selected in advance. MBS does not subcontract his religion out at all.

He explained that Islamic law is based on two textual sources: the Quran and the Sunna, or the example of the Prophet Muhammad, gathered in many tens of thousands of fragments from the Prophet’s life and sayings. Certain rules—not many—come from the unambiguous legislative content of the Quran, he said, and he cannot do anything about them even if he wants to. But those sayings of the Prophet (called Hadith), he explained, do not all have equal value as sources of law, and he said he is bound by only a very small number whose reliability, 1,400 years later, is unimpeachable. Every other source of Islamic law, he said, is open to interpretation—and he is therefore entitled to interpret them as he sees fit.

The effect of this maneuver is to chuck about 95 percent of Islamic law into the sandpit of Saudi history and leave MBS free to do whatever he wants. “He’s short-circuiting the tradition,” Haykel said. “But he’s doing it in an Islamic way. He’s saying that there are very few things that are fixed beyond dispute in Islam. That leaves him to determine what is in the interest of the Muslim community. If that means opening movie theaters, allowing tourists, or women on the beaches on the Red Sea, then so be it.”

MBS rebuked me when I called this attitude “moderate Islam,” though his own government champions the concept on its websites. “That term would make terrorists and extremists happy.” It suggests that “we in Saudi Arabia and other Muslim countries are changing Islam into something new, which is not true,” he said. “We are going back to the core, back to pure Islam” as practiced by Muhammad and his four successors. “These teachings of the Prophet and the four caliphs—they were amazing. They were perfect.”

Even the Islamic law that he is bound to implement will be implemented sparingly. MBS told me a story, reported in Hadith, about a woman who commits fornication, confesses her crime to the Prophet, and begs to be executed. The Prophet repeatedly tells her to go away—implying, the crown prince said, that the Prophet preferred to give sinners every chance at lenience. (MBS did not relate the end of the tale: The woman returns with indisputable evidence of her sin—a bastard son—and the Prophet acquiesces. She is buried to her chest and stoned to death.)

Instead of hunting for sin and punishing it as a matter of course, MBS has curtailed the investigative function of the religious police, and encourages sinners to keep their transgressions between themselves and God. “We should not try to seek out people and prove charges against them,” he said. “You have to do it the way that the Prophet taught us how to do it.” The law will be enforced only against those so flagrant that they are practically demanding to take their lumps.

He also stressed that none of these laws applies to non-Muslims in the kingdom. “If you are a foreign person who’s living or traveling in Saudi Arabia, you have all the right to do whatever you want, based on your beliefs,” he said. “That’s what happened in the Prophet’s time.”

It is hard to exaggerate how drastically this sidelining of Islamic law will change Saudi Arabia. Before MBS, influential clerics issued fatwas exhibiting what might charitably be called a pre-industrial view of the world. They declared that the sun orbited the Earth. They forbade women from riding bikes (“the devil’s horses”) and from watching TV without veiling, just in case the presenters could see them through the screen. Salih al-Fawzan, the most senior cleric in the kingdom today, once issued a chillingly anti-American fatwa forbidding all-you-can-eat buffets, because paying for a meal without knowing what you’ll be eating is akin to gambling.

Some of the clerics may have given in because they were convinced by the crown prince's legal interpretations. Others appear to have succumbed to good old-fashioned intimidation. Formerly conservative clerics will look you in the eye and without hesitation or scruple speak in Stepfordlike coordination with the government's program. The minister of Islamic affairs and guidance, normally an unsmiling type, now cheerily defended the opening of cinemas and mass layoffs of Wahhabi imams. I liked him immediately. His name, Abdullatif Al Asheikh, indicates that he is descended from a long line of stern moralists going back to Muhammad ibn Abd al-Wahhab himself. I told him I had seen the *Zombieland* sequel in his country, and if Woody Harrelson reprised his role in *Zombieland 3*, I would return to Riyadh so we could go to a theater and watch it together. "Why not?" he replied.

Mohammad al-Arefe, a preacher known for his good looks and conservative views, mysteriously began promoting Vision 2030 after a meeting with MBS in 2016. Previously, he had preached that Mada'in Saleh, a spectacular pre-Islamic archaeological site in northwest Saudi Arabia, was forbidden to Muslim tourists. God had struck down the civilization that once lived there, and the place was forever to remain a reminder of his wrath. The conventional view held that Muslims should follow the Prophet's warning to stay away from Mada'in Saleh, but if they absolutely must pass through, they should cast their gaze downward and maintain a fearful demeanor toward the Almighty. Then, in 2019, al-Arefe appeared in what seemed, to me, like some sort of hostage video, filmed by the Saudi tourism authority, lecturing about the site's history and inviting all to enjoy it. If he was displaying a fearful demeanor, it was not toward the Almighty.

IN THE SMALLER CITIES it isn't clear how quickly modernization is catching on. I visited Buraydah, the capital of Qassim, the most conservative part of the country. In two days, every woman I saw wore a black, flowing abaya. I attended the opening of a new shopping mall and showed up early to watch the crowds arrive. The sexes separated themselves without discussion: women in the front, all in black, near the stage where children recited poems and sang; men, in white *thobes*, in the back of the audience and on the sides. The process was unconscious and organic, but to an outsider remarkable, as if salt and pepper were shaken out onto a plate, and the grains slowly and perfectly segregated themselves. Cultural practices decades or centuries old do not yield suddenly.

Taif, a city an hour outside Mecca, was once the summer residence of the king and his family. The Prophet is thought to have visited there, and many Muslims supplement their pilgrimages to Mecca with side trips to other sites from the Prophet's life. The Wahhabis have, historically, treated these visits as un-Islamic and reprehensible. Whenever pilgrimage sites have fallen into Wahhabi hands, they have methodically and remorselessly destroyed them by leveling monuments, grave markers, and other structures sacred to Muslims in other traditions.

One morning I took a long walk to a mosque where the Prophet is said to have prayed. On arrival I found a building in disrepair, fenced off by rusty wire, with parts of it reduced to rubble. A sign at this site, posted by the Ministry of Islamic Affairs, noted in Arabic, Urdu, Indonesian, and English that the historical evidence for the Prophet's visit was uncertain. It suggested, further, that "to feel an adoring reverence or regard toward these places is a kind of heresy and fabrication in religion," an innovation not sanctioned by God that "leads to polytheism."

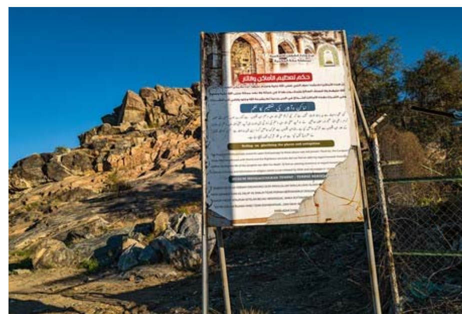
Later, I met Mohammad al-Issa, formerly the minister of justice under King Abdullah and now, as secretary-general of the Muslim World League, an all-purpose interfaith emissary for his country. In the past, Saudi clerics inveighed against infidels of all types. Now al-Issa spends his time meeting Buddhists, Christians, and Jews, and trying to stay ahead of the occasional surfacing of comments he made in less conciliatory times. I asked him about the site, and whether Saudi Arabia's new tolerance—which he emphasizes so energetically overseas, with non-Muslims—would apply domestically. He assured me that it already did. "If in the past there

were some mistakes, now there is correction,” al-Issa said. “Everyone has the right to visit the historic places, and there is a lot of care given to them.”

“But the signs are still up,” I said.

“Maybe they are there to remind people to be respectful,” he suggested. “You see signs like that at sites all over the world: ‘Don’t touch or take the stones.’”

But these signs are not meant to preserve the ruins. They are there to remind you that you are wicked for visiting at all.



A mosque in Taif where the Prophet Muhammad is said to have prayed. A sign posted by the Ministry of Islamic Affairs notes that the historical evidence for the Prophet’s visit is uncertain, and warns that “to feel an adoring reverence or regard toward these places is a kind of heresy.” (Lynsey Addario for *The Atlantic*)

The day after my trip to the mosque, I stopped by a Starbucks in Taif. It was early afternoon. When I pulled the door handle, it clunked—the shop was closed for prayer, just as it would have been if the religious police had been enforcing prayer times.

As I waited outside alone, a small police truck pulled up behind me. The police officer salaamed me, and I responded in Arabic. Only after a short interrogation (“What are you doing here? Why are you here?”) did he discover that I was American—not, as I think he suspected, Filipino—and apologize awkwardly and leave. It took me a minute to realize what had happened: The religious police have stood down, and the ordinary police have stood up in their place. The conservatism in society has not gone away. In some places, it has just undergone a costume change.

THESE LINGERING MANIFESTATIONS of intolerance illustrate what MBS’s critics say is his ultimate error: Even a crown prince can’t change a culture by fiat.

Belated realization of this error might be behind the grandest and most improbable of his projects. If existing cities resist your orders, just build a new one programmed to do your bidding from the start. In October 2017, MBS decreed a city in a mostly uninhabited area on the Gulf of Aqaba, adjacent to Egypt’s Sinai Peninsula, the southwestern edge of Jordan, and the Israeli resort town Eilat. The city is called Neom, from a violent collision between the Greek word *neos* (“new”) and the Arabic *mustaqbal* (“future”).

At present, little exists but an encampment for the employees of the Neom project, a small area of tract housing. Regular buses take them to shop in the nearest city, Tabuk, which is itself a city only by the standards

of the vacant, rock-strewn desert nearby. (If you recall the early scenes of *Lawrence of Arabia*, when a lonely camel-borne Peter O'Toole sings "The Man Who Broke the Bank at Monte Carlo" to the echoes of a sandstone canyon, then you know the spot.) The ambitions for this settlement are vast. Neom's administrators say they expect it to attract billions of dollars in investment and millions of residents, both Saudi and foreign, within 10 to 20 years. Dubai grew at a similar pace in the 1990s and 2000s. MBS said Neom is "not a copy of anything elsewhere," not a xerox of Dubai. But it has more in common with the great globalized mainstream than with anything in the history of a country that, until recently, was remarkably successful at walling off its traditional culture from the blandishments of modernity.

For a few hours, the Neom team showed me around and made grandiose promises about the future. Neom would lure its investors, I gathered, by creating the ideal regulatory environment, stitched together from best practices elsewhere. The city would profit from central planning. When New York or Delhi want to grow, they choke on their own traffic and decrepit infrastructure. Neom has no inherited infrastructure at all. The centerpiece of the project will be "The Line"—a 106-mile-long, very skinny urban strip connected by a single bullet train that will travel from end to end in 20 minutes. (No train capable of this speed currently exists.) The Line is intended to be walkable—the train will run underground—and a short hike perpendicular to its main axis will take you into pristine desert. Water will be desalinated; energy, renewable.

So far, Neom is less a city than an urbanist cargo cult. The practicalities can come later, or not at all. (The projected cost is in the hundreds of billions of dollars, a huge sum even for Saudi Arabia.) But many good ideas look crazy at first. What struck me was that Neom's vision is really an anti-vision. It is the opposite of the old Saudi Arabia. In the old Saudi Arabia, and even to an extent today, corruption and bureaucracy layered on each other to make an entrepreneur's nightmare. Riyadh has almost no public transportation. No matter where you are, you cannot walk anywhere, except perhaps to your local mosque. No one in Neom mentioned religion at all. Even Neom's location is suggestive. It is far from where Saudis actually live. Instead it is huddled in a mostly empty corner, as if seeking sustenance and inspiration from Jordan and Israel.

Seen this way, Neom is MBS's declaration of intellectual and cultural bankruptcy on behalf of his country. Few nations have as many carried costs as Saudi Arabia, and Neom zeroes them out and starts afresh with a plan unburdened by the past. To any parts of the kingdom that cling to their old ways, it promises that the future is everything they are not. And the future will wait only so long.

DURING THE 1990S AND 2000S, Saudi Arabia was a net exporter of vision, but it was a jihadist vision. The standard narrative, now accepted by the Saudi state itself, is that the kingdom was seduced by conservative Islam, and eventually the jihadists it sent overseas (most famously Osama bin Laden) redirected their efforts toward the Saudi monarchy and its allies. Fifteen of the 19 hijackers on 9/11 were Saudi citizens.

"A series of things happened that made the Saudis realize they couldn't keep playing the game they had been playing," Philip Zelikow, a State Department official under George W. Bush and the executive director of the 9/11 Commission, told me. The years of violence that followed 9/11 shocked the Saudis into realizing that they had a reckoning coming, though only after jihadists began attacking in the kingdom itself did the government move to crush them. What the Saudis did not have was a plan to redirect the jihadists' energy. "They needed to have some story of what kind of country they were going to be when they grew up," Zelikow said. Jihadism would not be that story. But there was no immediate alternative, either for society or for the individuals

attracted to jihadism. Saudi Arabia was left to do what most other countries, including the United States, have done, which is to imprison terrorists until they grow too old to fight.

Left: The aftermath of an al-Qaeda bombing in Riyadh in 2003. Only after jihadists began attacking in the kingdom did the government move to crush them. *Right:* Saudi Special Security Forces at the Counterterrorism Training School in Riyadh in 2013. (Lynsey Addario)

Last year, Saudi officials informed me that the crown prince had a new plan to deprogram jihadists. One morning they sent a convoy of state-security SUVs to my hotel, and with lights flashing, we left behind the glassy skyscrapers of the capital and continued along one of the straight, hypnotic roads radiating from Riyadh to nowhere. An hour later, we turned off at an area called al-Ha'ir and went through a security checkpoint.

Ha'ir is a state-security prison, run by the Saudi secret police, which means that its prisoners are not car thieves and check forgers but offenders against the state. They include jihadists from al-Qaeda and the Islamic State—I met at least a dozen of each—as well as softer Islamists, like Salman al-Awda, the cleric.

We drove past the checkpoint and through the gates, into a windswept compound coated in a film of light-brown dust, like tiramisu. We were met by the director of state-security prisons, Muhammad bin Salman al-Sarrah, and what appeared to be a television crew of at least half a dozen men, each bearing a microphone or a camera. I worried about what would happen next. Newsworthy events inside the walls of terrorist prisons tend not to be good. Lurking in the background were several bearded men in identical gray business suits.

During the 1990s and 2000s, Saudi Arabia was a net exporter of vision, but it was a jihadist vision. Fifteen of the 19 hijackers on 9/11 were Saudi citizens.

Al-Sarrah, it turned out, was a real jihadism nerd, and over tea we reminisced about various luminaries in the history of Saudi terror. After this small talk, he invited me to join him in an auditorium that could have been a lecture hall on a small college campus. Shutters clicked as the cameramen followed.

In the auditorium, the men in suits took the stage. Their leader, a man named Abdullah al-Qahtani, explained that he and most of the others in the room were prisoners, and that they had a PowerPoint presentation they wished to show me about the enterprise they were running in the prison. The camera crew was made up of prisoners too, and they were documenting my visit for imprisoned members of jihadist sects.

What followed was the most surreal slide deck I have ever seen: a corporate org chart and plans for a set of businesses run from within the prison by jihadists and other enemies of the state. Al-Qahtani spoke in Arabic, translated by an excitable counterpart nearby.

The org chart showed CEO al-Qahtani at the top, with direct reports from seven offices beneath him, among them financial, business development, and "programs' affairs." Under the last of these was another sub-office, "social responsibility."

Al-Qahtani explained that 89 percent of the prison population had taken part in the program so far. In a way, it was like any other prison-industry program; in the United States, prisoners staff call centers, raise tilapia, or just push brooms in the prison corridor for a dollar an hour. But the Ha'ir group, doing business as a company called, simply, Power, was aggressively corporate and entrepreneurial.

Al-Qahtani and the interpreter took me to a small garden, where prisoners cultivated peppers under plastic sheeting and raised bees and harvested their honey to sell at the prison shop, in little jars with the Power logo. They operated a laundromat and presented me with a price list. The prison will clean your clothes for free, they said, but staff and inmates alike could bring clothes here for special services, such as tailoring, for a fee. I could see shirts, freshly laundered and pressed, with prisoner numbers inked into the collars. Each number started with the year of entry on the Islamic calendar. I saw one that started in 1431, about 12 years ago.

Almost all the men wore thick beards, and many had a *zabiba* (literally "raisin"), the discolored, wrinkly spot one gets from pressing the head to the ground in prayer. Some of their products were artisanal and religious-themed. They led me into a tiny room, a factory for the production of perfumes for sale outside the prison, and to another room where they made prayer beads from olive pits.

"Here, smell this," a former member of al-Qaeda commanded me, sticking under my nose a paper strip blotted with a chemical I could not identify. I think the scent was lavender. Another prisoner, at the Power-run prison canteen, offered me free frozen yogurt. As I walked around the prison, the yogurt began to melt, and my interpreter held it so I could take notes.

Strangest of all, I found, was Power's corporate nerve center—a warren of drab, cubicle-filled offices. The employees wore uniforms: suits for the C-suite executives and blue Power-branded polo shirts for the mid-levels puttering on their computers. They had a conference room with a whiteboard (at the top, "In the name of God, the most gracious, most merciful" was written in Arabic, and partially erased; the rest was the remains of a sales brainstorming session), a reception desk, and portraits of the king and the crown prince overseeing it all.

Nothing is stranger than normalcy where one least expects it. These jihadists—people who recently would have sacrificed their life to take mine—had apparently been converted into office drones. Fifteen years ago, Saudi Arabia tried to deprogram them by sending them to debate clerics loyal to the government, who told the prisoners that they had misinterpreted Islam and needed to repent. But if this scene was to be believed, it turned out that terrorists didn't need a learned debate about the will of God. They needed their spirits broken by corporate drudgery. They needed Dunder Mifflin.

My hyperactive interpreter, who had been gesticulating and yapping throughout the tour, was no ordinary jihadist. He was an American-born Saudi member of al-Qaeda named Yaser Esam Hamdi. Hamdi, now 41, emerged from a pile of rubble in northern Afghanistan in December 2001. His dear friend, pulled from the same rubble, was John Walker Lindh, the so-called American Taliban. Hamdi spent months in Guantánamo Bay before being transferred to the U.S.; he was released after his father, a prominent Saudi petrochemical executive, helped take Hamdi's case to the Supreme Court, and won (*Hamdi v. Rumsfeld*). Hamdi was sent back to Saudi Arabia on the condition that he renounce his U.S. citizenship (he was born in Louisiana and left as a small child), but the Saudis decided he needed more time in prison and locked him up for eight years in a facility in Dammam, and for another seven in Ha'ir. He is due for release this year.

Hamdi guided me like a kid showing his parents around his sleepaway camp. He explained that Power is part of a larger entity at the prison, known as the "Management of Time" (*Idarat al-Waqt*)—a comprehensive but amorphous program meant to beguile the inmates out of bad ideas and replace them with good ones. It

involves corporate training, but also gathering the inmates together for song and music, for poetry readings, for the publishing of newspapers (I snagged a copy of the *Management of Time News*), and for the production of TV shows. I watched a room full of men sing a song they had written, "O My Country!," and show videos in which they extolled the government and the crown prince. Al-Qaeda and ISIS forbid most music and revile the monarchy. Like so many other Saudis, these men seemed to have swapped their religious fanaticism for nationalist fanaticism. One wondered what they really believed.

Al-Sarrah followed close behind us, and I shot him a look when I heard the name of the program. One of the most famous jihadist texts, a playbook for ISIS, is "The Management of Savagery" (*Idarat al-Tawahhush*). It is a deranged manual for destroying the world and replacing it with a new one. That was what this program was doing in reverse: replacing the jihadists' savage appetite for an imagined future with an appetite for the real, the now, and the ordinary.

A bookish man who had been with Osama bin Laden at Tora Bora looked me steadily in the eye, like he was trying to convince me and not himself. "Vision 2030 is real," he said.

I told Hamdi that I had corresponded with his friend Lindh, who served 17 years in federal prison in the United States before his release in 2019. Our correspondence had led me to believe that he was just as radical as ever, and that his stay in prison—spent in solitary study of Islamic texts—had confirmed his violent streak and converted him from an al-Qaeda supporter to an ISIS supporter.

Graeme Wood: I wrote to John Walker Lindh. He wrote back.

"Really?" Hamdi asked, before venturing a guess as to why. "The United States doesn't know how to deal with Muslims. When I was in Afghanistan, I had extreme thinking." Going to a Saudi prison helped. "The difference is that in jail [here] we have a program. You want to explode the thinking we have in our brain. For 17 years he was alone." The Saudis filled Hamdi's time. They managed it. "We didn't have time to read the Islamic books … We didn't have time to do anything but work to improve ourselves." He was a specialist in Power's media department, and could now produce videos of passable quality.

"I didn't know what a montage was," he said. "I didn't know what a design was." We were driving to another part of the prison with al-Sarrah in the front seat and Hamdi and me in the back. "Now I am professional!" he said. "I am a complete montage expert!" He pointed at al-Sarrah, who smiled but did not speak or even look back. "All thanks to this man! The government opened this for us! Now I am in a car! Talking to you! Normally! Peacefully! No kind of problems!" Upon release, he said, he might work for his father's company, or even (this was his dream) go into film and television production. I wondered what it might be like to have a co-worker like Hamdi, with, shall we say, an unconventional work history, and a penchant for extremism and Osama bin Laden that he swore up and down had been thoroughly replaced with a love for film and video production and the crown prince of Saudi Arabia. I was pretty sure Hamdi would be a better colleague than John Walker Lindh.

Top left: A camel market about an hour outside Riyadh, in January. *Top right:* A sign on the highway from Jeddah to Taif marking the turnoff for Mecca. *Bottom:* Women in Asir province. Outside Saudi Arabia's major cities, it isn't clear how quickly modernization is catching on. (Lynsey Addario for *The Atlantic*)

At the prison I asked many inmates how they could trade jihadism for these worldly things, which surely amounted to frippery compared with the chance to die in the path of God. They laughed, nervously, as if to ask what I was trying to do—get them to leave the prison and kill again? They were mostly still young, and they yearned for freedom. That they no longer wanted something thrilling and extraordinary was exactly the point. It is possible to have too much vision, or the wrong kind—some of them had gone to Syria, barely survived, and had had enough vision, thank you very much. "We don't want anything but a normal life," one told me. "I would be happy just to go outside, to walk on the Boulevard in Riyadh, to go to McDonald's."

"I went to Syria because I was offered to take part in a dream, the dream of a caliphate," said another. Ali al-Faqasi al-Ghamdi, a bookish man who had been with bin Laden at Tora Bora, told me he now recognized such dreams as counterfeit. What, he asked, is the point of a big, exciting dream when it is a false one? A small ambition that can actually be fulfilled is preferable to a big one that cannot. He looked me steadily in the eye, like he was trying to convince me and not himself. "Vision 2030 is real."

AMERICA MUST NOW decide whether that vision is worth encouraging. Twenty years ago, if you had told me that in 2022 the future king of Saudi Arabia would be pursuing a relationship with Israel; treating women as full members of society; punishing corruption, even in his own family; stanching the flow of jihadists; diversifying and liberalizing his economy and society; and encouraging the world to see his country and his country to see the world—Wahhabism be damned—I would have told you that your time machine was malfunctioning and you had visited 2052 at the earliest. Now that MBS is in power, all of these things are happening. But the effect is not as pleasing as I had hoped.

In 1804, another modernizing autocrat, Napoleon Bonaparte, arrested Louis Antoine, the duke of Enghien, on suspicion of sedition. The duke was young and foolish, and no great threat to Napoleon. But the future

emperor executed him. Around Europe, monarchs were shocked: If this was how Napoleon treated a harmless naif like the duke, what could they expect from him as his power grew, and his domestic opposition dissolved in fear? The execution of Enghien alerted the most perceptive among them that Napoleon could not be managed or appeased. It took a decade of carnage to figure out how to stop him.

Enghien's schemes wouldn't have stopped Napoleon, and Khashoggi's columns wouldn't have stopped MBS. But his murder was a warning about the personality of the man who will be running Saudi Arabia for the next half century, and it is reasonable to worry about that man even when most of what he does is good and long overdue.

For now, MBS's main request to the outside world, and especially the United States, is the usual request of misbehaving autocrats—namely, to stay out of his internal affairs. "We don't have the right to lecture you in America," he said. "The same goes the other way." Saudi affairs are for Saudis. "You don't have the right to interfere in our interior issues."

But he acknowledges that the fates of the two countries remain linked. In Washington, many see MBS's rise as abetted, perhaps even made inevitable, by American support. "There was a moment in time where the international community could have made it clear that the Khashoggi murder was the straw that broke the camel's back, and that we weren't willing to deal with MBS," Senator Murphy told me. The Trump administration's support, when MBS was at his most vulnerable, saved him. "If MBS ultimately becomes king," Murphy said, "he owes no one bigger than Jared Kushner," Trump's personal envoy to the crown prince. ("You Americans think there is something strange about a ruler who sends his unqualified son-in-law to conduct international relations," one Saudi analyst told me. "For us this is completely normal.")

Some still hope that MBS will not accede to the throne. "Only one of the last five crown princes has eventually become king," Khalid al-Jabri noted to me, optimistically. But everything I see suggests that his ascent is certain, and that the search for alternatives is forlorn. Two of those four also-ran crown princes were sidelined or replaced by MBS himself. The other two died of old age.

The United States needs its partners in isolating Iran, and MBS is a stalwart there. And even domestically, he remains in some ways the right man for the job. He is at least, as Philip Zelikow reminded me, not a ruler in denial. "We wanted Saudi leadership who would face their problems, and embark on an ambitious and incredibly challenging generational struggle to remake Saudi society for the modern world," he told me. Now we have such a leader, and he is presenting a binary choice: support me, or prepare for the jihadist deluge.

"We don't have the right to lecture you in America," MBS said. "The same goes the other way."

MBS is correct when he suggests that the Biden administration's posture toward him is basically recriminatory. *Stop bombing civilians in Yemen. Stop jailing and dismembering dissidents.* The U.S. might, on the margins, be able to persuade MBS to use a softer touch—but only by first persuading him that he will be rewarded for his good behavior. And no persuasion will be possible at all without acknowledging that the game of thrones has concluded and he has won.

Many of the exiles I spoke with said their best hope now is that the crown prince will mellow, and that elder Saudi wise men will keep him from destroying the country with rash decisions, like the fight with Qatar, or the murder of Khashoggi. MBS does have a sense that being capricious and impulsive can be costly. "If we run the country randomly," he told me, "then the whole economy is going to collapse." Others had tried that strategy: "That's the Qaddafi way."

King Salman has instituted measures ostensibly intended to force his son to govern more inclusively after Salman's death. He changed the law of succession to prevent the next king from naming his own children, or indeed anyone from his own branch of the family, as his crown prince. I asked MBS if he understood that to be the rule, and he said yes. I asked if he had anyone in mind for the job. "This is one of the forbidden subjects," he said. "You will be the last to know."

WHEN HE IS KING, however, the rules will belong to him, and to ask him to abide by them against his wishes will be about as easy as negotiating from your suite at the Ritz-Carlton.

A crown prince with a subtler mind and a gentler soul might have implemented MBS's reforms without resorting to his brutal methods. But it is pointless to consider policy in a state of childlike fantasy, as if it were possible to conjure some new Saudi monarch by closing your eyes and wishing him into existence. Open your eyes, and MBS will still be there. If he is not, then the man ruling in his place will not be an Arab Dalai Lama. He will be, at best, a member of the unsustainable Saudi old guard, and at worst one of the big beards of jihadism, now richer than Croesus and ready to fight. As MBS told me, to justify the Ritz operation, "It's sometimes a decision between bad and worse."

Since reality has handed us MBS, the question for America is how to influence him. This question is practical rather than moral: If your moralism drives him into a partnership with China, what good will it have been? A fundamental principle of Chinese foreign relations is butting out of other countries' internal affairs and expecting the same from them. Certainly Beijing will not reprimand him for his treatment of dissidents.

In effect, both the Saudis and the Americans are now in the Ritz-Carlton, forced to bargain with a jailer who promises us prosperity if we submit to his demands, and *Mad Max* if we do not. The predicament is familiar, because it is the same barrel over which every secular Arab autocrat has positioned America since the 1950s. Egypt, Iraq, and Syria all traded semitribal societies for modern ones, and they all became squalid dictatorships that justified themselves as bulwarks against chaos.

Twenty years ago, Syria watchers praised Bashar al-Assad for his modernizing tendencies—his openness to Western influence as well as his Western tastes. He liked Phil Collins; how evil could he be? By now most everyone outside Damascus, Tehran, and Moscow recognizes him as Saddam Hussein's only rival in the dubious competition for most evil Arab leader.

MBS has completed about three-quarters of the transition from tribal king with theocratic characteristics to plain old secular-nationalist autocrat. The rest of that transition need not be as ruthless as the beginning, but MBS shows no sign of letting up. The United States can, and should, make the case that Saudi Arabia's security and development will demand different tools going forward. It might even suggest what those tools should be. But it probably cannot make MBS use them.

A more pragmatic approach is to make sure that the reforms he has instituted stick, and that the changes in Saudi culture become irreversible. The opening of the country and the forcible sidelining of a crooked royal class—these are hard changes to undo, and they bind even the absolute monarch who decreed

them. Granting women driver's licenses was ultimately a smooth process. Taking them back would disrupt millions of lives and sow protest across the kingdom. American influence can acknowledge and encourage such changes.

Sometimes this is how absolute power relaxes its grip: slowly, without anyone noticing. In England, the transition from absolute monarchy to a fully constitutional one took 200 years, not all of them superintended by the most stable kings. MBS is still young and hoarding power, and everyone who has predicted that he would ease up on dissent has so far been proved optimistic. But 50 years is a long reign. The madness of King Mohammed could give way to something else: a slow and graceful renunciation of power—or, as with Assad, an ever more violent exercise of it.

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Graeme Wood is a staff writer at *The Atlantic* and the author of *The Way of the Strangers: Encounters With the Islamic State*.

Embargoed until 0945 CST (0145 UTC) 1 August 2023

Caixin China General Manufacturing PMI™

Manufacturing conditions soften slightly in July

Manufacturing conditions in China moderated slightly in July, according to latest PMI survey data. Firms signalled a marginal fall in production amid a fresh decline in overall new business. Muted foreign demand was a key factor weighing on total sales, with new export orders down noticeably in July. Subdued market conditions prompted firms to scale back their purchasing activity and trim their staffing levels slightly. At the same time, cost pressures continued to subside, as average input prices fell for the fourth straight month, which in turn supported a further reduction in selling charges.

When assessing the year-ahead outlook for output, firms were their most upbeat since April. That said, overall confidence remained below the survey's historical trend.

The headline seasonally adjusted *Purchasing Managers' Index™ (PMI™)* – a composite indicator designed to provide a single-figure snapshot of operating conditions in the manufacturing economy – fell from 50.5 in June to 49.2 in July and thereby signalled a deterioration in overall business conditions. Though only marginal, it marked the first PMI reading below 50.0 for three months.

Dampening the headline index was a renewed fall in new business received by Chinese goods producers. Though mild, the reduction contrasted with rising sales volumes in the preceding two months. Companies often commented that relatively sluggish market conditions both at home and overseas had impacted customer demand. Notably, new export business contracted at a solid pace that was the fastest since September 2022. Softer demand conditions led manufacturers to cut production for the first time since January, albeit marginally.

Purchasing activity followed an identical trend to output; falling slightly for the first time since the start of the year. Inventories of inputs meanwhile expanded only fractionally, with growth easing from June. Concurrently, stocks of finished goods were accumulated for the first time since October 2022, albeit marginally. Companies that noted an increase in inventories often mentioned that output had exceeded sales.

Employment across China's manufacturing economy fell for the fifth straight month in July. The pace of job shedding eased further from May's recent record, however, and was only mild. Lower payroll numbers were often attributed to reduced sales, but also efforts to cut costs. Pressure on operating capacities remained muted, with the latest survey showing a further marginal rise in backlogs of work.

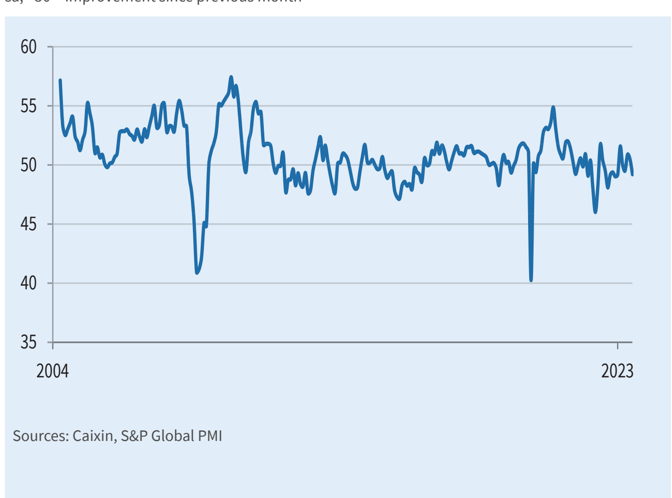
After improving in each of the prior five months, supplier performance worsened slightly in July. There were reports that a lack of stock at some vendors had impacted lead times as they adopted leaner inventory policies in response to the softer demand environment.

Average input costs continued to fall in July. The rate of reduction was the softest seen over the current four-month sequence of decline, however, and only mild. Panel members often commented on lower raw material costs, with metals mentioned in particular. At the same time, competitive pricing strategies and price negotiations with clients led to another reduction in average output charges.

Companies were generally confident in July that output would rise over the next year. The degree of optimism remained historically subdued overall, however, as concerns over sluggish domestic and foreign market conditions persisted.

China General Manufacturing PMI

sa, >50 = improvement since previous month



Sources: Caixin, S&P Global PMI

Key findings:

Output contracts marginally

Fresh fall in total sales amid steeper decline in new export orders

Input costs and output charges decrease again

New Export Orders Index

sa, >50 = growth since previous month

Employment Index

sa, >50 = growth since previous month

Commenting on the China General Manufacturing PMI™ data, Dr. Wang Zhe, Senior Economist at Caixin Insight Group said:

"The Caixin China General Manufacturing PMI came in at 49.2 in July, 1.3 points lower than the June reading. It was the first time in three months that Chinese manufacturing conditions had contracted, indicating that the sector was weakening.

"Both manufacturing supply and demand contracted. The market has been lukewarm, with sluggish demand, and supply has shrunk in tandem. The readings for total new orders and output were the lowest since December and January, respectively. Notably, new export orders fell sharply in July, as risks of an overseas recession mounted, and China's external demand was clearly insufficient. The gauge for new export orders plumbed the lowest since September.

"The manufacturing job market continued to deteriorate, though the contraction was marginally smaller than in the second quarter. With market demand limited, manufacturing companies laid off workers to reduce costs and improve efficiency in July. Backlogs of work were more or less stable. Some surveyed manufacturers said that the tight supply of electricity in the summer hurt order deliveries.

"The gauges for prices remained weak, with the reading for input costs and output prices coming in below 50 for the fourth and fifth consecutive months, respectively. Deflationary pressure continued to build. The decline in the prices of bulk commodities such as industrial metals has dragged down the costs of production, and the market downturn and insufficient demand have prevented companies from raising prices for their customers.

"Supplier delivery times got a bit worse in July. The time it takes suppliers to deliver their products increased for the first time in the past six months, with the corresponding subindex coming in at its lowest reading since January. That was because some suppliers reduced their desired inventory levels amid a sluggish macroeconomic environment, leading to shortages in the supply of some raw materials. In addition, there was a slight increase in the inventories of finished goods in July, but surveyed businesses said they didn't take the initiative to replenish their inventories.

"Manufacturers remained optimistic. The July reading for their expectations for future output stayed above 50, though the figure came in below the historical average. Some surveyed companies expressed concerns about the economic prospects at home and abroad.

"Overall, manufacturing conditions contracted in July, with supply, demand, exports and employment all deteriorating. Prices continued to decline, inventories rose without companies adjusting them, and logistics times increased. Manufacturers maintained their optimism, but to a lesser degree.

"China's economic recovery in the first quarter exceeded expectations, but the momentum weakened in the second. Although the data for industrial production and investment in June showed some signs of recovery, macroeconomic growth remained sluggish, and considerable downward pressure on the economy persisted.

"The July Politburo meeting highlighted that the current economy faces new difficulties and challenges, and that the external environment is complex and severe. The meeting emphasized the need to actively expand domestic demand and let consumption play a fundamental role in driving economic growth. In terms of policies, guaranteeing employment, stabilizing expectations and increasing household income should still be the top priorities. At present, monetary policy only has limited effect on boosting supply. An expansionary fiscal policy that targets demand should be prioritized."

China's Oil Demand May Have Peaked for 2023 in Blow to Bulls (1)
2023-08-02 01:53:45.187 GMT

By Bloomberg News
(Bloomberg) -- China's appetite for fuels and other oil-derived products such as plastics may have peaked for this year as the nation's economic woes continue to stand in the way of a full rebound from Covid Zero.

While recent headline numbers for crude imports pointed to robust oil demand, much of that supply has been stockpiled rather than turned into gasoline and diesel, according to analysts. The nation's economic recovery continues to show signs of strain this year through weak indicators across manufacturing and infrastructure sectors, weighing on the outlook for commodities.

Oil bulls have already revised their expectations on China's outlook, but further economic hurdles could cap crude's price gains, even as the market tightens on supply cuts by key OPEC+ members. Industry consultant Mysteel OilChem says diesel and gasoline consumption is unlikely to reach pre-pandemic levels this year, and electric vehicles are presenting a challenge to future demand.

"There is not much room for growth left in the second half," said Mia Geng, an analyst with FGE, referring to China.

The industry consultant expects Chinese oil demand growth will slow to 1.1 million barrels a day over the final six months of the year, compared with 1.3 million barrels a day in the first half.

Read More: Citigroup's Ed Morse Warns Oil Bulls Are Wrong to Jump In Now

While the post-Covid-19 recovery has disappointed, China's oil demand is still expected to climb in coming years before peaking in 2030. However, headwinds still remain for energy consumption in the short term.

Diesel Lull

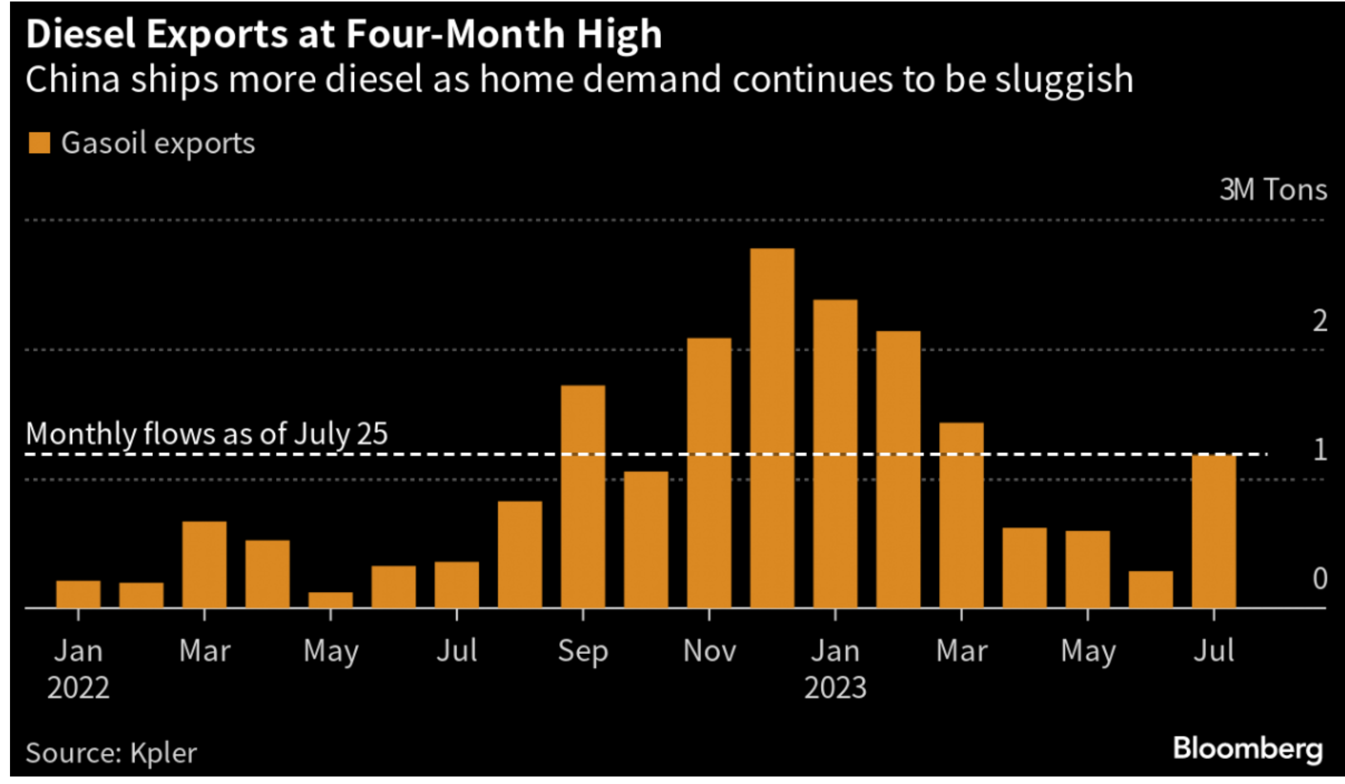
China's oil demand this year likely peaked at 16.4 million barrels a day in the second quarter, said Jianan Sun, an analyst with Energy Aspects Ltd. It's expected to ease to 15.8 million barrels a day in the third quarter before rising in the final three months to about 16.2 million barrels a day.

For 2024, Energy Aspects expects demand will remain above 16 million barrels a day, reaching almost 17 million barrels a day in the second quarter.

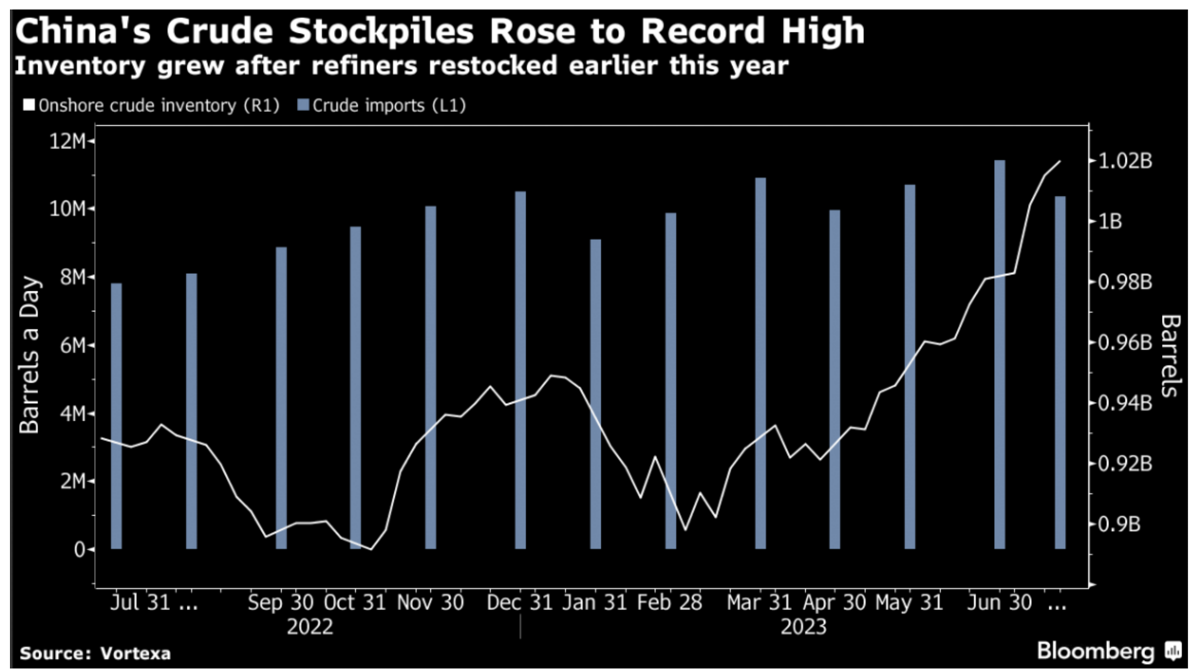
The current demand weakness is evident in diesel, a key industrial fuel used in the mining, logistics and agriculture sectors. The nation has ramped up exports and added to commercial stockpiles as domestic consumption wanes, according to data intelligence firm Kpler and OilChem.

Monthly overseas shipments were at 1.19 million tons as of

July 25, the highest level since March, according to preliminary data from Kpler, while OilChem estimates commercial inventories were at a three-month high as of July 20.
Read More: Diesel Exports Flood Out of China on Demand Lull, Good Margins



China's imports of crude exceeded 12 million barrels a day in May and reached a three-year high in June, prompting bullish optimism in the nation's outlook. However, a lot of that oil has been stockpiled as buyers took advantage of lower prices to replenish inventories and demand disappointed.
Beijing doesn't publicly disclose the size of the nation's crude inventories but Vortexa Ltd. estimates onshore stockpiles have expanded to a record 1.02 billion barrels. That compares with the US strategic reserve, which currently holds almost 347 million barrels after a series of drawdowns.
Crude processing is pointing to a mixed picture. Operating rates for state-run refiners were just over 80% of capacity as of July 27, ten percentage points higher than same period last year, but rates for the nation's independent processors were down from a year earlier, near 60% of capacity.



The possibility of meaningful stimulus by Beijing this year looms, which would propel oil prices higher. The government has so far stopped short of providing direct fiscal support to consumers and companies to increase spending.

Congestion levels in top Chinese cities are easing and the rapid adoption of electric vehicles is posing a challenge to gasoline consumption. Beijing recently introduced measures to boost purchases of so-called new-energy vehicles.

Sales of NEVs — electric vehicles and plug-in hybrids — climbed 37% to 3.1 million units in the first half of the year compared with the same period in 2022, while internal combustion engine car sales slid 8%. Both gasoline and diesel consumption will reach about 95% pre-pandemic levels this year, according to Liu Bingjuan, an analyst with OilChem.

“For the second half, it seems there’s not much meaningful demand growth on the gasoline and diesel consumption front,” Guo Chaohui, an analyst at Beijing-based China International Capital Corp. However, crude imports may remain robust if refiners continue to restock, he added.

The Week’s Diary

(All times Beijing unless noted.)

Wednesday, Aug. 2:

* Greenpeace online seminar on China-EU clean energy investment, 09:30
* CCTD’s weekly online briefing on Chinese coal, 15:00
* EARNINGS: Power Assets

Thursday, Aug. 3:

* Caixin China services & composite PMIs, 09:45
* China Petroleum and Chemical Industry Economic Situation Analysis Conference in Zhengzhou, day 1

Friday, Aug. 4:
* China weekly iron ore port stockpiles
* Shanghai exchange weekly commodities inventory, ~15:30
* China Petroleum and Chemical Industry Economic Situation Analysis Conference in Zhengzhou, day 2

On the Wire

Parts of northern China are grappling with the impact of intense flooding as the death toll rose to 20 following days of torrential rain in the wake of Typhoon Doksuri.

--With assistance from Jason Rogers.

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Management review

A.P. Moller - Maersk reports robust Q2 financial results, as volume and rate trends unfolded as expected. The pace of revenue decline moderated as rates continued to come off their 2022 peak and volumes remained weak due to continued destocking particularly in North America and Europe.

A.P. Moller - Maersk continue to expect muted global macro-economic growth given continued pressure from higher interest rates and potential recessionary risk in Europe and the US. Given the weak start of the year and the continued destocking, A.P. Moller - Maersk now sees the global container volume growth in the range of -4% to -1% compared to -2.5% to +0.5% previously.

While this implies lower second half volumes than originally expected A.P. Moller - Maersk raises its full year financial guidance reflecting the strong financial performance in the first half of the year.

Cost measures provided a strong support to profitability in the second quarter and will continue to be sharpened across all segments given the lower level of expected activity in the second half.

Highlights Q2 2023

Revenue for Q2 decreased by USD 8.7bn to USD 13.0bn (USD 14.2bn in Q1) led by USD 8.7bn lower revenue from Ocean, and lower revenue of USD 116m and USD 174m from Logistics & Services and Terminals, respectively. **EBITDA** decreased by USD 7.4bn to USD 2.9bn (USD 4.0bn in Q1), driven by a USD 7.3bn lower contribution from Ocean. **EBIT** decreased by USD 7.4bn to USD 1.6bn (USD 2.3bn in Q1) with USD 7.3bn stemming from Ocean.

Ocean continued to be impacted by the ongoing normalisation after the 2022 peak and by lower demand, driven by a prolonged and significant inventory correction. These difficult market conditions were further challenged by having new tonnage being phased in. The result was lower volumes and rates that continued to erode, albeit at a slower pace than in the previous periods. A strong cost drive managed to offset part of the top line impact and deliver a result ahead of the company's expectations.

Logistics & Services business performance continues to be impacted by lower volumes as a result of continued destocking and lower consumer demand as well as lower rates, particularly in the Air market. As in Ocean, market demand is expected to continue to be subdued as long as the destocking process lasts.

Terminals' top line was influenced by the normalisation of storage revenue and lower volume due to lower demand and less congestion in North America, but strong cost control contributed to a continued solid financial performance.

Free cash flow of USD 1.6bn (USD 6.8bn) declined due to decreased cash flow from operating activities and repayment of lease liabilities, slightly offset by higher financial income and lower capital expenditures.

The **divestment of Maersk Supply Service** to A.P. Møller Holding A/S was closed in May 2023.

A.P. Moller - Maersk continued to progress on its decarbonisation roadmap with an order of additional six green methanol enabled vessels and additional 25 e-trucks for low-carbon transport. In July, the international Maritime Organization (IMO) adopted a significant agreement aiming to secure that the industry reaches net zero by 2050, supporting A.P. Moller - Maersk's own targets.

Highlights Q2

USD million

	Revenue		EBITDA		EBIT		CAPEX	
	2023	2022	2023	2022	2023	2022	2023	2022
Ocean	8,703	17,412	2,259	9,598	1,205	8,526	314	517
Logistics & Services	3,386	3,502	311	337	115	234	223	286
Terminals	950	1,124	331	400	269	316	97	105
Towage & Maritime Services	504	579	59	81	71	16	99	93
Unallocated activities, eliminations, etc.	-555	-967	-55	-89	-53	-104	5	7
A.P. Moller - Maersk consolidated	**12,988**	**21,650**	**2,905**	**10,327**	**1,607**	**8,988**	**738**	**1,008**

Market insights

Global economic growth is projected to hover around 2% in 2023. Despite the improvement in Q1, cracks began to appear in the economic outlook in Q2. In China, the re-opening recovery that followed the end of the zero-COVID policy lost steam, and the local property sector shows no signs of a rebound. In the US and Europe, the rapid increase in interest rates created stress in the banking sector in H1 2023 and concerns have emerged about potential spill-overs to other financial institutions. Survey indicators point to flat growth, at best, in Europe and the US in H2 of 2023 and the start of 2024, with a material risk of recession in both regions. The manufacturing sector continues to struggle, and the Global Purchasing Managers Index has remained in contractionary territory since September 2022.

Final demand has started to weaken, with investment spending, both capital expenditure and housing, suffering from the rapid increase in interest rates. Consumers in Europe have continued to adjust their goods spending in Q2. The drop was modest in the Euro area, with retail trade down 1.7% in April-May (y/y). It was more severe in the UK, where goods consumption dropped 2.3% (y/y). In the US, goods consumption growth remained in positive territory in April-May (1.1% y/y), but sequential growth has clearly slowed. Meanwhile, the inventory correction is still running its course. While the inventory-to-sales ratio has improved for retailers, it remained high among wholesalers, indicating that efforts to align inventories with demand are underway, but there is still work to be done, which will continue to affect the logistics activities across all segments.

The combination of recession concerns and high inventories has resulted in poor demand growth for container trade and logistics services. In Q2, the demand for containers declined between 4.0% and 6.5% year-on-year, due to weak import growth into North America, Oceania and Far East Asia. Imports into Europe showed signs of improvement in Q2 following a very weak run, and together with positive import growth into West Central Asia, and sustained improvement in imports into Africa, offset some of the weakness elsewhere.

On the supply side of the Ocean market, the increasing stream of vessel deliveries and still limited scrapping activity is pushing up fleet growth. Globally, the nominal container fleet stood at 27.3m TEU at the end of Q2 2023, an increase of 6% compared to Q2 2022. Moreover, easing supply chain bottlenecks and weaker demand on long-haul trades is releasing capacity to the market. SeaIntel data shows that the share of the Global container fleet absorbed by delays decreased from a peak in January 2022 of almost 14% to a post-pandemic low of 3.6% in May 2023. Some of the available capacity is being absorbed by slower steaming and cancelled sailings. According to Clarksons containership average speed declined 3%, from 14.4 knots in Q2 2022 to 13.9 knots in Q2 2023. However, the gap between demand and supply growth continued to widen in Q2 in year-on-year terms. Scrapping activity was muted in the first half of the year, but it is expected to increase going forward. The deterioration in the supply-demand balance has put downward pressure on freight rates since Q3 2022. The SCFI Composite Index average was 985 in Q2 2023, compared to 4,208 for the same last year and 772 in 2019.

Air freight volumes fell again in Q2 (y/y), although the pace of declines has slowed compared to Q1. However, the improvement was more due to a base effect than to a meaningful pick in demand. By region, North America saw Cargo Tonne Kilometre (CTK) volumes fall an average of 11% during April and May, while in Asia-Pacific and Europe volumes were down 2% and 7% respectively (IATA). At the same time, the return of passenger flights expanded the capacity further. According to IATA, global cargo load factors were 42.1% in April and May compared to 45.5% in Q1, and rates deteriorated further. The Baltic Airfreight rate was USD 2.15/kg in Q2, 46% down compared to a year before.

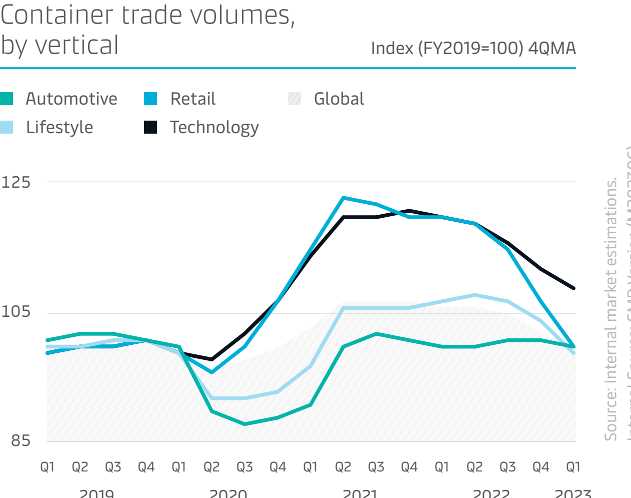
Road freight demand weakened in the US in Q2. The seasonally adjusted ATA Truck Tonnage Index decreased by 1.3% in May - the third consecutive year-on-year decrease. The deterioration is also visible in rates. However, unlike for container trade, these are still well above pre-pandemic levels, suggesting further deterioration may be in sight.

In the US, demand for warehousing has begun to pull back with Prologis forecasting an average 4.3% vacancy rate in 2023, up from 3.1% in 2022. Prologis' forecast for "true months of supply" (a measure of how much time would be required to absorb all available supply) currently stands at 34, more than double the 2021 reading. Vacancy rates for warehousing are expected to rise further in the US and Europe in the second half of 2023, however they will remain close to 2022 lows.

Overall, the environment for container trade and logistics services remains challenging. Currently there is no sign of a substantial rebound in volumes in the second half of the year. As a consequence, the expected full-year 2023 demand growth for global container trade is revised to -4% to -1%. Similarly, demand for air freight is expected to be in the -5% to -2% range.

Container trade volumes, by vertical

Index (FY2019=100) 4QMA



Source: Internal market estimations. Internal Source: CMD Version (M202306).

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Several business risks and uncertainties could cause actual results to differ materially from these forward-looking statements and our financial outlook. Please refer to the risk factor and risk management section of our MD&A for the quarter ended June 30, 2023 for a more complete description of business risks and uncertainties facing STEP. This document is available both on our website and on SEDAR. During this call, we will also refer to several common industry terms and certain non-IFRS measures that are fully described in our MD&A, which again is available on SEDAR and on our website.

With that, I will pass the call over to Steve.

Steve Glanville {BIO 17861781 <GO>}

Yes. Thanks, Dana, and good morning. Welcome to our second quarter conference call. My name is Steve Glanville, and I'm the President and CEO of STEP Energy Services.

Hopefully, you've had the opportunity to look through our results. As you see, it was another excellent quarter for the company, and more importantly it was an excellent second quarter, which historically has been a challenging one for a Canadian-based energy services company. Spring breakups conditions typically suppress activity to such a degree that companies often spend the second half of the year, making up traction loss in Q2.

This is the second year in a row that we have achieved impressive results because of our alignment with very active Canadian clients, and our best-in-class sand and logistics management group, which navigated spring road bans, and an early and unpredictable start to the wildfire season.

In the U.S., we posted healthier margins in fracturing, while our U.S. crow tubing division had another record quarter. Before I turn the call over to Klaas, I'd like to highlight two numbers: first, we posted CAD47.4 million of adjusted EBITDA, which was ahead of consensus and also higher than our first quarter number of CAD45.3 million. Although, we didn't reach the CAD55.2 million record set one year ago, it was still a very strong quarter, and would have been stronger if work wasn't delayed due to the wildfires in BC and Alberta, and also the flooding in some key operational areas.

Second, our net debt position improved to approximately CAD116 million, down from CAD133 million from Q1. On a trailing 12-month basis, our net debt is down to 0.6x adjusted EBITDA. Although, we continue to plan for more debt retirement through strong free cash flow, we have given ourselves some strategic latitude.

Historically, this amount of leverage would have been considered an unlevered balance sheet. We now call it a strong balance sheet, and it will get stronger even as we continue to upgrade our equipment to meet the growing performance demands of our clients, including lower emissions. And speaking of upgrades, I am happy to report that our Tier 4 dual-fuel fracturing fleet is complete, and working for our Canadian client. And we're seeing displacement rates of up to 85%, which is reducing operational emissions.

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I will return at the end of the call to address our strategy and outlook. And now, I'll turn it over to Klaas, our CFO to give a review of our key financial highlights.

Klaas Deemter {BIO 22021215 <GO>}

Thanks, and good morning, everyone.

Before I start, quick reminder to listeners that all numbers are in Canadian dollars, and they'll round in most cases. Full details can be found in our MD&A. I'm going to start with a consolidated snapshot of our income statement, followed by some country-specific detail, and then we'll close with some balance sheet commentary.

As noted, the second quarter was not a strong achievement by the company. We didn't quite match last year's record-breaking Q2, but it was still an excellent one in many ways. Revenue for the quarter was CAD232 million and adjusted EBITDA was CAD47 million. This figure also includes CAD1.1 million for fluid ends in Canada, something that we began expensing in 2023. This quarter compares to the CAD273 million in revenue that we earned last year last year CAD55 million of adjusted EBITDA in last year's second quarter. That quarter has been described by some as being so perfect that it could be called lightning in a bottle.

On a sequential basis, revenue was down 2%, but our adjusted EBITDA was 5% higher than the CAD45 million we earned in the first quarter, and our margin improved at 20% in Q2 from 17% in Q1. This improvement is partly driven by job mix, but also it comes through disciplined cost management in both geographic regions, particularly in the U.S., where the land rig count fell roughly 15% from its peak from last year to the end of June.

Net income for the second quarter was CAD15 million or about CAD0.21 per share on a fully diluted basis, as compared to CAD38 million or CAD0.54 per share a year ago. Note that, last year's second quarter benefited from an impairment reversal of CAD33 million. Sequentially, net income was down from the CAD20 million earned in Q1, but that quarter had a share-based compensation expense recovery of CAD5 million versus an expense of just over CAD1 million in the past quarter.

Turning now to our Canadian segment. As Steve noted, spring breakup remains a factor in the Canadian business, but we're starting to see more clients recognize the value of planning for work in the second quarter. With a bit of foresight clients with large pad work can realize incremental savings relative to Q1 or Q3. Increasing Q2 work has been a goal of our company as it level lowers the demands, not just on our business, but the entire WCSB infrastructure network. Everything from sand to wireline to water can be easier to access this quarter, and we're seeing in the quarterly results that we've posted these last few years.

Second quarter revenue of CAD136 million in Canada was a great result, considering that we had to deal not just with volatile commodity prices, but also with drought, fires, and floods. This was down CAD29 million from Q2 last year, but despite all the headwinds we faced, we were able to increase our adjusted EBITDA margin performance, improving from 24% last year to 25% this year.

Finally, our latest book value per share has increased to CAD4.68 from CAD4.55 in March 31 and versus CAD3.33 a year ago. That is a full year accretion to equity holders of over CAD108 million, or about CAD1.35 a share.

With that, I'll turn it back to Steve for some key remarks on our strategy and outlook. Steve?

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Steve Glanville {BIO 17861781 <GO>}

Hey, thanks Klaas. Looking at the quarter as a whole, we are very pleased. Our U.S. coiled tubing division continues to raise the bar with respect to performance levels. Our U.S. fracturing division rallied from a difficult start to the year due to client delays. Canadian fracturing put up what may be the best results of any fracturing company operating in Canada this quarter, and Canadian coiled tubing held its own during spring break up. This really does sum up our strategy, business line and geographic diversity.

Supporting this strategy, these results are achieved with great people, and our well-maintained modern equipment. And while I'm on the topic of great people, I want to share something about STEP's people philosophy. You may have heard us call our employees professionals. The word professional is used very deliberately, and refers to the fracturing crews in Northern Alberta, coiled tubing crews in Texas, members of our first-class logistics and supply teams, our office-based professionals who have surround me every day, and every other valuable member of our company. We empower all of our people to lead with professionalism, and to excel in their roles each day. This is certainly evident in results like this in a second quarter. Our view of people as professionals is a big part of our secret sauce, and they are the reason we can achieve what we do.

Circling back to our strategic position as a diverse energy services company, we know that the most successful companies in our sector will have strong positions in both geographic markets, which include the best oil and gas players in North America. A major driver in our industry is LNG development, and the momentum continues to grow. The tone in Canada is positive, and it appears that shell is roughly on track to begin commissioning the LNG Canada project a year from now, with the first gas exports expected in 2025. Shell appears to be favorably disposed to moving forward with Phase II of the project for train three and four, which would add another two Bcf a day to Western Canadian takeaway capacity toward the end of the decade.

Although, the decision is at least a year away, these developments are making Canada a more constructive market for fracturing and coiled tubing services. A market that is less dependent on domestic oil and gas prices.

On the U.S. side, another LNG project was sanctioned at the beginning of the third quarter, which is called NextDecade's Rio Grande Project. This will add another 2.5 Bcf a day of export capacity. This adds to numerous gas pipeline projects that are currently under construction or have been recently approved, including the Williams Louisiana Energy Gateway Project that will transport about 1.8 Bcf per day of Haynesville gas to the Gulf Coast.

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In fact, by the end of the decade, the U.S. is on track to double its natural gas export capacity via LNG. It is a market step times a grow list. As part of this, we are currently in the process of upgrading 16 of our existing U.S Tier 4 fracturing pumps to dual-fuel capability, which is an addition to our existing fleet of 26 Tier 2 dual-fuel pumps. We can also bring additional deep capacity coiled tubing units on the U.S. market, as the U.S. market grows. I want to turn to our regional outlook.

Starting in Canada, STEP's second half looks solid, although we have had some work deferred into 2024, which our clients believe will be a more constructive and less volatile pricing environment. The laying down of drilling rigs by one major E&P Company may also decrease the number of completions operations, and lead to a bit more competition in the market. However, we believe the activity level should remain solid to support the volumes required by LNG Canada.

In addition, the recent strengthening of global oil prices could sustain the overall completions market until we move to a busy winter season again. As well, Q3 will be our first full quarter with our new Tier 4 fracturing fleet, which will contribute to operating margins in line with the investments made into this improvement.

In the U.S., for the second half of the year, we have chosen to align with larger E&P companies with very active fraction programs to retain high utilization, but we've made a modest sacrifice in pricing to accomplish this. As our U.S. competitors have noted in their recent conference calls, the 15 plus percent pullback in U.S. land drilling levels will reduce the pace of industry completions in the third and perhaps fourth quarter. So, we think our alignment with active and predictable clients is the right business strategy in the near term.

Having said that, stronger oil prices and a modest uptick in U.S. natural gas prices should lead to a more constructive 2024 fracturing market. In U.S. coiled tubing, we see a plateauing of activity at the high levels of the second quarter, which should generate very good results in the back half of the year.

Before I turn the call back to the operator, I want to close by first noting a couple major step-operating achievements in the field. The first is one of our West Texas-based deep coiled tubing crews set a new depth record, reaching a remarkable 27,075 feet. That's over 8.2 kilometers during a post-fract clean-out. They beat our previous record by almost 500 feet. This was a deep and complex well that our exceptional crew of professionals and deep-capacity equipment made possible for this client.

The second on a five-well pad, a Montney, for one of the largest E&P companies in North America, STEP fract crew FR-02[ph] achieved a new daily pumping record of 5,196 tons, a profit pumped in a 24-hour period. In addition to this record, STEP recorded the client's fastest stage transition time of 1 minute and 42 seconds. This exemplifies the best-in-class service we deliver to our clients, and the execution of flawless and safe operations.

Operator, we are pleased to take any questions.

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Great. And then, just staying on the topic of Tier 4 DGB fleets. Are you considering what's the long-term plan, let's say, for your fleet in Canada in terms of converting to Tier 4 DGB?

A - Steve Glanville {BIO 17861781 <GO>}

Yes. We have basically a sustainability and optimization CapEx plan that's spread out over the next two to three years. We've looked at our end-of-life use on our assets, and we'll continue to upgrade the Tier 4 engines as our Tier 2 engines get to that 20,000 to 25,000 engine mark. So that's our plan today. We're going to continue to invest into low emission engines for our fleet. And by the end of 2025, we plan to have 90% of our fleet basically on dual fuel.

Q - Waqar Syed {BIO 1958105 <GO>}

Yeah. And then just last question on your contracting to these larger E&Ps in the U.S. and these dedicated contracts. They certainly improve the business visibility. Now, these client supported materials, does that type of contract continues going forward, or is there any flexibility that you see that contracts may change? Are you going to stick with those terms?

A - Steve Glanville {BIO 17861781 <GO>}

We're really happy with how our sales and operations team have aligned ourselves with clients that have larger programs that provides, obviously consistent utilization. We've looked at all the numbers. We're really happy with returns on the numbers that we receive. And it provides some great stability Waqar, for our U.S. business. We have three fract crews in the U.S. We're not a very large player currently today. We were up to four. We shut down one crew in Q1, as we mentioned in the past. But it provides us a great platform for growth.

We're only going to grow where it makes sense to do that. Like we mentioned, we'll add coiled tubing capacity if we see it. We'll add fract capacity only if there's a long-term contract in place in the U.S. and that's what the team is focusing on. So we're really happy with the position that we have. We have visibility to high utilization crews for the remainder of the year. And our team is looking into 2024 and 2025 currently today.

A - Klaas Deemter {BIO 22021215 <GO>}

Just specifically around the question that goes around proppant. Is that what you're asking, Waqar?

Q - Waqar Syed {BIO 1958105 <GO>}

Yeah. That's right. Yeah. So the -- go ahead.

A - Klaas Deemter {BIO 22021215 <GO>}

So you're seeing clients take on more of that proppant, just the availability of sand down there. Last year was a lot tighter, so you saw a lot of pumpers supply sand. And now this year, we're seeing clients source their own sand in a lot of cases.

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Q - Waqar Syed {BIO 1958105 <GO>}

All right. Sounds good. Thank you very much. Appreciate the color.

A - Steve Glanville {BIO 17861781 <GO>}

Thanks Waqar.

Operator

Your next question will come from Cole Pereira at Stifel. Please go ahead.

Q - Cole Pereira {BIO 22180923 <GO>}

Good morning, all. Just wanted to clarify your earlier comments on the upgrade program. So going forward, do you have a bit more of a preference to Tier 4 with the aftermarket bi-fuel kit or will you also lump Tier 4 dual gas blending into your future plans as well?

A - Steve Glanville {BIO 17861781 <GO>}

Cole, will you be able to maybe rephrase that question?

Q - Cole Pereira {BIO 22180923 <GO>}

Yeah. Sorry. So obviously you -- just to clarify, you are planning on continuing to upgrade to Tier 4 dual gas blending engine or just the aftermarket bi-fuel kit?

A - Steve Glanville {BIO 17861781 <GO>}

Yeah. So in the U.S. we currently had 80,000 horsepower of Tier 4 assets, but they weren't dual fuel capable when we received them in 2018. And now the market obviously has improved that technology. And so this kit that we have is an aftermarket kit that is very similar to, call it the CAT DGB fleet that is well known in the industry.

A - Klaas Deemter {BIO 22021215 <GO>}

DGB is a -- I'm going to say a trademark, maybe not say that quite right, but it's a CAT specific term, Dynamic Gas Blending, whereas dual fuel is a more generic term. So because we have dual fuel kits in the U.S. and they're not on CAT, so we can't call them DGB. So that's why we're going to talk more generally around dual fuel. So it's kind of a U.S. versus Canada, MTU versus CAT distinction.

Q - Cole Pereira {BIO 22180923 <GO>}

Okay. Got you. And on the Canadian side, I mean, yeah, you talked about some of the strong near-term outlook. Have you really seen much in terms of customers firming up plans for 2024? And if so, can you maybe add some color on that?

A - Steve Glanville {BIO 17861781 <GO>}

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Yeah. I can share a little bit, Cole. We're definitely seeing an increase in kind of client calls for getting calendar space for Q1. I would say, it's probably earlier than we've ever seen today. So currently, our plan is to stay with our five fract crews in Canada, we don't plan to add any until the market comes to a very under-supplied position. And I would say today we're kind of 50% already booked, maybe even higher for Q1 of next year.

Q - Cole Pereira {BIO 22180923 <GO>}

Okay.

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A - Klaas Deemter {BIO 22021215 <GO>}

My comment earlier around Q2. If you take a look at what we did collectively as a group of pumpers in Q1 and the rest of the industry, the capacity constraints are becoming very, very apparent, particularly around sand and logistics. So pushing more work into Q2, and also advancing some of the Q4 is something that we'll be having a lot of conversations with our clients.

Q - Cole Pereira {BIO 22180923 <GO>}

Okay. Perfect. That's all for me. Thanks. I'll turn it back.

A - Steve Glanville {BIO 17861781 <GO>}

Thanks Cole.

Operator

Your next question will come from Keith Mackey at RBC. Please go ahead.

Q - Keith Mackey {BIO 19833215 <GO>}

Hi. Thanks, and good morning. Just wanted to start out on the fastest transition time you did in the Montney, that 1 minute 42 seconds. Can you maybe just run through some of the big factors that led to that? I'm sure there are some with people, process, technology, et cetera. Maybe just kind of give us the flavor of that. And maybe discuss how low you think that number can go.

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A - Steve Glanville {BIO 17861781 <GO>}

Yeah. Keith, I mean, obviously you've seen the transition into our industry go from call it 14 pumping hours per day. That was an average that we saw kind of in 2020 timeframe. So now we're upwards of 18 and 19 pumping hours per day and even higher. And that -- there's are a lot of factors into getting that efficiency so high. One of course is -- the main one is working with our clients to understand every minute of available time that we have.

And for this client in particular, we've been working with for quite some time looking at ways to improve. And so there's technology that's available that basically allows you to kind of remotely operate valves of the wellhead so you can -- you don't have anybody in the hot zone. And so you're allowing basically to have one wellhead open and when the

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fract stage is done, the other wellhead is open in an hour and 42 minutes, so -- or yeah, I'm sorry, 1 minute and 42 seconds. So there's technology.

But as you can imagine, the logistics, just the overall setup of these locations, it's more like a factory process now. I talked about the record of close to 5,200 tons being pumped in a 24-hour period. That's a 133 B-train loads of sand, or 266 loads, single loads. So it's a very, very well-orchestrated process that we have in the field to be able to achieve that. And we -- in Q2 alone, we were able to haul 90% of our own product internally. And I think that's a key highlight for our efficiencies gained in the quarter, as we have the ability to control those costs, and control the lead times to get profit.

And we really saw, as the wildfires were suppressed, and we saw the industry really ramp-up, call it the middle of June. I think every one of the every one of the Canadian pressure pumpers were extremely busy at that time, and there was lots of call it, sand delays, people trying to find sand. And so us having a lot of control over our logistics just creates a differentiator in our space.

Q - Keith Mackey {BIO 19833215 <GO>}

Thanks. And maybe just to follow-up. You've got an interesting position given you operate in the Permian and the Montney -- Permian in the U.S., Montney in Canada. Can you just talk a little bit more about the differences and similarities in those two markets in terms of things like pumping intensity, your ability to get compensated for that pumping intensity and whether there's some convergence in Montney intensity and operation to the Permian. And how you think that might affect where things go over the next 12 months to 18 months, say?

A - Steve Glanville {BIO 17861781 <GO>}

I'm not a geologist, Keith, but what I can tell you is that the U.S. have done a great job of understanding the rock, understanding kind of optimal proppant placement stage design. And so that has really transferred into the Montney where we're seeing more intensity, higher proppant loadings per stage, more stages on a horizontal length. I think in the U.S., what the -- in particularly in the Permian, they have regional mines that are within, call it a 100-mile radius of where the work is. And so that's a big advantage for them down there to be able to keep their costs low.

Of course, in the Montney, not a lot of richer mines in that area. We have a totally different surface geography with rocks and not beaches. So that's a lot different in northern Alberta than it is in West Texas. So -- but I think, in the U.S., what we're seeing is more stability from an activity standpoint, a lot more rigs that are active, where there's 300-plus drilling rigs working in the Permian today. And I see Montney obviously, not getting to that type of scale. But it's very, very early stages of the Montney, when you look at it from an overall depletion standpoint. I think you're going to see a lot more activity there in the coming future.

And we're seeing, obviously in the Permian where perhaps there's -- the Tier 1 acreage that's being drilled up. And I've commented about tis before is our -- the decision to get into ultra-capacity or deep-capacity coiled tubing, basically showed the value in Q2. Where

we are milling out these three-mile laterals. So they drill them down two miles and they're out three miles. So very, very long lateral lengths. We have the technology on the coiled tubing side to be able to get to those lengths. And we believe that's where we need to be positioned in the future.

Q - Keith Mackey {BIO 19833215 <GO>}

Thanks very much. That's it for me.

A - Steve Glanville {BIO 17861781 <GO>}

Thanks Keith.

Operator

Your next question will come from Josef Schachter at Schachter Energy. Please go ahead.

Q - Josef Schachter {BIO 1824996 <GO>}

Good morning, Klaas and Steve. And congratulations on the quarter, and the improvement to the balance sheet. First one for Klaas, in the presentation of (Technical Difficulty) in the presentation with -- Hello?

A - Steve Glanville {BIO 17861781 <GO>}

Yeah. We got you. Go ahead.

Q - Josef Schachter {BIO 1824996 <GO>}

Okay. In the presentation of expenses, materials and inventory cost CAD60.6 million versus CAD93.3 million a year ago. Any specific reason why those came down so much?

A - Klaas Deemter {BIO 22021215 <GO>}

That's a very detailed question. I'm going to have to -- tell you what, Josef, give me a call after the conference call here, and we'll go through that here.

A - Steve Glanville {BIO 17861781 <GO>}

I think it's probably more because in the U.S. we are having more client supplied sand is where my head goes to Josef, right off the bat.

Q - Josef Schachter {BIO 1824996 <GO>}

Okay.

A - Steve Glanville {BIO 17861781 <GO>}

But let Klaas get back to you on that.

Q - Josef Schachter {BIO 1824996 <GO>}

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Q - Josef Schachter {BIO 1824996 <GO>}

Okay. Super. Well, congratulations. And again, thanks for taking my questions.

A - Klaas Deemter {BIO 22021215 <GO>}

Josef, just a quick questionnaire. So you did -- I caught up with where you were going there on that materials and inventory cost. So yeah, we were -- we had a much higher proportion of client-supplied sand in the U.S. last year, and that'll obviously drive high revenue numbers. So last year was quite a bit higher. So if you take a look at that as a percentage of your total operating expenses, that's why it's higher.

Q - Josef Schachter {BIO 1824996 <GO>}

Okay. Super. Thanks for the info. Thanks Klaas.

A - Klaas Deemter {BIO 22021215 <GO>}

You're welcome.

Operator

(Operator Instructions). Your next question will come from Bill Austin at Daniel Energy Partners. Please go ahead.

Q - Bill Austin {BIO 1516392 <GO>}

Hey, guys. How's it going?

A - Steve Glanville {BIO 17861781 <GO>}

All well, Bill. Good to hear from you.

Q - Bill Austin {BIO 1516392 <GO>}

Yeah. Hey, so one thing I wanted to touch on is like, as you guys consider some potential M&A opportunities, and you talk a lot about the shift to dual fuel already. How attractive are some of the small private fract players in the U.S.?

A - Steve Glanville {BIO 17861781 <GO>}

Great question Bill. And we've looked at a lot of opportunities, particularly the small privates to add. Really we like to double our fleet size in the U.S. so to get up to six or seven. The challenge that we have, we trade at such a low multiple right now, and when you look at that trying to -- the bid ask for some of these is quite a large spread. And then when you dive a little bit deeper into some of these fleets that are currently active are older technology. So when you add perhaps the asking price plus the refurb-costs, it makes more sense probably to build new. And so that's kind of our strategy going forward. Bill, is to look at longer-term contracts, provide the client with the latest technology that's available, and grow the business that way. Unless there are some fleets

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quarter with positive working capital of approximately $128 million, including cash of about $40 million.

And finally, in terms of return of capital, we were quite active in our NCIB program during the quarter and repurchased and canceled 7.5 million shares at an average price of about $324 per share during the quarter. We remained active in July and repurchased and canceled an additional 2.7 million shares, which successfully concluded our 2022, 2023 program.

As noted in our press release, the Board of Directors yesterday declared a dividend of $0.04 per share to be paid on September 30, 2023 to shareholders of record as of close of business on September 15, 2023, and I would note that the dividends are designated as eligible dividends for Canadian tax purposes.

So with that, I'll turn things back to Brad for some comments on our current operating conditions and our outlook.

Bradley Fedora {BIO 15908055 <GO>}

Okay, thanks. I'll try to get through this as fast as possible. Overall Q2 pretty much went as forecast. We're happy with the quarter, we always budget for bad weather and activity interruptions so the fires and then I -- believe it or not, some of the floods did not have a material impact on our quarter, some of the work was delayed until the summer, but that's (Technical Difficulty) we did on the cost side, we did, we are still experiencing inflation on certain items.

But overall, I would say inflation has really slowed down and with the improving exchange rate and some of the removal of some of the fuel surcharges, some of our items likes (Technical Difficulty) went down in price. So (Technical Difficulty) refreshing change for our (Technical Difficulty) base. On the pricing side, although the pricing has generally been stable for the last year or so, we did experience some pricing pressure during mid-season late in the quarter. So it's disappointing to see. But it feels like it's sort of stabilized here now that the bids are over and I wouldn't expect there to be a lot of pricing changes for the remainder of this year (Technical Difficulty) everybody is sort of (Technical Difficulty) I would say overall (Technical Difficulty) pricing pretty much stable here. On the fracturing side, we're still operating seven frac crews. It's important to note. This means that we're operating about 60% of our equipment, we have sort of the maximum capacity of 11 and 12 crews, depending on the size of the crews, but comparison to our competitors who are operating basically at capacity. Trican is still at a stage where, no, I wouldn't say our business is operating maximum efficiency (Technical Difficulty) with respect to revenue, cost. We can still improve our situation as we add crews to the basin and we will not add those crews to the basin unless there is incremental. Certainly, I would say even quite profitable (Technical Difficulty) in our space we can definitely improve on that as we bring more field. On the cementing side really happy with that division that's (Technical Difficulty) our cementing (Technical Difficulty) really speaks to how activity has (Technical Difficulty) year as I've made reference to in prior.

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So I think so we'll get better and better as the years go by (Technical Difficulty) more of a material slowdown in December. Just for the Christmas season like sort of every other business (Technical Difficulty) I think that's a welcome change (Technical Difficulty) and certainly something I hope continues along this trend our market share in cementing is about 35% overall.

But 50% in the Montney and the Deep Basin. We feel we have the most value to add with our technical (Technical Difficulty) and our (Technical Difficulty) blends and our laboratory features product offering, we're looking to add more into plays like the Clearwater and heavy oil. We've previously pulled out the labor shortages.

So we're looking to get back to those areas as we think they will be a continued focus of the next five years. Our ability to add in those spaces is really only limited by our ability to add staff as everybody knows addition for good quality labor is tough people have lots of choices.

So high quality labor, so that we can continue on with our best-in-class service. On the coiled side, we had a fairly slow quarter in coil. But so far, Q3 has started with a bank. So we're not discouraged by (Technical Difficulty) we're operating coiled units. And although it's not a significant portion of our sales, we're still working to improve that division.

I think I've mentioned in the past, it's not operating at a level that we're happy with. So we'll just continue to spend time on that. We've hired people that are dedicated full-time getting that vision operating at a level that we're happy and it's keeping up with internally with fracturing perspective. So we'll just continue to grind away on that to make improvements. Outlook for the second half of this year, I think it's pretty similar to last year.

The rig count, although it was much higher in Q1, it seems to be basically tracking so far in Q3. Similar to last year's levels. And so I think the second half of this year looks a lot like last year maybe Q3 is slightly higher and maybe Q4 is even maybe slightly lower. But overall, I would say, should be kind of a repeat of last year to a large (Technical Difficulty) even though our revenues up 25% year to date (Technical Difficulty) second half is (Technical Difficulty) like I said (Technical Difficulty) I would say the pressure (Technical Difficulty) we're undersupplied and I don't think we're oversupplied and it seems like it's sort of steady as she goes.

Our customers (Technical Difficulty) capital budget very thoughtful in the way they are allocating (Technical Difficulty) and even just the timing of the completions. I think industry is getting more and more allocated. So they're spending less than (inaudible) free cash flow completions and so as commodity prices will always have volatilities with that sort of percentage of cash it's a really good shock absorber.

And I don't think you'll see big activity reactions to changes in commodity marketing in the US they were sort of surprised how stable Canada one of our answers was hey last year, when we had a $100 oil in May '19, you didn't (inaudible) to that and so sort of activity through these ups and downs in the commodity cycle.

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We've got a hot summer in the US and Europe, helping to clear out some of the gas storage to more normal levels. And so if we get a normal winter, I would expect we'll see gas prices go and maybe we will start activity (Technical Difficulty) incrementally. We're very encouraged with the advancement of the industry's relationship. We look at the LNG facilities (Technical Difficulty) two of which is very near term, LNG drilling activity has started, this project is a very long life 50 plus years something the First Nations are very happy to be involved with it very much aligned with their profile and in line, so with various facilities, whether it's in Squamish BC, with fiber LNG Canada in Kitimat, we expect this to be -- to build over time really underpins long-term stability in this basin. Of course the Montney and Deep Basin primarily gas focused which means they are very fracture intensive, so we think this is (Technical Difficulty) is a great place to invest in and do business with over the long term.

And we think our product offering in particular is really well suited to this incremental LNG demand, high pressure wells, customers want low emissions both the customer and the First Nations want small footprints. They want less water consumption, clean air all of that -- all of the technology that we've been investing in on the supply chain.

We are seeing just as the amount of tons -- the tons of sand per well is growing and we have some -- some big numbers in the Montney, in particular, we are seeing what we will believe our current and future constraints within the logistics of sand. We think the whole transloading system, rail system, trucking industry is basically running at capacity and we've already seen instances where there is a chance and some shortage in certain areas of Western Canada.

We don't think this will get anything but worse frankly, third party trucks and just logistic system, in general, is offered -- is very tight. It's not that well built out as we expand into Northeast BC. There's less and less Class 1 drivers who want to drive in the oilfield today.

So this, of course, we see as an opportunity. We're looking at lots of different stuff. We want to invest in sand logistics and making sure that the last mile -- last mile logistics is as low as possible, which has a drastic impact on costs (Technical Difficulty) our product offerings. Again, we're very bullish on Western Canada.

We think we're going to play a growing role in the overall global natural gas picture. So we want (Technical Difficulty) we're investing for the long term and in -- and make sure that we can deliver our services as efficiently as possible. We believe place like the Montney combined with LNG exports (Technical Difficulty) long-term base of activity so we are (Technical Difficulty) We still have a pristine balance sheet.

We exited the quarter with about $40 million of cash. Lots of positive working capital and that just gives us the -- frankly the luxury of looking at anything and everything to improve our business. We're going to invest predictable long-term returns and making sure that (Technical Difficulty) good for our shareholders. We continue on with our differentiation and modernization strategy, state-of-the-art equipment making sure our systems are leading edge really focusing on the EMGs -- ESG side of the business, developing [ph] out our partnerships (Technical Difficulty) in Alberta. That'll play role as (Technical Difficulty) go

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what do you think the likelihood is in your view that some of this equipment goes back to work in 2024 or another time frame that you think is reasonable?

A - Bradley Fedora {BIO 15908055 <GO>}

I think for sure, we'll be bringing one maybe two spreads into this basin in the next 12, 15 (Technical Difficulty) just the momentum, it feels like there's always slowdowns and there's always little pauses along the way, but it's in this business for the long term. And when you think about LNG and the transactions that you just mentioned, I mean those transactions, they result in increased activity, right, like they don't -- you've taken sort of not past this, but maybe under capital since a much stronger hand -- financially stronger hands so that just means an increase in activity and when you've got LNG is real, TMX is real. The world wants more Canadian Natural gas in particular, more Canadian oil as we know it's the cleanest, it's cleanest (Technical Difficulty). I look at this and never felt, I've said this before, I think a few times, but never felt good -- this good about the business when I look out five years, 10 years and I don't think, it's going to go crazy.

And I don't think, we're going to see these huge swings in activity -- activity level from year to year that we all thought was normal, when you go back pre (Technical Difficulty) So, no, I think it's -- it's going to I think -- I think all of that parked equipment that we have or those five spreads that are go (Technical Difficulty) some of it comes off here [ph] in the next year.

Q - Aaron MacNell

That's great. Thanks, Brad. I'll turn it over.

Operator

The next question comes from Cole Pereira with Stifel. Please go ahead.

Q - Cole Pereira {BIO 22180923 <GO>}

Good morning all. Just thinking about capital allocation in 2024. I mean with your five Tier 4s, do you feel there is adequate demand and upside for more of those upgrades? Are you kind of fine with your footprint in that regard? And how do you kind of think about, you talked about share buybacks, but maybe further dividend increases potentially M&A et cetera.

A - Bradley Fedora {BIO 15908055 <GO>}

Yeah, I mean, we're always pausing and reviewing different technologies. So we've got five. We're currently waiting on the results from what was 100% natural gas engine. We're still waiting to see how that works out and so, we might (Technical Difficulty) just our never-ending pursuit of having that natural gas

But I -- we don't feel, we don't sort of feel, we feel like we're very much ahead of the game and that gives us the luxury of being able to pause and look around us say, hey, let's not get too -- let's not have the blinders on with our technology. So we'll figure out what's happening, and I still think more of our fleet will be converted.

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https://www.accuweather.com/en/hurricane/accuweathers-updated-atlantic-hurricane-forecast-calls-for-more-named-storms-and-a-busy-time-ahead/1566249

AccuWeather's updated Atlantic hurricane forecast calls for more named storms, and a busy time ahead

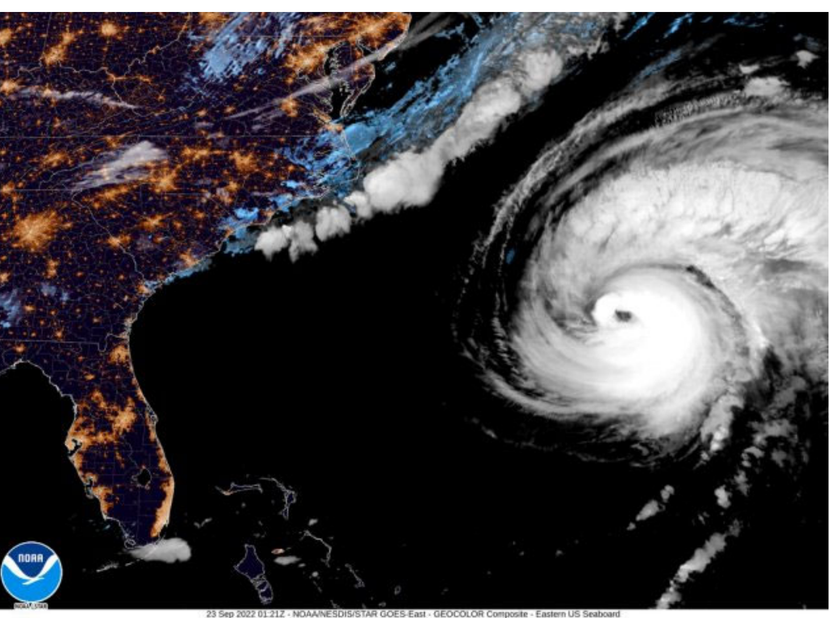
The season is already pacing well ahead of the historical average, and AccuWeather experts warn that the Atlantic basin could get "very active" in the coming weeks.

By Brian Lada, AccuWeather meteorologist and staff writer
Published Aug 2, 2023 10:17 PM JST | Updated Aug 3, 2023 11:02 PM JST

The first two months of the 2023 Atlantic hurricane season are in the books, and AccuWeather meteorologists are warning that tropical activity is about to ramp up.

There have already been five storms so far this year, including an unnamed subtropical storm in January, three tropical storms in June and a hurricane in July. The season is pacing ahead of the historical average for the number of named storms to date, and the average date for the fifth storm of the season to form is Aug. 22. Also, the average first date of hurricane development is Aug. 11, so the first hurricane also developed ahead of the average.

"The heart of the season is what we look at very closely; that's basically from the latter part of August through September," AccuWeather Hurricane Expert Dan Kottlowski said.



This image provided by the National Hurricane Center National Oceanic and Atmospheric Administration shows a satellite view as Hurricane Fiona moves up the United States Atlantic coast, Thursday night, Sept. 22, 2022. (NOAA via AP)

With peak season on the horizon, AccuWeather meteorologists have issued an update to the Atlantic hurricane season forecast:

Update to the 2023 Atlantic hurricane season forecast

This hurricane season could be the eighth in a row, with the number of named storms being at or above the historical average of 14. The last time a season ended below this benchmark was in 2015 when only 11 named systems developed.

AccuWeather is forecasting 13 to 17 named storms this year, higher than the initial forecast of 11 to 15 storms issued in March. Additionally, four to eight hurricanes, one to three major hurricanes and two to four direct U.S. impacts are in the forecast, with those numbers staying the same from the original outlook.

ATLANTIC HURRICANE SEASON FORECAST
2023

	Named Storms	Hurricanes	Major Hurricanes	Direct US Impacts
2022	14	8	2	4
2023 Forecast	13-17	4-8	1-3	2-4
30-Year Average	14	7	3	4

Exclusive AccuWeather Forecast

AccuWeather

The accumulated cyclone energy (ACE) is another parameter that forecasters analyze to determine how much wind energy is generated by a named tropical system over its lifetime. A weak, short-lived system results in a small ACE value, while a long-lived hurricane results in a higher ACE value.
AccuWeather forecasters say the ACE this hurricane season will reach 105 to 135, which is around or above the 30-year historical average of 123 and up from the initial forecast of 75 to 105.

Severe storms slam the central US

Did you know that 90% of fatalities from hurricanes and tropical storms are from water impacts? Yet the traditional way of rating a hurricane's category is based solely on wind speed.

Why AccuWeather updated its hurricane forecast

El Niño developed in early June, and while it is related to warm water in the Pacific Ocean, it can have a ripple effect in the atmosphere that results in more disruptive winds across the Atlantic Ocean. Typically, El Niño results in fewer tropical systems in the Atlantic compared to La Niña, but the full effect of the pattern shift can be delayed.
"There's a lag between La Niña and El Niño," Kottlowski explained.

This lag means that the first half of the 2023 Atlantic hurricane season will likely have more named storms and hurricanes than the second half.

"Please get your hurricane plan in place because we could get very active in late August into September," Kottlowski added.

While fewer tropical systems are predicted to spin up in October and November, this part of the season may not be completely quiet.

This photo provided by NASA shows Hurricane Florence from the International Space Station Sept. 10, 2018, as it threatens the U.S. East Coast. (NASA via AP)

The other driving factor behind the update to AccuWeather's hurricane forecast is the widespread warmth in the areas where tropical systems typically track.

FORECAST OF ATLANTIC SEASONAL HURRICANE ACTIVITY AND LANDFALL STRIKE PROBABILITY FOR 2023

We maintain our forecast for an above-average 2023 Atlantic hurricane season. While a robust El Niño has developed and is likely to persist for the peak of the Atlantic hurricane season, most of the tropical and subtropical Atlantic has record warm sea surface temperatures for this time of year. El Niño increases vertical wind shear in the Caribbean and tropical Atlantic, but the extreme anomalous warmth in the tropical and subtropical Atlantic is anticipated to counteract some of the typical El Niño-driven increase in vertical wind shear. The probability of U.S. major hurricane landfall is estimated to be above the long-period average. As is the case with all hurricane seasons, coastal residents are reminded that it only takes one hurricane making landfall to make it an active season for them. They should prepare the same for every season, regardless of how much activity is predicted.

(as of 3 August 2023)

By Philip J. Klotzbach[1], Michael M. Bell[2] and Alexander J. DesRosiers[3]
In Memory of William M. Gray[4]

This discussion as well as past forecasts and verifications are available online at http://tropical.colostate.edu

Jennifer Dimas, Colorado State University media representative, is coordinating media inquiries into this forecast. She can be reached at 970-491-1543 or Jennifer.Dimas@colostate.edu

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ATLANTIC BASIN SEASONAL HURRICANE FORECAST FOR 2023

Forecast Parameter and 1991-2020 Average (in parentheses)	Issue Date 13 April 2023	Issue Date 1 June 2023	Issue Date 6 July 2023	Issue Date 3 August 2023	Observed Thru 2 August 2023	Remainder of Season Forecast
Named Storms (NS) (14.4)	13	15	18	18*	5	13
Named Storm Days (NSD) (69.4)	55	60	90	90	19.50	70.50
Hurricanes (H) (7.2)	6	7	9	9	1	8
Hurricane Days (HD) (27.0)	25	30	35	35	0.5	34.50
Major Hurricanes (MH) (3.2)	2	3	4	4	0	4
Major Hurricane Days (MHD) (7.4)	5	7	9	9	0	9
Accumulated Cyclone Energy (ACE) (123)	100	125	160	160	16	144
ACE West of 60°W (73)	55	70	82	82	4	78
Net Tropical Cyclone Activity (NTC) (135%)	105	135	170	170	18	152

*Total forecast includes an unnamed subtropical storm in January as well as Arlene, Bret and Cindy in June and Don in July.

PROBABILITIES FOR AT LEAST ONE MAJOR (CATEGORY 3-4-5) HURRICANE LANDFALL ON EACH OF THE FOLLOWING COASTAL AREAS (AFTER 2 AUGUST):

1) Entire continental U.S. coastline - 48% (full-season average from 1880–2020 is 43%)

2) U.S. East Coast Including Peninsula Florida (south and east of Cedar Key, Florida) - 25% (full-season average from 1880–2020 is 21%)

3) Gulf Coast from the Florida Panhandle (west and north of Cedar Key, Florida) westward to Brownsville - 31% (full-season average from 1880–2020 is 27%)

PROBABILITY FOR AT LEAST ONE MAJOR (CATEGORY 3-4-5) HURRICANE TRACKING THROUGH THE CARIBBEAN (10-20°N, 88-60°W) (AFTER 2 AUGUST):

1) 53% (full-season average from 1880–2020 is 47%)

ABSTRACT

Information obtained through July indicates that the 2023 Atlantic hurricane season will have activity above the 1991–2020 average. We estimate that 2023 will have a total of 18 named storms (average is 14.4), 90 named storm days (average is 69.4), 9 hurricanes (average is 7.2), 35 hurricane days (average is 27.0), 4 major (Category 3-4-5) hurricanes (average is 3.2) and 9 major hurricane days (average is 7.4). These numbers include the five storms that have formed already this year (January subtropical storm, Arlene, Bret, Cindy and Don). The probability of U.S. major hurricane landfall is estimated to be above the long-period average. We predict Atlantic basin Accumulated Cyclone Energy (ACE) and Net Tropical Cyclone (NTC) activity in 2023 to be approximately 130 percent of their 1991–2020 average. We are forecasting the same seasonal numbers with our August forecast that we predicted in early July.

This forecast is based on two early August statistical models that were developed using ~40 years of past data. Analog predictors are also utilized. We are also including statistical/dynamical models based on ~25–40 years of past data from the European Centre for Medium Range Weather Forecasts, the UK Met Office, the Japan Meteorological Agency and the Centro Euro-Mediterraneo sui Cambiamenti Climatici model. The statistical/dynamical models unanimously agrees that the 2023 Atlantic hurricane season should be hyperactive, while statistical model guidance is calling for an above-average remainder of the Atlantic hurricane season. We stress that there is considerable uncertainty with this season's outlook given the large spread in model guidance, as well as uncertainty with exactly how El Niño will interact with the extremely warm Atlantic.

The tropical Pacific is currently characterized by El Niño conditions. The intensity of the El Niño for the remainder of the hurricane season remains unclear, although a moderate to strong event seems relatively likely. El Niño typically reduces Atlantic hurricane activity through increases in vertical wind shear.

Sea surface temperatures across most of the tropical and subtropical Atlantic remain at record levels, so despite the potential for a moderate/strong El Niño, the impacts on tropical Atlantic/Caribbean vertical wind shear are likely to not be as strong as is typically experienced given the extremely warm Atlantic.

Coastal residents are reminded that it only takes one hurricane making landfall to make it an active season for them. They need to prepare the same for every season, regardless of how much activity is predicted.

The early August forecast has good long-term skill when evaluated in hindcast mode. The skill of CSU's forecast updates typically increases as the peak of the Atlantic hurricane season approaches.

Starting today and issued every two weeks following (e.g., August 3, August 17, August 31, etc.), we will issue two-week forecasts for Atlantic TC activity during the peak of the Atlantic hurricane season from August-October.

Why issue forecasts for seasonal hurricane activity?

We are frequently asked this question. Our answer is that it is possible to say something about the probability of the coming year's hurricane activity which is superior to climatology. The Atlantic basin has the largest year-to-year variability of any of the global tropical cyclone basins. People are curious to know how active the upcoming season is likely to be, particularly if you can show hindcast skill improvement over climatology for many past years.

Everyone should realize that it is impossible to precisely predict this season's hurricane activity in early August. There is, however, much curiosity as to how global ocean and atmosphere features are presently arranged as regards the probability of an active or inactive hurricane season for the coming year. Our early August statistical and statistical/dynamical hybrid models show strong evidence on ~25-40 years of data that significant improvement over a climatological forecast can be attained. We would never issue a seasonal hurricane forecast unless we had models developed over a long hindcast period which showed skill. We also now include probabilities of exceedance to provide improved quantification of the uncertainty associated with these predictions.

We issue these forecasts to satisfy the curiosity of the general public and to bring attention to the hurricane problem. There is a general interest in knowing what the odds are for an active or inactive season. One must remember that our forecasts are based on the premise that those global oceanic and atmospheric conditions which preceded comparatively active or inactive hurricane seasons in the past provide meaningful information about similar trends in future seasons.

It is also important that the reader appreciate that these seasonal forecasts are based on statistical and dynamical models which will fail in some years. Moreover, these forecasts do not specifically predict where within the Atlantic basin these storms will strike. The probability of landfall for any one location along the coast is very low and reflects the fact that, in any one season, most U.S. coastal areas will not feel the effects of a hurricane no matter how active the individual season is. However, regardless of seasonal outlooks, it only takes one hurricane making landfall near you to make it an active season for you.

Acknowledgment

These seasonal forecasts were developed by the late Dr. William Gray, who was lead author on these predictions for over 20 years and continued as a co-author until his death in 2016. In addition to pioneering seasonal Atlantic hurricane prediction, he conducted groundbreaking research on a wide variety of other topics including hurricane genesis, hurricane structure and cumulus convection. His investments in both time and energy to these forecasts cannot be acknowledged enough.

We are grateful for support from Ironshore Insurance, the Insurance Information Institute, Weatherboy, First Onsite and IAA. We acknowledge a grant from the G. Unger Vetlesen Foundation for additional financial support.

Colorado State University's seasonal hurricane forecasts have benefited greatly from several individuals that were former graduate students of William Gray. Among these former project members are Chris Landsea, John Knaff and Eric Blake. We also would like to thank Jhordanne Jones, recent Ph.D. graduate in Michael Bell's research group, for model development and forecast assistance over the past several years.

We would like to acknowledge Tyler Barbero and Angelie Nieves-Jimenez for assistance with preparing these forecasts and handling media inquiries. Thanks also to Angelie for translating our forecast press releases into Spanish.

We thank Louis-Philippe Caron and the data team at the Barcelona Supercomputing Centre for providing data and insight on the statistical/dynamical models. We have also benefited from meteorological discussions with Louis-Philippe Caron, Dan Chavas, Jason Dunion, Brian McNoldy, Paul Roundy, Carl Schreck, Mike Ventrice and Peng Xian over the past few years.

Overview and Key Findings

Overview

Our report on direct federal financial interventions and subsidies in energy markets continues a series of EIA reports[1] that respond to congressional requests and the Energy Policy Act of 1992. In this update, we introduce multiple, sequential fiscal year[2] (FY) data for the first time from FY 2016 (the last fiscal year we analyzed) through FY 2022. To accommodate the increase in reported data, we reformatted and reorganized this update.

The scope of this report is limited to direct federal financial interventions and subsidies (that is, subsidies from the federal government that provide a financial benefit with an identifiable federal budget impact and that are specifically targeted at energy markets). We have excluded state and local programs—although significant in several cases—from our reporting. As a result of this exclusion and other exclusions, this report does not encompass all subsidies that affect energy markets and should, therefore, be viewed in context and with related information from other sources.

Consistent with our independent role and mission, this report informs discussion rather than draws conclusions or addresses policy issues related to energy subsidies. By using comprehensive data acquisition and analysis, we estimate how federal financial actions are distributed among a defined set of 14 energy types[3] that make up the U.S. energy system. We have made only limited observations of the scale, trends, and relationships within the data and the report tables. In this report, we focus only on expenditures on subsidies, and we do not attempt to quantify the impact or evaluate the value of these subsidies. So, readers should exercise caution in drawing conclusions. Select Energy Subsidy Studies section in Appendix C notes related studies from other sources; we do not endorse other parties' reports and include them for reference only.

Federal financial interventions and subsidies included in this report fall into four categories:

- **Tax expenditure estimates**, which measure the effects in federal government revenue resulting from preferential tax treatment for particular taxpayers
- **Direct expenditures** to non-federal recipients (that is, both energy producers and consumers) in the form of a grant, loan, or other financial assistance award
- **Research and development (R&D) support** in the form of a grant, loan, or other financial assistance award made to non-federal recipients.[4]

[1] We performed our first federal energy subsidies study at Congress's request in FY 1992, based on the requirements published in the House Committee on Appropriations' report on our FY 1992 appropriations. The most obvious subsidies are the direct expenditures and R&D support from the federal budget. Tax expenditure subsidies are targeted tax incentives that producers or consumers of specific forms of energy receive. In this case, the government does not spend money, but it loses revenue that it would have otherwise received.

[2] Federal government fiscal years begin on October 1 of the preceding calendar year and end on September 30.

[3] We use the following energy type labels: Biofuels, Biomass, Coal, Conservation, End Use, Geothermal, Hydropower, Natural Gas and Petroleum Liquids, Uncategorized, Nuclear, Other Renewables, Electricity—Smart Grid and Transmission, Refined Coal, Solar, and Wind.

[4] Federal energy-related R&D falls into three classes: basic research, applied research into developing new technologies and new forms of energy supply, and research into improving existing technologies. Although R&D is a subset of direct expenditures, this report treats it separately due to the importance of R&D for energy technology and markets.

- **Loan guarantees** (a form of credit subsidy) that provide financial support for innovative clean energy technologies that typically do not qualify for conventional private financing because of their high technology risks[5]

Organization of this report

This overview and key findings section is followed by three appendices:

- Appendix A presents detailed tables
- Appendix B presents our analytic approach
- Appendix C provides a listing of select other subsidy reports

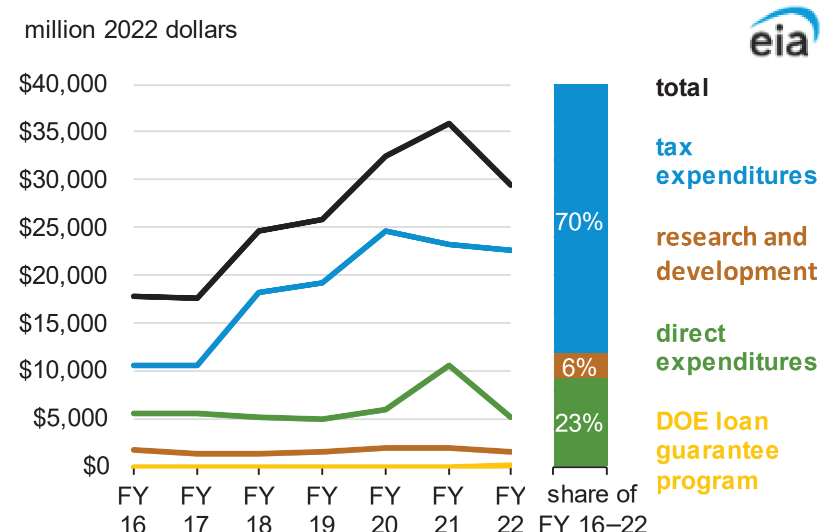
Detailed tables are included in Appendix A and are denoted with an "A" in the numbering scheme. Table A1 summarizes total within-scope energy subsidies (in 2022 dollars) and selected U.S. energy system indicators (in physical units). Table A3 summarizes the allocation of federal direct financial interventions in U.S. energy markets by year and energy type, and it serves as the basis for Figures 1-7. Overall, Appendix A (Tables A1–A7) provide critical details regarding energy subsidy expenditures.

Key findings

Several key findings stand out.

Beginning in FY 2016, tax expenditures rose rapidly and leveled off, but direct federal support remained steady until Congress recently enacted temporary provisions. Federal activities within the scope of this study were decreasing through FY 2016, because the provisions and programs under the American Reinvestment and Recovery Act (ARRA) of 2009 expired, after which direct expenditures remained relatively steady through FY 2020. Budgetary and statutory actions in response to the COVID-19 pandemic and related economic effects have resulted in a sharp but temporary rise in federal direct expenditures on energy

Figure 1. Energy-specific subsidies and support, FY 2016–22



Data source: U.S. Energy Information Administration, *Federal Financial Interventions and Subsidies in Energy in Fiscal Years 2016–2022*, Table 1 and Table A3
Note: DOE=U.S. Department of Energy.

[5] The U.S. Department of Energy (DOE) administers four credit programs: Title XVII Innovative Technology Loan Guarantee Program (Title XVII), the Advanced Technology Vehicle Manufacturing (ATVM) Loan Program, the Tribal Energy Loan Guarantee Program, and the Carbon Dioxide Transportation Infrastructure Finance and Innovation Program. The DOE's Loan Programs Office has more information about these programs. The Federal Credit Reform Act of 1990 (FCRA) requires federal agencies to estimate the cost to the government of extending or guaranteeing credit. This cost, referred to as credit subsidy cost, equals the net present value of estimated cash flows from the government minus estimated cash flows to the government over the life of the loan and excluding administrative costs. Title XVII requires that a subsidy cost be paid—through a combination of appropriations and payment by the borrower—prior to finalizing a loan guarantee agreement.

in FY 2020 and FY 2021. Meanwhile, tax expenditures steadily increased from FY 2017 to FY 2020 and have since been slightly decreasing (Figure 1).

The U.S. energy system has continued to grow, except in FY 2020, when total energy use fell by a record 7% (Table A1). As a result, the relative scale of federal financial interventions into U.S. energy markets varied during FY 2016–22 as both federal energy-directed activities and the economy underwent historic volatility.

During FY 2016–22, most federal subsidies were for renewable energy producers (primarily biofuels, wind, and solar), low-income households, and energy-efficiency improvements. During FY 2016–22, nearly half (46%) of federal energy subsidies were associated with renewable energy, and 35% were associated with energy end uses. Federal support for renewable energy of all types more than doubled, from $7.4 billion in FY 2016 to $15.6 billion in FY 2022. Table A4 shows a more detailed distribution of renewable energy-related federal support, which is further discussed in the Renewable-related subsidy trends section of this Overview. Combined conservation and end-use subsidies increased from $9.0 billion in FY 2016 to $10.1 billion in FY 2022 (Table A3). The largest program of this combined category—the Low Income Home Energy Assistance Program (LIHEAP), administered through the U.S. Department of Health and Human Services (HHS)—slightly decreased its funding from $4.0 billion in FY 2016 to $3.9 billion in FY 2022, with a noteworthy one-year increase to nearly $10.0 billion in FY 2021 (Table A6).[6]

During FY 2016–22, provisions in the tax code were the largest source of federal financial support. In FY 2016, the Internal Revenue Code (IRC)—with its 31 wide-ranging, energy-specific tax provisions—provided greater financial support to energy than direct expenditures, including R&D expenditures (Table A2 and Table A3). Total tax expenditures were 70% of the total federal financial support (Table 1). Since FY 2016, tax expenditures have continued to grow, rising to over 75% of total federal support in recent years. In FY 2021, this support dipped slightly to 65%.

Table 1. Quantified total energy-specific subsidies and support by type, FY 2016–22

million 2022 dollars

Fiscal year	Direct expenditures	Tax expenditures	Research and Development	DOE Loan Guarantee Program	Total	Annual share of FY 2016–22
2016	5,559	10,586	1,640	-	17,785	10%
2017	5,629	10,555	1,406	-	17,589	10%
2018	5,086	18,234	1,326	-	24,646	13%
2019	4,923	19,217	1,602	-	25,742	14%
2020	5,938	24,572	1,861	-	32,370	18%
2021	10,658	23,255	1,900	-	35,813	20%
2022	5,054	22,682	1,461	166	29,363	16%
Total	**42,847**	**129,099**	**11,197**	**166**	**183,309**	**100%**
Share of total	**23%**	**70%**	**6%**	**0%**	**100%**	

Data source: U.S. Energy Information Administration, *Federal Financial Interventions and Subsidies in Energy in Fiscal Years 2016–2022*, Table A3
Notes: Totals may not equal sum due to independent rounding. 0 estimate rounds to zero; - estimate is zero. DOE=U.S. Department of Energy.

Natural gas and petroleum-related subsidies became a net cost to the federal government. Natural gas and petroleum-related tax expenditures increased to $2.1 billion in FY 2022 to reverse a trend from an

[6] Congress appropriated additional funding for LIHEAP under the American Rescue Plan Act (ARP) of 2021 (Public Law 117-2).

estimated revenue inflow (versus a positive tax expenditure) of $1.1 billion in FY 2016 and FY 2017; combined, these tax provisions had been, in aggregate, the largest energy-related, revenue-generating tax provisions to the government in any of the fiscal years covered in this report (Table A5).

U.S. Department of Energy (DOE) loan guarantees were once again issued in FY 2022.[7] The subsidy cost of the loans issued in FY 2022 was $166 million. Because this type of cost is assessed at the time the loan is issued, we did not identify any subsidy costs for FY 2016–21; for example, the loan guarantees associated with the Vogtle nuclear project[8] were included with FY 2010 subsidy costs in our previous report updates. Although lending authority for the Section 1705 loan program expired by FY 2016, budget authority remains for future lending on the Section 1703 loan program.

Subsidy and Energy Type-Specific Results

Federal financial interventions and subsidies included in this report fall into four categories, and we use 14 energy types in categorizing the resulting financial impacts. This section describes the subsidy types and presents the financial results for each energy type.

Subsidy types

Tax expenditures

When preparing data on energy-related tax expenditures, we relied on the definitions of tax expenditures incorporated in the federal budget and the associated tax expenditures estimated by the U.S. Department of the Treasury (Treasury) (Table A2). To a lesser extent, we also use data estimates by the Joint Committee on Taxation (JCT). Tax expenditures, as estimated by the Treasury or JCT, arise from provisions in federal tax laws including credits, deductions, deferrals, preferential rates, and exemptions (exclusions). Treasury identified items in the budget as tax expenditures different from those the JCT determined to be tax expenditures—that is, the two bodies sometimes do not agree. For this report, we took historical tax expenditure data from two primary federal sources. Treasury is the primary source of estimates for tax expenditures; JCT supplements data as a secondary source when greater details are necessary than provided in the Office of Management and Budget's (OMB) *Analytical Perspectives*.

Note that, in this report, *de minimis* tax expenditures (that is, $5 million or less) are not tabulated, which is consistent with Treasury's reporting practices.

Direct expenditures including R&D

Direct expenditures, compared with tax expenditures, involve transferring congressionally appropriated funds to recipients by federal agencies. The volume and diversity of federal direct expenditures make them very difficult to assign energy-related activities to specific aspects of the energy system. As

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[7] According to the Congressional Research Service's report *Energy and Water Development: FY2023 Appropriations* (R47293, updated March 20, 2023), Title XVII allows DOE to provide loan guarantees for up to 80% of construction costs for eligible energy projects. In general, successful applicants must pay an up-front fee, or *subsidy cost*, to cover potential losses under the loan guarantee program. The Inflation Reduction Act (IRA; Public Law 117-169) appropriated $3.6 billion for Section 1703 subsidy costs. IRA also established a time-limited (available through FY 2026), $250 billion Title 17 loan guarantee commitment authority—Section 1706—for *Energy Infrastructure Reinvestment Financing*. IRA appropriated $5 billion to carry out the Section 1706 program. DOE, "DOE Announces First Loan Guarantee for a Clean Energy Project in Nearly a Decade," June 8, 2022, https://www.energy.gov/articles/doe-announces-first-loan-guarantee-clean-energy-project-nearly-decade.

[8] U.S. Department of Energy, Loan Guarantee Office, website: https://energy.gov/lpo/vogtle, accessed May 5, 2023. On September 29, 2017, the U.S. Department of Energy has offered conditional commitments for construction to the Vogtle project, website: https://energy.gov/lpo/articles/vogtle-conditional-commitments-support-energy-infrastructure, accessed May 5, 2023.

discussed in the Analytic Approach section, we have developed several powerful methods of obtaining and processing federal expenditure data, but the resulting estimates in this section are still subject to scope and measurement issues. The tax expenditure figures are more often precise accounts of the annual cost of a given provision of the IRC.

The most comprehensive picture of the direct expenditure amounts estimated for each part of the energy system is displayed in Table A6. As described in the Analytic Approach section of Appendix B, the Catalog of Federal Direct Assistance (CFDA) is the primary source for program information. The CFDA coding is shown with agency and program designations.[9]

We treat research and development (R&D) in this report as it applies to specific parts of the U.S. energy system based on the research topics, program descriptions, and other available information, including information from the programs in some cases.

We broadly characterize R&D as either *basic* or *applied*. R&D investment more generally applies to a wider variety of activities, both energy-related and non-energy-related, when the activity is aimed at basic technological improvement.

Basic R&D activities are not intended to support specific kinds of energy; instead, they broadly support technological advancements such as high-speed computing or basic science such as physics. This distinction is true of certain DOE programs, notably those of the DOE Office of Science (SC) under CFDA 81.049, the Office of Science Financial Assistance Program. We did not include these activities as line items in the direct expenditure and R&D tables for this report.

Recently, some overlapping federal programs aimed at direct acquisition of renewable, sustainable, resilient, or other designated energy resources have grown rapidly. Driven in part by statute and executive orders, these programs allow or require federal organizations to use certain energy resource acquisition procedures, sometimes on a pooled or regional basis.

The definition of direct federal financial interventions (or subsidies) used in this report would generally only include federal energy purchases that add incremental cost for the federal government and are intended to provide market support for the purchased resource. Because federal acquisition programs pursue a variety of goals—both operational and policy related—it's difficult to determine which subsidies should be included. To date, we have not included federal energy acquisition programs in the report tables or summaries.

Without determining what portion of these activities might be considered subsidies or market interventions, reports from federal programs cover a full range of energy management topics and indicate the magnitude of direct energy acquisition activities:

- U.S. Department of Defense. *Annual Energy Management and Resilience Report*. October 2022.
- Federal Energy Management Program. *Annual Report on Federal Government Energy Management and Conservation Programs*. August 23, 2022.

Loan subsidy cost

When the government guarantees a loan, it expects the loan to be repaid. However, for any given loan program (for example, student loans, small business loans) some individual loans are not repaid. The loan only costs the government if it is in default (not repaid). Subsidy cost is the government's way to

[9] Certain programs (for example, grants in lieu of tax credits) administered by the Treasury have no CFDA coding.

Table A3. Quantified energy-specific subsidies and support by type, fiscal years (FY) 2016–22

million 2022 dollars, unless otherwise noted

Year and support type	Coal	Refined coal	Natural gas and petroleum liquids	Nuclear	Renewables	Electricity—smart grid and transmission	Conservation	End use	Total	Share of total subsidies and support
2016										
Direct expenditures	(446)	-	63	40	1,456	1	287	4,159	5,559	31%
Tax expenditures	1,040	864	(1,129)	192	5,567	193	674	3,184	10,586	60%
Research and development	363	-	145	183	347	89	165	349	1,640	9%
DOE Loan Guarantee Program										0%
Total	**957**	**864**	**(921)**	**415**	**7,370**	**283**	**1,125**	**7,857**	**17,785**	**100%**
Share of total	**5%**	**5%**	**-5%**	**2%**	**41%**	**2%**	**6%**	**44%**	**100%**	
2017										
Direct expenditures	(13)	-	111	11	1,111	5	314	4,089	5,629	32%
Tax expenditures	1,321	1,065	(1,107)	249	5,637	(174)	383	3,181	10,555	60%
Research and development	248	-	58	203	365	21	90	421	1,406	8%
DOE Loan Guarantee Program										-
Total	**1,555**	**1,065**	**(938)**	**463**	**7,113**	**(148)**	**787**	**7,691**	**17,589**	**100%**
Share of total	**9%**	**6%**	**-5%**	**3%**	**40%**	**-1%**	**4%**	**44%**	**100%**	
2018										
Direct expenditures	4	-	150	31	296	8	298	4,300	5,086	21%
Tax expenditures	1,024	1,251	1,783	104	10,069	(46)	334	3,716	18,234	74%
Research and development	299	-	132	219	265	28	121	262	1,326	5%
DOE Loan Guarantee Program										-
Total	**1,327**	**1,251**	**2,065**	**354**	**10,629**	**(10)**	**752**	**8,278**	**24,646**	**100%**
Share of total	**5%**	**5%**	**8%**	**1%**	**43%**	**0%**	**3%**	**34%**	**100%**	
2019										
Direct expenditures	1	-	171	27	75	11	381	4,258	4,923	19%
Tax expenditures	678	1,365	2,724	113	10,103	46	306	3,880	19,217	75%
Research and development	356	-	71	173	387	75	100	441	1,602	6%

Year and support type	Coal	Refined coal	Natural gas and petroleum liquids	Nuclear	Renewables	Electricity—smart grid and transmission	Conservation	End use	Total	Share of total subsidies and support
DOE Loan Guarantee Program										-
Total	**1,035**	**1,365**	**2,966**	**313**	**10,565**	**131**	**787**	**8,579**	**25,742**	**100%**
Share of total	**4%**	**5%**	**12%**	**1%**	**41%**	**1%**	**3%**	**33%**	**100%**	
2020										
Direct expenditures	5	-	166	19	56	0	388	5,304	5,938	18%
Tax expenditures	625	1,380	1,428	112	16,794	45	302	3,886	24,572	76%
Research and development	338	-	107	224	409	49	255	479	1,861	6%
DOE Loan Guarantee Program										-
Total	**968**	**1,380**	**1,701**	**355**	**17,258**	**94**	**945**	**9,669**	**32,370**	**100%**
Share of total	**3%**	**4%**	**5%**	**1%**	**53%**	**0%**	**3%**	**30%**	**100%**	
2021										
Direct expenditures	2	-	153	22	60	2	355	10,064	10,658	30%
Tax expenditures	536	1,584	1,842	118	14,896	43	290	3,944	23,255	65%
Research and development	500	-	105	423	343	71	194	265	1,900	5%
DOE Loan Guarantee Program										-
Total	**1,038**	**1,584**	**2,100**	**563**	**15,299**	**116**	**839**	**14,273**	**35,813**	**100%**
Share of total	**3%**	**4%**	**6%**	**2%**	**43%**	**0%**	**2%**	**40%**	**100%**	
2022										
Direct expenditures	3	-	103	21	74	8	823	4,022	5,054	17%
Tax expenditures	590	-	2,080	110	15,266	40	481	4,114	22,682	77%
Research and development	280	-	121	259	250	53	134	365	1,461	5%
DOE Loan Guarantee Program								166	166	1%
Total	**873**	**-**	**2,304**	**390**	**15,589**	**102**	**1,438**	**8,666**	**29,363**	**100%**
Share of total	**3%**	**0%**	**8%**	**1%**	**53%**	**0%**	**5%**	**30%**	**100%**	
2016 to 2022										
Direct expenditures	(445)	-	915	172	3,127	36	2,846	36,196	42,847	23%
Tax expenditures	5,814	7,510	7,622	999	78,332	148	2,770	25,905	129,099	70%

Year and support type	Coal	Refined coal	Natural gas and petroleum liquids	Nuclear	Renewables	Electricity—smart grid and transmission	Conservation	End use	Total	Share of total subsidies and support
Research and development	2,383	-	739	1,684	2,364	387	1,058	2,583	11,197	6%
DOE Loan Guarantee Program	-	-	-	-	-	-	-	166	166	0%
Total	**7,752**	**7,510**	**9,276**	**2,855**	**83,823**	**570**	**6,674**	**64,849**	**183,309**	**100%**
Share of total	**4%**	**4%**	**5%**	**2%**	**46%**	**0%**	**4%**	**35%**	**100%**	

Data source: **Tax expenditure estimates**: Office of Management and Budget, *Budget of the United States Government, Analytical Perspectives*, Fiscal Years 2018, 2019, 2020, 2021, 2022, 2023, and 2024, accessed March 13, 2023. Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2016–2020*, JCX-3-17 (Washington, DC, January 2017), Table 1; Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2017–2021*, JCX-34-18 (Washington, DC, May 2018), Table 1; Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2018–2022*, JCX-81-18, (Washington, DC, October 2018), Table 1; Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2019–2023*, JCX-55-19, (Washington, DC, December 2019), Table 1; Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2020–2024*, JCX-23-20, (Washington, DC, November 2020), Table 1; and, Joint Committee on Taxation, *Estimates of Federal Tax Expenditures for Fiscal Years 2022–2026*, JCX-22-22, (Washington, DC, December 2022), Table 1. **Federal direct expenditure and R&D expenditure subsidies**: U.S. Department of the Treasury, USASpending.gov—the official open data source of federal spending information, https://www.usaspending.gov/, accessed February 8, 2023. U.S. Department of the Treasury, *1603 Program: Payments for Specified Energy Property in Lieu of Tax Credits*, https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/1603-program-payments-for-specified-energy-property-in-lieu-of-tax-credits, accessed February 8, 2023. **Loan guarantee programs credit subsidy**: Computed from data from U.S. Department of Energy, Loan Program Office, https://www.energy.gov/lpo/portfolio-projects, accessed May 5, 2023, and Treasury, USASpending.gov, https://www.usaspending.gov/search.

Notes: Totals may not equal sum of components due to independent rounding. *0* estimate rounds to zero; - estimate is zero. Energy-specific tax expenditures associated with the renewables production tax credit were allocated based on Joint Committee on Taxation data. Energy subsidies and support excludes “uncategorized” direct and R&D expenditures.

DOE=U.S. Department of Energy.

We have been awarded the rights to develop two offshore wind projects in the recent German tender round, marking our entry into offshore wind in continental Europe.

These two projects have a total potential generating capacity of four gigawatts and grow our global offshore wind pipeline to 9.3 gigawatts net to bp.

In Germany and the region - we could have around five to ten gigawatts of renewable power demand in the 2030's as we scale-up green hydrogen, biofuels production, EV charging and refinery decarbonisation – the two refineries we have on the ground there.

At the same time, the region is, and is forecast to be, short of green electrons. We expect this offshore wind capacity to, one, provide secure access to the electrons we need and, two, to do it cheaper than we can procure in the market.

And as our focus is on securing access to the renewable power as opposed to full, long-term asset ownership, we will pursue a capital-light delivery approach, bringing in a partner through farm down around the point of financial investment decision. And we expect to leverage the project with financing.

We are confident in achieving 6-8% unlevered returns, pre-integration benefits. And

we will enhance these returns further through integrating across the energy value chain, leveraging our Trading & Shipping business to optimise value.

And we believe our bid benchmarked positively compared to other lease auctions, acknowledging the timing of payments and other factors like the delivery of the offshore grid connection. As a reminder,

- the structure of bid payments limits our financial exposure, with €678 million, or 10% of the bid amount, paid by July 2024, and the remaining 90% paid over a 20-year period when the projects become operational in the next decade.
- and in Germany, the grid connection is provided by transmission system operators, with compensation to the developer for any grid delays.

So we are really excited about this win – it's fully aligned with our integrated energy strategy – and it's in a core market for bp, where we intend to continue to grow our business.

Taken together, across resilient hydrocarbons and the TGEs, I hope you agree that what you see from bp is evidence of our strategy in action…underpinning the confidence we have in the operational and financial momentum we expect through the rest of this year and as we work towards achieving our 2025 targets.

With that, let me hand over to Murray to take you through our second quarter results.

Excerpt Vattenfall interim report on July 20, 2023

CEO's comment

A positive development for the customer business and challenges in offshore wind power

Vattenfall's business is in general progressing well. We benefit from our integrated business model with better results from Distribution, Heat and Customers & Solutions. However, overall we report a lower result for the half year, mainly due to an impairment in offshore wind power. Falling market prices were partly compensated by our price hedges.

Lower market prices and effects of price hedging

Compared to 2022, electricity prices in the Nordics have almost halved, while the difference between electricity price areas have decreased significantly. In northern Sweden, spot prices have nevertheless been higher, which together with the effects of price hedging has contributed to Vattenfall being paid more for its electricity in the Nordics. On the continent, electricity prices have also been significantly lower, which affects the result from the Wind segment. This has an additional impact on the Power Generation segment where the results from our continental price hedges are reported. These have not been as effective as in the Nordics.

Higher costs, especially in offshore wind power

Although demand for fossil-free electricity is greater than ever, the market for offshore wind power is challenging. Higher inflation and capital costs are affecting the entire energy sector, but the geopolitical situation has made offshore wind and its supply chain particularly vulnerable. Overall, we see cost increases up to 40%. This development affects future profitability and means that Vattenfall makes an impairment for wind power in Norfolk, UK, with a total impact on earnings of SEK 5.5 billion. We have decided to stop the development of Norfolk Boreas in its current form and not take an investment decision now due to mentioned factors, which triggers the impairment.

We will examine the best way forward for the entire Norfolk Zone, which in addition to Boreas also includes the Vanguard East and West projects. Over the past decade, Vattenfall has built up its wind operations which today is a valuable and profitable business generating an underlying profit of more than SEK 16 billion last year. We have attractive wind power projects in the pipeline, and investment decisions will always be based on profitability. We are convinced that offshore wind power is crucial for energy security and meeting the climate goals in Europe.

The profit for the period in the first half of the year amounted to SEK 6.9 billion, which is SEK 3.4 billion lower than in 2022. The impairment of Norfolk Boreas is partly offset by a positive financial net due to higher returns from the Nuclear Waste Fund.

A profitable and sustainable business model

Vattenfall reports higher contributions from both the heat and customer business. In Germany, we now have over 5 million customers, which makes Vattenfall one of the three largest energy suppliers for private customers in the country. However, lower contributions from Power Generation and Wind generate a lower underlying profit for the first half of 2023. The underlying profit for Vattenfall is SEK 14.6 billion, which is SEK 1.7 billion less compared to the same period in 2022.

Overall, Vattenfall has a continued stable capital structure with reassuring cash flow in relation to our financial commitments. The return on capital employed amounted to 0.5% and is affected by impairments and the valuation of electricity and fuel contracts at fair value. On an underlying basis, the figure however amounted to 10.7%, which demonstrates that our diversified and integrated business model is working.

Additional steps towards a fossil-free future

Vattenfall's goal is to enable fossil-free living. This permeates all of our operations and means we stand strong as a company. In June, Vattenfall was one of nine companies globally to have its net-zero emissions targets by 2040 verified by the Science Based Target Initiative (SBTI). We also recently inaugurated Vattenfall's largest onshore wind farm in the UK, South Kyle, and have completed the construction of the offshore wind farm Hollandse Kust Zuid in the Netherlands.

We continue to work on our preliminary study on the feasibility regarding new construction of small modular nuclear reactors (SMR) in Sweden, a study which is scheduled to be completed by the end of the year. New nuclear power, alongside other fossil-free energy sources, will be crucial in ensuring that Sweden will meet the increasing demand for electricity in the long-term.

Anna Borg
President and CEO

Profit for the period
First half of 2023
6.9
SEK billion
(10.3)

Underlying operating profit
First half of 2023
14.6
SEK billion
(16.3)

FFO/adjusted net debt
Last 12 months
30.6%
(103.0)

Return on capital employed
Last 12 months
0.5%
(19.3)

Excerpt Vattenfall March 29, 2023 Corporate Factbook

Main projects in our 5 core countries

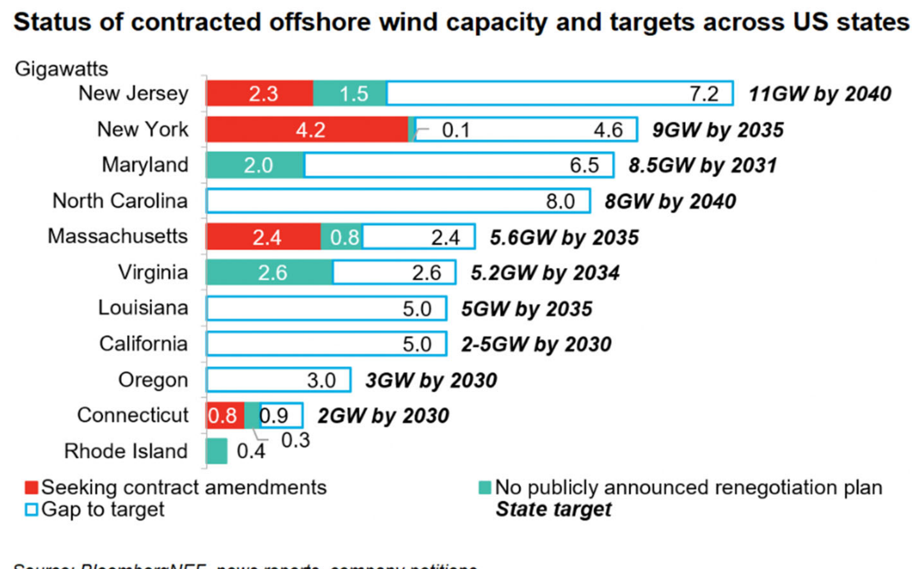
Country	Name	Capacity (MW)	Support scheme	Awarded	Duration of support	Owner-ship (%)	Commission-ing	Current status
NL	Hollandse Kust Zuid 1-4	1,520	-	X	-	51	2023	Under construction, Partnering with BASF
DK	Vesterhav	344	FIT	X	50.000hrs	100	2023/2024	Under construction
UK	South Kyle	240	-	N/A	-	100	2023	Under construction
NL	Windplan Blauw	77	SDE+	X	15 yrs	100	2023	Under construction
UK	Battery@Ray	20	-		-	100	2023	Under construction
In construction		**2,201**						
UK	Norfolk projects	3,600	CfD		15 yrs	100	2027-2029	Norfolk Boreas received CfD in AR4, Norfolk Vanguard is preparing for CfD bid in AR5
UK	Scotwind	750	CfD			50	2030	Under development with consenting and permitting progressing to ensure participation in the CfD bid, JV with Fred Olsen
GE	N-7.2 (Global Tech II)	980	-		-	100	2027	Development rights received in September 2022, FID planned for 2023
In development (in mature stage)		**5,330**						

Offshore Onshore Solar Batteries

[1] The project has been sold but Vattenfall will build and operate the wind farm

Offshore Wind Goals in US Are Imperiled by Deal Revisions: BNEF
2023-07-10 14:00:00.0 GMT

By Atin Jain
(BloombergNEF) -- Several US states face a growing risk of missing their offshore wind goals due to a spate of contract renegotiation or cancellation attempts by project developers citing rising costs.
New York state has a target to add 9 gigawatts of cumulative offshore wind capacity by 2035 and contracted 4.36GW of projects in its two concluded solicitations. But renegotiation attempts mean that 95% of the contracted capacity is at risk of delays. Neighboring Massachusetts sees 75% of contracted capacities being delayed by renegotiation attempts. In Connecticut it's 73%. New Jersey, which is targeting of 11GW, risks delays to 60% of its contracted pipeline.
About 9.7GW of US offshore wind projects, or just over half of the 17.8GW total contracted, face delays, and more projects may soon face the same fate. Developers such as Avangrid, Shell-Ocean Winds, BP-Equinor and Orsted-Eversource have cited deteriorating economics due to rising costs in trying to renegotiate or cancel contracts.
The renegotiation efforts mean ambitious goals by state governments and the Biden administration to achieve 30GW of offshore wind capacity by 2030 are drifting further away from reality. The current situation highlights the challenges and complexities inherent in developing large-scale offshore wind projects.



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I am on motorists' side, says Rishi Sunak as he orders review of anti-car schemes

2023-07-29 20:00:47.37 GMT

Prime Minister tells The Telegraph that vast majority of people 'are dependent on their cars'

By (Telegraph)

Rishi Sunak promised drivers that he is "on their side" as he ordered a review of controversial anti-car schemes being rolled out across Britain.

In an interview with The Telegraph, the Prime Minister said the vast majority of people "are dependent on their cars" and that "anti-motorist" policies fail to take account of how "families live their lives".

Mr Sunak has ordered the Department for Transport (DfT) to carry out a review of low traffic neighbourhoods (LTNs), which often use cameras, giant planters and bollards to turn away cars.

A source said he was "concerned by the levels of congestion outside the roads in which they are implemented", amid fears that the measures simply displace traffic to neighbouring areas.

The source added: "Of course we want better air quality. But people have to consent and be happy to live in areas where, to varying degrees, cars and vans are blocked."

Mr Sunak said: "The vast majority of people in the country use their cars to get around and are dependent on their cars. When I'm lucky enough to get home to North Yorkshire, it's more representative of how most of the country is living, where cars are important.

"I just want to make sure people know that I'm on their side in supporting them to use their cars to do all the things that matter to them."

Meanwhile, the Prime Minister faced mounting pressure to delay the 2030 phase-out of petrol and diesel cars as it emerged that Chris Stark, the head of the committee on climate change, had told MPs the 2030 ban on the sale of petrol and diesel vehicles may be too soon.

Separately, more than 40 Tory MPs and peers have written to Mr Sunak calling for the deadline to be pushed back.

But he insisted "we are not considering a delay" despite pledging to take a "proportionate and pragmatic" approach to net zero.

Elsewhere in the interview, Mr Sunak launched a highly personal attack on Sir Keir Starmer, suggesting the Labour leader was lacking principles.

He said: "I have a set of principles and values that are important to me, and that anchor my approach to life and to government. I don't see that across the despatch box."

Amid growing divisions over net zero, Mr Sunak is preparing to announce a new

round of licenses for North Sea oil and gas exploration this week as he seeks to make political capital out of Labour's pledge to halt new drilling.

But in an attack from within his own party, Lord Hammond, a former chancellor, said successive Conservative prime ministers had been "systematically dishonest" with the public about the trillion pound cost of achieving the 2050 net zero target.

Mr Sunak used the interview to pitch himself as the pro-car party leader – setting himself against Sir Keir, who has been coming under pressure to tell Sadiq Khan, the Labour London Mayor, to axe his planned expansion of the capital's ultra low emission zone (Ulez) after a public backlash.

Speaking on a visit to Wales, the Prime Minister claimed the Labour Party had become "anti-motorist", citing schemes such as Ulez and the Welsh government's plan to introduce a 20mph limit in all residential areas in September.

But he is also concerned about car schemes, such as LTNs, that have become increasingly prevalent since the onset of the Covid pandemic and aim to reduce traffic in residential areas and cut carbon emissions.

The zones, originally introduced by Mr Khan in London, have since been rolled out to places such as Bristol, Oxford, Manchester, Birmingham and Sheffield, with funding from the DfT.

Earlier this month, Mark Harper, the Transport Secretary, told The Telegraph he had put an end to Government funding for projects "that are about... banning cars or making it difficult for motorists".

He suggested that local authorities should now consider scrapping existing LTNs where they are unpopular and were implemented with insufficient consultation of local residents.

However, the review ordered by Mr Sunak could lead to the Government intervening to halt existing schemes, including by issuing guidance to councils that those without local support should be scrapped.

The source said: "He [the Prime Minister] is particularly worried by the LTNs that allow no vehicle wider than a bike to travel through – blocking delivery vans, cars for elderly people and families, and sometimes emergency vehicles."

In a letter to the Prime Minister, organised by the Net Zero Scrutiny Group, led by Craig Mackinlay, and Conservative Way Forward, a campaign group, 42 parliamentarians warn that the 2030 ban on the sale of petrol cars will do "grave harm to the economy".

The signatories include the former ministers Sir Jacob Rees-Mogg, David Davis, and Esther McVey, as well as Red Wall MPs Lia Nici and Marco Longhi.

-0- Jul/29/2023 20:00 GMT

To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/RYKQ9BBNG4XS

https://www.politico.eu/article/germany-economy-minister-robert-habeck-recession-energy-subsidies/

Germany faces 5 tough years, economy minister warns

Berlin should borrow money to subsidize energy for companies or risk losing its industry, Robert Habeck cautions.

"We have a major transformational period ahead of us until 2030," Robert Habeck said | Omer Messinger/Getty Images

BY HANS VON DER BURCHARD

JULY 27, 2023 4:55 PM CET

Germany faces five difficult years of green industrial transition that "will put a burden" on people, Economy Minister Robert Habeck warned — while urging his government to approve fresh subsidies to safeguard the country's industrial base.

Reacting to a new report by the International Monetary Fund that projects Germany's economy will shrink 0.3 percentage points this year, Habeck told German public broadcaster ARD on Wednesday evening, "The data certainly isn't good."

Germany's statistical office had already warned in May that the country entered into a recession. Some of Germany's biggest companies have begun to ditch the fatherland, triggering fears of deindustrialization.

Habeck argued that this downturn could be explained by high energy prices, which Germany felt more intensely than other countries because it relied on cheap Russian gas. High interest rates are also slowing down investments and global trade, he added, which particularly affects Germany as an export-dependent nation.

While stressing that there was "no reason" to react to these problems with "German Angst" — referring to a catchword describing the fear and hesitancy stereotypically connected with Germans facing major challenges — Habeck later in the TV interview himself made some blunt remarks.

"I also don't want to ignore the fact that this will put a burden on people," Habeck said. "We have a major transformational period ahead of us until 2030," during which time Germany would move from a traditional, fossil fuel-dependent industrial base to green energies like hydrogen, he said.

He advocated state support in the form of a cap on electricity prices for energy-intensive companies in international competition, "so that they can withstand the challenges of the transformation and have enough money to invest."

Habeck, a senior politician with the Greens — a party which has a history of proposing debt to solve problems — admitted that the proposed energy subsidies, which he has been promoting for months, still lack a majority within the governing coalition. That includes the fiscally conservative Free Democratic Party (FDP) of Finance Minister Christian Lindner along with the Social Democratic Party of Chancellor Olaf Scholz, which has so far stuck with Lindner in opposing Habeck's plans.

Yet the Green politician, who also acts as vice chancellor, argued that essentially Germany has to decide between breaking with its debt rules — a no-go for Lindner's FDP — or risking the loss of its industrial base.

"The question is: Do we borrow money or do we no longer have industry?" Habeck said.

He added: "We don't have much time left, otherwise companies will say: We'll invest, but no longer in Germany."

https://www.reuters.com/world/europe/germany-earmark-4-bln-euros-annually-power-subsidy-economy-minister-2023-05-22/

Germany to earmark 4 bln euros annually for power subsidy - economy minister

Reuters
May 22, 20232:34 PM MDTUpdated a day ago

German Economy and Climate Protection Minister Robert Habeck attends an economic committee meeting on the current reporting on personnel policy and staffing by the Federal Ministry of Economics in Berlin, Germany May 10, 2023. REUTERS/Michele Tantussi

BERLIN, May 22 (Reuters) - Germany plans to earmark around 4 billion euros ($4.40 billion) annually to subsidize electricity prices for energy-intensive industries, to support an industrial move away from fossil fuels and discourage firms from moving offshore.

The government last year introduced electricity and gas price caps to shield industry and households from rising energy prices, but companies in Germany say electricity prices are still too high.

"We want the industry ... to stay home in Germany and be given a transformation perspective. The industry electricity price is intended for this," Economy Minister Robert Habeck said in a news conference on Monday.

The government is discussing the details of the subsidy which the finance ministry opposes, but Habeck said the subsidy could cap prices at 6 cents per kilowatt hours (kWh), covering 80% of industrial firms' consumption.

"This price will be calculated on the basis of the average exchange electricity price and then calculated down," Habeck said, adding that this would give companies incentive to look for cheaper energy prices from renewable energy sources on the market.

The subsidy, which would cost around 25 to 30 billion euros, should be phased out by 2030 and would be financed through the Economic Stabilisation Fund (ESF), originally introduced in 2020 to bail out airline Lufthansa during the pandemic.

Earlier this month, the German finance ministry pushed back against the economy ministry's subsidy plan as the budget did not allow for it and existing funds could not be redirected.

Small and medium-sized firms in energy-intensive industries such as the metal and chemical sectors will be able to benefit from the support, he said.

"If we don't pay this price, we may no longer have future industrial sectors in these energy-intensive areas in Germany and that would be a loss," Habeck added.

($1 = 0.9084 euros)
Reporting by Riham Alkousaa Editing by Bernadette Baum

https://www.reuters.com/world/europe/germany-earmark-4-bln-euros-annually-power-subsidy-economy-minister-2023-05-22/

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https://www.dw.com/en/dont-overstate-15-degrees-c-threat-new-ipcc-head-says/a-66386523

CLIMATEGLOBAL ISSUES

Don't overstate 1.5 degrees C threat, new IPCC head says

23 hours ago23 hours ago

Jim Skea, the new head of the UN's IPCC climate panel, said it was not helpful to imply that temperature increases of 1.5 degrees Celsius posed an existential threat to humanity.

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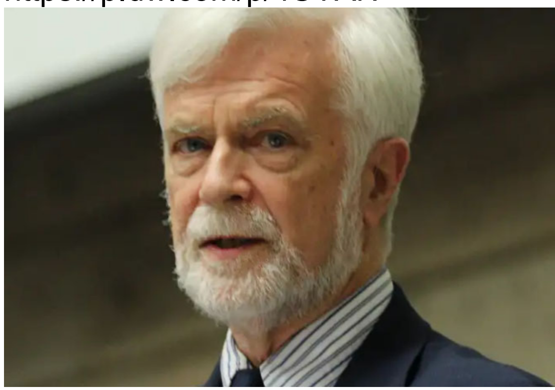

Jim Skea was named the new chairman of the IPCC earlier this week*Image: Melissa Walsh/IPCC/dpa/picture alliance*

ADVERTISEMENT

The newly appointed head of **the UN's Intergovernmental Panel on Climate Change (IPCC)**, Jim Skea, spoke to two major German news outlets over the weekend, soon after his appointment to the role.

Speaking to weekly magazine *Der Spiegel*, in an interview first published on Saturday, Skea warned against laying too much value on the international community's current nominal target of **limiting global warming to 1.5 degrees Celsius compared the pre-industrial era**.

"We should not despair and fall into a state of shock" if global temperatures were to increase by this amount, he said.

In a separate discussion with German news agency DPA, Skea expanded on why.

"If you constantly communicate the message that we are all doomed to extinction, then that paralyzes people and prevents them from taking the necessary steps to get a grip on **climate change**," he said.

"The world won't end if it warms by more than 1.5 degrees," Skea told *Der Spiegel*. "It will however be a more dangerous world."

Surpassing that mark would lead to many problems and social tensions, he said, but still that would not constitute an existential threat to humanity.

The international community's stated target is currently to limit global warming to the 1.5 degrees Celsius target, even though UN estimates suggest that the current commitments made by countries **are actually likely to fall far short of their nominal goal**.

The UN estimates that within roughly a decade, the target is liable to be breached

What else did Skea say?

James "Jim" Skea is a physics graduate born in Dundee in Scotland who did his doctoral thesis in energy research and has worked at Imperial College London since 2009.

The 69-year-old, who has been involved with the IPCC since its foundation in the 1990s, was named its new chairman on Wednesday.

He told *Der Spiegel* that there remained good reasons to be optimistic in the battle against climate change.

"Every measure we take to weaken climate change helps," he said, adding that measures were also becoming "ever more cost-effective."

Skea said that one short-term focus should remain expanding renewable electricity to reduce emissions from fossil fuel electricity generation and from internal combustion engine vehicles.

"Longer term, we probably will not be able to do without technological solutions **like the underground capture of CO2**," he said, referring to the greenhouse gas **carbon dioxide.**

Individual abstinence is good, but new infrastructure required

Skea predicted that one difficult area might prove to be changing people's lifestyles. He said that no scientist could tell people how to live or what to eat.

"Individual abstinence is good, but it alone will not bring about the change to the extent it will be necessary," Skea said. "If we are to live more climate consciously, we need entirely new infrastructure. **People will not get on bikes if there are no cycle paths**."

Skea said he also wanted to adapt the IPCC so that it could provide better and more targeted advice to specific groups of people on how they could act to combat climate change.

He named groups like town planners, landowners and businesses: "With all these things it's about real people and their real lives, not scientific abstractions. We need to come down a level," he told DPA.

He said he also hoped to make progress during his tenure on how and where money was sent and spent to tackle the problem globally.

"There's enough money in the world, the challenge is getting it to flow to the right places," he said.

msh/sri (AFP, dpa)

Willie Walsh interview: ‘The transition to net zero is going to cost holidaymakers’
2023-08-06 09:47:36.459 GMT

Willie Walsh interview: ‘The transition to net zero is going to cost holidaymakers’

By Matt Oliver

(Telegraph)

The summer getaway is what most of us look forward to all year – preferably to somewhere warm with cocktails at hand. Not so, however, for Willie Walsh. “Hell, for me, would be lying on a beach in the sun,” the Irishman deadpans. “First and foremost, I would be bored stupid. And I would burn. It’s just torture – I can’t do it.”

This is something of a surprise, given that Walsh – who ran British Airways and its parent for 15 years– has devoted his career to getting the rest of us to our holidays. He reckons that he’s barely taken a week’s holiday since 2005 – when he took the controls at BA – and most of that was in the past year. Previously, he has admitted to working 100 days straight and even on Christmas Day.

Now, however, life is slightly more relaxed, after Walsh took a job as head of the Geneva-based International Air Transport Association (IATA). So will he now take a proper holiday? Err, no.

“I love working, you know?” the 61-year-old shrugs. Is it possible he could be a bit of a workaholic?

“It’s not necessarily that I’m a workaholic,” he insists, not entirely convincingly. “I just like being active. And work is an easy way to be active.”

This is Walsh, in a nutshell. And it explains a lot, given that he’s spent the past 20 years successfully steering some of Europe’s biggest airlines through storm after storm.

Having first trained as a pilot with Irish airline Aer Lingus, Walsh rose to become chief executive of the carrier in 2001, during the aftermath of 9/11, before taking the controls at a struggling British Airways four years later, fixing its finances and combining the business with a rival to form International Consolidated Airlines Group (IAG), an industry titan. He left IAG in 2020 to take his current job in Switzerland, where he now lives.

When I speak to Walsh over a video call, he’s in a relaxed mood, sitting in his whitewashed, sparsely decorated office overlooking the runways of Geneva Airport. There are no clues about his previous lives on the walls; even the model plane on his desk was left behind by a predecessor. He is more occupied with the present: the threat of strike action looms again over Gatwick this summer and across the Channel, French air traffic control staff have vowed industrial action.

It comes after television screens were filled last month with pictures of holidaymakers fleeing Rhodes and Corfu, as wildfires ripped through parts of the popular Greek islands. And if that weren't enough, there's a cost of living crisis.

Yet for Walsh, and the rest of the industry, this is practically a tea party compared with what came before. After all, the previous three summers were plagued by mass industrial action (2022), Covid travel requirements (2021) and lockdowns (2020).

"The picture's slightly more disruptive than it was in 2019 but it's a lot better than it was last year," Walsh says. "There will be some disruption, but most flights are getting away."

After surviving pandemic turbulence – during which some top carriers looked as though they would collapse – the aviation industry is on course to turn its first annual profit since 2019, following more than $180 billion (£140 billion) of cumulative losses. Demand is back to about 95 per cent of pre-pandemic levels in Europe and IATA estimates it will have recovered fully by next year.

The worst damage suffered by airlines during Covid was to their balance sheets, as they were forced to take on huge debts to keep going while flights were grounded. "It's going to take some time for that to be recouped," adds Walsh. "But the recovery has certainly been stronger than we had expected."

Despite a recent warning by budget carrier Ryanair that price cuts may be necessary this winter to prop up ticket sales, Walsh is not worried by the gloomy economic climate. Employment remains high and families are still desperate to travel after years of Covid restrictions, he says, brushing off concerns.

"People in employment tend to continue to want to take their holiday. There's still very strong underlying demand for air travel, and I expect that to continue."

One thing that is on his radar, however, is the rising cost of air fares, which have jumped higher since the pandemic. At Ryanair, for example, the average fare per passenger was €37 (£32) in 2019, but jumped to €49 in April to June this year – a whopping 32 per cent increase.

Walsh says this is largely owing to rises in the cost of jet fuel – the single biggest cost for airlines – as well as a shortage of seat capacity, made worse when the pandemic forced carriers to cut back – and still a problem today because of aircraft delivery delays.

What's more, the push towards net zero will only put further upward pressure on prices. The industry, led by IATA, has pledged to reach net zero carbon emissions by 2050 and, most notably, will involve switching from kerosene jet fuel to more sustainable – and expensive – alternatives.

Does Walsh think the days of super-cheap flights will ever return? "They were always headline figures to stimulate interest in flying. But no, I don't think

we'll see that again – and I think even Michael [O'Leary, the boss of Ryanair] would acknowledge that."

In fact, the cost of transitioning to green fuels is expected to push up airfares by 10-20 per cent over the next couple of decades, says Walsh. And this comes from someone who is seen as an advocate of green issues within the industry – albeit perhaps a clear-eyed one. "Anybody who thinks that the transition to net zero isn't going to cost is misled," Walsh says. "Prices will have to go up... and that cost is something that ultimately will get passed through to consumers."

He is withering, however, about suggestions that the green agenda equates to the death of mass air travel, putting him at odds with climate campaigners who say we should take the train to European destinations.

Greta Thunberg, the young Swedish activist, is among them – but the much higher price of rail travel makes her example difficult to emulate for many. Taking the 10-hour rail journey from London to Barcelona can be 10 times more expensive than the equivalent flight, with air fares starting from as little as €12.99, compared with train tickets all priced in excess of €300, according to research by Greenpeace.

The debate about whether this kind of shift is really useful or just virtue signalling has spawned a new lexicon of words, including "flight shame" and "train bragging". This year, France has banned domestic flights that can be done in less than two-and-a-half hours by train, while the Austrian government has phased out flights between Vienna and Salzburg, and Germany has doubled taxes on short-haul services.

Should we feel ashamed to fly short distances? "This is a much more nuanced debate than the one I think some people have wanted to engage in," Walsh sighs. Aviation accounted for 2 per cent of global emissions in 2022, though scientists say it has a disproportionately large effect on the atmosphere. Walsh, however, points to a 2021 study by Eurocontrol, which found that axing all flights of less than 500km would only shave 4 per cent off the continent's total carbon emissions.

This is because the vast majority of emissions come from long-haul flights. "So the idea that the way to address environmental impacts is to stop all short-haul flying – it's nonsense.

"And then, of course, people have the perception that train travel is extremely efficient but that depends on how the trains are powered. If you're using old diesel locomotives, that's not the same as using electricity that's generated by a nuclear power station, for example."

He is also highly critical of the cost of rail – in terms of both fares and infrastructure – and service levels. "There's a decent rail network in Spain and in France; in Switzerland where I'm living now it's pretty good. But if you look at some other countries like Germany, it's awful." He cites examples of recent rail travel experiences in Germany (two trains cancelled, others late) and between Geneva and Paris (late without explanation, terrible service and Wi-Fi that didn't work).

“In many cases, train travel is very expensive. Look at the cost of the development of new infrastructure – it’s huge. The debate [about High Speed 2] in the UK is actually interesting, when you look at the opposition both from an environmental point of view and the cost, which is astronomical.

“The idea that you’ll be able to provide an alternative rail option for people to travel, it’s just not going to happen.” By contrast, he says, airlines pay for most of their own infrastructure and do not receive government subsidies. But he accepts that the airline industry has to clean up its own record.

“The facts matter in this debate, but the perception of our industry is one that we have to deal with rather than the reality. And the perception is that the industry needs to do more in terms of its impact on climate change – and we will. We’ll do that by addressing the environmental impact through the use of sustainable aviation fuel in the short to medium term, and then technology beyond the 2050 period will provide the solution.

“But I think as we transition, flying will continue to be a valid option for people for many, many years to come.”

Cross swords with Walsh, and it’s not hard to see where he gets his reputation as a ruthless combatant. When he took over at Aer Lingus in 2001, the carrier was on the verge of collapse and his previous boss had been ousted in a harassment scandal. In response, Walsh rammed through cost-cutting measures, axed travel agent commissions, nixed business class on short-haul flights and faced down union chiefs.

He left in 2005 after falling out with the Irish government over proposals to float the airline on the stock exchange, but was then headhunted by BA and employed a similar playbook to knock the beleaguered business – which he described as “a pension fund with wings” – back into shape.

His all-out assault on waste earned Walsh the tabloid nickname “Slasher” – and years later he was also blamed for BA dispensing with frills such as free food and drink. A reduction in leg room was also held up by critics as an example of how Walsh’s reforms had left Britain’s flag carrier, once the envy of the world, looking more threadbare.

It was at BA, however, that Walsh masterminded what is likely to be his biggest legacy: the merger of BA with Spanish airline Iberia to form IAG, which later grew to swallow Spanish low-cost carriers Vueling and Air Europa, as well as Aer Lingus. Walsh set the group up with a “Darwinian” structure that forces its various airlines to compete among themselves for the company’s resources.

Colleagues and union chiefs describe an uncompromising negotiator, who will fix you across the table with a piercing “dead-eyed stare”. Revealingly, Walsh himself has been known to quote the writer George Bernard Shaw, saying: “A reasonable man gets nowhere in negotiations.”

In person, you wouldn’t know any of this. Walsh is charming, upbeat and self-deprecating, although you get the sense there is steel beneath the

affable exterior. Does he think his reputation as the ruthless “slasher” is fair? “I think there’s more to me. But I’ve never been bothered about what the media say or write.

“Being a pilot has been helpful, because you learn about the need for close teamwork… and you have to make decisions – you don’t have the luxury of being able to say, ‘Well, hang on, we’ll think about that tomorrow’.

“For some people, they struggle, particularly when it comes to tough decisions. I’ve never had that problem. And I think that’s where some of this image of the slasher comes from.

“When I took over at Aer Lingus, the belief and expectation was that the company would be bankrupt within a couple of months. So yes, we did take a hatchet to the business – but we kept it in business. Do I think I got everything right? I would be extremely foolish to believe that. But you know, in general, I’m pleased.”

His proudest moment remains flying a BA plane towards the volcanic ash cloud that loomed over Iceland in 2010 to show it was safe, a daring stunt that eventually forced the UK government to back down and reopen the country’s airports. “I certainly enjoyed playing brinkmanship with the politicians,” Walsh grins.

William Matthew Walsh was born in Dublin in 1961, the second eldest of five children. His father Martin was a self-employed glazier and used to let a young Willie take apart his car, something his son would later credit for inspiring his interest in engineering and aviation.

Walsh got his break in airlines when he spotted a newspaper advertisement from Aer Lingus, looking for cadet pilots. He got the job but later discovered, after rising to become chief executive, that one of the interview panellists had thought him a “cocky little b------”.

Why does Walsh think he ended up having such an extraordinary career? “Genuinely, a lot of luck. And taking the opportunities when they came along. With Aer Lingus, there was no competition for the [chief executive] job – I happened to be in the right place at the right time.

“There were people who were better qualified but they didn’t want to do it because they were afraid of it going bankrupt. I didn’t think that way. I thought, there’s a job that needs to be done. And I’m happy to do it.”

Walsh’s financial prudence extends to his personal life, and he struggles to think of any extravagant purchases except a boat he previously kept on the Thames (now sold). He prefers to spend on good wine and nice meals out, and when he is in Dublin he relaxes with the friends he grew up with over a pint of Guinness.

Within the industry, he has long been friendly with Ryanair chief executive “frenemy” O’Leary, who he has mutual admiration for, but for years he feuded with Virgin Atlantic founder Sir Richard Branson. They have both joked about kneeing each other in the groin, perhaps a little too convincingly. Isn’t it

time they buried the hatchet?

“Yeah, I would. You know, if I met him, I would certainly say hello and let him buy me a nice bottle of wine,” Walsh concedes. Take note, Sir Richard.

Then Walsh lets slip another shocker: he is now mulling retirement.

Surely they’ll have to drag him out kicking and screaming? “No, no, no,” he insists. “I’ve seen too many people dragged out. I’ve got two more years to do here, then I think it’ll be a nice time for me to retire. And I fully intend to.

“Of course, I fully intended to retire before, to go off and see what Tokyo was like and, you know, travel around a bit.”

Somehow, it is quite hard to picture this being enough for Walsh. As far as breaks go, however, it would certainly be well-earned.

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https://blinks.bloomberg.com/news/stories/RYYR7CBNG4ZD

About the Report

As the largest economy in the world and a land of immigrants, the United States (U.S.) attracts people from across the globe who want to live, work, and study here. International clients are an important market niche served by REALTORS®.

Since 2009, the National Association of REALTORS® (NAR) has conducted an annual survey of its members to measure the volume of U.S. residential real estate transactions with international clients; gather information on the origin, destination, and buying preferences of international clients; and identify the challenges and opportunities faced by REALTORS® in serving foreign clients.

The *2023 Profile of International Transactions in U.S. Residential Real Estate* presents information regarding REALTOR® transactions with international clients who purchased and sold U.S. residential property during the 12-month period of April 2022–March 2023.

This report is based on an online survey that was conducted from April 3–May 8, 2023. The survey was sent to 150,000 randomly selected REALTORS® and to members of local associations, which also conducted surveys of foreign buyers.[1] To correct for over/under-sampling at the state level, NAR weighted the distribution of responses to the distribution of NAR members by state as of May 2023. A total of 7,425 REALTORS® responded to the national market survey, of which 951 reported an international residential foreign buyer. Information about the characteristics of international clients is based on the most recent closed transactions of the respondents during the 12-month period.

The term international or foreign client refers to two types of clients:

- Non-resident foreigners (Type A): Non-U.S. citizens with permanent residences outside the U.S.

- Resident foreigners (Type B): Non-U.S. citizens who are recent immigrants (less than two years at the time of the transaction) or non-immigrant visa holders who reside for more than six months in the U.S. for professional, educational, or other reasons.

The number of foreign buyers and the number of properties purchased are used interchangeably in this report under the assumption that one foreign buyer purchased one property.

1 Responses from oversample surveys of the Raleigh Regional Association of REALTORS®, Mainstreet Organization of REALTORS®, Long Island Board of REALTORS®, Hudson Gateway Association of REALTORS®, and Texas REALTORS® were added to the national random sample. The total set of responses was weighted by the distribution across states of NAR members with a primary specialization in residential real estate.

2023 Highlights

$53.3 Billion

Dollar volume of foreign buyer residential purchases during April 2022–March 2023 (2.3% of $2.3 trillion of the dollar volume of existing-home sales)

84,600

Number of foreign buyer existing-home purchases during April 2022–March 2023 (1.8% of 4.73 million existing-home sales)

51%

Foreign buyers who reside in the United States (recent immigrants; less than two years at the time of the transaction) or non-immigrant visa holders (Type B)

Top Foreign Buyers

China (13% of foreign buyers, $13.6 B)
Mexico (11% of foreign buyers, $4.2 B)
Canada (10% of foreign buyers, $6.6 B)
India (7% of foreign buyers, $3.4 B)
Colombia (3% of foreign buyers, $0.9 B)

Top Destinations

Florida (23%)
California (12%)
Texas (12%)
North Carolina (4%)
Arizona (4%)

$396,400

Foreign buyer median purchase price (compared to $384,200 for all U.S. existing homes sold)

2023 Highlights

42%

Foreign buyers who paid all-cash (compared to 26% among all existing-home buyers)

50%

Foreign buyers who purchased a property for use as a vacation home, rental, or both (compared to 16% among all existing-home buyers)

76%

Foreign buyers who purchased a detached single-family home or townhome (compared to 89% of all existing-home buyers)

45%

Foreign buyers who purchased in a suburban area

Home prices in many U.S. metro areas are comparatively inexpensive compared to prices in the central areas of global cities.

Home Price Comparison Among Global Cities and U.S. Metros

Global Cities	Price Per Sq. Meter	U.S. Metros	Median Home Price in 2022 Q1 (in '000)	Price Per Sq. Meter
Hong Kong, Hong Kong Islanc	$28,570	San Francisco-Oakland-Hayward, CA	$1,380	$8,250
UK, London	$26,262	San Diego-Carlsbad, CA	$905	$5,410
US, New York	$17,191	Los Angeles-Long Beach-Glendale, CA	$793	$4,740
Israel, Tel Aviv	$17,149	Seattle-Tacoma-Bellevue, WA	$746	$4,460
Switzerland, Geneva	$16,467	Denver-Aurora-Lakewood, CO	$662	$3,960
Japan, Tokyo	$16,322	Boston-Cambridge-Newton, MA-NH	$639	$3,820
France, Paris	$15,867	New York-Newark-Jersey City,NY-NJ-PA	$578	$3,460
Singapore	$14,373	Portland-Vancouver-Hillsboro, OR-WA	$571	$3,410
Austria, Vienna	$11,915	Salt Lake City, UT	$557	$3,330
China, Beijing	$11,829	NY-Jersey City-White Plains, NY-NJ	$553	$3,310
Canada, Toronto	$10,947	Wash-Arlington-Alxndria, DC-VA-MD-WV	$553	$3,310
India, Mumbai	$10,932	Austin-Round Rock, TX	$541	$3,230
Finland, Helsinki	$10,386	Miami-Ft Lauderdale-W Palm Beach, FL	$530	$3,170
Taiwan, Taipei	$10,373	Boise City-Nampa, ID	$491	$2,940
Norway, Oslo	$10,268	North Port-Sarasota-Bradenton, FL	$480	$2,870
Australia, Sydney	$8,783	Phoenix-Mesa-Scottsdale, AZ	$475	$2,840
Sweden, Stockholm	$8,669	Las Vegas-Henderson-Paradise, NV	$461	$2,760
Netherlands, Amsterdam	$8,558	Colorado Springs, CO	$455	$2,720
Czech Republic, Prague	$8,293	Raleigh, NC	$439	$2,630
Italy, Rome	$8,170	Charleston-North Charleston, SC	$384	$2,300
Russia, Moscow	$7,818	Nashville-Davidsn-Murfreesboro-Frankln,TN	$383	$2,290
Germany, Berlin	$7,325	Charlotte-Concord-Gastonia, NC-SC	$380	$2,270
Bermuda	$7,056	Tampa-St.Petersburg-Clearwater, FL	$380	$2,270
BVI, Tortola	$6,469	Dallas-Fort Worth-Arlington, TX	$365	$2,190
Spain, Madrid	$6,173	Minneapolis-St Paul-Blmngtn, MN-WI	$356	$2,130
UAE, Dubai	$5,918	Atlanta-Sandy Springs-Marietta, GA	$350	$2,090
Luxembourg	$5,710	Chicago-Naperville-Elgin, IL-IN-WI	$325	$1,950
Turkey, Istanbul	$5,680	Phldlphia-Cmdn-Wilmingtn, PA-NJ-DE-MD	$298	$1,780
Malta, Valleta	$5,674	Indianapolis-Carmel-Anderson, IN	$272	$1,620
Denmark, Copenhagen	$5,306	Cleveland-Elyria, OH	$193	$1,150

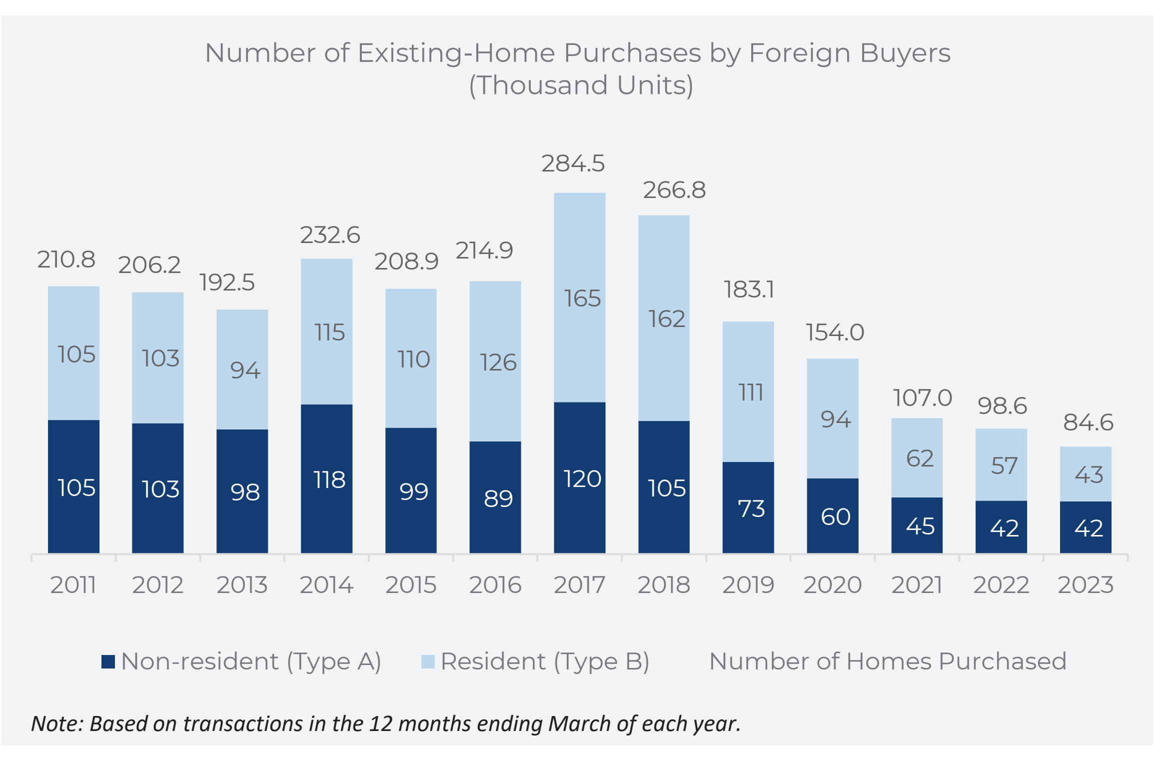
Sources: Global Property Guide for prices in global cities. The price is the cost per square metre of a 120 sq. m. apartment in the centre of the premier city.
National Association of REALTORS® for existing home prices in U.S. metro areas in 2019 Q1 converted to price/sq.m. based on median home area of 1,800 median square feet estimated by the U.S. Census Bureau in the 2017 American Housing Survey.
Prices in global cities are based on latest data available compiled by Global Property Guide.
See https://www.globalpropertyguide.com/faq/square-metre-prices-rentals-and-yields#ans6

Foreign Buyer Purchases of Existing-Homes

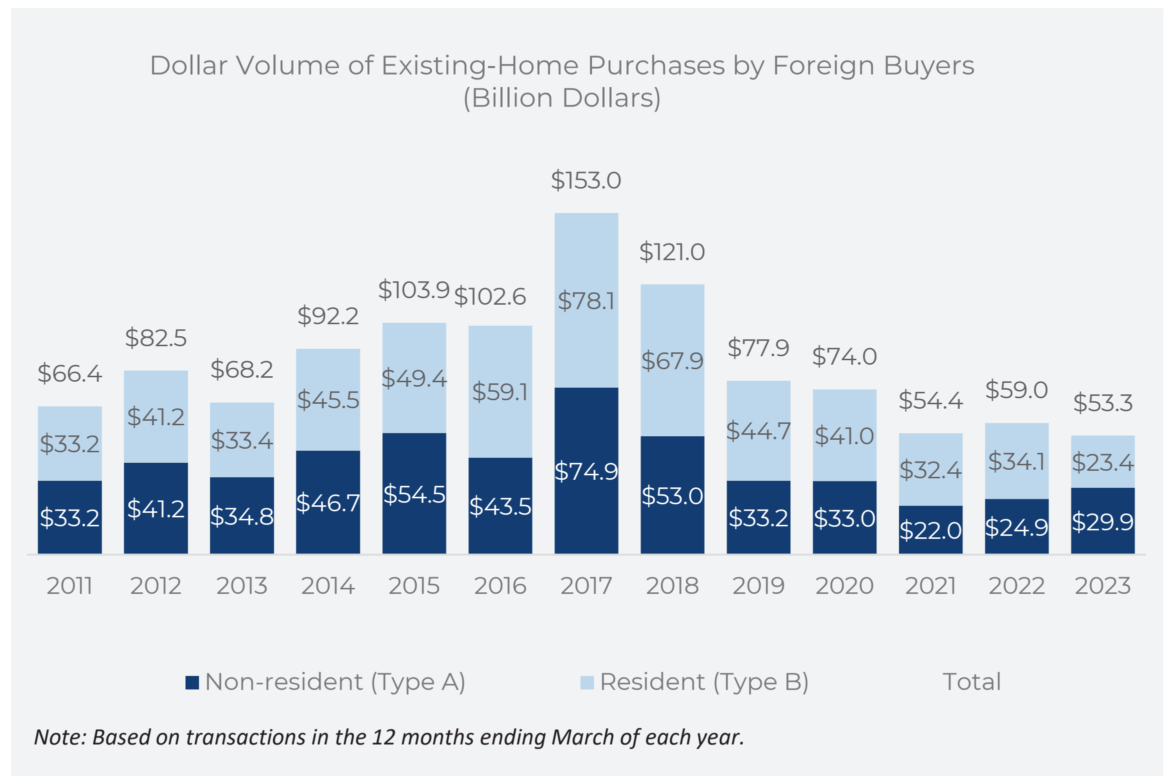
As foreign travel to the United States continued to recover, the number of existing homes purchased by foreign buyers during April 2022—March 2023 decreased to 84,600, the lowest level since NAR estimated foreign buyer purchases in 2009, and a 14% decline from the prior period, or 14,000 fewer buyers. Non-resident (Type A) buyers accounted for 49% of home purchases.

Along with the decrease in number of homes purchased, the dollar volume of foreign buyer purchases decreased slightly to $53.3 billion, a 9.6% decrease from the prior period. With increased home prices, the average foreign buyer purchase price rose to $639,900, a 7% year-over-year increase from the prior period.

Foreign buyers made up a slightly larger share of the declined U.S. existing home sales market from April 2022 — March 2023. The share of foreign buyer purchases to existing-home sales was 1.8% (1.6% in the prior period) while the dollar volume of foreign buyer purchases to the total existing-home sales volume decreased slightly to 2.3% (2.6% in the prior period).



Note: Based on transactions in the 12 months ending March of each year.



Dollar Volume and Number of Foreign Buyer Purchases of Existing-home Sales

	Dollar Volume			Number of Homes Purchased			As a Percent of Sales	
Survey Year	All Foreign Buyers	Non-resident foreign buyer purchases (Type A)	Resident foreign buyer purchases (Type B)	All Foreign Buyers	Non-resident foreign buyer purchases (Type A)	Resident foreign buyer purchases (Type B)	Dollar Volume	Units
2009	$38.8	N.A.	N.A.	157,200	N.A.	N.A.	4.1%	3.9%
2010	$66.0	N.A.	N.A.	300,600	N.A.	N.A.	6.8%	6.8%
2011	$66.4	$33.2	$33.2	210,800	105,398	105,398	7.1%	4.9%
2012	$82.5	$41.2	$41.2	206,200	103,096	103,096	8.9%	4.7%
2013	$68.2	$34.8	$33.4	192,500	98,137	94,363	6.3%	4.1%
2014	$92.2	$46.7	$45.5	232,600	117,846	114,797	7.4%	4.6%
2015	$103.9	$54.5	$49.4	208,900	99,388	109,560	8.1%	4.2%
2016	$102.6	$43.5	$59.1	214,900	88,546	126,338	7.2%	4.0%
2017	$153.0	$74.9	$78.1	284,500	119,514	164,941	10.0%	5.2%
2018	$121.0	$53.0	$67.9	266,800	104,821	161,933	7.6%	4.9%
2019	$77.9	$33.2	$44.7	183,100	72,573	110,512	5.0%	3.5%
2020	$74.0	$33.0	$41.0	154,000	59,576	94,386	4.4%	2.8%
2021	$54.4	$22.0	$32.4	107,000	44,600	62,400	2.8%	1.8%
2022	$59.0	$24.9	$34.1	98,600	42,000	56,600	2.6%	1.6%
2023	$53.3	$29.9	$23.4	84,600	41,500	43,100	2.3%	1.8%

Reference period is April of the preceeding year to March of the current year

Origin of International Buyers

By region of origin, Asian buyers returned as the largest group of buyers, with a higher market share of 38%. Latin American buyers were the second largest group, with a 31% share. (Mexico is included in Latin America/Caribbean, although it is geographically part of North America). European buyers accounted for 14% of foreign buyers, while Canadian buyers alone accounted for 10%.

Measured by the number of homes purchased, China returned as the top country of origin among foreign buyers during April 2022-March 2023, accounting for 13% of the number of homes purchased by foreign buyers (6% in the prior period).

Mexico remained the second largest origin of foreign buyers, with an 11% share (8% in the prior period). Canada, which was the top country of origin of foreign buyers in the previous survey period, was the third most common, with a 10% share. India was the fourth largest foreign buyer, with a 7% share. Colombia maintained a 3% share.

United Kingdom, Australia, Germany, Venezuela, and Israel round out the top 10 countries of origin of foreign buyers.

Percent Share of Top 10 Countries of Origin to Foreign Buyer Purchases

	China*	Mexico	Canada	India	Colombia	United Kingdom	Australia	Germany	Venezuela	Israel
2007	9%	13%	10%	6%	3%	12%	1%	3%	3%	0%
2008	8%	9%	23%	6%	1%	12%	1%	4%	2%	0%
2009	7%	10%	18%	9%	1%	11%	2%	5%	1%	0%
2010	9%	10%	23%	5%	1%	9%	-	4%	1%	2%
2011	9%	7%	23%	7%	1%	7%	-	4%	3%	1%
2012	12%	8%	24%	6%	1%	6%	-	3%	3%	1%
2013	12%	8%	23%	5%	1%	5%	2%	3%	2%	2%
2014	16%	9%	19%	5%	1%	5%	1%	3%	2%	2%
2015	16%	9%	14%	8%	1%	4%	2%	3%	2%	1%
2016	14%	8%	12%	7%	2%	4%	2%	3%	2%	1%
2017	14%	10%	12%	5%	1%	5%	1%	2%	2%	1%
2018	15%	8%	10%	5%	2%	3%	1%	2%	2%	2%
2019	11%	9%	11%	5%	1%	3%	1%	2%	2%	1%
2020	12%	9%	12%	6%	4%	2%	1%	2%	1%	1%
2021	6%	7%	8%	4%	2%	4%	1%	1%	1%	2%
2022	6%	8%	11%	5%	3%	2%	1%	2%	1%	2%
2023	13%	11%	10%	7%	3%	3%	3%	2%	2%	2%

China includes buyers from the People's Republic of China, Hong Kong, and Taiwan.

Top 10 list is based on the most recent year.

Among the top six foreign buyers, purchases decreased only among Canadian and Colombian buyers. China remains the largest foreign buyer in terms of the dollar volume of homes purchased. Chinese buyers purchased $13.6 billion of existing homes, up from $6.1B the prior period due to the increase in purchases and the average purchase price to $1.2 million ($1.0 million in the prior period).

Dollar Volume of Existing-Homes Purchased by Top 5 Foreign Buyers in Billion Dollars

	China*	Mexico	Canada	India	Colombia	All Foreign Buyers	Share of Top 5
2009	$3.8	$3.8	$8.5	$5.7	$0.5	$38.8	36%
2010	$11.2	$6.5	$17.1	$5.0	$0.5	$66.0	33%
2011	$7.0	$4.2	$13.1	$5.1	$0.6	$66.4	27%
2012	$12.0	$6.5	$15.9	$5.2	$0.6	$82.5	26%
2013	$12.8	$3.6	$11.8	$3.9	$0.5	$68.2	23%
2014	$22.7	$4.5	$13.8	$5.8	$0.5	$92.2	21%
2015	$28.5	$4.9	$11.2	$8.0	$0.9	$103.9	18%
2016	$27.3	$4.8	$8.9	$6.1	$1.2	$102.6	15%
2017	$31.7	$9.3	$19.0	$7.8	$1.0	$153.0	17%
2018	$30.4	$4.2	$10.5	$7.2	$1.2	$121.0	15%
2019	$13.4	$3.7	$8.0	$4.2	$0.8	$77.9	16%
2020	$11.5	$5.8	$9.5	$5.4	$1.3	$74.0	20%
2021	$4.8	$2.9	$4.2	$3.1	$1.1	$54.4	13%
2022	$6.1	$2.9	$5.5	$3.6	$1.0	$59.0	15%
2023	$13.6	$4.2	$6.6	$3.4	$0.9	$53.3	19%

Number of Existing-Homes Purchased by Top 5 Foreign Buyers

	China*	Mexico	Canada	India	Colombia	All Foreign Buyers	Share of Top 5
2009	11,000	15,700	28,300	14,100	1,600	157,200	28%
2010	27,100	30,100	69,100	15,000	3,000	300,600	29%
2011	19,000	14,800	48,500	14,800	2,100	210,800	31%
2012	24,700	16,500	49,500	12,400	2,100	206,200	31%
2013	23,100	15,800	43,900	10,400	1,600	192,500	29%
2014	38,400	20,000	43,700	12,600	2,100	232,600	25%
2015	34,300	17,900	29,400	17,300	3,000	208,900	24%
2016	29,200	17,900	26,900	14,500	3,500	214,900	21%
2017	40,600	28,500	33,800	14,900	3,300	284,500	18%
2018	40,400	20,200	27,400	13,100	4,400	266,800	17%
2019	19,900	15,900	19,900	9,700	2,300	183,100	17%
2020	18,400	14,400	18,300	9,600	5,500	154,000	22%
2021	6,700	7,100	8,800	4,700	1,600	107,000	14%
2022	6,100	7,800	11,300	5,100	3,000	98,600	20%
2023	11,000	9,300	8,500	5,900	2,500	84,600	20%

*China includes buyers from the People's Republic of China, Hong Kong, and Taiwan.

Chinese buyers continue to have the highest average purchase price at $1.2 million, as buyers purchased in expensive states: 33% of Chinese buyers purchased a property in California, and 6% purchased in New York.

Chinese buyers also had the highest median purchase price of $723,200, followed by Canadian buyers at $572,900. Canadian buyers were more likely to purchase in common vacation destinations: 55% purchased in Florida, and 14% purchased in Arizona.

Mexican buyers typically purchased the least expensive properties, with Texas as the preferred destination.

Average Purchase Price of Top 5 Foreign Buyers

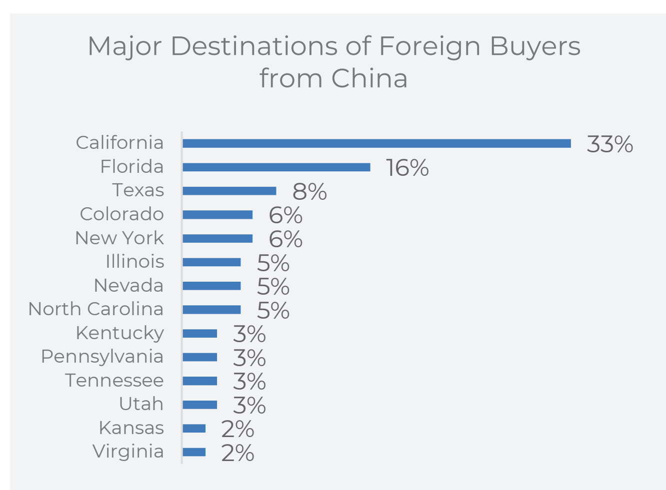
	China*	Mexico	Canada	India	Colombia	All Foreign Buyers
2009	$342,308	$240,341	$298,780	$401,282	$342,308	247100
2010	$412,200	$214,700	$247,300	$333,300	$175,000	$311,400
2011	$370,900	$283,000	$269,100	$346,400	$277,500	$315,000
2012	$484,000	$396,200	$321,700	$419,000	$269,400	$400,000
2013	$555,900	$225,500	$269,100	$372,700	$330,000	$354,200
2014	$590,800	$224,100	$314,700	$459,000	$220,800	$396,200
2015	$831,800	$274,800	$380,300	$460,200	$307,100	$499,600
2016	$936,600	$266,200	$332,100	$420,400	$341,500	$477,500
2017	$781,800	$326,800	$560,800	$522,440	$293,100	$536,900
2018	$752,600	$208,800	$383,900	$547,700	$267,600	$454,400
2019	$674,900	$233,700	$400,000	$431,500	$336,300	$426,100
2020	$622,300	$403,500	$517,200	$561,800	$227,500	$480,870
2021	$710,400	$407,500	$473,600	$662,600	$672,200	$508,400
2022	$1,005,700	$365,700	$485,000	$702,600	$334,300	$598,200
2023	$1,234,500	$448,800	$779,300	$576,500	$355,400	$639,900

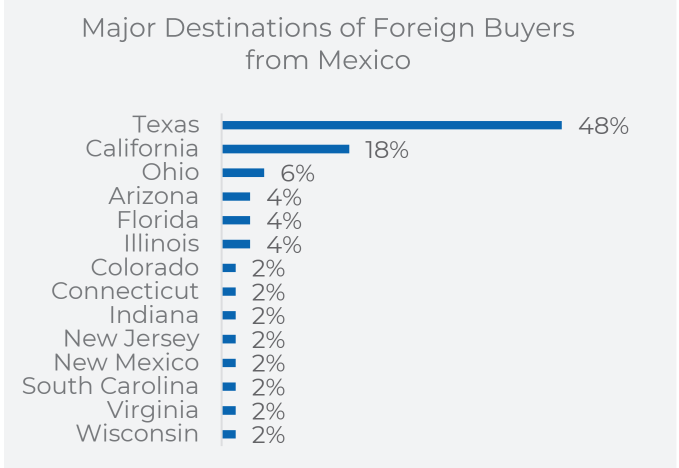
Median Purchase Price of Top 5 Foreign Buyers

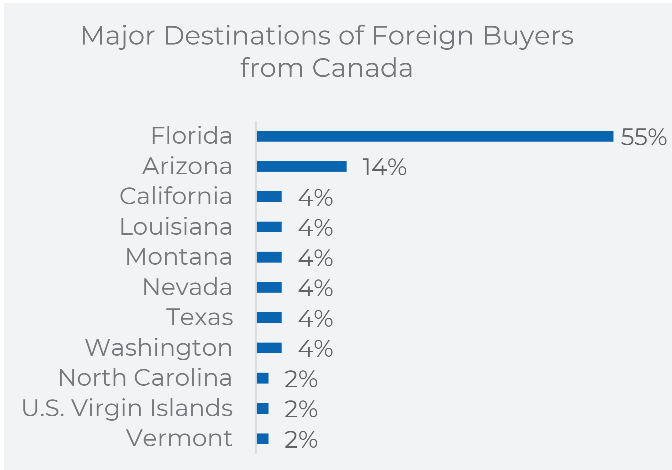
	China*	Mexico	Canada	India	Colombia	All Foreign Buyers
2009	$250,000	$125,000	$225,000	$350,000	$225,000	$247,100
2010	$320,800	$134,400	$200,000	$283,300	$175,000	$219,400
2011	$282,100	$168,800	$177,300	$305,600	$150,000	$228,300
2012	$333,300	$200,000	$171,900	$308,300	$275,000	$274,200
2013	$412,500	$156,300	$183,000	$300,000	$175,000	$225,900
2014	$516,400	$141,100	$212,500	$321,400	$225,000	$268,300
2015	$486,100	$171,200	$196,300	$380,000	$250,000	$284,900
2016	$542,100	$176,500	$222,300	$333,400	$425,000	$277,400
2017	$529,900	$180,900	$288,600	$340,600	$275,000	$302,300
2018	$439,100	$189,100	$292,000	$412,800	$225,000	$292,400
2019	$454,900	$170,100	$268,200	$358,600	$325,000	$280,600
2020	$449,500	$249,900	$292,300	$448,300	$216,200	$314,600
2021	$476,500	$341,400	$400,900	$538,900	$342,300	$351,800
2022	$470,600	$315,100	$416,100	$501,100	$236,600	$366,100
2023	$723,200	$278,100	$572,900	$515,600	$458,300	$396,400

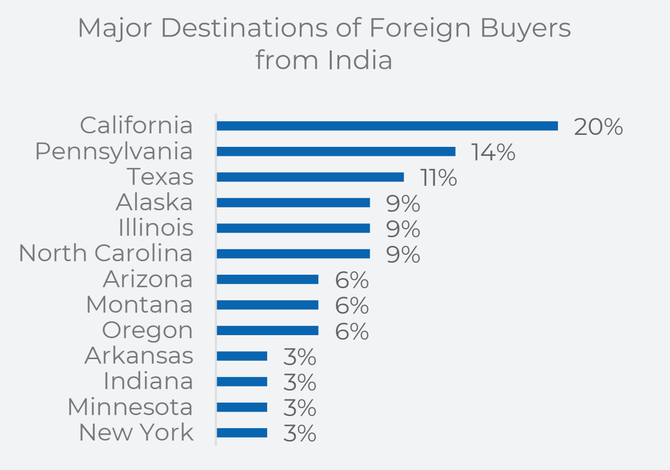
*China includes buyers from the People's Republic of China, Hong Kong, and Taiwan.

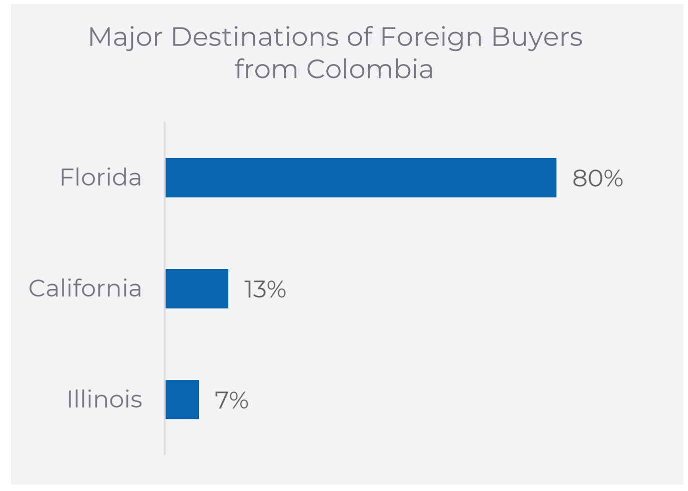
Where Top 5 Foreign Buyers Purchased U.S. Residential Property











Destinations of International Buyers

Florida remains the top destination for foreign buyers, with a buyer share of 23%. Florida's main buyers were from Latin America (46%) and Canada (24%). It was the top state destination among Canadian and Colombian buyers.

California had the second largest foreign buyer share, at 12%, slightly higher than in the prior period. The far majority – 61 percent - of California's foreign buyers came from Asia/Oceania. It was the top destination among Chinese and Asian Indian buyers.

Texas was the third top foreign buyer destination, with a 12% share, a 4-percentage point increase from last year. Fifty-five percent of Texas buyers came from Latin America/Caribbean, and 25% from Asia/Oceania. Texas was the top destination among Mexican buyers and the second top destination among Chinese buyers.

North Carolina was the fourth top destination and attracted 4% of all foreign buyers. Fifty percent of North Carolina's foreign buyers were from Asia/Oceania, and 22% were each from Europe and Latin America/Caribbean.

Arizona was the fifth-most popular destination, with 4% of all foreign buyers. This is three percentage points lower than in the prior period, likely due in part to the decrease in Canadian buyers. Thirty-seven percent of Arizona's foreign buyers were Canadians.

Illinois also accounted for 4% of foreign buyers, with 47% coming from Asia/Oceania and 29% from Latin America/Caribbean.

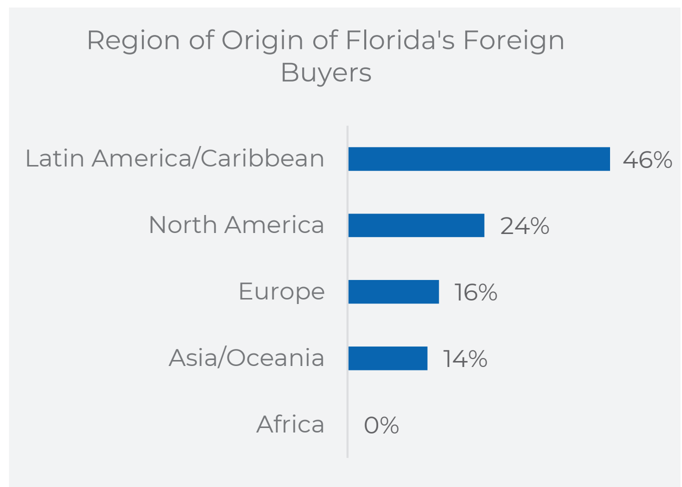
Other major destinations were New York, Ohio, Pennsylvania, and New Jersey.

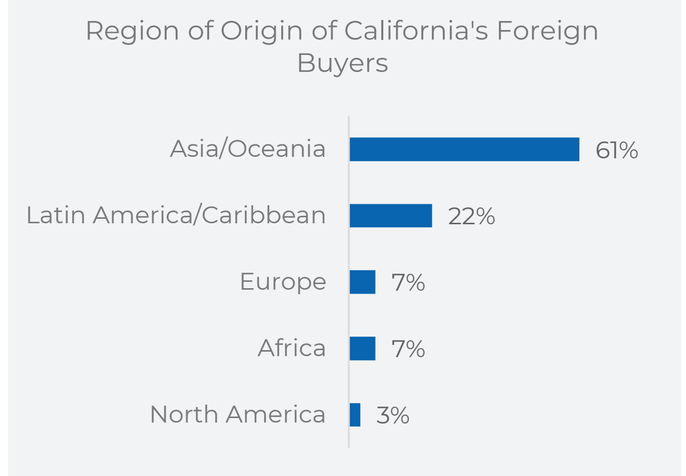
Share of Top 10 States to Total Foreign Buyer Purchases

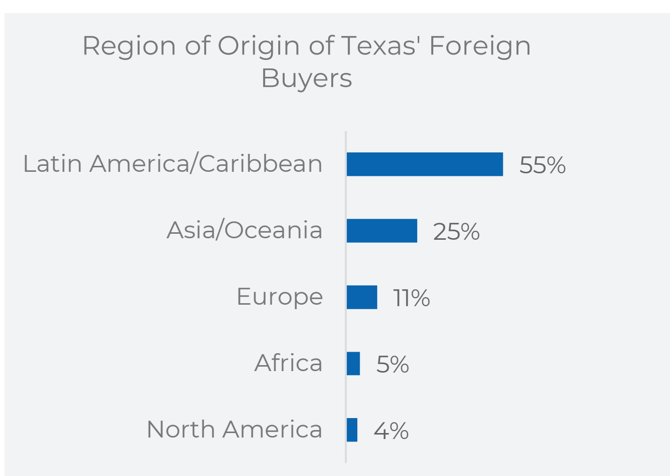
	FL	CA	TX	NC	AZ	IL	NY	OH	PA	NJ
2009	23%	13%	11%	3%	7%	4%	2%	2%	2%	1%
2010	22%	12%	8%	2%	11%	1%	4%	2%	2%	2%
2011	31%	12%	9%	2%	6%	3%	3%	1%	2%	3%
2012	26%	11%	7%	2%	7%	3%	4%	2%	2%	1%
2013	23%	17%	9%	1%	9%	2%	3%	2%	1%	2%
2014	23%	14%	12%	2%	6%	3%	3%	1%	3%	3%
2015	21%	16%	8%	2%	5%	3%	3%	2%	2%	3%
2016	22%	15%	10%	3%	4%	4%	4%	1%	1%	4%
2017	22%	12%	12%	3%	4%	3%	3%	1%	2%	4%
2018	19%	14%	9%	3%	5%	3%	5%	3%	2%	4%
2019	20%	12%	10%	3%	5%	3%	3%	2%	1%	4%
2020	22%	15%	9%	3%	3%	3%	5%	2%	2%	4%
2021	21%	16%	9%	3%	5%	3%	4%	3%	1%	4%
2022	24%	11%	8%	4%	7%	3%	4%	2%	2%	3%
2023	23%	12%	12%	4%	4%	4%	3%	3%	2%	2%

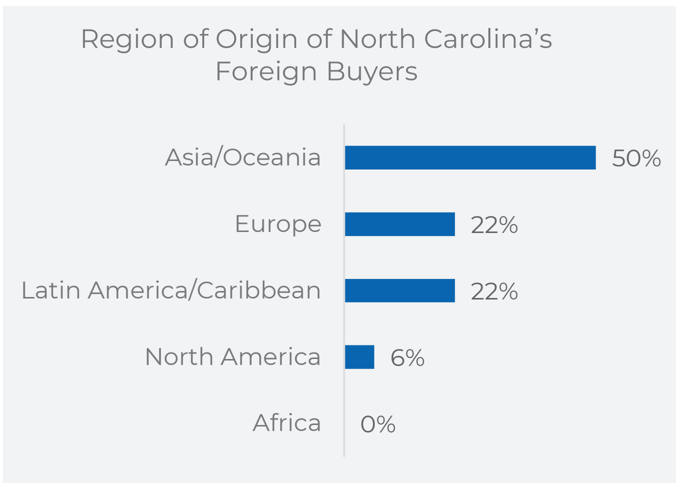
Top 10 list is based on the most recent year.

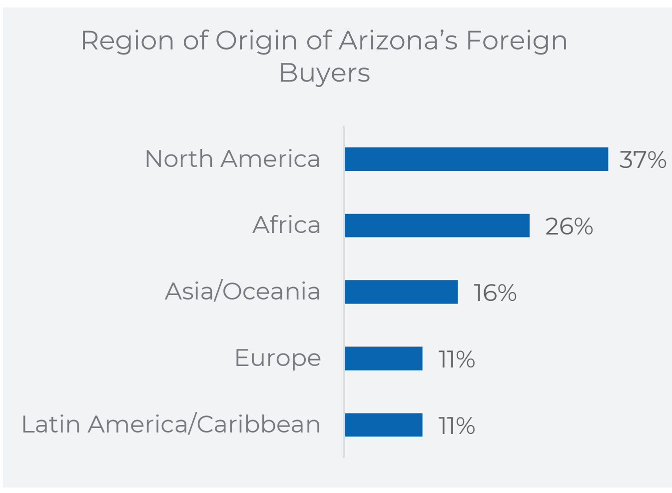
Foreign Buyers* in the Top 6 States

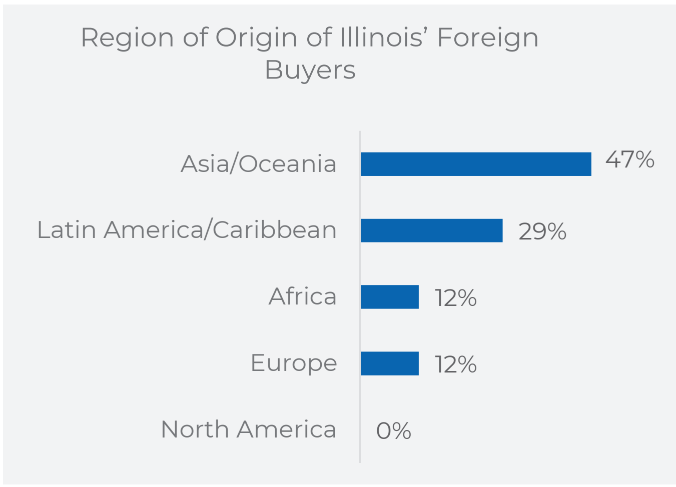












*Mexico is geographically part of North America, but it is reported in the Latin America/Caribbean region.

Dan Tsubouchi @Energy_Tidbits · 51m

Higher air fares!

"*Anybody who thinks that the* #EnergyTransition *to net zero isn't going to cost is misled*" "*Prices will have to go up... and that cost is something that ultimately will get passed through to consumers*" @IATA's Willie Walsh to @mattotele

telegraph.co.uk

Willie Walsh interview: 'The transition to net zero is going to cost holid...

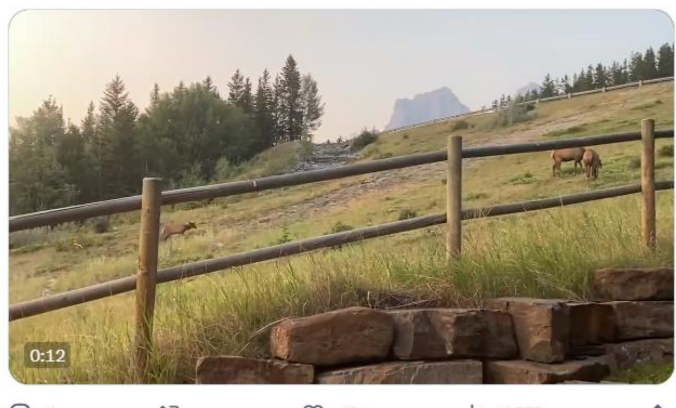
Fuel price rises and the switch to green alternatives mean the glory days of super-cheap air travel are over, says the IATA boss

3 514

SAF

Dan Tsubouchi @Energy_Tidbits · 3h

always a great start to the day when look up from the screen and see some of the local #Canmore elk walk by having a morning feed.



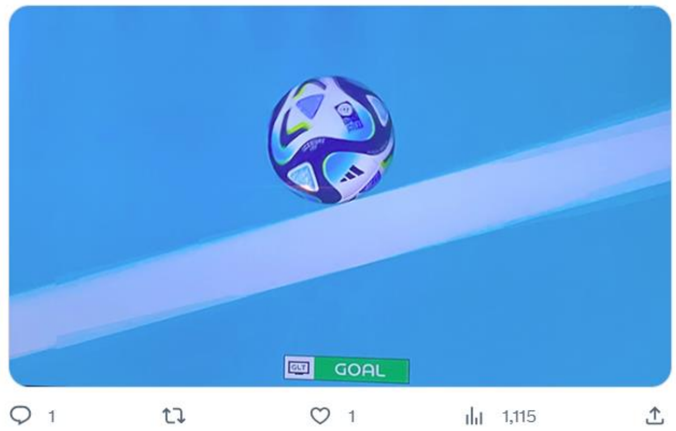
SAF

Dan Tsubouchi @Energy_Tidbits · 3h

Game of millimeters, not inches.

Note the 👇 confirming picture that Sweden's @Linahurtig17 winning penalty kick was completely over the goal line for Sweden to beats US at @FIFAWWC in round of 16.

US played its best game but @ZeciraMusovic was outstanding.



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SAF

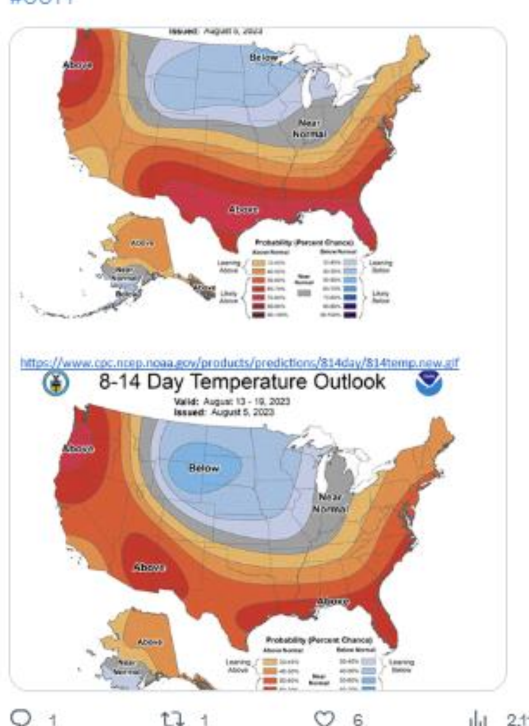
Dan Tsubouchi @Energy_Tidbits · 20h

Today's @NOAA updated 6-10 & 8-14 day temperature outlook covering Aug 11-19

Continued above normal temps expected for east coast, gulf coast, SW and west coast US

Should be supportive for US #NatGas.

#OOTT



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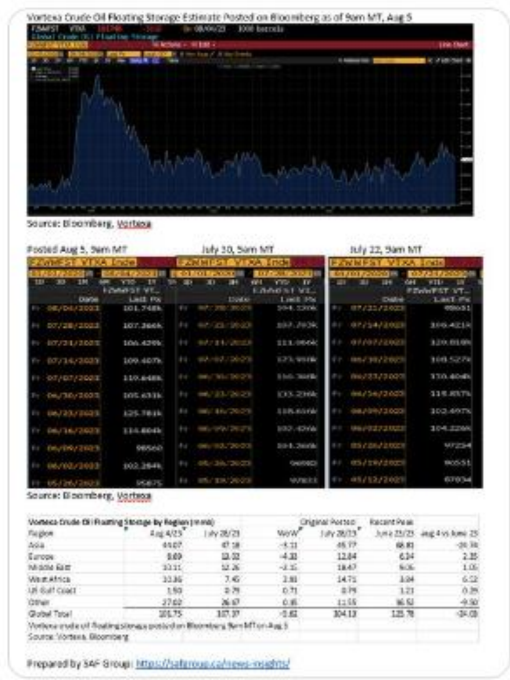
Dan Tsubouchi @Energy_Tidbits · Aug 5

#Vortexa crude #Oil floating storage at 08/05 est 101.75 mmb, -5.62 mmb WoW vs revised up by +3.24 mmb of 107.37 mmb.

Note big negative revisions out of Middle East & West Africa and into Other.

Thx @Vortexa @business. #OOTT



Vortexa Crude Oil Floating Storage by Region (mmb)

Region	Aug 4/23	July 28/23	WoW	Original Posted July 28/23	Recent Peak June 23/23	Aug 4 vs June 23
Asia	44.07	47.18	-3.11	45.77	68.81	-24.74
Europe	8.69	13.02	-4.33	12.84	6.34	2.35
Middle East	10.11	12.26	-2.15	18.47	9.06	1.05
West Africa	10.36	7.45	2.91	14.71	3.84	6.52
US Gulf Coast	1.50	0.79	0.71	0.79	1.21	0.29
Other	27.02	26.67	0.35	11.55	36.52	-9.50
Global Total	101.75	107.37	-5.62	104.13	125.78	-24.03

Vortexa crude oil floating storage posted on Bloomberg 9am MT on Aug 5

Source: Vortexa, Bloomberg

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

Dan Tsubouchi @Energy_Tidbits · Jul 30

#Vortexa crude #Oil floating storage at 07/28 est 104.13 mmb, -3.57 WoW vs revised up by +9.05 07/21 of 107.70 mmb.

Last 7-wk average of 115.57 mmb is highest since late...

1 · 4 · 15 · 4,600

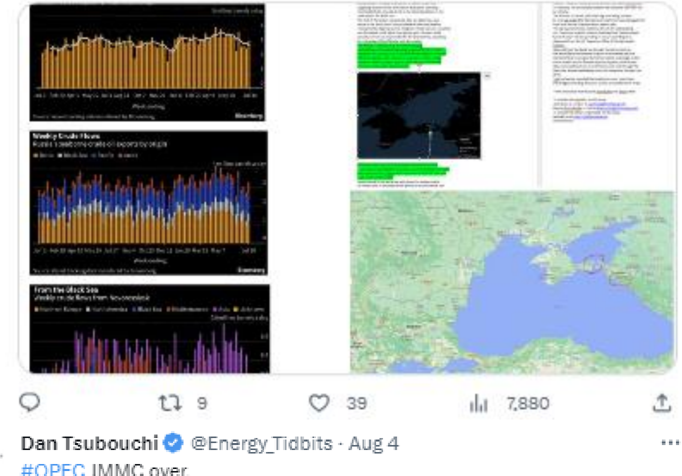
Dan Tsubouchi @Energy_Tidbits · Aug 5

Buckle up!

Ukraine hits Russian #Oil tanker & warns 6 Russian ports are now in "war risk area". @business.

Including major RUS Black Sea #Oil export port Novorossiysk. See great 👇 @JLeeEnergy graph, still loading ~0.4 million b/d.

#OOTT



9 39 7,880

Dan Tsubouchi @Energy_Tidbits · Aug 4

#OPEC JMMC over.

As expected, no changes.

JMMC thanks Saudi for extending 1 mmb/d cut thru Sept and Russia for its 300,000 b/d voluntary reduction of exports for Sept.

#OOTT

https://www.opec.org/opec_web/en/press_room/7199.htm

49th Meeting of the Joint Ministerial Monitoring Committee

No 13/2023
Vienna, Austria
04 Aug 2023

The 49th Meeting of the Joint Ministerial Monitoring Committee (JMMC) took place via videoconference on Friday, 04 August 2023.

The JMMC reviewed the crude oil production data for the months of May and June 2023 and noted the overall conformity for participating OPEC and non-OPEC countries of the Declaration of Cooperation (DoC). The committee urged all participating countries to achieve full conformity and adhere to the compensation mechanism.

The committee reaffirmed the commitment of its member countries to the DoC which extends to the end of 2024 as agreed in the 35th OPEC and non-OPEC Ministerial Meeting (ONOMM) on 4th of June 2023. It also noted to adjust of the frequency of the monthly meetings to become every two months for the JMMC and the authority of the JMMC to hold additional meetings, or to request an OPEC and non-OPEC Ministerial Meeting as agreed on in the 33rd OPEC and non-OPEC Ministerial Meeting (ONOMM) on 5th of October 2022.

The committee will continue to closely assess market conditions noting the willingness of the DoC countries to address market developments and stand ready to take additional measures at any time, building on the strong cohesion of OPEC and participating non-OPEC oil-producing countries. The committee also expressed its full recognition and support for the efforts of the Kingdom of Saudi Arabia aimed at supporting the stability of the oil market and reiterated its appreciation for the Kingdom's additional voluntary cut of 1 million barrels per day and for extending it for the month of September. The committee also acknowledged the Russian Federation for its additional voluntary reduction of exports by 300 kbd for the month of September.

The next meeting of the JMMC (50th) is scheduled for 04 October 2023.

Dan Tsubouchi @Energy_Tidbits · Aug 3

Ouch!

Saudi Energy Minister Abdulaziz does it again.

"Ministry of Energy: Saudi Arabia will extend the ...

1 3 1,736

SAF

Dan Tsubouchi @Energy_Tidbits · Aug 4

Good thing for #Oil that Saudi Energy Minister Abdulaziz is in control.

@Maersk Q2: no sign of significant rebound in volumes in H2.

China re-opening recovery "*lost steam & the local property sector shows no sign of a rebound*"

"*material risk of recession*" in US & EU.

#OOTT

3 · 15 · 4,134

SAF

Dan Tsubouchi @Energy_Tidbits · Aug 3

Ouch!

Saudi Energy Minister Abdulaziz does it again.

"*Ministry of Energy: Saudi Arabia will extend the voluntary cut of one million barrels per day for another month to include September that can be extended OR EXTENDED AND DEEPENED*"

#Oil +$1.15.

#OOTT

https://www.spa.gov.sa/en/3e9cd3f912m

Ministry of Energy: Saudi Arabia will extend the voluntary cut of one million barrels per day for another month to include September that can be extended or extended and deepened

2 hours ago

Riyadh, August 03, 2023, SPA -- An official source from the Ministry of Energy announced that the Kingdom of Saudi Arabia will extend the voluntary cut of one million barrels per day, which has gone into implementation in July, for another month to include the month of September that can be extended or extended and deepened. In effect, the Kingdom's production for the month of September 2023 will be approximately 9 million barrels per day. The source also noted that this cut is in addition to the voluntary cut previously announced by the Kingdom in April 2023, which extends until the end of December 2024.

The source confirmed that this additional voluntary cut comes to reinforce the precautionary efforts made by OPEC Plus countries with the aim of supporting the stability and balance of oil markets.

--SPA

15:51 LOCAL TIME 12:51 GMT

0020

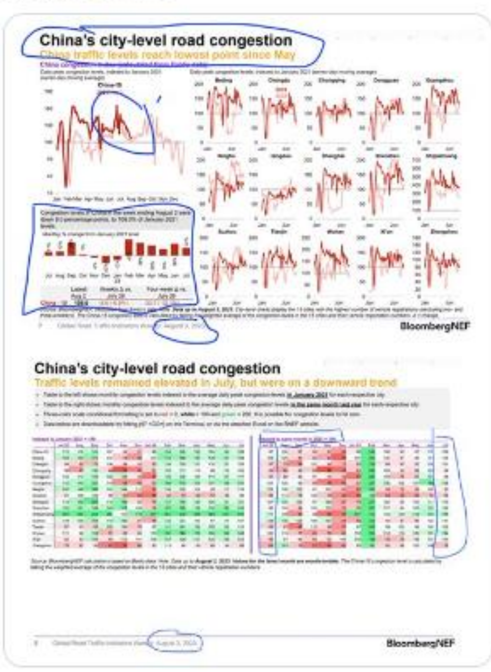
1 · 4 · 50 · 7,660

Dan Tsubouchi @Energy_Tidbits · Aug 3

China Baidu city-level road congestion -8.0% WoW to 108% of Jan/21 levels.

Summer holidays so city traffic declines, But 👇 08/01 tweet 6th consecutive WoW increase in domestic flights.

Top 15 cities congestion July/ 23 are up YoY to 109% of July/21 levels. 12 of top 15... Show more



Dan Tsubouchi @Energy_Tidbits · Aug 1

China Scheduled domestic flights +0.4% WoW to 104,436 flights.

Positive. Chinese consumer didn't get Covid bonus money from govt like in West so spending own ...

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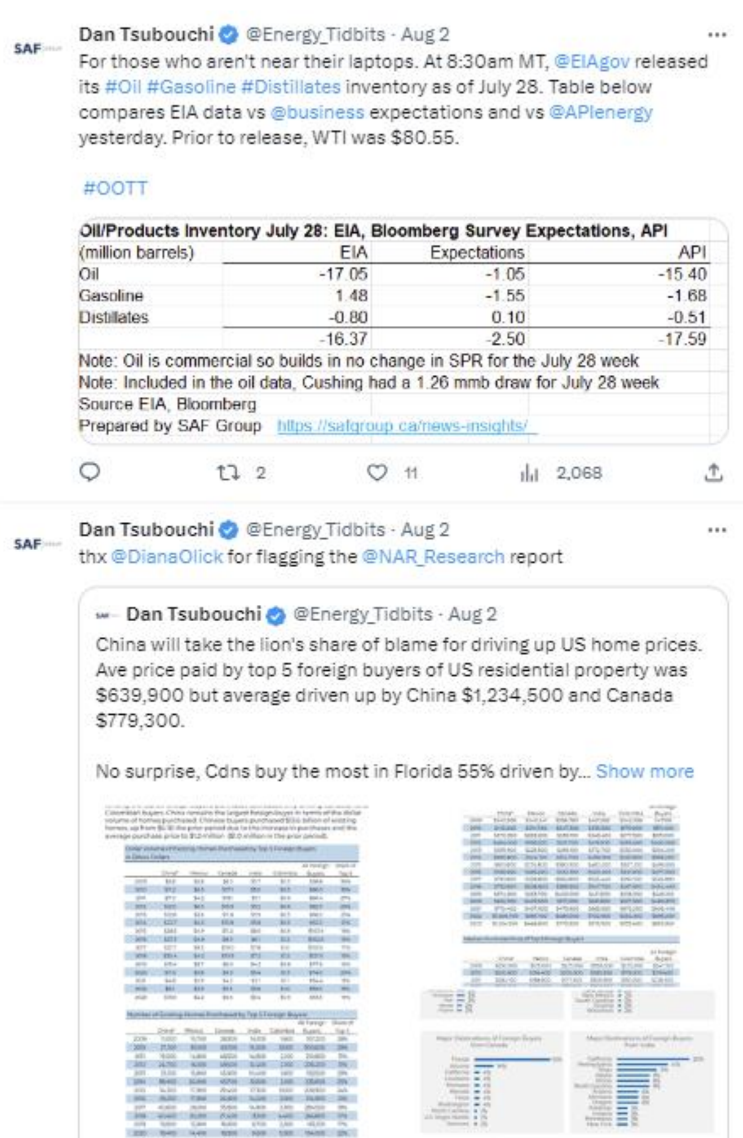


Dan Tsubouchi @Energy_Tidbits · Aug 2

For those who aren't near their laptops. At 8:30am MT, @EIAgov released its #Oil #Gasoline #Distillates inventory as of July 28. Table below compares EIA data vs @business expectations and vs @APIenergy yesterday. Prior to release, WTI was $80.55.

#OOTT

Oil/Products Inventory July 28: EIA, Bloomberg Survey Expectations, API

(million barrels)	EIA	Expectations	API
Oil	-17.05	-1.05	-15.40
Gasoline	1.48	-1.55	-1.68
Distillates	-0.80	0.10	-0.51
	-16.37	-2.50	-17.59

Note: Oil is commercial so builds in no change in SPR for the July 28 week
Note: Included in the oil data, Cushing had a 1.26 mmb draw for July 28 week
Source EIA, Bloomberg
Prepared by SAF Group https://safgroup.ca/news-insights/

2 11 2,068

Dan Tsubouchi @Energy_Tidbits · Aug 2

thx @DianaOlick for flagging the @NAR_Research report

Dan Tsubouchi @Energy_Tidbits · Aug 2

China will take the lion's share of blame for driving up US home prices. Ave price paid by top 5 foreign buyers of US residential property was $639,900 but average driven up by China $1,234,500 and Canada $779,300.

No surprise, Cdns buy the most in Florida 55% driven by... Show more

1 1,260

SAF

Dan Tsubouchi @Energy_Tidbits · Aug 2

China will take the lion's share of blame for driving up US home prices. Ave price paid by top 5 foreign buyers of US residential property was $639,900 but average driven up by China $1,234,500 and Canada $779,300.

No surprise, Cdns buy the most in Florida 55% driven by... Show more

5 5 2,598

SAF

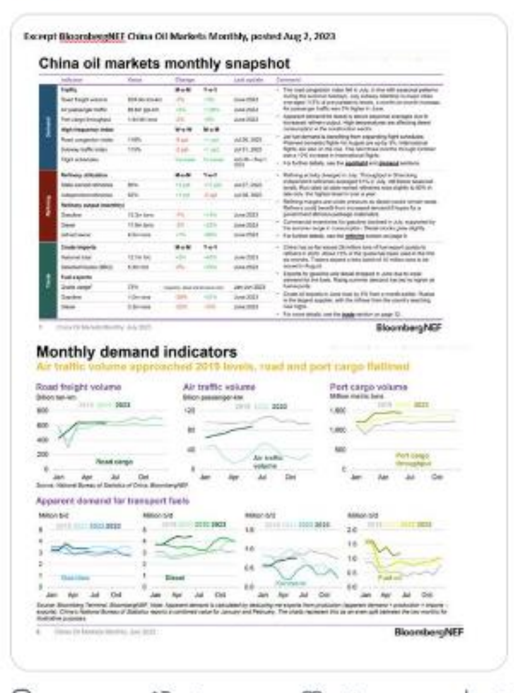
Dan Tsubouchi @Energy_Tidbits · Aug 2

Good recap of range of China #Oil demand indicators.

Baidu city-level road congestion down & scheduled domestic flights up with seasonal summer holidays.

But also *"air traffic volume approached 2019 levels, road and port cargo flatlined"*.

Thx @BloombergNEF Sisi Tang.
#OOTT



5 15 2,335

Dan Tsubouchi @Energy_Tidbits · Aug 2

Russia finally complying!

RUS seaborne crude flows in the 4-weeks to July 30 fell to the lowest since early Jan. 4-week ave shipments dropped to 2.98 mmb/d, smallest since the 28-day period ending Jan. 8 & down >900,000 b/d from peak seen in mid-May.

Thx @JLeeEnergy

#OOTT

after a European Union import ban and a wider price cap on the country's exports came into effect.

Four-week average shipments dropped to 2.98 million barrels a day, the smallest since the 28-day period ending Jan. 8 and down by more than 900,000 barrels a day from the peak seen in mid-May. More volatile weekly flows rose, with record-equaling shipments from the Arctic.

As overseas shipments fell, more crude was processed in Russia's refineries in July, with several plants completing major maintenance.

The figures support the notion that Moscow is honoring a pledge to keep supply off the global market alongside its allies in the OPEC+ producer coalition. Russia initially said that it would cut oil production in retaliation for Western sanctions and price caps on its oil imposed after the invasion of Ukraine, using February as a baseline. But seaborne flows continued to rise, only dropping significantly in the last few weeks.

Now, the tighter availability of Russian crude alongside fewer barrels from the Middle East has narrowed discounts offered for ESPO crude deliveries to Chinese buyers for September delivery. More generally, rising prices and a narrowing discount against international benchmarks is also making Russia's crude less attractive to Indian refiners, whose purchases declined for a second month in July.

Warming temperatures are allowing Russia to use the shorter route along its northern coast to China. At least four tankers are hauling crude along the Northern Sea Route from ports in the Arctic and Baltic. But it remains unlikely that many of the shadow fleet of aging tankers used to ship Russian crude will be able to use the route, which still requires ice breaker assistance at some points.

1 11 42 20.4K

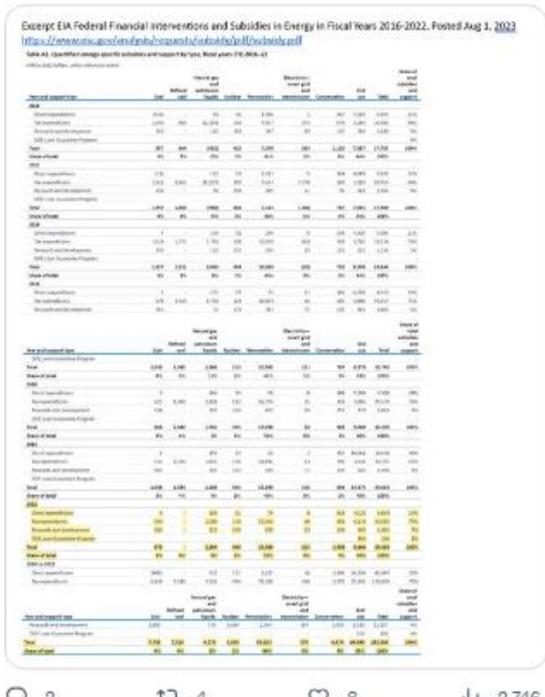
Dan Tsubouchi @Energy_Tidbits · Aug 1 ···

Will Biden admin be happy or mad #Coal, #NatGas, #PetroleumLiquids had 11% or $3.177b of US Fed expenditures/subsidies in 2022?

Vs clean energy, smart grid, transmission, conservation, etc getting 89% or $26.186b.

#EnergyTransition will be very costly.

Thx @EIAgov.
#OOTT



2 · 4 · 8 · 2,746

Dan Tsubouchi @Energy_Tidbits · Aug 1

Over 1/2 of US #OffshoreWind face delays as economics don't work. See 👇 07/10/23 tweet.

@bp_plc says *"in the midst of renegotiating those PPA contracts in the East Coast with our partner Equinor".*

Note BP says future offshore wind a direct integration link to operations need... Show more

INITIAL DRAFT

Bloomberg Transcript

Company Name: BP PLC
Company Ticker: BP/ LN Equity
Date: 2023-08-01

We believe the world needs both and we believe our shareholders are best served by us investing in both. So it's an end, not our strategy and in February of this year, we leaned into that strategy by saying that we would invest in additional $8 billion into are resilient hydrocarbons business and an extra $8 billion into our transition growth business.

In terms of oil and gas production, you'll actually have seen that. We grew all inbred gas production in the in the first half of this year and we will see also that we've improved our outlook for oil and gas production this year from slightly declining to now expecting it to be flat year-on-year. If you look at underlying oil and gas production we'll actually grow production through the middle of the decade and it will be relatively flat through the end of the decade. The 25% is simply what we're achieving through high grading our production through portfolio management.

There are certain barrels within our portfolio that quite frankly are probably better off in someone else's hands and that's what this is about. It is about a high grading of our portfolio, it is about portfolio optimization but you should expect to see as I said underlying growth through the middle of the decade and flattish growth through the end of the decade and that's where we get our strategy, that's where we provide the security that the world needs at the same time providing the cash flows that we need for our business. So that's one thing I would say on on that. Then on offshore wind, clearly inflation has impacted offshore wind projects and in an area where the PPAs are not inflation linked or index linked and where we don't see an integration benefit per se, then obviously those projects are challenged and that's the case in the East Coast of the United States.

What I can tell you categorically is that our returns threshold are sacrosanct, meaning we will not develop projects that don't meet our returns threshold, which is why we are in the midst of renegotiating those PPA contracts in the East Coast with our partner Equinor. Added to that, I would say that it points to why our strategy going forward is to do offshore wind only where we see an integration benefit, i.e. we don't want to generate electrons just for electrons sick or to ultimately put into a 20 or PPA, we want to generate electrons where we can do something with the electron add value to the electron like we do today with an oil and gas molecule. So our expectation is that we do offshore when just as you've seen in Germany where there is a direct integrated link to our business, where we can take the electron, we can high-grade it converted into a molecule, converted into a power in somebody's car, give it to our trading business whatever. That's the evolution of the offshore wind strategy and it is in part based on the learnings of the last two or three years.

Murray, anything to add on either?

A - Murray Auchincloss (BIO 20109801 <GO>)

Nope, Perfect.

A - Bernard Looney (BIO 16947777 <GO>)

Dan Tsubouchi @Energy_Tidbits · Jul 10

Over 1/2 of US #OffshoreWind face delays as "developers such as Avangrid, Shell-Ocean Winds, BP-Equinor & Orsted-Eversource have cited deteriorating economics due to rising costs in trying to renegotiate or cancel contracts" reports @atinjai....

2 · 5 · 3 · 3,515

Dan Tsubouchi @Energy_Tidbits · Aug 1

Here's how the math works.

@bp_plc highlights German offshore wind bid meets 6-8% unlevered returns pre-integration benefits.

BP "*structure of bid payments limits our financial exposure, with €678 million, or 10% of the bid amount, paid by July 2024, and the remaining 90% paid...* Show more

2 6 2,321

Dan Tsubouchi @Energy_Tidbits · Aug 1

#OilDemand.

@bp_plc "*... and yet we probably will see well in excess or in excess of 2 mmb/d of demand growth in* #Oil *this year. And we expect that to continue into next year. Maybe not at the 2 mm, but certainly in excess of 1 mm*".

Thx @business transcript
#OOTT

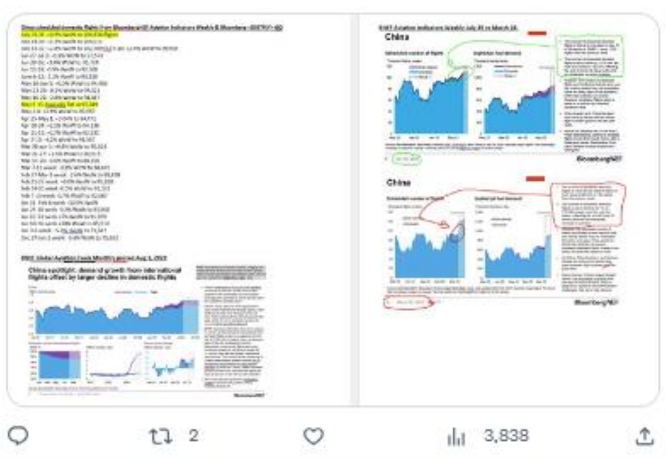
Dan Tsubouchi @Energy_Tidbits · Aug 1

China Scheduled domestic flights +0.4% WoW to 104,436 flights.

Positive. Chinese consumer didn't get Covid bonus money from govt like in West so spending own savings/money in summer travel.

Key to watch: flights post Aug summer peak.

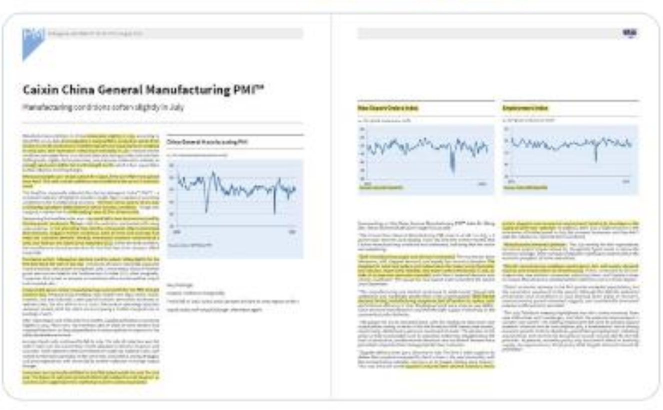
Thx @BloombergNEF
#OOTT #JetFuel

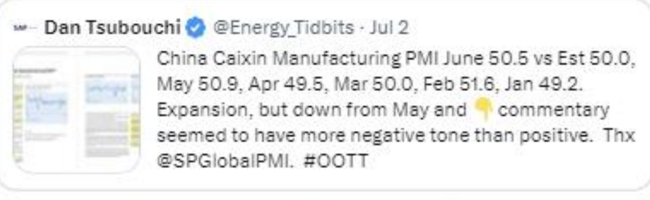


2 · 3,838

Dan Tsubouchi @Energy_Tidbits · Jul 31

Negative. China Caixin Manufacturing PMI July 49.2 vs Est 50.1, June 50.5, May 50.9, Apr 49.5, Mar 50.0, Feb 51.6, Jan 49.2. "*Overall, manufacturing conditions contracted in July, with supply, demand, exports and employment all deteriorating.*" Thx @SPGlobalPMI. #OOTT





Dan Tsubouchi @Energy_Tidbits · Jul 2

China Caixin Manufacturing PMI June 50.5 vs Est 50.0, May 50.9, Apr 49.5, Mar 50.0, Feb 51.6, Jan 49.2. Expansion, but down from May and 👎 commentary seemed to have more negative tone than positive. Thx @SPGlobalPMI. #OOTT

3 · 3 · 2,575

Dan Tsubouchi @Energy_Tidbits · Jul 31

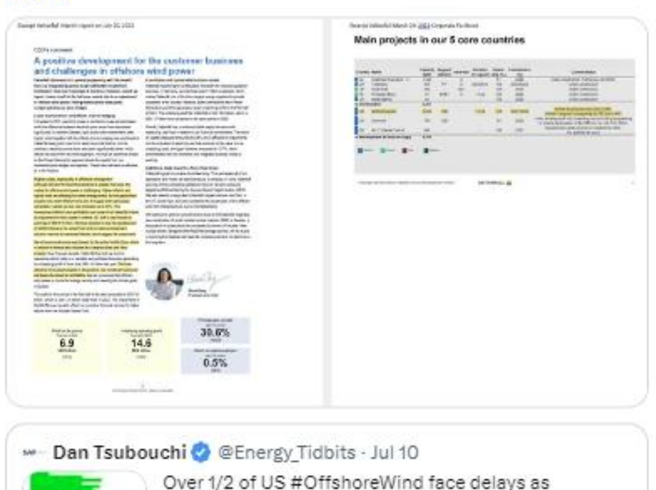
Not just US #OffshoreWind needs renegotiation.

~40% cost increases = @VattenfallGroup stop Norfolk Boreas offshore wind "*in its current form*" & also Vanguard East & West in Norfolk Zone.

NZ is 3,600 MW & 68% of its key EU projects.

#NatGas will be needed for longer.

#OOTT



Dan Tsubouchi @Energy_Tidbits · Jul 10

Over 1/2 of US #OffshoreWind face delays as "developers such as Avangrid, Shell-Ocean Winds, BP-Equinor & Orsted-Eversource have cited deteriorating economics due to rising costs in trying to renegotiate or cancel contracts" reports @atinjai....

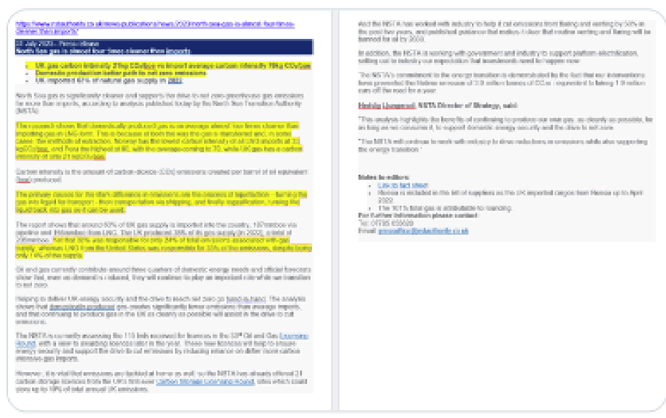
4 9 5,005

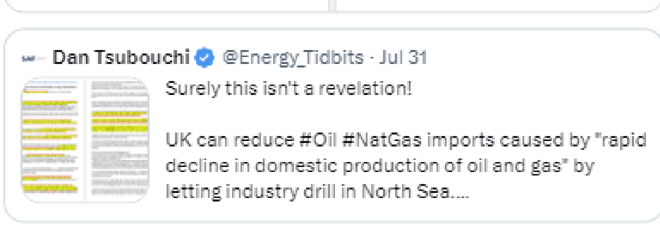
Dan Tsubouchi @Energy_Tidbits · Jul 31

UK discovers full cycle analysis!

Did UK just realize producing #NatGas in the UK has less carbon intensity than producing #NatGas elsewhere that has to be liquified into #LNG, tankered & then regasified in UK?

And the least carbon intensive LNG is the closest, Norway?
#OOTT





Dan Tsubouchi @Energy_Tidbits · Jul 31

Surely this isn't a revelation!

UK can reduce #Oil #NatGas imports caused by "rapid decline in domestic production of oil and gas" by letting industry drill in North Sea....

2 · 15 · 3,072

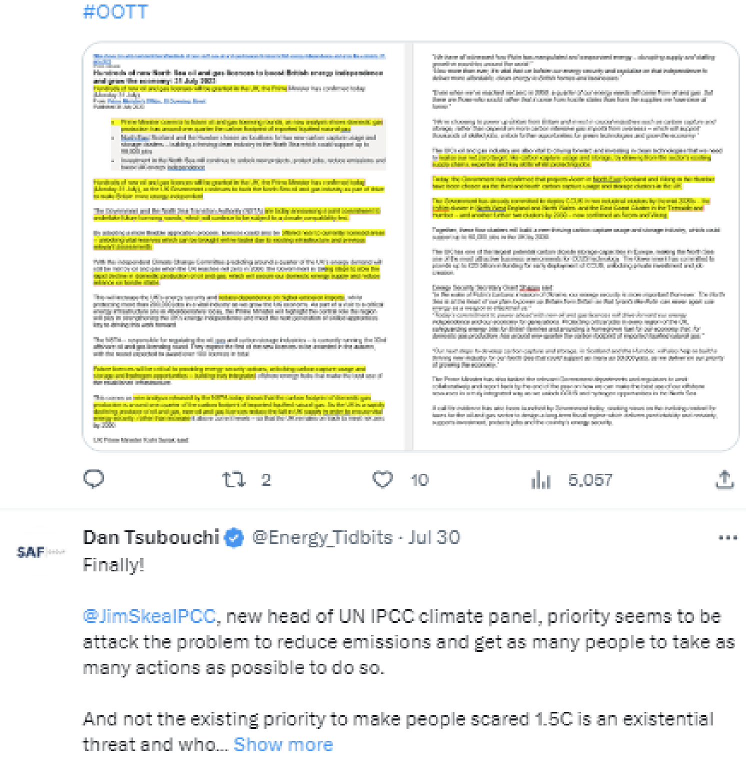
Dan Tsubouchi @Energy_Tidbits · Jul 31

Surely this isn't a revelation!

UK can reduce #Oil #NatGas imports caused by "rapid decline in domestic production of oil and gas" by letting industry drill in North Sea.

UK commits to future oil & gas licensing rounds in North Sea.

Oil & gas will be needed for longer!
#OOTT



2 · 10 · 5,057

Dan Tsubouchi @Energy_Tidbits · Jul 30

Finally!

@JimSkeaIPCC, new head of UN IPCC climate panel, priority seems to be attack the problem to reduce emissions and get as many people to take as many actions as possible to do so.

And not the existing priority to make people scared 1.5C is an existential threat and who... Show more

2 · 4 · 2,700

SAF

Dan Tsubouchi @Energy_Tidbits · Jul 30

#Habeck: power subsidies to German industry "will put a burden on people".

Recall 👇 05/23/23 tweet, DE needs $4.4 billion PER YEAR to subsidize power.

Will power subsidies UNTIL 2030 be enough for industry to make investment decisions & stay post 2030 IF have to get off... Show more

https://www.politico.eu/article/germany-economy-minister-robert-habeck-recession-energy-subsidies/

Germany faces 5 tough years, economy minister warns

Berlin should borrow money to subsidize energy for companies or risk losing its industry, Robert Habeck cautions.

"We have a major transformational period ahead of us until 2030," Robert Habeck said | Omer Messinger/Getty Images

BY HANS VON DER BURCHARD

JULY 27, 2023 1:00 PM CET

Germany faces five difficult years of green industrial transition that "will put a burden" on people, Economy Minister Robert Habeck warned — while urging his government to approve fresh subsidies to safeguard the country's industrial base.

Reacting to a new report by the International Monetary Fund that projects Germany's economy will shrink 0.3 percentage points this year, Habeck told German public broadcaster ARD on Wednesday evening, "The data certainly isn't good."

Germany's statistical office had already warned in May that the country entered into a recession. Some of Germany's biggest companies have begun to ditch the fatherland, triggering fears of deindustrialization.

Habeck argued that this downturn could be explained by high energy prices, which Germany felt more intensely than other countries because it relied on cheap Russian gas. High interest rates are also slowing down investments and global trade, he added, which particularly affects Germany as an export-dependent nation.

While stressing that there was "no reason" to react to these problems with "German Angst" — referring to a catchword describing the fear and hesitancy stereotypically connected with Germans facing major challenges — Habeck later in the TV interview himself made some blunt remarks.

"I also don't want to ignore the fact that this will put a burden on people," Habeck said. "We have a major transformational period ahead of us until 2030," during which time Germany would move from a traditional, fossil fuel-dependent industrial base to green energies like hydrogen, he said.

He advocated state support in the form of a cap on electricity prices for energy-intensive companies in international competition, "so that they can withstand the challenges of the transformation and have enough money to invest."

Habeck, a senior politician with the Greens — a party which has a history of proposing debt to solve problems — admitted that the proposed energy subsidies, which he has been promoting for months, still lack a majority within the governing coalition. That includes the fiscally conservative Free Democratic Party (FDP) of Finance Minister Christian Lindner along with the Social Democratic Party of Chancellor Olaf Scholz, which has so far stuck with Lindner in opposing Habeck's plans.

Yet the Green politician, who also acts as vice chancellor, argued that essentially Germany has to decide between breaking with its debt rules — a no-go for Lindner's FDP — or risking the loss of its industrial base.

"The question is: Do we borrow money or do we no longer have industry?" Habeck said.

He added: "We don't have much time left, otherwise companies will say: We'll invest, but no longer in Germany."

Dan Tsubouchi @Energy_Tidbits · May 23

Is it the #EnergyTransition or cost of replacing cheap RUS #NatGas via pipeline with #LNG or both?

Regardless, Germany needs to provide $4.4b PER YEAR to help subsidize high electricity price to try to ...

2 · 4 · 2,635