Energy Tidbits

2020s Will be Great for Oil Even IF OPEC's Reference Case Forecast is 50% Right for Oil Demand +8 mmb/d to 2030

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Table 1. Summary of natural gas supply and disposition in the United States, 2017-2022

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]
2017 total	**33,292**	**29,238**	**1,897**	**27,341**	**66**	**-121**	**254**	**-400**	**27,140**
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									
January	3,597	3,194	239	2,955	6	-248	581	28	3,321
February	3,363	2,985	223	2,761	5	-216	545	-37	3,059
March	3,582	3,196	239	2,957	6	-284	53	-10	2,722
April	3,374	3,012	225	2,786	5	-231	-311	7	2,257
May	3,285	2,927	219	2,708	5	-209	-454	22	2,072
June	3,217	2,873	215	2,658	5	-151	-363	-21	2,128
July	3,374	3,021	226	2,795	5	-139	-165	-33	2,464
August	3,350	3,012	225	2,786	5	-149	-232	-11	2,400
September	3,265	2,918	218	2,699	5	-221	-329	-3	2,151
October	3,364	2,992	224	2,768	5	-282	-96	-79	2,316
November	3,352	2,985	223	2,761	5	-317	-6	-1	2,442
December	3,490	3,089	231	2,858	5	-287	597	9	3,183
Total	**40,614**	**36,202**	**2,710**	**33,493**	**63**	**-2,734**	**-180**	**-129**	**30,513**
2021									
January	3,517	3,118	235	2,884	6	-279	719	16	3,344
February	2,950	2,609	196	2,412	5	-152	795	40	3,099
March	3,518	3,144	237	2,907	6	-357	64	30	2,649
April	3,438	3,069	231	2,838	5	-356	-180	-42	2,265
May	3,535	3,168	239	2,930	6	-373	-424	-21	2,117
June	3,400	3,056	230	2,826	5	-331	-254	-8	2,238
July	3,514	3,182	240	2,943	6	-338	-175	-23	2,412
August	3,545	3,196	241	2,956	6	-343	-164	-20	2,434
September	3,423	3,087	232	2,854	5	-315	-398	-4	2,142
October	3,600	3,245	244	3,001	6	-317	-368	-60	2,263
November	3,545	3,170	239	2,931	6	-315	137	-66	2,693
December	3,680	3,284	247	3,037	6	-368	330	3	3,007
Total	**41,666**	**37,328**	**2,811**	**34,518**	**66**	**-3,845**	**82**	**-157**	**30,665**
2022									
January	E3,591	E3,199	246	E2,953	7	-314	994	-28	3,612
February	E3,227	E2,870	223	E2,647	6	R-288	658	R40	3,064
March	E3,614	E3,225	267	E2,958	6	R-378	163	R35	2,785
April	E3,520	E3,152	257	E2,895	6	R-341	-214	R34	2,379
May	E3,667	E3,296	266	E3,030	6	R-384	-403	R-1	2,248
June	RE3,557	RE3,215	259	RE2,955	2	R-322	-324	R15	2,327
July	RE3,693	RE3,333	R276	RE3,057	6	R-299	-180	R14	R2,598
August	E3,701	E3,350	270	E3,080	6	-319	-206	5	2,566
2022 8-month YTD	**E28,569**	**E25,640**	**2,063**	**E23,577**	**44**	**-2,645**	**489**	**115**	**21,580**
2021 8-month YTD	**27,418**	**24,543**	**1,848**	**22,695**	**43**	**-2,530**	**381**	**-30**	**20,559**
2020 8-month YTD	**27,143**	**24,220**	**1,813**	**22,407**	**42**	**-1,627**	**-346**	**-54**	**20,422**

[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 2017 through 2020 include underground storage and liquefied natural gas storage. Data for January 2021 forward include underground storage only. Appendix A, Explanatory Note 5, contains a discussion of computation procedures.

[e] Represents quantities lost and imbalances in data due to differences among data sources. Net imports and balancing item excludes net intransit deliveries. These net intransit deliveries were (in billion cubic feet): 212 for 2021; 209 for 2020; -8 for 2019; -12 for 2018; and 14 for 2017. Appendix A, Explanatory Note 7, contains a full discussion of balancing item calculations.

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

R Revised data.

E Estimated data.

RE Revised estimated data.

Source: 2017-2021: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2021*. January 2022 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; Form EIA-191, *Monthly Underground Gas Storage Report*; EIA computations and estimates; and Office of Fossil Energy and Carbon Management, *Natural Gas Imports and Exports*. Table 7 includes detailed source notes for Marketed Production. Appendix A, Notes 3 and 4, includes discussion of computation and estimation procedures and revision policies.

Note: Data for 2017 through 2020 are final. All other data are preliminary unless otherwise indicated. Geographic coverage is the 50 states and the District of Columbia. Totals may not equal sum of components because of independent rounding.

Table 2. Natural gas consumption in the United States, 2017-2022

billion cubic feet, or as indicated

Year and month	Lease and plant fuel[a]	Pipeline and distribution use[b]	Delivered to consumers: Residential	Commercial	Industrial	Electric power	Vehicle fuel	Total	Total consumption	Heating value[c] (Btu per cubic foot)
2017 total	**1,583**	**722**	**4,413**	**3,165**	**7,943**	**9,266**	**48**	**24,835**	**27,140**	**1,036**
2018 total	**1,694**	**877**	**4,998**	**3,514**	**8,417**	**10,589**	**50**	**27,568**	**30,139**	**1,036**
2019 total	**1,823**	**1,018**	**5,019**	**3,515**	**8,417**	**11,288**	**53**	**28,291**	**31,132**	**1,038**
2020										
January	160	112	825	491	780	949	4	3,049	3,321	1,039
February	149	103	737	448	725	893	4	2,806	3,059	1,039
March	160	91	527	339	711	891	4	2,471	2,722	1,039
April	151	75	378	238	634	778	4	2,032	2,257	1,039
May	146	68	237	163	617	837	4	1,858	2,072	1,035
June	144	70	136	132	601	1,041	4	1,914	2,128	1,032
July	151	82	118	129	634	1,346	4	2,231	2,464	1,032
August	151	80	109	131	649	1,276	4	2,169	2,400	1,033
September	146	71	127	144	644	1,016	4	1,934	2,151	1,035
October	150	77	242	209	687	948	4	2,090	2,316	1,036
November	149	81	440	294	702	772	4	2,211	2,442	1,037
December	154	107	800	454	778	885	4	2,921	3,183	1,039
Total	**1,809**	**1,018**	**4,674**	**3,170**	**8,161**	**11,632**	**49**	**27,686**	**30,513**	**1,037**
2021										
January	159	125	895	497	791	872	5	3,060	3,344	1,038
February	133	116	876	497	686	787	4	2,850	3,099	1,041
March	160	98	574	358	703	752	5	2,392	2,649	1,038
April	156	83	342	248	676	756	4	2,026	2,265	1,036
May	161	77	218	183	658	816	5	1,879	2,117	1,035
June	156	82	130	144	638	1,085	4	2,001	2,238	1,034
July	162	88	113	143	666	1,235	5	2,162	2,412	1,035
August	163	89	106	142	669	1,261	5	2,182	2,434	1,034
September	157	78	118	150	639	995	4	1,907	2,142	1,035
October	165	82	193	197	677	944	5	2,015	2,263	1,035
November	161	99	482	338	726	882	4	2,432	2,693	1,037
December	167	112	669	402	767	886	5	2,729	3,007	1,038
Total	**1,901**	**1,130**	**4,716**	**3,298**	**8,295**	**11,271**	**54**	**27,634**	**30,665**	**1,037**
2022										
January	E163	E133	961	553	818	979	E5	3,316	3,612	1,038
February	E146	E113	796	466	723	816	E4	2,805	3,064	1,038
March	E164	E103	590	386	754	783	E5	2,519	2,785	1,036
April	E161	E88	390	279	702	756	E4	2,131	2,379	1,035
May	E168	E83	201	183	681	928	E5	1,997	2,248	1,034
June	E164	E86	124	147	654	1,148	E4	2,077	2,327	1,033
July	RE170	E96	111	146	671	1,400	E5	2,332	R2,598	1,033
August	E171	E95	103	142	672	1,379	E5	2,301	2,566	1,035
2022 8-month YTD	**E1,306**	**E795**	**3,277**	**2,303**	**5,674**	**8,190**	**E35**	**19,479**	**21,580**	**1,036**
2021 8-month YTD	**1,250**	**758**	**3,254**	**2,212**	**5,486**	**7,564**	**36**	**18,551**	**20,559**	**1,039**
2020 8-month YTD	**1,211**	**681**	**3,067**	**2,070**	**5,350**	**8,011**	**33**	**18,530**	**20,422**	**1,039**

[a] We only collect plant fuel data and lease fuel data annually. We estimate monthly lease and plant fuel use from monthly marketed production by assuming that the preceding annual percentage remains constant for the next 12 months.

[b] We base published pipeline and distribution use data on reports collected on an annual basis. We estimate monthly pipeline and distribution use data from monthly total consumption (excluding pipeline and distribution use) by assuming that the preceding annual percentage remains constant for the next 12 months. Pipeline and distribution use volumes include line loss, defined as known volumes of natural gas that were the result of leaks, damage, accidents, migration, and/or blow downs, as well as fuel used in liquefaction and regasification.

[c] Heating value is the average number of British thermal units per cubic foot of natural gas as reported on EIA-857 and EIA-176. Appendix A, Explanatory Note 11, contains further information.

R Revised data.

E Estimated data.

RE Revised estimated data.

Source: 2017-2021: U.S. Energy Information Administration (EIA): Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; state and federal agencies; EIA estimates based on historical data; and *Natural Gas Annual 2021*. January 2022 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-857; Form EIA-923, *Power Plant Operations Report*. Appendix A, Explanatory Note 6, contains an explanation of computation procedures and revision policy.

Note: Data for 2017 through 2020 are final. All other data are preliminary unless otherwise indicated. Geographic coverage is the 50 states and the District of Columbia. Totals may not equal sum of components because of independent rounding. Appendix A, Explanatory Note 6, contains a definition of sectors.

Table 5. U.S. natural gas exports, 2020-2022

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

	2022 8-month YTD	2021 8-month YTD	2020 8-month YTD	August	July	June	May	2022 April
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	628,700	608,933	602,812	74,064	68,521	68,763	77,512	79,930
Mexico	1,409,030	1,458,834	1,292,229	180,478	187,559	181,120	185,349	175,878
Total pipeline exports	**2,037,730**	**2,067,766**	**1,895,041**	**254,542**	**256,080**	**249,883**	**262,861**	**255,808**
LNG								
Exports								
By vessel								
Antigua and Barbuda	15	0	0	2	2	3	2	3
Argentina	66,939	79,422	15,068	2,202	9,448	25,246	20,111	9,933
Bahamas	329	337	144	53	45	47	42	34
Bangladesh	12,663	34,458	10,660	0	0	0	3,346	0
Barbados	92	178	170	0	0	0	0	0
Belgium	60,616	5,584	25,028	3,589	0	7,023	3,441	7,341
Brazil	68,559	193,702	29,281	10,542	5,192	3,857	15,303	3,448
Chile	26,766	101,694	57,457	0	6,917	0	9,943	3,530
China	39,486	295,240	77,432	10,272	784	7,329	0	10,217
Colombia	2,004	1,811	2,078	606	0	912	0	0
Croatia	53,966	23,600	0	7,824	4,600	7,925	8,543	6,763
Dominican Republic	37,514	38,726	10,036	3,357	6,532	5,838	4,964	3,645
Egypt	0	0	0	0	0	0	0	0
France	382,531	110,957	76,456	33,885	53,443	37,564	R47,150	56,343
Greece	61,316	24,459	34,451	10,763	12,922	9,633	R12,650	1,336
Haiti	98	98	72	11	8	13	9	11
India	80,708	143,719	75,586	10,265	13,902	10,653	7,152	14,223
Indonesia	1,684	0	0	967	0	0	0	0
Israel	0	6,051	12,793	0	0	0	0	0
Italy	95,205	34,210	65,370	15,462	7,637	7,137	21,696	15,519
Jamaica	848	19,659	9,554	110	121	48	144	135
Japan	146,599	248,747	162,292	20,156	18,189	21,561	24,024	13,231
Jordan	0	0	3,294	0	0	0	0	0
Kuwait	46,681	17,950	10,183	6,415	5,382	8,105	14,204	7,298
Lithuania	59,610	27,637	9,467	7,579	7,947	6,729	11,237	13,770
Malaysia	0	0	0	0	0	0	0	0
Malta	2,345	2,928	2,648	0	0	0	0	0
Mexico	3,292	14,112	20,669	0	0	3,292	0	0
Netherlands	249,792	114,574	65,298	50,371	34,913	34,420	28,902	28,395
Nicaragua	0	1	0	0	0	0	0	0
Pakistan	3,074	30,548	13,636	0	0	0	0	3,074
Panama	9,676	7,526	7,384	0	0	623	1,192	1,536
Poland	85,703	38,824	26,709	6,534	17,780	14,282	18,224	13,882
Portugal	43,014	36,700	16,964	3,202	6,412	5,582	3,888	6,632
Singapore	16,352	17,190	17,267	0	6,275	3,352	0	0
South Korea	195,383	319,284	181,142	36,033	34,342	25,054	17,538	13,813
Spain	318,732	92,750	147,152	26,140	34,396	29,639	40,337	40,259
Taiwan	75,150	70,999	33,035	8,901	9,353	6,892	15,975	9,541
Thailand	22,315	14,548	28,917	3,607	0	6,920	3,419	0
Turkey	126,866	59,537	87,341	0	0	7,542	7,281	6,637
United Arab Emirates	0	0	10,110	0	0	0	0	0
United Kingdom	220,930	97,682	82,422	21,263	3,797	3,326	10,608	39,775
By truck								
Canada	48	74	2	0	0	8	8	15
Mexico	969	610	584	103	76	105	115	122
Re-exports								
By vessel								
Argentina	0	0	2,164	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0
Japan	0	0	305	0	0	0	0	0
South Korea	0	0	305	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG exports	**2,617,873**	**2,326,126**	**1,430,927**	**300,215**	**300,415**	**300,659**	**351,448**	**330,463**
CNG								
Canada	*	211	278	0	0	0	0	0
Total CNG exports	*****	**211**	**278**	**0**	**0**	**0**	**0**	**0**
Total exports	**4,655,602**	**4,394,103**	**3,326,247**	**554,757**	**556,495**	**550,542**	**614,309**	**586,271**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2020-2022

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

	2022							2021
	March	February	January	Total	December	November	October	September
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	104,177	74,313	81,420	937,124	108,568	85,136	62,464	72,023
Mexico	169,271	154,484	174,892	2,154,457	166,956	165,449	184,472	178,746
Total pipeline exports	**273,448**	**228,797**	**256,311**	**3,091,580**	**275,524**	**250,585**	**246,936**	**250,769**
LNG								
Exports								
By vessel								
Antigua and Barbuda	2	0	2	8	3	2	0	3
Argentina	0	0	0	83,449	2,077	0	0	1,950
Bahamas	43	31	34	486	36	34	36	43
Bangladesh	3,421	5,896	0	37,734	0	0	0	3,276
Barbados	34	31	28	297	34	27	25	33
Belgium	17,743	7,691	13,786	5,584	0	0	0	0
Brazil	2,236	10,660	17,322	307,714	24,246	10,715	40,769	38,282
Chile	3,214	0	3,162	121,881	2,938	2,956	6,364	7,929
China	7,527	3,357	0	453,304	17,050	50,228	42,202	48,584
Colombia	0	0	486	2,247	0	0	0	436
Croatia	3,358	5,870	9,084	36,133	3,117	9,416	0	0
Dominican Republic	6,530	0	6,647	53,095	5,969	2,780	5,619	0
Egypt	0	0	0	0	0	0	0	0
France	64,415	39,646	50,084	170,780	33,892	10,021	9,333	6,578
Greece	4,116	8,094	1,802	39,708	5,305	7,629	1,515	799
Haiti	10	16	20	137	4	8	17	10
India	10,438	7,210	6,866	196,218	3,203	14,807	10,548	23,941
Indonesia	0	717	0	3,269	1,218	456	477	1,118
Israel	0	0	0	8,906	0	0	0	2,855
Italy	7,088	13,629	7,037	34,210	0	0	0	0
Jamaica	92	111	86	25,276	113	715	1,858	2,931
Japan	17,697	10,214	21,527	354,948	24,297	33,947	37,666	10,290
Jordan	0	0	0	0	0	0	0	0
Kuwait	0	5,277	0	34,476	0	0	6,193	10,333
Lithuania	5,700	3,131	3,518	30,919	0	0	0	3,282
Malaysia	0	0	0	0	0	0	0	0
Malta	0	2,345	0	5,427	0	0	0	2,498
Mexico	0	0	0	15,200	0	0	1,088	0
Netherlands	24,922	31,591	16,279	174,339	23,354	8,829	17,157	10,424
Nicaragua	0	0	0	1	0	0	0	0
Pakistan	0	0	0	45,818	0	2,490	3,138	9,642
Panama	0	3,069	3,255	8,436	0	0	911	0
Poland	3,831	7,475	3,695	56,320	7,159	7,068	3,270	0
Portugal	10,728	3,703	2,868	65,865	9,630	5,380	10,459	3,696
Singapore	6,725	0	0	20,918	0	3,728	0	0
South Korea	19,289	27,489	21,824	453,483	38,201	30,787	33,836	31,375
Spain	59,224	39,359	49,379	215,062	32,579	22,821	35,638	31,274
Taiwan	12,161	6,115	6,211	99,350	12,034	3,404	7,123	5,789
Thailand	0	4,880	3,490	14,548	0	0	0	0
Turkey	16,629	43,697	45,081	188,849	38,420	47,330	19,385	24,176
United Arab Emirates	0	0	0	0	0	0	0	0
United Kingdom	56,799	25,301	60,060	195,046	60,315	30,648	3,302	3,099
By truck								
Canada	0	4	13	128	20	8	8	19
Mexico	144	157	148	1,250	148	160	182	150
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	**364,116**	**316,766**	**353,791**	**3,560,818**	**345,363**	**306,397**	**298,119**	**284,813**
CNG								
Canada	*	0	0	211	0	0	0	0
Total CNG exports	*****	**0**	**0**	**211**	**0**	**0**	**0**	**0**
Total exports	**637,564**	**545,563**	**610,102**	**6,652,609**	**620,886**	**556,982**	**545,055**	**535,583**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2020-2022

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

	2021							
	August	July	June	May	April	March	February	January
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	71,586	68,264	69,528	70,561	74,567	91,301	78,198	84,927
Mexico	193,710	197,623	198,242	192,549	182,918	183,051	137,381	173,360
Total pipeline exports	**265,296**	**265,887**	**267,770**	**263,110**	**257,485**	**274,352**	**215,579**	**258,287**
LNG								
Exports								
By vessel								
Antigua and Barbuda	0	0	0	0	0	0	0	0
Argentina	14,363	22,798	19,312	16,226	4,485	2,238	0	0
Bahamas	56	46	48	45	46	39	29	28
Bangladesh	7,085	0	3,493	6,948	10,219	3,566	0	3,148
Barbados	27	31	22	19	30	14	19	17
Belgium	0	0	0	2,100	0	3,484	0	0
Brazil	34,204	39,637	32,293	19,726	11,615	21,977	13,118	21,132
Chile	16,262	19,913	0	17,598	10,293	21,320	6,524	9,784
China	51,662	42,222	42,319	37,731	50,474	28,476	3,415	38,940
Colombia	919	0	0	0	892	0	0	0
Croatia	2,980	3,299	2,923	3,364	3,666	7,367	0	0
Dominican Republic	5,901	1,806	4,670	5,283	2,905	5,577	5,689	6,895
Egypt	0	0	0	0	0	0	0	0
France	7,111	0	3,683	11,926	36,120	33,678	14,851	3,587
Greece	3,607	6,651	0	6,796	0	6,805	0	600
Haiti	24	8	18	12	3	10	11	12
India	20,592	13,090	16,503	28,259	13,752	17,381	13,776	20,367
Indonesia	0	0	0	0	0	0	0	0
Israel	0	0	0	0	3,225	2,826	0	0
Italy	3,401	6,826	3,425	2,923	6,896	10,739	0	0
Jamaica	2,907	0	2,927	2,925	2,370	2,458	2,365	3,708
Japan	19,979	24,895	39,783	25,058	28,756	27,673	18,271	64,331
Jordan	0	0	0	0	0	0	0	0
Kuwait	3,298	0	7,126	0	3,705	3,821	0	0
Lithuania	1,677	6,469	3,285	3,049	3,078	3,228	6,851	0
Malaysia	0	0	0	0	0	0	0	0
Malta	0	0	0	0	2,928	0	0	0
Mexico	0	758	0	0	0	0	13,354	0
Netherlands	7,347	10,597	3,030	26,611	17,060	24,204	22,777	2,949
Nicaragua	0	1	0	0	0	0	0	0
Pakistan	3,319	13,428	3,376	0	3,323	3,421	0	3,682
Panama	1,390	0	0	2,341	0	3,279	0	516
Poland	0	6,619	10,635	3,581	7,382	3,507	7,099	0
Portugal	6,382	3,296	5,538	10,765	7,358	0	3,360	0
Singapore	0	3,449	0	3,089	3,660	3,303	0	3,688
South Korea	50,101	39,314	55,918	46,033	21,683	32,203	18,094	55,936
Spain	23,068	8,630	7,833	5,234	22,974	13,900	3,733	7,377
Taiwan	6,728	20,653	3,097	10,157	6,594	13,450	0	10,319
Thailand	3,707	0	0	3,453	7,388	0	0	0
Turkey	0	5,591	0	3,017	0	3,619	20,652	26,659
United Arab Emirates	0	0	0	0	0	0	0	0
United Kingdom	0	0	0	10,586	13,877	17,440	34,343	21,436
By truck								
Canada	18	16	7	18	15	0	0	0
Mexico	147	97	105	48	48	19	63	83
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	**298,262**	**300,143**	**271,368**	**314,922**	**306,818**	**321,023**	**208,394**	**305,196**
CNG								
Canada	14	16	27	25	29	36	32	32
Total CNG exports	**14**	**16**	**27**	**25**	**29**	**36**	**32**	**32**
Total exports	**563,572**	**566,046**	**539,165**	**578,056**	**564,333**	**595,411**	**424,004**	**563,515**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2020-2022

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

	2020							
	Total	December	November	October	September	August	July	June
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	903,520	84,307	81,358	72,833	62,211	61,881	71,778	66,516
Mexico	1,990,809	164,577	166,135	185,799	182,068	185,867	181,152	162,927
Total pipeline exports	**2,894,329**	**248,884**	**247,493**	**258,632**	**244,279**	**247,748**	**252,930**	**229,442**
LNG								
Exports								
By vessel								
Antigua and Barbuda	0	0	0	0	0	0	0	0
Argentina	15,068	0	0	0	0	2,249	2,218	2,229
Bahamas	257	36	31	25	20	21	15	18
Bangladesh	10,660	0	0	0	0	0	3,614	0
Barbados	241	25	15	17	14	14	15	20
Belgium	31,946	0	3,633	3,285	0	0	0	0
Brazil	111,826	29,927	30,191	22,427	0	3,520	0	0
Chile	80,615	9,793	3,252	6,836	3,277	7,428	1,515	3,313
China	214,401	45,525	45,083	35,115	11,245	13,699	10,358	0
Colombia	4,626	0	0	0	2,548	550	0	0
Croatia	3,275	3,275	0	0	0	0	0	0
Dominican Republic	26,050	5,000	5,106	5,909	0	2,772	0	0
Egypt	0	0	0	0	0	0	0	0
France	90,237	3,752	3,390	6,639	0	0	0	0
Greece	48,403	3,382	3,543	0	7,027	0	6,544	1,076
Haiti	118	17	11	9	8	11	8	7
India	124,402	10,241	10,299	17,762	10,514	10,319	7,404	10,100
Indonesia	0	0	0	0	0	0	0	0
Israel	15,834	0	0	0	3,041	3,001	3,317	3,277
Italy	68,453	0	3,083	0	0	6,734	3,232	12,998
Jamaica	17,052	2,374	0	2,514	2,610	0	0	0
Japan	287,672	54,004	32,967	31,554	6,855	22,541	10,618	21,836
Jordan	6,872	0	0	0	3,578	0	0	0
Kuwait	17,293	0	0	3,603	3,508	6,886	0	0
Lithuania	28,879	6,291	3,621	6,191	3,308	0	0	3,049
Malaysia	0	0	0	0	0	0	0	0
Malta	2,648	0	0	0	0	0	0	0
Mexico	34,408	0	3,056	7,398	3,285	3,701	0	0
Netherlands	85,573	3,316	6,684	3,603	6,671	0	6,746	6,870
Nicaragua	0	0	0	0	0	0	0	0
Pakistan	36,934	0	3,436	10,009	9,853	3,412	0	0
Panama	12,764	271	1,448	433	3,228	0	0	0
Poland	36,900	7,033	0	3,157	0	0	0	3,385
Portugal	36,922	3,711	5,830	3,564	6,853	0	0	0
Singapore	28,341	0	7,658	3,416	0	2,967	3,690	0
South Korea	316,227	39,617	49,103	14,239	32,126	13,814	10,492	28,171
Spain	199,966	13,583	9,907	14,118	15,206	3,222	13,679	9,640
Taiwan	64,363	12,470	6,216	3,636	9,007	0	0	2,953
Thailand	32,622	0	3,705	0	0	0	3,254	0
Turkey	123,957	20,188	12,817	0	3,611	0	3,222	0
United Arab Emirates	10,110	0	0	0	0	3,359	3,277	0
United Kingdom	160,199	30,378	26,544	17,191	3,664	0	2,908	0
By truck								
Canada	10	8	0	0	0	0	0	0
Mexico	822	46	52	68	73	78	72	61
Re-exports								
By vessel								
Argentina	2,164	0	0	0	0	2,164	0	0
Brazil	82	0	0	82	0	0	0	0
Japan	387	0	0	82	0	0	0	0
South Korea	387	0	0	82	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG exports	**2,389,963**	**304,263**	**280,682**	**222,963**	**151,128**	**112,462**	**96,200**	**109,002**
CNG								
Canada	386	29	35	26	17	20	37	43
Total CNG exports	**386**	**29**	**35**	**26**	**17**	**20**	**37**	**43**
Total exports	**5,284,678**	**553,176**	**528,210**	**481,621**	**395,424**	**360,230**	**349,167**	**338,486**

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2020-2022

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

	2020				
	May	April	March	February	January
Exports					
Volume (million cubic feet)					
Pipeline					
Canada	67,752	71,722	86,579	77,354	99,231
Mexico	145,242	138,544	166,550	151,071	160,875
Total pipeline exports	**212,994**	**210,266**	**253,130**	**228,425**	**260,106**
LNG					
Exports					
By vessel					
Antigua and Barbuda	0	0	0	0	0
Argentina	8,372	0	0	0	0
Bahamas	20	23	20	13	15
Bangladesh	3,406	0	0	0	3,640
Barbados	20	15	28	26	33
Belgium	1,348	3,324	3,724	9,872	6,761
Brazil	0	0	6,891	10,433	8,438
Chile	11,068	14,098	3,216	10,731	6,087
China	14,535	21,140	17,699	0	0
Colombia	0	0	0	1,003	525
Croatia	0	0	0	0	0
Dominican Republic	2,554	1,838	2,872	0	0
Egypt	0	0	0	0	0
France	9,546	16,336	23,491	20,520	6,563
Greece	3,430	3,233	8,892	0	11,276
Haiti	10	8	9	11	7
India	10,534	16,674	17,245	0	3,309
Indonesia	0	0	0	0	0
Israel	0	0	3,197	0	0
Italy	6,452	3,135	9,895	16,616	6,308
Jamaica	0	5,770	1	2,914	869
Japan	13,729	18,387	21,845	21,360	31,975
Jordan	3,294	0	0	0	0
Kuwait	0	3,297	0	0	0
Lithuania	3,473	2,945	0	0	0
Malaysia	0	0	0	0	0
Malta	0	0	0	48	2,600
Mexico	0	0	7,037	3,167	6,764
Netherlands	6,826	10,305	13,772	14,099	6,681
Nicaragua	0	0	0	0	0
Pakistan	0	3,334	0	3,567	3,323
Panama	3,070	0	906	3,408	0
Poland	6,258	3,523	3,583	6,677	3,282
Portugal	0	10,777	0	6,187	0
Singapore	0	0	10,610	0	0
South Korea	20,921	24,258	28,095	11,071	44,320
Spain	29,360	22,943	23,657	20,240	24,412
Taiwan	6,662	0	6,987	7,115	9,317
Thailand	7,397	11,049	3,783	3,435	0
Turkey	6,661	14,030	6,489	24,303	32,637
United Arab Emirates	3,474	0	0	0	0
United Kingdom	0	0	20,202	28,884	30,428
By truck					
Canada	0	0	0	0	2
Mexico	18	23	123	87	122
Re-exports					
By vessel					
Argentina	0	0	0	0	0
Brazil	0	0	0	0	0
Japan	0	0	0	0	305
South Korea	0	0	0	0	305
United Kingdom	0	0	0	0	0
Total LNG exports	**182,438**	**210,466**	**244,269**	**225,786**	**250,305**
CNG					
Canada	39	35	38	34	33
Total CNG exports	**39**	**35**	**38**	**34**	**33**
Total exports	**395,472**	**420,767**	**497,437**	**454,245**	**510,444**

See footnotes at end of table.

Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2017-2022

million cubic feet

Year and month	Alaska	Arkansas	California	Colorado	Kansas	Louisiana	Montana	New Mexico	North Dakota	Ohio
2017 total	**344,385**	**694,676**	**212,458**	**1,706,364**	**219,639**	**2,139,830**	**46,311**	**1,299,732**	**593,998**	**1,791,359**
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										
January	30,018	42,187	15,908	178,066	14,623	274,755	3,527	162,016	78,798	203,701
February	28,537	39,093	14,649	166,620	13,636	255,885	3,340	155,323	77,940	190,559
March	29,219	43,677	15,376	175,202	14,486	276,544	3,527	169,244	83,892	203,701
April	27,513	39,748	14,906	168,438	13,595	264,869	3,148	156,722	72,059	193,050
May	27,076	40,463	15,172	163,768	14,012	281,636	2,692	147,782	52,874	199,485
June	25,545	38,742	14,837	159,601	13,321	264,072	2,667	153,276	52,626	193,050
July	26,779	39,855	15,061	167,105	13,674	264,875	3,322	165,335	64,860	201,686
August	26,846	40,295	13,344	165,091	13,504	260,226	3,248	168,311	74,940	201,686
September	26,978	38,734	12,857	162,531	13,030	255,690	3,009	165,008	78,195	195,180
October	29,080	40,172	13,059	164,462	13,461	263,120	3,204	171,376	82,649	201,097
November	29,575	38,565	12,934	159,409	12,917	267,312	3,143	167,213	80,112	194,610
December	31,161	39,452	12,475	160,168	13,097	277,178	3,135	166,561	83,498	201,097
Total	**338,329**	**480,982**	**170,579**	**1,990,462**	**163,356**	**3,206,163**	**37,963**	**1,948,168**	**882,443**	**2,378,902**
2021										
January	31,667	39,285	11,467	160,766	12,900	276,873	3,292	173,929	83,193	193,911
February	28,365	30,183	10,846	143,192	10,142	223,268	2,859	144,804	70,129	175,146
March	31,483	42,466	12,136	157,254	13,251	282,668	3,299	180,669	83,243	193,911
April	29,514	37,756	11,791	156,092	12,842	273,643	3,078	178,912	82,917	185,964
May	29,005	38,563	12,342	162,416	13,063	283,576	3,328	187,994	85,384	192,163
June	27,715	36,918	11,885	154,617	12,716	276,142	2,975	184,732	82,520	185,964
July	26,280	38,045	12,141	160,287	13,215	299,939	3,321	195,904	80,072	189,515
August	27,864	37,753	12,076	158,586	13,224	292,784	3,343	199,365	84,297	189,515
September	28,534	36,508	11,617	153,270	12,769	290,606	3,283	194,290	85,041	183,401
October	30,458	37,626	11,655	160,291	13,213	307,744	3,460	200,567	87,446	199,379
November	30,735	36,079	11,279	155,653	12,722	310,363	3,291	195,365	87,089	192,947
December	33,039	37,006	11,371	157,031	12,928	313,823	3,163	201,176	87,692	199,379
Total	**354,660**	**448,187**	**140,604**	**1,879,457**	**152,986**	**3,431,429**	**38,693**	**2,237,706**	**999,025**	**2,281,193**
2022										
January	32,865	E37,302	E11,186	E151,815	E12,255	E311,786	E3,092	E196,780	E81,699	E196,005
February	30,014	E33,465	E9,336	E138,369	E10,930	E284,177	E2,801	E183,345	E74,429	E172,829
March	32,473	E37,518	E11,388	E155,246	E12,194	E313,229	E3,214	E219,028	E86,190	E187,872
April	30,910	E36,247	E11,212	E151,319	E12,037	E313,229	E3,042	E215,953	E68,484	E179,444
May	31,677	E37,042	E11,489	E155,982	E12,469	E340,363	E3,152	E223,843	E80,563	E189,214
June	R28,644	RE35,573	RE11,057	RE150,046	RE12,037	RE335,290	RE3,464	RE214,602	RE86,013	RE190,021
July	R29,654	RE36,400	RE11,651	RE152,962	RE12,396	RE345,727	RE3,457	RE227,150	RE89,634	RE193,519
August	29,054	E36,564	E11,628	E154,439	E12,507	E353,618	E3,572	E229,995	E89,667	E196,196
2022 8-month YTD	**245,290**	**E290,111**	**E88,946**	**E1,210,178**	**E96,826**	**E2,597,419**	**E25,794**	**E1,710,696**	**E656,679**	**E1,505,100**
2021 8-month YTD	**231,894**	**300,969**	**94,683**	**1,253,211**	**101,354**	**2,208,893**	**25,496**	**1,446,309**	**651,757**	**1,506,087**
2020 8-month YTD	**221,535**	**324,059**	**119,254**	**1,343,891**	**110,851**	**2,142,863**	**25,472**	**1,278,009**	**557,989**	**1,586,918**

See footnotes at end of table.

Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2017-2022

million cubic feet – continued

Year and month	Oklahoma	Pennsylvania	Texas	Utah	West Virginia	Wyoming	Other states	Federal Gulf of Mexico	U.S. total
2017 total	**2,513,897**	**5,453,638**	**7,223,841**	**315,211**	**1,514,278**	**1,590,059**	**517,698**	**1,060,452**	**29,237,825**
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									
January	263,734	603,836	843,432	21,944	209,896	124,274	37,391	86,071	3,194,177
February	243,139	569,721	783,094	20,373	198,090	108,722	34,782	81,114	2,984,616
March	257,387	607,689	841,347	21,765	210,559	117,977	36,689	87,955	3,196,236
April	235,642	586,955	783,283	20,379	204,826	111,744	34,389	80,574	3,011,842
May	217,154	592,126	734,176	20,326	212,646	107,288	33,986	64,374	2,927,037
June	222,324	560,390	741,401	19,244	212,831	103,890	32,957	62,227	2,873,001
July	226,843	604,716	775,851	20,312	220,032	108,679	34,568	67,778	3,021,331
August	226,344	607,221	782,436	19,814	223,208	107,320	33,757	43,988	3,011,580
September	222,010	567,029	755,253	19,283	218,893	104,520	30,468	48,900	2,917,569
October	219,403	595,653	773,720	20,042	226,064	104,787	31,775	38,702	2,991,827
November	224,327	605,244	751,562	19,200	223,428	103,236	31,246	60,496	2,984,528
December	228,057	647,714	770,555	19,307	231,845	103,933	32,383	67,085	3,088,701
Total	**2,786,366**	**7,148,295**	**9,336,110**	**241,989**	**2,592,319**	**1,306,368**	**404,391**	**789,262**	**36,202,446**
2021									
January	221,544	652,640	798,426	19,392	234,432	97,657	35,223	71,772	3,118,370
February	163,094	585,371	609,757	18,126	208,571	89,337	31,366	64,024	2,608,580
March	220,130	645,407	826,381	20,404	227,218	95,164	34,671	74,200	3,143,955
April	214,334	615,899	820,570	19,783	229,075	92,340	34,427	69,762	3,068,700
May	223,372	635,584	844,723	20,313	234,118	94,341	35,868	72,053	3,168,206
June	213,314	616,270	815,947	19,502	227,987	90,259	29,234	67,429	3,056,126
July	221,002	638,200	858,526	20,601	229,376	93,644	30,467	71,744	3,182,278
August	222,329	646,169	863,509	20,347	241,373	89,749	32,659	61,377	3,196,320
September	216,455	622,275	855,425	19,928	216,452	91,662	30,611	34,559	3,086,687
October	223,093	645,126	873,479	20,457	240,446	93,162	37,663	60,037	3,245,301
November	214,361	646,233	836,104	20,014	229,812	90,176	32,023	65,610	3,169,856
December	218,805	677,331	872,543	20,538	241,569	91,741	36,962	67,903	3,283,998
Total	**2,571,834**	**7,626,504**	**9,875,390**	**239,405**	**2,760,429**	**1,109,232**	**401,172**	**780,471**	**37,328,378**
2022									
January	E213,419	E660,345	E853,214	E20,789	E234,795	E85,192	E31,292	E65,454	E3,199,287
February	E192,596	E581,432	E766,441	E18,966	E209,707	E76,605	E28,839	E55,884	E2,870,165
March	E219,732	E635,076	E871,961	E21,315	E239,344	E84,319	E31,519	E63,547	E3,225,163
April	E223,078	E616,181	E856,759	E21,254	E235,580	E81,405	E29,705	E65,810	E3,151,649
May	E237,032	E640,189	E887,465	E22,840	E247,179	E82,036	E31,011	E62,326	E3,295,871
June	RE230,337	RE616,632	RE862,817	RE22,278	E240,568	RE80,395	RE31,237	RE63,627	RE3,214,637
July	RE239,541	RE641,774	RE890,285	RE23,129	E251,625	RE85,558	RE32,324	RE66,350	RE3,333,138
August	E240,366	E631,927	E898,043	E23,614	E254,301	E84,792	E32,241	E67,689	E3,350,213
2022 8-month YTD	**E1,796,100**	**E5,023,557**	**E6,886,986**	**E174,187**	**E1,913,099**	**E660,302**	**E248,168**	**E510,687**	**E25,640,124**
2021 8-month YTD	**1,699,121**	**5,035,539**	**6,437,838**	**158,469**	**1,832,150**	**742,491**	**263,914**	**552,361**	**24,542,535**
2020 8-month YTD	**1,892,568**	**4,732,656**	**6,285,019**	**164,157**	**1,692,089**	**889,893**	**278,519**	**574,080**	**24,219,820**

R Revised data.

E Estimated data.

RE Revised estimated data.

Source: 2017-2021: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2021*, Bureau of Safety and Environmental Enforcement (BSEE), IHS Markit, and Enverus. January 2022 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; and EIA computations.

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

Summary

Overview of Activity for August 2022

- **Top five countries of destination, representing 55.9% of total U.S. LNG exports in August 2022**
  - Netherlands (50.4 Bcf), South Korea (36.0 Bcf), France (33.9 Bcf), Spain (26.1 Bcf), and United Kingdom (21.3 Bcf)
- **299.9 Bcf of exports in August 2022**
  - 0.1% decrease from July 2022
  - 0.7% more than August 2021
- **98 cargos shipped in August 2022**
  - Sabine Pass (40), Cameron (29), Corpus Christi (19), Cove Point (7), Elba (3), and Freeport (0)
  - 100 cargos in July 2022
  - 98 cargos in August 2021

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

Region	Number of Countries Receiving Per Region	Volume Exported (Bcf)	Percentage Receipts of Total Volume Exported (%)	Number of Cargos*
East Asia and Pacific	8	4,213.4	34.1%	1218
Europe and Central Asia	13	4,885.0	39.5%	1514
Latin America and the Caribbean**	13	2,106.6	17.1%	750
Middle East and North Africa	5	366.3	3.0%	107
South Asia	3	781.6	6.3%	233
Sub-Saharan Africa	0	0.0	0.0%	0
Total LNG Exports	**42**	**12,353.0**	**100.0%**	**3,822**

*Split cargos counted as both individual cargos and countries

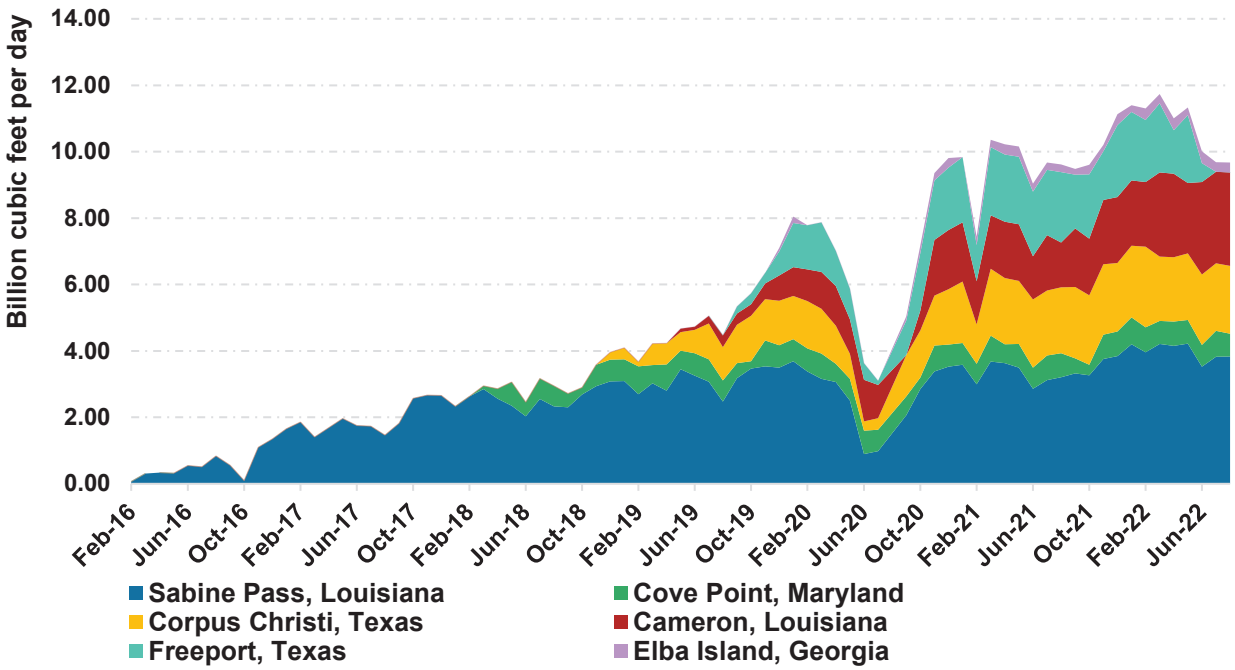
**Number of cargos does not include the shipments by ISO container

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

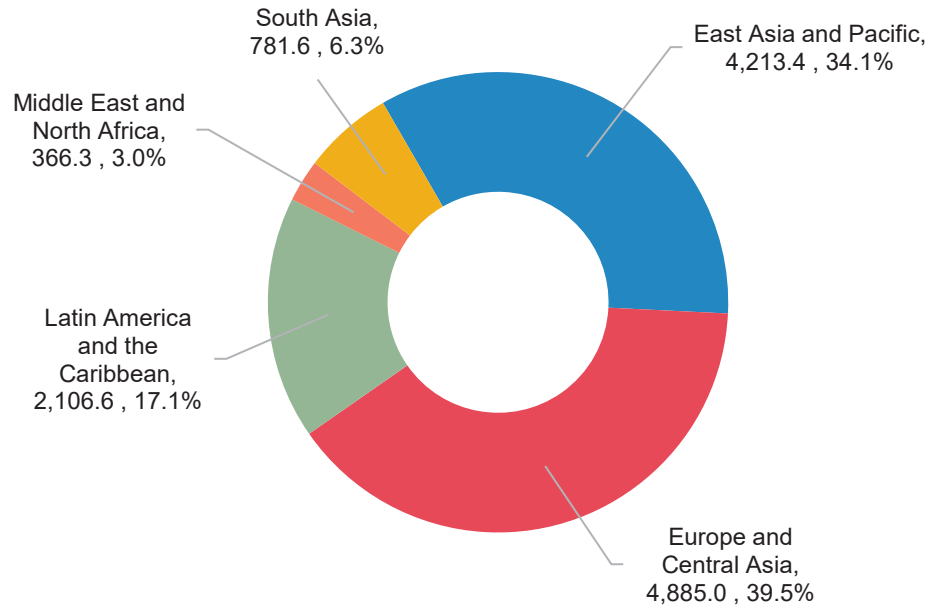
	Country of Destination	Region	Number of Cargos	Volume (Bcf of Natural Gas)	Percentage of Total U.S LNG Exports (%)
1.	South Korea*	East Asia and Pacific	467	1,627.7	13.2%
2.	Japan*	East Asia and Pacific	342	1,180.0	9.6%
3.	Spain*	Europe and Central Asia	300	943.0	7.6%
4.	China*	East Asia and Pacific	270	925.1	7.5%
5.	France*	Europe and Central Asia	241	779.6	6.3%
6.	United Kingdom*	Europe and Central Asia	221	745.8	6.0%
7.	Netherlands*	Europe and Central Asia	185	606.3	4.9%
8.	Brazil*	Latin America and the Caribbean	216	604.9	4.9%
9.	India*	South Asia	174	588.3	4.8%
10.	Mexico*	Latin America and the Caribbean	163	546.3	4.4%
11.	Turkey*	Europe and Central Asia	163	527.1	4.3%
12.	Chile*	Latin America and the Caribbean	131	416.0	3.4%
13.	Italy*	Europe and Central Asia	90	293.7	2.4%
14.	Taiwan*	East Asia and Pacific	92	292.0	2.4%
15.	Argentina*	Latin America and the Caribbean	110	265.2	2.1%
16.	Portugal*	Europe and Central Asia	74	234.9	1.9%
17.	Poland*	Europe and Central Asia	67	227.1	1.8%
18.	Greece*	Europe and Central Asia	70	167.8	1.4%
19.	Kuwait	Middle East and North Africa	42	146.0	1.2%
20.	Dominican Republic*	Latin America and the Caribbean	61	144.5	1.2%
21.	Lithuania	Europe and Central Asia	42	129.7	1.1%
22.	Pakistan*	South Asia	40	128.9	1.0%
23.	Jordan*	Middle East and North Africa	36	124.2	1.0%
24.	Belgium*	Europe and Central Asia	37	122.0	1.0%
25.	Singapore*	East Asia and Pacific	31	100.7	0.8%
26.	Croatia	Europe and Central Asia	31	93.4	0.8%
27.	Thailand*	East Asia and Pacific	23	79.2	0.6%
28.	Bangladesh*	South Asia	19	64.5	0.5%
29.	Jamaica*	Latin America and the Caribbean	25	57.3	0.5%
30.	United Arab Emirates	Middle East and North Africa	15	51.1	0.4%
31.	Panama*	Latin America and the Caribbean	27	47.9	0.4%
32.	Israel*	Middle East and North Africa	9	28.0	0.2%
33.	Colombia*	Latin America and the Caribbean	17	20.5	0.2%
34.	Egypt*	Middle East and North Africa	5	16.9	0.1%
35.	Malta*	Europe and Central Asia	9	14.6	0.1%
36.	Indonesia*	East Asia and Pacific	9	5.0	0.0%
37.	Malaysia	East Asia and Pacific	1	3.7	0.0%
	Total Exports by Vessel		**3,855**	**12,348.8**	
38.	Barbados	Latin America and the Caribbean	304	1.3	0.0%
39.	Bahamas	Latin America and the Caribbean	598	1.4	0.0%
	Jamaica	Latin America and the Caribbean	99	1.1	0.0%
40.	Haiti	Latin America and the Caribbean	125	0.4	0.0%
41.	Antigua and Barbuda	Latin America and the Caribbean	26	0.0	0.0%
42.	Nicaragua	Latin America and the Caribbean	1	0.0	0.0%
	Total Exports by ISO		**1126**	**4.1**	
	Total Exports by Vessel and ISO		**4,981**	**12,353.0**	

Note:
Volume and Number of Cargos are the cumulative totals of each individual Country of Destination by Region starting from February 2016.
Jamaica has received U.S. LNG exports by both vessel and ISO container. The volumes are totaled separately
* Split cargos counted as both individual cargos and countries.
Vessel = LNG Exports by Vessel and ISO container = LNG Exports by Vessel in ISO Containers.
Does not include re-exports of previously-imported LNG. See table 2c for re-exports data.
Totals may not equal sum of components because of independent rounding.

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

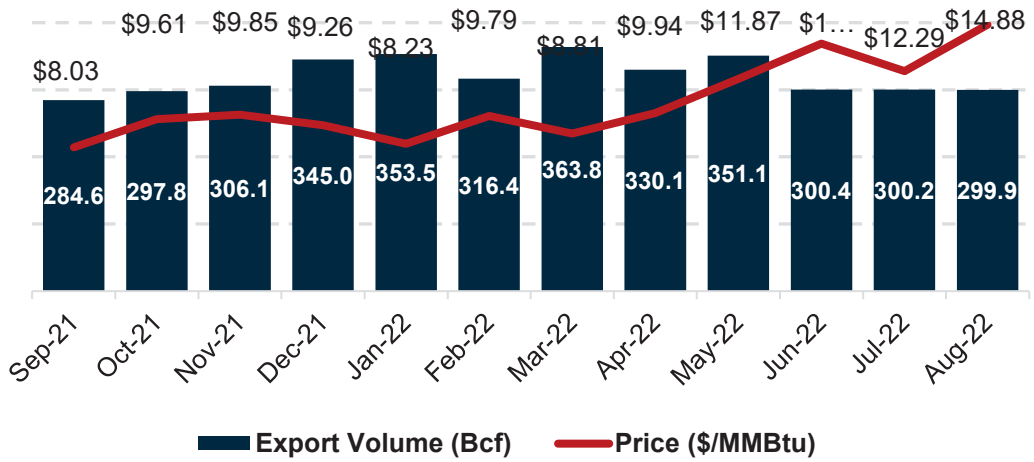


1d. Domestically-Produced LNG Exported by Region
(Cumulative from February 2016 through August 2022)
(Bcf, %)



1f. Domestically-Produced LNG Delivered – Volume (Bcf) and Weighted Average price ($/MMBtu) by Export Terminal per month

	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Total
Sabine Pass, LA	99.6	101.3	112.8	119.1	130.1	110.9	130.5	124.6	130.7	105.7	118.5	118.7	**1,402.4**
	$7. 77	$9.43	$9.81	$8.94	$8.40	$9.81	$7.92	$8.80	$10.93	$12.90	$10.50	$12.71	**$9.81**
Cove Point, MD	13.7	9.9	21.9	23.0	25.2	20.9	21.4	21.8	22.2	19.7	24.2	21.4	**245.5**
	$8.23	$9.64	$10.18	$9.27	$8.33	$9.74	$8.57	$9.32	$10.85	$12.33	$11.28	$12.36	**$10.05**
Corpus Christi, TX	64.4	64.8	63.5	64.0	66.8	68.2	60.1	58.3	62.0	63.7	63.1	63.4	**762.2**
	$8.38	$10.85	$10.34	$11.92	$9.12	$10.66	$9.81	$10.48	$11.95	$13. 57	$12.17	$14.70	**$11.16**
Cameron, LA	52.8	52.7	58.1	61.4	61.2	54.4	78.6	75.4	65.8	83.3	85.2	87.2	**816.0**
	$7.99	$8.93	$9.36	$7.59	$7.40	$8.72	$9.76	$12.33	$14.85	$16.05	$15.15	$18.92	**$11.99**
Freeport, TX	48.6	60.0	43.9	67.3	63.9	52.5	64.5	39.3	63.5	17.3	0	0	**520.8**
	$8.09	$9.29	$9.85	$8.96	$7.87	$9.60	$8.42	$9.07	$11.23	$12.83	0	0	**$9.27**
Elba Island, GA	5.5	9.1	5.8	10.3	6.3	9.6	8.7	10.8	6.9	10.7	9.1	9.2	**101.9**
	$7.64	$8.65	$9.17	$8.41	$6.70	$10.40	$10.12	$7.93	$9.66	$11.40	$12.20	$11.58	**$9.63**
Total	**284.6**	**297.8**	**306.1**	**345.0**	**353.5**	**316.4**	**363.8**	**330.1**	**351.1**	**300.4**	**300.2**	**299.9**	**3,848.9**
	$8.03	**$9.61**	**$9.85**	**$9.26**	**$8.23**	**$9.79**	**$8.81**	**$9.94**	**$11.87**	**$13.82**	**$12.29**	**$14.88**	**$10.47**



Notes:

*Beginning with July 2019 data, with the exception of some commissioning cargos as indicated in Table 2(a), all average export cargo prices include liquefaction fees. From January to June 2019, some cargos at Sabine Pass and Corpus Christi do not include liquefaction fees. For further details, please see Tables 2a(i) and 2a(iii).

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.

W - Withheld to avoid disclosure of individual company data.

DOE has a confidentiality policy for certain data elements collected on Form FE-746R that allows DOE to publish a monthly volume-weighted average price for each point of LNG import or export, but not a price for each individual imported or exported LNG cargo. For additional information, please see the Federal Register Notice concerning this Information Collection Extension at https://www.federalregister.gov/documents/2018/08/30/2018-18829/information-collection-extension.

EVERSOURCE ENERGY

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Joseph R. Nolan, Jr.
President & Chief Executive Officer

October 27, 2022

President Joseph R. Biden
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20500

Dear President Biden:

First, let me thank you for your leadership in spearheading the passage of the Inflation Reduction Act and accelerating investments in clean energy that support decarbonizing our economy. I was proud to join you and leaders in your Administration at the White House last month to celebrate this landmark legislation that will bring much needed investment across the country and create good-paying jobs for so many Americans.

I write to you today to ask for your Administration's leadership again to swiftly address the growing concerns about winter electric reliability in New England. Eversource Energy, in partnership with many New England states and other utilities, has ramped up investments in large-scale clean energy resources including offshore wind and hydropower that will reduce dependency on natural gas for electric generation, but many of these projects will not be bringing power to the grid for several years. Thus, the New England region remains dependent on natural gas to meet our power needs this winter and for the foreseeable future as we work expeditiously to bring additional renewables online. As both an energy company CEO and a lifelong New Englander, I am deeply concerned about the potentially severe impact a winter energy shortfall would have on the people and businesses of this region.

ISO-New England, the region's electricity grid operator, and the Federal Energy Regulatory Commission have acknowledged for many months that New England will not have sufficient natural gas to meet power supply needs for the region in the event of a severe cold spell this winter. This represents a serious public health and safety threat. Consumers in New England are already experiencing skyrocketing electricity and gas costs given supply constraints and global price pressures following the Russian invasion of Ukraine. As the governors of the New England states mentioned in their letter to the Administration on July 27, New England's energy situation will have significant implications for customers of all types.

I respectfully urge you, Mr. President, to employ the emergency powers of the federal government to take all steps to ensure that adequate fuel resources will be available in the event of severe weather conditions in New England this winter.

As ISO New England has explained:[1]

> The natural gas pipelines that serve New England operate at maximum capacity during the winter. During very cold weather, and for extended periods, the pipelines cannot fully supply heating demand or provide enough fuel to power gas generators without significant injections of LNG on the eastern and northern parts of the New England gas system. Because New England is at the end of the interstate pipeline system and lacks large scale, long duration energy or fuel storage, both the gas distribution system and the electric power system have a dependence on imported LNG, and this reality will persist until the region invests in access to alternative long duration energy storage infrastructure.

Pipeline deliveries are routinely supplemented by shipments of foreign-sourced LNG delivered to the LNG import facility in Everett, Massachusetts, on foreign flagged vessels. However, because of the war in Ukraine, imported LNG is not available to the New England region in the volumes necessary to meet this winter's needs without causing further stress on European markets and the American economy. Additionally, increasing reliance on foreign-sourced natural gas poses a particular national security threat at this time given the war in Ukraine.

To the extent New England power generators are forced to increase their reliance on foreign-sourced natural gas – if that is even possible – it will exacerbate well-documented shortages in Europe. More fundamentally, from a national security perspective, it will put upward pressure on prices in the international market for natural gas. As a major gas supplier, Russia will directly benefit from higher prices, and that in turn threatens to subsidize the Russian military and prolong the war in Ukraine.

The federal government has at its disposal a number of emergency authorities that could relieve the risk to electric reliability New England faces this winter, if exercised in a timely way. At a minimum, federal agencies, acting within their existing established authorities, could provide relief through:

- An emergency order under Section 202(c) of the **Federal Power Act**, 16 U.S.C. § 824a(c), which may be authorized due to a sudden increase in electricity demand, a shortage of electricity, a shortage in facilities, fuel, or water for generation, or for "other causes." This authority permits the Secretary of Energy to order "temporary connections of facilities and such generation, delivery, interchange, or transmission of electric energy" as in the Secretary's judgment "will best meet the emergency and serve the public interest."

[1] ISO-NE Statement, Federal Energy Regulatory Commission New England Winter Gas-Electric Forum (September 8, 2022). Notwithstanding recognition of the structural shortage situation, ISO-NE has concluded that, in mild or moderate weather conditions, fuel supplies will be sufficient. ISO-NE, Winter 2022/23 Analysis, Assessment and Recommendations. However, both ISO-NE and the Federal Energy Regulatory Commission have acknowledged a prolonged cold weather event could cause disruptions and significant price impacts. Id.; FERC, Winter Energy Market and Reliability Assessment 2022-2023 at 1.

- A waiver of the **Jones Act**, 46 U.S.C. § 55102, which may be authorized by the President to meet certain temporary and targeted emergency needs in the interest of national defense, including for the shipment of LNG and other types of energy between U.S. ports.

- An emergency order under the **Natural Gas Policy Act**, 15 U.S.C. §§ 3361-3364, if the President determines that there is a severe natural gas shortage (or an imminent such shortage) in the U.S. that endangers the supply of natural gas for high priority uses, and finds the exercise of such authority reasonably necessary to meet these uses.

- Emergency authority under the **Defense Production Act**, 50 U.S.C. § 4511, permits the President (as delegated to the Secretary of Energy) to require acceptance and priority performance of contracts or orders, and to allocate materials, services, and facilities, in order to maximize domestic energy supplies and for other purposes.

To be effective, relief under these emergency authorities (and perhaps other authority that federal agencies may have) would have to be exercised on behalf of multiple entities that support the New England grid. Accordingly, to avert the potential loss of power to New England this winter, I ask you to direct the Secretary of Energy to convene all relevant parties to develop a plan to ensure the region is ready to meet the challenges one or more extreme winter weather events would present, using both the authorities available to the market participants and the federal government's emergency authorities. The need for action now is compelling. Many of the solutions require advance planning because they may require actions by regulators, finding new resources, chartering vessels, arranging for additional fuel deliveries, and other yet to be identified extraordinary actions.

At a minimum, Secretary Granholm should convene a group that includes: the federal agencies that have relevant emergency authorities, the region's governors and electricity regulators (who could play a role in supporting energy conservation measures that could work in parallel with the federal emergency authorities), ISO-New England, LNG terminal operators, the power generators that supply the region, fuel suppliers, and the utilities to whom customers look in the first instance for reliable supplies of electricity. Eversource stands ready to support and participate in such efforts.

I know that you share my concern for the people and businesses of this great region. I ask your Administration to take all necessary measures without delay.

Respectfully,

Joseph R. Nolan, Jr.

Joseph R. Nolan, Jr.

CC: Ron Klain, White House Chief of Staff
Secretary Jennifer Granholm, USDOE
Secretary Pete Buttigieg, USDOE
Secretary Alejandro Mayorkas, USDHS
Secretary Martin Walsh, USDOL
Gordon Van Welie, ISO-NE
FERC Commissioners
New England Congressional Delegation
New England Governors

https://www.qatarenergy.qa/en/MediaCenter/Pages/newsdetails.aspx?ItemId=3733

QATARENERGY SELECTS CONOCOPHILLIPS AS A PARTNER IN THE NFS EXPANSION PROJECT -

DOHA, Qatar • 30 October 2022 – QatarEnergy announced that it has selected ConocoPhillips as its third and final international partner in the North Field South (NFS) expansion project, which comprises two LNG mega trains with a combined capacity of 16 million tons per annum (MTPA).

The partnership agreement was signed today by His Excellency Mr. Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs, the President and CEO of QatarEnergy, and Mr. Ryan Lance, the Chairman and CEO of ConocoPhillips, during a ceremony held at QatarEnergy's headquarters in Doha and attended by senior executives from both companies.

Pursuant to the agreement, ConocoPhillips will have an effective net participating interest of 6.25% in the NFS project, out of a 25% interest available for international partners. QatarEnergy will hold the remaining 75% interest.

Speaking at the signing ceremony, His Excellency Mr. Saad Sherida Al-Kaabi, said: "QatarEnergy and its partners continue their efforts to supply an additional volume of about 65 million tons of LNG annually, from its North Field Expansion Projects and the Golden Pass LNG Project, to the global market to meet growing demand for cleaner, low-carbon energy, and to enhance energy security of customers around the world."

H.E. Minister Al-Kaabi added: "As we have previously emphasized, LNG produced from the North Field Expansion Projects will have the lowest carbon emission levels in the world, thanks to the deployment of a number of technologies, including extensive use of carbon capture and sequestration technologies. This will enable our LNG to play an important role in supporting a pragmatic, equitable and realistic energy transition."

His Excellency the Minister welcomed ConocoPhillips to the NFS project and thanked the working teams at QatarEnergy and ConocoPhillips for their excellent work and cooperation that led to this agreement, and to the Qatargas leadership and project teams for their efforts in implementing the North Field Expansion Projects safely, and on schedule.

Concluding his remarks, His Excellency Minister Al-Kaabi said: "I would like to express our sincere gratitude to His Highness the Amir, Sheikh Tamim bin Hamad Al Thani, for His wise leadership and for his unwavering support to Qatar's energy sector."

The North Field Expansion Projects, comprising NFS and the North Field East (NFE) expansion projects, is the industry's largest ever LNG project. It will start production in 2026 and will add more than 48 MTPA to the world's LNG supplies, and raise Qatar's LNG production capacity to 126 MTPA.

This unique project is characterized by the highest health, safety, and environmental standards, including carbon capture and sequestration, to reduce the project's overall carbon footprint to the lowest levels possible.

https://www.enappsys.com/winter-outlook-eu-markets/

JEAN-PAUL HARREMAN

Winter outlook: EU markets

August 2022

The success of French nuclear capacity coming back online will be crucial to Europe's power markets. France is traditionally an exporter of power during the summer and autumn months, which helps Italy, Switzerland and the Iberian Peninsula meet demand. French nuclear power also pushes Dutch and Belgian gas generation and German gas, coal and lignite-fired generation out-of-merit.

The availability of less than half of its nuclear capacity during summer has turned France into a net importer and has pushed power prices up massively. With gas prices being very high, as a result of supply shortages (caused by the Ukraine War), the combination of supply crises has been a major influence in the current energy turmoil.

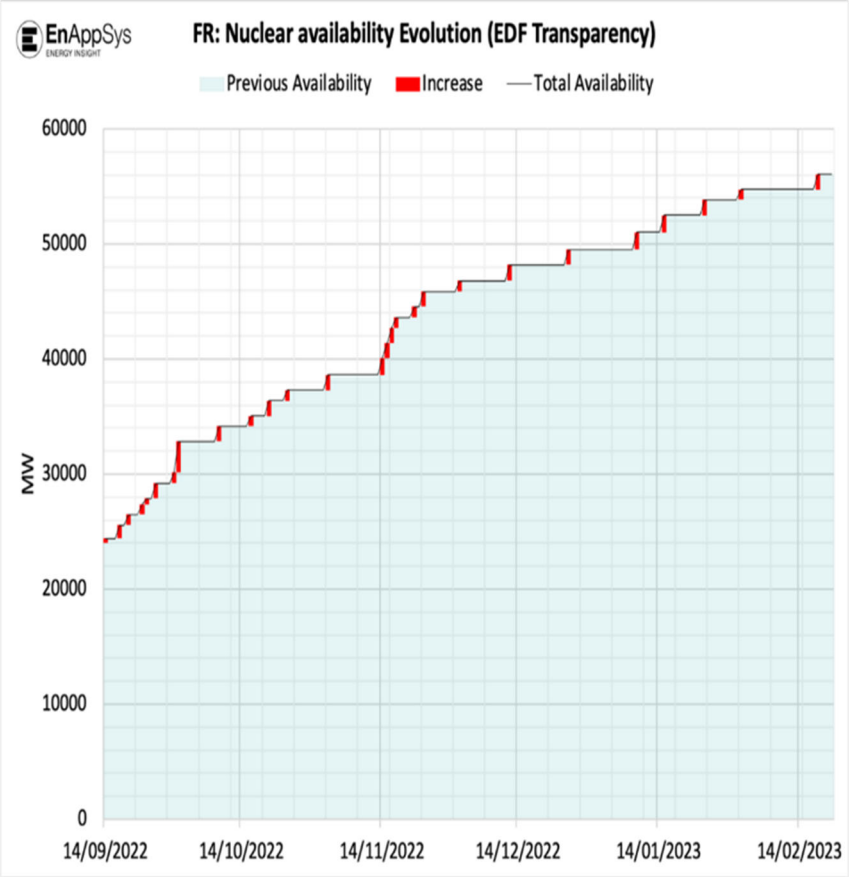
EDF has recently published data to show it will bring back online nearly all of its nuclear capacity for the winter season. This is a crucial necessity as French demand for power is highly sensitive to low temperatures. Where summer demand is relatively modest at levels below 50 GW on average, winter demand averages between 70 and 80 GW, with peaks over 90 GW during periods of very cold weather.

The return of the nuclear plants will be crucial. Currently 25 GW of nuclear power is available; by the end of September this should be over 30 GW, and 35 GW should be achieved by the end of October. From mid-November to the end of December, another 15 GW of capacity should return online. The final assets should be operational by the end of February. Germany has decided not to close around 4 GW of nuclear assets this winter, which should also help, but Europe will depend heavily on the success of this giant return to operations by the French nuclear assets. There definitely is skepticism in the market, as to whether EDF is able to stick to the timing of the operation.

If the winter does not start cold, it looks like we could just make it through without the rolling black-out plans that European governments have been drawing up. It will still be tight, but Iberian exports (they have a cap on gas prices, which have doubled gas-fired power generation since June) will help, along with the increase in nuclear power and wind generation, which should also pick up in the coming months. A moderate start should be good news for gas storage levels; it could reduce some of the pressure on forward gas and power markets.

A cold start of the winter looks likely to cause major problems, as we'll still be short by around 15 to 20 GW of French power, with gas-fired generation in Germany, Netherlands and Belgium being the very expensive alternative. High gas consumption would be disastrous for gas stocks and increase pressure on forward markets.

In summary, weather and the ability of EDF to increase nuclear availability on schedule will determine what the start of winter looks like. If everything turns out in favour of the market, gas dependence would be lower than in previous years. An early cold spell or delays in bringing back the nuclear assets would be a major blow to the market. If we can make it until Christmas, we should be all right!


EnAppSys
ENERGY INSIGHT
FR: Nuclear availability Evolution (EDF Transparency)
Previous Availability
Increase
Total Availability
60000
50000
40000
30000
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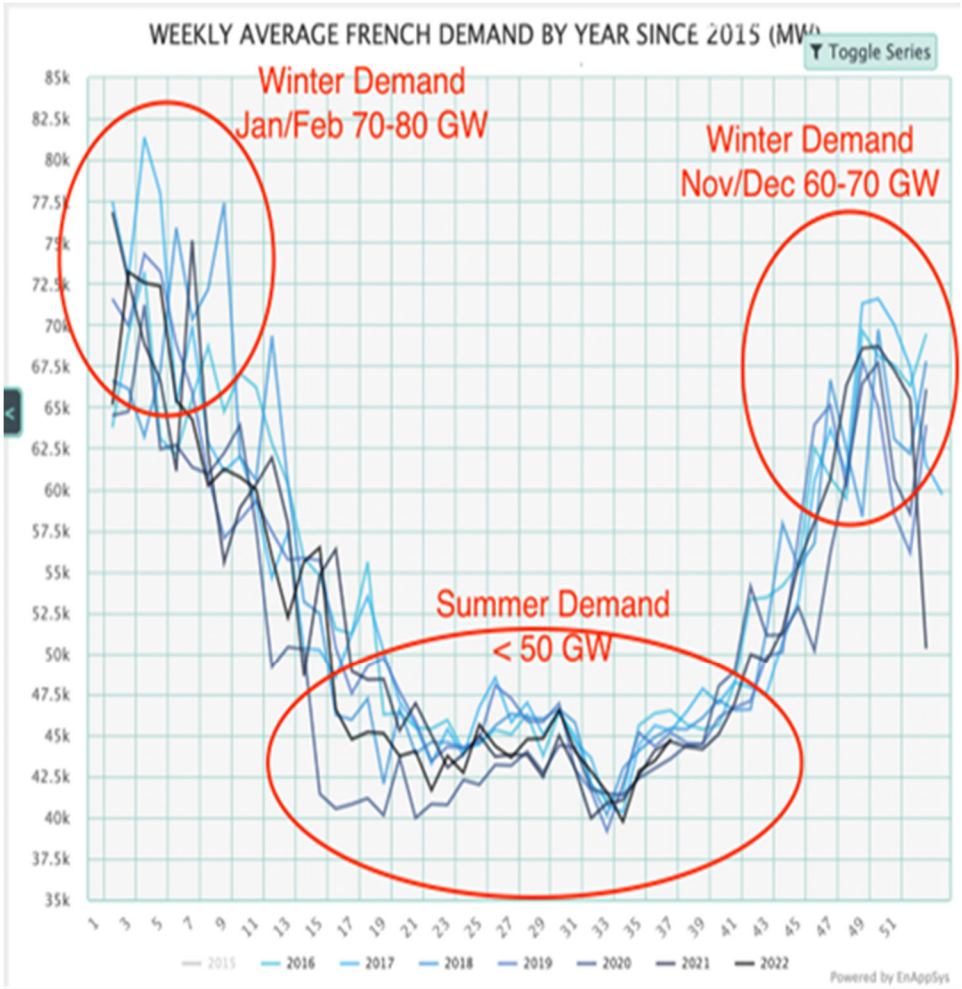
WEEKLY AVERAGE FRENCH DEMAND BY YEAR SINCE 2015 (MW)
Toggle Series
Winter Demand
Jan/Feb 70-80 GW
Winter Demand
Nov/Dec 60-70 GW
Summer Demand
< 50 GW
85k
82.5k
80k
77.5k
75k
72.5k
70k
67.5k
65k
62.5k
60k
57.5k
55k
52.5k
50k
47.5k
45k
42.5k
40k
37.5k
35k
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2015
2016
2017
2018
2019
2020
2021
2022
Powered by EnAppSys

https://www.enappsys.com/sweden-overtakes-france-as-europes-biggest-net-power-exporter/

KOSHY THOMAS

Sweden overtakes France as Europe's biggest net power exporter

July 2022

Sweden overtook France as the biggest net exporter of power in Europe during the first half of this year.

This was the standout highlight of a new report on the European electricity market by energy data analyst EnAppSys.

The report describes the value of imports and exports in Europe during the first six months of 2022. It found that Sweden's total net exports amounted to 16TWh, with most of the power flowing to Finland (7TWh) and Denmark (4TWh).

Despite the increase in exports to these two countries, however, Sweden's rise to the top of the exporting league table had more to do with France's shift from a net exporter earlier in the year to a net importer which resulted in a dramatic fall in its overall net position.

Usually, France exports more power than it imports but structural problems with its nuclear fleet meant that it had to source significant amounts of power from other countries in the first half of 2022 with Exports from France therefore halving over those in the previous half year.

The second largest net exporter across the period was Germany with 15.4TWh, a doubling of the previous 2021 half year levels with generation in Germany (along wih GB) responding to the demand for imports from France. Bulgaria was in third place with 6.6TWh a relatively small increase from its net flows in the previous half year.

Jean-Paul Harreman, director EnAppSys BV, said: "In the first half of the year, the GB electricity market was notable for interconnector flows flipping from a net import position to a net export position. France was by far the largest consumer due to the longstanding issues with its nuclear fleet – a situation that shows no signs of improving any time soon.

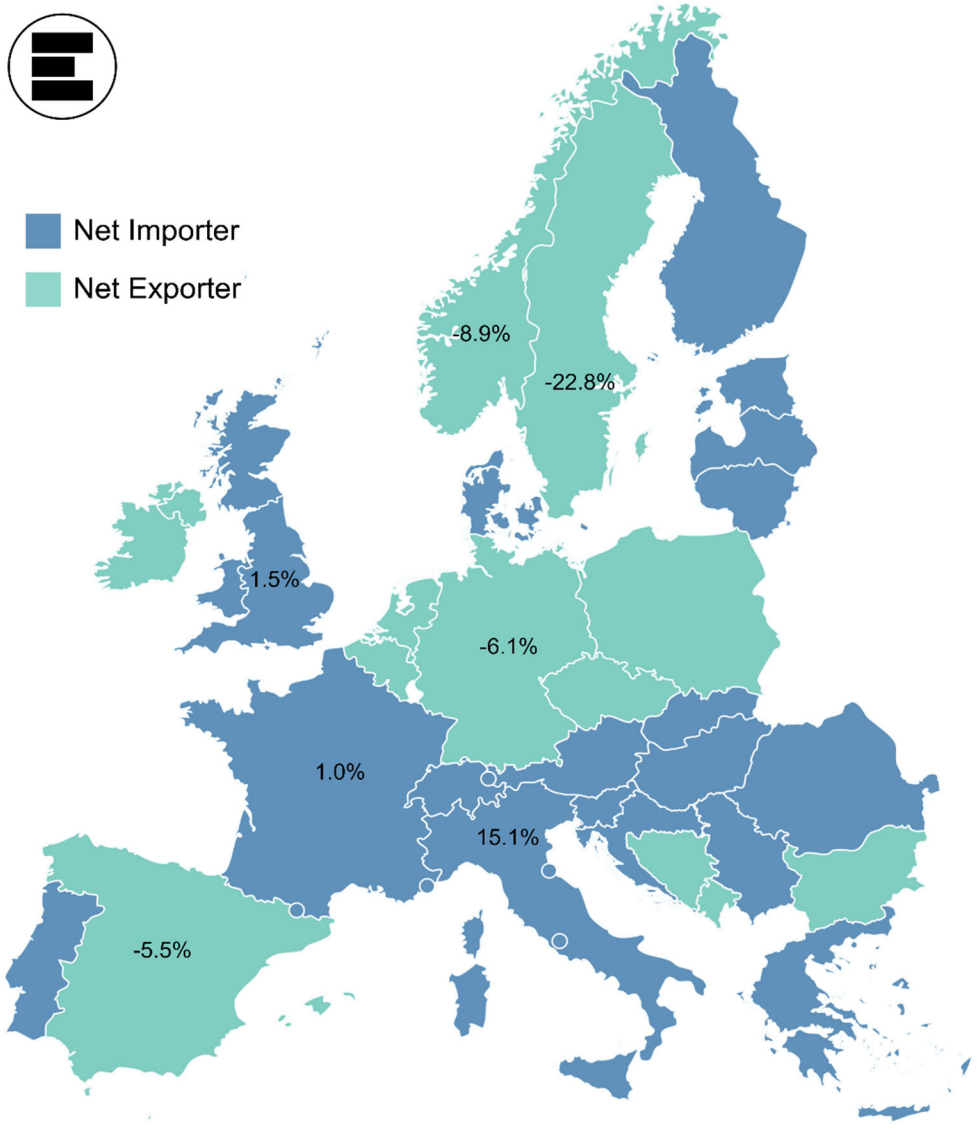
"France's nuclear issues have resulted in an exceptional net-import position for the French market. This has been exacerbated by high gas prices, which has made it less financially attractive for France to export usual amounts of gas into Europe. This in turn has pushed gas assets out of merit across Europe.

"In addition to France, Norway also saw significant changes in its interconnector flows during the first half of this year. Historically a net exporter due to its high levels of renewable hydro generation, Norway has suffered a prolonged drought which has reduced water reservoir levels and thereby limited its renewable generation. If this

situation continues, this could have a significant negative impact on Britain. Recent data from Norway's Directorate of Water Resources and Energy shows that reservoir levels in the region of Norway from where Britain gets its power fell from the seasonal average of 74.4% to just 49.3%. This is concerning, as Norway is considered to be one of Britain's most reliable sources of imported power."

When net exports as a percentage of demand was taken into consideration, Bosnia regained its number one ranking with net exports of 35%, followed by Bulgaria (33%), Sweden (23%) and the Czech Republic (14.8%).

Italy remained the biggest net importer during the first six months of 2022, sourcing 22TWh from outside of the country, of which 9.6TWh came from Switzerland and 6.7TWh from France.



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	H2-2021			H1- 2022					
	TWh			TWh			% Demand		
Countries	Imports	Exports	Net Value	Imports	Exports	Net Value	Imports	Exports	Net Value
Albania	1.2	-0.5	0.8	0.8	-0.5	0.3			
Austria	13.7	-8.8	4.9	13.6	-10.3	3.4	43.8%	-33.0%	10.8%
Belgium	6.3	-8.8	-2.5	7.5	-9.4	-1.9	17.8%	-22.3%	-4.6%
Bosnia	0.9	-2.7	-1.8	0.7	-2.8	-2	12.8%	-48.3%	-35.5%
Bulgaria	0.6	-6.4	-5.8	0.7	-7.3	-6.6	3.5%	-36.6%	-33.1%
Croatia	4.5	-1.7	2.8	4.4	-1.7	2.7	48.1%	-18.6%	29.5%
Czechia	8.1	-15.6	-7.4	8.7	-13.7	-5	26.0%	-40.8%	-14.8%
Denmark	10	-7.2	2.8	9.4	-9	0.4	52.9%	-50.9%	2.0%
Estonia	3.8	-3	0.8	3.6	-2.9	0.7	86.2%	-69.5%	16.7%
Finland	12.6	-3.8	8.7	10.9	-3.8	7.1	26.6%	-9.2%	17.4%
France	9.4	-30.9	-21.5	18.9	-16.4	2.5	8.0%	-7.0%	1.0%
Germany	21.1	-28.7	-7.6	20.9	-36.2	-15.4	8.3%	-14.4%	-6.1%
Great Britain	15	-2.2	12.8	9	-7.1	1.8	7.5%	-6.0%	1.5%
Greece	3.9	-2.4	1.5	4.4	-1.6	2.8	17.7%	-6.6%	11.2%
Hungary	10.6	-3.8	6.7	10.2	-4	6.2	45.8%	-17.9%	27.9%
I-SEM	1.2	-0.6	0.6	0.6	-1	-0.4	2.9%	-5.0%	-2.1%
Italy	21.1	-1.1	20	22.9	-1.2	21.7	15.9%	-0.8%	15.1%
Latvia	2.1	-0.9	1.2	2.2	-1.4	0.8	63.2%	-39.3%	23.8%
Lithuania	6	-1.3	4.7	6	-1.5	4.5	96.6%	-23.8%	72.9%
Netherlands	10.1	-9	1.1	8.3	-10	-1.8	16.6%	-20.2%	-3.6%
Norway	3	-11	-8	3.6	-9.8	-6.2	5.2%	-14.1%	-8.9%
Poland	6.9	-8.8	-1.9	7.5	-8.9	-1.3	8.7%	-10.2%	-1.5%
Portugal	4.9	-0.9	4	6.1	-0.7	5.4	24.1%	-2.8%	21.3%
Romania	3.8	-1.4	2.4	3.1	-2	1.1	10.7%	-6.8%	3.9%
Serbia	3.9	-1.3	2.5	4.5	-1.1	3.3	25.3%	-6.4%	19.0%
Slovakia	8.2	-8.1	0	8.7	-7.6	1.1	60.3%	-52.9%	7.4%
Slovenia	3.6	-3.6	0	3.9	-3.6	0.3	55.9%	-51.5%	4.3%
Spain	6.6	-7.4	-0.8	-1.2	-5.4	-6.5	-1.0%	-4.5%	-5.5%
Sweden	4.4	-18.3	-13.8	4.7	-20.6	-16	6.6%	-29.5%	-22.8%
Switzerland	14.1	-11.5	2.6	14.8	-11.5	3.3	46.3%	-36.0%	10.3%

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https://www.argusmedia.com/en/news/2387355-french-october-gas-consumption-at-15year-low?backToResults=true

French October gas consumption at 15-year low

Published date: 03 November 2022

Share:

Aggregate French gas consumption fell to its lowest in October since at least 2007, driven by mild weather and high prices.

Aggregate French consumption of 888 GWh/d in October fell to a 15-year low, below the previous lowest October demand of 1 TWh/d in 2014 *(see October graph)*. The fall was driven by industrial demand and consumption from households and small businesses at their lowest for the month since at least 2007.

Industrial consumption of 299 GWh/d in October was the lowest for the month since at least 2007, and below the previous low of 343 GWh/d a year earlier. Consumption from the sector has held below the three-year average since May 2021 *(see industrial graph)*.

High gas prices in recent months continued to incentivise weaker industrial consumption with the Peg October price expiring at €79/MWh on 30 September. "Firms cannot survive with energy prices at around €80/MWh," industry association CLEEE, which represents industrial and large-scale commercial sector customers, told *Argus* in March.

And demand from households and small businesses also fell to at least a 15-year low at 346 GWh/d, below the previous October low of 518 GWh/d.

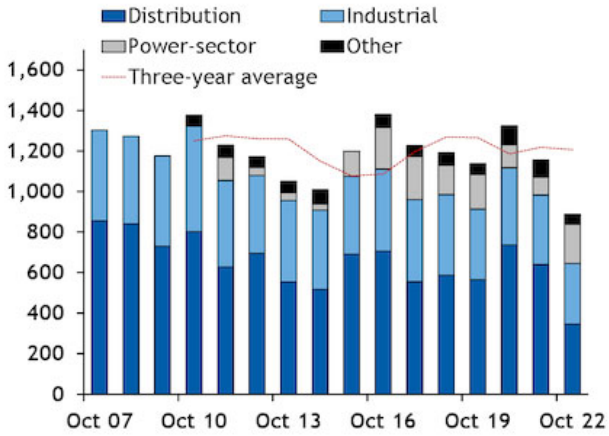
The weather was unusually mild in October with overnight lows in Paris of 12.3°C over the month, 2.7°C above seasonal norms.

But *Argus* analysis suggests that weather-adjusted gas demand on the distribution network has been lower than in previous years since the beginning of September, as consumers have reacted to high prices.

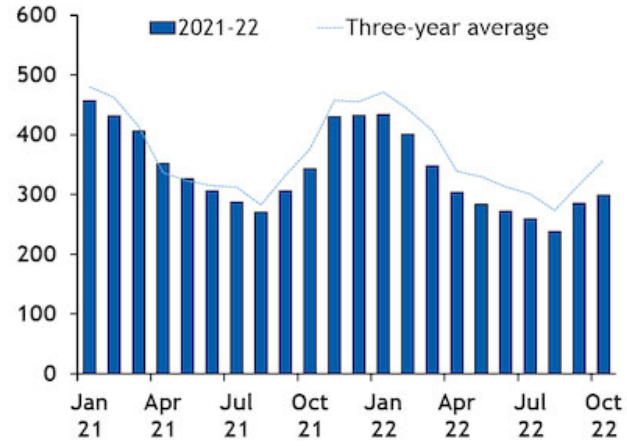
And while power-sector gas demand was slightly above the three-year average in October, driven by unusually high nuclear unavailability, demand from the sector represented just 22pc of total consumption.

By Auguste Breteau

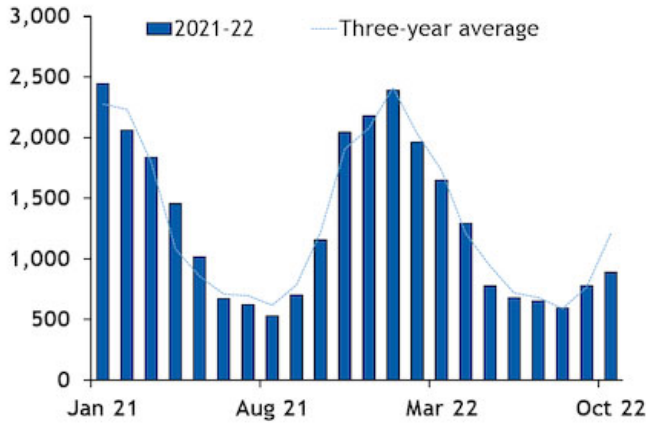
October consumption at 15-year low GWh/d



Industrial consumption holds below norm GWh/d



Aggregate consumption disconnects from average GWh/d



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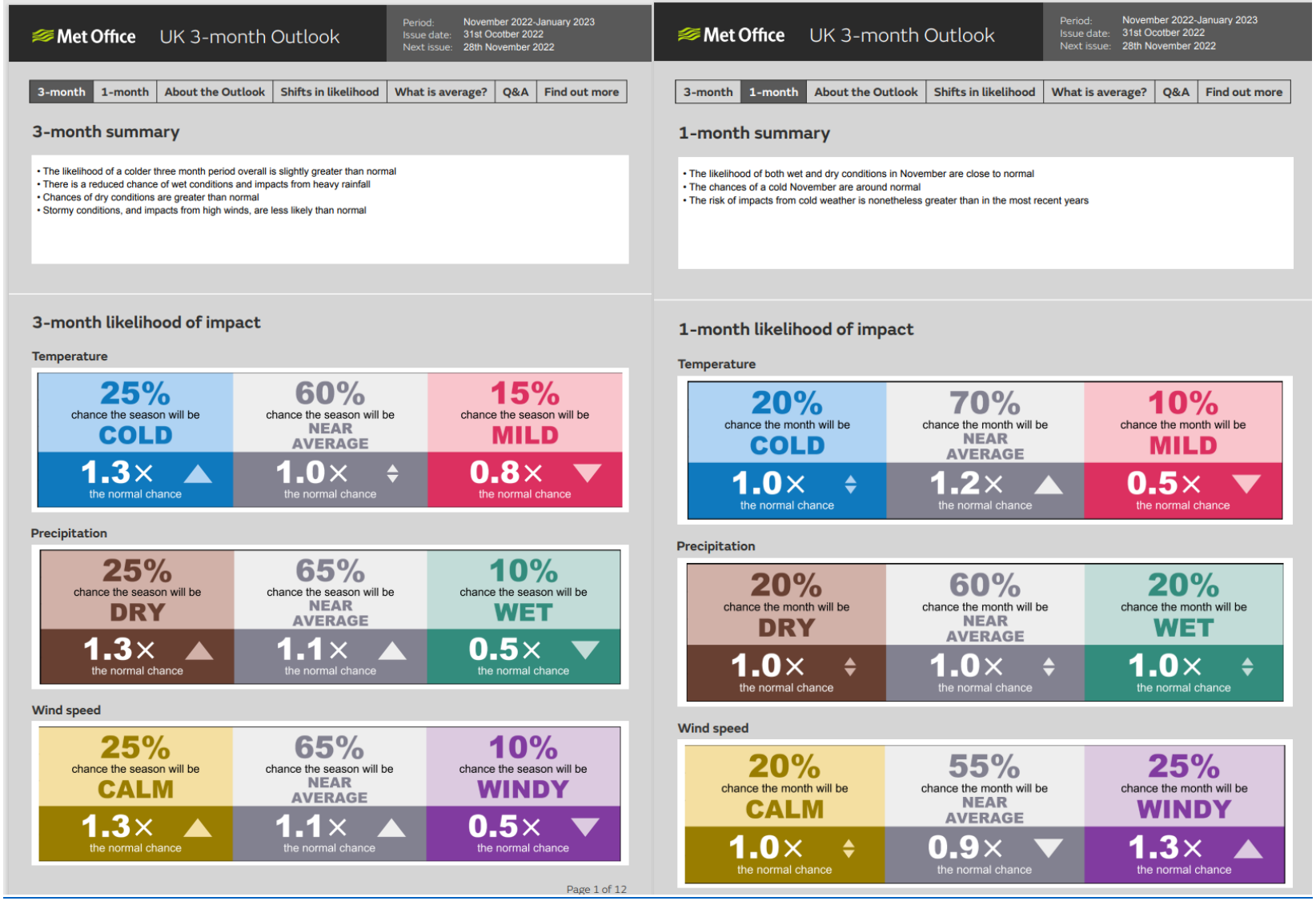

Met Office UK 3-month Outlook

Period: November 2022-January 2023
Issue date: 31st Ocotber 2022
Next issue: 28th November 2022

3-month | 1-month | About the Outlook | Shifts in likelihood | What is average? | Q&A | Find out more

3-month summary

- The likelihood of a colder three month period overall is slightly greater than normal
- There is a reduced chance of wet conditions and impacts from heavy rainfall
- Chances of dry conditions are greater than normal
- Stormy conditions, and impacts from high winds, are less likely than normal

3-month likelihood of impact

Temperature

25% chance the season will be COLD	60% chance the season will be NEAR AVERAGE	15% chance the season will be MILD
1.3× the normal chance ▲	1.0× the normal chance ▲▼	0.8× the normal chance ▼

Precipitation

25% chance the season will be DRY	65% chance the season will be NEAR AVERAGE	10% chance the season will be WET
1.3× the normal chance ▲	1.1× the normal chance ▲	0.5× the normal chance ▼

Wind speed

25% chance the season will be CALM	65% chance the season will be NEAR AVERAGE	10% chance the season will be WINDY
1.3× the normal chance ▲	1.1× the normal chance ▲	0.5× the normal chance ▼

Page 1 of 12

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1-month summary

- The likelihood of both wet and dry conditions in November are close to normal
- The chances of a cold November are around normal
- The risk of impacts from cold weather is nonetheless greater than in the most recent years

1-month likelihood of impact

Temperature

20% chance the month will be COLD	70% chance the month will be NEAR AVERAGE	10% chance the month will be MILD
1.0× the normal chance ▲▼	1.2× the normal chance ▲	0.5× the normal chance ▼

Precipitation

20% chance the month will be DRY	60% chance the month will be NEAR AVERAGE	20% chance the month will be WET
1.0× the normal chance ▲▼	1.0× the normal chance ▲▼	1.0× the normal chance ▲▼

Wind speed

20% chance the month will be CALM	55% chance the month will be NEAR AVERAGE	25% chance the month will be WINDY
1.0× the normal chance ▲▼	0.9× the normal chance ▼	1.3× the normal chance ▲

https://www.dallasfed.org/research/energy/indicators/2022/en2207.aspx

Energy Indicators

November 2, 2022

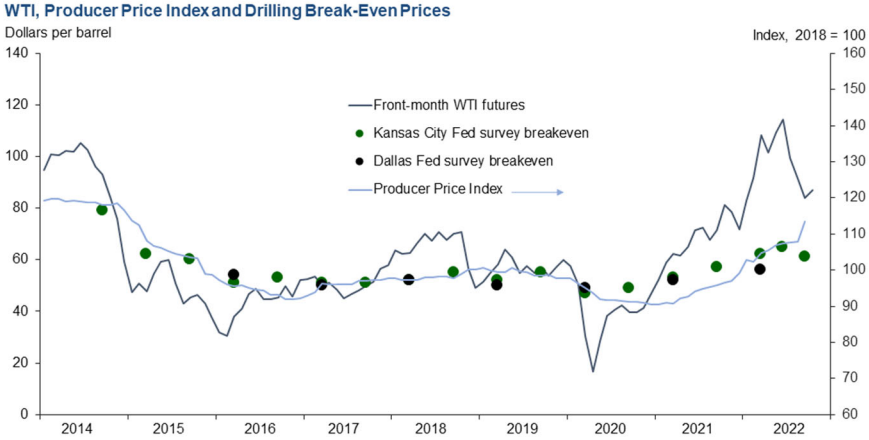
Oil prices have eased from summer highs but remained elevated in October. Rising oilfield costs, labor shortages and supply-chain delays are limiting the capacity to grow, and drilling activity has leveled off. Nonetheless, industry employment is rising. Taken together, a consensus of projections for U.S. oil production from major agencies, banks and consultancies compiled by the Dallas Fed predicts modest and steady production growth through 2023.

Oil Prices Eased but Oilfield Costs Rising

West Texas Intermediate (WTI) has come down from $114 per barrel in June 2022 to $87 at the end of October. The industry is experiencing significant cost pressures from labor, steel tubing, sand and chemicals, and long lead times for new equipment and machinery. In the most recent Energy Survey from the Federal Reserve Bank of Dallas, finding and development costs for energy and production (E&P) companies logged an index score of 64.7, with lease operating expenses having a score of 70.2. Input cost pressures for oilfield services firms were more than double year-ago levels and prior historical highs. All measures imply that cost increases are being experienced broadly across the industry.

Industry contacts indicate that year-to-year cost inflation was over 20 percent in recent months. Similarly, the Producer Price Index for drilling and oilfield services—which had risen nearly continuously in 2022—was up 18.5 percent in September (Chart 1). That is much higher than the 12-month personal consumption expenditures inflation index growth of 6.2 percent in August, or the 8.2 percent Consumer Price Index growth in September. Taken together, this implies industry-wide breakevens have risen from the mid-to-low $50s in 2021 to the mid-to-high $60s in 2022.

Chart 1
WTI, Producer Price Index and Drilling Break-Even Prices



NOTE: Prices are as of end of month. The Producer Price Index (PPI) used here is a weighted average of the PPIs for drilling oil and gas wells and support activities for oil and gas operations.
SOURCE: Bloomberg; Bureau of Labor Statistics; Federal Reserve Banks of Dallas and Kansas City.

Federal Reserve Bank of Dallas

However, while survey measures of break-even costs from the Dallas Fed Energy Survey and the Kansas City Fed have trended up in 2022 as well, the cost inflation reported by the survey

samples has been more muted. The October Kansas City Fed survey reported a $61 average break-even price across respondents, a 7 percent increase from the same period in 2021.

The discrepancies between these measures may be due in part to sampling issues and the timing of contract turnover, which can make realized industry cost inflation among firms lumpy and lagged. Most industry contacts view double-digit cost inflation as likely to extend into 2023. In any case, industry break-even costs have risen precipitously. This does not account for the push by firms to allocate larger shares of revenue to debt reduction and investor returns.

Oil and Gas Equities Outperform in 2022

The emphasis placed on investor returns is paying off. Inflation-adjusted total returns to oil and gas segments of the S&P 1500 (which includes the reinvestment of dividends) have had outstanding growth in 2022 as high energy prices and constrained spending drove increased returns for much of the industry (Chart 2). Year to date, total real returns for integrated refiners (firms that both produce oil and refine it) were up 65 percent the week of Oct. 26, 2022. Independent E&P firms' returns were up 61 percent, and refining and marketing was up 59 percent. Oilfield equipment and services firms grew 48 percent. In stark contrast, the benchmark S&P 500 index was down 23 percent.

Chart 2
Real Total Returns in Energy and S&P 500

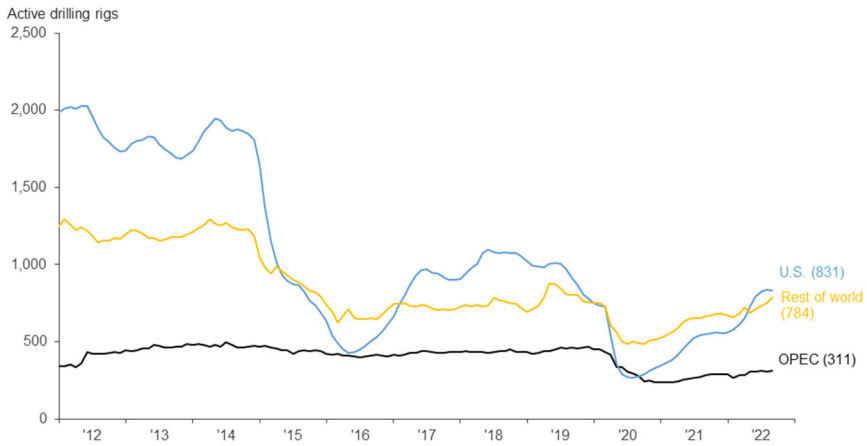
NOTE: Energy total returns indices are from the S&P 1500. Data depicted are the average values for the last week in each month. Total returns include the reinvestment of dividends offered by firms. Data are through Oct. 30, 2022, and adjusted for inflation. Data are subject to revision.
SOURCE: Standard and Poors; Bureau of Labor Statistics; author's calculations.

Even with stellar financial performance in 2022, among oil-and-gas-producing sectors, only the integrated refiners' index has recovered from the 2015–16 oil bust with a real total return of 39.6 percent over that time. Real returns for E&Ps are still down 6 percent from prebust highs, while equipment and services total returns remain down 62 percent. An investor in the S&P 500 over the past eight years would have earned a real return of nearly 86 percent.

Global Drilling Recovering but Still Below Prepandemic Levels in Much of World

Seasonally adjusted monthly rig activity in the U.S. has risen by 274 this year to 831 rigs in September (Chart 3). That's still 12 percent below the 2019 average. OPEC member countries saw rig counts rise by 21 to 311 rigs, 31 percent below 2019. Drilling activity in the rest of the world increased by a net 105 rigs to 784, on par with 2019. That increase was led by Canada, which added 78, and Latin America (excluding OPEC), which added 39 rigs.

Chart 3
Global Oil and Gas Drilling

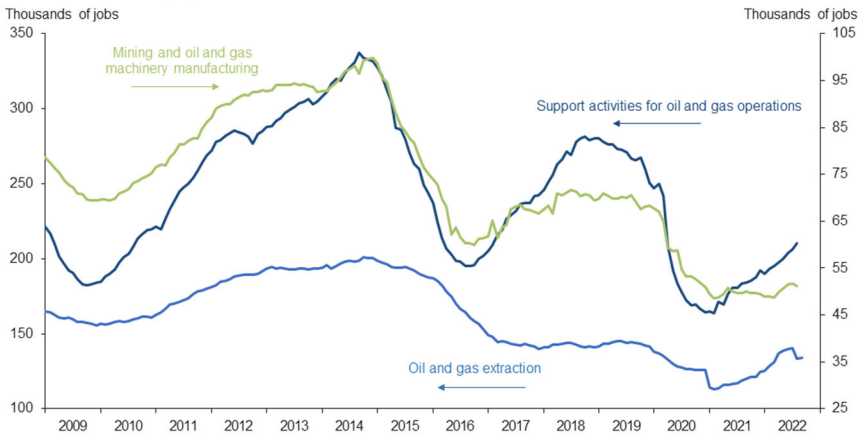


NOTE: Monthly data are seasonally adjusted. Latin America excludes OPEC members.
SOURCE: Baker Hughes.

U.S. Industry Payrolls Expand; Machinery Manufacturing Joins Recovery

With the rise in activity, U.S. sector employment is growing. Support activities for the oil and gas operations (mostly oilfield services) sector added 18,000 jobs from December 2021 to August 2022—the most recent data available. Oil and gas extraction (mostly E&P companies) added 8,800 jobs (Chart 4). Combined, extraction and services employment were still 11 percent below prepandemic levels in August.

Chart 4
U.S. Oil and Gas Employment



SOURCE: Bureau of Labor Statistics.

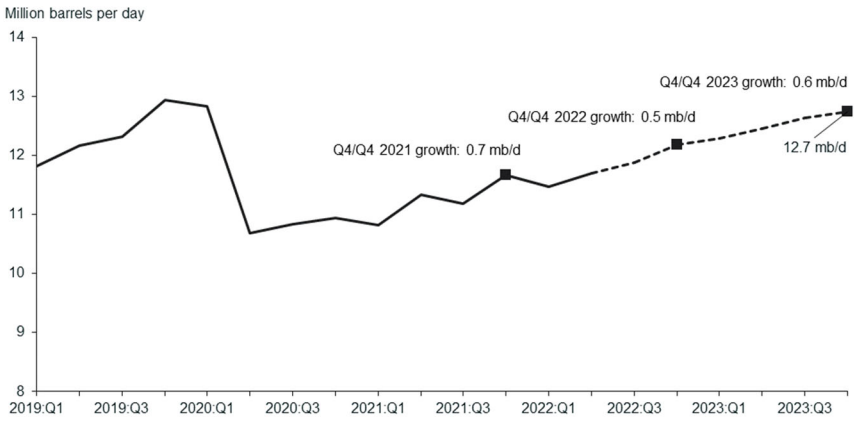
The pace of employment growth is likely to slow given that drilling has leveled off since the summer. However, firms still reported employment shortages and significant pressure to raise wages to attract talent in the recent Dallas Fed Texas Business Outlook and Energy surveys.

In the meantime, oilfield activity the past two years has chewed through the inventories of equipment that were left over from the collapse in drilling and completion during the pandemic. This has spurred the need for new orders such as rigs, frac fleets, parts and machine tools to produce new equipment. Mining and oil and gas machinery employment finally began recovering in earnest in April 2022, with the sector adding 1,600 jobs year to date. However, employment remains 24 percent below prepandemic levels. Lead times for new parts, equipment and machine-tool orders have increased to more than a year in many cases at nearly every stage of the oilfield supply chain.

U.S. Production to Grow Modestly Through 2023

The consensus outlook for U.S. crude production growth in 2022 has changed little since the beginning of the year. Crude oil output is projected to rise 0.5 million barrels per day (mb/d) from fourth quarter 2021 to fourth quarter 2022, ending the year at 12.7 mb/d (Chart 5). The challenge of growing production amid tight labor markets, rising costs and extended lead times for new equipment orders was already becoming apparent, though not as acutely as now. Looking ahead to 2023, the consensus again sees nearly 0.6 mb/d of U.S. production growth from fourth quarter 2022 to fourth quarter 2023. The drop in oil prices over the past four months, the U.S. monetary tightening, softening economic data out of China and a likely recession in Europe have all soured expectations for what U.S. producers will be able to achieve over the next year.

Chart 5
Consensus of Projections for U.S. Crude Oil Production



NOTE: Solid line is Energy Information Administration data. The consensus is an average of forecasts from sources published in September and October 2022. Dotted line is a consensus of forecasts from major agencies, banks and consultancies.
SOURCE: Dallas Fed.

About Energy Indicators

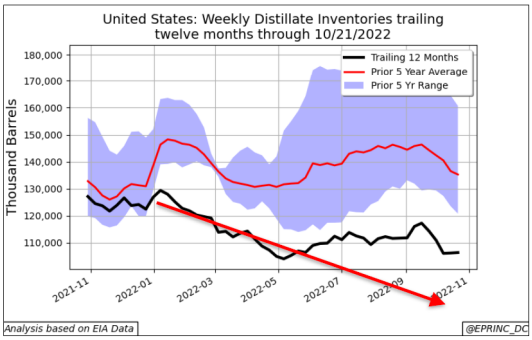
Questions can be addressed to Jesse Thompson at jesse.thompson@dal.frb.org. Energy Indicators is released monthly and can be received by signing up for an email alert. For additional energy-related research, please visit the Dallas Fed's energy home page.

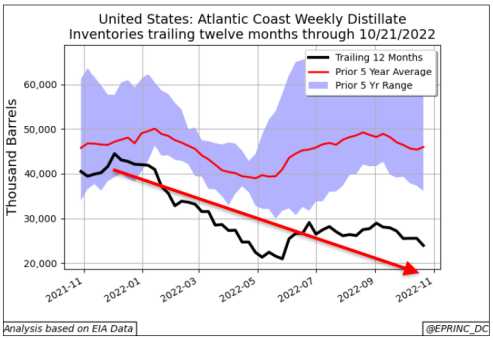
https://eprinc.org/wp-content/uploads/2022/11/EPRINC-ChartOfTheWeek2022-41-TightDistillateMarketsRevisited-Version1b.pdf

Distillate Inventories Viewed Nationally and along the Atlantic Coast

As COVID-19 has been abating and demand has recovered, U.S. distillate Inventories have declined considerably in the last year. In particular, Atlantic Coast inventories are at levels last seen in the early 1950s.

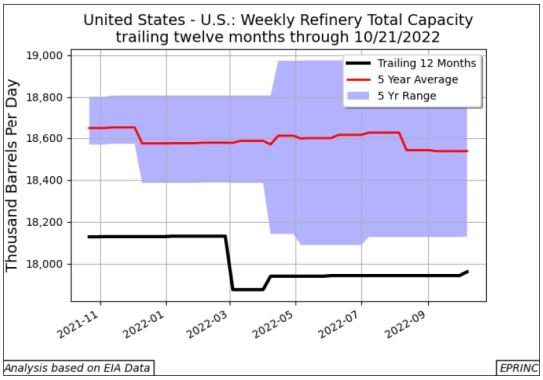
New England (part of the Atlantic Coast data) typically has 12-15 million barrels of inventory. It currently holds 3.3.

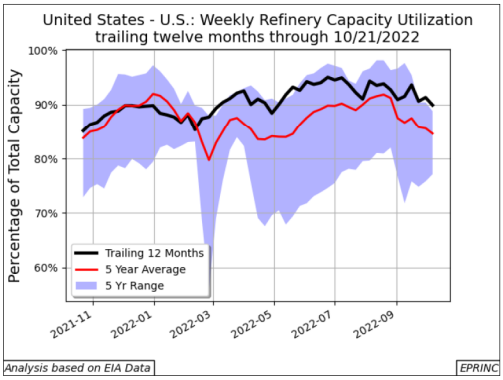




U.S. Refining Utilization and Capacity

While U.S. refinery utilization is at ~90% and above trend, a 500-600 thousand barrel per day decline in U.S. refining capacity has helped to increase distillate constraints.

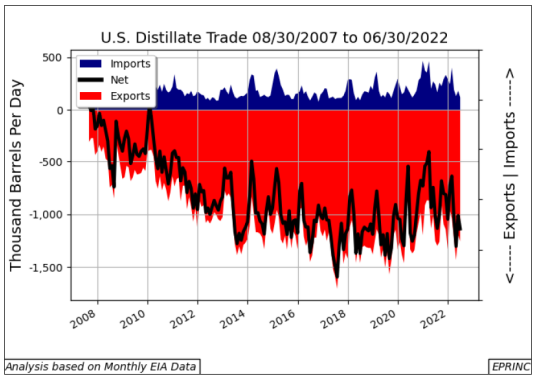


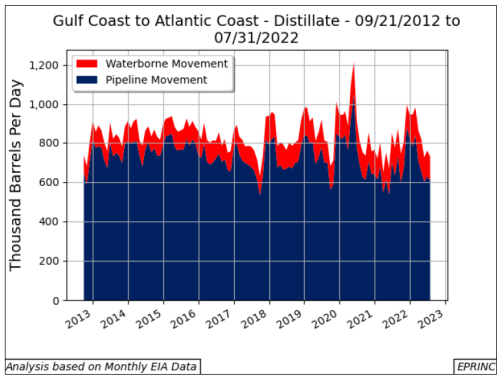


U.S. Distillate Trade and Domestic Movement

The U.S. exports about 1 MBD of distillate primarily from the Gulf Coast (USGC).

High Jones Act clean product waterborne freight rates impede moving more distillate into Atlantic Coast consuming regions. While most USGC distillate trade is under contract, there are some spot cargos available that would alleviate Atlantic Coast shortfalls this winter.





https://www.transmountain.com/news/2022/update-november-2022-capacity-announcement-for-the-trans-mountain-pipeline-system?utm_source=hootsuite&utm_medium=&utm_term=&utm_content=&utm_campaign=

Update: November 2022 Capacity Announcement for the Trans Mountain Pipeline System

Home › News

Oct. 26, 2022

Total system nominations for the Trans Mountain Pipeline system are apportioned by 15 percent for November 2022.

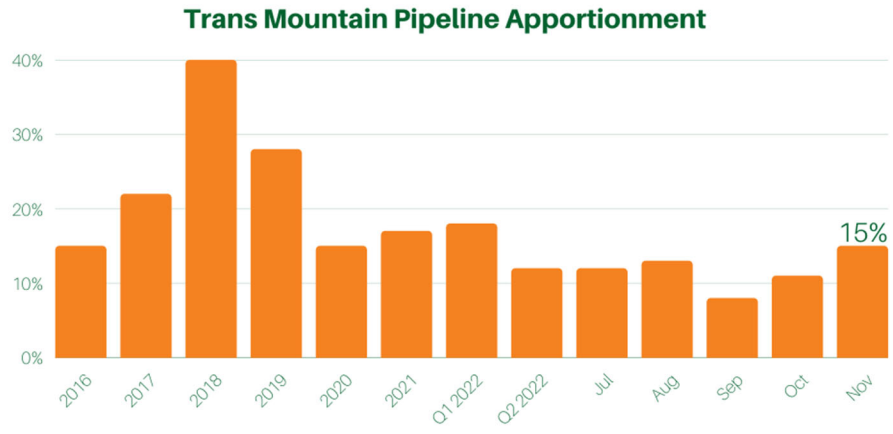
What is pipeline 'apportionment' and why is it important?

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

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

Trans Mountain Pipeline apportionment by the numbers

Apportionment of the Trans Mountain Pipeline system has been a regular monthly occurrence for the past decade. The chart below shows the apportionment for 2016, 2017, 2018, 2019, 2020, 2021 and apportionment to date for 2022.



When a pipeline experiences significant and prolonged apportionment like in the case of the existing Trans Mountain Pipeline, it's one signal that more capacity is needed. Apportionment can bring with it a discounting of prices as

producers compete to sell what they can through the pipeline before having to use another pipeline or other modes of transport to another, less profitable market. It can also mean the buyers at the end of the pipeline are forced to source their shortfall of supply from alternate, less desirable sources.

Business case for expansion is strong

There is a strong and clear business case supporting the Trans Mountain Expansion Project. Our shippers have made long-term contract commitments ranging from 15 to 20 years that will underpin the cost of construction and the operating costs. The additional capacity offered by the expansion will be used to supply more crude oil and refined products markets in British Columbia and Washington State and to offshore markets in the Asia Pacific. Pipeline design and operations, including emergency response and preparedness for tanker movements are world-class, providing a safe and reliable supply of petroleum products to the markets served by the Trans Mountain Pipeline.

https://www.kommersant.ru/doc/5644917?from=main

- Petroleum. Mining and processing

31.10.2022, 01:10

Oil in October did not pump up

The Russian Federation is experiencing difficulties in increasing production

According to Kommersant, Russia, despite the stock of OPEC+ quotas and high prices for raw materials on world markets, failed in October to increase oil production, which remains at the level of 1.47 million tons per day. This is below the OPEC+ quota and slightly less than the September figures. Potentially, it is possible to exceed the level due to the resumption of production at Sakhalin-1. However, experts expect a continuation of the decline in production in November due to preparations for the EU embargo on Russian oil, which will come into force on December 5.

The Russian Federation failed in October to increase oil production, which is still kept at no more than 1.47 million tons per day, taking into account the production of condensate, kommersant sources familiar with the situation told Kommersant. Exports of Russian oil by sea and oil pipelines decreased by almost 2% compared to September, to about 640 thousand tons per day.

According to Kommersant's interlocutors, in November the situation could be improved by resuming production at the Sakhalin-1 project, which stopped in May as a result of ExxonMobil's refusal to ship (see Kommersant of October 17). In October, the Russian authorities changed the operator of Sakhalin-1 to Rosneft, and Exxon withdrew from the project. It was assumed that this year Sakhalin-1 will produce over 24 thousand tons per day. After its restart, it is still possible to reach production in the amount of less than half of the plan.

From April to August, Russia continuously increased production, which in the spring decreased due to difficulties with exports after the introduction of sanctions. Against the background of the refusal of European buyers from Russian raw materials, russian oil companies were forced to reorient supplies to the east, as well as to load their refineries as much as possible.

The attractiveness of fuel supplies to the domestic market was ensured by the payment of subsidies for the damper. The volume of primary oil refining in October exceeded 760 thousand tons per day, slightly increasing relative to September. In September, as reported by Kommersant, the industry recovered

production after a slight reduction in August, which is explained by a reduction in condensate production due to a decrease in gas production by Gazprom, as well as the cessation of production at the Prirazlomnoye field of Gazprom Neft due to repairs.

But the quota for oil production under the OPEC+ agreement for Russia for October is 10.5 million barrels per day (bpd). The actual October figure is 10.7 million, taking into account condensate, which in September accounted for about 8%, and this is less than in September (10.8 million bpd for oil and condensate).

Until the introduction of the embargo, oil production will remain at about the same level or slightly decrease, says Maxim Malkov from Kept. The embargo will automatically lead to a sharp drop in demand and the need to redirect supplies of falling volumes, it will not be possible to quickly resolve the issue due to the refusal of buyers not only from the EU to purchase Russian oil - refineries in India are already reducing purchases in order to avoid secondary sanctions, he notes. However, suppliers and consumers find alternative schemes and routes, as the discount makes it attractive for purchase, admits Mr. Malkov.

The Russian Federation cannot increase production to the level recorded by OPEC+, for a number of reasons, the main of which relate to sales, such as the refusal of a number of partners from contracts due to fear of secondary sanctions, high discounts in available markets, problems with logistics, says Dmitry Kasatkin, a partner at Kasatkin Consulting, and the departure of technologies due to sanctions is also beginning to affect, which is why the cost of production is growing. According to his estimates, in December production may fall by 9%, to 1.3 million tons per day.

Now and in the next few months, the dynamics of Russian oil production will be determined not by physical capabilities or obligations within opec+, but by the situation in foreign markets, and maintaining production at the level of August-September looks like a good result, said Sergey Kondratyev, deputy head of the economic department of the Institute of Energy and Finance. In his opinion, from November 2022 to March 2023, production may decrease by 0.5-0.7 million bpd due to structural adjustment and the cessation of supplies to the EU countries, and the decline in production is likely to begin in November due to the advance refusal of some consumers in the Mediterranean from imports from Russia.

Dmitry Kozlov

Key takeaways

- Global oil demand is projected to reach a level of almost 107 mb/d in 2027, representing an increase of 10 mb/d compared to 2021.
- The large majority of this demand increase will materialize in the non-OECD region, which will account for 8.6 mb/d of the growth over the medium-term. Of this, however, more than 5 mb/d will be realized in the period to 2024.
- OECD oil demand is expected to increase by 1.4 mb/d in the period to 2027 with part of the increase in the period to 2024 (+2.4 mb/d compared to 2021) being offset by a decline of 1 mb/d during the rest of the medium-term.
- Annual oil demand growth is forecast at 2.1 mb/d on average during the period to 2025. Growth is then expected to slow to 0.6 mb/d between 2025 and 2030 and even more to 0.2 mb/d during the 2030–2035 period. After that, projections indicate a relatively long period of plateauing oil demand at the global level.
- Between 2021 and 2045, global oil demand is expected to increase by close to 13 mb/d, rising from 96.9 mb/d in 2021 to 109.8 mb/d in 2045.
- OECD oil demand will be on a declining trajectory after 2024, approaching the level of 34 mb/d by the end of the forecast period. This represents an overall demand decline of almost 11 mb/d between 2021 and 2045.
- Non-OECD demand is expected to increase by 23.6 mb/d between 2021 and 2045. In the initial years of the forecast period, this growth will be driven by China. In the later period, India will take over the leading role while demand growth in China will slow significantly and even turn to a marginal decline during the last five years of the forecast period.
- The aviation, road transportation and petrochemical sectors will be the main contributors to future incremental oil demand, each adding around 4 mb/d between 2021 and 2045.
- The total vehicle fleet is expected to reach 2.5 billion by 2045, increasing by almost 1 billion from 2021 levels. The EV fleet approaches 540 million vehicles by 2045, representing more than 22% of the global fleet.
- After initial years of growth, oil demand in the road transportation sector is expected to stay in a very narrow range of 46.5 mb/d to 46.7 mb/d as developments in the passenger car segment will have offsetting effects on those in the commercial vehicles segment.
- For refined products, major long-term demand growth is expected for jet/kerosene (+3.8 mb/d) followed by ethane/liquefied petroleum gas (LPG) (+2.6 mb/d), diesel/gasoil (+2.4 mb/d), naphtha (+2 mb/d) and gasoline (+1.9 mb/d).

While 2020 will go down in history as the year with the largest annual oil demand drop in living memory, the oil industry will also remember 2021 as the year with the highest demand increase. The latter came on the back of a strong economic recovery from the much depressed levels during 2020 and the easing of mobility restrictions enabled by progressive increases in COVID-19 vaccination rates in 2021.

On the economic front, global GDP increased by 5.8% in 2021, providing a strong impetus to the oil demand recovery. This was combined with a mobility return as lockdowns in a number of countries were eased, albeit they did not fully disappear from the daily life of millions of people. As a result, global oil demand increased by 5.7 mb/d.

Despite this impressive growth, 2021 was far from a year of smooth recovery. Rather, it was a year of ups and downs with re-emerging regional lockdowns, tightening and easing pandemic restrictions, price fluctuations, differing regional developments and a build-up of inflationary pressure. Moreover, 2021 was a year when policymakers and the entire energy and oil industries intensified their efforts in seeking ways to accelerate the transition to cleaner fuels in the run-up to and during the COP26 meeting in Glasgow, UK. A clear reflection of these efforts were the announced intentions of a number of countries to achieve net-zero emissions sometime around 2050.

This sentiment, however, is shifting somewhat in 2022. In the midst of increasing energy prices, rising inflation and omnipresent COVID-19 concerns, the beginning of the year was marked by the Russia-Ukraine conflict. This has brought an additional large element of uncertainty to oil markets. Gas prices in Europe skyrocketed and oil prices increased during a period of unprecedented volatility. Prospects for economic growth were significantly revised downwards, which also impacted the outlook for oil demand.

Moreover, the number of uncertainties has increased, including mounting geopolitical challenges; shifting trade patterns for oil and gas; the effectiveness of various policy measures to lower inflation; changing consumer behaviour; the pace of technology development; as well as the shifting attention of policymakers to energy security issues.

3.1 Oil demand outlook by region

Following an unprecedented decline of 9 mb/d in 2020, global oil demand began to recover in 2021 and rose by 5.7 mb/d. The main part of this growth materialized in non-OECD countries (+3.1 mb/d), led by an extraordinary demand increase in China of 1.1 mb/d. This was supported by Other Asia (+0.5 mb/d), India, the Middle East and Latin America, each rising by around 0.3 mb/d. Despite this impressive growth, the recovery rate from the demand collapse in 2020 was in the range of 50% to 60% in most regions (other than China and Eurasia), hence leaving ample potential for continued strong growth in 2022. A similar observation holds for the OECD with 2021. Oil demand in this region grew by 2.6 mb/d, of which 1.7 mb/d took place in OECD Americas. This represented almost 60% of the demand decline in 2020. However, demand in the other two sub-regions, OECD Europe and OECD Asia-Pacific, recovered by a mere 34% each during the same year.

As a result, 2022 started with an expectation for another year of strong demand growth on the back of prospects for robust global economic growth and a mobility return in major regions as COVID-19 vaccination rates were steadily rising.

However, this positive sentiment from the beginning of the year started to erode somewhat during the 1H22. The impact of the COVID-19 pandemic continued to negatively affect oil markets and the easing of COVID-19-related restrictions was slower than originally anticipated in several regions. Moreover, the reappearance of infections in China led to lockdowns in several locations, thus bringing mobility almost to a standstill. Moreover, economic activity was increasingly impacted by higher energy prices, which contributed to inflationary pressures not seen in the past two decades. On top of this, the Russia-Ukraine conflict, with western countries imposing sanctions on Russia, added yet another element of uncertainty to already complex and rather turbulent markets.

As a result, demand projections for 2022 were gradually trending downward during the 1H22. In July 2022, the OPEC Monthly Oil Market Report estimated that global oil demand would grow by 3.4 mb/d during the year, reaching the level of 100.3 mb/d, which is just marginally higher compared to pre-pandemic demand in 2019. As presented in Table 3.1 and Figure 3.1, this demand growth is primarily driven by the continued strong recovery in OECD countries (+1.8 mb/d compared to 2021). Nonetheless, despite this relatively high increase, OECD oil demand in 2022 will still remain more than 1 mb/d below its 2019 level.

In non-OECD countries, demand growth in 2022 is projected at just around half that of 2021. This is partly due to the fact that a large part of the 2020 demand decline in these

Table 3.1
Medium-term oil demand in the Reference Case *mb/d*

	2021	2022	2023	2024	2025	2026	2027	Growth 2021–2027
OECD Americas	24.3	25.3	25.7	26.0	26.0	25.9	25.7	1.5
OECD Europe	13.1	13.7	13.8	13.7	13.5	13.4	13.2	0.1
OECD Asia-Pacific	7.4	7.6	7.6	7.6	7.5	7.4	7.3	–0.1
OECD	**44.8**	**46.6**	**47.2**	**47.2**	**47.0**	**46.6**	**46.2**	**1.4**
China	14.9	15.3	16.0	16.4	16.6	16.8	16.9	2.0
India	4.8	5.1	5.4	5.6	5.8	6.1	6.3	1.6
Other Asia	8.6	9.1	9.5	9.8	10.0	10.2	10.4	1.8
Latin America	6.2	6.4	6.5	6.6	6.7	6.8	6.9	0.7
Middle East	7.8	8.1	8.4	8.7	8.9	9.1	9.3	1.5
Africa	4.2	4.4	4.5	4.7	4.8	5.0	5.1	0.9
Russia	3.6	3.5	3.6	3.6	3.7	3.7	3.7	0.1
Other Eurasia	1.2	1.2	1.2	1.2	1.2	1.3	1.3	0.1
Other Europe	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
Non-OECD	**52.2**	**53.7**	**55.8**	**57.3**	**58.5**	**59.6**	**60.7**	**8.6**
World	**96.9**	**100.3**	**103.0**	**104.4**	**105.5**	**106.3**	**106.9**	**10.0**

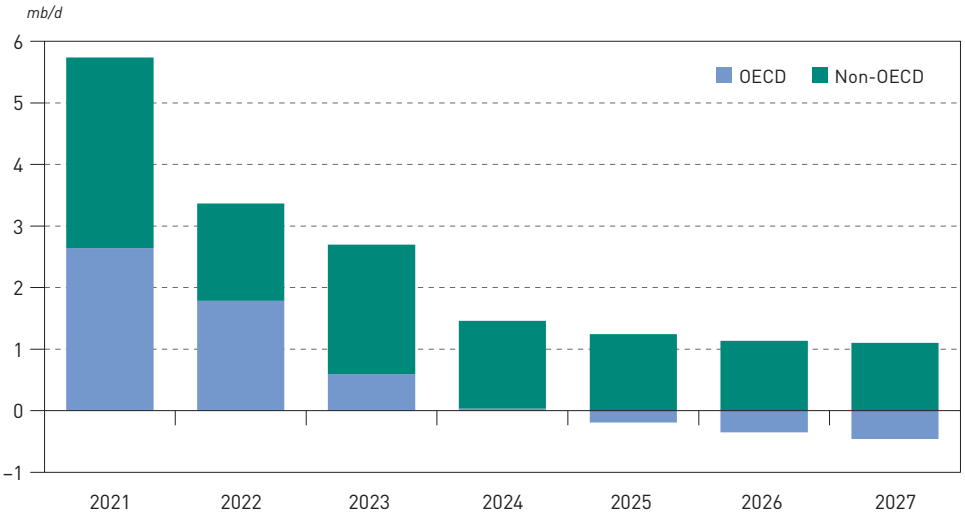
Source: OPEC.

countries was recovered in 2021, which provides less room for stronger growth in 2022. Moreover, 2022 demand in China is significantly impacted by continued regional lockdowns, while demand is even estimated to slightly decline in Russia and Other Eurasia on the back of the conflict.

All these factors indicate that oil demand will likely continue growing at robust levels in 2023 before shifting to much lower levels during the rest of the medium-term horizon. Indeed, 2023 is seen as the year when remaining parts of the demand loss incurred by the COVID-19 pandemic measures will be recovered, especially in the still-lagging aviation sector. This will be supported by a partial demand 'catch-up' of lost growth during the previous two years under an assumption that the COVID-19 pandemic will be contained by then, geopolitical tensions will ease, and the policy focus will emphasize energy security issues.

This 'catching-up' process will likely be most visible in the transport sector. A high rate of personal savings and travel restrictions imposed during the pandemic years should result in a propensity to travel more and fly longer distances, hence supporting demand growth beyond the standard link to economic activity. This will likely be supported by the return of investment decisions across all sectors, which were often postponed in the past two years. Accordingly, global oil demand is projected to grow by 2.7 mb/d in 2023 with demand growth shifting back to non-OECD countries (+2.1 mb/d). By contrast, demand growth in OECD countries will start to decelerate, especially in OECD Asia-Pacific and OECD Europe.

Figure 3.1
Annual incremental oil demand by region, 2021–2027



Source: OPEC.

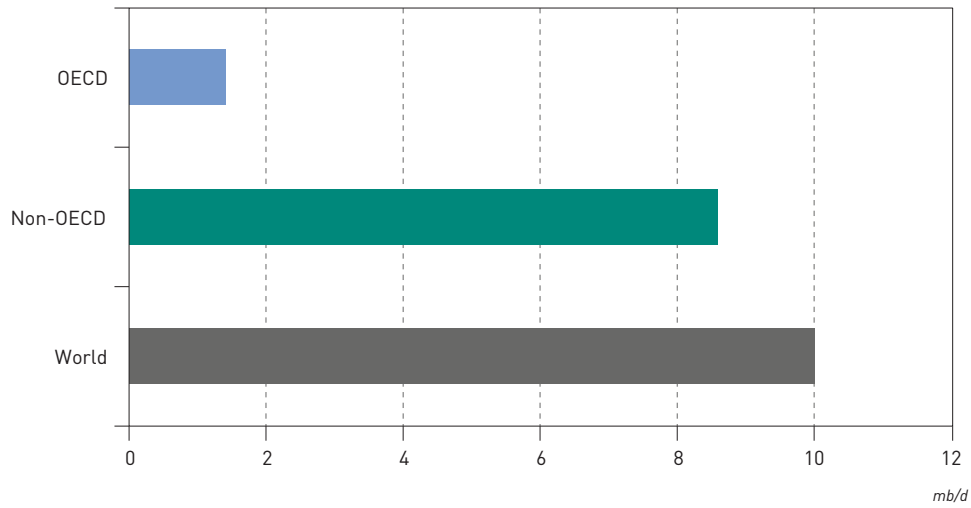
This decelerating trend in annual oil demand growth in both the OECD and non-OECD will be even more pronounced during the second half of the medium-term. During this period, annual GDP growth is expected to remain in a fairly narrow range of 3.1% to 3.2%. Besides lower GDP growth, increasing sales of new EVs – especially in China,

Europe and the US – will start to have a material impact on oil demand as the share of EVs will grow to the level of 3% to 4% of the global passenger car fleet. This will be supplemented by ongoing efficiency improvements, changing consumer behaviour and further structural shifts in the GDP composition towards less energy- and oil-intensive sectors in a number of countries.

The combined effect of all these factors, with varying impacts at the regional level, will be that annual demand increments will decline to a range of 1.5 mb/d in 2024 and further to just 0.6 mb/d by the end of the medium-term. This is primarily due to the fact that OECD demand will turn to negative growth after 2024. Despite this decline, global oil demand is projected to reach the level of almost 107 mb/d in 2027, representing an impressive increase of 10 mb/d compared to 2021.

As presented in Figure 3.2, the overwhelming majority of this demand increase over the medium-term will materialize in the non-OECD, which will account for 8.6 mb/d of the growth. Of this, however, more than 5 mb/d will be realized in the period to 2024. In the case of the OECD, oil demand is expected to increase by 1.4 mb/d in the period to 2027 as part of the increase in the period to 2024 (+2.4 mb/d compared to 2021) will be offset by a decline of 1 mb/d during the rest of the medium-term. The overall effect is that oil demand in the OECD will likely stay below its 2019 levels over the entire forecast period.

Figure 3.2
Incremental oil demand by region, 2021–2027



Source: OPEC.

It is worth noting that oil demand projections included in this Outlook represent an upward revision of almost 2 mb/d by the end of the medium-term compared with the WOO 2021. The gap starts building in 2021 and accelerates during the period to 2024, reflecting current market dynamics, surprisingly robust growth in 2022 and 2023, as well as a strong focus on energy security issues leading to slower oil substitution – especially by natural gas – compared to past outlooks. Needless to say, this will likely have some lasting implications for the long-term outlook too.

Turning to long-term demand prospects, these are summarized in Table 3.2. Between 2021 and 2045, global oil demand is expected to increase by close to 13 mb/d, rising from 96.9 mb/d in 2021 to 109.8 mb/d in 2045. This table also shows a contrasting picture between continued demand growth in the non-OECD region and a decline in the OECD. As noted earlier, this trend will begin during the medium-term period and strengthen over the longer-term. Indeed, OECD demand is projected to grow to 47.2 mb/d in the period to 2024 before starting a longer-term decline towards 34 mb/d by 2045. This is almost 11 mb/d lower than observed demand in 2021.

The main reasons for this declining trend in the OECD are efficiency improvements across all sectors of consumption and the substitution of oil by gas and renewable energy. This includes the significant penetration of EVs in the road transportation sector, ongoing electrification of residential and industrial sectors, and the penetration of alternative fuels in the marine and aviation sectors, among others. Part of this picture includes a static (and ageing) population and low economic growth, with less oil-intensive industry, especially in the second part of the forecast period.

Table 3.2
Long-term oil demand by region

mb/d

	2021	2025	2030	2035	2040	2045	Growth 2021–2045
OECD Americas	24.3	26.0	25.0	23.3	21.4	19.6	–4.7
OECD Europe	13.1	13.5	12.6	11.5	10.4	9.4	–3.7
OECD Asia-Pacific	7.4	7.5	6.9	6.3	5.7	5.1	–2.3
OECD	**44.8**	**47.0**	**44.5**	**41.1**	**37.5**	**34.1**	**–10.7**
China	14.9	16.6	17.3	17.7	17.9	17.9	3.0
India	4.8	5.8	7.1	8.3	9.7	11.1	6.3
Other Asia	8.6	10.0	10.9	11.8	12.6	13.3	4.7
Latin America	6.2	6.7	7.2	7.6	7.8	8.1	1.9
Middle East	7.8	8.9	9.9	10.7	11.2	11.5	3.7
Africa	4.2	4.8	5.5	6.3	7.0	7.8	3.6
Russia	3.6	3.7	3.8	3.9	3.9	3.8	0.2
Other Eurasia	1.2	1.2	1.3	1.4	1.5	1.5	0.3
Other Europe	0.8	0.8	0.8	0.8	0.8	0.7	–0.1
Non-OECD	**52.2**	**58.5**	**63.8**	**68.4**	**72.3**	**75.7**	**23.6**
World	**96.9**	**105.5**	**108.3**	**109.5**	**109.8**	**109.8**	**12.9**

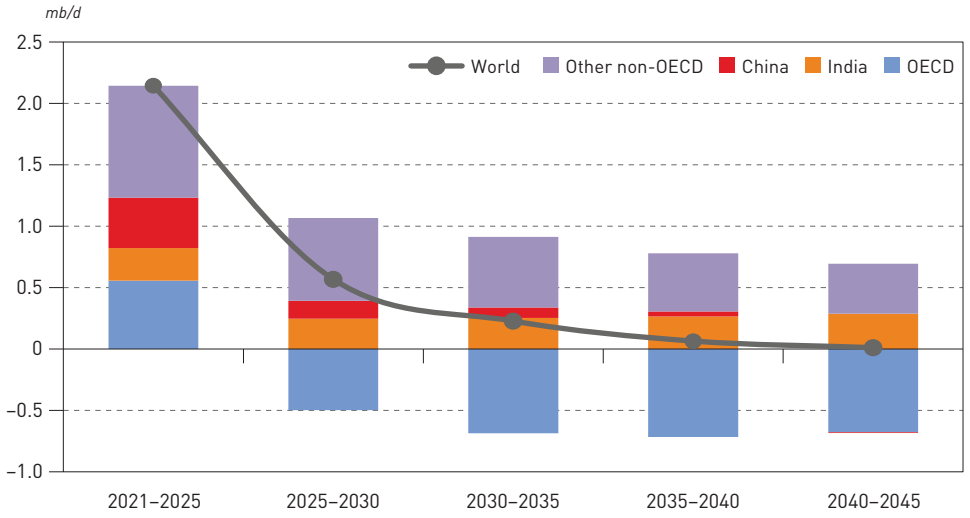
Source: OPEC.

Prospects for continued strong demand growth in the non-OECD stands in stark contrast to the OECD outlook. Driven by an expanding middle class, high population growth rates and stronger economic growth potential, non-OECD demand is expected

to increase by 23.6 mb/d between 2021 and 2045. In the initial years of the forecast period, this growth will be driven by China, which is set to add around 0.4 mb/d on average to non-OECD demand. In the later period, however, India will take over the leading role, contributing close to 0.3 mb/d each year (Figure 3.3) while demand growth in China will significantly slow and turn even to a marginal decline during the last five years of the forecast period.

Figure 3.3 also demonstrates a distinct picture between demand growth during the current decade and the remaining part of the forecast period. Driven mainly by the recovery process from COVID-19, annual oil demand growth is forecast at 2.1 mb/d on average during the period to 2025. Growth is then expected to slow to 0.6 mb/d between 2025 and 2030 and even more to 0.2 mb/d during the 2030–2035 period. After that, projections indicate virtually no growth, hinting to a relatively long period of plateauing oil demand at the global level. As noted earlier in this chapter, this will be a period when demand declines in the OECD will broadly offset growth in the non-OECD. This is driven by both energy policies and technology development, which will play an increasing role in diversifying the future energy mix.

Figure 3.3
Average annual oil demand increments by region, 2021–2045



Source: OPEC.

Similar to the medium-term period, long-term oil demand projections represent an upward revision compared to the WOO 2021. However, the pattern of these revisions reverses from a growing gap during the medium-term (reaching almost 2 mb/d by 2027) to a declining difference at the global level over the long-term. Nevertheless, even though part of this higher demand will be eliminated over the long-term as a reflection of tightening policy measures aimed at reducing energy-related emissions and an upward revision to the penetration of EVs, global oil demand is still projected to be around 1.6 mb/d higher by 2045, compared to last year's WOO.

https://www.aramco.com/en/news-media/speeches/2022/remarks-by-amin-h-nasser-at-schlumberger-digital-forum

Remarks by CEO Amin H. Nasser at Schlumberger Digital Forum 2022

SWITZERLAND, September 20, 2022

Amin H. Nasser, Saudi Aramco President & CEO

Good morning, Ladies and Gentlemen.

Thank you Olivier for inviting me to join your Forum, here in beautiful Luzern.

After two summers lost to Covid, I hope everyone has enjoyed a well-earned break with family and friends. This week, however, autumn begins, and the global energy crisis promises a colder, harder winter, particularly in Europe.

Unfortunately, the response so far betrays a deep misunderstanding of how we got here in the first place, and therefore little hope of ending the crisis anytime soon. So this morning I would like to focus on the real causes as they shine a bright light on a much more credible way forward.

When historians reflect on this crisis, they will see that the warning signs in global energy policies were flashing red for almost a decade. Many of us have been insisting for years that if investments in oil and gas continued to fall, global supply growth would lag behind demand, impacting markets, the global economy, and people's lives.

In fact, oil and gas investments crashed by more than 50% between 2014 and last year, from $700 billion to a little over $300 billion. The increases this year are too little, too late, too short-term.

Meanwhile, the energy transition plan has been undermined by unrealistic scenarios and flawed assumptions because they have been mistakenly perceived as facts. For example, one scenario led many to assume that major oil use sectors would switch to alternatives almost overnight, and therefore oil demand would never return to pre-Covid levels.

In reality, once the global economy started to emerge from lockdowns, oil demand came surging back, and so did gas. By contrast, solar and wind still only account for 10% of global power generation, and less than 2% of global primary energy supply. Even electric vehicles comprise less than 2% of the total vehicle population and now face high electricity prices.

Perhaps most damaging of all was the idea that contingency planning could be safely ignored.

Because when you shame oil and gas investors, dismantle oil- and coal-fired power plants, fail to diversify energy supplies (especially gas), oppose LNG receiving terminals, and reject nuclear power, your transition plan had better be right.

Instead, as this crisis has shown, the plan was just a chain of sandcastles that waves of reality have washed away. And billions around the world now face the energy access and cost of living consequences that are likely to be severe and prolonged.

These are the real causes of this state of energy insecurity: under-investment in oil and gas; alternatives not ready; and no back-up plan. But you would not know that from the response so far.

For example, the conflict in Ukraine has certainly intensified the effects of the energy crisis, but it is not the root cause. Sadly, even if the conflict stopped today (as we all wish), the crisis would not end. Moreover, freezing or capping energy bills might help consumers in the short-term, but it does not address the real causes and is not the long-term solution. And taxing companies when you want them to increase production is clearly not helpful.

Meanwhile, as Europe aggressively promotes alternatives and renewables technologies to reduce one set of dependencies it may simply be replacing them with new ones. As for conventional energy buyers, who expect producers to make huge investments just to satisfy their short-term needs, they should lose those expectations fast. And diverting attention from the real causes by questioning our industry's morality does nothing to solve the problem.

That is why the world must be clear about the real causes and face up to their consequences. For example, as investments in less carbon intensive gas have been ignored, and contingency planning disregarded, global consumption of coal is expected to rise this year to about 8 billion tonnes.

This would take it back to the record level of nearly a decade ago. Meanwhile, oil inventories are low, and effective global spare capacity is now about one and a half percent of global demand.

Equally concerning is that oil fields around the world are declining on average at about 6% each year, and more than 20% in some older fields last year. At these levels, simply keeping production steady needs a lot of capital in its own right, while increasing capacity requires a lot more.

Yet, incredibly, a fear factor is still causing the critical oil and gas investments in large, long-term projects to shrink. And this situation is not being helped by overly short-term demand factors dominating the debate. Even with strong economic headwinds, global oil demand is still fairly healthy today.

But when the global economy recovers, we can expect demand to rebound further, eliminating the little spare oil production capacity out there. And by the time the world wakes up to these blind spots, it may be too late to change course.

That is why I am seriously concerned.

Let me be clear: we are not saying our global climate goals should change because of this crisis.

All of us have a vested interest in climate protection. And investing in conventional sources does not mean that alternative energy sources and technologies should be ignored. But the world deserves a much better response to this crisis.

This is the moment to increase oil and gas investments, especially capacity development. And at least this crisis has finally convinced people that we need a more credible energy transition plan.

In turn, I believe that requires a new global energy consensus built on three rock-solid and long-term strategic pillars:

- Recognition by policy makers and other stakeholders that supplies of ample and affordable conventional energy are still required over the long term;
- Further reductions in the carbon footprint of conventional energy, and greater efficiency of energy use, with technology enabling both;
- And new, lower carbon energy, steadily complementing proven conventional sources.

At Aramco, we are addressing all three.

We are working to increase our oil production capacity to 13 million barrels per day by 2027. We are also growing our gas production, potentially increasing it by more than half through 2030 with a mix of conventional and unconventional gas.

At the same time, we are working to lower our upstream carbon intensity, our gas flaring, and our methane intensity, which are already among the lowest in the world. We are also intensifying efforts to advance key enabling technologies, particularly CCUS which is mission-critical to a sustainable future.

Meanwhile, chemicals will become a much larger and more strategic part of our portfolio, showcasing the non-combustible uses of oil.

Importantly, we are steadily adding new, lower carbon energy to our own portfolio such as blue hydrogen and blue ammonia, renewables, and electro-fuels. This is our plan to be part of a practical, stable, and inclusive energy transition; others need theirs.

But transforming the massive existing worldwide energy system, and delivering a secure and sustainable future for everyone, is a truly formidable task. So the entire global energy ecosystem and its stakeholders have to work as an “industry plus” team.

We must partner to drive innovation and value on an unprecedented scale and speed to successfully deliver results across the three pillars. In my view, technologies of the Fourth Industrial Revolution are ripe for such partnerships, especially the rapid digital transformation of our industry. Because the right digital investments now could help deliver greater efficiency, lower costs, lower emissions, higher reliability, and higher profits over decades.

For example, at Aramco we have deployed machine learning techniques to predict and prevent safety hazards, monitor emissions, avoid breakdowns, optimize energy use, and predict potential cyber threats. These AI-powered systems are saving us time and money. And improving our ability to reliably supply energy to our customers.

But we want to go further, and we are stronger when we act as a network. That is why I am proud to announce that Aramco and Schlumberger are working on a smart sustainability platform that could commercialize a number of digital solutions and support our net-zero ambitions.

It is the latest chapter in our shared history which goes back to 1941. And I hope it inspires similar projects that will connect a bright future for our industry and the world.

Ladies and Gentlemen, as the pain of the energy crisis sadly intensifies, people around the world are desperate for help. In my view, the best help that policy makers and every stakeholder can offer is to unite the world around a much more credible new transition plan, driving progress on the three strategic pillars I have outlined this morning.

The new plan will not be perfect. In life, nothing ever is.

But that is how we deliver a more secure and more sustainable energy future, with our industry still at its heart. That is how we can ease people's pain.

And that is how spring will come again.
Thank you.

Exxon's Math Calls For Overall Global Oil Decline Rate of ~7%, A Very Bullish Argument For Post 2020 Oil Prices

Posted: Thursday June 20, 2019. 5:30pm Mountain

We believe Exxon presented a very bullish argument for oil prices beyond 2020 and that it has been overlooked because most readers only flip thru a slide deck and don't listen to or read transcripts of management's spoken words. Exxon's spoken words highlighted one of the forgotten (and perhaps most important) oil supply/demand concerns for post 2020 - the mid term challenge to replace increasing rate of overall global oil declines. And what is eye opening is Exxon's estimated overall global oil decline rate, which is way higher than any we can ever remember seeing. Its impossible to tell from the small oil supply/demand graph in the slide deck, but Exxon's spoken words says long term oil demand is 0.7% per year and then "*When you factor in depletion rates, the need for new oil grows at close to 8% per year and new gas at close to 6% per year*." Exxon may not specifically say what the global decline rate is, but their math is that the world needs new oil supply to grow annually at close to 8% to meet the 0.7% annual increase in oil demand and offset declines ie. an overall global decline rate of approx. 7%. This is an overall global oil decline rate for OPEC and non-OPEC. This compares to BP's estimate of overall global oil decline rate of 4.5% and we expect most are probably assuming something around 5%, certainly not above 6%. No one should be surprised by the increased decline rate given that high decline US shale and tight oil have increased by ~2.5 mmb/d in the last ~2 years. But an implied ~7% overall global oil decline rate is way higher than expectations. There is a big difference between needing to offset oil declines of ~7 mmb/d vs declines of ~4.5 mmb/d ie. an additional 2.5 mmb/d of new oil supply every year. Even if the implied difference was to 6%, it would still be an additional 1.5 mmb/d of new oil supply and that would also be very bullish for post 2020 oil. We recognize that the 2019/2020 oil supply demand story is the need for OPEC+ to keep cuts thru 2020, but Exxon's math implying ~7% overall global oil decline rate sets up a very bullish view for oil post 2020. We believe the reality to replace oil declines post 2020 is overlooked.

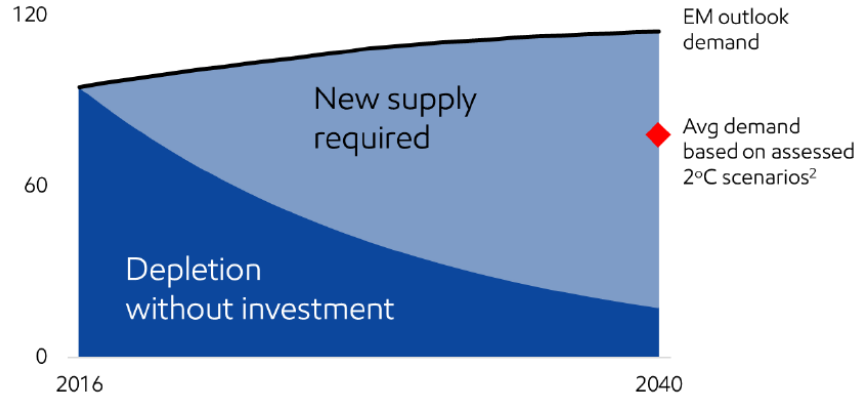
The 2019/2020 oil story - oil inventories still above the 5 yr ave and OPEC+ need to work together in 2020. There is increasing geopolitical risk to oil in a range of regions (Iran/Saudi Arabia, Libya, Venezuela, etc.) yet the prevailing tone to oil in the past month is negative with the concerns on trade wars/lower economic growth leading to weakness in oil demand. This was reinforced in the past week with the view that there is the need for OPEC+ to continue to work together in H2/19 and in 2020. Our SAF June 16, 2019 Energy Tidbits memo [LINK] reviewed the IEA's new monthly Oil Market Report [LINK], which included (i) "*OECD oil stocks remain at comfortable levels 16 mb above the five-year average"*, (ii) the EIA lowered its 2019 oil demand growth rate by 0.1 mmb/d to +1.2 mmb/d, and (iii) a negative first look at 2020 oil supply/demand. The EIA's first 2020 forecast puts more pressure on OPEC+ to continue with cuts through 2020. IEA says oil demand growth rate will grow from +1.2 mmb/d in 2019 to +1.4 mmb/d in 2020. This is a positive, however, it is more than offset as the IEA forecasts another year of big non-OPEC oil supply growth of +2.3 mmb/d in 2020. In theory a lesser call on OPEC of 0.9 mmb/d. The IEA writes "*A clear message from our first look at 2020 is that there is plenty of non-OPEC supply growth available to meet any likely level of demand, assuming no major geopolitical shock, and the OPEC countries are sitting on 3.2 mb/d of spare capacity".*

Exxon sees modest annual growth in oil demand, but peak oil demand sometime after 2040. Exxon presented at a US sellside energy conference on Tues. We expect a big reason why Exxon's oil outlook was ignored was that the presentation was almost all about providing a great detailed look at the Guyana oil play. Plus its headline annual growth rate for oil demand of 0.7% per year wouldn't have made anyone bullish, if anything maybe even more so so on oi. Exxon only provided some brief comments on their oil supply and demand outlook. Exxon said *"In this scenario, oil demand is expected to grow 0.7% per year, driven by commercial transportation and chemical"*. This compares to 2018 oi demand growth of 1.45% and even this year's lower oil demand growth rates of 1.15%. However, we recognize it is tough to get data from a small graph, but a positive tn the graph is that it seems to indicate that peak oil demand doesn't happen before 2040.

However, Exxon says new oil supply of 8% per year is needed to meet demand growth and offset decline rates. On one hand, we continue to be surprised that Exxon's view on new oil supply has received no attention. On the other, it makes sense because the vast majority of readers only flip thru a slide deck so will miss the spoken word that gives numbers and context to a slide. That was clearly the case with the Exxon presentation. If Exxon is anywhere near right, this is a hugely bullish view for mid/long term oil ie post 2020 oil. Exxon highlighted one of the forgotten oil supply/demand concerns is

the mid term challenge to replace global oil declines. And what is eye opening is Exxon's estimated decline rate, which is way higher than any we can ever remember seeing. Exxon says long term oil demand is 0.7% per year and then says "*When you factor in depletion rates, the need for new oil grows at close to 8% per year and new gas at close to 6% per year*." Exxon didn't specifically say that the overall global decline rate was ~7%, but the math looks straightforward. The world needs new oil supply to growth at close to 8% per year to meet 0.7% annual demand growth and to offset declines in global (OPEC and non-OPEC) oil production ie. the overall global oil decline rate is approx. 7%. This is an overall OPEC and non-OPEC global decline rate.

Oil Supply/Demand (moebd)

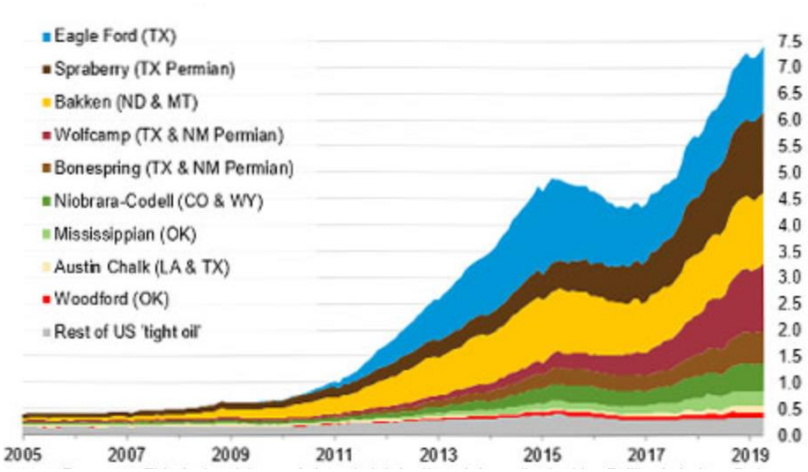


Source: Exxon US Sellside Conference Presentation June 18, 2019

Implies a huge overall global decline rate of ~7% - way higher than other estimates. It may well be the case that forecasters haven't updated their global oil decline models to reflect the impact of the US adding ~2.5 mmb/d of high decline shale and tight oil in the past two years. But we aren't aware of anyone who is using an overall global oil decline rate as high as 7%. We have seen estimates for 7% for decline rates for non-OPEC oil, but not for the decline rates overall for global oil. Rather, we expect that most have been assuming overall global oil decline rates of 4% to 5%. Later in the blog, we note our peak oil demand comment from Nov 6, 2017 (prior to the big ramp up in US shale and tight oil) that used Core Laboratories spring 2017 estimate for overall global oil decline of ~3.3%.

Exxon's global leadership position, especially in shale, is why we should pay attention to this view of significantly higher global oil decline rates. Everyone knows Exxon is the largest public international oil company and is in all major oil regions and all types of plays from conventional, oil sands, middle east, deepwater oil and shale oil, We believe that Exxon is viewed as the global leader in the Permian, and this shale oil leadership is critical to understand as we believe that the growth of US shale is the key reason for the increasing overall global oil decline rates. Exxon's shale oil leadership is why we should be paying attention to this estimate. The game changer to global oil decline rates has been the increasing oil production from high decline US shale and tight oil. The EIA estimates [LINK] that US shale and tight oil plays are up over 6 mmb/d this decade and ~2.5 mmb/d n the past two years alone.

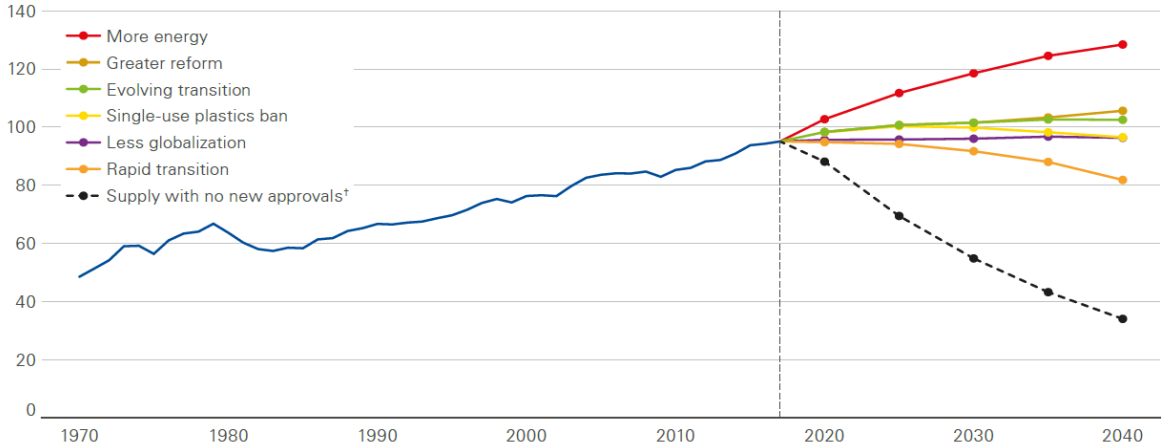
US Tight Oil Production – Selected Plays (Million barrels of oil per day)



Source: EIA

BPs recent forecast for overall global oil decline rate is 4.5% per year. BP's Energy Outlook 2019 Edition (Feb 14, 2019) [LINK] included their outlook for oil supply and demand and specifically on overall global oil decline rates. BP wrote "*Second, significant levels of investment are required for there to be sufficient supplies of oil to meet demand in 2040. If future investment was limited to developing existing fields and there was no investment in new production areas, global production would decline at an average rate of around 4.5% p.a. (based on IEA's estimates), implying global oil supply would be only around 35 Mb/d in 2040."* Below is the graph from their Energy Outlook 2019 Edition report.

Demand and Supply of Oil (Mbd)



Source: BP Energy Outlook 2019 Edition

If Exxon is anywhere close, this is a hugely bullish signal for mid/long term oil ie. post 2020 oil. We recognize that this significantly higher than expected overall global oil decline rate will take a year or two to work thru the current supply/demand fundamentals given where markets are today. However, over the mid term, the need to add ~7 mmb/d of new oil supply is a huge challenge for the world. The difference between an Exxon type view of ~7% declines vs BP's 4.5% declines is approx. 2.5 mmb/d of an additional new oil supply every year is needed to balance the markets. In reality, even if Exxon's implied overall global decline rate was ~6%, it would still be very bullish for mid/long term oil as this means an additional ~1.5 mmb/d of new global oil supply per year.

Its even more bullish for post 2020 oil than we thought in our Nov 6, 2017 peak oil demand blog. We have always been in the camp that believes peak oil demand is coming, but we have also been of the view that the post 2020 challenge to replace oil declines would be getting tougher. We believe Exxon's view of higher global oil decline rates is consistent with the ~2.5 mmb/d increase in US shale and tight oil in the past two years. And is way more bullish than we wrote in our Nov 6, 2017 blog "*Peak Oil Demand Is Coming, But >4 Mmb/d Of New Oil Supply Will Be Needed Every Year To Replace Declines To Get There*" [LINK], and "*We buy into the narrative of peak oil demand, believe it is inevitable, its visible and will happen before 2030. Peak oil demand will be from the cumulative impact of a number of factors including EVs, battery/storage, LNG for power, LNG for transportation, increased energy efficiency, etc. But the peak oil demand narrative forgets the most basic fundamentals of oil – industry has to add new oil supply every year to replace declines just to keep production flat. Even after today's big oil rally, long dated strips are still under $52 from 2020 thru 2025. We don't believe long dated 2020 thru 2025 strips are predictive of future prices or indicative of the marginal supply costs to add 4 to 5 million b/d every year in 2020 to 2025 or to add >3 million b/d every year once peak oil demand is reached and is in plateau. We believe these marginal supply costs are significantly higher and >$60. We believe oil can quickly move to a base of >$60 with this supply challenge and there will be longevity to this call as markets appreciate this challenge and that the marginal supply cost to add this much new oil production every year is well over $60. Peak oil demand won't take away from the challenge to add significant new oil production every year."* Note that our Nov 6, 2017 blog was based on the spring 2017 Core Laboratories estimate that the global world wide annual decline rate in oil was then 3.3%. But to Core Laboratories support, this estimate would have been before the ~2.5 mmb/d of added US shale and tight oil in the past two years.

https://economictimes.indiatimes.com/news/india/russia-becomes-the-no-1-oil-supplier-for-india-in-october/printarticle/95240329.cms

Russia becomes the No. 1 oil supplier for India in October

Synopsis
Compared to September, overall crude import went up 5% in October and that from Russia rose 8%, according to Vortexa, an energy intelligence firm that has offices in Singapore and London and tracks oil and gas tankers across the globe, providing freight and inventories analytics.

Agencies

Russia has become India's top oil supplier, edging past the traditionally dominant suppliers **Saudi Arabia** and **Iraq**, according to the energy cargo tracker Vortexa.

Russia supplied 946,000 barrels per day of **crude** to India in October, the highest ever in a month. It accounted for 22% of India's total crude imports, ahead of Iraq's 20.5% and Saudi Arabia's 16%. Compared to September, overall crude import went up 5% in October and that from Russia rose 8%, according to Vortexa, an energy intelligence firm that has offices in Singapore and London and tracks oil and gas tankers across the globe, providing freight and inventories analytics.

For the first time, India imported more seaborne Russian crude than the European Union - the volumes were 34% higher than the EU's. With imports of 1 million barrels per day in October, **China** remained the largest buyer of Russian seaborne crude.

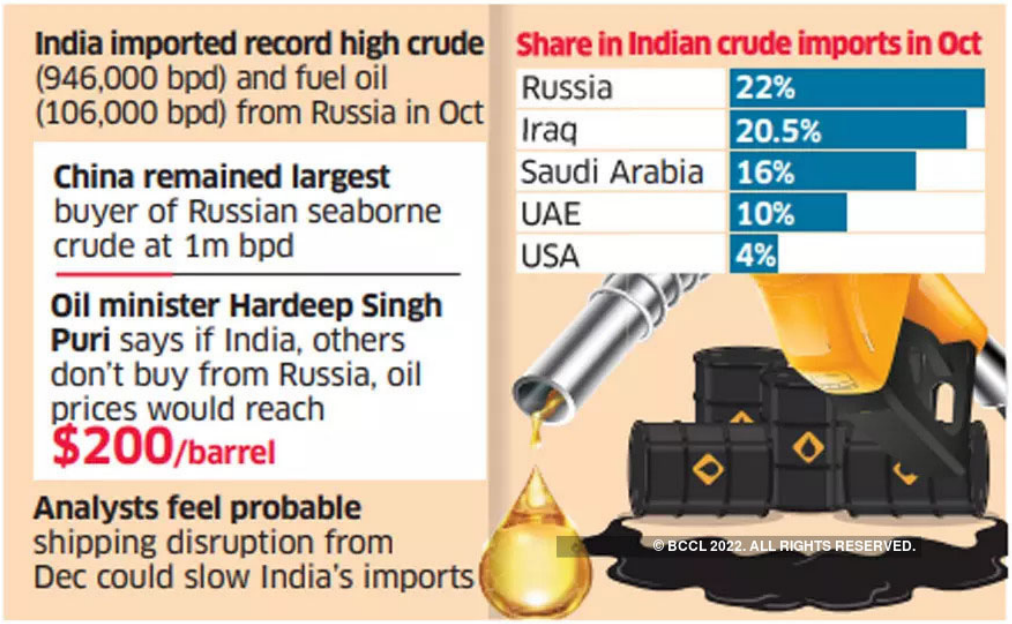
India also imported about 106,000 barrels per day of fuel oil from Russia in October, a new high.

The dramatic rise in Russia's share of the Indian market from less than 1% in 2021 was triggered by the deep discounts that followed the February invasion of **Ukraine**.

West's Proposed Price Cap

The war and the consequent Western sanctions unsettled the global market and sent prices higher but forced Russia to sell its crude at a deep discount.

The latest oil ministry data shows that the share of Eurasia, including Russia, Kazakhstan and Azerbaijan, has expanded to 21% in the April-September period from 5% a year earlier. This has led to a near halving of the combined share of North America, South America and Africa to 18% from a year earlier while the Middle East's share remained almost intact at around 59%.



A spokesperson for the oil ministry didn't respond to ET's request for comment on the story. The government has defended India's purchase of **Russian oil** on multiple occasions in the past.

"If India did not buy or someone else didn't buy Russian oil, and Russian oil was to go off the market, what would happen to International prices?" oil minister Hardeep Puri told CNN on Monday, adding that the market disruption could send prices to $200 per barrel. He said India will buy oil and gas from wherever it can as the government has a "moral duty" to keep its population supplied with energy.

Some analysts feel India's imports from Russia could slow from December due to shipping constraints that could possibly emerge from the West's proposed price cap on Russian oil.

"There remains much uncertainty on whether Russian crude deliveries can be sustained at this level post the December 5 EU ban, with the availability of ice-class tankers to transport crude from the Russian Baltic ports being one of the biggest constraints," said Serena Huang, an analyst at Vortexa.

Excerpts from ANI reporting on Hardeep Singh Puri comments post Jennifer Granholm meeting in Washington

https://aninews.in/news/world/us/india-is-clear-about-its-policy-regarding-oil-purchases-will-buy-oil-from-wherever-it-has-to-hardeep-singh-puri20221008143703/

India is clear about its policy regarding oil purchases, will buy oil from wherever it has to: Hardeep Singh Puri

ANI | Updated: Oct 08, 2022 14:37 IST

Washington [US], October 8 (ANI): India has reiterated its choice of importing oil from countries like Russia after OPEC Plus, a consortium of oil-producing nations led by Russia and Saudi Arabia announced a slash in oil production by two million barrels per day.

While taking to reporters in Washington DC during his ongoing US visit, Union Minister of Petroleum and Natural Gas Hardeep Singh Puri on Saturday touched on several topics including how India will balance OPEC Plus oil production cut, diversification of energy - equity infusion, bio-fuel blending and green hydrogen.

With rising global energy requirements, the OPEC production cut is likely to impact countries like India, the third largest oil importer. Speaking on the topic of balancing the imports from OPEC Plus countries as well as from the US, which is also a oil exporting country, Puri said "If you are clear about your policy, which means you believe in energy security, energy affordability you will buy from wherever you have to. Our energy purchases from sources hitherto unheard of, we are in discussion with them."

Answering how India will negotiate the tightrope of expectations, he told ANI, "It's not a tight rope, I don't look at - We will also acquire assets outside wherever - I mean in recent months- we did USD 1.6 billion equity infusion which BPCL has done in Brazil. We are looking at assets in Africa."

Puri explained that oil exporting countries need buyers as they have to sell their products in the market.

"Sometimes when you are looking at it in a journalistic manner, you would say that producers are holding all the cards. I disagree with that; I think the person or country with a large market also has a huge role to play. I am giving you a hypothetical example - If we decide to limit consumption, no matter what you produce, you will have to find a place to sell it too and I can tell you that in the last year or so, I have had my oil companies tell me that we can raise it from here, but there are traditional suppliers, this is a discussion which will go on," Puri said in response to a question by ANI.

"Much of the trade incidentally takes place in a manner which is not properly understood outside. It's not that - you have some fuels which have high density, some are lighter fuels - I don't want to get into that discussion - it may originate somewhere - we own assets outside, the product of those assets does not come to India, it goes in, it's sold in the swap market etc," he added.

This week's OPEC Plus announcement on oil production cut will likely have a cascading impact on geopolitical shifts amid the Russia-Ukraine crisis.

"Oil and energy have been traded for years. Governments in particular situations will react to geopolitical events. At the end of the day all governments are committed to issues of energy provisions; that is security and affordability," said Puri.

Meanwhile, an intense pressure campaign by the US to dissuade its Arab allies seemingly fell on deaf ears. Russia is already pumping below its OPEC+ ceiling, and the bulk of the cuts will be made by Gulf producers.

Speaking about the conflict and Indian diversification, Union minister Puri said, "I don't see any conflict. There are countries in OPEC that sell to us. They've never turned around and told us that they don't want to sell to us. If you don't sell to India and China, there are not many big markets left, even Europe collectively. Many of these are matured markets in energy. They don't utilize crude oil - some of them have gone into nuclear energy, and others are going into biofuels. I also want to share with you some of the advances which India has made - biofuel blending, when I was Ambassador to Brazil, we tried very hard, the central government tried to introduce 5 per cent ethanol blending in 15 of our States and Union Territories, we couldn't get it done."

Puri further stated that the India had taken a giant leap in bio-fuel blending after Prime Minister Narendra Modi assumed power in 2014.

"In 2014, when Prime Minister Narendra Modi assumed office, our bio-fuel blending was 1.4 per cent, today we have already reached 10.5 per cent of blending. We have a target of 20 per cent blending by 2030. We have just brought it forward to 2024-2025," said Puri.

He also gave examples of green Hydrogen and how India is providing opportunities for oil exploring companies.

"Green Hydrogen - We have Indian companies selling green ammonia to Germany - the world is moving at different fronts - exploration and production in India will shoot up. I have always said that we have neglected to the point, I even use words like 'criminal neglect.' We have 3.5 million square kilometres of sedimentary basin, and one million square kilometres of that sedimentary basin was called a 'no go area', just now a few months ago, 99.5 per cent of that 'no go area' has been cleaned up which means for an investor are happy to come and explore. There are not hundreds of players in the energy sector, five to six big companies, they are all interested, they are either forming joint ventures, just to come (to India)," said Puri. (ANI)

https://aninews.in/news/world/us/india-under-no-global-pressure-to-shun-russian-oil-hardeep-singh-puri20221008093740/

Union Minister of Petroleum and Natural Gas, Hardeep Singh Puri.

India under no global pressure to shun Russian oil: Hardeep Singh Puri

ANI | Updated: Oct 08, 2022 09:37 IST

Washington [US], October 8 (ANI): Union Minister of Petroleum and Natural Gas, Hardeep Singh Puri on Saturday said that India is under no pressure to shun Russian oil.

In a bilateral meeting with US energy secretary Jennifer Granholm, Puri said that the Indian government has a moral duty to provide energy to its citizens and it will continue to buy oil from wherever it has to.

Have I been told by anyone to stop buying Russian oil? The answer is a categorical No," Puri told reporters in Washington.

"India will buy oil from wherever it has to for the simple reason that this kind of a discussion cannot be taken to the consuming population of India," he added.

Since the start of the Ukraine conflict. India has sought to carve a middle path between Moscow and its Western critics and so far largely resisted Western pressure to cut its economic ties with the Kremlin.

The US is holding "deep talks" with India over the latter's reliance on Russian arms and oil, according to media reports citing a state department official. The official claimed that Indian representatives are starting to look at other markets to meet their demands as they try to become less dependent on Moscow for oil purchases.

Notably, the European Union (EU) on Thursday (local time) adopted its latest package of sanctions against Russia over the illegal annexation of Ukraine's Donetsk, Luhansk, Zaporizhzhia and Kherson regions.

The EU adopted restrictive measures against an additional 30 individuals and seven entities, read the EU's statement.

EU sanctions (8th package since the Ukraine war began) aim to force Russia to reduce prices & lose oil revenue. But at imports to the tune of 1.7 million barrels per day, the EU is still the biggest market for Russian crude.

Moreover, the EU is trying to determine the pricing of Russian oil through its insurance firms as Russia is the world's largest oil exporter. The European insurers rule commercial oil tankers by providing them with massive insurance.

The EU sanctions ll forbid these insurers from providing services to Russian companies selling oil above the price cap.

Moreover, EU's sanctions package on Russia will impact countries like India. EU is capping what other countries can pay for Russian oil. It bans the sale of oil above that price. This applies only to oil transported by sea. While, the EU members importing Russian oil by pipeline won't be hurt by these sanctions.

Puri highlighted India is one of the largest oil importer and the demand is expected to rise driven by an increase in India's per capita consumption of energy which currently stands at one-third of the global average. Puri further stressed that the fuel demand is expected to keep rising as the country's economy grows.

It is pertinent to note that External Affairs Minister S Jaishankar also on several platforms had explained India's decision to continue buying Russian oil. Recently, Jaishankar said PM Modi's advice on the issue was to do what is best for the nation. "Due to the Russia-Ukraine conflict, petrol prices doubled. We had pressure from where to buy the oil but Prime Minister Narendra Modi and the government were of the view that we have to do what is the best for our nation," Jaishankar said. (ANI)

https://aninews.in/news/world/us/oil-price-rise-in-india-is-way-below-global-price-hikes-hardeep-singh-puri20221008091154/

Oil price rise in India is way below global price hikes: Hardeep Singh Puri

ANI | Updated: Oct 08, 2022 09:11 IST

Washington [US], October 8 (ANI): Union Petroleum and Natural Gas minister Hardeep Singh Puri said that compared to fuel price hikes globally, India only raised prices by 2 per cent, which is way below that of other countries.

"In terms of petrol and diesel, if the increases in North America are 43-46 per cent, in India we allow prices to go up by only 2 per cent or so. In terms of gas, global benchmarks went up by 260-280 per cent and our own ability to contain gas price increases was something around 70 per cent," Puri told reporters in Washington DC.

Puri on Thursday held bilateral meeting with US energy secretary Jennifer Granholm and other top officials of the Biden Administration.

The minister also highlighted India's commitment to accelerating a just and sustainable energy transition at the ministerial dialogue on India-US strategic clean energy.

During his visit, the union minister also held meetings with senior officials of the World Bank, the Presidential envoy for energy and infrastructure Amos Hochstein and senior representatives of the White House. Puri is scheduled to meet energy business leaders in Houston on Saturday.

The Union Minister said that India was "very confident" of navigating the Organisation of Petroleum Exporting Countries Plus (OPEC+) decision to cut oil production from November by a steeper-than-expected two million barrels per day (bpd). "

How will this impact India? We are very confident of being able to navigate through the situation," Puri told reporters in Washington.

"How will this navigate India? We're very confident of being able to navigate through the situation," said Puri.

Puri highlighted India is one of the largest oil importers and the demand is expected to rise driven by an increase in the country's per capita consumption of energy which currently stands at one-third of the global average. Puri further stressed that the fuel demand is expected to keep rising as the country's economy grows.

"In India, 5mn (oil) bpd is being consumed daily; it's set to rise. Our per capita consumption compared to global averages is 1/3rd. But I see in the coming years, 25 per cent of the global increase in demand will come from India. Energy is a critical driver of economic growth," the union minister said.

The Union Minister also said that India will buy crude oil from whichever country it wanted and that New Delhi faces no pressure from Washington to cut its energy buys from Russia.

"India will buy oil from wherever it has to for the simple reason that this kind of a discussion cannot be taken to the consuming population of India," Puri told reporters in Washington. (ANI

Embargoed until 0945 CST (0145 UTC) 1 November 2022

Caixin China General Manufacturing PMI™

COVID-19 containment continues to restrict manufacturing output and demand

Chinese manufacturing business conditions deteriorated in October as COVID-19 containment measures weighed on both output and demand. That said, the decline was only marginal overall and weaker than in September.

Although levels of both production and new business fell during October, rates of decline eased. The latest survey data highlighted companies' continued efforts to stimulate sales as output charges were reduced for a sixth month in a row. This came despite a renewed increase in operating costs, with panel comments suggesting this was primarily due to higher international prices for raw materials. Meanwhile, business confidence edged slightly higher during October.

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 – posted below the 50.0 no-change mark in October to signal a third successive deterioration in manufacturing sector conditions across China. However at 49.2, this was up from 48.1 in September and indicative of only a marginal decline.

Further declines in both output and new orders were seen at the start of the fourth quarter, with COVID-19 a principal factor behind lower client demand and disrupted factory operations. Nevertheless, decreases were only mild and slowed in both cases. All three monitored sub-sectors registered lower production and new orders in October. Intermediate goods makers registered the weakest reductions.

October survey data signalled another drop in new business from external markets. Slowing economic conditions abroad was noted as a factor, although some companies also experienced challenges in transporting goods overseas. Indeed, supplier delivery times lengthened again at the start of the fourth quarter. Limited vendor production capacity and shortages were linked to delivery delays.

Chinese manufacturers raised their purchasing activity in October, marking the first such increase since July. Where higher input buying was registered, this was linked to stock-building efforts. Similarly, pre-production inventories rose for the first time in three months during the latest survey period. Some companies reportedly secured inputs ahead of new product launches.

Elsewhere, there were continued signs of spare capacity at Chinese manufacturers as backlogs of work fell for the fourth time in five months. Some companies cited a build-up of incomplete orders due to COVID-19 disruption, although this was more than offset by the other businesses that were able to clear pending work on their order books.

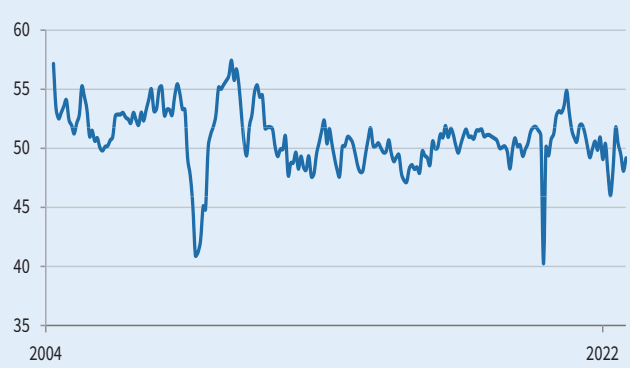
Efficiency gains also led some Chinese factories to reduce their workforce numbers in October. Survey respondents reportedly lowered their headcounts due to the automation of some processes across the production line. Overall manufacturing employment has now fallen for seven months in a row.

Meanwhile, selling prices were reduced for a sixth successive month in October. According to firms, output charges were reduced in a bid to stimulate sales and improve competitiveness. Discounting came despite a renewed uptick in operating costs.

There was an improvement in business optimism during October, which recovered slightly from September's 34-month low. Capacity expansion and new product launches were expected to support growth over the coming year.

China General Manufacturing PMI

sa, >50 = improvement since previous month



Sources: Caixin, S&P Global

Key findings:

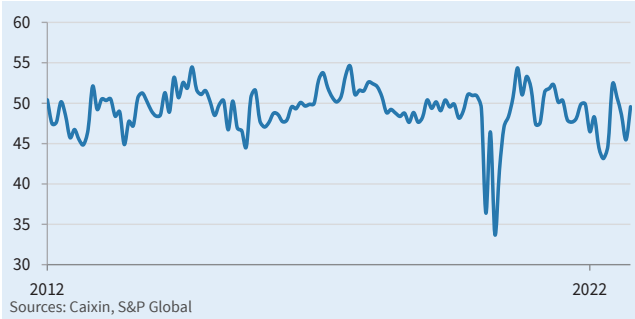
Output and new orders fall again in October as COVID-19 containment measures continue

Selling prices fall for sixth consecutive month

Business confidence edges up slightly from September's recent low

New Export Orders Index

sa, >50 = growth since previous month



Sources: Caixin, S&P Global

Employment Index

sa, >50 = growth since previous month

Sources: Caixin, S&P Global

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

"The Caixin China General Manufacturing PMI in October rose 1.1 points from the previous month to 49.2, but remained in contractionary territory. This marked the third consecutive month of contraction in manufacturing activities, still weighed down by Covid-19 outbreaks and consequent tightening of prevention and containment measures.

"Supply and demand in manufacturing contracted in tandem amid persistent Covid outbreaks. The subindexes for output and total new orders were below 50 for the second and third consecutive months respectively, with consumer and investment goods the weakest in demand. Overseas demand continued to weaken, as the gauge for new export orders remained in contraction for the third consecutive month.

"Employment continued to shrink. For the seventh consecutive month and the 14th time in the past 15 months, the subindex for employment was in contractionary territory, although the rate of decline was softer than in the previous three months. In consideration of reducing scale and costs, companies were less willing to recruit new employees to fill the posts of those who left, and the automation of some production lines also gave employers a reason to limit hiring.

"The readings for output and input prices diverged. Market demand was sluggish, so companies were willing to cut prices to promote sales. As a result, the gauge for surveyed manufacturers' output prices recorded a number below 50 for the sixth consecutive month. In terms of costs, companies were pressured by rising operating costs. In October, the prices of raw materials rose in global markets, and the gauge for purchasing prices rose more than 3 points from the previous month, moving into expansionary territory for the first time in three months.

"Inventory levels saw an increase. In order to meet production needs, especially due to concerns about rising raw material prices and supply shortages caused by Covid outbreaks, manufacturing companies were more incentivised to replenish inventories. In October, measures for quantity of purchases, stocks of raw materials and inventories of finished products were all above 50. At the same time, Covid controls also affected logistics, resulting in slightly longer deliver times for suppliers.

"Entrepreneurs were more optimistic. In October, the gauge for manufacturers' expectations for future output rebounded from a low in the previous month, but remained below the long-term average. Entrepreneurs hoped that the market would pick up significantly in the future, and some expressed willingness to develop new products.

"Overall, the negative impact of Covid controls on the economy lingered. In October, supply, domestic and overseas demand, and employment in the manufacturing sector all contracted, but the rates of contraction slowed from the previous month. Costs rose slightly, and cuts to output prices were still common. Logistics and transportation were still sluggish, and companies' purchases and inventories rose slightly. Market sentiment improved, but optimism remained limited from a long-term perspective.

"The recently released economic data for the third quarter showed that the economy was recovering, as several main indicators stabilized and were slightly better than market expectations. However, the current domestic and international environments remain complicated and tough, and unfavorable factors affecting economic development have increased. In particular, the spread of the coronavirus in many regions significantly restricts both supply and demand. There is still tremendous downward pressure on the economy, and the foundation for economic recovery is not yet solid.

"President Xi Jinping's report to the Communist Party of China's 20th National Congress emphasized that "development is the party's top priority in governing and rejuvenating China" — it's a message that can help stabilize long-term market expectations. At present, demand and employment are still under pressure, and policies to promote employment and stabilize domestic demand need to be strengthened, which is implied in the report. The report says that the country's top leaders will enhance the coordination between fiscal and monetary policies, and work to expand domestic demand and better leverage the fundamental role of consumption in stimulating economic growth and the key role of investment in improving the supply structure."

Survey methodology

The Caixin China General Manufacturing PMI™ is compiled by S&P Global from responses to questionnaires sent to purchasing managers in a panel of around 650 private and state-owned manufacturers. The panel is stratified by detailed sector and company workforce size, based on contributions to GDP. For the purposes of this report, China is defined as mainland China, excluding Hong Kong SAR, Macao SAR and Taiwan.

Survey responses are collected in the second half of each month and indicate the direction of change compared to the previous month. A diffusion index is calculated for each survey variable. The index is the sum of the percentage of 'higher' responses and half the percentage of 'unchanged' responses. The indices vary between 0 and 100, with a reading above 50 indicating an overall increase compared to the previous month, and below 50 an overall decrease. The indices are then seasonally adjusted.

The headline figure is the Purchasing Managers' Index™ (PMI). The PMI is a weighted average of the following five indices: New Orders (30%), Output (25%), Employment (20%), Suppliers' Delivery Times (15%) and Stocks of Purchases (10%). For the PMI calculation the Suppliers' Delivery Times Index is inverted so that it moves in a comparable direction to the other indices.

Underlying survey data are not revised after publication, but seasonal adjustment factors may be revised from time to time as appropriate which will affect the seasonally adjusted data series.

For more information on the survey methodology, please contact: economics@ihsmarkit.com.

Survey dates and history

Data were collected 12-21 October 2022.

Data were first collected April 2004.

About PMI

Purchasing Managers' Index™ (PMI™) surveys are now available for over 40 countries and also for key regions including the eurozone. They are the most closely watched business surveys in the world, favoured by central banks, financial markets and business decision makers for their ability to provide up-to-date, accurate and often unique monthly indicators of economic trends.

https://ihsmarkit.com/products/pmi.html

About Caixin

Caixin is an all-in-one media group dedicated to providing financial and business news, data and information. Its multiple platforms cover quality news in both Chinese and English. Caixin Insight Group is a high-end financial research, data and service platform. It aims to be the builder of China's financial infrastructure in the new economic era.

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S&P Global (NYSE: SPGI) S&P Global provides essential intelligence. We enable governments, businesses and individuals with the right data, expertise and connected technology so that they can make decisions with conviction. From helping our customers assess new investments to guiding them through ESG and energy transition across supply chains, we unlock new opportunities, solve challenges and accelerate progress for the world.

We are widely sought after by many of the world's leading organizations to provide credit ratings, benchmarks, analytics and workflow solutions in the global capital, commodity and automotive markets. With every one of our offerings, we help the world's leading organizations plan for tomorrow, today.

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PMI™ by S&P Global

Oil price outlook – Snapshot: November 2, 2022

Disclaimer: Please note that BNEF does not offer investment advice. Clients must decide for themselves whether current market prices fully reflect the issues discussed in this note.

Category	Indicator	Signal	Comment
Fundamentals	**Refinery margins**		• Refinery margins were largely flat over the past week.
	Crude stocks		• In the week ending October 21, land crude-oil storage levels in BloombergNEF's tracked regions (the US, ARA and Japan) rose by 0.8% to 569.9 million barrels (m bbl). The stockpile **deficit** against the five-year average (2015-19) **widened from 20.4m bbl to 20.5m bbl**. • Including global floating crude stockpiles from the same week, total crude oil inventories increased by 1.2% to 666.6m bbl, with the stockpile **surplus narrowing from 38.8m bbl to 36.2m bbl.**
	Product stocks		• In the week ending October 21, gasoline and light distillate stockpiles in BNEF's tracked regions (the US, ARA, Singapore, Japan and Fujairah) fell by 0.6% week-on-week to 250.9m bbl, with the stockpile **deficit** against the three-year average (2017-19) **narrowing from 4.4m bbl to 1.7m bbl**. Gasoil and middle distillate stockpiles in BNEF's tracked regions were up 0.5% to 137.3m bbl, with the stockpile **deficit** against the three-year average **narrowing from 32.3m bbl to 28.7m bbl**. • Oil product stockpiles in tracked regions dropped by 0.4% to 954.5m bbl, with the stockpile **deficit** against the three-year seasonal average **narrowing from 43.4m bbl to 36.7m bbl**. Altogether, crude and product stockpiles increased by 0.3% to 1,621m bbl, with the stockpile **deficit narrowing from 4.6m bbl to 0.5m bbl.**
	Demand indicators		• In the week to November 1, global jet fuel demand from commercial passenger flights grew by 1.6% to 5.36 million barrels per day. Jet fuel consumption by international passenger flight departures was up 58,000 barrels per day (or +1.9%) week-on-week, while consumption by domestic passenger flight departures increased 25,000 barrels per day (or +1.2%). In the week to October 30, flight departures in the Eurocontrol area surged to 96.7% of the equivalent week in 2019, up from 87.5% last week. The four-week moving average climbed to 90.2%, from 88.2%. Meanwhile, in the same week, US passenger throughput fell to 90.9% of the equivalent week in 2019, down from 100.5% last week. The four-week moving average increased to 95.5%, from 95.4%. • In the week to October 26, TomTom's peak congestion data showed growth in Europe (+4.1%) and North America (+3.4%), while Asia Pacific ex-China showed a decline (-6.0%). Road congestion in China's 15 key cities rose by 3.3 percentage points to 106.1% of January 2021 levels in the week to October 26, according to BNEF's calculation based on Baidu data. • In the week to October 26, global daily average Covid-19 cases dropped 12% to 394,000 new cases. The Americas number increased 6% to 54,000 daily cases, while the Asia Pacific number rose 0.4% to 131,000 daily cases (although the number in **China more recently surging 76% to 1,668 cases** in the week to October 31). Meanwhile, Europe saw cases fall 16% to 193,000 daily cases. • Europe is seeing mild temperatures toward month-end, and temperatures during the peak heating season between December and February are forecast to be significantly above normal.
Financial	**Macro indicators**		• The dollar index averaged 110.8 over the past week and was 1.4% lower than the week before. The S&P Global China Manufacturing PMI rose to 49.2 in October, from 48.1 in September. The India manufacturing PMI also rose to 55.3, from 55.1 in the month prior.
	Hedge fund positioning		• In the week to October 25, Managed Money net positioning in the oil complex was up by 33.3m bbl (or +7.5%) week-on-week to 502.7m bbl, and stood at the nineteenth percentile of the past five years.
	Options chains and volatility		• There was a jump in open interest for WTI Dec-23 $150/bbl to $200/bbl calls. Brent and WTI 1M volatility skews were higher over the past week.
Outlook	**Weekly call**		• BNEF is neutral on oil prices for the week ahead, with Brent Jan-23 trading at $94.43/bbl and WTI Dec-22 trading at $88.22/bbl at the time of writing. Flat prices could see heightened volatility depending on the outcome of the upcoming US Federal Reserve meeting. • High frequency mobility indicators showed an uptick in global road traffic activity, as North America, Europe and China registered growth in road congestion levels. Jet fuel demand had a strong showing, as the four-week moving average for departures in the Eurocontrol area inched higher to 90.2% of 2019 levels, surpassing the post-pandemic record reached last week. Meanwhile, the US TSA four-week average passenger throughput moved slightly higher to be on par with the post-pandemic high seen in late-September. • Weekly oil inventories saw a slightly bearish move over the past week as the stockpile deficit against its seasonal average (2017-19) narrowed. The stockpile deficit has shrunk from peak levels of 140.8m bbl to just 0.5m bbl. It went into a surplus for a brief period in the second half of September. While middle distillate stockpiles seem to have fallen considerably over recent weeks and currently stand at a precarious level, the pace of inventory decline is similar to seasonal trends. The weekly middle distillate stockpile deficit against its seasonal average is still below the year-to-date peak seen in February, as well as another lower peak in August. • As sporadic Covid-19 lockdowns continue in China, independent refiners could ramp up product exports to utilize their newly issued export quotas. Strengthening east-west diesel arbs are likely to remain strong to pull more diesel from the East of Suez. Meanwhile, an expected mild winter in Europe could ease some heating demand. The recent retreat in natural gas prices also makes it cheaper for refiners to run hydrocrackers which increase diesel product yield.

BloombergNEF

Past outlooks

Disclaimer: Please note that BNEF does not offer investment advice. Clients must decide for themselves whether current market prices fully reflect the issues discussed in this note

Date of report	Refinery margins	Crude stocks	Product stocks	Demand indicators	Commitment of traders	Options chain and volatility	BNEF week ahead call	Brent/WTI price at time of writing ($/bbl)	Web Link
November 2	↔	↔	↓	↔	↑	↑	↔	Brent-Jan: 94.43 WTI-Dec: 88.22	
October 26	↔	↓	↔	↓	↓	↔	↔	Brent-Jan: 91.89 WTI-Dec: 85.77	
October 19	↔	↓	↔	↓	↑	↔	↓	Brent-Dec: 90.28 WTI-Dec: 82.78	
October 4	↔	↔	↑	↔	↓	↓	↔	Brent-Dec: 90.71 WTI-Nov: 85.26	
September 27	↔	↓	↓	↓	↓	↓	↔	Brent-Dec: 94.06 WTI-Nov: 87.83	
September 6	↓	↑	↔	↓	↔	↑	↓	Brent-Nov: 101.00 WTI-Oct: 95.40	
August 30	↔	↔	↓	↑	↑	↑	↑	Brent-Oct: 93.65 WTI-Sep: 87.83	
August 16	↔	↓	↔	↓	↓	↔	↓	Brent-Oct: 97.60 WTI-Sep: 91.50	
August 9	↔	↓	↔	↔	↓	↓	↔	Brent-Oct: 99.38 WTI-Sep: 93.42	
August 2	↔	↑	↔	↔	↔	↔	↓	Brent-Oct: 101.94 WTI-Sep: 98.46	
July 26	↔	↓	↔	↓	↑	↔	↔	Brent-Sep: 105.88 WTI-Sep: 99.03	
July 19	↔	↓	↓	↓	↔	↔	↓	Brent-Sep: 105.18 WTI-Aug: 102.34	
July 11	↓	↓	↑	↓	↓	↓	↓	Brent-Sep: 111.71 WTI-Aug: 107.91	
July 5	↓	↑	↓	↑	↓	↓	↔	Brent-Aug: 115.81 WTI-Aug: 110.34	

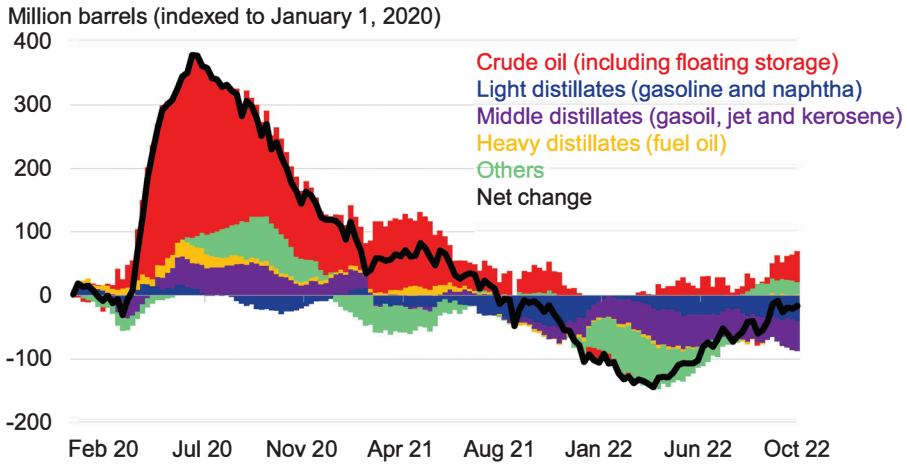
To view past reports on terminal, go to NI BNEFOIL, search for the report and click on the icon to the far right:

BloombergNEF

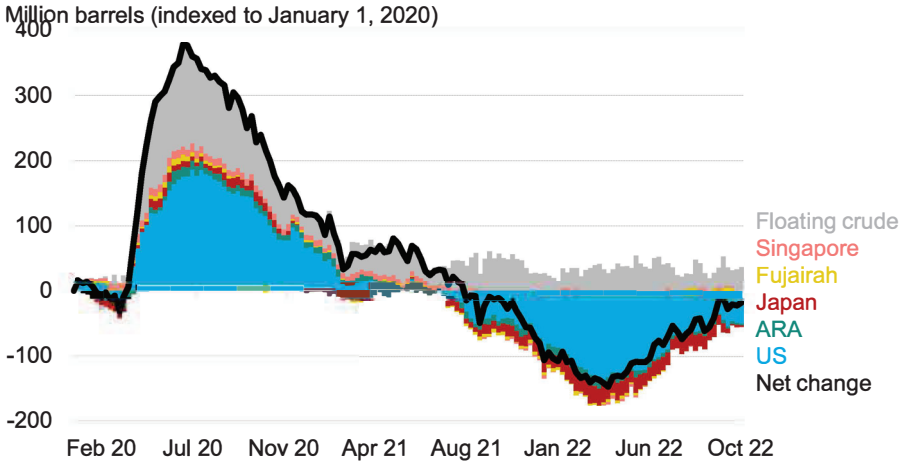
Weekly oil inventories

Crude inventories rise while product stockpiles fall

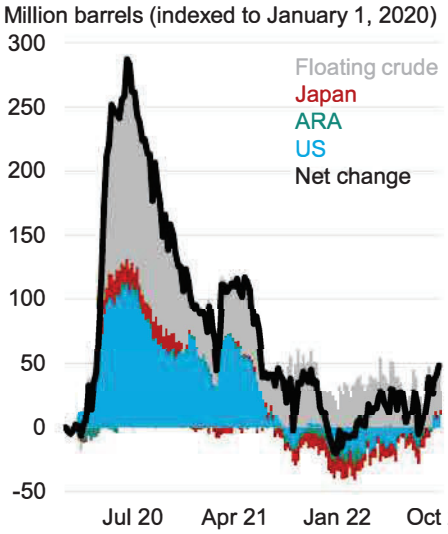
Weekly oil inventories by type



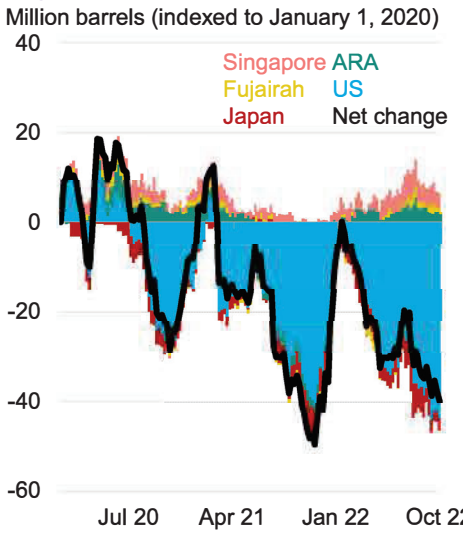
Weekly oil inventories by region



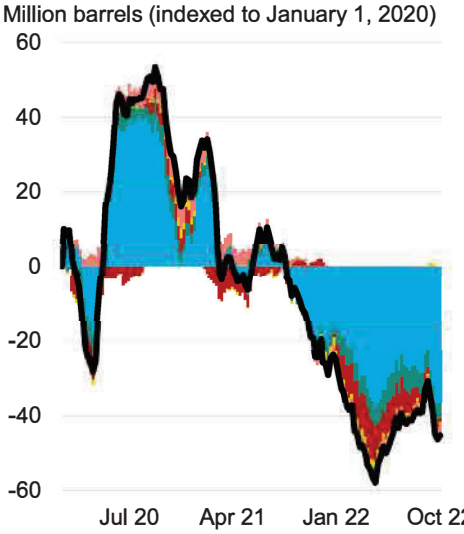
Crude inventories



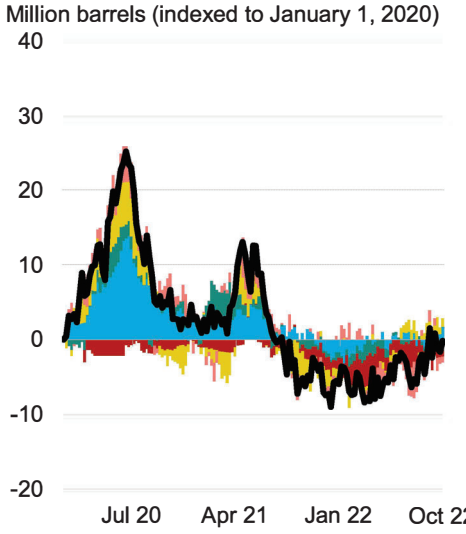
Light distillate inventories



Middle distillate inventories



Heavy distillate inventories



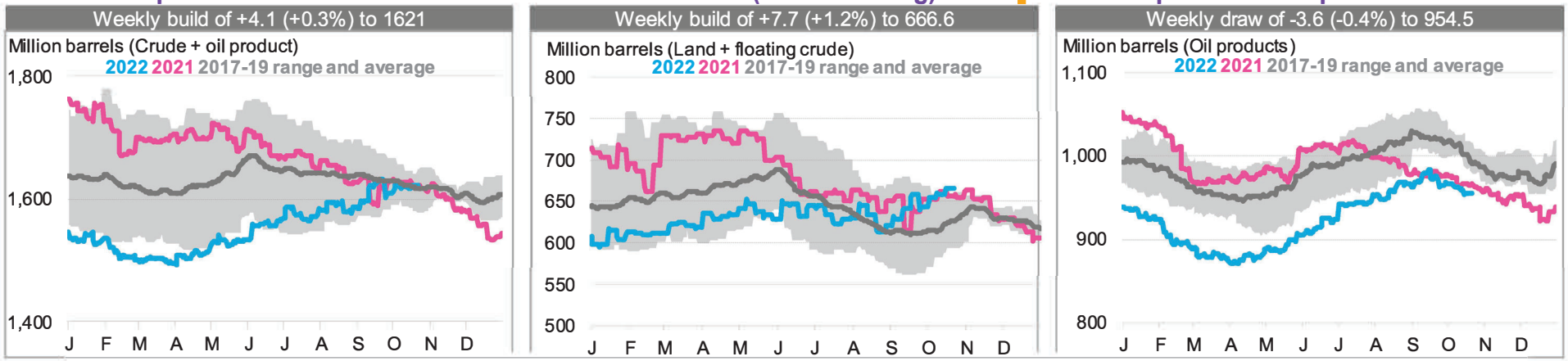
Source: BloombergNEF, US EIA, PJK, IE Singapore, FEDCom/Platts, PAJ ,Vortexa, Genscape. Note: As of the week ending ***October 21, 2022****.*

Aggregated oil stockpiles

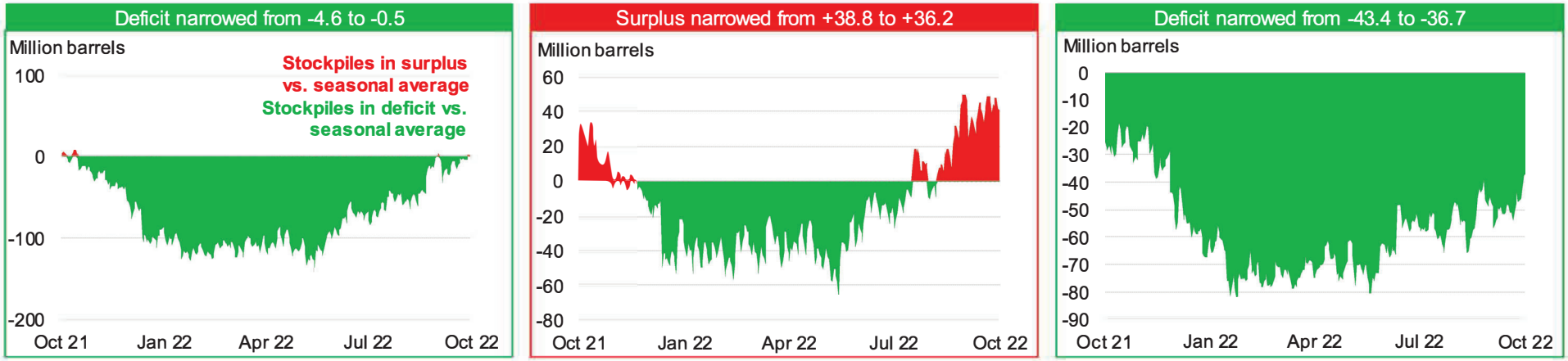
Neutral: Stockpile deficit narrowed from 4.6m bbl to 0.5m bbl

- Charts below use the **2017-19** (three-year) seasonal stockpiles. All calculations are recalibrated to measure against their respective three-year seasonal averages, so the values below may differ from the previous slides.
- Land crude inventories include the US, ARA, Japan and Shandong Teapots. Floating storage data are global. Oil product storage includes the US, ARA, Japan, Singapore, Shandong Teapots and Fujairah. Floating crude inventories may have been adjusted since the previous report – see slide 8 for further info.

Total oil and product stocks = **Total crude stocks (land + floating)** + **Total oil product stockpiles**



Charts below subtract current stockpiles by the 2017-19 (three-year) seasonal average



*Source: BloombergNEF, US EIA, PJK, IE Singapore, FEDCom/Platts, PAJ ,Vortexa, Genscape. Note: As of the **week ending October 21, 2022.***

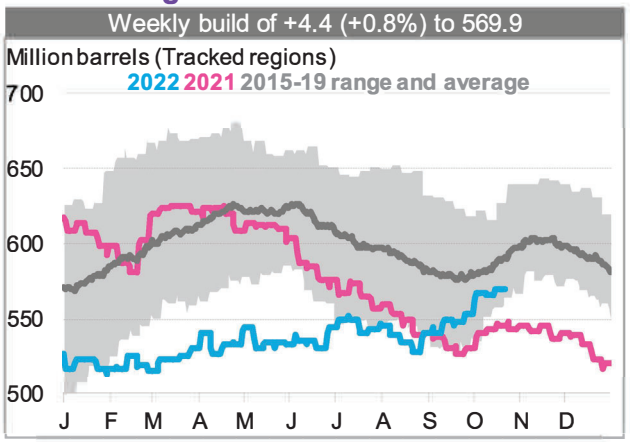
BloombergNEF

Crude stocks: Land

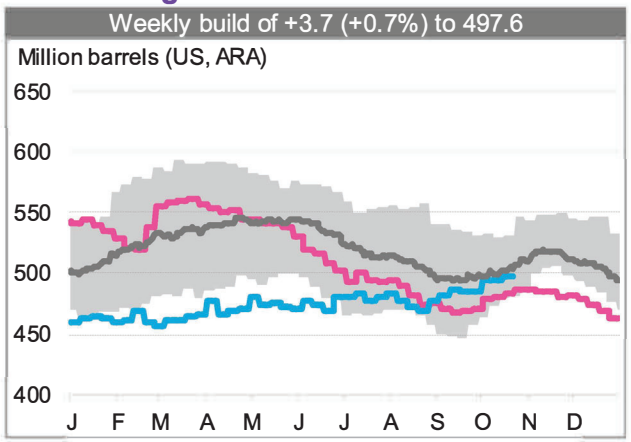
Neutral: Deficit widened from 20.4m bbl to 20.5m bbl against the seasonal average

- Crude inventory rises when supply outstrips demand (meaning more physical oil is available than is needed). High or rising inventories are therefore a bearish factor for oil prices. Every year, storage levels fluctuate due to seasonal demand trends. The intra-year directional movement of stockpile levels is somewhat predictable, yet the magnitude of movement can differ significantly from expectations.
- A useful way to gauge if the intra-year storage levels differ from the norm is to measure the difference between the current and seasonal average inventory levels.

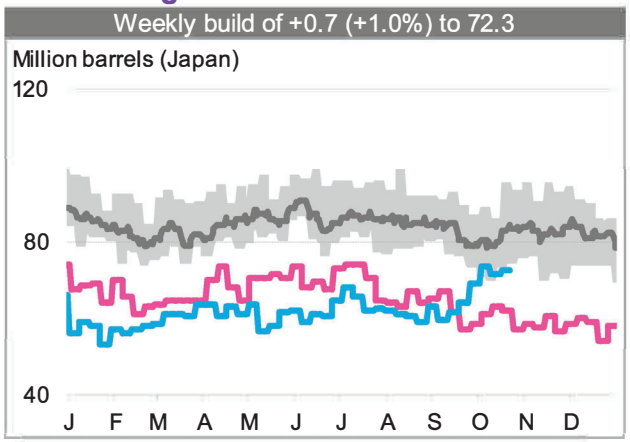
Land storage: Total



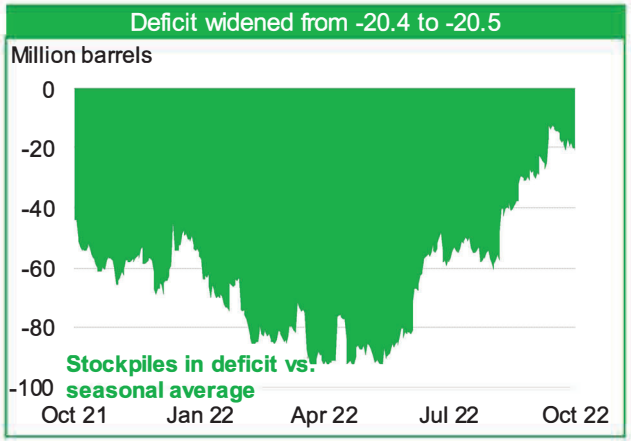
Land storage: West of Suez

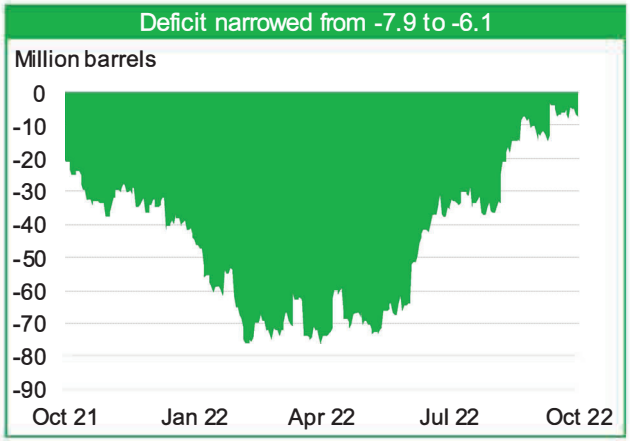


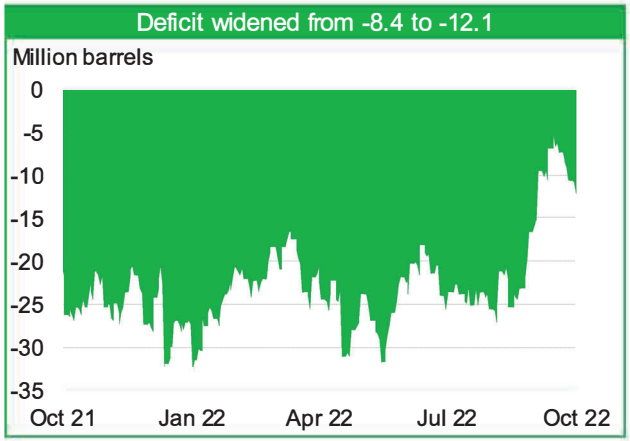
Land storage: East of Suez



Charts below subtract current stockpiles by the 2015-19 (five-year) seasonal average







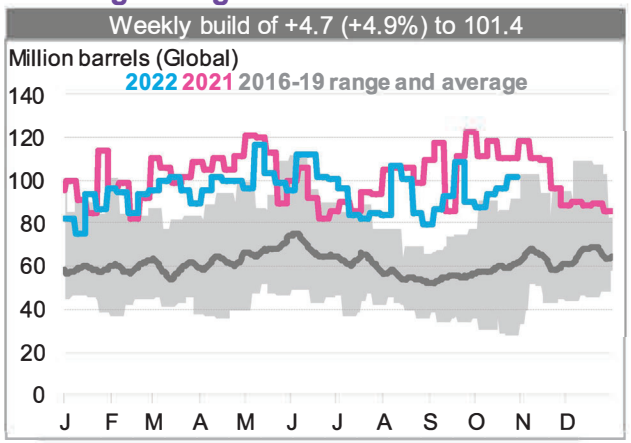
*Source: BloombergNEF, US EIA, Genscape, PAJ. Note: As of the **week ending October 21, 2022.***

Crude stocks: Floating

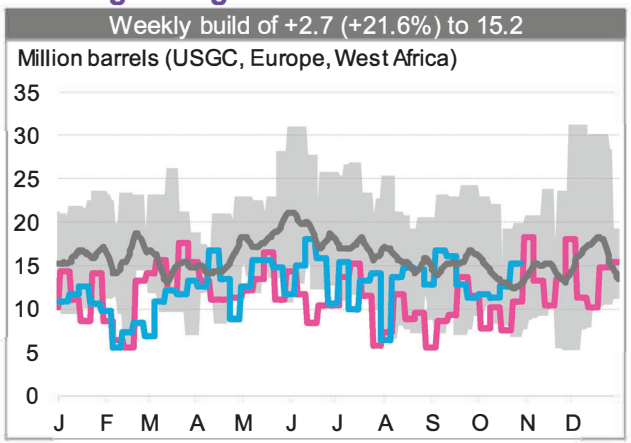
Neutral: Surplus level remains high

- Floating storage is only profitable if the strength of contango (future versus prompt price) is greater than the tanker costs. Therefore, tankers become floating storage when the profit from a storage play exceeds the cost of the forward freight agreement (FFA).
- The floating storage data used in the "Oil Price Outlook" slide is for the previous week (ie, the week before the latest data shown below).

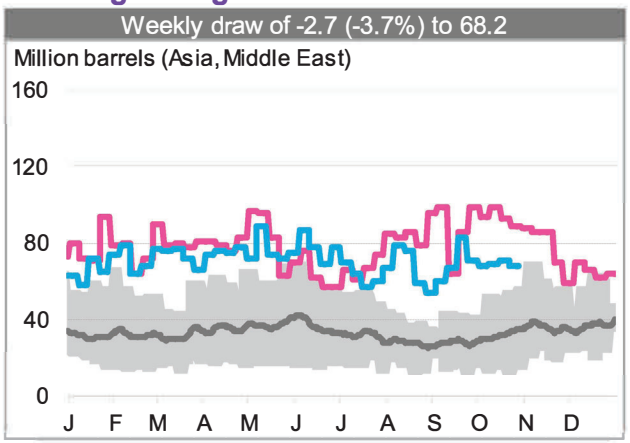
Floating storage: Total



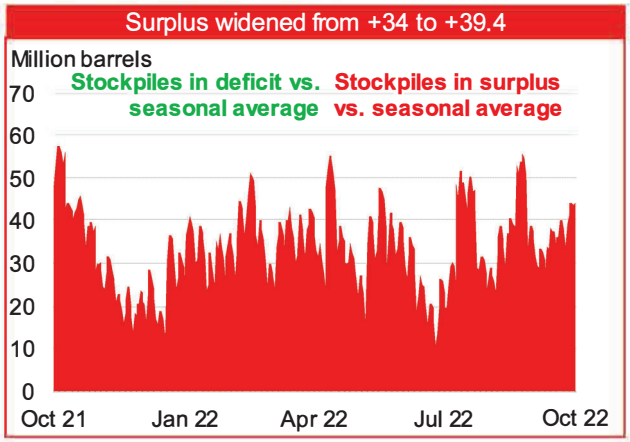
Floating storage: West of Suez

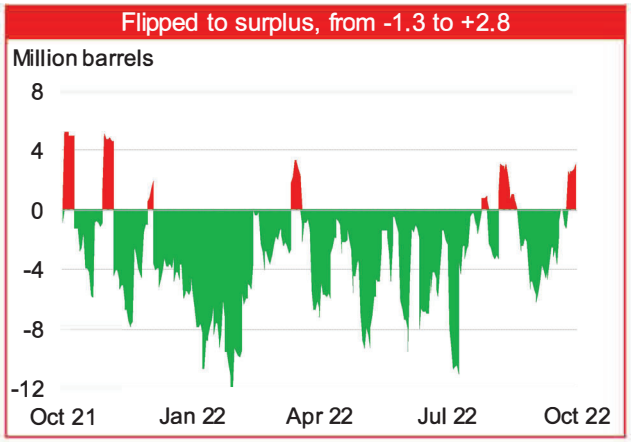


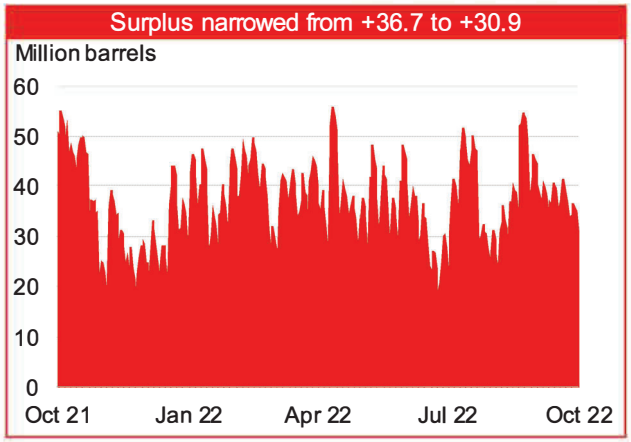
Floating storage: East of Suez



Charts below subtract current stockpiles by the 2016-19 (four-year) seasonal average







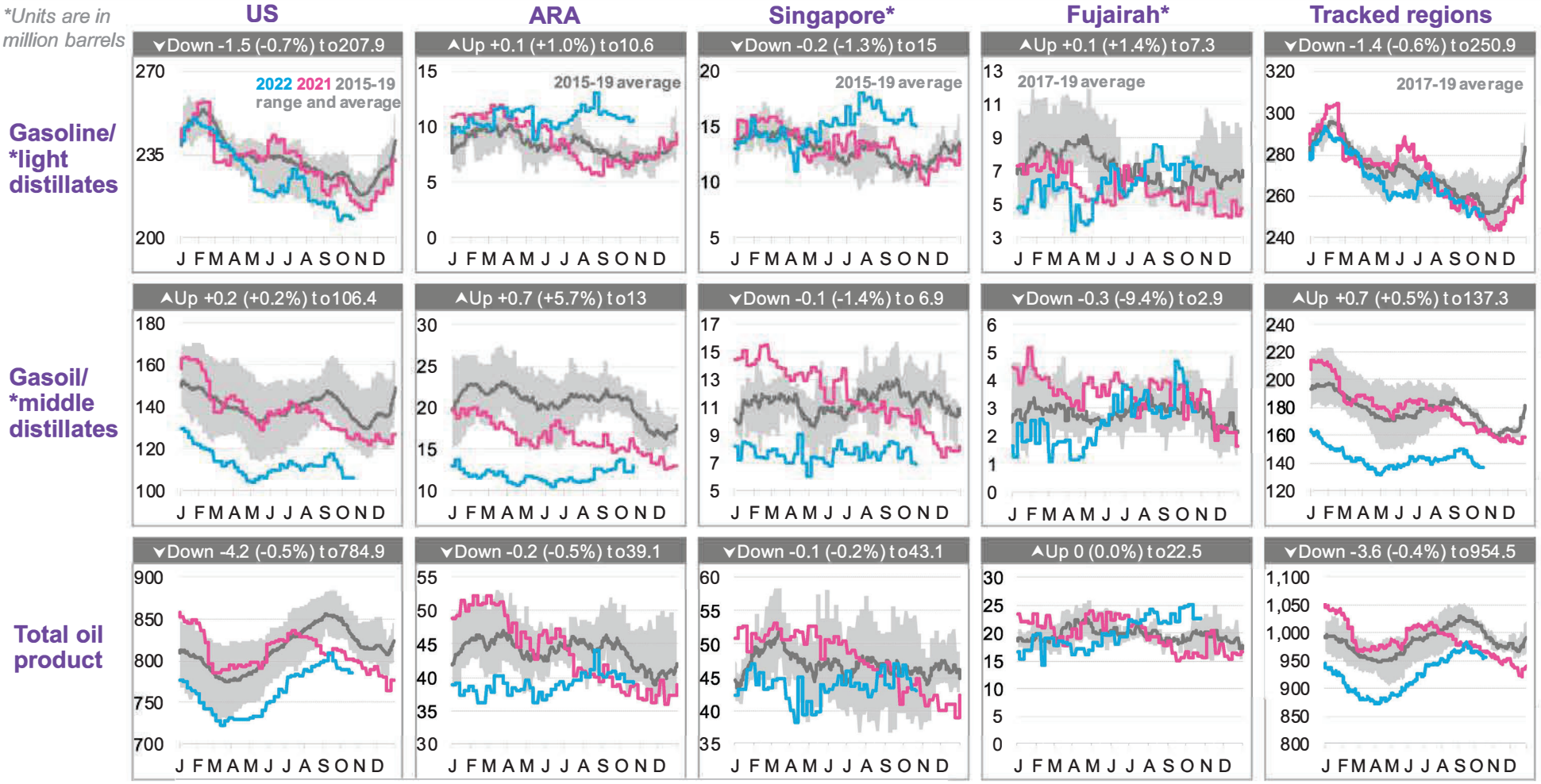
Source: BloombergNEF, Vortexa. Note: As of the ***week ending October 28, 2022****. **Raw data from Vortexa are revised frequently, so the data in this report might change week-to-week.***

Product stocks: Current versus seasonal average

Neutral: Oil product stockpiles in tracked regions fell 0.4% over the past week

- Chart legend are as follows: 2022, 2021 and the 2015-19 range and average. For Fujairah and tracked regions, the **2017-19 (three-year) seasonal range** is shown. Tracked regions include US, ARA, Singapore, Japan and Fujairah

**Units are in million barrels*



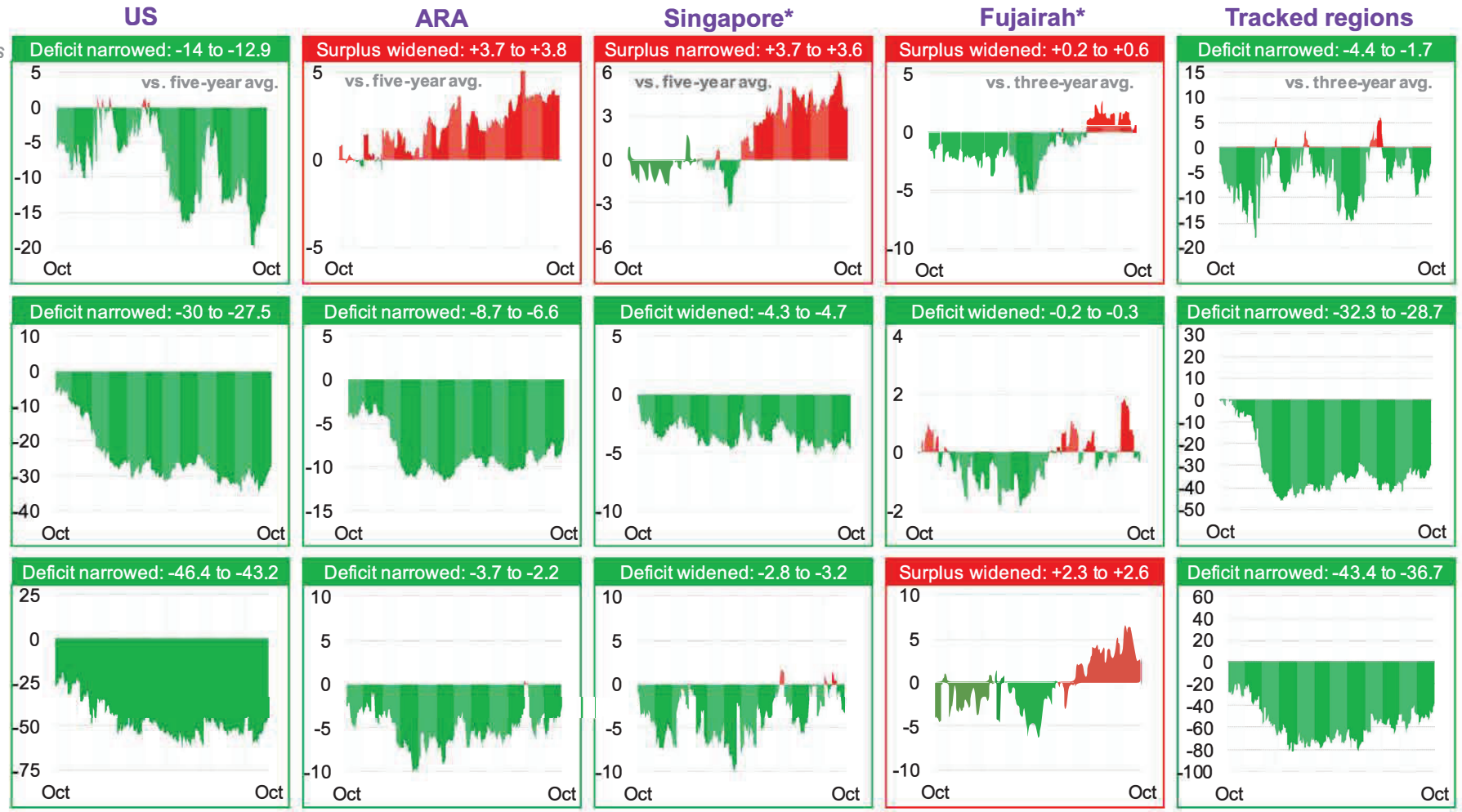
*Source: BloombergNEF, US EIA, PJK, IE Singapore, FEDCom/Platts, PAJ. Note: As of the **week ending October 21, 2022.***

Product stocks: Current versus seasonal average

Bearish: Oil product stockpile deficit against the seasonal average narrowed from 43.4m bbl to 36.7m bbl

- The charts below compare each respective regional product stockpile level against the seasonal average defined in the previous slide.
- **Red** signifies that the current stockpile levels are higher (in surplus) than the seasonal average, while **green** signals that the current stockpiles are lower (in deficit).

**Units are in million barrels*



*Source: BloombergNEF, US EIA, PJK, IE Singapore, FEDCom/Platts, PAJ. Note: As of the **week ending October 21, 2022.***

BloombergNEF

TomTom | Baidu

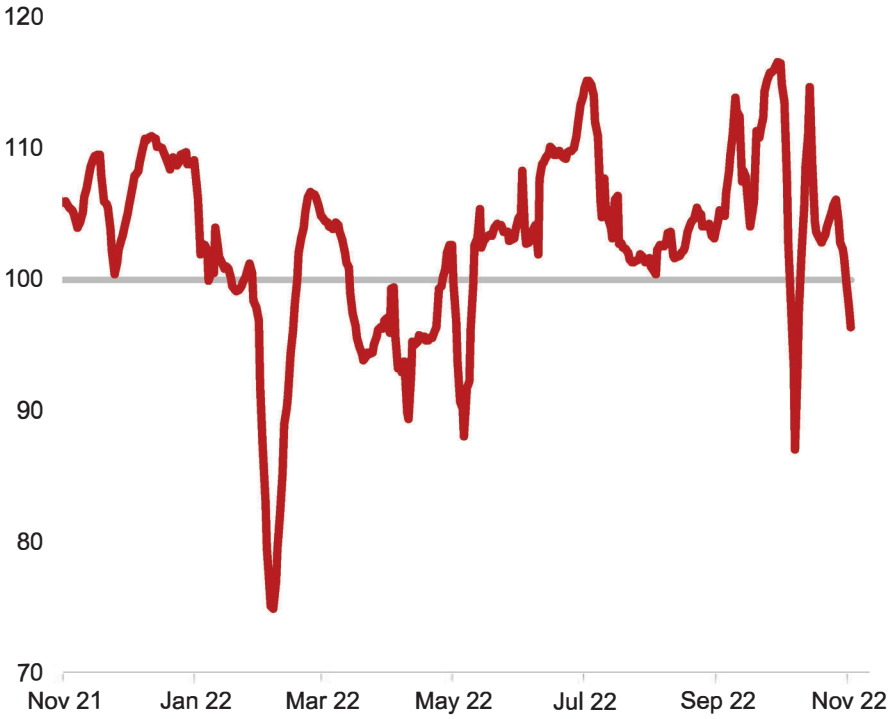
Google mobility data stopped updating in October 2022 and will therefore not be included in future updates.

Comparing the two mobility indicators

Bearish week for China, Europe, and North America

China-15 (Baidu) congestion index

Daily peak congestion levels, indexed to January 2021 (seven-day MA)

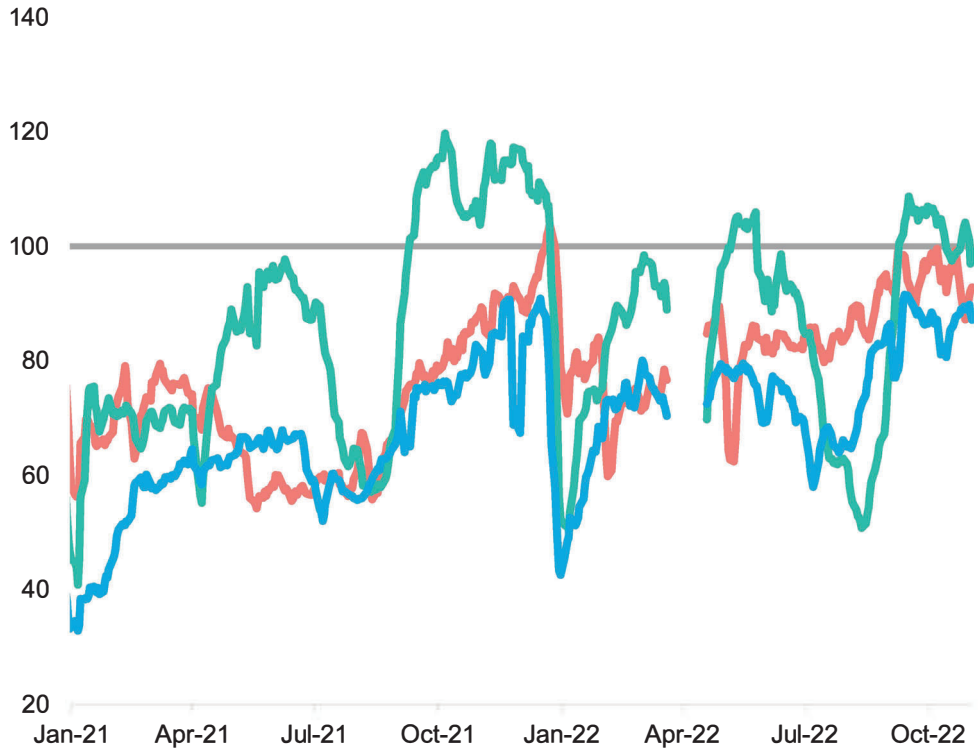


	Latest	Week Δ	Four-week Δ
China-15	**96.37**	-9.74 (-9.18%)	-1.45 (-1.48%)

*Source: BloombergNEF, calculated from Baidu data. Note: Data updated to **November 2, 2022**.*

TomTom congestion index

Indexed to the peak congestion of the average week in 2019 (five-day weekday MA)



	Latest	Week Δ	Four-week Δ
Europe	**99.3**	-2.7 (-2.6%)	-6.4 (-6.0%)
Asia Pacific	**92.8**	2.9 (+3.2%)	-4.4 (-4.5%)
North America	**87.2**	-1.9 (-2.1%)	0.7 (+0.8%)

*Source: TomTom road congestion data, BloombergNEF. Note: **Asia Pacific excludes China. Data updated to November 2, 2022.***

BloombergNEF

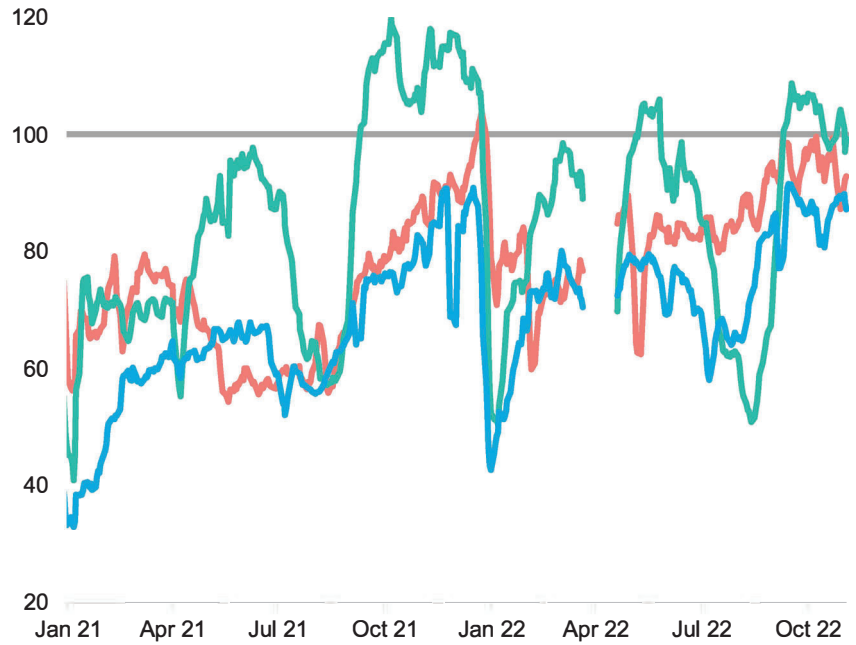
Apple Mobility reports were discontinued on April 14, 2022. We have resumed updating TomTom congestion data, which was previously updated to March 16.

TomTom congestion index

Weekly levels in Europe and North America decline while Asia Pacific (excluding China) picks up speed

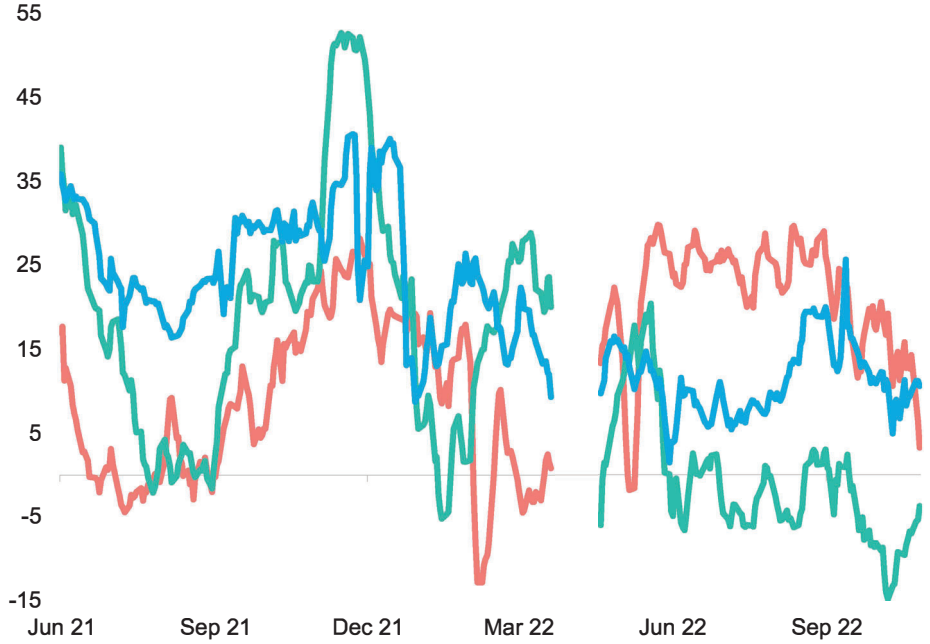
Regional road-congestion index

Indexed to the peak congestion of the average week in 2019 (five-day weekday moving average)



Index point change versus the previous year

Percentage point change vs the year before (seven-day moving average)



	Latest	Week Δ	Four-week Δ	Index point Δ vs year before	Index point Δ vs year before (last week)
Europe	**99.3**	-2.7 (-2.6%)	-6.4 (-6.0%)	-5.01	-5.69
Asia Pacific	**92.8**	2.9 (+3.2%)	-4.4 (-4.5%)	2.84	8.99
North America	**87.2**	-1.9 (-2.1%)	0.7 (+0.8%)	7.37	10.40

Source: TomTom, BloombergNEF. Note: ***Asia Pacific excludes China. Data updated to November 2, 2022,*** *with weekly addition from October 26, 2022. Index point change versus the previous year is obtained by averaging the latest weekly values.*

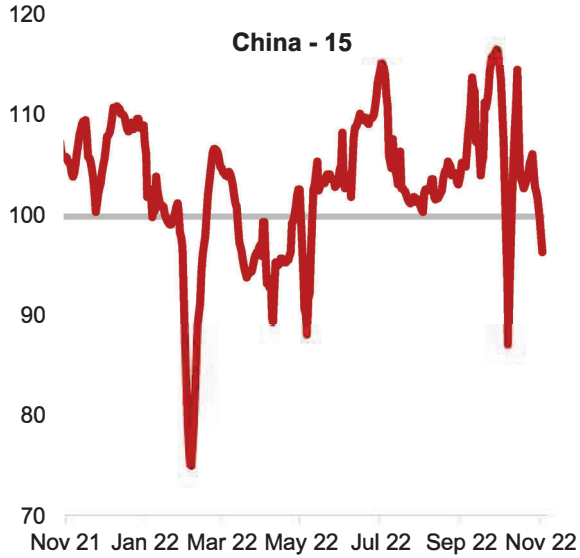
TomTom | Baidu

China (Baidu) congestion index

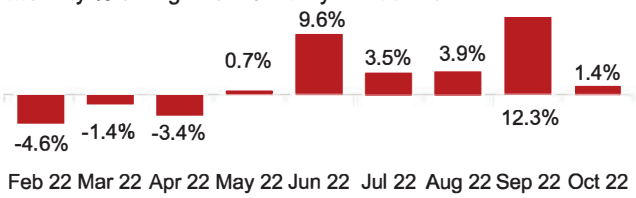
Volatile month ends on a low note

China congestion index (calculated from Baidu data)

Daily peak congestion levels, indexed to January 2021 (seven-day moving average)



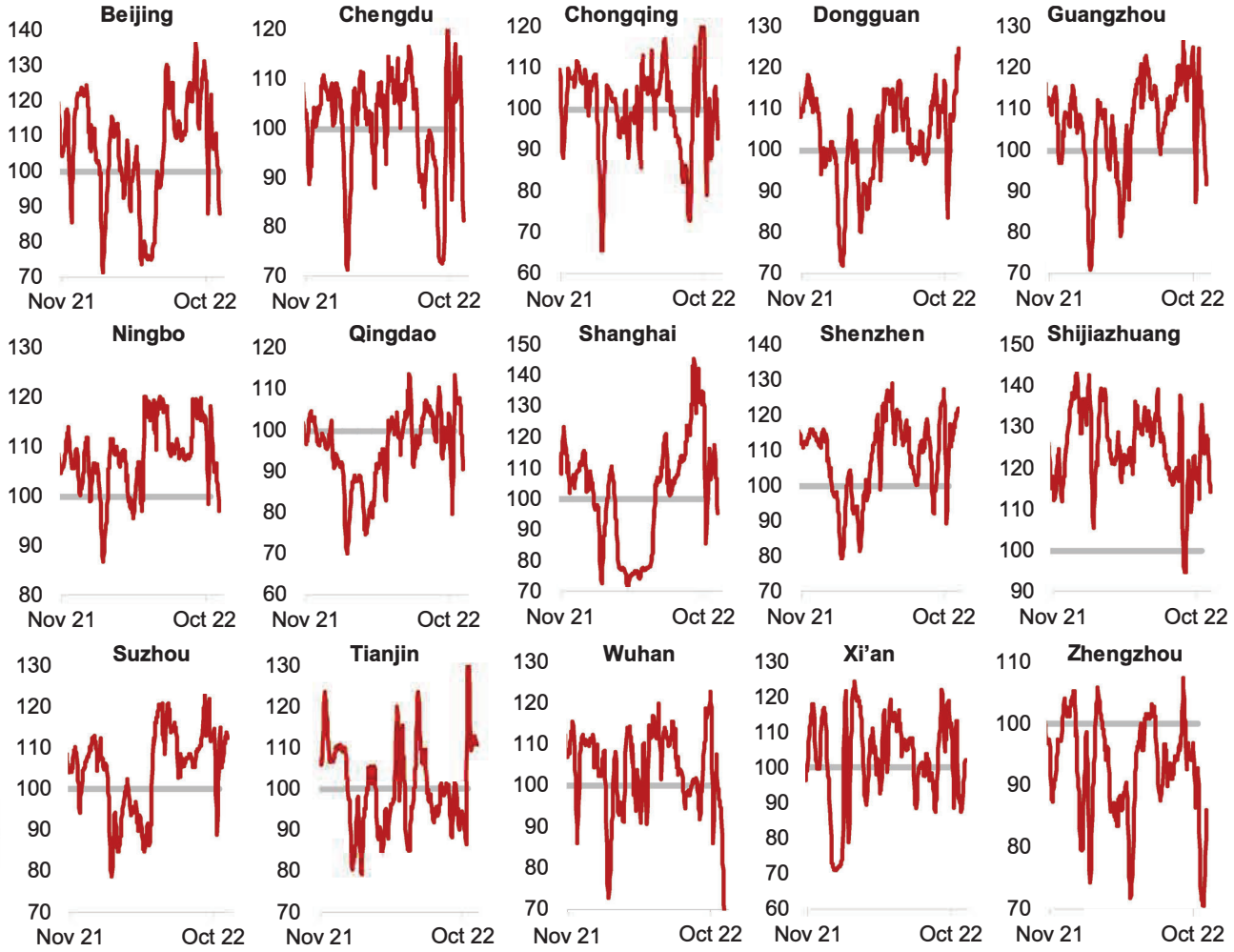
Monthly % change from January 2021 level



	Latest	Week Δ	Four-week Δ
China - 15	96.37	-9.74 (-9.18%)	-1.45 (-1.48%)

Road traffic in China in the week ending November 2 was down 9.74 percentage points to 96.37% of January 2021 levels.

Daily peak congestion levels, indexed to January 2021 (seven-day moving average)



Source: BloombergNEF, calculated from Baidu's data. Note: ***Data updated to November 2, 2022****. City-level charts display the 15 cities with the highest number of vehicle registrations (excluding two- and three-wheelers). The China-15 congestion level is calculated by taking the weighted average of the congestion levels in the 15 cities and their vehicle registration numbers.*

https://www.argusmedia.com/en/news/2385879-us-backs-opec-calls-for-more-oil-gas-investment?backToResults=true

US backs Opec calls for more oil, gas investment

Published date: 31 October 2022

The US' top energy envoy Amos Hochstein today supported calls for investment in oil and gas to increase globally alongside spending on the transition to a lower-carbon energy system.

"We hope this happens around the world," Hochstein told the Adipec conference in Abu Dhabi. "Increased investment in production, investment in refining capacity and… at the same time additional investment in the [energy] transition."

After weeks of tense exchanges between the US and Opec linchpin Saudi Arabia over the wider Opec+ group's decision to lower crude output quotas, Hochstein's comments put Washington on the same page as Opec, which has long called for increased oil and gas investment. UAE energy minister Suhail al-Mazrouei told the Adipec conference today higher oil and gas spending will help the world navigate the energy transition and reduce the risk of today's supply crunch being experienced in the future.

Al-Mazrouei was at pains to stress that increased oil and gas spending is not just an issue for Opec+ producers. "We in the UAE, as well as our fellow producers in Opec+, are keen on supplying the world with the [oil] requirements it needs. But, at the same time, we are not the only producers," he said. "Others also need to do their part in investing and encouraging investments."

Opec+ — which groups Opec countries with 10 non-Opec producers led by Russia — is doing its part when it comes to investing in hydrocarbons, al-Mazrouei said. Saudi Arabia and the UAE, in particular, are pursuing aggressive upstream expansions that should deliver close to 2mn b/d of additional crude capacity before the end of the decade.

Prior to Russia's invasion of Ukraine, many governments in Europe and the US were pushing for a more urgent commitment to move away from fossil fuels. But Hochstein today insisted that energy investment is needed across the board. Spending on fossil fuels and cleaner energies is "not contradictory", he said. "They are just two different timelines," he said. "It may be that our climate goals are met by 2035 or 2050. But to get to those goals, we had to invest yesterday."

The Opec+ group's decision earlier this month to lower its collective crude output target by 2mn b/d from November was met with heavy criticism from Washington, with US president Joe Biden describing the cut as short-sighted at a time when consumers are struggling with high energy prices.

"The price of energy is a critical piece for global economic growth, because so much of what we do is dependent on that," Hochstein said today, adding that a prolonged period of higher oil prices could hamper economic growth prospects. "Energy has to be priced in a way that allows for economic growth," he said. "If not, they will accelerate the economic downturn, which ultimately is the one thing that will be terrible for energy demand itself."

By Nader Itayim and Bachar Halabi

https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/11/05/statement-by-press-secretary-karine-jean-pierre-2/

NOVEMBER 05, 2022

Statement by Press Secretary Karine Jean-Pierre

President Biden knows that the men and women of coal country built this nation: they powered its steel mills and factories, kept its homes and schools and offices warm. They made this the most productive and powerful nation on Earth. He came to the White House to end years of big words but little action to help the coal-producing parts of our country. Working closely with Senator Manchin, a tireless advocate for his state and the hard-working men and women who live there, President Biden has helped get this part of the country back to work: the unemployment rate in West Virginia was 6.2% the last month before Joe Biden took office; now it is down to 4%. The President's plans are already bringing new energy and manufacturing jobs to the region, and in the years ahead, will continue to create new jobs with projects like hydrogen energy generation. In fact, through the Working Group on Coal and Power Plant Communities, President Biden has already delivered more than $23 billion to energy communities across the country.

The President's remarks yesterday have been twisted to suggest a meaning that was not intended; he regrets it if anyone hearing these remarks took offense. The President was commenting on a fact of economics and technology: as it has been from its earliest days as an energy superpower, America is once again in the midst of an energy transition. Our goal as a nation is to combat climate change and increase our energy security by producing clean and efficient American energy. Under President Biden, oil and natural gas production has increased, and we are on track to hit the highest production in our country's history next year. He is determined to make sure that this transition helps all Americans in all parts of the country, with more jobs and better opportunities; it's a commitment he has advanced since Day One. No one will be left behind.

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https://www.manchin.senate.gov/newsroom/press-releases/manchin-reacts-to-bidens-outrageous-coal-comments

NOVEMBER 05, 2022

MANCHIN REACTS TO BIDEN'S OUTRAGEOUS COAL COMMENTS

Charleston, WV – Today, U.S. Senator Joe Manchin (D-WV) released the following statement on comments President Biden made about shutting down coal plants.

"President Biden's comments are not only outrageous and divorced from reality, they ignore the severe economic pain the American people are feeling because of rising energy costs. Comments like these are the reason the American people are losing trust in President Biden and instead believes he does not understand the need to have an all in energy policy that would keep our nation totally energy independent and secure. It seems his positions change depending on the audience and the politics of the day. Politicizing our nation's energy policies would only bring higher prices and more pain for the American people.

"Let me be clear, this is something the President has never said to me. Being cavalier about the loss of coal jobs for men and women in West Virginia and across the country who literally put their lives on the line to help

build and power this country is offensive and disgusting. The President owes these incredible workers an immediate and public apology and it is time he learn a lesson that his words matter and have consequences."

Excerpt White House transcript of Nov 4 ,2022 Remarks by President Biden on the CHIPS and Science Act

https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/11/04/remarks-by-president-biden-on-the-chips-and-science-act/

Folks, it's also now cheaper to generate electricity from wind and solar than it is from coal and oil. Literally cheaper. Not a joke.

I was just — and so we can accommodate that transition. I was in Massachusetts about a month ago on the site of the largest old coal plant in America. Guess what? It cost them too much money. They can't count. No one is building new coal plants because they can't rely on it, even if they have all the coal guaranteed for the rest of their existence of the plant. So it's going to become a wind generation.

And all they're doing is — it's going to save them a hell of a lot of money, and they're using the same transmission line that transmitted the coal-fired electric on. We're going to be shutting these plants down all across America and having wind and solar.

In Conversation With: Majid Jafar, CEO of Crescent Petroleum

SAF Group created transcript of comments from Majid Jafar (CEO of Crescent Petroleum) to Amena Bakr (Energy Intelligence Chief OPEC Correspondent) on Nov 4, 2022 https://www.energyintel.com/in-conversation-with-majid-jafar-crescent-petroleum

Items in "italics" are SAF Group created transcript

At 1:10 min mark, Jafar "… *a lot of western politicians are trying to frame it* [energy crisis] *as perhaps a short term issue caused largely by the Ukraine war. Actually, although that has exacerbated it, the trends were there well before the war. Even back in October 2021, we saw the spike in natural gas and measures being taken in Europe several months before the crisis happened in the Ukraine. The root cause is chronic underinvestment in oil and gas in particular, but really across all forms of energy.*"

At 2:40 min mark, Jafar "*Yes, climate change is a global challenge that needs addressing. But if we look at how the world addressed it. Really, what everybody did was declare Net Zero pledges, we're talking about governments in particular, in 2050, in 2060, in 2070 when we're all going to be dead or retired. And then do nothing about tackling demand. And instead, there was a concerted effort to starve supply. There was somehow a misguided idea that if we squeeze or starve the energy sector and, oil and gas in particular, from finance that that will somehow solve climate change. That's ludicrous. That's like trying to deal with obesity by shutting down wheat and sugar farmers. You're not going to have less obesity, you will have food prices will be higher and people will struggle. That's what we're seeing now with energy. We're seeing more energy poverty. We're seeing people colder and poorer as a result of, in my view, bad policy. And yet, we haven't really seen change in the outlook unfortunately. So I fear that we're going to be in this phase for at least a decade.*"

At 14:55 min mark, Jafar "… *because somehow there has been this misconception that the Energy Transition is going to be like flicking a switch and you won't be needing it anymore. The Energy Transition is going to take decades. Absolutely, efforts need to happen now. But the idea that we don't need to be investing in oil and gas is dangerous in my view. If we just look at the Covid pandemic, everything we relied on from masks to sanitizers, every single vaccine all contained products of oil. The screens your viewers are viewing this on, the devices, they're all a result of the petroleum economy. And natural gas plays a key role in backing up renewables. When the sun doesn't shine and the wind doesn't blow, you need a stable reliable cleaner form of energy. And nuclear and natural gas are the two obvious ones. So if we starve investment into these and think that only solar and wind is going to be sufficient, we have what we have today. Which is a spike in energy prices, more burning of coal. So we have more emissions. So actually we are failing on all three of the important legs of the stool on the Energy Transition, which are affordability, which are availability and security of supply, and sustainability. At the moment, we are having record high prices, risks of blackouts and emissions are going up. So there has been a basic failure in terms of overall policy and insufficient investment in energy. That's my concern*".

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

BN 10/31 21:48 The Great US Offshore Wind-Power Boom Has Begun to Falter
BN 10/31 16:40 NJ Utility PSEG to Review Offshore Wind Farm Before Building

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The Great US Offshore Wind-Power Boom Has Begun to Falter (1)
2022-11-01 13:18:52.540 GMT

By Josh Saul and Will Wade
(Bloomberg) -- Plans for massive offshore wind farms that President Joe Biden hopes will power as many as 10 million American homes by 2030 are starting to wobble.

On Monday, New Jersey utility Public Service Enterprise Group Inc. said it's deciding whether to pull out of Ocean Wind 1, a proposed project in the Atlantic Ocean that would generate 1.1 gigawatts -- enough for 500,000 homes. Less than two weeks earlier, New England utility Avangrid Inc. said its similarly sized Commonwealth Wind project was no longer viable because of higher costs and supply chain woes.

Offshore wind projects are "facing a number of headwinds," said Timothy Fox, vice president of the Washington-based energy research firm Clearview Energy Partners, and it's possible "other projects get delayed."

Soaring inflation, rising interest rates and supply chain snarls around the world are threatening to hobble the offshore wind boom that both federal and local policy makers have been planning for years off the US East Coast. While offshore farms are seen as critical to ridding the US power grid of fossil fuels and avoiding the worst effects of climate change, they're also extremely capital and labor intensive. The Ocean Wind 1 project, for example, wouldn't be ready to start delivering power until late 2024.

A representative for PSEG said by email that the company has been reviewing its 25% equity stake in Ocean Wind 1, majority-owned by the Danish energy giant Orsted AS, on an ongoing basis. PSEG Chief Executive Ralph LaRossa said on a call with investors Monday that the company was reviewing the costs of the project, and another executive said not going forward with the project was an option on the table.

In July, David Hardy, chief executive of Orsted Offshore North America, was quoted by Recharge, a renewable-energy news outlet, telling attendees at a conference that surging inflation presents a real challenge to the company's short-term plans for offshore wind in the US.

The review by PSEG comes less than two weeks after Avangrid, which is majority-owned by Spanish energy company Iberdrola SA, told Massachusetts regulators that its 1.2-gigawatt Commonwealth Wind project is no longer economic under current power-purchase agreements. Higher prices and ongoing supply chain constraints are straining the project's finances, the project's lawyers said in an Oct. 20 filing.

"Global commodity price increases, in part due to ongoing war in Ukraine, sharp and sudden increases in interest rates, prolonged supply chain constraints, and persistent inflation

have significantly increased the expected cost of constructing the project," the attorneys said in the filing.

Avangrid said last month that it was pushing back by a year the startup dates for both Commonwealth and another wind project, Park City, due to headwinds including inflation and higher interest rates, supply chain shortages, problems with resources and rising commodity prices.

All of the wind farms have been in the works for years, and their financial models have shifted in the face of rising interest rates, inflation and supply-chain bottlenecks, said Paul Patterson, an analyst for Glenrock Associates. "These are complicated and expensive projects," he said.

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FRASER RESEARCH BULLETIN

FRASER INSTITUTE

October 2022

Measuring Progressivity in Canada's Tax System, 2022

by Jake Fuss and Nathaniel Li

Summary

There is a common misperception in Canada that top income earners do not pay their share of taxes and that increasing taxes on this income group is an effective way to generate significant additional government revenue.

However, high-income families already pay a disproportionately large share of all Canadian taxes. Indeed, the evidence shows that the top 20 percent of income-earning families pay nearly two-thirds (61.4 percent) of the country's personal income taxes and more than half (53.0 percent) of total taxes.

In contrast, the bottom 20 percent of income-earning families are estimated to pay only 0.8 percent of all federal and provincial personal income taxes and 2.1 percent of total taxes in Canada. This is, in part, due to the progressivity of Canada's tax system, where the share of taxes paid typically increases as income rises.

Raising taxes on high income earners ignores the economic consequences of tax rate increases and the associated behavioural responses of taxpayers when faced with higher tax rates or new taxes. In response to a tax increase, many taxpayers will change their behaviour in ways that reduce their taxable income through tax planning, avoidance, or evasion that results in governments raising less revenue than anticipated.

Tax increases also reduce Canada's competitiveness with other industrialized countries, particularly the United States. Specifically, increasing taxes on top income earners makes Canada a less attractive place to live and to work for highly skilled people such as doctors, scientists, managers, and software engineers.

Introduction

Raising taxes on upper-income earners is often proposed as a solution to generate additional tax revenue while ensuring all Canadians pay their share of taxes. The federal government used this focus on income distribution and taxes as part of its justification for a recent tax increase on upper income earners. Indeed, in 2016, the federal government added a new top federal income tax bracket, raising the top federal tax rate from 29 to 33 percent on income over roughly $200,000 (Blatchford, 2015). In recent years, some provinces have similarly boosted provincial income tax rates on upper-income earners.

However, this policy is largely based on misperceptions about the distribution of taxes paid by income groups in Canada. This short bulletin demonstrates that top income earners in Canada actually pay a disproportionate share of income taxes relative to other income groups, primarily due to the progressive nature of the country's tax system. Indeed, the current share of taxes paid by high-income earners greatly exceeds their collective share of income.

Measuring the distribution of taxes

This bulletin calculates the share of taxes paid by different income groups using the Fraser Institute's Canadian Tax Simulator (2022), which incorporates data from Statistics Canada's SPSD/M program. Specifically, the simulator estimates the taxes that Canadians pay to federal, provincial, and municipal governments.

Although personal income taxes (PIT) are paid by individuals, the study examines data on families[1] because individual income is not the best indicator of each person's well-being. For instance, an individual may earn little or no income, while their spouse or partner is in the top 20 percent of income earners in Canada. Under these circumstances, the first person is considered to be a low-income earner if we only analyze individual income. In reality, that person's well-being is much higher than their individual income suggests because they are part of a family that is at the top end of the income distribution. For instance, someone with $30,000 in income that is married to another person with $200,000 in income would belong to a family that ranks among the top 20 percent of Canadian income earners. Put simply, family income is the best determinant of one's income group.

This bulletin reviews the current proportion of taxes that each income group pays. In other words, it compares total income earned to total taxes paid. Canadian families are divided into five groups (quintiles) based on their total income,[2] with each group containing 20 percent of all families in the country. The first quintile consists of the bottom 20 percent of

Table 1: Family Income Range by Quintile

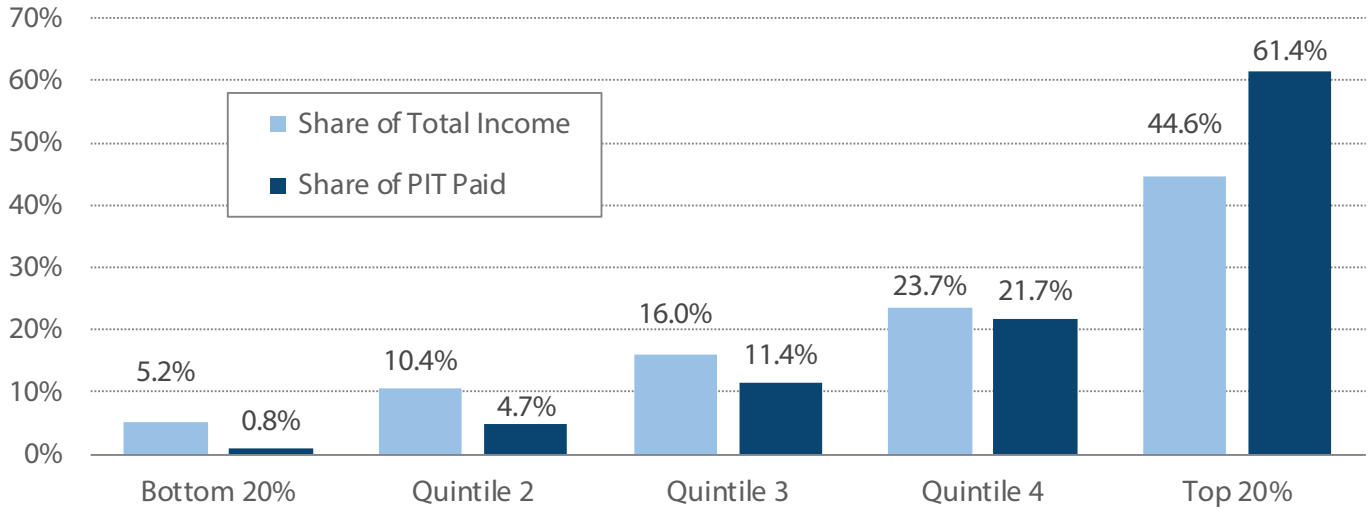
Income Group	Income Range
Bottom 20%	$0 to $56,516
Quintile 2	$56,517 to $98,641
Quintile 3	$98,642 to $149,073
Quintile 4	$149,074 to $227,486
Top 20%	Above $227,486

Source: The Fraser Institute's Canadian Tax Simulator, 2022.

[1] Unattached individuals are also considered to be families in this analysis.

[2] Total income includes wages and salaries, investment income, and government transfers.

Figure 1: Share of Personal Income Taxes Paid and Total Income Earned by Quintile, 2022



Source: The Fraser Institute's Canadian Tax Simulator, 2022.

income earners and the fifth quintile comprises the top 20 percent. Table 1 shows the income range for each quintile. Quintile 1, for instance, ranges from a family income of $0 to $56,516, whereas the fifth quintile represents families earning more than $227,486.

Personal income taxes

As figure 1 shows, the share of income earned and personal income taxes paid varies widely by quintile. The bottom 20 percent of families ranked by income pay only 0.8 percent of all federal and provincial income taxes while receiving 5.2 percent of the total family income in Canada. Put differently, the share of total income the first quintile receives is more than 6 times larger than the share of income taxes they pay. The next three quintiles have somewhat similar results. Families in quintiles two, three, and four pay a smaller share of personal income taxes than their share of income. Specifically, the second quintile pays 4.7 percent of all income taxes while receiving 10.4 percent of all income. Likewise, the share of income earned exceeds the share of PIT paid for the third and fourth quintiles by 4.6 percentage points and 2.0 percentage points, respectively.

In contrast, the top 20 percent of families is the only quintile that pays more in PIT compared to their share of total reported income. The fifth quintile pays just under two-thirds of all personal income taxes (61.4 percent) in Canada, while receiving less than half of the country's family income (44.6 percent). In other words, top income earners pay about 17 percentage points more than their share of total income. Put differently, although this income group earns a large portion of total family income, it is paying more than its share of income taxes when measured on a proportional basis.

Canada's system of progressive income taxation is the main reason why this occurs. Individuals are taxed at higher rates by both the provinces and federal government on income above certain thresholds. For example, the marginal federal tax rate is 15 percent on individual incomes up to $50,197, while income that exceeds

Table 2: Average Tax Rates for PIT by Quintile, 2022

Income Group	Average Tax Rate
Bottom 20%	2.6%
Quintile 2	7.9%
Quintile 3	12.5%
Quintile 4	16.0%
Top 20%	24.1%

Source: The Fraser Institute's Canadian Tax Simulator, 2022.

$221,708 is taxed at more than double that rate (33 percent) (Department of Finance, 2022). Furthermore, some low-income families do not pay any personal income tax because their tax credits and deductions are greater than the amount of taxes owed.

Table 2 illustrates the differences in taxation rates–combining federal and provincial income taxes-- between income groups. Average tax rates represent the total amount of personal income taxes the quintile pays, divided by their total income. In particular, the table shows that average tax rates increase as family income rises, reflecting Canada's progressive PIT system. For instance, the bottom 20 percent of income-earning families pay a 2.6 percent average income tax rate while the top 20 percent pay an average tax rate of 24.1 percent. Simply put, high-income families pay comparatively higher rates of tax than low-income families.

Total taxes

In addition to personal income taxes, Canadians also pay many other types of taxes including sales taxes, payroll taxes, profit taxes, property taxes, fuel taxes, import duties, tobacco taxes, liquor taxes, and so on. A broad assessment of the difference between taxes paid and income received between quintiles should therefore expand the analysis to include all types of taxes.

Similar to the distribution for personal income taxes, the shares of total income received and total taxes paid differ significantly among the various income groups (see figure 2). The bottom 20 percent of families pays 2.1 percent of total taxes in Canada, despite receiving 5.2 percent of total income. Quintiles two through four also pay a smaller share of total taxes relative to what they obtain in income. The second income group, in particular, pays 7.6 percent of all taxes, which is less than its 10.4 percent share of total income. The share of total taxes paid is also smaller than the share of total income for quintiles three and four, albeit to a lesser extent.

However, once again, the top quintile of income-earning families pays a substantially greater share of all Canadian taxes than their share of total income. This result is not surprising, as it was the only income group to pay disproportionately more in personal income taxes. The top 20 percent of families collectively pays 53.0 percent of total taxes and earns 44.6 percent of total income. The gap between the share of all taxes paid and income is approximately 8 percentage points for this group, which is about half the size of the gap observed for personal income taxes (16.8 percentage points). The primary reason for the smaller gap is because the PIT is far more progressive in design than other taxes in Canada.

Table 3 shows the average tax rates paid by income group, covering all Canadian taxes. This calculation demonstrates the total amount of

https://www.wsj.com/articles/philadelphia-phillies-world-series-houston-astros-financial-crisis-recession-11666879792?mod=e2tw

If the Philadelphia Phillies Win the World Series, Prepare for an Economic Crisis

It happens every time a team from the city succeeds

The Philadelphia Phillies celebrate the victory that takes them to the World Series and potentially dooms the U.S. economy. PHOTO ILLUSTRATION: ANGELA OWENS/THE WALL STREET JOURNAL; PHOTO: MICHAEL REAVES/GETTY IMAGES

SHARE

By William Power
Oct. 27, 2022 10:16 am ET

The Philadelphia Phillies are in the World Series. Hold on to your wallets.

When Philadelphia baseball teams do well, in a pattern that has held for a century, financial markets tend to strike out. It started with the old Philadelphia Athletics (before they left town). Their 1929 championship preceded the stock crash and Great Depression. In 1980, the Phillies won their first World Series, and a recession raged right through 1983, when the team again got to the final round and lost. The Phils won the World Series a second time in 2008, and boom: a home-run financial crisis.

Now, the scrappy Phils will be back on the big stage against the favored Houston Astros, and it is as if this struggling economy already knew it was going to be in trouble.

"The Astros must save America's economy," tweeted one follower of the finance-focused Morning Brew newsletter, which commented on the historical phenomenon in September, even before the Phillies had made the playoffs. Another lamented the Phillies' victory on Sunday over the San

Diego Padres, which vaulted them into the World Series: “PADRES COULD HAVE STOPPED THE INCOMING RECESSION.”

Of course, this analysis has as much scientific basis as the team’s claim that the Phillie Phanatic mascot is a large flightless bird from the Galápagos Islands.

But investors, especially in rough markets, like to think there is dark magic causing their pain (rather than simply the fundamentals of the economy or their bad bets). And sports fans don’t mind anything that seems to throw a little cold water on Philadelphia. So now, we have the Phillies Indicator.

The Phillie Phanatic mascot does not hail from the Galápagos.PHOTO: JASON SZENES/SHUTTERSTOCK

In 2008, when the Phils were on their way to a championship, the Philadelphia Inquirer wondered if a victory could be a “harbinger of economic doom.” Locally based analysts at serious-minded Moody’s Economy.com postulated then that the team’s success could be a “leading economic indicator.”

Mark Zandi, chief economist at what is now called Moody’s Analytics, speculates that because the Phillies have won the World Series so few times, when they do, “It is clear something is off the rails in the cosmos.” As a Philadelphia native, he says he will cheer a Phillies championship, “but I will also be buckling in.”

Morning Brew tweeted about the Phillies quirk on Sept. 21, then revisited the topic as the team continued to win. Neal Freyman, its managing editor, says he knew the thing had traction when his mother called, reporting that the topic was just brought up at a business meeting by colleagues, unaware that her son gets some of the credit/blame.

In sports and markets, he says, “A lot of people are superstitious and like to cling on to narratives and try to explain the unexplainable.”

What does Citizens Financial Group Inc. think? The Phillies’ stadium, Citizens Bank Park, is named after its retail banking arm. Might winning at baseball mean losing at finance?

“Coincidences are interesting, but sliding into a possible downturn has nothing to do with the Phillies,” says Bruce Van Saun, chairman and chief executive officer of Citizens, after praising the team’s grit. “We look forward to hosting a World Series victory while continuing to root for our economy.”

The Phillies declined to comment. (Baseball teams get superstitious during a positive run.)

Sam Stovall, chief equity strategist at investment-research firm CFRA Research in New York, notes there is a reverse correlation here. Phillies pain might mean stock gains. The markets did well, rising 14.6%, in 1964—that awful baseball year for Philadelphia when the team blew an almost-sure berth in the World Series, scarring a generation of fans.

Mr. Stovall has a soft spot for fanciful indicators. His late father, Robert Stovall, popularized the Super Bowl Predictor, which predicts a given year's stock market based on results of the Super Bowl. Stocks seem to go up for the year when an original National Football League team wins, and down if the winner is originally from the old, premerger American Football League (which is why the many wins by the New England Patriots are bearish for stocks).


Jimmie Foxx of the Philadelphia Athletics scores the first run in the 1929 World Series and dooms the country to years of economic hardship.PHOTO: GEORGE RINHART/CORBIS/GETTY IMAGES

The indicator hasn't worked as well in recent years, but it nonetheless has been right after 41 of the 55 Super Bowls, a 75% rate. That is better than a lot of economists' predictions.

If so, Philadelphia's other winning sports team, football's Eagles, might also have a say in the markets.

The Eagles, currently 6-0 and the NFL's only undefeated team, have been to three Super Bowls in their history: 1981, 2005 and 2018. The first two times, they lost to an original AFL team, and the Dow dutifully fell, so the Predictor worked. Then again, when the Eagles finally won in 2018, which indicated the market would rise, stocks ultimately fumbled.

Phillies supporters, meanwhile, think the team should keep winning without apology.

Ruben Amaro Jr., a former Phillies player and general manager, now a baseball commentator, says, "The world needs Phillies joy in times of financial stress."

Memo to Houston: Don't sneer too much at Philadelphia's history with predicting financial crises. Investors can't forget that the World Series starts Friday at an Astros ballpark that was once named Enron Field.

Write to William Power at william.power@wsj.com

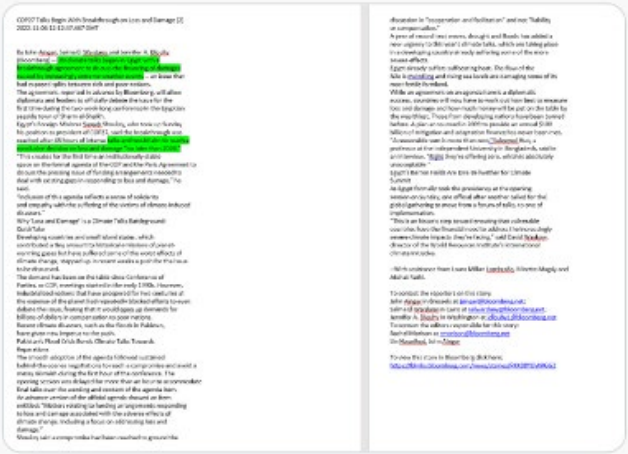
Appeared in the October 28, 2022, print edition as 'Brace Yourself, Phillie

Dan Tsubouchi @Energy_Tidbits · 2h

probably wouldn't have turned to @Wrexham_AFC @OfficialOAFC if i didn't want to see how @VancityReynolds club was doing. glad i did as they are looking good. @tozer_ben long throws have led to two goals including the 3rd goal just now.

Dan Tsubouchi @Energy_Tidbits · 2h

Kick the can down the road has to be a key theme from #COP27 given global economic slowdown ie. breakthrough agreement on financing damages caused by extreme weather events would aim to reach a conclusive decision on loss and damage no later than 2024. Thx @business . #OOTT

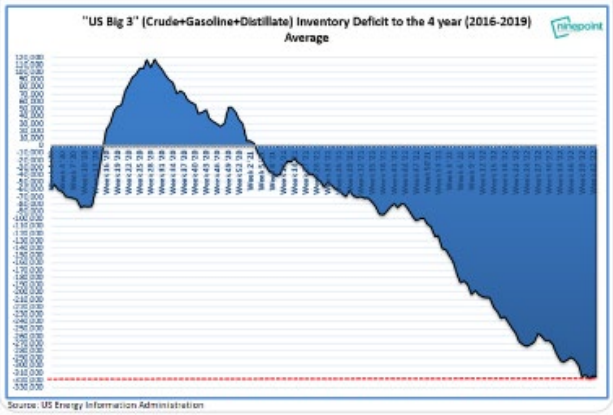


1 1 2

Dan Tsubouchi @Energy_Tidbits · 3h

Dan Tsubouchi @Energy_Tidbits · 3h

In case you were wondering why Brent spiked ~$4 on Friday with rumors of China relaxing Covid restrictions. There is no slack in the global #Oil #Gasoline #Distillates inventory pictures. Thx @ericnuttall. #OOTT

> **Eric Nuttall** @ericnuttall · Nov 2
>
> We remain bullish.
>
> 
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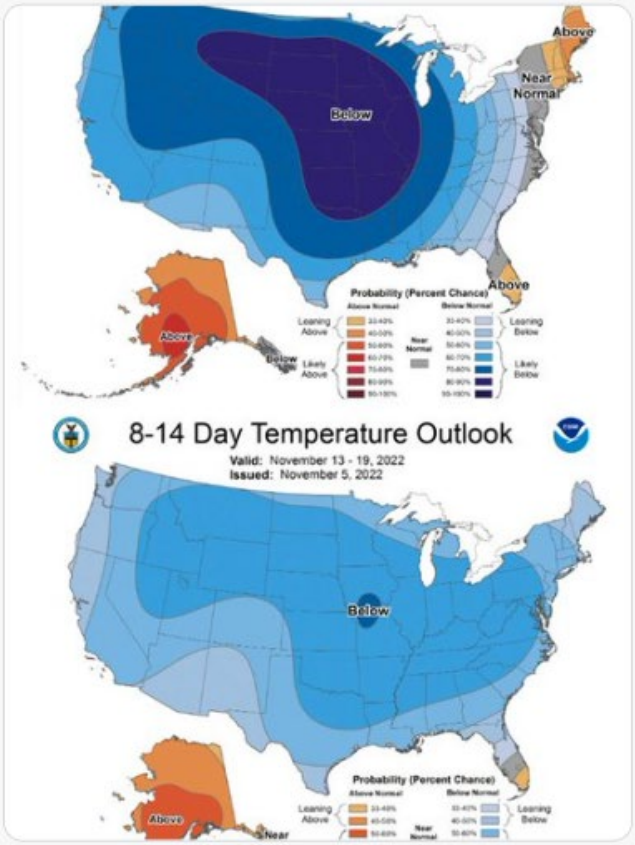
4 25

Dan Tsubouchi @Energy_Tidbits · 13h

Support for HH #NatGas prices. @NOAA's updated 6-10 day and 8-14 day outlooks call for colder than normal weather across almost all of the US Lower 48. #OOTT



4 9

Dan Tsubouchi @Energy_Tidbits · 16h

Non-denial denial by @PressSec. Doesn't deny Biden is going to shut #Coal plants all across US. Doesn't deny #Biden doesn't understand the need to have an all in energy policy. Reminds still more hits to come vs #Coal #Oil #NatGas in last 2 yrs of Biden term. #OOTT

e-room/speeches-remarks/2022/11/05/statement-by-press-secretary-karine-jean-pierre-2/

Statement by Press Secretary Karine Jean-Pierre

men and women of coal country built this nation: they powered its steel mills and factories, kept its homes and
t productive and powerful nation on Earth. He came to the White House to end years of big words but little actio
losely with Senator Manchin, a tireless advocate for his state and the hard-working men and women who live the
to work: the unemployment rate in West Virginia was 6.2% the last month before Joe Biden took office; now it i
energy and manufacturing jobs to the region, and in the years ahead, will continue to create new jobs with projec
Working Group on Coal and Power Plant Communities, President Biden has already delivered more than $23 b

day have been twisted to suggest a meaning that was not intended, he regrets it if anyone hearing these remark
onomics and technology: as it has been from its earliest days as an energy superpower, America is once again
is to combat climate change and increase our energy security by producing clean and efficient American energy
increased, and we are on track to hit the highest production in our country's history next year. He is determined
all parts of the country, with more jobs and better opportunities; it's a commitment he has advanced since Day

###

Dan Tsubouchi @Energy_Tidbits · 17h

Forgot to include #Biden' s comments "we're going to be shutting down those [#Coal] plants all across America and having wind and solar". @Sen_JoeManchin is right "his words matter and have consequences". #NatGas #OOTT ...

2 3 7

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https://www.manchin.senate.gov/newsroom/press-releases/manchin-reacts-to-bidens-outrageous-coal-comments

NOVEMBER 05, 2022

MANCHIN REACTS TO BIDEN'S OUTRAGEOUS COAL COMMENTS

Charleston, WV – Today, U.S. Senator Joe Manchin (D-WV) released the following statement on comments President Biden made about shutting down coal plants.

"President Biden's comments are not only outrageous and divorced from reality, they ignore the severe economic pain the American people are feeling because of rising energy costs. Comments like these are the reason the American people are losing trust in President Biden and instead believes he does not understand the need to have an all in energy policy that would keep our nation totally energy independent and secure. It seems his positions change depending on the audience and the politics of the day. Politicizing our nation's energy policies would only bring higher prices and more pain for the American people.

"Let me be clear, this is something the President has never said to me. Being cavalier about the loss of coal jobs for men and women in West Virginia and across the country who literally put their lives on the line to help build and power this country is offensive and disgusting. The President owes these incredible workers an immediate and public apology and it is time he learn a lesson that his words matter and have consequences."

Excerpt White House transcript of Nov 4 ,2022 Remarks by President Biden on the CHIPS and Science Act

https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/11/04/remarks-by-president-biden-on-the-chips-and-science-act/

Folks, it's also now cheaper to generate electricity from wind and solar than it is from coal and oil. Literally cheaper. Not a joke.

I was just — and so we can accommodate that transition. I was in Massachusetts about a month ago on the site of the largest old coal plant in America. Guess what? It cost them too much money. They can't count. No one is building new coal plants because they can't rely on it, even if they have all the coal guaranteed for the rest of their existence of the plant. So it's going to become a wind generation.

And all they're doing is — it's going to save them a hell of a lot of money, and they're using the same transmission line that transmitted the coal-fired electric on[illegible]. We're going to be shutting these plants down all across America and having wind and solar.

Dan Tsubouchi @Energy_Tidbits · 17h

WOW. Dem @Sen_JoeManchin "Biden's comments [ton shutting down #Coal plants] are not only outrageous and divorced from reality", America "believes he does not understand the need to have an all in energy policy that would keep our nation totally ...

3 8

Dan Tsubouchi @Energy_Tidbits · 17h

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https://www.manchin.senate.gov/newsroom/press-releases/manchin-reacts-to-bidens-outrageous-coal-comments

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3 13

Dan Tsubouchi @Energy_Tidbits · 22h

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Hope this doesn't get revised up over the next week or two. If not, it's a big positive for #Oil. #Vortexa crude #Oil floating storage at 11/04 est 79.61 mmb, -22.59 mmb WoW vs upwardly revised 10/28 of 102.20 mmb. Thx @Vortexa @business. #OOTT

Vortexa Crude Oil Floating Storage Estimate Posted Nov 5 at 11am MT

Source: Bloomberg, Vortexa

Posted Nov 5, 11am MT

Date	FZWWFST VT... Last Px
Fr 11/04/2022	79612
Fr 10/28/2022	102.199k
Fr 10/21/2022	96010
Fr 10/14/2022	88505
Fr 10/07/2022	85558
Fr 09/30/2022	91891
Fr 09/23/2022	107.74k
Fr 09/16/2022	92314
Fr 09/09/2022	85715
Fr 09/02/2022	90070
Fr 08/26/2022	87045

Oct 31, 10am MT

Date	FZWWFST VT... Last Px
Fr 10/28/2022	96787
Fr 10/21/2022	94281
Fr 10/14/2022	94734
Fr 10/07/2022	86539
Fr 09/30/2022	90020
Fr 09/23/2022	106.173k
Fr 09/16/2022	90027
Fr 09/09/2022	84088
Fr 09/02/2022	79371
Fr 08/26/2022	85033
Fr 08/19/2022	100.664k

Oct 22 11am MT

Date	FZWWFST VT... Last Px
Fr 10/21/2022	90479
Fr 10/14/2022	93338
Fr 10/07/2022	89837
Fr 09/30/2022	91806
Fr 09/23/2022	107.292k
Fr 09/16/2022	90014
Fr 09/09/2022	85230
Fr 09/02/2022	79985
Fr 08/26/2022	83916
Fr 08/19/2022	100.486k
Fr 08/12/2022	105.794k

Source: Bloomberg, Vortexa

Dan Tsubouchi @Energy_Tidbits · Nov 5

Reduced #EDF #Nuclear is big risk to Europe.

H1/22, FR was net #Electricity importer vs #1 net exporter in H1/21.

Just coming up to FR peak electricity demand in Jan/Feb.

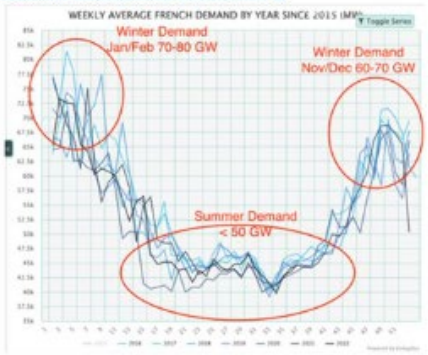
A normal/cold EU winter should be big boost to #NatGas #LNG

Thx @enappsys.

#OOTT

https://www.enappsys.com/sweden-overtakes-france-as-europes-biggest-net-power-exporter/

https://www.enappsys.com/winter-outlook-eu-markets/



Dan Tsubouchi @Energy_Tidbits · Nov 5

Plus #EDF 10/27 sales update shows how France #Nuclear output has got progressively worse every quarter. "cumulative output" -7.6% YoY thru Q1/22, -15.2% YoY thru H1/22, -22.0% YoY thru YTD Sept 30! Good thing it's been warm. Thx @SStapczynski ...

1 3

Dan Tsubouchi @Energy_Tidbits · Nov 5

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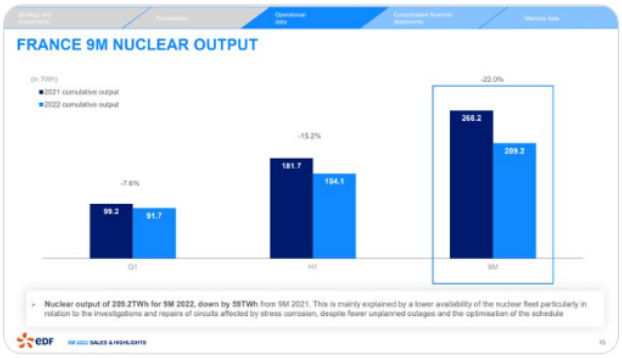
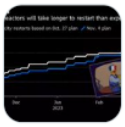


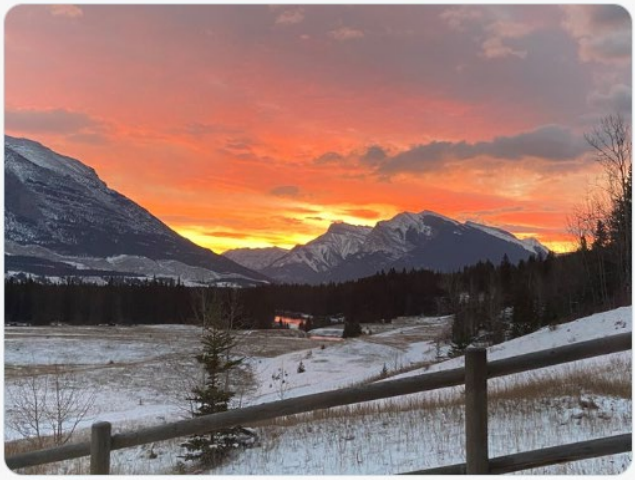
> **Stephen Stapczynski** @SStapczynski · Nov 5
>
> 
>
> France cut its nuclear power outlook for the FOURTH time this year, dealing another blow to Europe ahead of winter 🇫🇷 ☢️
>
> 📅 EDF extended outages at four reactors that were …

3 3

Dan Tsubouchi Retweeted

Dan Tsubouchi @Energy_Tidbits · Nov 4

nothing better than looking over your screen and seeing a great sunrise in #Canmore in Cdn Rockies. can see the red sky reflecting in the Bow River. Supposed to start snowing tonight for the next three days. that's okay given #Oil is up >$4 this morning!!



1 1 17

Dan Tsubouchi Retweeted

Dan Tsubouchi @Energy_Tidbits · Nov 4

Key #EnergyTransition assumption didn't work -squeeze #Oil #NatGas access to capital & "that will somehow solve climate change" so failing on energy affordability, security & sustainability, fears last for >decade. See 👇 transcript @CrescentPetrol CEO. Thx @Amena_Bakr. #OOTT

In Conversation With: Majid Jafar, CEO of Crescent Petroleum

SAF Group created transcript of comments from Majid Jafar (CEO of Crescent Petroleum) to Amena Bakr (Energy Intelligence Chief OPEC Correspondent) on Nov 4, 2022 https://www.energyintel.com/in-conversation-with-majid-jafar-crescent-petroleum

Items in "italics" are SAF Group created transcript

At 1:10 min mark, Jafar *"... a lot of western politicians are trying to frame it [energy crisis] as perhaps a short term issue caused largely by the Ukraine war. Actually, although that has exacerbated it, the trends were there well before the war. Even back in October 2021, we saw the spike in natural gas and measures being taken in Europe several months before the crisis happened in the Ukraine. The root cause is chronic underinvestment in oil and gas in particular, but really across all forms of energy."*

At 2:40 min mark, Jafar *"Yes, climate change is a global challenge that needs addressing. But if we look at how the world addressed it. Really, what everybody did was declare Net Zero pledges, we're talking about governments in particular, in 2050, in 2060, in 2070 when we're all going to be dead or retired. And then do nothing about tackling demand. And instead, there was a concerted effort to starve supply. There was somehow a misguided idea that if we squeeze or starve the energy sector and, oil and gas in particular, from finance that that will somehow solve climate change. That's ludicrous. That's like trying to deal with obesity by shutting down wheat and sugar farmers. You're not going to have less obesity, you will have food prices will be higher and people will struggle. That's what we're seeing now with energy. We're seeing more energy poverty. We're seeing people colder and poorer as a result of, in my view, bad policy. And yet, we haven't really seen change in the outlook unfortunately. So I fear that we're going to be in this phase for at least a decade."*

At 14:55 min mark, Jafar *"... because somehow there has been this misconception that the Energy Transition is going to be like flicking a switch and you won't be needing it anymore. The Energy Transition is going to take decades. Absolutely, efforts need to happen now. But the idea that we don't need to be investing in oil and gas is dangerous in my view. If we just look at the Covid pandemic, everything we relied on from masks to sanitizers, every single vaccine all contained products of oil. The screens your viewers are viewing this on, the devices, they're all a result of the petroleum economy. And natural gas plays a key role in backing up renewables. When the sun doesn't shine and the wind doesn't blow, you need a stable reliable cleaner form of energy. And nuclear and natural gas are the two obvious ones. So if we starve investment into these and think that only solar and wind is going to be sufficient, we have what we have today. Which is a spike in energy prices, more burning of coal. So we have more emissions. So actually we are failing on all three of the important legs of the stool on the Energy Transition, which are affordability, which are availability and security of supply, and sustainability. At the moment, we are having record high prices, risks of blackouts and emissions are going up. So there has been a basic failure in terms of overall policy and insufficient investment in energy. That's my concern".*

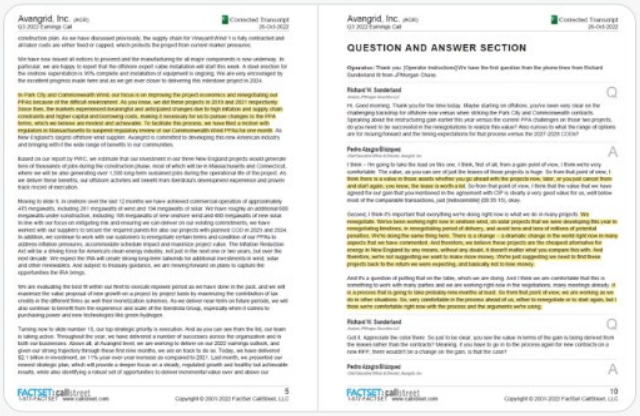
Prepared by SAF Group https://safgroup.ca/news-insights/

> **Amena Bakr** @Amena_Bakr · Nov 4
>
> What's the root cause of the energy crisis the world is facing today? Find out what the ceo of crescent petroleum Majid Jafar had to say: energyintel.com/in-conversatio… #OOTT
>
> Show this thread

1 8 15

Dan Tsubouchi @Energy_Tidbits · Nov 3

Worth a read. #Avangrid says renegotiating not just big #OffshoreWind, but also #OnshoreWind & #Solar. Mgmt for offshore, "we need to find these projects back to the return we were expecting, and basically Not To Lose Money". #NatGas will be needed for longer. #OOTT



Avangrid, Inc. (AGR) Connected Transcript
Q3 2022 Earnings Call 26-Oct-2022

construction plan. As we have discussed previously, the supply chain for VineyardWind 1 is fully contracted and all labor costs are either fixed or capped, which protects the project from current market pressures.

We have now issued all notices to proceed and the manufacturing for all major components is now underway. In particular, we are happy to report that the offshore export cable installation will start this week. A steel erection for the onshore superstation is 95% complete and installation of equipment is ongoing. We are very encouraged by the excellent progress made here and as we get ever closer to delivering this milestone project in 2024.

In Park City and Commonwealth Wind, our focus is on improving the project economics and renegotiating our PPAs because of the difficult environment. As you know, we did these projects in 2019 and 2021 respectively. Since then, the markets experienced meaningful and anticipated changes due to high inflation and supply chain constraints and higher capital and borrowing costs, making it necessary for us to pursue changes to the PPA terms, which we believe are modest and achievable. To facilitate this process, we have filed a motion with regulators in Massachusetts to suspend regulatory review of our Commonwealth Wind PPAs for one month. As New England's largest offshore wind supplier, Avangrid is committed to developing this new American industry and bringing with it the wide range of benefits to our communities.

Based on our report by PWC, we estimate that our investment in our three New England projects would generate tens of thousands of jobs during the construction phase, most of which will be in Massachusetts and Connecticut, where we will be also generating over 1,100 long-term sustained jobs during the operational life of the project. As we deliver these benefits, our offshore activities will benefit from Iberdrola's development experience and proven track record of execution.

Moving to slide 9. In onshore over the last 12 months we have achieved commercial operation of approximately 475 megawatts, including 261 megawatts of wind and 194 megawatts of solar. We have roughly an additional 600 megawatts under construction, including 195 megawatts of new onshore wind and 400 megawatts of new solar. In line with our focus on mitigating risk and ensuring we can deliver on our existing commitments, we have worked with our suppliers to secure the required panels for also our projects with planned COD in 2023 and 2024. In addition, we continue to work with our customers to renegotiate certain terms and condition of our PPAs to address inflation pressures, accommodate schedule impact and maximize project value. The Inflation Reduction Act will be a driving force for America's clean energy industry, not just in the next one or two years, but over the next decade. We expect the IRA will create strong long-term tailwinds for additional investments in wind, solar and other renewables. And subject to finalizing guidance, we are moving forward on plans to capture the opportunities the IRA brings.

We are evaluating the best fit within our RevPro to execute repower period as we have done in the past, and we will maximize the value proposal of new growth on a project by project basis by maximizing the combination of tax credits in the different tiers as well their monetization schemes. As we deliver near-term on future periods, we will also continue to benefit from the experience and scale of the Iberdrola Group, especially when it comes to purchasing power and new technologies like green hydrogen.

Turning now to slide number 13, our top strategic priority is execution. And as you can see from the list, our team is taking action. Throughout the year, we have delivered a number of successes across the organization and in both our businesses. Above all, at Avangrid level, we are working to deliver on our 2022 earnings outlook, and given our strong trajectory through these first nine months, we are on track to do so. Today, we have delivered $2.1 billion in investment, an 11% year over year increase as compared to 2021. Last month, we presented our renewed strategic plan, which will provide a deeper focus on a steady, regulated growth and healthy but achievable results, while also identifying a robust set of opportunities to deliver incremental value over and above our

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Avangrid, Inc. (AGR) Connected Transcript
Q3 2022 Earnings Call 26-Oct-2022

QUESTION AND ANSWER SECTION

Operator: Thank you. [Operator Instructions] We have the first question from the phone lines from Richard Sunderland of Bank JPMorgan Chase.

Richard W. Sunderland Q

Hi. Good morning. Thank you for the time today. Maybe starting on offshore, you've been very clear on the challenging backdrop for offshore now versus when striking the Park City and Commonwealth contracts. Speaking about the restructuring gain earlier this year versus the current PPA challenges on those two projects, do you have to be successful in the renegotiations to realize this value? Also curious to what the range of options are for moving forward and the timing expectations for that process versus the 2027-2028 COD?

Pedro Azagra Blázquez A

I think -- I'm going to take the lead on this one, I think, first of all, from a gain point of view, I think we're very comfortable. The value, as you can see of just the leases of those projects is huge. So from that point of view, I think there is a value in those assets whether you go ahead with the projects now, later, or you just cancel them and start again, you know, the lease is worth a lot. So from that point of view, I think that the value that we have agreed for our gain that you mentioned in the agreement with CIP is clearly a very good value for us, well below most of the comparable transactions, just [indecernible] (00:55:15), okay.

Second, I think it's important that everything we're doing right now is what we do in many projects. We renegotiate. We've been working right now in onshore wind, on solar projects that we were developing this year to renegotiating timelines, in renegotiating period of delivery, and avoid tens and tens of millions of potential penalties. We're doing the same thing here. There is a change -- a dramatic change in the world right now in many aspects that we have commented. And therefore, we believe these projects are the cheapest alternative for energy in New England by any means, without any doubt. It doesn't matter what you compare this with. And therefore, we're not suggesting we want to make more money. We're just suggesting we need to find these projects back to the return we were expecting, and basically not to lose money.

And it's a question of putting that on the table, which we are doing. And I think we are comfortable that this is something to work with many parties and we are working right now in the negotiations, many meetings already. It is a process that is going to take probably nine months at least. So from that point of view, we are working as we do in other situations. So, very comfortable in the process ahead of us, either to renegotiate or to start again, but I think we're comfortable right now with the process and the arguments we're using.

Richard W. Sunderland Q

Got it. Appreciate the color there. So just to be clear, you see the value in terms of the gain is being derived from the leases rather than the contracts? Meaning, if you have to go in to the process again for new contracts on a new RFP, there wouldn't be a change on the gain, is that the case?

Pedro Azagra Blázquez A

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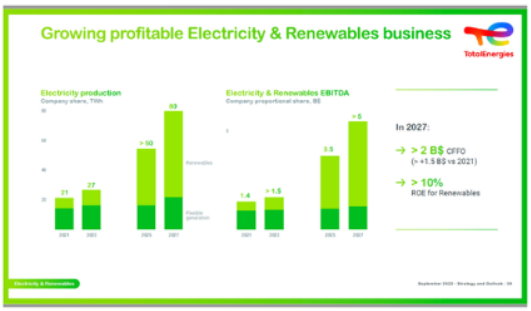
> **Dan Tsubouchi** @Energy_Tidbits · Nov 3
>
> #EnergyTransition will take longer & cost $$. See 👇 09/28 @PPouyanne warning on lack of IRR in offshore #Wind. @joshfromalaska @willwwade report PSEG may not proceed with Ocean Wind 1, Avangrid delays Commonwealth start. #NatGas is needed for longer #OOTT bnnbloomberg.ca/the-great-us-o...

3 2

Dan Tsubouchi @Energy_Tidbits · Nov 3

#EnergyTransition will take longer & cost $$. See 👇 09/28 @PPouyanne warning on lack of IRR in offshore #Wind. @joshfromalaska @willwwade report PSEG may not proceed with Ocean Wind 1, Avangrid delays Commonwealth start. #NatGas is needed for longer #OOTT bnnbloomberg.ca/the-great-us-o...

> **Dan Tsubouchi** @Energy_Tidbits · Sep 28
>
> "Renewables, if you compete with others, you lose money! Okay, I said that, I declared it." says @PPouyanne. It's why #TotalEnergies is selective to ensure their renewables deliver >10% ROE ie. uses its advantage to farm-down, merchant, trading, to enhance returns. #OOTT



SAF Group created transcript of TotalEnergies CEO Patrick Pouyanne comments at TotalEnergies 2022 Strategy & Outlook webcast Sept 28, 2022 https://edge.media-server.com/mmc/p/npue3i5z

Any items in *"italics"* are SAF Group created transcript

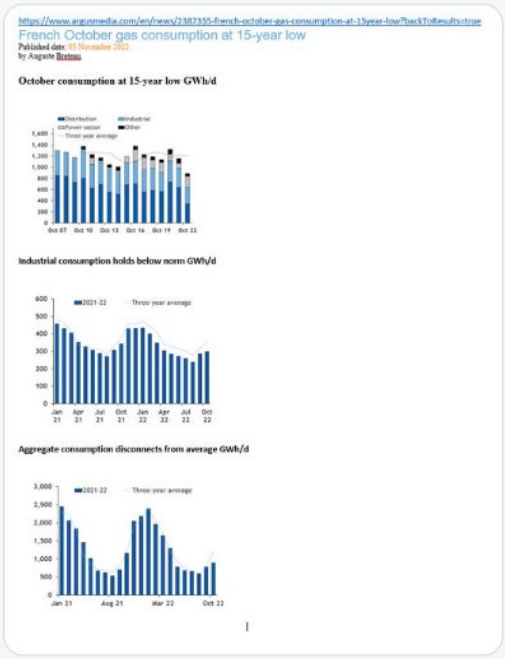
8:48. am MT. Pouyanne *"Renewables, if you compete with others, you lose money! Okay, I said that, I declared it." "I say to my colleagues, stop spending your time to go to this because we face competitions with financial institutions, when clearly I am not ready to pay NPV 4 or NPV 5."*

Prepared by SAF Group

3 2

Dan Tsubouchi @Energy_Tidbits · Nov 3

France #NatGas Oct consumption at 15-yr low. Mild Oct = less home/small business consumption. Sky-high prices = hit to industrial activity/consumption + force home/small business to use less. FR has advantage of big #Nuclear power. Thx @ArgusMedia @AugusteBreteau. #OOTT



3 2

Dan Tsubouchi @Energy_Tidbits · Nov 3

really? “from a 1st class seat in a normal airline that it was not, first of all, not much more to expensive flying private” @Bombardier ceo to @JonErlichman. haven’t seen that math on the past 20 years. #OOTT

1 1 1

Dan Tsubouchi @Energy_Tidbits · Nov 3

1st YoY decline in China #NatGas consumption in ~20 years was the saving grace for Europe #NatGas this year. See 👇 from @Cheniere just posted Q3 call slides. #OOTT

3 2

Dan Tsubouchi @Energy_Tidbits · Nov 3

Negative to #LNG. Changed Dec/Jan/Feb forecast vs prior expectations La Nina to drive colder China winter. @business "most parts of China will see temperatures close to or even higher than historic norms from Dec to Feb". Thx @business John Liu Kathy Chen. #OOTT #NatGas

2022-11-03 08:38:54.132 GMT

By Bloomberg News
(Bloomberg) -- Most parts of China will see temperatures close to or even higher than historic norms from December to February, although some northern parts of the country could see cold snaps, according to Shen Yanbo, chief scientist with the China Meteorological Administration.
* Effects of global warming including melting polar ice may counter impacts from the La Nina weather pattern around the Pacific Ocean, reversing earlier expectations for a colder winter across China, Shen said at the Chongqing Gas and Petroleum Exchange's winter gas forum
* The country could see more droughts under the conditions after parts of the Yangtze River basin were hit by the worst heat wave since the 1960s this summer
** Severe drought could affect six southern provinces this winter, including Fujian, Jiangxi, Hunan, Chongqing, Guangxi and Guangdong
** March-May weather could be milder with less-than-normal rainfall levels, continuing to curb hydrpower generation
* READ: China's Top Gas Suppliers See Tight Winter Supply, Higher Prices

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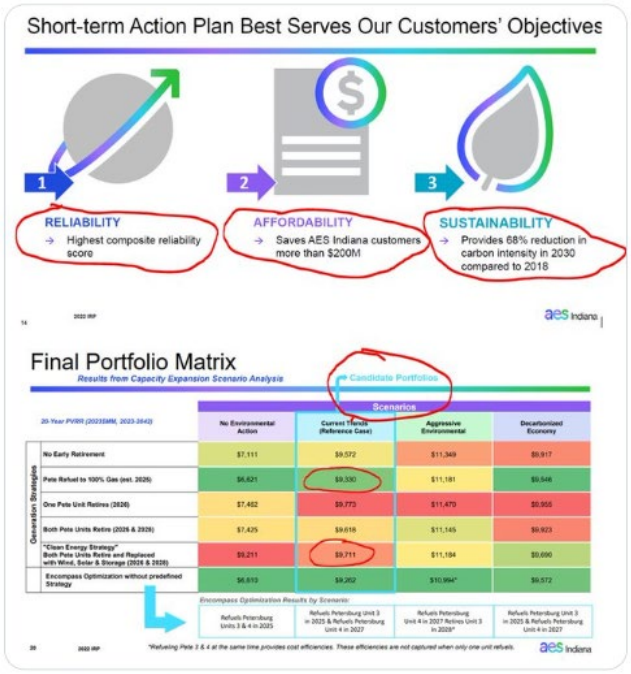
Dan Murtaugh

To view this story in Bloomberg click here:
https://blinks.bloomberg.com/news/stories/RKRFGOT0AFB4

3 3

Dan Tsubouchi @Energy_Tidbits · Nov 2

#EnergyTransition may be happening but will lead to higher #Electricity costs to consumers. But @AESIndiana priority is reliability, affordability & sustainability so will replace #Coal with #NatGas and not #Wind #Solar #Storage and expect to save customers $281 million. #OOTT



Dan Tsubouchi @Energy Tidbits · Nov 2

New England needs warm winter.

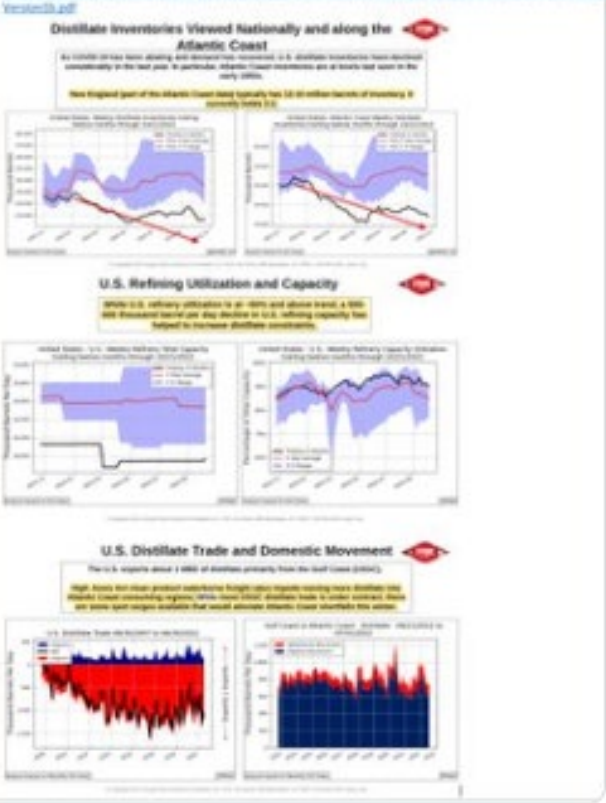
See 👇 tweet re @EversourceCorp #NatGas risk.

Also #Distillates risk. NE typical 12-15 mmb inventory vs current 3.3 mmb.

Most USGC distillates export is under contract, some spot cargos if #JonesAct waived.

Great @EPRINC_DC slide deck.

#OOTT



> **Dan Tsubouchi** @Energy Tidbits · Nov 1
>
> 
>
> Shame #Biden won't allow the KISS solution - Marcellus. @EversourceCorp to Biden, large-scale #CleanEnergy projects won't bring power to the grid for several years. New England remains dependent on #NatGas to meet power needs this winter AND For ...

1 1

Dan Tsubouchi @Energy_Tidbits · Nov 2

For those not near their laptop, @EIAgov just released #Oil #Gasoline #Distillates inventory as of Oct 28. Table below compares EIA data vs @business expectations posted as of 5am MT, and vs @APIenergy yesterday. Prior to release, WTI was $88.30. #OOTT

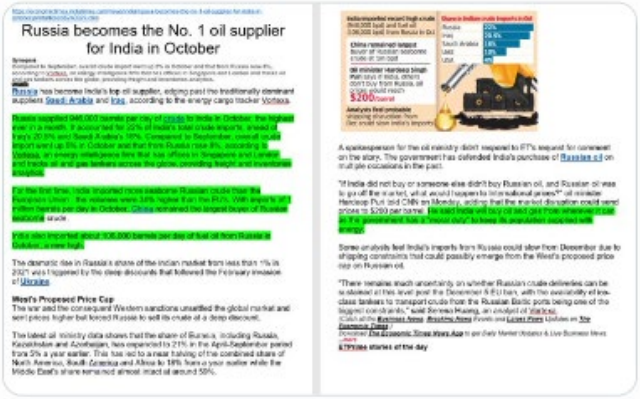
ir.eia.gov/wpsr/overview....

s Inventory Oct 28: EIA, Bloomberg Survey Expectations, A		
els)	EIA	Expectations
	-3.12	-0.20
	-1.26	-1.00
	0.43	-0.50
	-3.95	-1.70
ommercial so builds in impact of 1.9 mmb draw from SPR for C		
ed in the oil data, Cushing had a build of 1.23 mmb for Oct 28		
Bloomberg		
SAF Group https://safgroup.ca/news-insights/		

1 4

Dan Tsubouchi @Energy_Tidbits · Nov 2

India imports 946,000 b/d #Oil Plus 106,000 b/d #FuelOil from Russia in Oct. See 👇 Oct 8 thread, @HardeepSPuri warned @SecGranholm that if "you believe in energy security, energy affordability you will buy from wherever you have to." Thx @EconomicTimes @Vortexa. #OOTT


Russia becomes the No. 1 oil supplier for India in October

Dan Tsubouchi @Energy_Tidbits · Oct 8

1/3. Great @ANI reporting on clear India energy position from @HardeepSPuri post @SecGranholm meeting. "Have I been told by anyone to stop buying Russian oil? The answer is a categorical No". #OOTT #NatGas #LNG

Show this thread

2 2

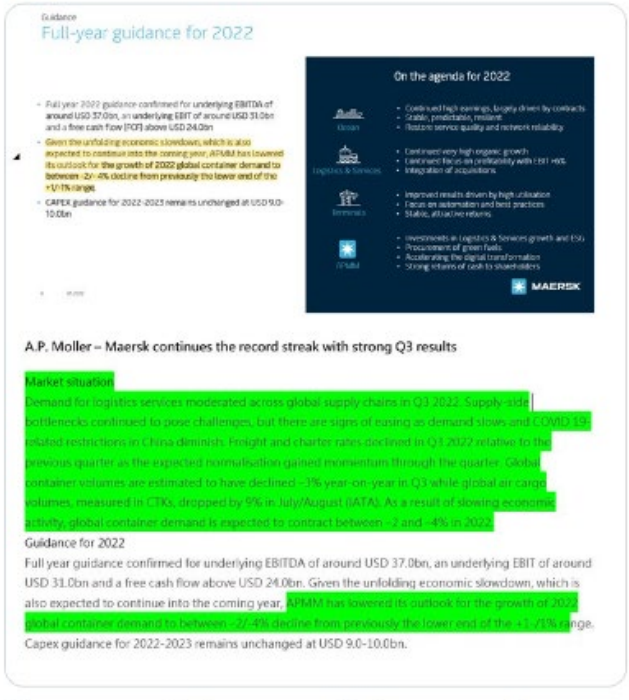
Dan Tsubouchi @Energy_Tidbits · Nov 2

#TropicalStormLisa, looks like will be down to Depression strength when it re-emerges in GoM over #Pemex offshore oil fields & loading platforms. Maybe some minor #Oil loading delays but wouldn't think any lasting impact. #OOTT

1 2 1

Dan Tsubouchi @Energy_Tidbits · Nov 2

Slowing global economy. @Maersk Q3 results: global container volumes est -3% YoY in Q3. global air cargo est -9% YoY in Jul/Aug. Lowered 2022 global container volume guidance to -2%/-4% YoY from prior +1%/-1%. #OOTT #Oil


Guidance

Full-year guidance for 2022

- Full year 2022 guidance confirmed for underlying EBITDA of around USD 37.0bn, an underlying EBIT of around USD 31.0bn and a free cash flow (FCF) above USD 24.0bn
- Given the unfolding economic slowdown, which is also expected to continue into the coming year, APMM has lowered its outlook for the growth of 2022 global container demand to between -2/-4% decline from previously the lower end of the +1/-1% range
- CAPEX guidance for 2022-2023 remains unchanged at USD 9.0-10.0bn

On the agenda for 2022

Ocean
- Continued high earnings, largely driven by contracts
- Stable, predictable, resilient
- Restore service quality and network reliability

Logistics & Services
- Continued very high organic growth
- Continued focus on profitability with EBIT >6%
- Integration of acquisitions

Terminals
- Improved results driven by high utilisation
- Focus on automation and best practices
- Stable, attractive returns

APMM
- Investments in Logistics & Services growth and ESG
- Procurement of green fuels
- Accelerating the digital transformation
- Strong returns of cash to shareholders

MAERSK

A.P. Moller – Maersk continues the record streak with strong Q3 results

Market situation

Demand for logistics services moderated across global supply chains in Q3 2022. Supply-side bottlenecks continued to pose challenges, but there are signs of easing as demand slows and COVID-19 related restrictions in China diminish. Freight and charter rates declined in Q3 2022 relative to the previous quarter as the expected normalisation gained momentum through the quarter. Global container volumes are estimated to have declined ~3% year-on-year in Q3 while global air cargo volumes, measured in CTKs, dropped by 9% in July/August (IATA). As a result of slowing economic activity, global container demand is expected to contract between ~2 and ~4% in 2022.

Guidance for 2022

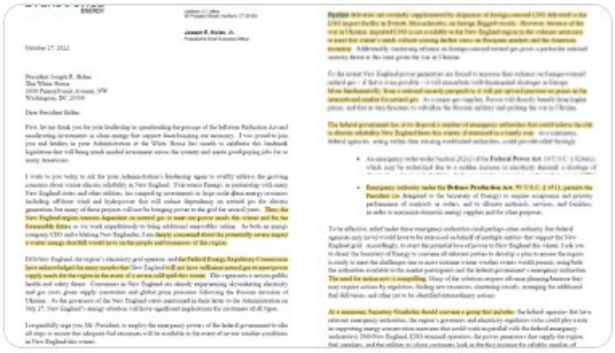
Full year guidance confirmed for underlying EBITDA of around USD 37.0bn, an underlying EBIT of around USD 31.0bn and a free cash flow above USD 24.0bn. Given the unfolding economic slowdown, which is also expected to continue into the coming year, APMM has lowered its outlook for the growth of 2022 global container demand to between -2/-4% decline from previously the lower end of the +1/-1% range.

Capex guidance for 2022-2023 remains unchanged at USD 9.0-10.0bn.

2 2

Dan Tsubouchi @Energy_Tidbits · Nov 1

Shame #Biden won't allow the KISS solution - Marcellus. @EversourceCorp to Biden, large-scale #CleanEnergy projects won't bring power to the grid for several years. New England remains dependent on #NatGas to meet power needs this winter AND For The Forseeable Future. #OOTT



1 5 8

Dan Tsubouchi @Energy_Tidbits · Nov 1

Imagine if #Libya ever gets lasting peace? Could blow away @NOC_Libya Chair target to get to 2 mmbd in 3 to 5 yrs. Current 1.2 mmbd. Gaddafi took over 09/01/69 & #Oil went down from there. #OPEC 1970: Saudi 3.85 mmbd, Iran 3.85 mmbd, Libya 3.34 mmbd, Kuwait 3.04 mmb. #OOTT

1 2 3

Dan Tsubouchi @Energy_Tidbits · Nov 1

#BP 160,000 b/d Toledo refinery shut down. Q3 Q&A, @bp_plc investigations continue, can't give any guidance for how much longer refinery will be down. one of the pressures on Cdn #Oil differentials as Toledo runs on Cdn crude. #OOTT

Company Name: BP PLC
Company Ticker: BP/ LN Equity
Date: 2022-11-01

INITIAL DRAFT

So fantastic progress it's a fabulous business and we'll provide more information for you. I don't know if it will be in February or it will be a separate session next year that's something that Craig and I still need to debate but we'll definitely will definitely be showing you more about convenience and electrification one of our big, big growth engines moving forward we're, very excited about it thank you.

A - Craig Marshall {BIO 20342626 <GO>}

Thanks thanks Amy, will take the penultimate question from Jason Gabelman at Cowen.

Q - Unidentified Participant

Hey, good good afternoon. I just want to ask about the LNG growth that you've mentioned within your portfolio. How does that change your kind of exposure to prices and then spot versus term on-off take maybe you could discuss how that evolves over the next year with these new. Volumes coming online and then my second question. On the Toledo incident. Can you discuss maybe expectation for how long the plant will be down. Cost repair and if there is any impact to the asset divestment as a result thanks.

A - Murray Auchincloss {BIO 20109801 <GO>}

Great thanks Jason on Toledo. I can't really guide you on anything right now. The site is shut-down as we talked about the investigations continue and we need to complete the investigations we learn lessons and then multi side how we move forward but, I can't really give you any guidance until we're through that process. My apologies on on LNG growth and. How do we, think about this in price exposure. If you, think about our business we, have 14 million tonnes per annum of equity and merchant cargoes that we bought over-time.

> **Dan Tsubouchi** @Energy_Tidbits · Sep 28
>
> More indicators #BP Toledo 160,000 b/d refinery will be shut down for extended time. @LauraSanicola reports BP laid off most contractors according to sources indicating will experience a prolonged shutdown following last week's explosion and fire." #OOTT reuters.com/business/energ...

3 7

Dan Tsubouchi @Energy_Tidbits · Nov 1

"to ensure global economic growth, we have to have reasonably priced affordable energy resources, #Oil and #NatGas" @amoshochstein. this is more than Putin, should have been a factor to build realistic #EnergyTransition timelines. thx @ManusCranny. #OOTT

3 3

Dan Tsubouchi @Energy_Tidbits · Nov 1

"$100, $90 is naturally, historically when companies [#Oil] do invest. the problem now is is that they're not doing what they always used to do" @amoshochstein. surely this isn't a surprise under get rid of oil objective? great interview @ManusCranny. #OOTT

5 27

Dan Tsubouchi @Energy_Tidbits · Oct 31

China Caixin PMI for Oct 49.2 v Est 48.5 & Sept 48.1, Aug 49.5. "still weighed down by Covid-19 outbreaks & consequent tightening of prevention and containment measures". "overseas demand continued to weaken" Thx @IHSMarkitPMI #OOTT

1 2

Dan Tsubouchi @Energy_Tidbits · Oct 31

#Biden: #Oil co's "profits are a windfall of war", have a responsibility to invest in US by increasing production and refining capacity, because if they don't "they're going to pay a higher tax on their excess profits and face other restrictions". #OOTT

ised transcript of excerpts from Biden statement on Oct 31, 2022. https://www.youtube.com/watch?v=ngUSE-4EOE

s" are SAF Group created transcript

ompanies, record profits today, are not because they're doing something new or innovative, their profits are a windfall of war. Windfall from the brutal conflict ine and hurting tens of millions of people around the globe. You know at a time of war, any company receiving historic windfall profits like this has a historic res ir narrow self interests of its executives and shareholders. I think they have a responsibility to act in the interests of the consumers, their community and their ice by increasing production and refining capacity because, if they don't want to do that, they have the opportunity to do that. Lowering prices for consumers a don't, they're going to pay a higher tax on their excess profits and face other restrictions. "

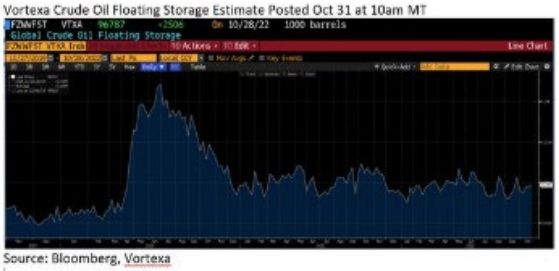
F Group https://safgroup.ca/news-insights/

1 1 3

Dan Tsubouchi @Energy_Tidbits · Oct 31

#Vortexa crude #Oil floating storage at 10/28 est 96.79 mmb, +2.51 mmb WoW vs upwardly revised 10/21 of 94.28 mmb. Last several weeks mix of +/- revisions. Excl 09/23 week, floating storage is ~90-95 mmb. Thx @Vortexa @business. No real change to #Oil views. #OOTT

Vortexa Crude Oil Floating Storage Estimate Posted Oct 31 at 10am MT



Source: Bloomberg, Vortexa

Posted Oct 31, 10am MT

FZWWFST VTXA Indx

Date	FZWWFST VT... Last Px
Fr 10/28/2022	96787
Fr 10/21/2022	94281
Fr 10/14/2022	94734
Fr 10/07/2022	86539
Fr 09/30/2022	90020
Fr 09/23/2022	104.173k
Fr 09/16/2022	90027
Fr 09/09/2022	84088
Fr 09/02/2022	79071
Fr 08/26/2022	85033
Fr 08/19/2022	100.664k

Oct 22 11am MT

FZWWFST VTXA Indx

Date	FZWWFST VT... Last Px
Fr 10/21/2022	90479
Fr 10/14/2022	93338
Fr 10/07/2022	86887
Fr 09/30/2022	91806
Fr 09/23/2022	107.292k
Fr 09/16/2022	90014
Fr 09/09/2022	85280
Fr 09/02/2022	79985
Fr 08/26/2022	83910
Fr 08/19/2022	100.486k
Fr 08/12/2022	105.794k

Oct 15 9am MT

FZWWFST VTXA Indx

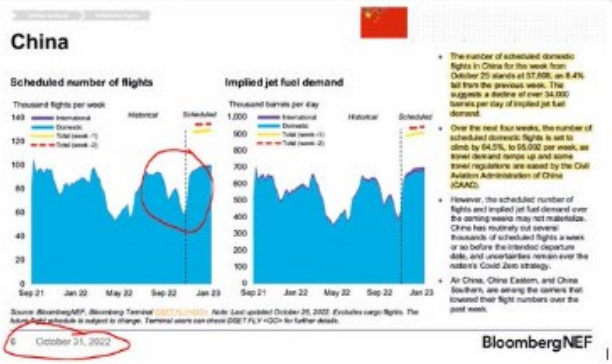
Date	FZWWFST VT... Last Px
Fr 10/14/2022	88903
Fr 10/07/2022	86499
Fr 09/30/2022	89038
Fr 09/23/2022	105.145k
Fr 09/16/2022	87340
Fr 09/09/2022	84573
Fr 09/02/2022	79835
Fr 08/26/2022	82138
Fr 08/19/2022	99524
Fr 08/12/2022	105.208k
Fr 08/05/2022	84107

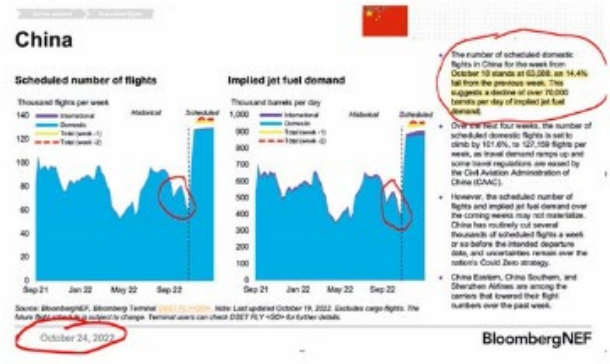
Source: Bloomberg, Vortexa

2 4

Dan Tsubouchi @Energy_Tidbits · Oct 31

#Oil. More support China not reopening quickly from #Covid. @BloombergNEF estimates China scheduled domestic air flights for week from 10/25: down 8.4% WoW to 57,808. Next 4 weeks, set to rise +64.5% to 95,092, but last week forecast was to 127,159 flights. #OOTT





> **Dan Tsubouchi** @Energy_Tidbits · Oct 24
>
> 
>
> #Oil. Expectation for no major relaxation to China #CovidZero? Li Qiang, party secretary of Shanghai, walked out second behind Xi at a meeting with press on Sunday. Li is a known Xi loyalist & oversaw stringent Covid controls in Shanghai earlier this year. Thx ...

1 3 3

Dan Tsubouchi @Energy_Tidbits · Oct 31

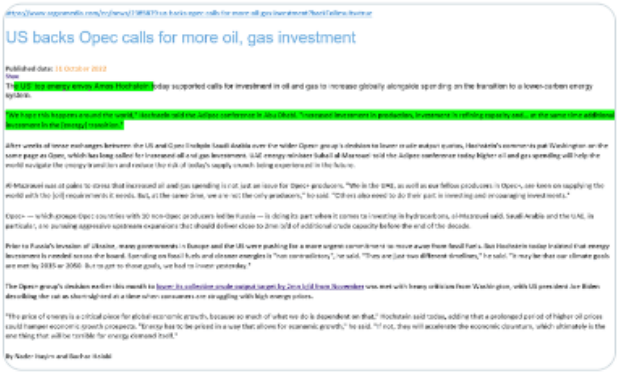
1/2. Did we just see a major shift in #Biden messaging on #Oil #NatGas role in the #EnergyTransition? ie. the energy transition requires increased investment in all forms of energy, not just renewables? normally US just calls on producers to produce more but today ..... #OOTT

> **Nader Itayim | نادر ايتيم** @ncitayim · Oct 31
>
> NEW: After weeks of tension between the US and Opec+, we have agreement on something: The US' top energy envoy today backed calls for upstream investment to increase globally alongside spending on the transition to lower-carbon energies. #oott
> argusmedia.com/en/news/238587...

3 9 14

Dan Tsubouchi @Energy_Tidbits · Oct 31

2/2, @amoshochstein "we hope this happens around the world,""Increased investment in production, investment in refining capacity and... at the same time additional investment in the [energy] transition." Thx @ncitayim @Bacharelhalab #OOTT



US backs Opec calls for more oil, gas investment

Published date: 11 October 2022

The US' top energy envoy, Amos Hochstein, today supported calls for investment in oil and gas to increase globally alongside spending on the transition to a lower-carbon energy system.

"We'll get this long-term around the world," Hochstein told the Adipec conference in Abu Dhabi. "Increased investment in production, investment in refining capacity and... at the same time additional investment in the [energy] transition."

After weeks of tense exchanges between the US and Opec+ ally Saudi Arabia over the wider Opec+ group's decision to lower crude output quotas, Hochstein's comments put Washington on the same page as Opec, which has long called for increased oil and gas investment. UAE energy minister Suhail al-Mazrouei told the Adipec conference today higher oil and gas spending will help the world navigate the energy transition and reduce the risk of today's supply crunch being experienced in the future.

Al-Mazrouei was at pains to stress that increased oil and gas spending is not just an issue for Opec+ producers. "We in the UAE, as well as our fellow producers in Opec+, are keen on supplying the world with the [oil] requirements it needs. But, at the same time, we are not the only producers," he said. "[We] also need to do their part in investing and encouraging investments."

Opec+ — which groups Opec countries with 10 non-Opec producers led by Russia — is doing its part when it comes to investing in hydrocarbons, al-Mazrouei said. Saudi Arabia and the UAE, in particular, are pursuing aggressive upstream expansions that should deliver close to 2mn b/d of additional crude capacity before the end of the decade.

Prior to Russia's invasion of Ukraine, many governments in Europe and the US were pushing for a more urgent commitment to move away from fossil fuels. But Hochstein today insisted that energy investment is needed across the board. Spending on fossil fuels and cleaner energies is "not contradictory", he said. "They are just two different timelines," he said. "It may be that our climate goals are met by 2035 or 2050. But to get to those goals, we had to invest yesterday."

The Opec+ group's decision earlier this month to lower its collective crude output target by 2mn b/d from November was met with heavy criticism from Washington, with US president Joe Biden describing the cut as short-sighted at a time when consumers are struggling with high energy prices.

"The price of energy is a critical piece for global economic growth, because so much of what we do is dependent on that," Hochstein said today, adding that a prolonged period of higher oil prices could hamper economic growth prospects. "Energy has to be priced in a way that allows for economic growth," he said. "If not, they will accelerate the economic downturn, which ultimately is the one thing that will be terrible for energy demand itself."

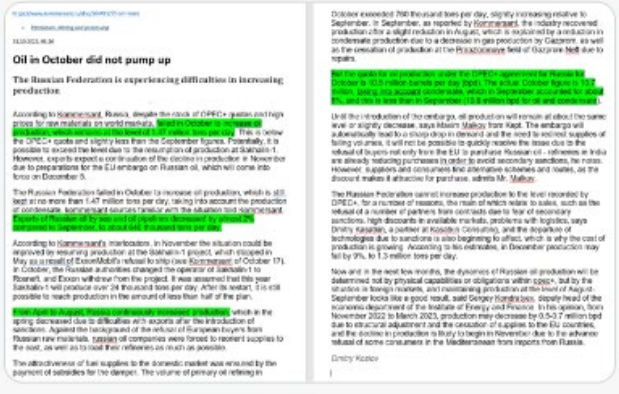
By Nader Itayim and Bachar Halab

5

Dan Tsubouchi Retweeted

Dan Tsubouchi @Energy_Tidbits · Oct 31

Russia #Oil production ~9.84 mmb/d in Oct, assuming condensate is 8% of total oil + condensate of 10.7 mmb/d. #OPEC+ quota was 11.004 mmb/d for Oct, going down to 10.478 mmb/d for Nov-Dec. Thx @kommersant Dmitry Kozlov
#OOTT



Oil in October did not pump up

The Russian Federation is experiencing difficulties in increasing production

According to Kommersant, Russia, despite the reach of OPEC+ quotas and high prices for raw materials on world markets, failed in October to increase oil production, which remained at the level of 9.47 million tons per day. This is below the OPEC+ quota and slightly less than the September figures. Potentially, it is possible to expand the level due to the resumption of production at Sakhalin-1. However, experts expect a continuation of the decline in production in November due to preparations for the EU embargo on Russian oil, which will come into force on December 5.

The Russian Federation failed in October to increase oil production, which is still kept at no more than 11.47 million tons per day, taking into account the production of condensate, Kommersant sources familiar with the situation told. Supply of Urals oil by sea out of ports decreased by almost 2% compared to September, to about 660 thousand tons per day.

According to Kommersant's interlocutors, in November the situation could be improved by ensuring production at the Sakhalin-1 project, which stopped in May as a result of ExxonMobil's refusal to ship cargo. Kommersant of October 17). In October, the Russian authorities changed the operator of Sakhalin-1 to Rosneft, and Exxon withdrew from the project. It was assumed that this year Sakhalin-1 will produce over 24 thousand tons per day. After its restart, it is still possible to reach production in the amount of less than half of the plan.

From April to August, Russia continuously increased production, which in the spring, decreased due to difficulties with exports after the introduction of sanctions. Against the background of the refusal of European buyers from Russian raw materials, Russian oil companies were forced to reorient supplies to the east, as well as to load their refineries as much as possible.

The attractiveness of fuel supplies to the domestic market was encouraged by the payment of subsidies for the damper. The volume of primary oil refining in October exceeded 760 thousand tons per day, slightly increasing relative to September. In September, as reported by Kommersant, the industry recovered production after a slight reduction in August, which is explained by a reduction in condensate production due to a decrease in gas production by Gazprom, as well as the cessation of production at the Prirazlomnoye field of Gazprom Neft due to repairs.

For the quota for oil production under the OPEC+ agreement for Russia for October is 10.5 million barrels per day (bpd). The actual October figure is 10.9 million, taking into account condensate, which in September accounted for about 8%, and this is less than in September (10.8 million bpd for oil and condensate).

Until the introduction of the embargo, oil production will remain at about the same level or slightly decrease, says Maxim Malkov from Rapt. The embargo will automatically lead to a sharp drop in demand, and the need to redirect supplies of falling volumes. It will not be possible to quickly resolve the issue due to the refusal of buyers not only from the EU to purchase Russian oil - refineries in India are already reducing purchases in order to avoid secondary sanctions, he notes. However, suppliers and consumers find alternative schemes and routes, as the discount makes it attractive for purchase, admits Mr. Malkov.

The Russian Federation cannot increase production to the level recorded by OPEC+, for a number of reasons, the main of which relate to sales, such as the refusal of a number of partners from contracts due to fear of secondary sanctions, high discounts in available markets, problems with logistics, says Dmitry Kanaykin, a partner at Kazakhs Consulting, and the departure of technologies due to sanctions is also beginning to affect, which is why the cost of production is growing. According to his estimates, in December production may fall by 9%, to 1.3 million tons per day.

Now and in the next few months, the dynamics of Russian oil production will be determined not by physical capabilities or obligations within OPEC+, but by the situation in foreign markets, and maintaining production at the level of August-September looks like a good result, said Sergey Kondratiev, deputy head of the economic department of the Institute of Energy and Finance. In his opinion, from November 2022 to March 2023, production may decrease by 0.5-0.7 million bpd due to structural adjustment and the cessation of supplies to the EU countries, and the decline in production is likely to begin in November due to the advance refusal of some consumers in the Mediterranean from imports from Russia.

Dmitry Kozlov

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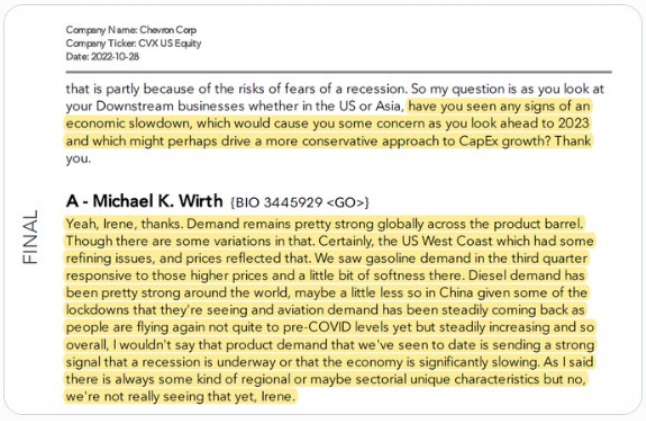
Dan Tsubouchi @Energy_Tidbits · Oct 31

Global #Oil declines at ~5% per year so the world's oil companies must add new production capacity or use up existing spare capacity of 5 mmb/d just to keep global oil production capacity flat. This builds in high US shale declines where the treadmill runs way faster.
#OOTT

> **Dan Tsubouchi** @Energy_Tidbits · Oct 25
>
> 
> Quote of the Day! "North America, the more [#Oil #NatGas] you produce, the more we have to work and I think we are seeing that play out" $HAL CEO Miller. A reminder of the challenge for sustainable strong US #Oil #NatGas production growth with high US shale ...

Dan Tsubouchi @Energy_Tidbits · Oct 30

Seeing signs of economic slowdown? See 👇 #Chevron CEO says not really "and so overall, I wouldn't say that product demand that we've seen to date is sending a strong signal that a recession is underway or that the economy is significantly slowing". Thx @business. #OOTT



Company Name: Chevron Corp
Company Ticker: CVX US Equity
Date: 2022-10-28

that is partly because of the risks of fears of a recession. So my question is as you look at your Downstream businesses whether in the US or Asia, have you seen any signs of an economic slowdown, which would cause you some concern as you look ahead to 2023 and which might perhaps drive a more conservative approach to CapEx growth? Thank you.

A - Michael K. Wirth {BIO 3445929 <GO>}

FINAL

Yeah, Irene, thanks. Demand remains pretty strong globally across the product barrel. Though there are some variations in that. Certainly, the US West Coast which had some refining issues, and prices reflected that. We saw gasoline demand in the third quarter responsive to those higher prices and a little bit of softness there. Diesel demand has been pretty strong around the world, maybe a little less so in China given some of the lockdowns that they're seeing and aviation demand has been steadily coming back as people are flying again not quite to pre-COVID levels yet but steadily increasing and so overall, I wouldn't say that product demand that we've seen to date is sending a strong signal that a recession is underway or that the economy is significantly slowing. As I said there is always some kind of regional or maybe sectorial unique characteristics but no, we're not really seeing that yet, Irene.

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