Energy Tidbits

BlackRock CEO Larry Fink "*That is why we said do not ever divest of hydrocarbons.*"

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October 1, 2023

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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	**R40,730**	**R36,521**	**2,710**	**R33,811**	**63**	**-2,734**	**-180**	**R-357**	**R30,603**
2021									
January	R3,504	R3,106	R234	R2,872	R5	-279	719	R18	R3,335
February	R2,939	R2,597	R195	R2,402	5	-152	795	R46	R3,096
March	R3,510	R3,136	R236	R2,900	6	-357	64	R27	R2,640
April	R3,428	R3,059	R230	R2,829	5	-356	-180	R-27	R2,272
May	R3,525	R3,158	R238	R2,921	6	-373	R-423	R-13	R2,116
June	R3,390	R3,045	R229	R2,816	5	-331	-254	R6	R2,242
July	R3,509	R3,177	R239	R2,938	6	-338	-175	R-12	R2,418
August	R3,535	R3,186	R240	R2,946	6	-343	-164	R-9	R2,436
September	R3,441	R3,104	R233	R2,871	5	-315	-398	R-25	R2,138
October	R3,613	R3,258	R245	R3,013	6	-317	-368	R-75	R2,259
November	R3,564	R3,189	R240	R2,949	6	-315	137	R-92	R2,685
December	R3,720	R3,323	R250	R3,073	6	-368	330	R-33	R3,008
Total	**R41,677**	**R37,338**	**R2,809**	**R34,529**	**66**	**-3,845**	**R83**	**R-188**	**R30,646**
2022									
January	R3,628	R3,235	R252	R2,983	R6	-315	R1,013	R-95	R3,593
February	R3,266	R2,914	R227	R2,687	R5	-288	R673	R-17	R3,059
March	R3,663	R3,282	R256	R3,026	6	-380	R171	R-43	2,781
April	R3,568	R3,199	R250	R2,950	6	-342	R-220	R-33	R2,360
May	R3,695	R3,332	R260	R3,072	6	-386	R-412	R-39	R2,241
June	R3,565	R3,232	R252	R2,980	R6	-325	R-332	R-13	R2,317
July	R3,736	R3,375	R263	R3,112	6	-303	R-187	R-46	2,583
August	R3,730	R3,392	R265	R3,128	6	-322	R-213	R-39	R2,559
September	R3,669	R3,330	R260	R3,071	R6	-293	R-446	R-50	R2,288
October	R3,814	R3,438	R268	R3,170	R6	-315	R-432	R-66	R2,364
November	R3,712	R3,327	R259	R3,067	R6	-308	R78	R-77	R2,767
December	R3,755	R3,370	R263	R3,107	R6	-304	R588	R-21	R3,376
Total	**R43,802**	**R39,428**	**R3,075**	**R36,353**	**R73**	**-3,880**	**R281**	**R-539**	**R32,288**
2023									
January	E3,820	RE3,429	264	RE3,165	R7	-333	455	R12	R3,307
February	E3,456	RE3,103	242	RE2,860	R6	-330	399	R14	R2,949
March	E3,858	RE3,475	281	RE3,194	6	-401	224	R-14	R3,009
April	E3,729	RE3,362	279	RE3,083	5	-400	-268	*	R2,420
May	RE3,869	RE3,500	287	RE3,212	R6	R-422	R-452	R-30	2,315
June	RE3,722	RE3,378	284	RE3,094	4	-375	-342	R-25	R2,356
July	E3,845	E3,509	288	E3,222	6	-378	-133	-52	2,665
2023 7-month YTD	**E26,300**	**E23,755**	**1,925**	**E21,831**	**41**	**-2,639**	**-117**	**-95**	**19,020**
2022 7-month YTD	**25,122**	**22,571**	**1,760**	**20,810**	**42**	**-2,338**	**706**	**-285**	**18,934**
2021 7-month YTD	**23,804**	**21,277**	**1,601**	**19,677**	**38**	**-2,187**	**546**	**45**	**18,119**

[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 2022 include underground storage and liquefied natural gas storage. Data for January 2023 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): 91 for 2022; 184 for 2021; 207 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.

* Volume is between -500 MMcf and 500 MMcf.

[E] Estimated data.

[RE] Revised estimated data.

Source: 2018-2022: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2022*. January 2023 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 2022 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 7-month YTD	2022 7-month YTD	2021 7-month YTD	2023 July	June	May	April	March
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	612,837	560,849	537,347	76,567	75,320	77,984	75,674	106,178
Mexico	1,268,164	1,235,482	1,265,123	207,446	203,526	R193,034	169,179	177,150
Total pipeline exports	**1,881,001**	**1,796,330**	**1,802,470**	**284,013**	**278,846**	**R271,018**	**244,853**	**283,328**
LNG								
Exports								
By vessel								
Antigua and Barbuda	18	13	0	4	3	3	3	2
Argentina	76,921	64,737	65,059	11,162	22,663	26,930	11,536	2,343
Bahamas	301	276	281	47	45	45	43	53
Bangladesh	10,555	12,663	27,374	0	3,624	3,561	0	0
Barbados	0	92	151	0	0	0	0	0
Belgium	34,622	57,027	5,584	0	6,953	3,809	4,844	8,053
Brazil	17,755	58,017	159,499	0	8,628	4,196	3,598	1,334
Chile	29,229	26,766	85,432	8,221	4,011	6,419	0	7,271
China	94,517	29,214	243,578	38,997	R19,908	6,593	3,426	5,132
Colombia	2,847	1,398	892	0	0	2,847	0	0
Croatia	28,829	46,142	20,619	10,121	0	2,932	3,163	3,694
Dominican Republic	36,458	34,156	32,825	6,210	7,443	7,871	6,901	876
Egypt	0	0	0	0	0	0	0	0
Finland	19,074	0	0	3,666	1,622	6,935	0	6,850
France	273,189	348,646	103,845	20,589	45,569	51,658	53,211	28,581
Germany	114,947	0	0	17,245	15,769	16,002	18,546	24,841
Greece	24,471	50,553	20,852	0	2,924	4,498	3,905	3,156
Haiti	64	86	74	8	6	12	11	8
India	87,959	70,443	123,127	20,494	14,488	7,140	14,585	10,230
Indonesia	1,890	717	0	1,085	0	0	0	0
Israel	0	0	6,051	0	0	0	0	0
Italy	105,138	82,019	30,809	13,923	13,959	18,542	17,378	13,699
Jamaica	2,574	738	16,752	1,443	3	289	31	540
Japan	162,073	126,444	228,768	40,222	R28,384	27,923	13,687	20,102
Jordan	3,282	0	0	3,282	0	0	0	0
Kuwait	25,260	40,265	14,653	7,081	10,670	3,802	3,707	0
Lithuania	27,776	52,031	25,961	3,375	3,629	7,048	3,412	3,599
Malaysia	0	0	0	0	0	0	0	0
Malta	2,592	2,345	2,928	0	0	0	0	0
Mexico	8,224	3,292	14,112	1,954	0	0	0	3,051
Netherlands	356,859	197,144	107,227	53,296	45,866	60,691	60,234	61,017
Nicaragua	0	0	1	0	0	0	0	0
Pakistan	0	3,074	27,229	0	0	0	0	0
Panama	12,510	9,676	6,136	3,295	0	3,289	0	3,209
Poland	75,389	79,170	38,824	3,635	18,046	17,422	7,165	7,236
Portugal	46,787	39,813	30,317	9,845	3,194	10,424	4,237	6,133
Singapore	10,009	16,352	17,190	0	10,009	0	0	0
South Korea	127,196	159,349	269,182	16,474	17,044	10,958	24,734	10,807
Spain	156,546	292,591	69,682	34,106	12,274	12,266	13,680	38,096
Taiwan	60,311	66,249	64,271	13,090	6,848	10,262	9,774	10,311
Thailand	25,746	18,708	10,841	7,463	4,242	0	4,225	4,249
Turkiye	75,344	126,866	59,537	0	0	0	13,908	11,866
United Arab Emirates	0	0	0	0	0	0	0	0
United Kingdom	313,442	199,666	97,682	0	0	32,374	75,836	70,499
By truck								
Canada	46	48	56	8	17	7	7	7
Mexico	478	866	463	25	34	26	58	96
Re-exports								
By vessel								
Argentina	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG exports	**2,451,229**	**2,317,657**	**2,027,864**	**350,368**	**327,872**	**366,774**	**375,843**	**366,941**
CNG								
Canada	1	1	197	0	0	0	0	*
Total CNG exports	**1**	**1**	**197**	**0**	**0**	**0**	**0**	*
Total exports	**4,332,231**	**4,113,989**	**3,830,530**	**634,382**	**R606,718**	**R637,792**	**620,697**	**650,270**

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					
	February	January	Total	December	November	October	September	August
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	95,691	105,422	959,630	98,718	90,179	72,738	61,926	75,220
Mexico	152,318	165,511	2,078,627	158,638	160,986	171,766	169,159	182,596
Total pipeline exports	**248,009**	**270,933**	**3,038,257**	**257,355**	**251,165**	**244,505**	**231,086**	**257,816**
LNG								
Exports								
By vessel								
Antigua and Barbuda	2	4	22	1	2	2	3	2
Argentina	2,287	0	66,939	0	0	0	0	2,202
Bahamas	27	42	489	42	35	40	43	53
Bangladesh	0	3,369	12,663	0	0	0	0	0
Barbados	0	0	93	0	1	0	0	0
Belgium	7,322	3,640	80,245	3,274	0	7,190	9,165	3,589
Brazil	0	0	71,998	0	0	3,439	0	10,542
Chile	0	3,307	30,131	0	0	0	3,365	0
China	2,565	17,896	96,659	6,992	17,308	22,598	10,275	10,272
Colombia	0	0	5,703	0	0	3,699	0	606
Croatia	6,006	2,913	77,286	6,204	5,122	2,922	9,073	7,824
Dominican Republic	3,514	3,643	50,824	6,644	0	3,469	3,196	3,357
Egypt	0	0	0	0	0	0	0	0
Finland	0	0	329	329	0	0	0	0
France	39,457	34,124	571,399	38,311	50,655	41,959	57,943	33,885
Germany	8,229	14,314	7,113	7,112	1	0	0	0
Greece	6,781	3,207	69,031	2,869	421	4,424	0	10,763
Haiti	11	8	115	9	0	0	8	11
India	14,064	6,956	122,518	14,139	10,138	7,005	10,528	10,265
Indonesia	0	805	6,579	3,256	505	625	509	967
Israel	0	0	0	0	0	0	0	0
Italy	17,555	10,082	116,034	6,992	3,205	0	8,355	15,462
Jamaica	161	107	1,516	147	137	144	240	110
Japan	14,058	17,696	209,220	20,535	24,396	10,684	7,005	20,156
Jordan	0	0	0	0	0	0	0	0
Kuwait	0	0	57,018	0	0	3,299	7,038	6,415
Lithuania	0	6,713	77,212	3,281	3,708	7,072	3,541	7,579
Malaysia	0	0	0	0	0	0	0	0
Malta	0	2,592	5,273	0	2,928	0	0	0
Mexico	0	3,219	3,832	539	0	0	0	0
Netherlands	39,301	36,453	378,329	39,893	20,645	39,703	30,924	50,020
Nicaragua	0	0	0	0	0	0	0	0
Pakistan	0	0	3,074	0	0	0	0	0
Panama	0	2,718	13,759	249	3,833	0	0	0
Poland	10,347	11,538	127,404	13,885	3,453	7,095	16,917	6,885
Portugal	6,138	6,816	69,583	10,025	3,732	7,005	5,806	3,202
Singapore	0	0	22,980	0	0	6,628	0	0
South Korea	22,672	24,507	292,732	24,700	14,069	38,844	19,736	36,033
Spain	32,138	13,987	426,657	33,847	26,445	26,369	21,263	26,140
Taiwan	6,557	3,471	106,738	9,203	3,592	9,041	9,753	8,901
Thailand	1,829	3,738	25,988	0	0	0	3,673	3,607
Turkiye	13,444	36,126	192,067	17,979	31,430	10,333	5,458	0
United Arab Emirates	0	0	0	0	0	0	0	0
United Kingdom	71,702	63,032	464,462	69,332	76,693	46,040	51,467	21,263
By truck								
Canada	0	0	76	8	0	19	0	0
Mexico	106	133	1,552	160	153	175	94	103
Re-exports								
By vessel								
Argentina	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG exports	**326,275**	**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	**574,284**	**608,088**	**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	2021
	July	**June**	**May**	**April**	**March**	**February**	**January**	**Total**
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	69,774	70,105	79,214	80,475	105,074	74,630	81,577	937,124
Mexico	189,652	182,995	186,003	176,447	169,885	155,032	175,467	2,154,457
Total pipeline exports	**259,426**	**253,100**	**265,217**	**256,922**	**274,958**	**229,662**	**257,045**	**3,091,580**
LNG								
Exports								
By vessel								
Antigua and Barbuda	2	3	2	3	2	0	2	8
Argentina	9,448	25,246	20,111	9,933	0	0	0	83,449
Bahamas	45	47	42	34	43	31	34	486
Bangladesh	0	0	3,346	0	3,421	5,896	0	37,734
Barbados	0	0	0	0	34	31	28	297
Belgium	0	7,023	3,441	7,341	17,743	7,691	13,786	5,584
Brazil	5,192	3,857	15,303	3,448	2,236	10,660	17,322	307,714
Chile	6,917	0	9,943	3,530	3,214	0	3,162	121,881
China	784	7,329	0	10,217	7,527	3,357	0	453,304
Colombia	0	912	0	0	0	0	486	2,247
Croatia	4,600	7,925	8,543	6,763	3,358	5,870	9,084	36,133
Dominican Republic	6,532	5,838	4,964	3,645	6,530	0	6,647	53,095
Egypt	0	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0	0
France	53,443	37,564	47,150	56,343	64,415	39,646	50,084	170,780
Germany	0	0	0	0	0	0	0	0
Greece	12,922	9,633	12,650	1,336	4,116	8,094	1,802	39,708
Haiti	8	13	9	11	10	16	20	137
India	13,902	10,653	7,152	14,223	10,438	7,210	6,866	196,218
Indonesia	0	0	0	0	0	717	0	3,269
Israel	0	0	0	0	0	0	0	8,906
Italy	9,914	7,137	21,696	15,519	7,088	13,629	7,037	34,210
Jamaica	121	48	144	135	92	111	86	25,276
Japan	18,189	21,561	24,024	13,231	17,697	10,214	21,527	354,948
Jordan	0	0	0	0	0	0	0	0
Kuwait	5,382	8,105	14,204	7,298	0	5,277	0	34,476
Lithuania	7,947	6,729	11,237	13,770	5,700	3,131	3,518	30,919
Malaysia	0	0	0	0	0	0	0	0
Malta	0	0	0	0	0	2,345	0	5,427
Mexico	0	3,292	0	0	0	0	0	15,200
Netherlands	32,637	34,420	28,902	28,395	24,922	31,591	16,279	174,339
Nicaragua	0	0	0	0	0	0	0	1
Pakistan	0	0	0	3,074	0	0	0	45,818
Panama	0	623	1,192	1,536	0	3,069	3,255	8,436
Poland	17,780	14,282	18,224	13,882	3,831	7,475	3,695	56,320
Portugal	6,412	5,582	3,888	6,632	10,728	3,703	2,868	65,865
Singapore	6,275	3,352	0	0	6,725	0	0	20,918
South Korea	34,342	25,054	17,538	13,813	19,289	27,489	21,824	453,483
Spain	34,396	29,639	40,337	40,259	59,224	39,359	49,379	215,062
Taiwan	9,353	6,892	15,975	9,541	12,161	6,115	6,211	99,350
Thailand	0	6,920	3,419	0	0	4,880	3,490	14,548
Turkiye	0	7,542	7,281	6,637	16,629	43,697	45,081	188,849
United Arab Emirates	0	0	0	0	0	0	0	0
United Kingdom	3,797	3,326	10,608	39,775	56,799	25,301	60,060	195,046
By truck								
Canada	0	8	8	15	0	4	13	128
Mexico	76	105	115	122	144	157	148	1,250
Re-exports								
By vessel								
Argentina	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG exports	**300,415**	**300,659**	**351,448**	**330,463**	**364,116**	**316,766**	**353,791**	**3,560,818**
CNG								
Canada	1	*	0	0	*	0	0	211
Total CNG exports	**1**	*****	**0**	**0**	*****	**0**	**0**	**211**
Total exports	**559,842**	**553,760**	**616,665**	**587,385**	**639,074**	**546,428**	**610,836**	**6,652,609**

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							
	December	November	October	September	August	July	June	May
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	108,568	85,136	62,464	72,023	71,586	68,264	69,528	70,561
Mexico	166,956	165,449	184,472	178,746	193,710	197,623	198,242	192,549
Total pipeline exports	**275,524**	**250,585**	**246,936**	**250,769**	**265,296**	**265,887**	**267,770**	**263,110**
LNG								
Exports								
By vessel								
Antigua and Barbuda	3	2	0	3	0	0	0	0
Argentina	2,077	0	0	1,950	14,363	22,798	19,312	16,226
Bahamas	36	34	36	43	56	46	48	45
Bangladesh	0	0	0	3,276	7,085	0	3,493	6,948
Barbados	34	27	25	33	27	31	22	19
Belgium	0	0	0	0	0	0	0	2,100
Brazil	24,246	10,715	40,769	38,282	34,204	39,637	32,293	19,726
Chile	2,938	2,956	6,364	7,929	16,262	19,913	0	17,598
China	17,050	50,228	42,202	48,584	51,662	42,222	42,319	37,731
Colombia	0	0	0	436	919	0	0	0
Croatia	3,117	9,416	0	0	2,980	3,299	2,923	3,364
Dominican Republic	5,969	2,780	5,619	0	5,901	1,806	4,670	5,283
Egypt	0	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0	0
France	33,892	10,021	9,333	6,578	7,111	0	3,683	11,926
Germany	0	0	0	0	0	0	0	0
Greece	5,305	7,629	1,515	799	3,607	6,651	0	6,796
Haiti	4	8	17	10	24	8	18	12
India	3,203	14,807	10,548	23,941	20,592	13,090	16,503	28,259
Indonesia	1,218	456	477	1,118	0	0	0	0
Israel	0	0	0	2,855	0	0	0	0
Italy	0	0	0	0	3,401	6,826	3,425	2,923
Jamaica	113	715	1,858	2,931	2,907	0	2,927	2,925
Japan	24,297	33,947	37,666	10,290	19,979	24,895	39,783	25,058
Jordan	0	0	0	0	0	0	0	0
Kuwait	0	0	6,193	10,333	3,298	0	7,126	0
Lithuania	0	0	0	3,282	1,677	6,469	3,285	3,049
Malaysia	0	0	0	0	0	0	0	0
Malta	0	0	0	2,498	0	0	0	0
Mexico	0	0	1,088	0	0	758	0	0
Netherlands	23,354	8,829	17,157	10,424	7,347	10,597	3,030	26,611
Nicaragua	0	0	0	0	0	1	0	0
Pakistan	0	2,490	3,138	9,642	3,319	13,428	3,376	0
Panama	0	0	911	0	1,390	0	0	2,341
Poland	7,159	7,068	3,270	0	0	6,619	10,635	3,581
Portugal	9,630	5,380	10,459	3,696	6,382	3,296	5,538	10,765
Singapore	0	3,728	0	0	0	3,449	0	3,089
South Korea	38,201	30,787	33,836	31,375	50,101	39,314	55,918	46,033
Spain	32,579	22,821	35,638	31,274	23,068	8,630	7,833	5,234
Taiwan	12,034	3,404	7,123	5,789	6,728	20,653	3,097	10,157
Thailand	0	0	0	0	3,707	0	0	3,453
Turkiye	38,420	47,330	19,385	24,176	0	5,591	0	3,017
United Arab Emirates	0	0	0	0	0	0	0	0
United Kingdom	60,315	30,648	3,302	3,099	0	0	0	10,586
By truck								
Canada	20	8	8	19	18	16	7	18
Mexico	148	160	182	150	147	97	105	48
Re-exports								
By vessel								
Argentina	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0
Japan	0	0	0	0	0	0	0	0
South Korea	0	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG exports	**345,363**	**306,397**	**298,119**	**284,813**	**298,262**	**300,143**	**271,368**	**314,922**
CNG								
Canada	0	0	0	0	14	16	27	25
Total CNG exports	**0**	**0**	**0**	**0**	**14**	**16**	**27**	**25**
Total exports	**620,886**	**556,982**	**545,055**	**535,583**	**563,572**	**566,046**	**539,165**	**578,056**

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			
	April	March	February	January
Exports				
Volume (million cubic feet)				
Pipeline				
Canada	74,567	91,301	78,198	84,927
Mexico	182,918	183,051	137,381	173,360
Total pipeline exports	**257,485**	**274,352**	**215,579**	**258,287**
LNG				
Exports				
By vessel				
Antigua and Barbuda	0	0	0	0
Argentina	4,485	2,238	0	0
Bahamas	46	39	29	28
Bangladesh	10,219	3,566	0	3,148
Barbados	30	14	19	17
Belgium	0	3,484	0	0
Brazil	11,615	21,977	13,118	21,132
Chile	10,293	21,320	6,524	9,784
China	50,474	28,476	3,415	38,940
Colombia	892	0	0	0
Croatia	3,666	7,367	0	0
Dominican Republic	2,905	5,577	5,689	6,895
Egypt	0	0	0	0
Finland	0	0	0	0
France	36,120	33,678	14,851	3,587
Germany	0	0	0	0
Greece	0	6,805	0	600
Haiti	3	10	11	12
India	13,752	17,381	13,776	20,367
Indonesia	0	0	0	0
Israel	3,225	2,826	0	0
Italy	6,896	10,739	0	0
Jamaica	2,370	2,458	2,365	3,708
Japan	28,756	27,673	18,271	64,331
Jordan	0	0	0	0
Kuwait	3,705	3,821	0	0
Lithuania	3,078	3,228	6,851	0
Malaysia	0	0	0	0
Malta	2,928	0	0	0
Mexico	0	0	13,354	0
Netherlands	17,060	24,204	22,777	2,949
Nicaragua	0	0	0	0
Pakistan	3,323	3,421	0	3,682
Panama	0	3,279	0	516
Poland	7,382	3,507	7,099	0
Portugal	7,358	0	3,360	0
Singapore	3,660	3,303	0	3,688
South Korea	21,683	32,203	18,094	55,936
Spain	22,974	13,900	3,733	7,377
Taiwan	6,594	13,450	0	10,319
Thailand	7,388	0	0	0
Turkiye	0	3,619	20,652	26,659
United Arab Emirates	0	0	0	0
United Kingdom	13,877	17,440	34,343	21,436
By truck				
Canada	15	0	0	0
Mexico	48	19	63	83
Re-exports				
By vessel				
Argentina	0	0	0	0
Brazil	0	0	0	0
Japan	0	0	0	0
South Korea	0	0	0	0
United Kingdom	0	0	0	0
Total LNG exports	**306,818**	**321,023**	**208,394**	**305,196**
CNG				
Canada	29	36	32	32
Total CNG exports	**29**	**36**	**32**	**32**
Total exports	**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	**R339,337**	**R481,205**	**R155,979**	**R1,996,740**	**R163,362**	**R3,205,574**	**R38,191**	**R1,965,533**	**R887,445**	**R2,389,629**
2021										
January	31,667	R39,288	11,467	160,766	12,900	R277,421	3,292	R173,924	R83,195	R193,017
February	28,365	R30,185	R10,352	143,192	10,142	R223,272	R2,860	R144,784	R70,130	R174,338
March	31,483	R42,468	R11,434	157,254	13,251	R283,012	R3,300	R180,642	R83,245	R193,017
April	29,514	37,756	R11,121	156,092	R12,830	R273,644	3,078	R178,897	R82,920	R185,344
May	29,005	38,563	12,342	R163,746	R13,073	R283,573	R3,329	R187,958	R85,321	R191,522
June	27,715	R36,921	R11,209	R155,104	R12,711	R276,148	2,975	R184,699	R82,521	R185,344
July	26,280	R38,047	12,141	R161,273	R13,227	R299,944	3,321	R195,871	R79,978	R189,619
August	27,864	R37,755	R11,512	R159,501	R13,227	R292,795	3,343	R199,330	R84,253	R189,619
September	28,534	R36,527	R11,202	R154,695	R12,770	R290,609	R3,286	R194,265	R85,061	R183,502
October	30,458	R37,648	R11,298	R162,706	R13,227	R307,739	R3,462	R200,454	R87,534	R199,954
November	30,735	R36,102	R10,925	R156,654	R12,711	R310,407	R3,297	R195,247	R87,017	R193,503
December	33,039	R37,023	R11,031	R159,277	R12,918	R325,203	R3,176	R201,095	R87,918	R199,954
Total	**354,660**	**R448,283**	**R136,034**	**R1,890,260**	**152,986**	**R3,443,767**	**R38,719**	**R2,237,165**	**R999,094**	**R2,278,731**
2022										
January	32,865	R36,087	R11,347	R155,786	R12,478	R318,772	R3,119	R199,405	R81,490	R190,930
February	30,014	R32,336	R9,814	R141,557	R11,122	R290,031	R2,977	R184,452	R75,867	R172,453
March	32,473	R36,319	R11,603	R159,101	R12,465	R319,562	R3,370	R218,272	R88,106	R190,930
April	30,910	R35,043	R11,384	R153,816	R12,347	R324,537	R3,175	R216,047	R68,665	R181,993
May	31,677	R35,781	R11,593	R154,313	R12,826	R348,337	R3,170	R222,902	R81,340	R188,060
June	28,644	R34,299	R11,296	R149,081	R12,302	R336,152	R3,208	R215,334	R86,437	R181,993
July	29,654	R35,096	R11,734	R153,856	R12,659	R348,334	R3,367	R228,003	R90,288	R193,328
August	29,380	R35,394	R12,177	R155,140	R12,814	R351,777	R3,544	R229,728	R89,688	R193,328
September	29,288	R34,211	R11,260	R151,515	R11,854	R348,817	R3,491	R231,482	R90,550	R187,092
October	31,122	R35,112	R11,520	R156,992	R13,008	R365,742	R3,560	R250,312	R93,103	R190,335
November	30,934	R33,568	R11,095	R151,304	R12,206	R357,021	R3,266	R239,821	R85,482	R184,195
December	36,181	R32,951	R11,396	R150,558	R11,764	R355,708	R2,461	R251,472	R76,605	R190,335
Total	**373,141**	**R416,196**	**R136,220**	**R1,833,019**	**R147,846**	**R4,064,791**	**R38,709**	**R2,687,231**	**R1,007,621**	**R2,244,971**
2023										
January	33,391	E34,788	RE11,055	RE151,849	E11,783	RE363,863	RE3,538	RE254,905	RE83,384	E198,189
February	30,726	E31,085	RE10,042	RE135,238	E10,528	RE352,464	RE3,233	RE233,411	RE80,766	E174,917
March	32,676	E34,429	RE10,900	RE150,138	E11,441	RE370,158	RE3,565	RE268,590	RE88,736	E199,571
April	31,313	E32,911	RE10,652	RE146,856	E11,228	RE363,538	RE3,475	RE259,515	RE88,066	E187,566
May	R31,288	RE33,689	RE11,243	RE152,690	RE11,555	RE379,548	RE3,577	RE263,626	RE92,326	RE191,104
June	28,991	RE32,298	RE10,800	RE149,039	RE10,761	RE346,027	RE3,475	RE252,193	RE91,970	RE179,760
July	28,476	E33,118	E11,234	E154,628	E10,942	E364,307	E3,569	E264,689	E96,414	E189,023
2023 7-month YTD	**216,860**	**E232,316**	**E75,926**	**E1,040,439**	**E78,237**	**E2,539,906**	**E24,433**	**E1,796,929**	**E621,662**	**E1,320,129**
2022 7-month YTD	**216,236**	**244,960**	**78,772**	**1,067,510**	**86,199**	**2,285,726**	**22,386**	**1,484,416**	**572,194**	**1,299,687**
2021 7-month YTD	**204,029**	**263,228**	**80,066**	**1,097,427**	**88,133**	**1,917,014**	**22,155**	**1,246,774**	**567,311**	**1,312,200**

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	**[R]2,673,207**	**[R]7,168,902**	**[R]9,813,035**	**[R]241,965**	**[R]2,567,990**	**[R]1,206,122**	**[R]435,117**	**[R]791,491**	**[R]36,520,826**
2021									
January	[R]216,559	[R]652,283	[R]799,384	19,392	[R]226,357	[R]97,700	[R]35,166	[R]71,804	[R]3,105,581
February	[R]162,358	[R]585,293	[R]610,705	18,126	[R]198,404	[R]89,387	[R]31,295	[R]64,043	[R]2,597,230
March	[R]217,547	[R]649,393	[R]828,055	20,404	[R]217,550	[R]95,201	[R]34,611	[R]74,201	[R]3,136,068
April	[R]211,950	[R]620,194	[R]823,807	19,783	[R]215,237	[R]92,348	[R]34,385	69,762	[R]3,058,663
May	[R]218,136	[R]635,492	[R]847,314	20,313	[R]226,230	[R]94,307	[R]35,810	[R]72,051	[R]3,158,085
June	[R]209,019	[R]616,203	[R]817,582	[R]19,522	[R]220,743	[R]90,244	[R]29,181	[R]67,424	[R]3,045,264
July	[R]219,906	[R]638,130	[R]860,680	20,601	[R]221,714	[R]93,624	[R]30,406	[R]71,746	[R]3,176,507
August	[R]218,176	[R]646,670	[R]862,398	20,347	[R]234,964	[R]89,735	[R]33,021	[R]61,409	[R]3,185,920
September	[R]216,136	[R]627,305	[R]858,752	19,928	[R]224,034	[R]92,092	[R]30,825	[R]34,553	[R]3,104,078
October	[R]222,128	[R]651,674	[R]886,988	[R]20,460	[R]231,720	[R]93,092	[R]37,901	60,037	[R]3,258,481
November	[R]220,076	[R]646,383	[R]856,488	[R]20,004	[R]221,495	[R]90,106	[R]32,243	[R]65,566	[R]3,188,958
December	[R]223,437	[R]678,051	[R]897,003	[R]20,541	[R]236,698	[R]91,580	[R]37,047	[R]68,035	[R]3,323,025
Total	**[R]2,555,430**	**[R]7,647,068**	**[R]9,949,156**	**[R]239,422**	**[R]2,675,145**	**[R]1,109,416**	**[R]401,892**	**[R]780,632**	**[R]37,337,860**
2022									
January	[R]216,347	[R]657,613	[R]878,743	[R]20,719	234,795	[R]89,680	[R]30,986	[R]64,105	[R]3,235,266
February	[R]196,621	[R]577,251	[R]795,295	[R]18,516	209,707	[R]78,589	[R]31,234	[R]56,642	[R]2,914,480
March	[R]225,203	[R]634,328	[R]903,364	[R]21,502	239,344	[R]87,991	[R]34,249	[R]64,273	[R]3,282,454
April	[R]226,464	[R]614,569	[R]880,176	[R]21,243	235,580	[R]86,485	[R]31,383	[R]65,402	[R]3,199,218
May	[R]235,497	[R]638,527	[R]918,979	[R]22,306	247,179	[R]85,606	[R]32,053	[R]61,895	[R]3,332,041
June	[R]231,202	[R]616,619	[R]881,753	[R]21,786	240,568	[R]85,970	[R]31,592	[R]64,090	[R]3,232,326
July	[R]239,209	[R]644,039	[R]920,414	[R]22,646	251,625	[R]89,886	[R]34,763	[R]66,176	[R]3,375,077
August	[R]238,619	[R]635,404	[R]937,041	[R]23,549	255,603	[R]87,801	[R]33,420	[R]67,976	[R]3,392,383
September	[R]238,112	[R]618,364	[R]925,985	[R]21,849	245,734	[R]83,339	[R]32,595	[R]64,875	[R]3,330,414
October	[R]245,755	[R]637,050	[R]941,968	[R]22,103	251,647	[R]88,939	[R]33,226	[R]66,250	[R]3,437,743
November	[R]234,562	[R]613,000	[R]910,587	[R]21,297	255,298	[R]85,621	[R]32,901	[R]64,414	[R]3,326,572
December	236,429	[R]624,415	[R]934,211	[R]22,675	253,533	[R]82,730	[R]32,644	[R]64,307	[R]3,370,376
Total	**[R]2,764,019**	**[R]7,511,179**	**[R]10,828,515**	**[R]260,192**	**2,920,613**	**[R]1,032,634**	**[R]391,046**	**[R]770,406**	**[R]39,428,350**
2023									
January	[E]241,437	[E]646,645	[RE]935,962	[RE]22,310	[E]256,931	[RE]79,538	[RE]31,536	[RE]67,666	[RE]3,428,769
February	[E]217,813	[E]572,742	[RE]842,907	[RE]18,969	[E]231,585	[RE]69,492	[RE]27,372	[RE]59,490	[RE]3,102,781
March	[E]240,498	[E]642,354	[RE]961,177	[RE]22,752	[E]266,638	[RE]78,520	[RE]27,921	[RE]64,871	[RE]3,474,934
April	[E]232,276	[E]619,656	[RE]932,661	[RE]22,593	[E]256,029	[RE]75,109	[RE]30,110	[RE]58,454	[RE]3,362,007
May	[RE]237,558	[RE]648,124	[RE]982,394	[RE]24,031	[RE]268,279	[RE]81,880	[RE]30,706	[RE]56,290	[RE]3,499,909
June	[RE]232,977	[RE]627,912	[RE]952,141	[RE]24,338	[RE]267,294	[RE]80,525	[RE]30,137	[RE]56,919	[RE]3,377,557
July	[E]238,439	[E]641,747	[E]990,235	[E]24,170	[E]281,183	[E]83,217	[E]31,384	[E]62,701	[E]3,509,475
2023 7-month YTD	**[E]1,640,998**	**[E]4,399,182**	**[E]6,597,476**	**[E]159,163**	**[E]1,827,938**	**[E]548,281**	**[E]209,165**	**[E]426,393**	**[E]23,755,432**
2022 7-month YTD	**1,570,542**	**4,382,945**	**6,178,724**	**148,718**	**1,658,799**	**604,205**	**226,260**	**442,584**	**22,570,862**
2021 7-month YTD	**1,455,476**	**4,396,986**	**5,587,527**	**138,141**	**1,526,234**	**652,811**	**230,854**	**491,032**	**21,277,398**

[R] Revised data.

[E] Estimated data.

[RE] Revised estimated data.

Source: 2018-2022: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2022*, Bureau of Safety and Environmental Enforcement (BSEE), IHS Markit, and Enverus. January 2023 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; and EIA computations.

Note: For 2023 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 2023, 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 July 2023

- **Top five countries of destination, representing 53.4% of total U.S. LNG exports in July 2023**
  - Netherlands (53.3 Bcf), Japan (40.2 Bcf), China (39.0 Bcf), Spain (34.1 Bcf), and France (20.6 Bcf)
- **350.3 Bcf of exports in July 2023**
  - 6.9% increase from June 2023
  - 16.7% more than July 2022
- **115 cargos shipped in July 2023**
  - Sabine Pass (35), Cameron (28), Freeport (22), Corpus Christi (20), Cove Point (6), and Elba (4)
  - 108 cargos in June 2023
  - 100 cargos in July 2022

1a. Table of Exports of Domestically-Produced LNG Delivered by Region (Cumulative from February 2016 through July 2023)

Region	Number of Countries Receiving Per Region	Volume Exported (Bcf)	Percentage Receipts of Total Volume Exported (%)	Number of Cargos*
East Asia and Pacific	8	4,959.1	30.9%	1475
Europe and Central Asia	15	7,437.8	46.4%	2324
Latin America and the Caribbean**	13	2,322.8	14.5%	849
Middle East and North Africa	5	405.1	2.5%	118
South Asia	3	922.0	5.7%	273
Sub-Saharan Africa	0	0.0	0.0%	0
Total LNG Exports	**44**	**16,046.8**	**100.0%**	**5,039**

*Split cargos counted as both individual cargos and countries

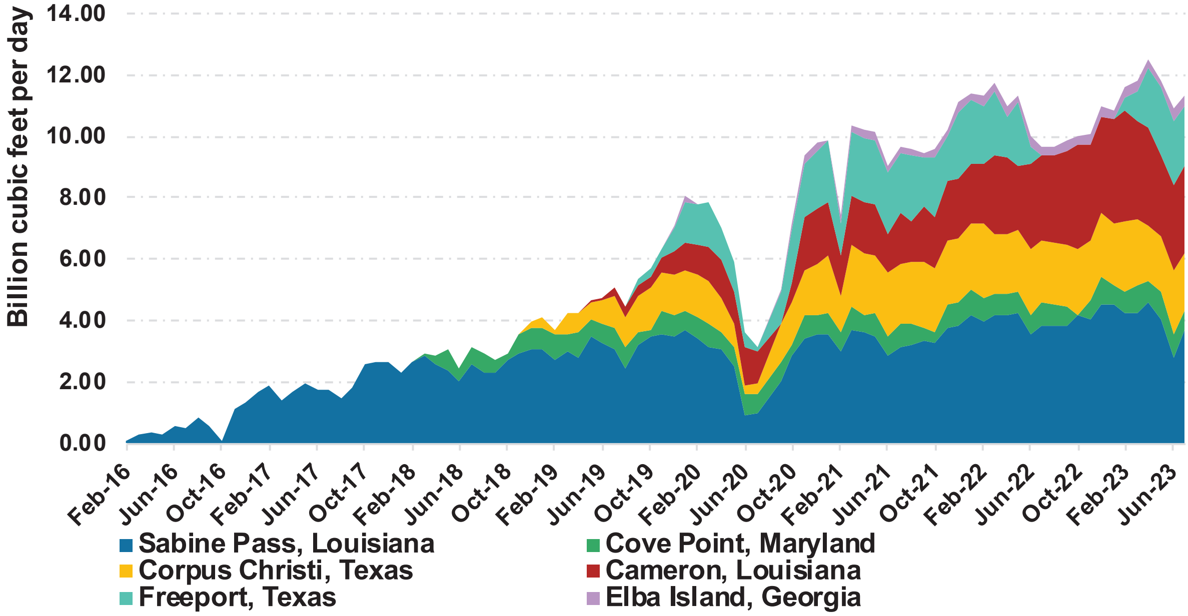
**Number of cargos does not include the shipments by ISO container

1b. Shipments of Domestically-Produced LNG Delivered – by Country
(Cumulative from February 2016 through July 2023)

	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	535	1,849.0	11.5%
2.	Japan*	East Asia and Pacific	413	1,404.3	8.8%
3.	United Kingdom*	Europe and Central Asia	390	1,295.6	8.1%
4.	France*	Europe and Central Asia	384	1,244.9	7.8%
5.	Spain*	Europe and Central Asia	385	1,207.4	7.5%
6.	Netherlands*	Europe and Central Asia	323	1,095.5	6.8%
7.	China*	East Asia and Pacific	320	1,080.5	6.7%
8.	India*	South Asia	211	718.0	4.5%
9.	Turkiye*	Europe and Central Asia	210	670.8	4.2%
10.	Brazil*	Latin America and the Caribbean	226	626.1	3.9%
11.	Mexico*	Latin America and the Caribbean	167	555.1	3.5%
12.	Chile*	Latin America and the Caribbean	142	448.5	2.8%
13.	Italy*	Europe and Central Asia	129	416.5	2.6%
14.	Taiwan*	East Asia and Pacific	121	383.9	2.4%
15.	Poland*	Europe and Central Asia	104	344.2	2.1%
16.	Argentina*	Latin America and the Caribbean	142	342.1	2.1%
17.	Portugal*	Europe and Central Asia	97	308.2	1.9%
18.	Greece*	Europe and Central Asia	87	200.0	1.2%
19.	Dominican Republic*	Latin America and the Caribbean	84	194.2	1.2%
20.	Kuwait	Middle East and North Africa	52	181.6	1.1%
21.	Belgium*	Europe and Central Asia	55	175.9	1.1%
22.	Lithuania	Europe and Central Asia	57	175.1	1.1%
23.	Croatia	Europe and Central Asia	48	145.5	0.9%
24.	Pakistan*	South Asia	40	128.9	0.8%
25.	Jordan*	Middle East and North Africa	37	127.5	0.8%
26.	Germany	Europe and Central Asia	37	118.4	0.7%
27.	Singapore*	East Asia and Pacific	36	117.4	0.7%
28.	Thailand*	East Asia and Pacific	31	108.7	0.7%
29.	Bangladesh*	South Asia	22	75.0	0.5%
30.	Panama*	Latin America and the Caribbean	34	64.5	0.4%
31.	Jamaica*	Latin America and the Caribbean	32	59.6	0.4%
32.	United Arab Emirates	Middle East and North Africa	15	51.1	0.3%
33.	Israel*	Middle East and North Africa	9	28.0	0.2%
34.	Colombia*	Latin America and the Caribbean	22	27.0	0.2%
35.	Malta*	Europe and Central Asia	11	20.1	0.1%
36.	Finland	Europe and Central Asia	7	19.4	0.1%
37.	Egypt*	Middle East and North Africa	5	16.9	0.1%
38.	Indonesia*	East Asia and Pacific	18	11.7	0.1%
39.	Malaysia	East Asia and Pacific	1	3.7	0.0%
	Total Exports by Vessel		**5,039**	**16,041.1**	
	Jamaica	Latin America and the Caribbean	179	2.0	0.0%
40	Bahamas	Latin America and the Caribbean	764	1.8	0.0%
41	Barbados	Latin America and the Caribbean	305	1.3	0.0%
42	Haiti	Latin America and the Caribbean	150	0.5	0.0%
43	Antigua and Barbuda	Latin America and the Caribbean	55	0.0	0.0%
44	Nicaragua	Latin America and the Caribbean	1	0.0	0.0%
	Germany	Europe and Central Asia	1	0.0	0.0%
	Total Exports by ISO		**1455**	**5.6**	
	Total Exports by Vessel and ISO		**6,494**	**16,046.8**	

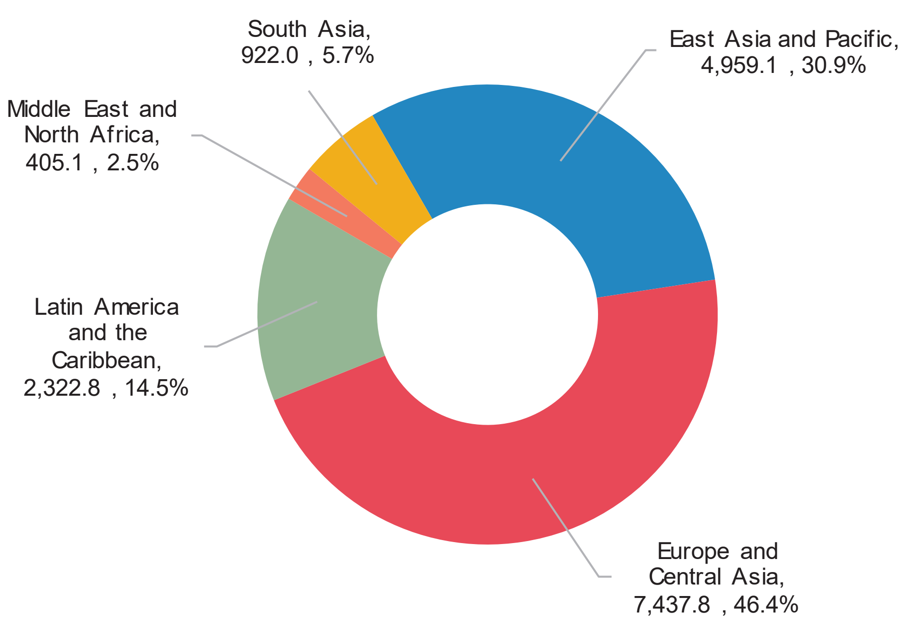
Note:
Volume and Number of Cargos are the cumulative totals of each individual Country of Destination by Region starting from February 2016.
Jamaica has received U.S. LNG exports by both vessel and ISO container. The volumes are totaled separately
* Split cargos counted as both individual cargos and 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 Point of Exit
(February 2016 through July 2023)



The Cameron, LA point of exit includes exports from Cameron LNG and Venture Global Calcasieu Pass.

1d. Domestically-Produced LNG Exported by Region
(Cumulative from February 2016 through July 2023)
(Bcf, %)



Construction Update

September 28, 2023

Numbers as available at the end of August unless otherwise noted

Construction highlights

Coastal GasLink achieves 98 per cent pipe installation
Coastal GasLink wrapped up another month of construction with incredible progress.

Section 5, a 54 kilometre-long section north of Vanderhoof to south of Burns Lake, achieved 100% pipe installation last month. Section 5 was completed safely and on time by Nadleh-Macro, a partnership established in 2022 and comprised of Nadleh Whut'en First Nation and Macro Pipelines. Five sections of the 670-kilometre project route have now completed pipe installation activities (Sections 1, 2, 4, 5 and 6).

As of the end of August, all **800 water crossings** across the project have also been safely executed, including all 10 major trenchless water crossings.

While the project is quickly approaching mechanical completion at the end of 2023, there are a number of critical activities that the project team will continue to execute on, including:

- **Clean-up and Reclamation** – When a section is complete, our contractors will ensure the ground and topsoil is reinstated so that we are ready to implement our reclamation program. Reclamation is underway in many sections across the project route, including time sensitive work that must take place prior to the onset of winter.
- **Erosion and Sediment Control (ESC) Measures** – Our commitment to the environment does not end when construction is complete. Until the route is completely revegetated, which could take a few years due to seasonal constraints, our crews will continue implementing and monitoring ESC measures as required to protect the environment and meet our commitments.

Check out our **photo of the month** to see our clean-up program in full swing in Section 7.

Performance at a glance:

94.7% overall progress*

*includes all engineering, procurement and construction activities

98% pipe installed

4,820 workers across the project route as of August 26, 2023

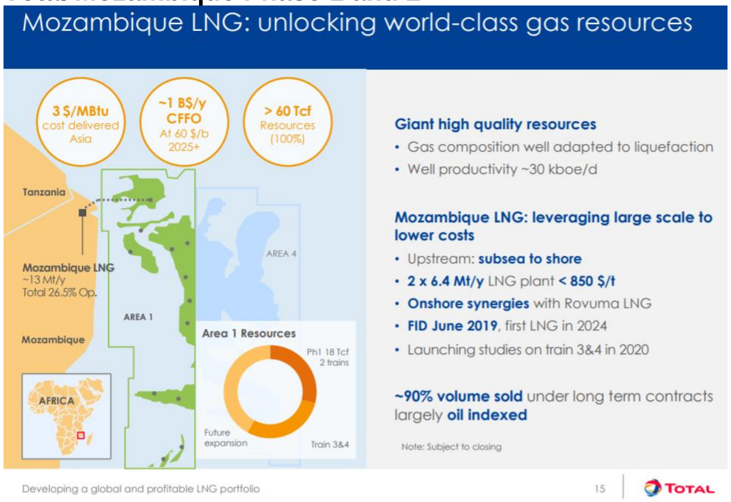
Multiple Brownfield LNG FIDs Now Needed To Fill New LNG Supply Gap From Mozambique Chaos? How About LNG Canada Phase 2?

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.

Total Mozambique Phase 1 and 2



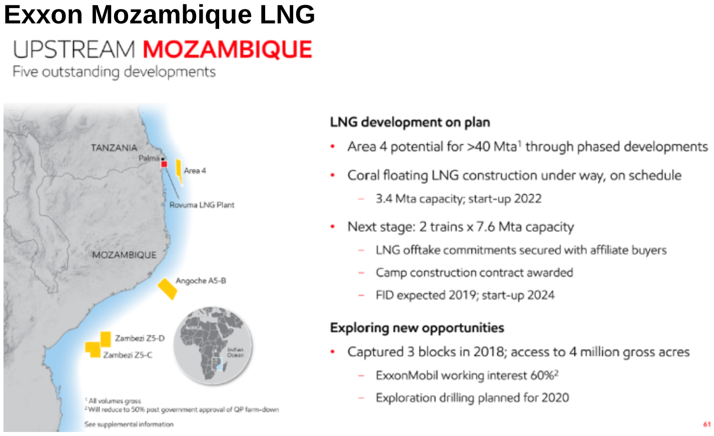
Source: Total Investor Day September 24, 2019

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 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

[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.

<u>Will Cdn natural gas be similarly hit by if Trudeau move to "emissions free" and not "net zero emissions" electricity?</u> 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.

<u>Biden's global climate summit reminded there is too much risk to skip over natural gas as the transition fuel.</u> 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

<u>We expect the IEA's blunt message that the gap is getting wider will be reinforced on May 18</u>. 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

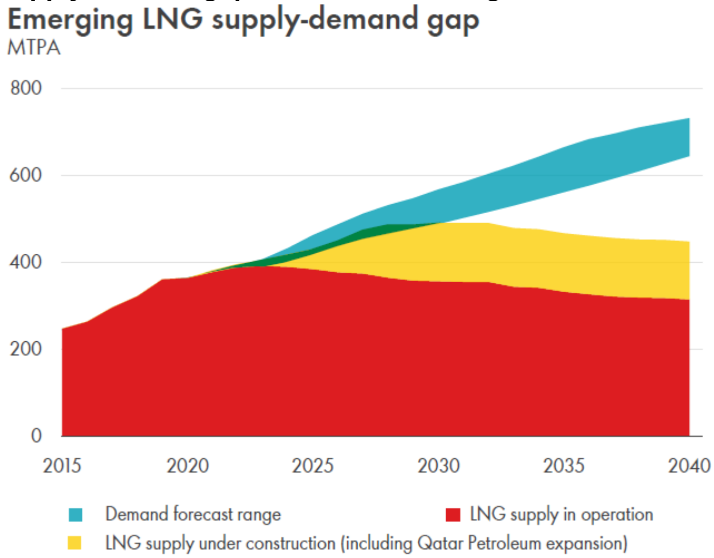
Source: IEA Tracking Clean Energy Progress, June 2020

<u>We are referencing Shell's long term outlook for LNG</u> 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.

<u>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</u> Shell does not provide the detailed numbers in their Feb 25, 2021 LNG forecast. We would assume they

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

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.. 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.

And does this bigger, nearer supply gap force LNG players to look at what brownfield LNG projects they could advance? 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 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.

https://www.sandiegouniontribune.com/business/story/2023-09-28/with-gas-prices-in-california-soaring-newsom-issues-waiver-to-provide-financial-relief-at-the-pump

With gas prices in California soaring, Newsom issues waiver to provide financial relief at the pump

Average price per gallon cracks $6 statewide, hits $6.21 in San Diego on Thursday

BY ROB NIKOLEWSKI

SEPT. 28, 2023 8:03 PM PT

In an attempt to curb a recent spike in gasoline prices, Gov. Gavin Newsom late Thursday instructed California regulators to speed the delivery of less expensive winter-blended gas to stations across the state.

Winter-blended gas is about 20 to 25 cents per gallon cheaper than summer-blended gas and fuel analysts expect the waiver put in place by the California Air Resources Board at Newsom's behest will lead to a dip in prices within a few days.

"This waiver will affect wholesale gas prices probably on Friday," said Patrick De Haan, head of petroleum analysis at GasBuddy, a tech company that helps drivers across the country find the cheapest places to buy gas. "But there's only one day left in the trading week. That may segue into another drop on Monday and theoretically retailers could be passing that along in lower prices this weekend, but it's not going to be much at first."

The move comes as the average price for a gallon of regular gasoline statewide surpassed the $6 per gallon mark Thursday, according to AAA.

In San Diego, prices are even higher, rising nearly 11 cents on Thursday to $6.209. That's 84 cents per gallon higher than a month ago. The surge is within shouting distance of the all-time high in the San Diego region of $6.435, set on Oct. 5, 2022.

"In light of the price spikes, we should not wait until the end of the month to start distributing or to ramp up production of our winter-blend gasoline," Newsom said in a letter to the Air Resources Board and the California Energy Commission. "Allowing refiners to make an early transition to winter-blend gasoline could quickly increase fuel supply and provide critical liquidity on the spot market, and act as a much-needed safety valve."

The transition from summer- to winter-blended gasoline is staggered throughout different regions of the state. In Southern California, stations typically make the switch at the end of October, so the waiver accelerates the transition for San Diego stations by about a month.

"The pace of (price) decreases really should accelerate next week and they could continue for several weeks as long as there are no new issues," such as refinery outages or dramatic changes in gasoline and crude oil markets, De Haan said. "I'm hopeful that by Halloween, a month from today, the average price could be 35 to 75 cents lower."

During a spike in gas prices that occurred last autumn, Newsom directed the Air Resources Board to issue a similar waiver, which resulted in prices dropping.

Thursday's announcement came late in the afternoon, after California Republicans in Sacramento sent a letter to Newsom, urging him to call a special session of the Legislature and suspend the state's excise tax on gasoline.

"Gas prices are once again soaring, and Californians are paying $2 more per gallon than the rest of the country," the letter signed by each GOP lawmaker said. "Drivers are spending more than $100 each month just on gas. This elevated energy cost cuts into family's already strained budgets."

The excise tax on gasoline in California comes to 57.9 cents per gallon. Counting the federal excise tax of 18.4 cents per gallon, California has the highest gas tax rate in the country, according to the Tax Foundation.

The high price of gas has become a hot political topic in California in the past year.

Newsom has singled out oil companies and petroleum refiners, accusing them of "ripping off" customers. The Legislature in Sacramento, controlled by Democrats, passed Senate Bill X1-2 earlier this year that Newsom signed into law.

In effect since June 26, SB X1-2 requires the oil industry in California to produce much more data about imports, maintenance schedules and refinery profit margins.

It also created the Division of Petroleum Market Oversight to monitor the oil and refinery industry. The division has been granted subpoena power and the ability to penalize oil companies if they exceed a "maximum gross refining margin" that will be set by the Energy Commission.

Newsom in his letter directed the oversight division to give him "initial proposals for reforming the spot market in California" by Jan. 1 to "protect Californians from the market-distorting behavior between refiners and traders that the current structure of that market may allow."

But Newsom's critics say California's high gas prices are largely due to the state's own policies that hinder oil and petroleum development.

For decades, no major oil refineries have been built and the number of existing refineries in California has fallen from 17 in 2015 to 13 as of 2022.

"California is an energy island with isolated resources which makes our state reliant on foreign imports if more domestic production is not allowed," said Republicans in their letter to Newsom.

In 2022, 59 percent of oil supply sources to the state's refineries came from foreign imports, according to California Energy Commission data.

This summer, the price of Brent crude — the international benchmark in the futures market — has jumped from $71 in June to more than $90 after cuts in production by the Organization of the Petroleum Exporting Countries and a coalition of other nations that make up what's called OPEC+.

Fuel analysts also blamed the recent price spike on multiple scheduled and unscheduled maintenance issues at California refineries.

https://interfax.com/newsroom/top-stories/94958/

28 Sep 2023 01:06

Russian oil cos given recommendations on retail fuel prices, supplies to farmers - Novak

MOSCOW. Sept 28 (Interfax) - The Russian government has seen a drop in wholesale prices for gasoline and diesel fuel since it imposed a ban on oil product exports last week and expects this decrease to carry over onto the retail market, and recommendations to this effect have been given to oil companies, Deputy Prime Minister Alexander Novak reported to President Vladimir Putin.

Commenting on the current situation on the domestic market, Novak said the growth of prices at the pump this year "on average across the country is close to the level of inflation."

"Of course, there are many independent filling stations where, in the current situation, prices right now are somewhat higher than the level of inflation, but at those that belong to vertically integrated companies the restriction of prices at filling stations has made it possible to keep prices at the level of inflation.

However, exchange prices for gasoline and diesel have been climbing for the past two months and risen by 15% and 30%, respectively, he said.

"This, I note, is specifically in the past two months, when several factors at once had an impact simultaneously. This is the growth of world oil prices, the decrease of discounts on sales of Russian Urals crude and the weakening of the ruble against the dollar. Of course, this in turn affected budget revenues," Novak said.

The ruble price of oil has risen 50% since the start of the year and topped 8,000 rubles per barrel in September, while the "export alternative for oil products increased" at the same time, he said.

"And this disparity, the increase of the export alternative, led to there being an economic incentive for the growth of grey exports and growth of demand in exchange trading. However, at filling stations profit margins went into negative territory given that prices rose at about the level of inflation," Novak said.

There were also "some logistics difficulties related to there being additional demand at the filling stations of vertically integrated companies, and there were also problems with shipping out fuel from oil refineries," he said.

He recalled that the government banned exports of automobile gasoline and diesel on September 21 in order to stabilize prices on the domestic motor fuel market.

"Thanks to this decision, we are seeing a decrease in exchange wholesale prices for motor fuel. In the week since September 21 they have fallen by an average of 20% for gasoline and 16% for diesel fuel. In the past two days we're seeing a correction of about 1-2% after the steep drop. And this is normal, since current levels that have now been reached on the exchange, they reflect the market situation," Novak said.

"And we are monitoring wholesale prices for diesel fuel in all regions of Russia. In 23 regions they have already fallen by an average of 5% since the imposition of the export ban, on the small-scale wholesale market and at tank farms the range is about from 1% to 17% by region. As prices in the wholesale segment even out we expect further stabilization of the market and a decrease in prices in the small-scale wholesale and retail segments, foremost at independent filling stations. Corresponding recommendations have also been given to oil companies," Novak said.

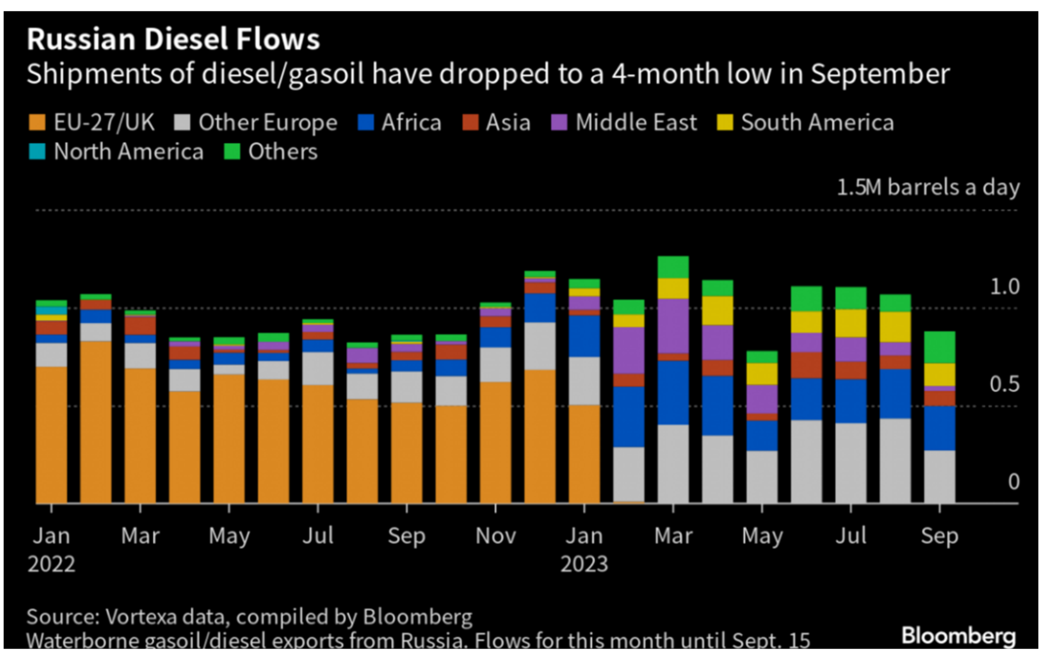
He also recalled that requirements for gasoline and diesel sales on the exchange have been increased and administrative measures have been taken, with "a number of traders who engaged in unethical trading practices" being suspended.

"Particular attention is being paid to fuel supplies to agricultural producers. Command center work has been organized together with the Energy Ministry, Agriculture Ministry and [Russian Railways]. A monthly schedule with a breakdown of regions and a breakdown of oil companies has been signed to supply 1.8 million tonnes of diesel fuel through November. Additional amounts of diesel fuel supplies to agricultural producers by Russian region in the period of September-November for completion of field work have also been conveyed to companies," Novak said.

"We are also carefully monitoring so that the corresponding transmission of prices - the decrease in exchange trading - is reflected at tank farms and in the small-scale wholesale sector and reaches agricultural producers. We are carefully watching this with regions of the Russian Federation," Novak said.

Russia Temporarily Bans Diesel Exports; European Prices Jump (2)
2023-09-21 14:53:04.694 GMT

By Bloomberg News
(Bloomberg) -- Russia temporarily banned exports of diesel in a bid to stabilize domestic supplies, driving European prices higher in already tight global fuel markets.
So far this year, Russia was the world's single biggest seaborne exporter of diesel-type fuel, narrowly ahead of the US, according to Vortexa data compiled by Bloomberg. The country shipped more than 1 million barrels a day during January to mid-September, with Turkey, Brazil and Saudi Arabia being among the main destinations.
The ban, which also applies to gasoline, comes into force on Sept. 21, and doesn't have a final date, according to the government decree.
Diesel prices in Europe jumped on concern the measure will aggravate global shortages. The world's oil refiners are struggling to produce enough of the fuel amid curbed crude supplies from Russia and Saudi Arabia, the biggest producers within the Organization of Petroleum Exporting Countries and its allies.
"Despite this being only a temporary ban, the impact is significant as Russia remains a key diesel exporter to global markets," said Alan Gelder, vice president of refining, chemicals and oil markets at consultancy Wood Mackenzie Ltd. "The global refining system will struggle to replace those lost Russian volumes at a time when global diesel inventories are already at low levels."



In northwest Europe, the premium of benchmark diesel futures to crude oil — known as the ICE Gasoil crack — climbed sharply, temporarily topping $37 a barrel, according to fair value data compiled by Bloomberg.

Price Impact

Diesel futures for delivery in October also grew more expensive relative to barrels for arrival the following month. The bullish structure, known as backwardation, surpassed $35 per ton, before paring some of those gains.

“Temporary restrictions will help saturate the fuel market, that in turn will reduce prices for consumers” in Russia, the government’s press office said on its website.

There are exemptions for minor supplies, including deliveries to trade alliance partners from some former Soviet republics, as well as intergovernmental agreements, humanitarian aid and transit, the decree said.

Under the decree, fuel cargoes already accepted for shipment by Russian Railways or those with loading papers for seaborne transportation can still be exported. That indicates diesel flows will only gradually decline, while these cargoes are shipped.

The tanker, Ellora, sailed from Russia’s Black Sea port of Novorossiysk on Thursday, after loading about 35,000 tons of gasoil, according to vessel-tracking data monitored by Bloomberg and a port report.

The ban includes all types of diesel, including summer, winter and Arctic blends, as well as heavy distillates including gasoils, according to the decree.

Last year, Russia’s seaborne exports of diesel-type fuel were about 0.95 million barrels a day, according to Vortexa data. That was about 3.4% of total global demand.

“This is a super big deal. We’re talking exports of close to 1 million barrels a day being shut in,” said Eugene Lindell, head of refined products at consultancy FGE. However, Russia won’t be able to keep up a diesel export ban for long, because they’ll soon run out of tank space, he added.

Inflation Battle

Russia’s government has spent weeks in talks with oil producers to decide on measures to rein in rising fuel prices. President Vladimir Putin said last week that officials and companies had agreed on how to act in the future, but the wrangling continued, people familiar with the matter said.

Surging car-fuel prices have been one the biggest contributors to inflation, a potential political headache as the Kremlin prepares for the presidential election in March. Retail gasoline and diesel prices in Russia have climbed 9.4% from the start of the year to Sept. 18 compared with an increase in overall consumer prices of 4%, according to Federal Statistics Service data.

Political sensitivity to rising fuel prices and the impact on farmers spilled into the open earlier this week, when the speaker of the lower house of parliament, Vyacheslav Volodin, a key Putin ally, criticized the Energy Ministry for failing to prevent the increase. The government considered “quite serious measures,” First Deputy Energy Minister Pavel Sorokin told lawmakers who peppered him with questions.

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https://blinks.bloomberg.com/news/stories/S1C8SPT1UM0W

SAF Group created transcript of comments by Dan Rahmat (Senior Energy Security Consultant, Tehran based) to Vandana Hari (Founder & CEO, Vanda Insights) who hosted the Gulf Intelligence Daily Energy Markets Sept 21 webcast. https://twitter.com/gulf_intel/status/1704770830024999270

Items in "italics" are SAF Group created transcript.

Rahmat ".. *Regarding the new deal between Iran and America, I believe it's part of a bigger deal, which cannot be considered limited to actually releasing some prisoners, also releasing some frozen funds in Korea or elsewhere. Technically it said that the frozen assets of Iran in Korea or Iraq are going to be delivered to Qatar and also Oman and those are to be used for importing humanitarian goods including medicine, food ingredients and blah blah. So that would be big money for importing such amounts of goods. I don' believe Iran has the necessary needs of something. "First let me tell you something. The money is not limited to those $6b as Iranian officials emphasize. They're telling that its about $23b or something. Because it's not limited to the $6b of Korea; But they're not very clearly telling us what the money actually is which banks are involved in that. But as long as I am concerned, the $6b is already transferred from Korea to Qatar and they're transferred to the Iranian bank accounts in Qatari banks*. " Hari. "*So Danial, just to make sure, sorry, that I understand you correctly as do our viewers. Are you saying the release of this $6b is part of a release of a total of $23b, which is going to come about*?" Rahmat "*Right. It is said so. But you know different officials*" [note connection lost]

Rahmat rejoins the webcast.

Hari "*welcome back Danial. I hope your connection stays with all of us this time around. Please do continue. You were talking about. I asked you If the $6b was just the beginning of a process of unfreezing $23b, I believe you mentioned. You're on mute I think Danial*". Rahmat "*Yes. Yes. I believe so, it is said that the unfreezing of the $6b is part of a bigger unfreezing of Iranian assets, mostly from Iraq left there or kept there for the gas* [natural gas], *for the price of the gas Iran exported to Iraq., And considering that there is another agreement between Iran and Iraq regarding the repayment of the Iranian gas money in Iraq where Iraqis since now are going to pay the money to Iranians via actually a sort of barter deal. Selling, actually exporting fuel oil to Iran and heavy oil, what they call black oil in Iran, to Iran."*

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

https://www.reuters.com/markets/commodities/iraq-trade-crude-oil-iranian-gas-resolve-power-debt-pm-2023-07-11/

Iraq to trade crude oil for Iranian gas to settle power debt, prime minister says

Reuters

July 11, 20235:04 PM MDTUpdated 2 months ago

Iraqi Prime Minister Mohammed Shia al-Sudani, attends the Arab League Summit in Jeddah, Saudi Arabia, May 19, 2023. Iraqi Prime Minister Media Office/Handout via REUTERS /File Photo *Acquire Licensing Rights*

July 11 (Reuters) - Iraq will begin trading crude oil for Iranian gas to end the recurring issue of payment delays to Tehran due to the need for U.S. approval, Iraqi Prime Minister Mohammed Shia Sudani said on Tuesday.

Sudani said Iran had cut gas exports to Iraq by more than 50% as of July 1 after Baghdad failed to secure U.S. approval to disburse owed funds, but Tehran had now agreed to resume gas exports in exchange for crude oil.

The deal was reached during talks with an Iranian delegation that was in Baghdad since Saturday, Sudani said in a televised speech.

Iraq imports electricity and gas from Iran that total between a third and 40% of its power supply, especially crucial in sweltering summer months when temperatures can top 50 Celsius (122 Fahrenheit) and power consumption peaks.

Iraq has had trouble paying for those imports. It owes Iran around 11 billion euros ($12.1 billion) in outstanding debts, Sudani said, and struggles to pay due to U.S. sanctions that only allow Iran to access funds to buy non-sanctioned goods, such as food and medicine.

Even those procedures are complicated, and "contribute to unwanted delays in making the payments, and subsequently the funds are not paid to the Iranians", Farhad Alaaldin, foreign affairs adviser to the prime minister, told Reuters.

By trading Iraqi crude for Iranian gas, Sudani said, Iraq would avoid rolling power cuts every summer while working to complete gas capture and extraction projects that would help make the country self-sufficient.

"We can't for the next two or three years come to citizens every summer and tell them: 'They stopped the gas, they started the gas'," he said.

A State Department spokesperson declined comment on the reported barter deal between Iraq and Iran, and did not address whether such an arrangement might violate U.S. sanctions.

"There has been no change in U.S. policy towards Iran or Iraq, and the Biden Administration continues to implement all U.S. sanctions on Iran," the spokesperson said, adding that Washington "strongly supports Iraq's path to energy autonomy."

Henry Rome, an analyst with the Washington Institute for Near East Policy think tank, said a barter pact was unlikely to stop Iran from continuing to seek hard currency from Iraq.

"I am not convinced that a pure barter arrangement as described by Sudani is satisfactory for Iran, given its need for hard currency," he said. "Even if this arrangement is implemented, it would likely not obviate Iran's pursuit of the billions of dollars still held in Iraqi accounts."

The United States has pushed Iraq, OPEC second-largest producer, to cut its reliance on Iranian gas.

Iraq spends roughly $4 billion per year on imports of Iranian gas and power while burning massive quantities of natural gas as a byproduct of its hydrocarbons sector.

It has taken steps to change course. On Monday Iraq signed a massive deal with French oil major TotalEnergies that includes plans to capture gas from oilfields in the southern Basra region.
($1 = 0.9083 euros)

Reporting by Timour Azhari in Erbil, Iraq; Additional reporting by Arshad Mohammed in Washington; Editing by David Gregorio and Stephen Coates https://www.reuters.com/world/middle-east/iraq-turkey-oil-pipeline-ready-resume-operations-soon-turkish-minister-2023-09-15/?taid=6504209efee5c1000187d519&utm_campaign=trueAnthem:+Trending+Content&utm_medium=trueAnthem&utm_source=twitter

Iraq-Turkey oil pipeline ready to resume operations soon - Turkish minister

By Can Sezer
September 15, 20231:27 AM MDTUpdated 2 hours ago

ANKARA, Sept 15 (Reuters) - Iraq's northern oil export route through Turkey will soon be ready to resume operation after checks on pipeline maintenance and repairs to flood damage, the Turkish energy minister said.

A survey of the oil pipeline is complete and it will soon be "technically" ready for operation, Alparslan Bayraktar said.

Turkey halted flows on Iraq's northern oil export route on March 25 after an arbitration ruling by the International Chamber of Commerce (ICC) ordered Ankara to pay Baghdad damages for unauthorised exports by the Kurdistan Regional Government (KRG) between 2014 and 2018.

Turkey then started maintenance work on the pipeline, which goes through a seismically active zone and which it says has been damaged by floods.

"As of today, the independent surveyor completed their survey and now they're preparing their report," Bayraktar said without mentioning a date for resumption of oil flows, in an embargoed press briefing held by the ministry on Thursday.

Iraq and Turkey previously agreed to wait until maintenance works were complete before resuming the pipeline that contributes about 0.5% of global oil supply. Sources said oil flows are not expected to start before October, with KRG losing roughly $4 billion in lost exports.

Turkey also calculates Iraq owes $950 million as a result of ICC arbitration, net of damages Turkey has to pay Iraq.

Ankara will also file in the Paris court for a "set-aside case", Bayraktar said. Iraq opened an enforcement case against Turkey in a U.S. federal court in April, to enforce a $1.5 billion arbitration award.

"As two neighbouring countries, we need to find an amicable solution. But from the legality perspective, we need to take care of our interests. Most likely in the future we might face another court challenge. But the pipeline will be operational technically. It is more or less ready and we will start the operation soon", Bayraktar said.

Ankara wants Baghdad to withdraw a second arbitration case covering the period from 2018 onward, and negotiate a reduced payment. Turkey also wants Erbil and Baghdad to agree on a common position and negotiate the continuance of the pipeline agreement, which is set to expire in 2026.

Reporting by Can Sezer; Editing by Daren Butler, Miral Fahmy and Alexander Smith

"Before Covid, the Chinese, who are unbelievable savers, they saved 35% of disposable income. 35% … During Covid and the fear and the lockdowns and the changes of policies, savings rates in China right now are 50%." BlackRock CEO Larry Fink

SAF Group created transcript of comments by BlackRock CEO Larry Fink to Bloomberg's Dani Burger at Berlin Global Dialogue forum on Sept 29, 2023. https://www.bloomberg.com/news/videos/2023-09-29/blackrock-s-fink-on-m-a-recession-election-full-intv-video

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

At 6:45 min mark, Fink ".. *Dani, what's going on in China is a great example of fear. Before Covid, the Chinese, who are unbelievable savers, they saved 35% of disposable income. 35%, think about that. Now they did it because there are no safety nets of health care like we have here in Germany. No safety nets of retirement. One child family. All these dynamic issues. During Covid and the fear and the lockdowns and the changes of policies, savings rates in China right now are 50%. That fear*."

Burger "*And, they're struggling to reinvigorate the economy*."

Fink "*Because they're frightened*"

Burger "*What does that look like on the ground for the investors and the crown. You, at BlackRock, how do you look at this? Is there a way to capitalize on it? Do you pull back? What do you do with a problem like this*?"

Fink "*Right now, I think in our megatrends, right now we are underinvested in China. We believe structurally until we see savings rates, which is, in my mind, when we see savings rates decline and they are consuming more, that's an indication of more hope that they don't need to save as much. That they can consume. They can do other things. To me, these are very big macro trends. But I just want to say the biggest issue is we, as business leaders, we as political leaders. If we don't provide more certainty and more hope, this is what causes recessions. This is what causes pullbacks*."

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

https://www.wsj.com/politics/national-security/pentagon-plan-to-buy-thousands-of-drones-faces-looming-snags-6b30a1bb?mod=e2tw

Pentagon Plan to Buy Thousands of Drones Faces Looming Snags

Booming jetliner and air-taxi markets leave shortages of parts and skilled labor, causing a production crunch

By
Doug Cameron

Follow

Sept. 25, 2023 11:00 am ET
24


Drones such as Boeing's Ghost Bat, developed in partnership with Australia, cost a fraction of the price of a crewed aircraft. PHOTO: JAMIE FREED/REUTERS

The Pentagon wants to acquire thousands of drones over the next two years that can fly to their targets, confuse radar, overwhelm enemy defenses, fire missiles and gather intelligence. But making the uncrewed aircraft quickly and cheaply is another matter.

Mass production of large and small drones is crucial to the Pentagon's plan to build big stocks of weapons and ammunition to deter China, which the Defense Department describes as the U.S.'s prime strategic competitor.

U.S. military leaders have lined up to warn of China's ambitions to absorb Taiwan, perhaps in the next few years. The scale of China's own military buildup, including thousands of missiles, jets, ships and drones, can only be challenged by the U.S. making more, and soon, say Pentagon leaders.

The Pentagon has proposed two marquee drone concepts. The Replicator program championed by Deputy Defense Secretary Kathleen Hicks would produce a huge fleet of air-, land- and sea-based drones that could be deployed by the thousands. These would swarm to ensure some evade defenses to reach their target or relay information, and be cheap enough to use just once.

Early in its invasion of Ukraine, Russia lagged behind Kyiv in its use of low-cost explosive drones. But by mid-2023, Russian unmanned aerial vehicles were targeting Ukrainian forces, copying some of Kyiv's tactics. WSJ explains how Moscow is catching up. Photo composite: Planet Labs PBC; VGTRK

The Air Force's "collaborative combat aircraft" program would fly much bigger autonomous drones alongside the new B-21 bomber and the advanced F-35 jet fighter, working as a wingman and adding dots on an enemy's radar screen.

Uncrewed aircraft are much cheaper than the U.S.'s premium jet fighters, and pilots take years to train.

"This is about affordable mass," said Gen. Dale White, head of the fighters and advanced aircraft programs at Wright-Patterson Air Force Base in Ohio.

But the Pentagon's goal must contend with booming demand in the commercial aerospace market that has left a shortage of skilled labor, raw materials and parts such as advanced electronics and fasteners. The Pentagon wants to buy thousands of cheap drones in as little as 18 months, and as many as 2,000 larger uncrewed jets. By contrast, one of its primary drone suppliers, Shield AI, produced 38 of the aircraft last year.

"The intended volumes and variants of Replicator aircraft will require production capacity and flexibility not typically found in the defense industrial base," Oliver Wyman, a consulting firm, said in a recent report.

Supply-chain turmoil

Existing defense programs are already being hit by supply-chain snarls.

Boeing has blamed staff and parts shortages for delays on programs such as the jets that will fly as the new Air Force One.

"Industry is having a very hard time meeting targets with fighter jets that have extremely well-established supply chains and contractor bases," said Richard Aboulafia, a supply-chain expert at consultant AeroDynamic Advisory.

To build weapons faster, cheaper and in greater quantities than ever before, the Pentagon is looking beyond the major defense contractors to smaller firms, often backed by venture capital.

Mass production of drones would be crucial to the Pentagon's plan to build big stocks of weapons and ammunition to deter China. PHOTO: JOSH SMITH/REUTERS

Andrew Hunter, the Air Force's chief weapons buyer, acknowledges the challenge of securing hundreds of the large jet drones in a short period, but said they are being designed for high production, with simpler systems and digital design tools.

"The vendor base is pretty robust today," Hunter said. Contenders include the Valkyrie from Kratos, which got its start making drones for use as shooting targets.

Boeing has its Ghost Bat, developed in partnership with Australia.

The Pentagon hasn't disclosed how much it expects the drones to cost, only that it would be a fraction of the $40 million to $100 million price of crewed aircraft they would support.

Manufacturers are concerned that the Pentagon's drone program doesn't involve new money.

"It's unclear how they get funded, and at what scale," said Richard Jenkins, chief executive of Saildrone, a California-based maker of uncrewed naval drones that can stay at sea for as long as a year. "We don't have two to three years to make these decisions. You have to start building now."

The Replicator program is on a tight timetable, given the scale of manufacturing required to produce thousands of drones.

A model of a Kratos-made Valkyrie drone, a contender for the Pentagon's planned acquisitions. PHOTO: JUSTIN TALLIS/AGENCE FRANCE-PRESSE/GETTY IMAGES

Just outside Dallas, Shield AI has built a factory to produce small drones that have already been used by the U.S. military.

The San Diego-based company was one of the early entrants to the business of making autonomous flying vehicles that rely on artificial intelligence to navigate and complete missions, and one of the best-funded.

Brandon Tseng, co-founder and president, said the company aims to boost output to 100 drones this year, ultimately seeking annual production of 1,000 over the next several years.

Looking to Tesla

Tseng said the Pentagon's plans for mass production could take solace from the experience of Elon Musk's Tesla , which increased output to a forecast 1.8 million electric vehicles this year from about 100,000 in 2017.

"Tesla proves it can be done," Tseng said.

White said the Air Force has developed its own plans for low-cost production that can be scaled up and is taking other steps to broaden the pool of potential suppliers. That includes lowering the security classification on some parts of projects so companies don't require as many workers with top-secret clearances.

SHARE YOUR THOUGHTS

How, and when, do you expect drones to change military tactics? Join the conversation below.

The emerging air-taxi makers present another challenge. Roughly a dozen companies are vying to develop propeller-driven vehicles that can take off and land like helicopters, potentially cutting journey times in New York City, Los Angeles and other big urban areas.

Flush with cash from venture capital, stock offerings and military contracts, the sector is moving closer to large-scale production. That places more strain on the pool of skilled workers and stocks of materials.

Joby Aviation

, one of the largest air-taxi manufacturers, last week announced plans for a factory in Dayton, Ohio, that would employ as many as 2,000 workers, right on the doorstep of Wright-Patterson Air Force Base.

Write to Doug Cameron at Doug.Cameron@wsj.com

Caixin China General Manufacturing PMI™

Manufacturing conditions improve slightly in September

Manufacturing conditions across China improved slightly for the second consecutive month in September, according to latest PMI data. Production expanded at the strongest rate in four months amid a further modest increase in new business. Meanwhile, the decline in new export work moderated, with foreign sales falling only slightly in September. However, confidence regarding the year-ahead remained relatively subdued, which in turn contributed to a drop in employment at Chinese manufacturing plants. Prices data pointed to a quicker rise in average input costs, which increased at the fastest rate since January. As a result, prices charged by manufacturers increased in September after a six-month period of decline.

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 – slipped from 51.0 in August to 50.6 at the end of the third quarter, to signal an improvement in the health of the sector for the second month in a row. Although the PMI was consistent with only a marginal rate of improvement, it remained slightly above the average reading for 2023 to date.

Chinese manufacturers signalled a back-to-back increase in output during September, with the rate of growth improving to a four-month high. Firms often mentioned raising production due to firmer demand conditions, while others indicated that output had increased after unusually high temperatures during August had led to temporary work suspensions.

Total new work likewise rose for the second straight month, albeit at a modest rate that was little-changed from August. The upturn occurred despite a further drop in overseas orders, and suggesting the overall rise in new work was largely driven by firmer domestic demand. That said, new export business fell at a marginal pace that was the softest in three months.

After rising in August, manufacturing employment in China declined in September. The modest drop in workforce numbers was generally linked to cost cutting initiatives and decisions to not replace voluntary leavers. Combined with the sustained rise in overall new work, this led to a further increase in outstanding business during September. That said, capacity pressures remained mild overall, with the rate of backlog accumulation little-changed from August and only marginal.

Higher production requirements supported a further increase in purchasing activity during September, albeit one that was only slight. Inventories of finished items and inputs also expanded marginally.

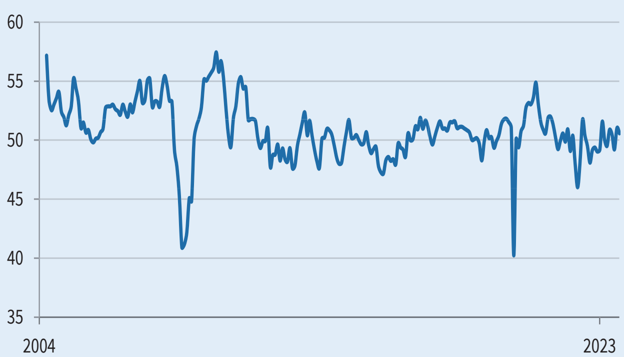
The average time taken for purchased items to be delivered increased fractionally in September. This followed an improvement in supply chains during August. There were reports that transportation in some areas had been impacted by poor weather conditions.

Price pressures picked up in September amid reports of higher raw material costs, with average input prices rising at the quickest degree since January. That said, the rate of inflation remained comfortably below the series average. Stronger cost pressures led firms to raise their selling prices for the first time in seven months, and to the greatest extent since March 2022.

Whilst manufacturers still anticipate output to rise over the next year, the level of confidence dipped to a 12-month low. Optimism was supported by projections of greater customer demand and investment in new equipment and product lines. However, muted global economic conditions weighed on overall growth forecasts.

China General Manufacturing PMI

sa, >50 = improvement since previous month



Sources: Caixin, S&P Global PMI

Key findings:

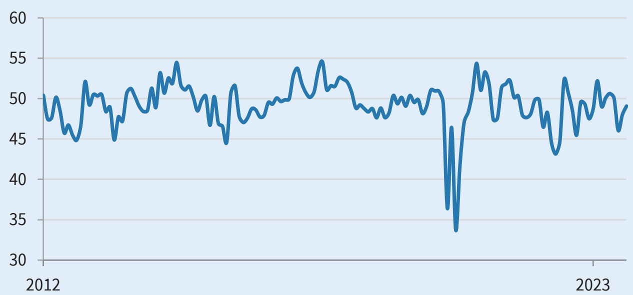
Production and new orders increase for second straight month

Input cost inflation quickens to eight-month high

Employment declines amid muted business confidence

New Export Orders Index

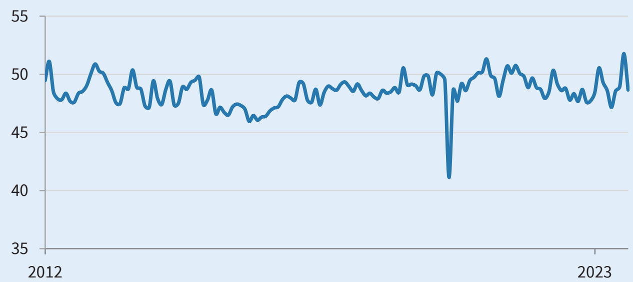
sa, >50 = growth since previous month



Sources: Caixin, S&P Global PMI

Employment Index

sa, >50 = growth since previous month



Sources: Caixin, S&P Global PMI

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 50.6 in September, down 0.4 points from the previous month and marking the fourth time it has been above 50 in the past five months, as the manufacturing sector continued a slow recovery.

"Supply expanded as production picked up pace in September after being impacted by the hot weather, while market demand increased steadily. Output and total new orders both expanded for the second straight month. But overseas demand remained weak, with the gauge for new export orders remaining below 50.

"Employment returned to negative territory after recording a notable improvement in August, marking the sixth contraction in the past seven months. Producers of consumer, investment, and intermediate goods all cut staff. Meanwhile, backlogs increased slightly as demand expanded.

"Both price gauges improved. Rising prices of chemicals, crude oil, industrial metals and other raw materials pushed up the measure for input costs to the highest since January. Manufacturers managed to pass high costs to customers due to improved demand, with output prices rising in September after six consecutive months of decline.

"Suppliers' delivery times lengthened, as logistics deteriorated slightly due to bad weather in some regions. This affected some deliveries, causing a slight increase in finished goods inventories. Purchases and raw material inventories also rose in response to improved demand.

"Manufacturers remained optimistic, with the indicator for their expectations for future output remaining above 50. But the measure dropped to its lowest level since September last year due to concerns about the global economic outlook in the coming year.

"Overall, the manufacturing sector continued to recover slowly in September. Supply and demand both expanded, price gauges rose, and purchases and raw material inventories increased steadily. However, external demand was weak, employment came under pressure, and business optimism fell to a one-year low.

"Over the past few months, Beijing has introduced multiple policies aimed at stabilizing expectations, and promoting consumption and investment. Various important economic indicators have shown marginal improvement, and the macroeconomy has shown signs of stabilization. However, the economic recovery has yet to find a solid footing, with insufficient domestic demand, external uncertainties, and pressure on the job market.

"The implementation and effectiveness of the economic stabilization policies should be the next focus of attention. More efforts may be needed to increase employment and income. In addition, as housing demand slumped, China has relaxed regulations to boost the market, but so far the effect has been limited. The consequent squeeze on household disposable income and other potential risks are worth attention."

https://www.trucking.org/news-insights/ata-truck-tonnage-index-rose-02-august

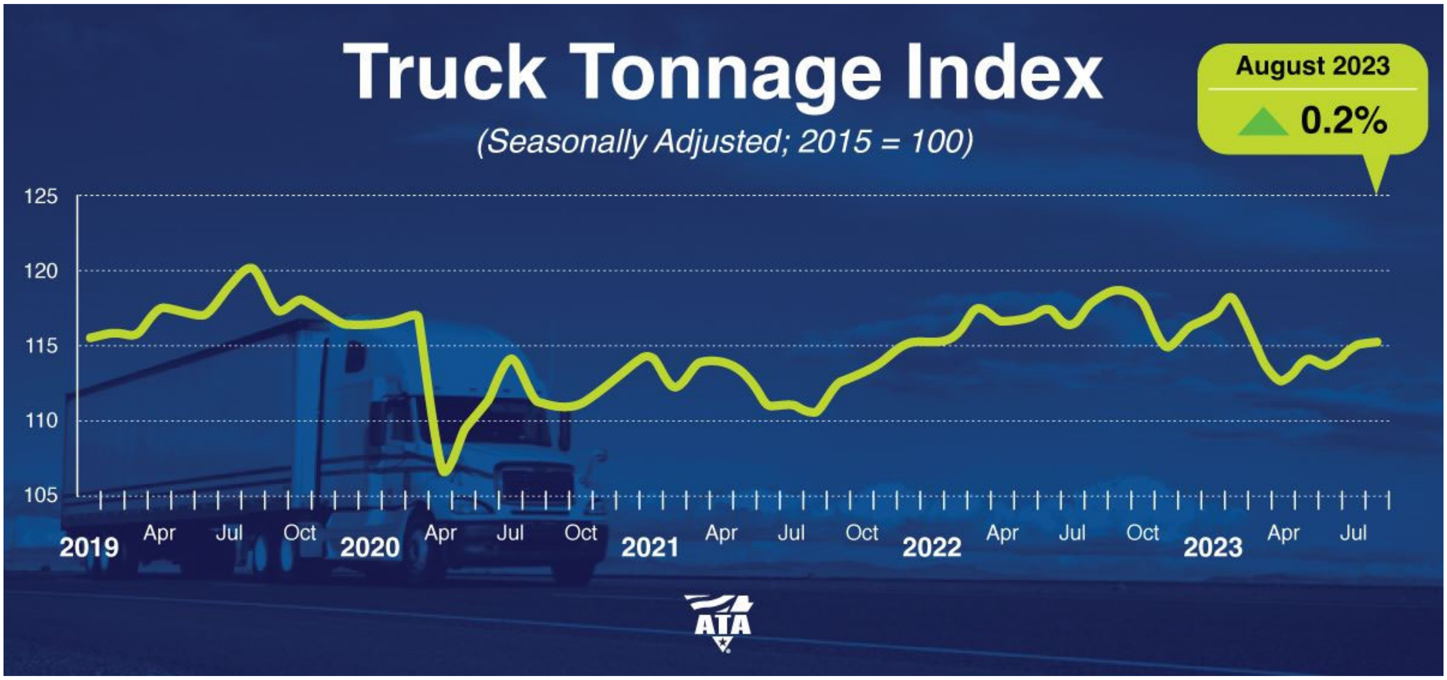
ATA Truck Tonnage Index Rose 0.2% in August

Media Contact: Sean McNally

Sep 19, 2023

Index 2.3% Below August 2022

Washington — American Trucking Associations' advanced seasonally adjusted (SA) For-Hire Truck Tonnage Index increased 0.2% in August after rising 1.1% in July. In August, the index equaled 115.3 (2015=100) compared with 115 in July.



"The evidence is growing that tonnage hit bottom in April and continues its slow climb upwards," said **ATA Chief Economist Bob Costello**. "However, year-over-year comparisons remain difficult as tonnage peaked in September of last year. As a result, it is unlikely that tonnage turns positive compared with a year earlier for at least a month or two longer. Most recently, freight continues to be mixed, with consumer spending and factory output flat to down."

July's increase was revised higher from our August 22 press release.

Compared with August 2022, the SA index fell 2.3%, which was the sixth straight year-over-year decrease. In July, the index was down 1.2% from a year earlier.

The not seasonally adjusted index, which represents the change in tonnage actually hauled by the fleets before any seasonal adjustment, equaled 120.7 in August, 6.3% above the July level (113.6). In calculating the index, 100 represents 2015. ATA's For-Hire Truck Tonnage Index is dominated by contract freight as opposed to spot market freight.

Trucking serves as a barometer of the U.S. economy, representing 72.6% of tonnage carried by all modes of domestic freight transportation, including manufactured and retail goods. Trucks hauled

11.46 billion tons of freight in 2022. Motor carriers collected $940.8 billion, or 80.7% of total revenue earned by all transport modes.

ATA calculates the tonnage index based on surveys from its membership and has been doing so since the 1970s. This is a preliminary figure and subject to change in the final report issued around the 5th day of each month. The report includes month-to-month and year-over-year results, relevant economic comparisons, and key financial indicators.

https://tipro.org/news/upstreamemploymentincreases/

- **SEPTEMBER 15, 2023**

UPSTREAM EMPLOYMENT INCREASES AND DEMAND REMAINS STRONG FOR OIL AND GAS TALENT

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Austin, Texas – Citing the latest Current Employment Statistics (CES) report from the U.S. Bureau of Labor Statistics (BLS), the Texas Independent Producers and Royalty Owners Association (TIPRO) today highlighted new employment figures showing an increase in upstream employment for the month of August. According to TIPRO's analysis, direct Texas upstream employment for August 2023 totaled 208,500, an increase of 1,200 jobs from July employment numbers. Texas upstream employment in August 2023 represented the addition of 18,200 positions compared to August 2022, including an increase of 2,300 jobs in oil and natural gas extraction and 15,900 jobs in the services sector.

TIPRO's new employment data yet again indicated strong job postings for the Texas oil and natural gas industry during the month of August. According to the association, there were 11,951 active unique jobs postings for the Texas oil and natural gas industry in August, including 4,409 new job postings added during the month by companies. In comparison, the state of California had 3,641 unique job postings last month, followed by Louisiana (1,790), Oklahoma (1,609) and Pennsylvania (1,364). TIPRO reported a total of 53,810 unique job postings nationwide last month within the oil and natural gas sector.

Among the 17 specific industry sectors TIPRO uses to define the Texas oil and natural gas industry, Support Activities for Oil and Gas Operations led in the rankings for unique job listings in August with 2,700 postings, followed by Gasoline Stations with Convenience Stores (2,135) and Crude Petroleum Extraction (1,333). The leading three cities by total unique oil and natural gas job postings were Houston (3,935), Midland (1,012) and Odessa (556), said TIPRO.

The top three companies ranked by unique job postings in August were Cefco (933), John Wood Group (543) and Love's (406), according to TIPRO. Of the top ten companies listed by unique job postings last month, four companies were in the services sector, followed by two midstream companies, two in the gasoline stations category with convenience stores, one in oil and natural gas extraction and one in petroleum refineries. Top posted industry occupations for August included first-line supervisors of retail sales workers (612), maintenance and repair workers (544) and heavy tractor-trailer truck drivers (343). The top posted job titles for August included customer service representatives (193), store managers (192) and field service technicians (120).

Top qualifications for unique job postings included valid driver's license (2,125), commercial driver's license (CDL) (236) and transportation worker identification credential (TWIC) card (185). TIPRO reports that 39 percent of unique job postings required a bachelor's degree, 33 percent had no education requirement listed and 30 percent required a high school diploma or GED. There are 1,424 advertised salary observations (12 percent of the 11,951 matching postings) with a median salary of $52,600. The highest percentage of advertised salaries (26 percent) were in the $85,000 to $324,000 range.

Additional TIPRO workforce trends data:

- – A sample of 500 industry job postings in Texas for August 2023 can be viewed here.
- – The top three posting sources in August included www.indeed.com (5,060), www.simplyhired.com (2,513) and www.dejobs.org (1,570).
- – Average annual wages for the Texas oil and natural gas industry can be viewed here.
- – Leading industry positions in Texas with median hourly earnings, education, work experience and typical on-the-job training is available here.

TIPRO also highlights recent data released from the Texas comptroller's office showing tax contributions by the Texas oil and natural gas industry for the month of August. Texas energy producers last month paid $501 million in oil production taxes, up from the prior month, and also contributed $137 million in natural gas production taxes, also higher than totals collected in July. Overall, tax receipts from the sector are down from earlier this year, due to a slowdown in drilling activity in some of the state's top oil and natural gas basins. Still, oil and natural gas severance taxes remain an important source of revenue for state and local governments and continue to be used help to support and pay for road and infrastructure investments, water conservation projects, schools and education, first responders and other essential public services across the Lone Star State.

"Despite economic headwinds from high inflation, aggressive monetary policy and continued efforts from Washington D.C. to target domestic oil and gas production, the upstream sector in Texas thankfully remains strong," said Ed Longanecker, president of TIPRO. "Policies designed to slow exploration and production activity do nothing to impact growing demand, but can directly affect investment and supply, further exacerbating the economic strain being felt by all Americans. We need collaboration, not politics, to develop a cohesive and sensible strategy that recognizes the critical importance of oil and gas and much needed investment in energy infrastructure," concluded Longanecker.

https://www-handelsblatt-com.translate.goog/politik/deutschland/wohnungsgipfel-habeck-rueckt-von-strengeren-vorgaben-zur-daemmung-von-neubauten-zunaechst-ab/29409306.html?_x_tr_sl=auto&_x_tr_tl=EN&_x_tr_hl=en-GB&_x_tr_hist=true

Habeck is moving away from stricter requirements for the insulation of new buildings for the time being

The new EH-40 standard will wait for the time being, according to the Federal Minister of Economics. The construction industry had repeatedly criticized the plans.
25/09/2023 - 02:17 a.m. updated

Robert Habeck does not see much urgency for stricter building regulations.
Photo: dpa

Berlin. Ahead of Monday's housing summit at the Federal Chancellery, the Federal Minister for Economic Affairs and Energy Robert Habeck of planned climate protection targets for stronger insulation of new houses. "The introduction of the Building Energy Act ensures that new buildings will heat in a climate-friendly manner from 2024. That's why I don't think it's necessary to introduce the new EH 40 standard in a hurry," the Green politician, who is also climate protection minister, told Reuters.

"That can wait, and it doesn't make much sense before the EU Buildings Directive. That's why I don't see this new standard anymore in this legislative period." The plans, which have been repeatedly criticized by the construction industry, will probably not come until the end of 2025.

According to a media report, the German County Council has also spoken out in favour of lowering building standards in order to make new construction cheaper. "Affordable housing is of great importance for people in rural and urban areas. The Alliance for Affordable Housing only provides a framework for this if it focuses on cheaper construction. For this, standards must be lowered without ifs and buts," said the President of the German District Association, Reinhard Sager, the newspapers of the Funke media group, according to a preliminary report. In addition, cheap building land must also be provided for new buildings.

Construction experts argue that even stricter requirements for the insulation of new buildings would be very expensive, but without providing significantly more climate protection. Habeck said that it is now a matter of focusing more on building materials so that they are as climate-friendly as possible. "In the amendment of public procurement law planned for 2024, we will therefore ensure that sustainability criteria are applied in a less bureaucratic, simpler and thus better way."

With the EH-40 standard, new buildings require only 40 percent of the primary energy compared to a standard comparable building. This will not be implemented now. This means that the EH 55 efficiency house standard, which is currently the de facto standard for new buildings due to government subsidies, will remain. "Compared to the legal standard for new buildings, this is KfW 55 house 45 percent more economical," said the state development bank

Due to the current crisis in the construction industry, Construction Minister Klara Geywitz (SPD) had already suspended the tightening of energy standards. EH 40 was supposed to be mandatory from the beginning of 2025. The departure from this is a concession to the crisis-ridden construction industry.

Better depreciation options decided

In the first half of 2023, building permits plummeted by a good 27 percent. Construction prices had risen by almost nine percent year-on-year in the second quarter. Project developers in particular have their backs to the wall and, in many cases, are struggling to survive.

The traffic light government from SPD, the Greens and the FDP had recently already launched better depreciation options. In the real estate industry, it was said at the weekend that the income limit for the promotion of home ownership by families is to be increased from 60,000 to probably 80,000 euros. The industry criticized that there were only small-scale aid measures from the government.

Habeck told Reuters that high interest rates and inflation were a heavy burden on the industry. "Orders are collapsing and for many families the dream of owning their own house threatens to burst. All this at a time when housing is scarce and expensive."

Therefore, affordable housing must be placed at the center. "It is just as important to provide targeted impetus for the construction industry, for example by creating tax incentives to bring forward investments. Targeted incentives for restructuring are also necessary and will come. This can boost the construction industry and save space and energy costs for existing buildings." According to Habeck, rapid investments should be rewarded. "Waiting for a long time pays off less."

Greens for more tenants' rights

According to a media report, the Greens are also calling for a significant strengthening of tenants' rights and a tightening of the rent brake. "This country needs a tenant protection offensive for affordable housing. It is now a matter of making progress on the reform of tenancy law, the tightening of the rent brake and cap and the limitation of index rents," said the party leader of the Greens, Ricarda Lang, according to a preliminary report to the newspapers of the Funke media group.

New construction is only part of the solution given the tense situation on the housing market. The leader of the Greens, Katharina Dröge, told the newspapers that the extension of the rent brake had been agreed in the coalition agreement and had to finally be launched. "In view of the high inflation, so-called index-linked leases are becoming a problem for tenants. Regulating them creates security and justice."

Related

Renewable energy

US warns green transition raises ‘complex’ China security concerns

Beijing is prepared to weaponise its control of mineral sectors vital to renewable power, says energy secretary Jennifer Granholm

US energy secretary Jennifer Granholm says ‘we are up against a dominant supplier that is willing to weaponise market power for political gain’, in an apparent reference to China © USA Today Network/Reuters

Harry Dempsey in London 4 HOURS AGO

US energy secretary Jennifer Granholm has warned that transitioning from fossil fuels will make energy security “infinitely more complex” because of China’s stranglehold on the processing of the critical minerals essential for renewable power.

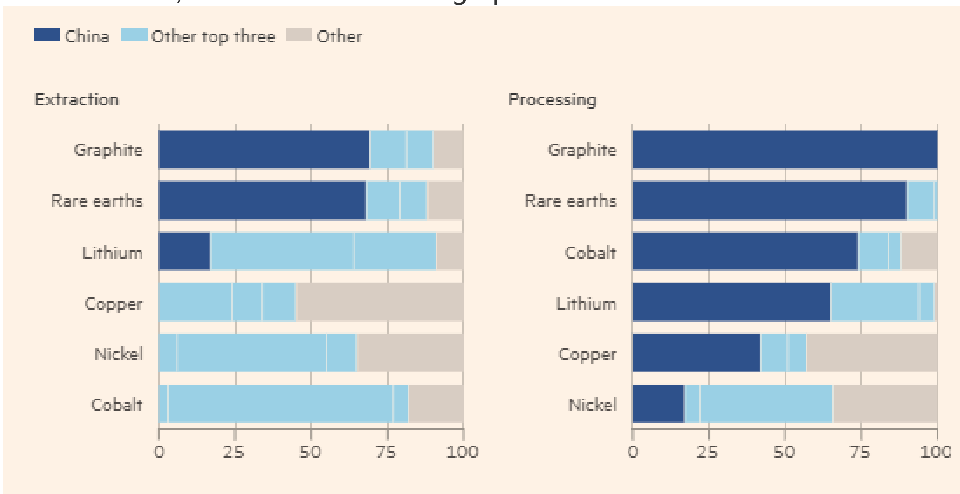
China dominates the cobalt, rare earths and graphite industries, which are vital for renewable energy, electric cars and defence technologies. Its global market share for the refining of each of those three materials exceeds 70 per cent.

“In this critical minerals context, we are up against a dominant supplier that is willing to weaponise market power for political gain,” said Granholm on Thursday, in remarks widely interpreted as referring to Beijing’s power.

“The fuel of this energy transition — critical minerals — is going to make global energy security infinitely more complex and infinitely more important over the next few decades,” she added at the International Energy Agency’s first ever critical minerals summit in Paris.

Western policymakers have become increasingly concerned about depending on geopolitical adversaries for the supply of commodities following Russia’s invasion of Ukraine and the ratcheting up of tensions between the US and China over Taiwan.

China dominates the processing of many critical minerals, and the extraction of graphite and rare earths



Source: IEA

US president Joe Biden introduced the $369tn Inflation Reduction Act last year to galvanise efforts to reduce reliance on Chinese supply chains for clean energy technologies.

The Department of Energy and Department of Defense have poured billions of dollars of subsidies into accelerating the establishment of mines and processing facilities domestically.

But shifting to electric vehicles and renewable power requires vast quantities of lithium, copper and nickel. Meeting demand, while reducing reliance on China, would require significant investment from the slow-moving mining industry to boost supply.

Copper alone requires $250bn of growth capital by 2030 to meet demand, according to Mike Henry, chief executive of BHP, the world's largest mining company. To date, $40bn to $50bn has been spent on boosting supply.

China's control also extends to mining the raw materials for rare earths and graphite, creating even greater challenges for western economies to pivot to other suppliers should relations with Beijing deteriorate.

China has displayed a willingness to politicise supply chains, introducing restrictions on key chipmaking materials gallium and germanium in August in response to Dutch plans to limit the sale of high-end semiconductor manufacturing equipment to Chinese firms.

EU commissioner Thierry Breton followed the US warning by stating that Brussels needs to reverse the trend towards relocating industry outside of the bloc to decarbonise because of the "new geopolitics of supply chains".

"We are now clear in the EU that we cannot replace a fossil fuel dependency with a raw material one," he said. "We know someone can weaponise against us these dependencies.

"We paid the high price in Europe on this," he added, referring to the costs associated with EU member states having to cut their reliance on Russian oil and natural gas.

He added that the EU is in the process of finalising critical mineral partnership deals with the Democratic Republic of Congo, Australia and others in a bid to diversify its sources of supply.

Despite the need to diversify critical mineral sourcing, the IEA found in a report published in July that critical minerals supply had actually grown in terms of concentration in the hands of fewer countries in recent years.

German airline Lufthansa says it would consume half of Germany’s electricity if it were to switch to green fuels
2023-09-26 11:25:13.144 GMT

German airline Lufthansa says it would consume half of Germany’s electricity if it were to switch to green fuels

By Prarthana Prakash

(FORTUNE)

German airline Lufthansa has tried to make a sustainability push in recent years— the introduction of “Green Fares” earlier this year is one example, wherein customers can opt for fares in which the carbon off-setting feature is already built in. The company also says it’s among the biggest buyers of sustainable aviation fuel (SAF), which are alternatives to traditional fossil fuels.

But while Lufthansa has tried to do its bit to adopt sustainable practices, the company’s chief has said that switching the airline to green fuels like e-kerosene could come at a big price—half of Germany’s electricity supply.

“We would need around half of Germany’s electricity to create enough of the fuels,” Lufthansa's Carsten Spohr said at an aviation conference Monday, Bloomberg reported. He added that while green fuels made using renewable energy sources would help Lufthansa decarbonize its fuel consumption, the likelihood of having enough electricity to produce such materials was low.

“I don’t think Mr. Habeck is going to give me that,” Spohr said at the Hamburg conference, referring to German energy minister Robert Habeck.

Industry search for alternatives

Comments from the chief of Germany’s biggest airline come as the aviation industry looks for alternatives to high carbon-emitting sources that have traditionally been used by airlines. SAFs offer a path to achieving this as they are biofuels manufactured with a lower carbon footprint. Green kerosene, or e-kerosene, is a type of SAF made from CO2 and water, but requires copious amounts of renewable electricity.

The high demand and need for copious amounts of energy have made SAFs expensive—aviation industry leaders have wrestled with the trade-off that transitioning to such fuel sources would create as it would hike the price of air travel for customers.

But studies have shown the potential impact that synthetic fuels like e-kerosene could have—in Europe alone, this type of fuel could save millions of tons of CO2 emissions by 2030.

Industry executives like Spohr have recognized that such fuel sources are the way forward to decarbonize aviation. But at the same time, he has pushed back against European Union quotas on SAFs that could mandate targets for airlines on their use of cleaner fuel options.

"From today's point of view, it won't work to have even the availability of the quantities that are demanded of us, not to mention the high costs that in the end the passenger will have to bear," Spohr said during a press briefing earlier this month, Reuters reported.

He has also emphasized how capacity is one of the key constraints when it comes to scaling up the use of greener fuel alternatives.

"If the Lufthansa Group were to use all the SAF currently available, it would only be able to fly for just under two weeks. A market ramp-up, higher availability and associated lower prices are urgently needed to enable greater use of SAF," a Lufthansa spokesperson told Fortune in an emailed statement.

Even still, Lufthansa is ahead of the curve when it comes to SAF use—globally, only about 0.1% of airlines' fuel comes from SAFs, while that same ratio is about 0.2% for Lufthansa.

"The use of SAF is still at the beginning of market scaling, and the supply volumes available today and the share of SAF in the Lufthansa Group's total fuel consumption are correspondingly small," the spokesperson said. "The Lufthansa Group does everything in its power to reduce the environmental impact of flying."

This story was originally featured on Fortune.com

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To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/S1LBQ1Y2NTOG

https://www.iata.org/en/pressroom/2023-releases/2023-06-06-01/

Press Release No: 34

Date: 6 June 2023

SAF Production Set for Growth but Needs Policy Support to Diversify Sources

Istanbul -The International Air Transport Association (IATA) announced its expectation for overall renewable fuel production to reach an estimated capacity of at least 69 billion liters (55 million tonnes) by 2028. Sustainable Aviation Fuels (SAF) will comprise a portion of this growing output which is being achieved through new renewable fuel refineries and the expansion of existing facilities. Importantly, the expected production has a wide geographic footprint covering North America, Europe and Asia Pacific.

"The expected production increase is extremely encouraging. Seeing this, we need governments to act to ensure that SAF gets its fair production share. That means, in the first instance, production incentives, to support aviation's energy transition. And we need continued approval for more diversification of methods and feedstocks available for SAF production. With these two measures successfully in place, we can be confident that the expected 2028 production levels will be realistically aligned with our recently published roadmaps to net zero carbon emissions by 2050. That is important as we are counting on SAF to provide about 62% of the carbon mitigation needed in 2050," said Willie Walsh, IATA's Director General.

Trends supporting this optimistic outlook are already visible. In 2022, SAF production tripled to some 300 million liters (240,000 tonnes) and project announcements for potential SAF producers are rapidly growing. IATA counts over 130 relevant renewable fuel projects announced by more than 85 producers across 30 countries. Each of these projects has either announced the intent or commitment to produce SAF within their wider product slate of renewable fuels. Typically, there is a 3 –5-year lag between a project announcement and its commercialization date. This implies that further renewable fuel capacity out until 2030 could still be announced over the following years.

If renewable energy production reaches 69 billion liters by 2028 as estimated, the trajectory to 100 billion liters (80 million tonnes) by 2030 would be on track. If just 30% of that produced SAF, the industry could achieve 30 billion liters (24 million tonnes) of SAF production by 2030.

"Achieving the necessary SAF percentage output from these new and expanding facilities is not a given. But with governments the world-over agreeing at ICAO to a long-term aspirational goal (LTAG) of net zero by 2050, they now share accountability for aviation's decarbonization. That means establishing a policy framework to ensure that aviation gets the needed share of renewable energy production in SAF," said Walsh.

Policy Support & Government Investment

The case for diversification, within current sustainability criteria, is clear. At present, it is expected that 85% of future SAF volume over the next five years will be derived from just one of nine certified pathways, being Hydrotreated Esters and Fatty Acids (HEFA), which is dependent on limited availability of feedstock such as waste fat, oil and grease feedstocks (FOGs, recognized by industry as second-generation feedstock).

IATA identifies three main avenues to achieve SAF diversification:

1. Scale already certified SAF pathways, such as Alcohol-to-Jet (AtJ) & Fischer-Tropsch (FT)
2. Accelerated R&D for SAF production pathways that are currently in development
3. Scale up of feedstock/feedstock conversion technology

Accelerating these avenues to commercialized levels will require policy leadership from governments. To start, there is an impending need for the harmonization of core SAF policies (pdf) as a means of reducing administrative, logistical and geographic barriers to entry for new market entrants, including producers, feedstock providers, and offtakers.

More fundamentally, the challenge is finding the capital needed to fund the development of new technology and production facilities. Governments must look at the broader sustainability picture with these investments. SAF can be produced from surplus forestry and agricultural residues, municipal solid waste, food waste and wet wastes (third generation feedstocks). Producing SAF from these can create long-term return on investment opportunities for governments, with the potential of financing the clean-up of the environment, supporting developing economies and delivering a future-proofed intersection of energy transition and energy security.

Passenger Support

A recent IATA survey revealed significant public support for SAF. Some 85% of travelers agreed that governments should provide incentives for airlines to use SAF.
"People have experienced governments' role in the transition to green energy for electricity. They now expect it for SAF. The G7 leaders are among the latest to reiterate their understanding that SAF is critical for sustainable aviation. Now they must support their declarations with effective policies. To promote SAF production, there are many tried and tested tools including tax credits, grants, or even direct investments in emerging technologies and solutions. The market is there. Airlines want to purchase SAF. Anything to meaningfully incentivize SAF production will be a step forward," added Walsh.

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Notes for Editors:

- IATA (International Air Transport Association) represents some 300 airlines comprising 83% of global air traffic.
- You can follow us at twitter.com/iata for announcements, policy positions, and other useful industry information.
- The IATA Annual General Meeting & World Air Transport Summit is taking place on 4-6 June in Istanbul. Find out all media material including photos and downloadable videos for use in broadcast at www.iata.org/agm-2023

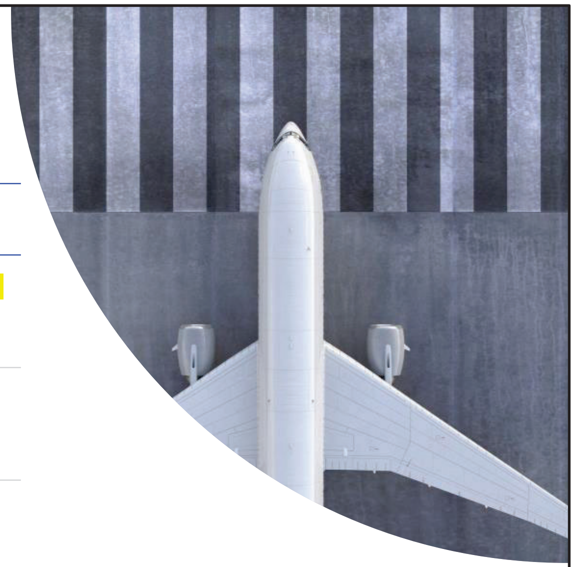
- Fly Net Zero
- The IATA passenger insights survey was conducted 26 April 26-3 May 2023 with a sample of 4,700 recent travelers. It covers 11 markets (Australia, Canada, Chile, France, Germany, India, Japan, Singapore, UAE, US, and UK). Sample size in each market was 500 apart from Chile, Japan, Singapore and UAE where it was 300. This Is

Motif Ltd prepared the questionnaire and analysis based on data collection and tabulation by Dynata. www.thisismotif.com

- Presentation: Update on Sustainable Aviation Fuel (pdf)

Recap

Year	2019	2020	2021	2022
Estimated SAF Output (Mt)	<0.02	0.05	0.08	0.24 (300 million liters)
Global Jet Fuel (Mt)	288	157	182	254
SAF % of Global Jet Fuel	<0.01%	0.03%	0.04%	0.1%



In December 2022, IATA announced a tripling of SAF output with an estimated 300 million litres (240,000 tonnes) produced in the year

SAF production is continuing to make strong progress in the first half of this year, with output set to rise exponentially again in 2023.

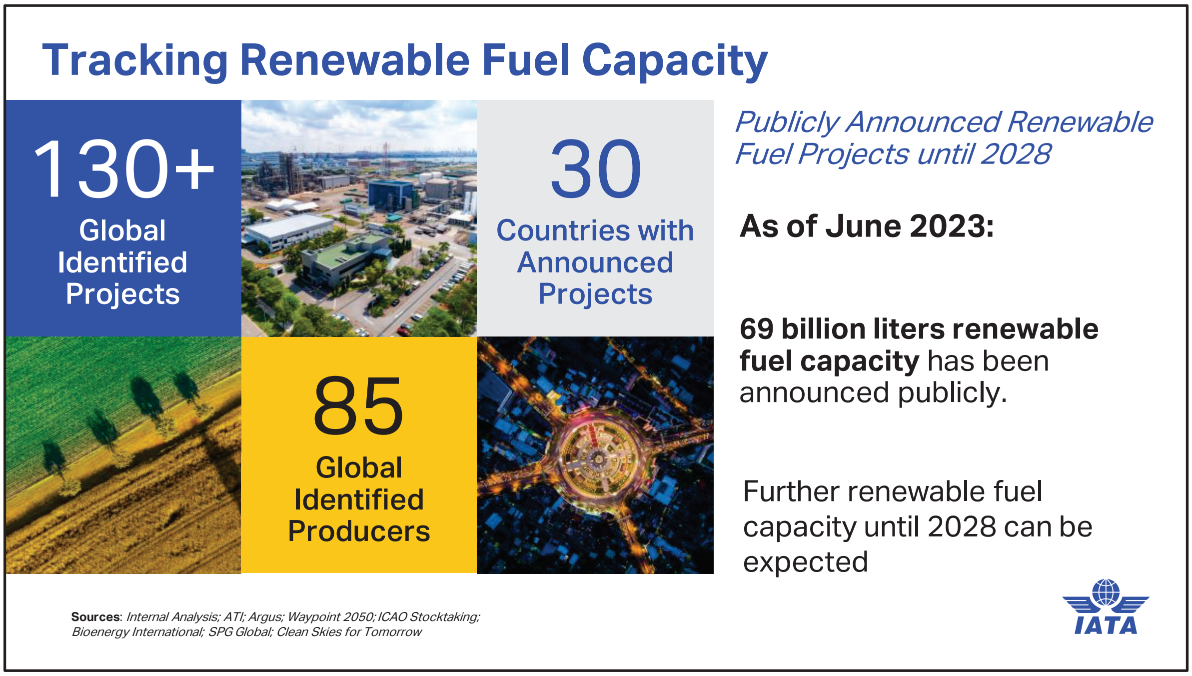
Driving 2023's increase in SAF output will be the commissioning of new renewable fuel refineries, along with the expansion of capacity at existing facilities, spanning North America, Europe and Asia Pacific.

The following presentation will provide an update on:

1) The outlook for the refining capacity for renewable fuels (for which SAF would be one output of a suite renewable products)

2) The opportunity and need for diversification of SAF feedstock and pathways

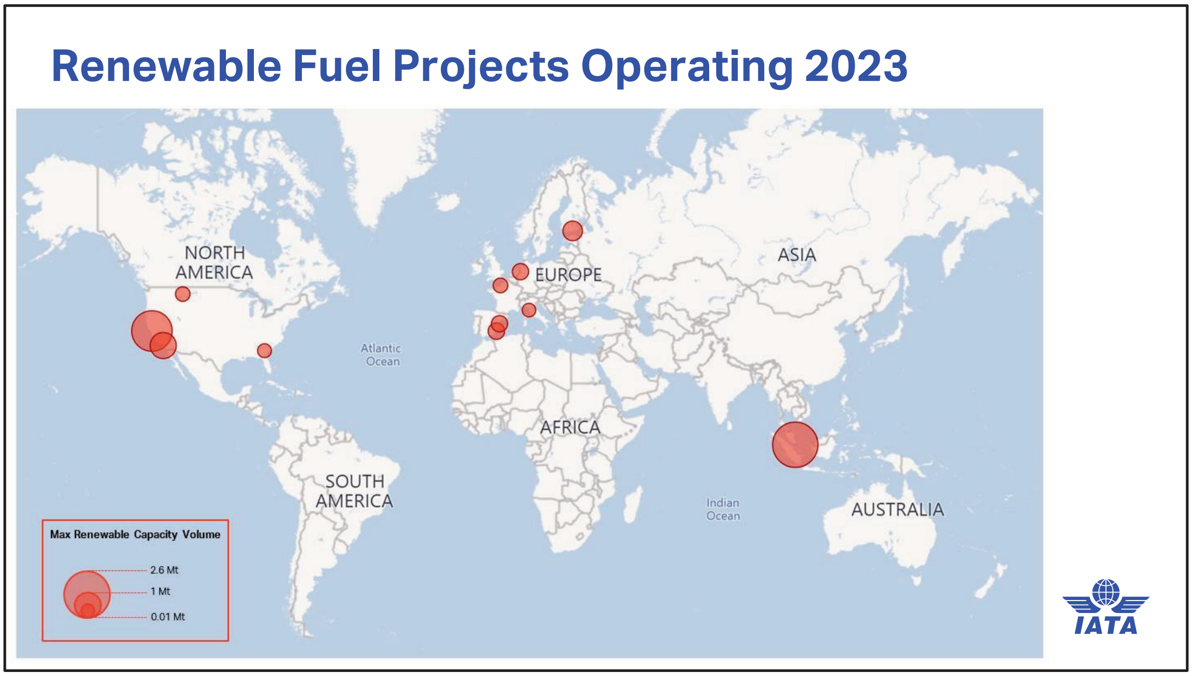
3) The essential role of policy to support SAF production output.



Based on IATA's research, over 130 relevant renewable fuel projects have been announced publicly by more than 85 producers across 30 countries.

Importantly each of these projects have either announced the intent or commitment to producing SAF within their wider product slate of renewable fuels.

At present, these projects represent an estimated total renewable fuel capacity of over 69 billion liters (55 million tonnes) by 2028, of which SAF output will be derived from. It's important to note that there is typically a 3-to-5-year lag period between a project announcement and its commercialization date, implying that further renewable fuel capacity out until 2030 can be expected.



This map shows the renewable fuel plants operating today or before the end of 2023 across the globe. They are in North America, Europe and in Singapore.

In 2023 we have a number of facilities coming on-line (they can be new facilities or conversions):

In the US: In Montana (Calumet), Martinez (Marathon) and Paramount (World Energy). Also we have the first Alcohol to Jet facility coming on-line in Freedom Pines (operated v Lanza).

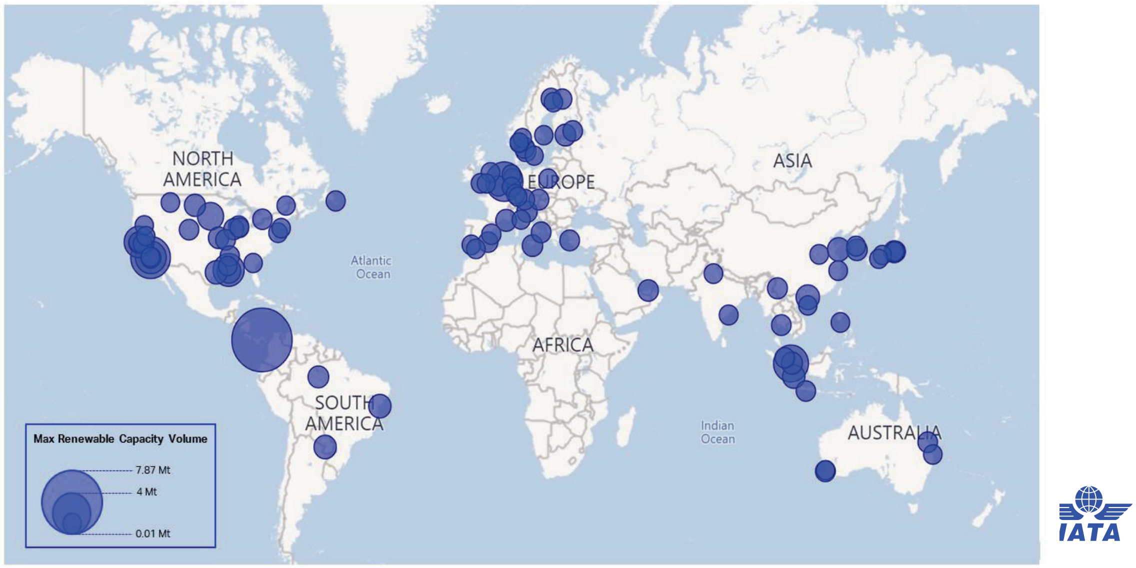
In Italy: Livorno (ENI)

UK: Lincolnshire (Phillips 66)

Spain: Cartagena (Repsol)

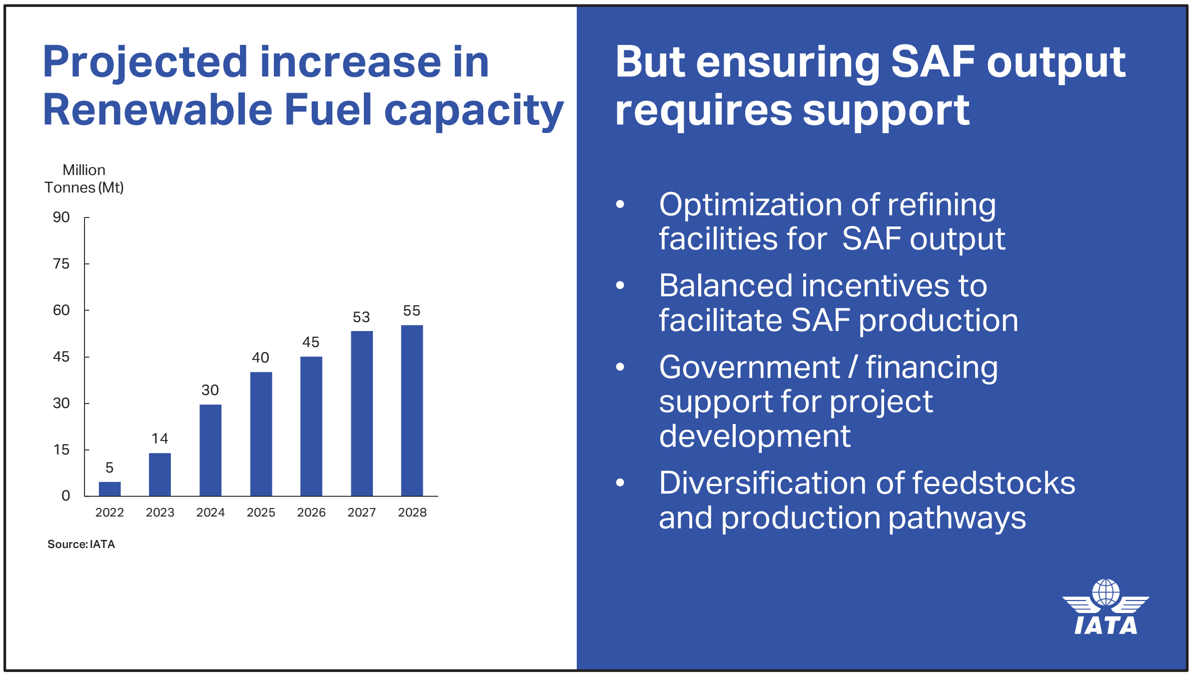
Singapore (Neste)

Renewable Fuel Projects Announced to 2028



Here is an overview of the geographical location of renewable fuel projects that are already operating together with the ones that will be operating in the coming years (till 2028).There is a much greater geographical spread of renewable fuel facilities coming on line between now and 2028. Together these would provide the combined capacity output of 69 million litres or (55 million tonnes) of renewable fuel capacity

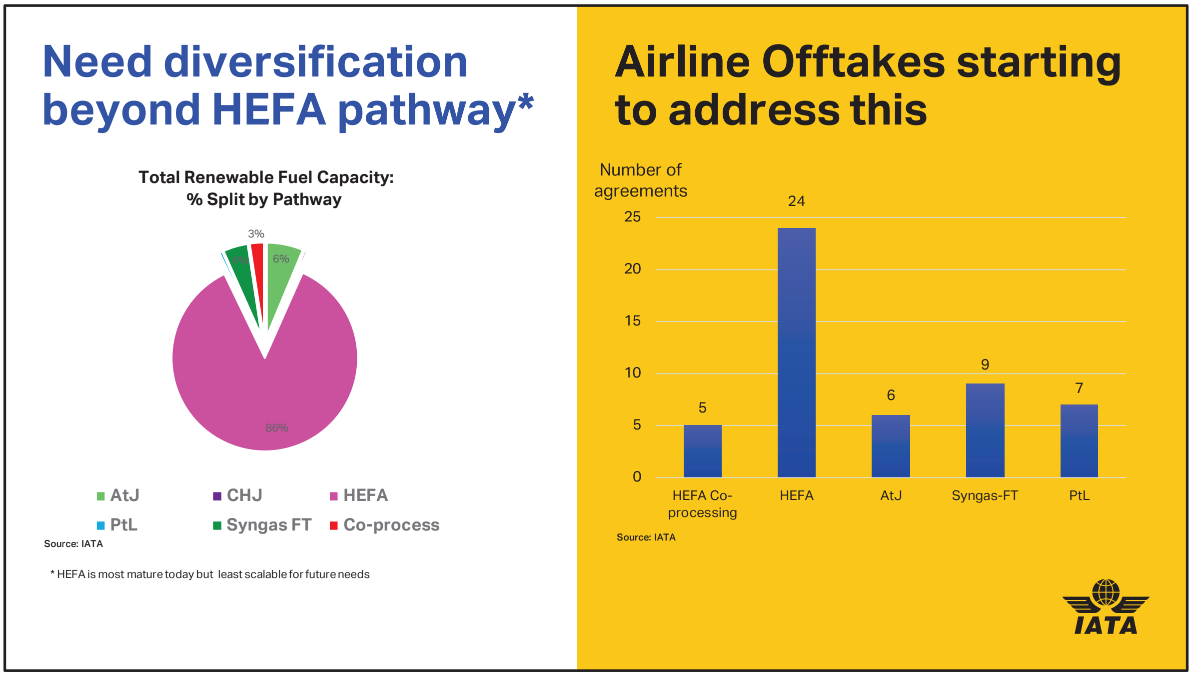
SAF is only one output from the renewable fuel facility, others typically include Renewable Diesel and Naphtha but the actual slate of products output depends on the feedstock and pathway.The challenge is to ensure an optimal output of SAF understanding there will be competing products which often have favorable governmental incentives



The projected increase in renewable fuel capacity shows a steady increase, however a SAF output isn't guaranteed.

To ensure that SAF gets produced in adequate quantities, support is needed to:

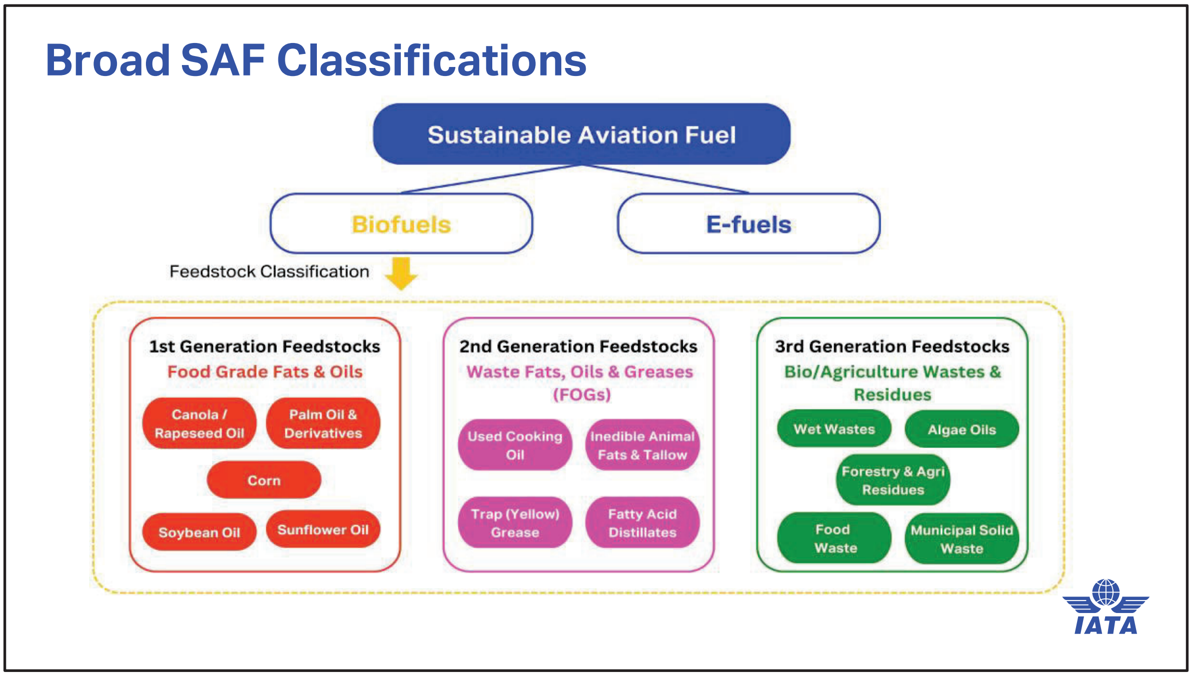
- Optimize refining facilities for SAF output
- Balanced incentives to facilitate SAF production
- Government/ financing support for project development
- Diversification of feedstocks and production pathways



At present, it is expected that 85% of future SAF volume over the next five years will be derived from just one of nine certified pathways, HEFA, which is dependent on limited availability of feedstock such as waste fat, oil & grease feedstocks.

IATA identifies three main avenues to achieve SAF diversification:
1. Scale already certified SAF pathways, such as Alcohol-to-Jet (AtJ) & Fischer-Tropsch (FT)
2. Accelerated RD&D for SAF production pathways that are currently in development
3. Scale up of feedstock/feedstock conversion technology

Airline off take agreements are already supporting this diversification. We see increasing interest in securing production volumes for pathways using Alcohol to Jet or Fisher Tropsch. The volumes from these offtake agreements are significant. This is a good sign but the diversification must continue because the HEFA pathway represents the least scalable of SAF feedstock solutions.



In fact, SAF and SAF feedstocks is on a journey:This is a journey to ensure we have scalability (create the volumes we need for the industry) while maintaining the integrity of a wide and stringent set of sustainability criteria (beyond emissions reductions):

- SAF need to demonstrate they do not promote nor add incremental water, land and chemical usage throughout their lifecycle.
- They need to verify they do not have negative effects on disforestation, soil productivity and biodiversity.

There are well-established, comprehensive and rigorous processes to verify the environmental integrity of SAF through Sustainability Certification Schemes, including the Roundtable for Sustainable Biomaterials (RSB) and the International Sustainability & Carbon Certification (ISCC), presently recognized in regulations through EU RED, UK RFTO and ICAO CORSIA. But the journey to uphold these criteria and ensure scalability defines the progress from 1st Generation Feedstocks (food grade fats and oils) to now when we are using 2nd Generation Feedstocks (Waste Fasts, Oils and Greases) and well as the coming progression to 3rd Generation Feedstocks (Bio/Agriculture Wastes and Residues)

It is this 3rd Generation of Feedstock are the most attractive inputs for SAF production and scalability, 3rd Generation has the ability to achieve:

1.Restorative and/or Regenerative

2.Naturally Scalable and Globally Available

3.Lower Input Cost by Virtue of Natural Scalability

This is in parallel to the opportunities and scale-up potential from E fuels.

Appropriate policies and incentives will play a critical role in the scaling and diversification of SAF production. In this context, IATA calls for the harmonization of policies across sector and geographies, as a means of reducing barriers to entry for new players seeking to enter the SAF market; especially new technology and feedstock providers. Policies need to address both near-term and longer-term SAF deployment and provide the necessary certainty for producers and investors to allocate existing capacity to SAF as well as to develop new infrastructure. Policies should also look to promote research and development of new production pathways together with the associated supply chains. Given the nascent nature SAF market as well at the need to achieve scalability and diversification of feedstocks/production pathways, the focus of policies at this stage should on incentives to support innovation and project generation.

The physical output of SAF is only part of the story!

Projects that aggregate wastes or recultivate degraded land create numerous socio-economic co-benefits, which be **major factors for attracting investment**:

Sustainable Supply Chains	**Job & Wealth Creation**	**Energy Security**
Land Restoration	**Biodiversity**	**Regional Development**

SAF is the biggest lever for aviation's transition to net zero. But this key solution for aviation also offers broader benefits positively impacting sustainability, economic opportunity and energy security. Projects aimed at aggregating wastes or recultivating degraded land (3rd generation feedstock) have several positive socio-economic effects which become a major pull factor for attracting institutional and critically, government investment. Governments should be encouraged and supportive of projects related to 3rd generation feedstock SAF's because of the potential to:

•Develop sustainable supply chains at the regional level
•Create of local income and employment
•Support land restoration and/or regeneration
•Promote and foster biodiversity
•Aiding the development of localized energy independence and security

IFIC Monthly Investment Fund Statistics – August 2023
Mutual fund and exchange-traded fund (ETF) assets and sales

September 26, 2023 (Toronto) – The Investment Funds Institute of Canada (IFIC) today announced investment fund net sales and net assets for August 2023.

Mutual fund assets totalled $1.901 trillion at the end of August and assets decreased by $13.6 billion or 0.7 per cent since July. Mutual funds recorded net redemptions of $5.7 billion in August.

ETF assets totalled $355.0 billion at the end of August, and assets decreased by $1.8 billion or 0.5 per cent from July. ETFs recorded net sales of $1.9 billion in August.

Insights

- While mutual fund net assets declined in August, year-to-date assets have increased by $91.1 billion, or five per cent.
- ETF net assets also decreased in August, however overall assets increased by $41.3 billion, or 13.2 per cent year to date.
- Money market funds showed the highest net sales across all major asset classes in August for both mutual funds and ETFs, with the majority going into high-interest saving account (HISA) funds.
- In August, 33 per cent of mutual funds had positive net sales and 52 per cent of ETFs had positive net sales.

Mutual fund net sales/net redemptions ($ millions)*

Asset class	Aug 2023	July 2023	Aug 2022	YTD 2023	YTD 2022
Long-term funds					
Balanced	(4,750)	(4,571)	(2,421)	(31,002)	(9,318)
Equity	(2,155)	(1,848)	(341)	(13,550)	2,482
Bond	(513)	406	(382)	8,485	(6,936)
Specialty	366	262	90	2,639	1,214
Total long-term funds	(7,053)	(5,751)	(3,053)	(33,428)	(12,558)
Total money market funds	1,362	934	(52)	10,182	2,818
Total	(5,691)	(4,817)	(3,105)	(23,246)	(9,740)

* See below for important information about this data.

Mutual fund net assets ($ billions)*

Asset class	Aug 2023	July 2023	Aug 2022	Dec 2022
Long-term funds				
Balanced	893.6	902.6	896.5	880.6
Equity	701.4	707.4	648.9	649.6
Bond	234.4	235.1	230.5	222.7
Specialty	25.6	25.0	22.1	22.2
Total long-term funds	1,854.9	1,870.2	1,798.0	1,775.1
Total money market funds	45.8	44.1	29.7	34.5
Total	1,900.7	1,914.3	1,827.7	1,809.6

ETF net sales/net redemptions ($ millions)*

Asset class	Aug 2023	July 2023	Aug 2022	YTD 2023	YTD 2022
Long-term funds					
Balanced	140	133	17	1,103	1,384
Equity	335	887	1,190	6,962	10,003
Bond	641	986	(347)	7,087	3,148
Specialty	(283)	37	21	1,044	1,160
Total long-term funds	833	2,042	881	16,196	15,696
Total money market funds	1,051	754	594	6,864	3,324
Total	1,884	2,796	1,475	23,060	19,020

ETF net assets ($ billions)*

Asset class	Aug 2023	July 2023	Aug 2022	Dec 2022
Long-term funds				
Balanced	13.9	13.9	11.8	12.0
Equity	220.0	222.4	191.2	194.9
Bond	86.3	86.2	75.8	80.4
Specialty	11.7	12.2	10.3	10.2
Total long-term funds	331.9	334.8	289.1	297.5
Total money market funds	23.1	22.0	9.6	16.3
Total	355.0	356.8	298.7	313.7

* See below for important information about this data.

IFIC direct survey data (which accounts for approximately 85 per cent of total mutual fund industry assets and approximately 83 per cent of total ETF industry assets) is complemented by estimated data to provide comprehensive industry totals.

IFIC makes every effort to verify the accuracy, currency, and completeness of the information, however, IFIC does not guarantee, warrant, represent or undertake that the information provided is correct, accurate or current.

*** Important information about investment fund data**

1. Mutual fund data is adjusted to remove double counting arising from mutual funds that invest in other mutual funds.
2. Starting with January 2022 data, ETF data is adjusted to remove double counting arising from Canadian-listed ETFs that invest in units of other Canadian-listed ETFs. Any references to IFIC ETF assets and sales figures prior to 2022 data should indicate that the data has not been adjusted for ETF of ETF double counting.
3. The balanced funds category includes funds that invest directly in a mix of stocks and bonds or obtain exposure through investing in other funds.
4. Mutual fund data reflects the investment activity of Canadian retail investors.
5. ETF data reflects the investment activity of Canadian retail and institutional investors.

About IFIC

The Investment Funds Institute of Canada is the voice of Canada's investment funds industry. IFIC brings together 150 organizations, including fund managers, distributors and industry service organizations to foster a strong, stable investment sector where investors can realize their financial goals. By connecting Canada's savers to Canada's economy, our industry contributes significantly to Canadian economic growth and job creation. To learn more about IFIC, please visit www.ific.ca.

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https://www.mediaite.com/politics/exclusive-robert-f-kennedy-jr-planning-to-announce-independent-run/

EXCLUSIVE: Robert F. Kennedy Jr. Planning to Announce Independent Run

Diana Falzone Sep 29th, 2023, 2:40 pm

AP Photo/Josh Reynolds

2024 presidential candidate **Robert F. Kennedy Jr.** plans to announce he will run as an independent on October 9 in Pennsylvania, Mediaite has learned.
Kennedy's campaign machine is now planning "attack ads" against the Democratic National Committee in order to "pave the way" for his announcement in Philadelphia about running as an independent, according to a text reviewed by Mediaite.

"Bobby feels that the DNC is changing the rules to exclude his candidacy so an independent run is the only way to go," a Kennedy campaign insider told Mediaite.

Kennedy, a notorious anti-vaccine conspiracy theorist challenging incumbent President **Joe Biden** for the Democratic nomination, has been flirting with a third party run in recent weeks. The *New York Times* reported last week that he met with the chair of the Libertarian Party, raising the prospect of a departure from the party that decades ago became synonymous with his family name.

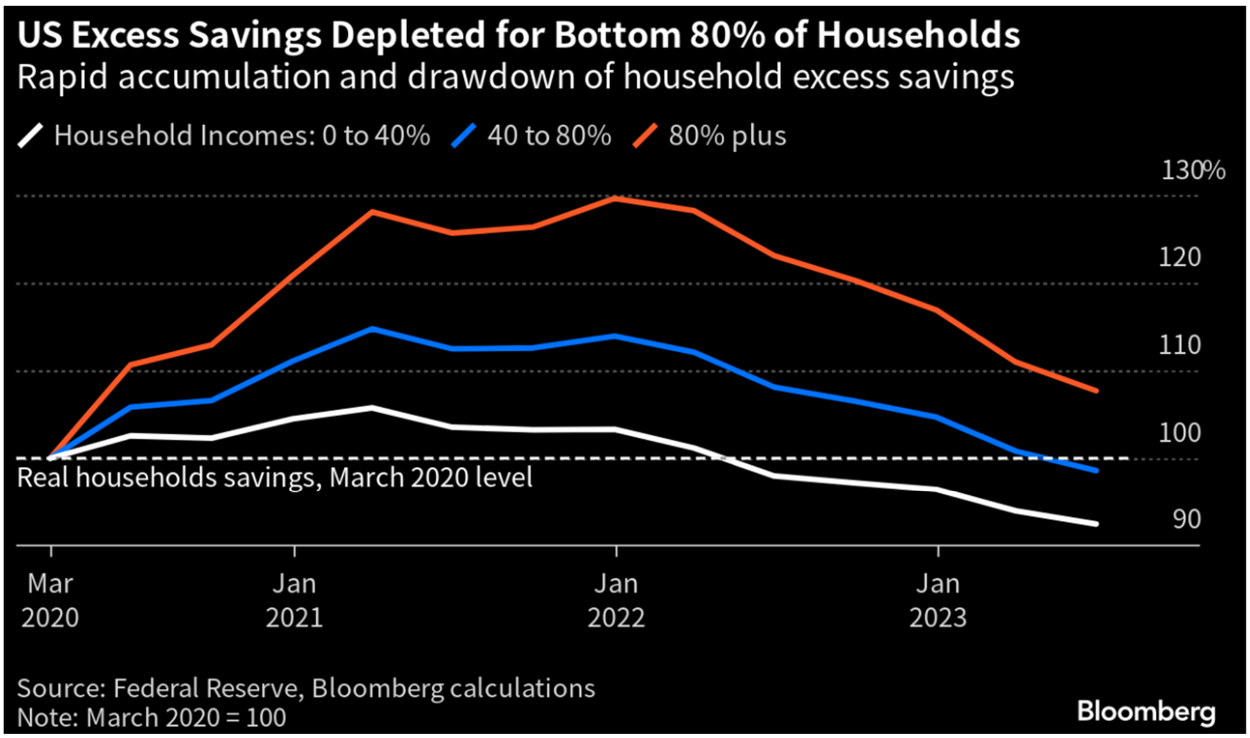
Kennedy remains far behind Biden in the polls. Yet while the *Times* reported "Democrats worry that a third-party run by Mr. Kennedy could draw votes away from Mr. Biden and help elect former President Donald J. Trump," it's unclear whether such a run would hurt the current president more than the Republican nominee. Indeed, polls show Republicans have a far more favorable view of Kennedy than Democrats. As the *National Review's* **Jim Geraghty** pointed out in July, when a survey asked New Hampshire Democrats to describe Kennedy in one word, the top responses were "crazy," "dangerous," "insane," "conspiracy," and "unknown." Conservative media has been far more supportive of Kennedy's campaign as well. Fox News host **Greg Gutfeld** proposed that the political scion run as third party in July.

"I think he should run as a third party candidate because I do think he should, he would win, is because his party's radical elements, what we call the woke, have embraced this fascist clampdown on language," Gutfeld said.

Have a tip we should know? tips@mediaite.com

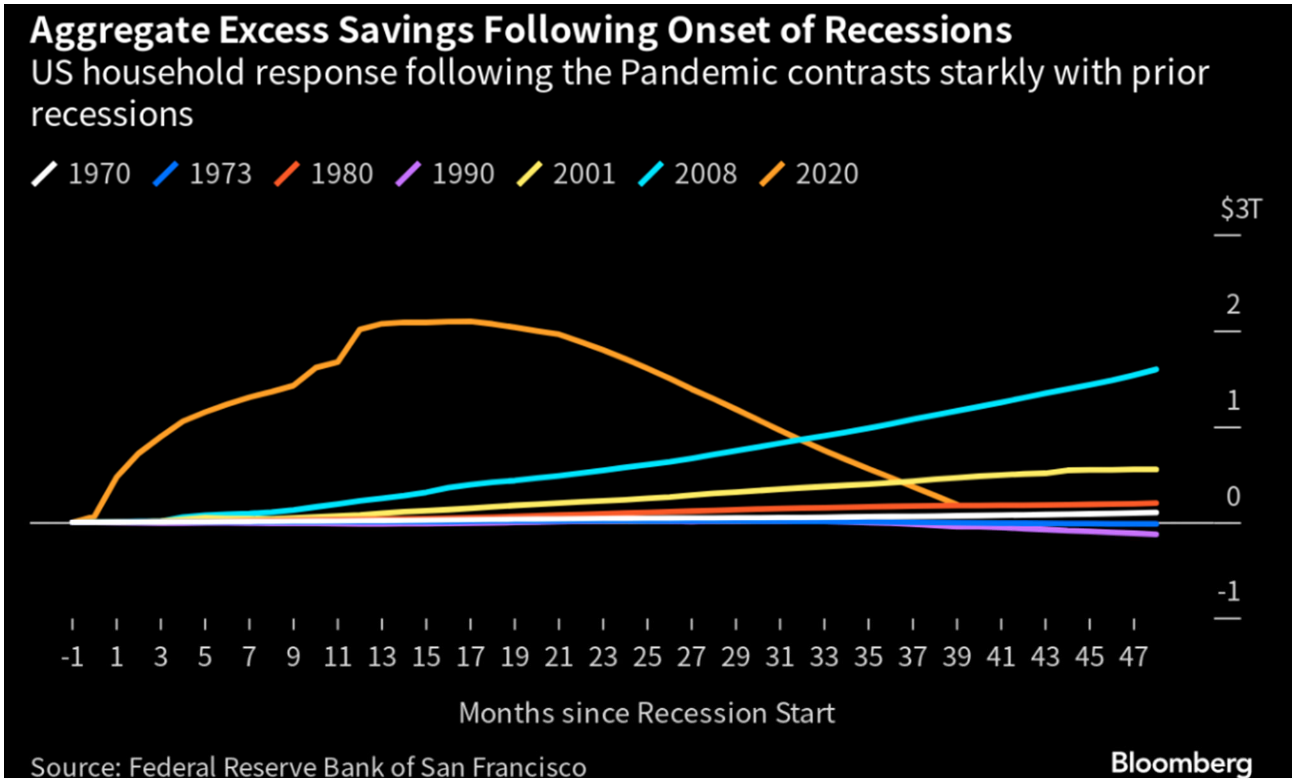
Only Richest 20% of Americans Still Have Excess Pandemic Savings
2023-09-25 15:05:56.750 GMT

By Alex Tanzi
(Bloomberg) -- Americans outside the wealthiest 20% of the country have run out of extra savings and now have less cash on hand than they did when the pandemic began, according to the latest Federal Reserve study of household finances.
For the bottom 80% of households by income, bank deposits and other liquid assets were lower in June this year than they were in March 2020, after adjustment for inflation.



All income groups have seen their balances decline in real terms from a peak in 2021, according to the Fed survey. But among the wealthiest one-fifth of households, cash savings are still about 8% above their level when Covid hit. By contrast, the poorest two-fifths of Americans have seen an 8% drop in that period. And the next 40% — a group that roughly corresponds with the US middle class — saw their cash savings drop below pre-pandemic levels in the last quarter.
The figures point to dwindling firepower available for US consumers, whose resilience has kept the economy growing at a rapid clip this year and staved off the recession that many expected. Some analysts warn a downturn is still in the cards as households run low on spare cash.
The Federal Reserve Bank of San Francisco estimates that the aggregate stock of excess savings will likely be depleted in the current quarter.
Overall, household net worth jumped by some $5.5 trillion in the April-June period to a record high, the Fed data show.
The increase was driven by housing — a less liquid form of

wealth — and gains for stocks, whose ownership skews toward
richer households.



The Fed numbers also highlight the unusual trajectory of household finances after the Covid slump, compared with previous recessions. Large-scale financial support from the government, and enforced savings under lockdown conditions, helped Americans amass stockpiles of extra cash. Their spending power fueled a rapid recovery, though it may now be running out of steam.

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https://www.rydercup.com/news-media/the-concession-september-20-1969

RYDER CUP EUROPE

THE CONCESSION - SEPTEMBER 20, 1969

By
Matt Hardisty

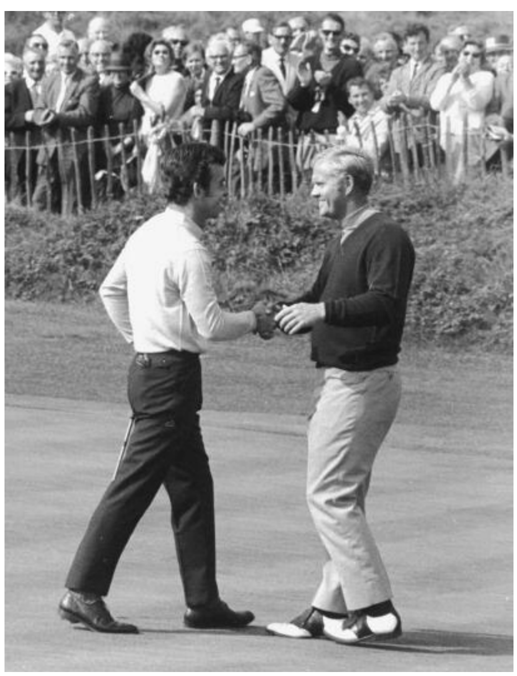
On September 21, 2018, 8:44am EDT

“I don't believe you would have missed that but I'd never give you the opportunity in these circumstances.”

That is Tony Jacklin's recollection of what the great Jack Nicklaus said to him after conceding a two-foot putt that led to the first tie in Ryder Cup history.

Nicklaus' concession is now widely regarded as one of the greatest acts of sportsmanship ever seen in golf or anywhere else and many, including Jacklin, believe it set a tone for the event that lasts to this day.

The United States had won 12 of the last 13 contests and no player from Great Britain or Ireland had won a Major Championship since Max Faulkner's victory at the Open Championship in 1951.



Jacklin's lifting of the Claret Jug in July 1969 ended that long run and while the Americans arrived at Royal Birkdale as favourites for a sixth consecutive victory, the Great Britain Team had a player capable of putting some fear into an American side captained by Sam Snead and containing the likes of Lee Trevino, Raymond Floyd and Billy Casper as well as Nicklaus.

Britain sniffed an upset early as they took the opening foursomes session 3½–½ but the visitors fought their way back into it and the two teams were headed into the singles tied at 8-8.

Afer an acrimonious week, the day two afternoon fourball between the European pair of Brian Huggett and Bernard Gallacher and Americans Ken Still and Dave Hill almost boiled over as the tight nature of the contest led to shredded nerves and frayed tempers.

The contest remained close and with 31 matches completed, it was 15½-15½ and all came down the anchor match between Nicklaus and Jacklin.

Nicklaus was one up as the duo played the par five 17th and while they both got on the green in two, Jacklin holed a monster putt for an eagle to take the contest to the last all square.

After both men hit the green at the par four in regulation, Jacklin left his putt two feet short, with Nicklaus sending his four and a half feet by.

Nicklaus holed his second putt to guarantee a half and later said:

“I don't know why but I very quickly thought about Tony Jacklin and what he had meant to British golf. Here he was, the Open champion, the new hero, and all of a sudden it felt like if he missed this putt he would be criticised forever. This all went through my mind in a very, very quick period of time and I just made up my mind, I said, 'I'm not going to give Tony Jacklin the opportunity to miss it. I think we walk off of here, shake hands and have a better relationship between the two golfing organisations is the right way to do it'.”

As he took his ball from the hole, Nicklaus also picked up Jacklin's marker and the pair walked off the 18th with their arms around each other.

The match finished 16-16 and while Nicklaus and his team-mates took the Cup back across the Atlantic, he left a memory and a spirit that will be present in Ryder Cups to come.

Dan Tsubouchi @Energy_Tidbits · 3h

Reminder, it's Kurdistan #Oil that gets shut-in from Turkey's halt of #Oil via Ceyhan.

@Khalidansary reporting Iraq oil ministry exports

Sept 3.438 mmbd
Aug 3.42 mmbd
July 3.44 mmbd
June 3.335 mmbd
May 3.305 mmbd
Apr 3.288 mmbd

#OOTT

Iraq Exported Average 3.438m B/D of Crude in September: Ministry
2023-10-01 11:27:40.518 GMT

By Khalid Al-Ansary
(Bloomberg) -- Iraq, OPEC's second-largest producer, exported a preliminary total of 103.143m barrels of crude oil in September from the fields under the central government's control, the country's oil ministry said in a statement.
* Central government's preliminary revenue from September oil sales was $9.494b, with a selling price of $92.05 a barrel
* NOTE: Exports from northern fields controlled by the semi-autonomous Kurdistan Regional Government are halted since March
* NOTE: Iraq Exported Average 3.42m B/D of Crude in August: Ministry

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To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/S1UDYPT0G1KW

1 1 951

Dan Tsubouchi @Energy_Tidbits · 12h

China economy bottoming?

China Caixin Manufacturing PMI Sept 50.6 (est 51.2) vs Aug 51.0, July 49.2, June 50.5.

"various important economic indicators have shown marginal improvement and the macroeconomy has shown signs of stabilization. However, the economy recovery has... Show more

2 2 17 2,572

Dan Tsubouchi @Energy_Tidbits · 23h

Support for #Oil prices

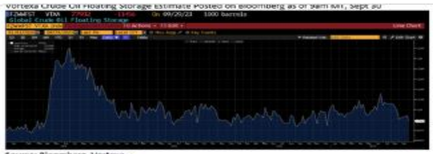
#Vortexa crude #Oil floating storage 09/29 est 77.93 mmb, -11.46 mmb WoW.

No major revisions, rather range -2.29 to +1.96 mmb.

Last 6-week average 84 mmb, down a whopping 48 mmb vs recent 06/23/23 peak 132 mmb.

Thx @Vortexa @business.
#OOTT

Vortexa Crude Oil Floating Storage Estimate Posted on Bloomberg as of 9am MT, Sept 30



Source: Bloomberg, Vortexa.

Posted Sept 30, 9am MT

FZWWFST VTXA Index 01/01/2020 - 09/29/2023

Date	FZWWFST VT... Last Px
Fr 09/29/2023	77932
Fr 09/22/2023	89598
Fr 09/15/2023	95808
Fr 09/08/2023	86258
Fr 09/01/2023	94147
Fr 08/25/2023	81072
Fr 08/18/2023	100.343k
Fr 08/11/2023	105.793k
Fr 08/04/2023	111.572k
Fr 07/28/2023	111.524k
Fr 07/21/2023	111.465k

Sept 23, 9am MT

FZWWFST VTXA Index 01/01/2020 - 09/22/2023

Date	FZWWFST VT... Last Px
Fr 09/22/2023	91620
Fr 09/15/2023	86421
Fr 09/08/2023	87552
Fr 09/01/2023	83641
Fr 08/25/2023	90788
Fr 08/18/2023	98377
Fr 08/11/2023	104.428k
Fr 08/04/2023	110.633k
Fr 07/28/2023	111.023k
Fr 07/21/2023	108.16k
Fr 07/14/2023	111.502k

Sept 16, 9am MT

FZWWFST VTXA Index 01/01/2020 - 09/15/2023

Date	FZWWFST VT... Last Px
Fr 09/15/2023	81663
Fr 09/08/2023	92408
Fr 09/01/2023	85382
Fr 08/25/2023	82930
Fr 08/18/2023	100.765k
Fr 08/11/2023	106.072k
Fr 08/04/2023	112.234k
Fr 07/28/2023	113.251k
Fr 07/21/2023	106.64k
Fr 07/14/2023	110.853k
Fr 07/07/2023	112.483k

Source: Bloomberg, Vortexa

Vortexa Crude Oil Floating Storage by Region (mmb)

Region	Sept 29/23	Sept 22/23	WoW	Original Posted Sept 22/23	Recent Peak Jun 23/23	Sept 29 vs Jun 23
Asia	47.37	50.20	-2.83	47.88	72.63	-25.26
Europe	3.75	9.15	-5.40	9.31	6.51	-2.76
Middle East	5.79	6.63	-0.84	6.68	7.03	-1.24
West Africa	5.93	9.12	-3.19	13.48	7.45	-1.52
US Gulf Coast	0.58	0.00	0.58	0.00	0.97	-0.39
Other	14.51	14.79	-0.28	14.27	37.29	-22.78
Global Total	77.93	89.89	-11.96	91.62	131.88	-53.95

Vortexa crude oil floating storage posted on Bloomberg 9am MT on Sept 30
Source: Vortexa, Bloomberg

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

2 · 10 · 41 · 6,491

Dan Tsubouchi @Energy_Tidbits · Sep 29

"*Because they're frightened*" says $BLK CEO Fink as to why pre-Covid Chinese savings rate of 35% of disposable income is now 50%.

Fits 👇 09/11/23 tweet.

Positive for 2024 China economy and #Oil once consumers start to spend.

Thx @daniburgz.

#OOTT

"Before Covid, the Chinese, who are unbelievable savers, they saved 35% of disposable income. 35% … During Covid and the fear and the lockdowns and the changes of policies, savings rates in China right now are 50%." BlackRock CEO Larry Fink

SAF Group created transcript of comments by BlackRock CEO Larry Fink to Bloomberg's Dani Burger at Berlin Global Dialogue forum on Sept 29, 2023. https://www.bloomberg.com/news/videos/2023-09-29/blackrock-s-fink-on-m-a-recession-election-full-intv-video

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

At 6:45 min mark, Fink "*… Dani, what's going on in China is a great example of fear. Before Covid, the Chinese, who are unbelievable savers, they saved 35% of disposable income. 35%, think about that. Now they did it because there are no safety nets of health care like we have here in Germany. No safety nets of retirement. One child family. All these dynamic issues. During Covid and the fear and the lockdowns and the changes of policies, savings rates in China right now are 50%. That fear.*"

Burger "*And, they're struggling to reinvigorate the economy.*"

Fink "*Because they're frightened*"

Burger "*What does that look like on the ground for the investors and the crown. You, at BlackRock, how do you look at this? Is there a way to capitalize on it? Do you pull back? What do you do with a problem like this?*"

Fink "*Right now, I think in our megatrends, right now we are underinvested in China. We believe structurally until we see savings rates, which is, in my mind, when we see savings rates decline and they are consuming more, that's an indication of more hope that they don't need to save as much. That they can consume. They can do other things. To me, these are very big macro trends. But I just want to say the biggest issue is we, as business leaders, we as political leaders. If we don't provide more certainty and more hope, this is what causes recessions. This is what causes pullbacks.*"

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

Dan Tsubouchi @Energy_Tidbits · Sep 11

Chinese "are cautious & lack confidence in the future so they tend to spend, maybe not less, but wouldn't spend much more than before" Victor Yang to @sean_evers @gulf_intel podcast.
...

4 · 13 · 5,153

Dan Tsubouchi @Energy_Tidbits · Sep 29 ···

"*Let's be clear, we are not going to have a transition unless we can't find technologies to bring down the competitive cost of renewables*" says $BLK CEO Fink to @daniburgz.

#EnergyTransition assume future technology advancements.

#Oil #NatGas will be needed for longer.
#OOTT

"Let's be clear, we are not going to have a transition unless we can't find technologies to bring down the competitive cost of renewables" BlackRock CEO Larry Fink

SAF Group created transcript of comments by BlackRock CEO Larry Fink to Bloomberg's Dani Burger at Berlin Global Dialogue forum on Sept 29, 2023. https://www.bloomberg.com/news/videos/2023-09-29/blackrock-s-fink-on-m-a-recession-election-full-intv-video

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

At 17:30 min mark, Fink "*but we just did a survey that was part of that article that 57% of our global investors are going to put more money into decarbonization technology. Let's be clear, we are not going to have a transition unless we can't find technologies to bring down the competitive cost of renewables.* [Note listened to this sentence a few times and he said can't and not can]. *We cannot do that. We saw what happened with elevated energy prices just two years in Germany and Europe. You can't have a transition. And more importantly, if we don't reorient and reimagine finance, we will never decarbonize the emerging world. We see when energy prices go up, the emerging world uses more coal because livelihood and life is more important than the future. And so, we need to reimagine finance. And finance is going to have to find ways of bringing billions and billions and trillions to help them decarbonize. We don't have the structure in the world today. We have a World Bank, an IMF that was created after post WWII. They were organized when banking was a prominent lender and because of the Basel capital standards, because of Dodd Frank in the US, banks can't lend.*"

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

3 8 15 4,846

Dan Tsubouchi @Energy_Tidbits · Sep 29 ···

"*That is why we said do not ever divest of hydrocarbons*".

"*we believe that hydrocarbons, by the way, are going to be with us for a long, long time*"

Says $BLK CEO Fink to @daniburgz.

#Oil #NatGas will be needed for longer.

#OOTT

"That is why we said do not ever divest of hydrocarbons". BlackRock CEO Larry Fink

SAF Group created transcript of comments by BlackRock CEO Larry Fink to Bloomberg's Dani Burger at Berlin Global Dialogue forum on Sept 29, 2023. https://www.bloomberg.com/news/videos/2023-09-29/blackrock-s-fink-on-m-a-recession-election-full-intv-video

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

At 15:55 min mark. Fink "*Oh my gosh. Getting back to this whole idea of working with governments, public/private. It may not have that type of trillion dollars of explosive growth. But I do believe we can help make a difference in building better societies. We can prepare societies better. Working with governments in terms of preparedness for elevated countries in the world. We believe we are going to have move more rapidly towards decarbonization. We believe that hydrocarbons, by the way, are going to be with us for a long, long time. And that's why we're working with energy companies, not against energy companies. That is why we said do not ever divest of hydrocarbons, which the far left doesn't agree with me. The far right disagrees with me. So I guess we are doing something right when I am getting attacked from both sides.*"

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

3 7 3,129

Dan Tsubouchi @Energy_Tidbits · Sep 29

Reality check going on right now for #EnergyTransition.

"*national security for chips or food or energy. Obviously, energy. And all these issues & the question is At What Cost? And nobody answers that question – At What Cost?*". $BLK CEO

#Oil #NatGas needed for longer.
Thx... Show more

"So national security for chips or food or energy. Obviously, energy. And all these issues and the question is At What Cost? And nobody answers that question – At What Cost?". BlackRock CEO Larry Fink

SAF Group created transcript of comments by BlackRock CEO Larry Fink to Bloomberg's Dani Berger at Berlin Global Dialogue forum on Sept 29, 2023. https://www.bloomberg.com/news/videos/2023-09-29/blackrock-ceo-fink-sees-10-year-yields-at-5-or-higher-video

Items in "Italics" are SAF Group created transcript.

Fink "... *I actually think every day is normal. The markets go up and down. Markets move, markets respond, markets respond to political issues, political uncertainties. But I would clearly say we are in a period of time with these megacycles. We are in a period of time with so many transitions, whether it's a transition from deflation to inflation. A geopolitical transition, how does that, where does that go. The fragmentation of supply chains is just beginning. We have policies in so many democracies that have moved from policies that I would say were embedded for more deflation and now policies are more embedded for inflation."*

Fink "*my opinion is we're going to have 10-year rates at least at 5% or higher because of this embedded inflation. This structural inflation is unlike anything. And I think business leaders and politicians are not providing the foundation to help explain this. We have not seen inflation like this in over 30 years. Actually, I was a young bond trade during the late 70s and where we had hyperinflation. I don't think we'll have anything close to the inflation of the 70s. But we have so much deeper, structural inflation and we are underestimating what the change in geopolitics, is so structurally inflationary. When I was in Davos earlier this year, I heard the phrase national security, uttered everywhere. And quite frankly, I never heard those phrases uttered that often before that in all my years. So national security for chips or food or energy. Obviously, energy. And all these issues and the question is At What Cost?. And nobody answers that question - At What Cost?"*.

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

1 · 3 · 16 · 4,574

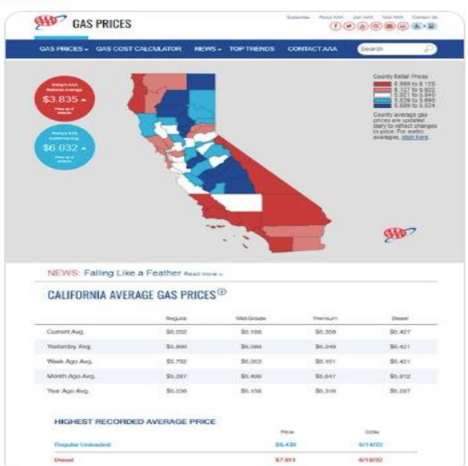
Dan Tsubouchi @Energy_Tidbits · Sep 28

ICYMI.

California gasoline prices hit $6.03 today, flat YoY, below all-time high of $6.44 on June 14, 2022 reports @AAAnews.

Good thing for Democrats the state and national elections are 13 mths away.

#OOTT



1 · 3 · 6 · 1,928

Dan Tsubouchi @Energy_Tidbits · Sep 28
ICYMI.

EU's dependence on China for #EnergyTransition.

See 👇SAF 06/14/23 tweet @vonderleyen "we rely on one single supplier" China 98% of rare earth, 93% of magnesium, 97% of lithium.
twitter.com/Energy_Tidbits...

#EnergyTransition will be a rocky road with supply risk.

#OOTT

> Dan Tsubouchi @Energy_Tidbits · Sep 28
> OOPS!
>
> China's dominance in critical metals for the #EnergyTransition isn't new.
>
> Did the US not know this or have they been assuming China won't use critical metals as a weapon?
>
> Either way, #EnergyTransition will be a rocky road with supply risk.
>
> Thx @harrydemps.
> #OOTT twitter.com/harrydemps/sta...

3 1 3,540

Dan Tsubouchi @Energy_Tidbits · Sep 28
OOPS!

China's dominance in critical metals for the #EnergyTransition isn't new.

Did the US not know this or have they been assuming China won't use critical metals as a weapon?

Either way, #EnergyTransition will be a rocky road with supply risk.

Thx @harrydemps.
#OOTT

> Harry Dempsey @harrydemps · Sep 28
> US energy secretary Jennifer Granholm has warned that transitioning from fossil fuels will make energy security "infinitely more complex" because of China's stranglehold on the processing of the critical minerals essential for renewable power
>
> ft.com/content/c3ff5a...

3 4 8 5,122

Dan Tsubouchi @Energy_Tidbits · Sep 28

One positive China indicator.

China Baidu city-level road congestion has 8th consecutive WoW increase.

Up YoY and above Sept 2021 levels.

But expect big drop in city congestion & big boost in air travel as 12-day National Day holidays starts now.

Thx @BloombergNEF. #OOTT

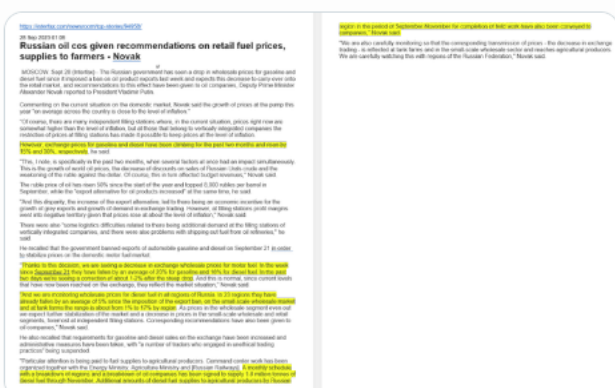
1 · 7 · 2,187

Dan Tsubouchi @Energy_Tidbits · Sep 28

Looks like temp export cuts of Russian #Diesel to continue thru Nov.

Novak. particular attention to agricultural producers " .. *supply 1.8 mm tonnes of diesel fuel through Nov.... additional amounts of diesel fuel supplies ... period of Sept-Nov for completion of field*"

#OOTT



Russian oil cos given recommendations on retail fuel prices, supplies to farmers - Novak

3 · 3 · 3,113

Dan Tsubouchi @Energy_Tidbits · Sep 27

Following UK Sunak backing off green policies that would add costs to home building

See 👇 @handelsblatt: Germany won't proceed with E40 standard to lower home construction costs. E40, new buildings to require 40% of primary energy consumption vs std comparable building.

#OOTT

> Handelsblatt @handelsblatt · Sep 24
> Der neue Standard EH-40 soll erstmal warten, so der Bundeswirtschaftsminister. Die Baubranche hatte die Pläne immer wieder kritisiert. handelsblatt.com/politik/deutsc...

2 3 2,831

Dan Tsubouchi @Energy_Tidbits · Sep 27

Reality check. #Lufthansa CEO on hard (impossible?) to decarbonize airline industry.

All the SAF in world today would fuel Lufthansa flights for 2 weeks. See 06/06/23 SAF tweet on #IATA SAF fcast to get to 9.4% of 2022 jet fuel cosumption. twitter.com/Energy_Tidbits...

Lufthansa CEO... Show more

> FORTUNE @FortuneMagazine · Sep 26
> Lufthansa's Carsten Spohr thinks it could take half of Germany's electricity supply to make enough green fuel for its fleet. trib.al/7Tv6fTS

3 4 2,633

Dan Tsubouchi @Energy_Tidbits · Sep 27

There is much more than the Cushing factor, but normally a good correlation of Cushing #Oil inventories vs WTI oil price.

Six straight weeks of falling Cushing oil inventories has been matched up with WTI $78.89 on Aug 24 to $93.50 today.

Thx @business.
#OOTT

7 15 2,394

Dan Tsubouchi @Energy_Tidbits · Sep 27

For those not near their laptops. At 830am MT, @EIAgov released its #Oil #Gasoline #Distillates inventory as of Sept 22. Table below compares EIA data vs @business expectations and vs @APIenergy yesterday. Prior to release, WTI was $92.60. #OOTT

Oil/Products Inventory Sept 22: EIA, Bloomberg Survey Expectations, API

(million barrels)	EIA	Expectations	API
Oil	-2.17	-0.90	1.59
Gasoline	1.03	-0.50	-0.07
Distillates	0.40	-1.00	-1.70
	-0.74	-2.40	-0.18

Note: Oil is commercial so builds in a build of 0.3 mmb in SPR for the Sept 22 week
Note: Included in the oil data, Cushing had a 0.94 mmb draw for Sept 22 week
Source EIA, Bloomberg
Prepared by SAF Group https://safgroup.ca/news-insights/

1 6 1,156

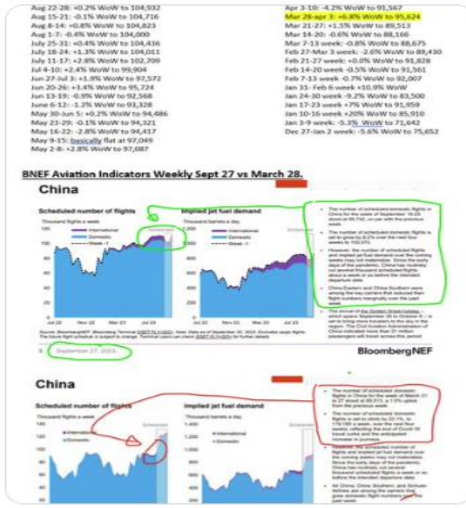
Dan Tsubouchi @Energy_Tidbits · Sep 27

China consumer still hesitant.

China scheduled domestic flights flat WoW to 95,742.

Big boost ahead with flights +8.2% to 103,570 for 12-day Golden Week travel rush. But that is -1.3% less than 104,950 expected a couple weeks ago.

Thx @BloombergNEF Claudio Lubis.
#OOTT



1 · 2 · 3 · 1,108

Dan Tsubouchi @Energy_Tidbits · Sep 26

Tier 1 to Tier 2 = positive for #Oil

👇 "*As some of our basins mature, (Eagle Ford, Bakken, even gassier basins) you don't see as much activity. Even in the core of these basins, even in places like the Permian, you're starting to see the core more developed*" CEO Muncrief

#OOTT

> **Dan Tsubouchi** @Energy_Tidbits · Sep 26
>
> Challenge for sustained shale growth, incl Permian.
>
> "At $90 oil prices, many of the Tier 2 opportunities become really quite attractive....been the history for decades, that some of the easiest - drill first, then go to more challenging areas" CEO Muncrief.
>
> Thx @adsteel. #OOTT twitter.com/Energy_Tidbits...

"At $90 oil prices, many of the Tier 2 opportunities become really quite attractive"
Devon Energy CEO Rick Muncrief

Devon Energy CEO Rick Muncrief

SAF Group created transcript of comments by Devon Energy CEO Rick Muncrief with Bloomberg's Alix Steel on BloombergTV on Sept 25, 2023.

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

Steel. "*How's productivity? The other narrative is, it's harder and harder to get oil out of what's already there.*"

Muncrief. "*Yeah, what's interesting is that this has really been a topic we've talked about with our investors. As some of our basins mature, (Eagle Ford, Bakken, even gassier basins) you don't see as much activity. Even in the core of these basins, even in places like the Permian, you're starting to see the core more developed, tightness in the market and maturity. At $90 oil prices, many of the Tier 2 opportunities become really quite attractive. That has been the history for decades, that some of the easiest – drill first, then go to the more challenging areas.*"

Steel. "*So does that mean more M&A in the space?*"

Muncrief. "*Well, yes, consolidation.*"

Steel. "*With Devon?*"

Muncrief. "*We'll see, we're always watching, I mean we owe it to our investors.*"

Steel. "*If these places are going to mature, there has to be some consolidation though? You're going to have to make some purchases?*"

Muncrief. "*What we hear from investors is that scale matters. As larger companies, inventories decrease [they will be looking to make acquisitions]. You know a lot of companies' balance sheets are in pretty good shape.*"

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

Dan Tsubouchi @Energy_Tidbits · Sep 25

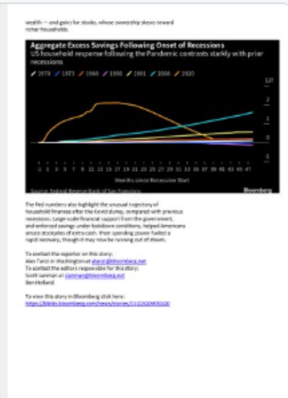
Key consumer difference: US vs China.

US: bottom 80% have spent pandemic savings reports @atanzi.

China: See 👇 09/11/23 tweet, consumers still lack confidence to spend pandemic savings.

Upside to #Oil in 2024 is China consumer.

#OOTT



Dan Tsubouchi @Energy_Tidbits · Sep 11

Chinese "are cautious & lack confidence in the future so they tend to spend, maybe not less, but wouldn't spend much more than before" Victor Yang to @sean_evers @gulf_intel podcast.

...

3 · 10 · 4,976

Dan Tsubouchi @Energy_Tidbits · Sep 25

Future of war!

Lessons from UKR/RUS & Houthis/KSA: cheaper drones can cause huge damage. Not just air, also sea!

US sees mass production large & small air drones to build big stocks of weapons & ammunition to deter China reports @dougcameron.

#OOTT

wsj.com

Pentagon Plan to Buy Thousands of Drones Faces Looming Snags

The booming jetliner and air-taxi markets leave shortages of parts and skilled labor, causing a production crunch.

2 · 9 · 1,581