

Energy Tidbits

Pemex CEO Expects to Cut Mexico Oil Exports From 1 mmb/d in 2021 to 0.4 mmb/d in 2022 and to Zero in 2023

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Table 1. Summary of natural gas supply and disposition in the United States, 2016-2021

(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
2016 Total	32,592	28,400	1,808	26,592	57	671	340	-216	27,444
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									
January	3,377	2,975	208	2,767	5	-74	722	4	3,424
February	3,057	2,705	189	2,516	5	-97	580	16	3,019
March	3,383	3,009	210	2,798	5	-121	253	-8	2,928
April	3,315	2,926	205	2,721	5	-132	-389	7	2,212
May	3,424	3,046	213	2,833	5	-161	-480	-63	2,134
June	3,300	2,956	207	2,750	5	-159	-439	-37	2,119
July	3,396	3,072	215	2,857	5	-163	-260	-45	2,394
August	3,448	3,146	220	2,926	5	-165	-292	-40	2,434
September	3,397	3,057	214	2,843	5	-186	-427	-28	2,206
October	3,552	3,186	223	2,963	5	-215	-353	-94	2,307
November	3,509	3,134	219	2,915	5	-218	156	-74	2,784
December	3,623	3,235	226	3,009	5	-226	428	-45	3,171
Total	40,780	36,447	2,548	33,899	61	-1,916	-503	-408	31,132
2020									
January	3,597	3,194	240	2,954	6	-248	581	8	3,300
February	3,363	2,985	224	2,761	5	-216	545	-53	3,041
March	3,582	3,196	240	2,956	6	-284	53	-24	2,707
April	3,374	3,012	226	2,786	5	-231	-311	-8	2,241
May	3,285	2,927	220	2,707	5	-209	-454	18	2,067
June	3,217	2,873	216	2,657	5	-151	-363	-18	2,131
July	3,374	3,021	227	2,795	5	-139	-165	-7	2,489
August	3,350	3,012	226	2,786	5	-148	-232	-9	2,401
September	3,265	2,918	219	2,699	5	-221	-329	18	2,172
October	3,364	2,992	225	2,767	5	-282	-96	-74	2,320
November	3,352	2,985	224	2,761	5	-316	-6	-8	2,435
December	3,490	3,089	232	2,857	5	-287	597	-5	3,168
Total	40,614	36,202	2,717	33,485	63	-2,732	-180	-164	30,472
2021									
January	£3,506	£3,110	£233	£2,877	5	-279	707	R-17	£3,293
February	£2,924	£2,586	£172	£2,415	6	-152	781	-8	£3,042
March	£3,482	£3,092	£231	£2,861	5	-357	59	£43	£2,612
April	£3,409	£3,036	£239	£2,797	5	-356	-174	R-34	£2,238
May	£3,510	£3,130	£247	£2,883	3	-373	-416	R-5	£2,093
June	£3,391	£3,036	£239	£2,797	5	-331	-248	R-8	£2,214
July	£3,491	£3,151	£247	£2,904	5	-338	-170	R-14	£2,387
August	£3,531	£3,173	£251	£2,922	4	R-343	-159	R-15	£2,410
September	£3,416	£3,053	£241	£2,811	4	-315	-390	*	£2,110
October	£3,595	£3,220	£257	£2,963	5	-317	-361	-53	£2,238
2021 10-Month	£34,256	£30,587	£2,356	£28,231	49	-3,162	-371	-110	24,636
2020 10-Month	33,772	30,129	2,261	27,868	53	-2,129	-771	-151	24,870
2019 10-Month	33,648	30,078	2,103	27,976	50	-1,472	-1,087	-289	25,178

^a Monthly natural gas plant liquid (NGPL) production, gaseous equivalent, is derived 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 Supplemental gaseous fuels data are collected only on an annual basis except for the Dakota Gasification Co. coal gasification facility which provides data each month. The ratio of annual supplemental fuels (excluding Dakota Gasification Co.) to the sum of dry gas production, net imports, and net withdrawals from storage is calculated. This ratio is applied to the monthly sum of these three elements. The Dakota Gasification Co. monthly value is added to the result to produce the monthly supplemental fuels estimate.

^d Monthly and annual data for 2016 through 2020 include underground storage and liquefied natural gas storage. Data for January 2021 forward include underground storage only. See Appendix A, Explanatory Note 5, for 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): -24 for 2020; -8 for 2019; -12 for 2018; 14 for 2017; and 70 for 2016. See Appendix A, Explanatory Note 7, for full discussion.

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

^R Revised data.

* Volume is between -500 MMcf and 500 MMcf.

^E Estimated data.

^{RE} Revised estimated data.

Notes: Data for 2016 through 2019 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.

Sources: 2016-2020: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2020*. January 2021 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, *Natural Gas Imports and Exports*. See Table 7 for detailed source notes for Marketed Production. See Appendix A, Notes 3 and 4, for discussion of computation and estimation procedures and revision policies.

Table 5. U.S. natural gas exports, 2019-2021

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

	2021	2020	2019	2021				
	10-Month YTD	10-Month YTD	10-Month YTD	October	September	August	July	June
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	743,419	736,784	770,069	62,464	72,023	71,586	68,264	69,528
Mexico	1,822,602	1,660,096	1,555,388	184,539	178,823	193,788	197,702	198,329
Total Pipeline Exports	2,566,021	2,396,881	2,325,457	247,003	250,846	265,374	265,966	267,857
LNG								
Exports								
By Vessel								
Antigua and Barbuda	3	0	0	0	3	0	0	0
Argentina	81,371	15,068	39,293	0	1,950	14,363	22,798	19,312
Bahamas	416	189	131	36	43	56	46	48
Bangladesh	37,734	10,660	0	0	3,276	7,085	0	3,493
Barbados	236	201	171	25	33	27	31	22
Belgium	5,584	28,313	10,196	0	0	0	0	0
Brazil	272,753	51,708	51,018	40,769	38,282	34,204	39,637	32,293
Chile	115,987	67,570	79,666	6,364	7,929	16,262	19,913	0
China	382,388	123,792	6,851	42,202	48,584	51,662	42,222	42,319
Colombia	2,247	4,626	6,518	0	436	919	0	0
Croatia	23,600	0	0	0	0	2,980	3,299	2,923
Dominican Republic	44,345	15,945	9,833	5,619	0	5,901	1,806	4,670
Egypt	0	0	0	0	0	0	0	0
France	126,868	83,095	76,087	9,333	6,578	7,111	0	3,683
Greece	26,774	41,478	6,891	1,515	799	3,607	6,651	0
Haiti	125	90	22	17	10	24	8	18
India	178,208	103,861	77,458	10,548	23,941	20,592	13,090	16,503
Indonesia	1,594	0	0	477	1,118	0	0	0
Israel	8,906	15,834	0	0	2,855	0	0	0
Italy	34,210	65,370	49,546	0	0	3,401	6,826	3,425
Jamaica	24,448	14,678	8,993	1,858	2,931	2,907	0	2,927
Japan	296,703	200,701	162,036	37,666	10,290	19,979	24,895	39,783
Jordan	0	6,872	32,332	0	0	0	0	0
Kuwait	34,476	17,293	10,308	6,193	10,333	3,298	0	7,126
Lithuania	30,919	18,966	0	0	3,282	1,677	6,469	3,285
Malaysia	0	0	0	0	0	0	0	0
Malta	5,427	2,648	413	0	2,498	0	0	0
Mexico	15,200	31,352	130,402	1,088	0	0	758	0
Netherlands	142,156	75,573	57,857	17,157	10,424	7,347	10,597	3,030
Nicaragua	1	0	0	0	0	0	1	0
Pakistan	43,328	33,498	20,288	3,138	9,642	3,319	13,428	3,376
Panama	8,436	11,045	9,743	911	0	1,390	0	0
Poland	42,093	29,867	27,597	3,270	0	0	6,619	10,635
Portugal	50,855	27,381	46,997	10,459	3,696	6,382	3,296	5,538
Singapore	20,827	20,683	28,065	0	0	0	3,449	0
South Korea	384,495	227,507	206,924	33,836	31,375	50,101	39,314	55,918
Spain	159,662	176,476	132,826	35,638	31,274	23,068	8,630	7,833
Taiwan	83,911	45,677	20,003	7,123	5,789	6,728	20,653	3,097
Thailand	14,548	28,917	6,635	0	0	3,707	0	0
Turkey	103,098	90,952	22,809	19,385	24,176	0	5,591	0
United Arab Emirates	0	10,110	20,561	0	0	0	0	0
United Kingdom	104,082	103,278	48,651	3,302	3,099	0	0	0
By Truck								
Canada	100	2	25	8	19	18	16	7
Mexico	942	724	926	182	150	147	97	105
Re-Exports								
By Vessel								
Argentina	0	2,164	0	0	0	0	0	0
Brazil	0	82	0	0	0	0	0	0
Japan	0	387	221	0	0	0	0	0
South Korea	0	387	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG Exports	2,909,058	1,805,018	1,408,291	298,119	284,813	298,262	300,143	271,368
CNG								
Canada	211	322	208	0	0	14	16	27
Total CNG Exports	211	322	208	0	0	14	16	27
Total Exports	5,475,290	4,202,221	3,733,956	545,121	535,660	563,650	566,125	539,252

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2019-2021

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

	2021					2020		
	May	April	March	February	January	Total	December	November
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	70,561	74,567	91,301	78,198	84,927	902,449	84,307	81,358
Mexico	192,625	183,004	183,051	137,381	173,360	1,990,809	164,577	166,135
Total Pipeline Exports	263,186	257,571	274,352	215,579	258,287	2,893,258	248,884	247,493
LNG								
Exports								
By Vessel								
Antigua and Barbuda	0	0	0	0	0	0	0	0
Argentina	16,226	4,485	2,238	0	0	15,068	0	0
Bahamas	45	46	39	29	28	257	36	31
Bangladesh	6,948	10,219	3,566	0	3,148	10,660	0	0
Barbados	19	30	14	19	17	241	25	15
Belgium	2,100	0	3,484	0	0	31,946	0	3,633
Brazil	19,726	11,615	21,977	13,118	21,132	111,826	29,927	30,191
Chile	17,598	10,293	21,320	6,524	9,784	80,615	9,793	3,252
China	37,731	46,837	28,476	3,415	38,940	214,401	45,525	45,083
Colombia	0	892	0	0	0	4,626	0	0
Croatia	3,364	3,666	7,367	0	0	3,275	3,275	0
Dominican Republic	5,283	2,905	5,577	5,689	6,895	26,050	5,000	5,106
Egypt	0	0	0	0	0	0	0	0
France	11,926	36,120	33,678	14,851	3,587	90,237	3,752	3,390
Greece	6,796	0	6,805	0	600	48,403	3,382	3,543
Haiti	12	3	10	11	12	118	17	11
India	28,259	13,752	17,381	13,776	20,367	124,402	10,241	10,299
Indonesia	0	0	0	0	0	0	0	0
Israel	0	3,225	2,826	0	0	15,834	0	0
Italy	2,923	6,896	10,739	0	0	68,453	0	3,083
Jamaica	2,925	2,370	2,458	2,365	3,708	17,052	2,374	0
Japan	25,058	28,756	27,673	18,271	64,331	287,672	54,004	32,967
Jordan	0	0	0	0	0	6,872	0	0
Kuwait	0	3,705	3,821	0	0	17,293	0	0
Lithuania	3,049	3,078	3,228	6,851	0	28,879	6,291	3,621
Malaysia	0	0	0	0	0	0	0	0
Malta	0	2,928	0	0	0	2,648	0	0
Mexico	0	0	0	13,354	0	34,408	0	3,056
Netherlands	26,611	17,060	24,204	22,777	2,949	85,573	3,316	6,684
Nicaragua	0	0	0	0	0	0	0	0
Pakistan	0	3,323	3,421	0	3,682	36,934	0	3,436
Panama	2,341	0	3,279	0	516	12,764	271	1,448
Poland	3,581	7,382	3,507	7,099	0	36,900	7,033	0
Portugal	10,765	7,358	0	3,360	0	36,922	3,711	5,830
Singapore	3,089	7,297	3,303	0	3,688	28,341	0	7,658
South Korea	46,033	21,683	32,203	18,094	55,936	316,227	39,617	49,103
Spain	5,234	22,974	13,900	3,733	7,377	199,966	13,583	9,907
Taiwan	10,157	6,594	13,450	0	10,319	64,363	12,470	6,216
Thailand	3,453	7,388	0	0	0	32,622	0	3,705
Turkey	3,017	0	3,619	20,652	26,659	123,957	20,188	12,817
United Arab Emirates	0	0	0	0	0	10,110	0	0
United Kingdom	10,586	13,877	17,440	34,343	21,436	160,199	30,378	26,544
By Truck								
Canada	18	15	0	0	0	10	8	0
Mexico	48	48	19	63	83	822	46	52
Re-Exports								
By Vessel								
Argentina	0	0	0	0	0	2,164	0	0
Brazil	0	0	0	0	0	82	0	0
Japan	0	0	0	0	0	387	0	0
South Korea	0	0	0	0	0	387	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG Exports	314,922	306,818	321,023	208,394	305,196	2,389,963	304,263	280,682
CNG								
Canada	25	29	36	32	32	386	29	35
Total CNG Exports	25	29	36	32	32	386	29	35
Total Exports	578,132	564,418	595,411	424,004	563,515	5,283,607	553,176	528,210

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2019-2021

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

								2020
	October	September	August	July	June	May	April	March
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	72,833	62,211	60,810	71,778	66,516	67,752	71,722	86,579
Mexico	185,799	182,068	185,867	181,152	162,927	145,242	138,544	166,550
Total Pipeline Exports	258,632	244,279	246,677	252,930	229,442	212,994	210,266	253,130
LNG								
Exports								
By Vessel								
Antigua and Barbuda	0	0	0	0	0	0	0	0
Argentina	0	0	2,249	2,218	2,229	8,372	0	0
Bahamas	25	20	21	15	18	20	23	20
Bangladesh	0	0	0	3,614	0	3,406	0	0
Barbados	17	14	14	15	20	20	15	28
Belgium	3,285	0	0	0	0	1,348	3,324	3,724
Brazil	22,427	0	3,520	0	0	0	0	6,891
Chile	6,836	3,277	7,428	1,515	3,313	11,068	14,098	3,216
China	35,115	11,245	13,699	10,358	0	14,535	21,140	17,699
Colombia	0	2,548	550	0	0	0	0	0
Croatia	0	0	0	0	0	0	0	0
Dominican Republic	5,909	0	2,772	0	0	2,554	1,838	2,872
Egypt	0	0	0	0	0	0	0	0
France	6,639	0	0	0	0	9,546	16,336	23,491
Greece	0	7,027	0	6,544	1,076	3,430	3,233	8,892
Haiti	9	8	11	8	7	10	8	9
India	17,762	10,514	10,319	7,404	10,100	10,534	16,674	17,245
Indonesia	0	0	0	0	0	0	0	0
Israel	0	3,041	3,001	3,317	3,277	0	0	3,197
Italy	0	0	6,734	3,232	12,998	6,452	3,135	9,895
Jamaica	2,514	2,610	0	0	0	0	5,770	1
Japan	31,554	6,855	22,541	10,618	21,836	13,729	18,387	21,845
Jordan	0	3,578	0	0	0	3,294	0	0
Kuwait	3,603	3,508	6,886	0	0	0	3,297	0
Lithuania	6,191	3,308	0	0	3,049	3,473	2,945	0
Malaysia	0	0	0	0	0	0	0	0
Malta	0	0	0	0	0	0	0	0
Mexico	7,398	3,285	3,701	0	0	0	0	7,037
Netherlands	3,603	6,671	0	6,746	6,870	6,826	10,305	13,772
Nicaragua	0	0	0	0	0	0	0	0
Pakistan	10,009	9,853	3,412	0	0	0	3,334	0
Panama	433	3,228	0	0	0	3,070	0	906
Poland	3,157	0	0	0	3,385	6,258	3,523	3,583
Portugal	3,564	6,853	0	0	0	0	10,777	0
Singapore	3,416	0	2,967	3,690	0	0	0	10,610
South Korea	14,239	32,126	13,814	10,492	28,171	20,921	24,258	28,095
Spain	14,118	15,206	3,222	13,679	9,640	29,360	22,943	23,657
Taiwan	3,636	9,007	0	0	2,953	6,662	0	6,987
Thailand	0	0	0	3,254	0	7,397	11,049	3,783
Turkey	0	3,611	0	3,222	0	6,661	14,030	6,489
United Arab Emirates	0	0	3,359	3,277	0	3,474	0	0
United Kingdom	17,191	3,664	0	2,908	0	0	0	20,202
By Truck								
Canada	0	0	0	0	0	0	0	0
Mexico	68	73	78	72	61	18	23	123
Re-Exports								
By Vessel								
Argentina	0	0	2,164	0	0	0	0	0
Brazil	82	0	0	0	0	0	0	0
Japan	82	0	0	0	0	0	0	0
South Korea	82	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0	0
Total LNG Exports	222,963	151,128	112,462	96,200	109,002	182,438	210,466	244,269
CNG								
Canada	26	17	20	37	43	39	35	38
Total CNG Exports	26	17	20	37	43	39	35	38
Total Exports	481,621	395,424	359,159	349,167	338,486	395,472	420,767	497,437

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2019-2021

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

	2020				2019			
	February	January	Total	December	November	October	September	August
Exports								
Volume (million cubic feet)								
Pipeline								
Canada	77,354	99,231	972,519	109,779	92,671	76,246	71,573	78,302
Mexico	151,071	160,875	1,865,329	151,308	158,633	171,535	162,649	168,089
Total Pipeline Exports	228,425	260,106	2,837,848	261,086	251,305	247,781	234,222	246,391
LNG								
Exports								
By Vessel								
Antigua and Barbuda	0	0	0	0	0	0	0	0
Argentina	0	0	39,293	0	0	0	0	0
Bahamas	13	15	156	11	14	8	2	20
Bangladesh	0	3,640	3,419	3,419	0	0	0	0
Barbados	26	33	211	20	20	25	17	17
Belgium	9,872	6,761	23,897	10,407	3,293	3,402	3,404	0
Brazil	10,433	8,438	54,298	0	3,279	3,345	6,117	12,868
Chile	10,731	6,087	90,357	7,207	3,484	6,608	9,811	6,297
China	0	0	6,851	0	0	0	0	0
Colombia	1,003	525	6,518	0	0	0	0	649
Croatia	0	0	0	0	0	0	0	0
Dominican Republic	0	0	10,334	501	0	2,927	2,857	0
Egypt	0	0	0	0	0	0	0	0
France	20,520	6,563	117,791	14,758	26,946	14,228	6,740	3,249
Greece	0	11,276	14,643	7,752	0	0	0	0
Haiti	11	7	42	12	8	4	9	3
India	0	3,309	91,481	7,090	6,933	6,961	14,355	7,294
Indonesia	0	0	0	0	0	0	0	0
Israel	0	0	0	0	0	0	0	0
Italy	16,616	6,308	68,655	12,764	6,345	0	3,230	6,082
Jamaica	2,914	869	13,892	2,435	2,464	0	0	2,946
Japan	21,360	31,975	200,864	21,226	17,603	24,504	28,084	17,506
Jordan	0	0	32,332	0	0	0	3,616	3,277
Kuwait	0	0	10,308	0	0	0	0	3,401
Lithuania	0	0	3,455	3,455	0	0	0	0
Malaysia	0	0	3,698	0	3,698	0	0	0
Malta	48	2,600	413	0	0	0	0	0
Mexico	3,167	6,764	143,371	9,696	3,273	6,437	10,442	13,681
Netherlands	14,099	6,681	81,361	13,405	10,099	3,456	3,431	6,688
Nicaragua	0	0	0	0	0	0	0	0
Pakistan	3,567	3,323	26,935	3,400	3,247	3,472	6,512	0
Panama	3,408	0	10,221	0	478	0	0	0
Poland	6,677	3,282	38,042	7,013	3,432	3,489	0	3,537
Portugal	6,187	0	53,342	6,345	0	6,621	2,924	6,051
Singapore	0	0	31,440	3,375	0	3,463	0	0
South Korea	11,071	44,320	270,025	38,139	24,962	42,233	10,818	16,995
Spain	20,240	24,412	166,684	13,874	19,985	13,704	37,938	15,861
Taiwan	7,115	9,317	27,397	3,658	3,736	3,138	0	7,207
Thailand	3,435	0	6,635	0	0	0	3,234	0
Turkey	24,303	32,637	30,611	536	7,266	3,528	0	0
United Arab Emirates	0	0	20,561	0	0	0	3,325	3,502
United Kingdom	28,884	30,428	118,357	29,749	39,957	26,260	3,303	1,335
By Truck								
Canada	0	2	25	0	1	14	9	0
Mexico	87	122	1,105	93	86	139	95	113
Re-Exports								
By Vessel								
Argentina	0	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0	0
Japan	0	305	221	0	0	0	0	0
South Korea	0	305	0	0	0	0	0	0
United Kingdom	0	0	305	305	0	0	0	0
Total LNG Exports	225,786	250,305	1,819,547	220,646	190,610	177,966	160,274	138,578
CNG								
Canada	34	33	263	25	30	28	15	15
Total CNG Exports	34	33	263	25	30	28	15	15
Total Exports	454,245	510,444	4,657,657	481,757	441,944	425,775	394,511	384,983

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2019-2021

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

							2019
	July	June	May	April	March	February	January
Exports							
Volume (million cubic feet)							
Pipeline							
Canada	68,613	61,809	70,182	71,333	93,182	91,561	87,269
Mexico	167,902	156,440	153,452	139,750	149,514	135,514	150,544
Total Pipeline Exports	236,515	218,249	223,633	211,083	242,696	227,074	237,813
LNG							
Exports							
By Vessel							
Antigua and Barbuda	0	0	0	0	0	0	0
Argentina	13,066	13,120	8,737	4,369	0	0	0
Bahamas	11	25	14	14	11	14	11
Bangladesh	0	0	0	0	0	0	0
Barbados	17	13	21	17	14	14	17
Belgium	0	0	0	0	3,390	0	0
Brazil	6,949	9,116	4,905	1,201	3,283	3,234	0
Chile	9,382	19,012	6,188	9,429	10,005	2,933	0
China	0	0	0	0	0	3,464	3,387
Colombia	0	0	0	0	2,935	0	2,934
Croatia	0	0	0	0	0	0	0
Dominican Republic	0	1,108	0	0	0	2,942	0
Egypt	0	0	0	0	0	0	0
France	0	0	6,621	17,092	20,853	0	7,303
Greece	0	0	3,497	0	0	3,394	0
Haiti	2	3	0	2	0	0	0
India	3,485	3,215	13,942	6,742	7,446	6,989	7,030
Indonesia	0	0	0	0	0	0	0
Israel	0	0	0	0	0	0	0
Italy	9,963	3,072	6,560	0	6,684	3,454	10,502
Jamaica	837	0	2,890	0	2,320	0	0
Japan	21,242	14,582	7,149	14,010	7,143	10,320	17,495
Jordan	3,449	7,342	7,332	3,622	0	3,695	0
Kuwait	3,405	0	3,502	0	0	0	0
Lithuania	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0	0	0
Malta	0	0	0	413	0	0	0
Mexico	24,209	16,955	20,244	10,406	7,038	6,681	14,310
Netherlands	3,386	3,310	10,734	13,010	10,452	3,390	0
Nicaragua	0	0	0	0	0	0	0
Pakistan	3,656	0	0	0	3,282	3,365	0
Panama	0	3,282	0	0	3,191	3,269	0
Poland	3,694	0	0	3,414	3,701	0	9,762
Portugal	6,994	6,908	0	3,489	0	3,720	10,289
Singapore	3,570	3,435	3,397	320	6,631	7,249	0
South Korea	32,663	20,402	18,069	13,000	18,013	17,750	16,981
Spain	3,297	13,506	14,325	10,139	10,678	6,748	6,631
Taiwan	0	0	3,309	6,349	0	0	0
Thailand	0	0	3,401	0	0	0	0
Turkey	0	0	0	2,969	0	6,483	9,829
United Arab Emirates	3,487	3,459	0	6,787	0	0	0
United Kingdom	0	0	0	0	3,669	3,711	10,373
By Truck							
Canada	0	0	0	0	0	1	0
Mexico	101	92	75	87	73	48	104
Re-Exports							
By Vessel							
Argentina	0	0	0	0	0	0	0
Brazil	0	0	0	0	0	0	0
Japan	0	0	0	221	0	0	0
South Korea	0	0	0	0	0	0	0
United Kingdom	0	0	0	0	0	0	0
Total LNG Exports	156,865	141,956	144,913	127,102	130,814	102,866	126,957
CNG							
Canada	20	20	22	28	29	15	16
Total CNG Exports	20	20	22	28	29	15	16
Total Exports	393,400	360,226	368,568	338,213	373,539	329,954	364,787

See footnotes at end of table.

Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2016-2021
(million cubic feet)

Year and Month	Alaska	Arkansas	California	Colorado	Kansas	Louisiana	Montana	New Mexico	North Dakota	Ohio
2016 Total	332,749	823,196	205,025	1,685,755	244,795	1,784,396	47,921	1,229,647	531,997	1,437,285
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										
January	30,503	47,443	16,800	165,594	16,055	259,311	3,773	137,940	67,591	213,280
February	26,728	42,219	15,513	148,543	14,237	242,076	3,095	128,351	58,573	192,640
March	29,346	46,211	16,922	164,062	15,820	266,649	3,508	144,805	68,542	213,280
April	28,816	44,455	16,548	161,046	15,613	259,749	3,552	142,454	67,985	207,990
May	29,028	44,906	16,754	166,110	14,898	270,060	3,817	147,013	70,266	214,923
June	26,889	42,702	16,254	162,072	15,559	265,302	3,757	142,093	65,406	207,990
July	25,348	43,852	16,890	165,821	15,695	277,490	3,783	149,002	70,039	235,476
August	22,876	43,505	16,969	166,581	15,637	276,362	3,739	153,633	75,266	235,476
September	24,494	41,798	16,262	161,977	15,039	266,639	3,675	151,917	72,439	227,880
October	27,409	43,093	16,228	174,304	15,151	275,520	3,617	157,544	78,027	236,778
November	28,256	41,738	15,659	172,088	14,439	270,668	3,559	154,545	77,473	229,140
December	29,669	42,834	16,024	178,720	14,945	282,493	3,660	159,790	79,218	236,778
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	31,632	€39,964	€12,033	€159,820	€12,578	€271,751	€3,214	€179,574	€77,021	€206,660
February	28,365	€30,061	€10,749	€143,416	€9,965	€221,051	€2,790	€151,970	€65,685	€170,668
March	31,481	€39,947	€12,028	€156,534	€12,340	€281,406	€3,144	€187,274	€77,032	€189,405
April	29,514	€37,926	€11,685	€156,009	€12,316	€276,931	€3,096	€184,890	€76,209	€183,444
May	29,005	€38,775	€12,215	€162,200	€12,648	€284,347	€3,226	€196,174	€80,479	€187,668
June	27,715	€37,125	€11,787	€154,405	€12,276	€272,759	€2,932	€190,003	€78,111	€183,602
July	26,280	€38,273	€12,014	€160,065	€12,780	€284,504	€3,151	€201,572	€79,150	€189,223
August	27,864	RE38,000	RE11,930	RE158,380	RE12,793	RE288,489	RE3,168	RE206,178	RE81,659	RE188,396
September	28,534	RE36,730	RE11,508	RE153,007	RE12,433	RE286,922	RE3,127	RE203,376	RE80,595	RE180,628
October	30,458	€37,819	€11,580	€159,876	€12,786	€302,739	€3,255	€210,463	€83,051	€192,553
2021 10-Month	290,849	€374,621	€117,530	€1,563,713	€122,914	€2,770,899	€31,104	€1,911,475	€778,991	€1,872,248
2020 10-Month	277,593	402,965	145,169	1,670,885	137,342	2,661,673	31,685	1,614,394	718,834	1,983,195
2019 10-Month	271,437	440,185	165,140	1,636,109	153,704	2,659,158	36,315	1,454,751	694,135	2,185,713

See footnotes at end of table.

Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2016-2021

(million cubic feet) – continued

Year and Month	Oklahoma	Pennsylvania	Texas	Utah	West Virginia	Wyoming	Other States	Federal Gulf of Mexico	U.S. Total
2016 Total	2,468,312	5,210,209	7,225,472	365,268	1,384,458	1,662,909	559,985	1,200,669	28,400,049
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									
January	255,006	576,440	737,375	23,148	169,050	125,391	39,987	90,143	2,974,830
February	229,666	519,802	678,066	21,007	154,910	117,653	35,427	76,743	2,705,249
March	250,919	578,820	758,646	23,266	171,516	125,044	39,436	92,017	3,008,808
April	250,314	560,062	727,527	22,751	167,816	123,615	38,348	87,201	2,925,844
May	266,014	571,803	781,002	23,531	171,305	128,320	38,958	87,738	3,046,445
June	243,339	556,708	766,761	22,780	174,784	124,341	37,968	81,599	2,956,304
July	254,709	583,186	804,899	22,987	180,524	116,782	38,381	66,834	3,071,698
August	257,498	585,405	837,459	23,261	181,927	120,984	38,570	91,237	3,146,384
September	256,073	568,646	798,191	22,080	181,334	126,696	37,301	84,094	3,056,535
October	261,454	589,800	828,390	22,559	201,814	130,259	37,566	86,636	3,186,150
November	251,153	597,779	815,089	21,869	196,055	123,894	36,861	83,661	3,133,926
December	259,905	608,342	845,084	22,570	204,178	125,876	37,220	87,441	3,234,746
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	€657,704	€774,497	€19,235	€234,432	€106,649	€33,651	€68,393	€3,110,352
February	€163,094	€585,221	€588,035	€17,815	€208,571	€96,543	€30,083	€62,325	€2,586,408
March	€220,130	€647,681	€771,346	€20,356	€227,218	€107,236	€34,338	€72,867	€3,091,762
April	€214,334	€618,509	€775,796	€19,861	€229,075	€103,470	€33,044	€69,696	€3,035,804
May	€223,372	€640,431	€798,311	€20,312	€234,118	€105,441	€33,844	€67,642	€3,130,208
June	€213,314	€621,905	€781,294	€19,587	€227,987	€100,983	€32,490	€67,779	€3,036,055
July	€221,002	€642,894	€821,587	€20,363	€229,376	€104,558	€33,626	€70,488	€3,150,909
August	RE222,329	RE655,525	RE820,135	RE20,335	RE241,373	RE102,121	€33,126	RE61,046	RE3,172,847
September	RE216,452	RE633,940	RE798,810	RE19,849	RE216,452	RE102,974	RE31,895	RE35,593	RE3,052,827
October	€224,279	€657,641	€832,476	€20,516	€240,581	€105,193	€33,543	€60,910	€3,219,720
2021 10-Month YTD	€2,139,851	€6,361,451	€7,762,287	€198,229	€2,289,183	€1,035,168	€329,640	€636,739	€30,586,892
2020 10-Month YTD	2,333,982	5,895,337	7,813,993	203,482	2,137,046	1,099,199	340,762	661,681	30,129,216
2019 10-Month YTD	2,524,994	5,690,671	7,718,315	227,369	1,754,981	1,239,084	381,943	844,241	30,078,246

E Estimated data.

RE Revised estimated data.

Notes: For 2021 forward, state monthly marketed production is estimated from gross withdrawals using historical relationships between the two. 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 are individually collected 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 2021, Federal Offshore Pacific is included in California. All data for Alaska are obtained 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 due to independent rounding.

Sources: 2016-2020: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2020*, Bureau of Safety and Environmental Enforcement (BSEE), IHS Markit, Enverus DrillingInfo, and BENTEK Energy. January 2021 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; and EIA computations.

2022 Will be decisive in fight against terrorism – Nyusi

1:24 CAT | 31 Dec 2021



Photo: in file CoM

Mozambican President Filipe Nyusi declared on Wednesday that 2022 will be a decisive year in the battle against the terrorist groups that have been active in the northern province of Cabo Delgado since October 2017.

Speaking in his capacity as Commander-in-Chief, at the headquarters of the Northern Operational Command, in the Cabo Delgado district of Mueda, Nyusi urged the defence and security forces to step up the fight against terrorism.

They should pursue the enemy relentlessly, he said, since they knew where many of the terrorists were now hiding, after they had been driven out of much of Palma, Quissanga, Muidumbe and Macomia districts.

Cited by the independent television station STV, Nyusi said there was no time to lose in pursuing the terrorists. He demanded that the Mozambican forces capture or eliminate the jihadist leaders, now that they are on the run, thanks to the offensives of the Mozambican forces and their Rwandan and SADC allies.

“You don’t kill the snake by its tail, but by its head”, he told the troops.

He also urged the defence forces to be especially vigilant during the New Year celebrations. “The enemy normally takes advantage of festive occasions to launch its attacks, and you must not allow this”, Nyusi declared.

Meanwhile the terrorists have continued to attack villages in the neighbouring province of Niassa. According to a report in the independent newsheet “Carta de Mocambique”, last Monday a group of around 20 terrorists attacked the village of Alassima in the Niassa district of Mecula.

Mecula is on the border between Niassa and Cabo Delgado, and villages there have come under attack since late November. The villagers of Alassima fled towards the district capital, Mecula town, in search of safety.

There were no reports of deaths in Alassima, but three days earlier, on 24 December, five people were murdered in a raid on Naulala village.

Residents complained that, even with the nearby presence of the armed forces, the raiders were able to enter Naulala and burn down houses.

Nonetheless, the Mecula district administrator, Antonio Joaquim, claimed “the situation is under control, because the defence and security forces are working”.

But he insisted that vigilance by the local population was fundamental. “We cannot let down our guard”, he said, “and we must inform the authorities of any strange movements”.

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

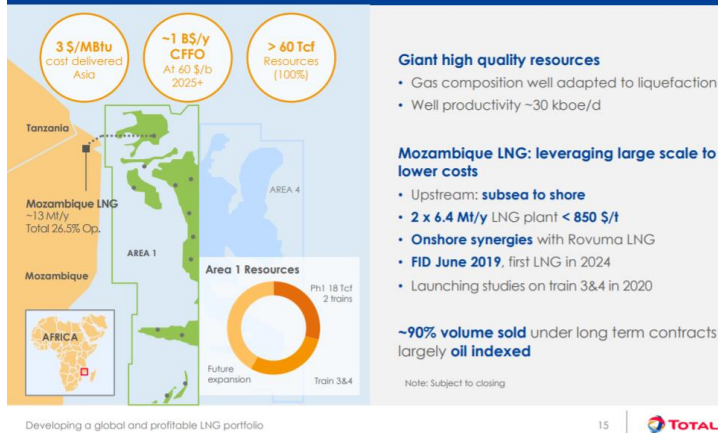
Posted Wednesday April 28, 2021. 9:00 MT

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

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

Total Mozambique Phase 1 and 2

Mozambique LNG: unlocking world-class gas resources



Source: Total Investor Day September 24, 2019

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

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

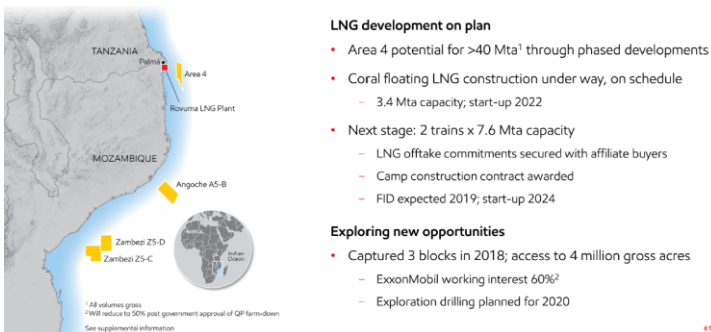
Mozambique's security issues pushes back 5.0 bcf/d of new LNG supply at least a couple years. The global LNG issue is that 5 bcf/d of new Mozambique LNG supply (apart from the Eni Coral FLNG of 0.45 bcf/d) won't start up in 2024 and

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

Exxon Mozambique LNG

UPSTREAM MOZAMBIQUE

Five outstanding developments



Source: Exxon Investor Day March 6, 2019

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

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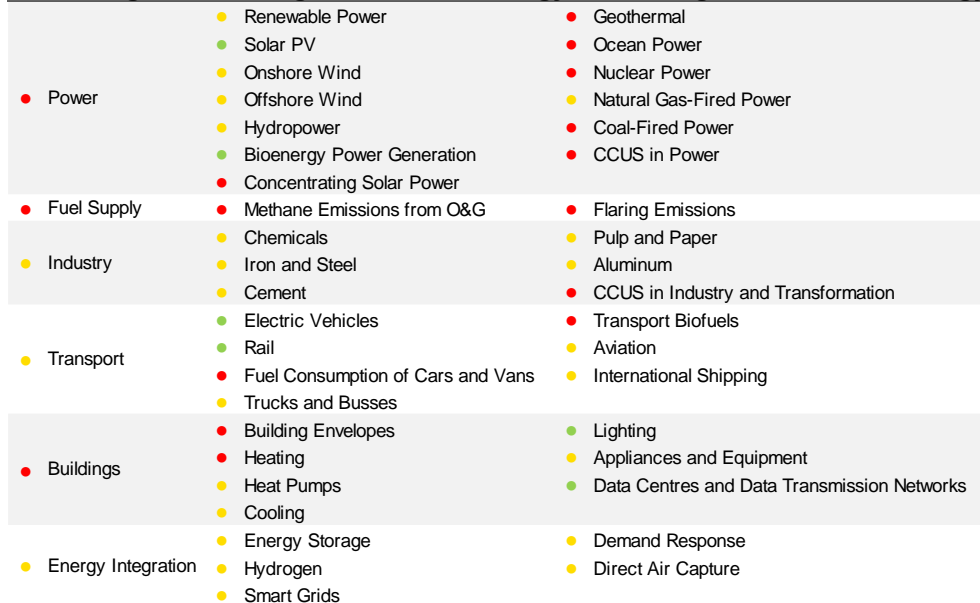
[\[LINK\]](#) lines up with his campaign platform including to put the US “on the path to achieving 100 percent carbon-free electricity by 2035.” Our July 28, 2020 blog noted that it would require replacing ~60% of US electricity generation with more renewable and it could eliminate ~40% (33.5 bcf/d)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

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

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

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

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



Source: IEA

● On Track
 ● More Efforts Needed
 ● Not on Track

Source: IEA Tracking Clean Energy Progress, June 2020

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

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

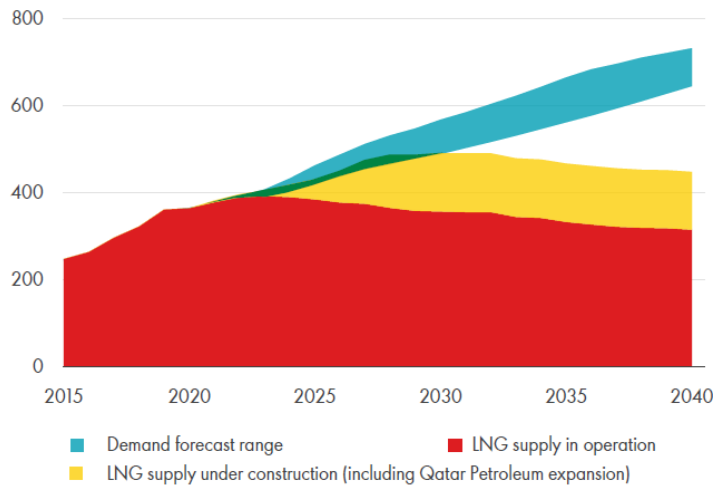
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would have reflected some delay, perhaps 1 year, at Mozambique but would be surprised if they put a 2-3 year delay in for the 5 bcf/d from Total Phase 1 +2 and Exxon Rozuma Phase 1. Compared to their LNG Outlook 2020, it looks like there was no change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

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

Emerging LNG supply-demand gap

MTPA



Source: Shell LNG Outlook 2021, Feb 25, 2021

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

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

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

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

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

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

Three's (Not Always) A Crowd - Qatar Stresses Scale In New Round Of LNG Expansion

Monday, 12/27/2021

Published by: [Bob Tippee](#)

Among the 21 countries able to liquefy methane and export LNG, Australia, Qatar, and the U.S. are the hands-down leaders, holding more than half the world's liquefaction capacity among them. For now, Australia holds the top position but its capacity buildout is all but complete. While a number of liquefaction projects are planned Down Under, only one has reached the final investment decision (FID) stage in 2021, and it's relatively small. Future growth seems much more likely to come from the two other big guns. Developers in the U.S. are cautiously thawing the plans for LNG projects they put on ice in mid-2020, when global natural gas prices slumped along with economies during the early months of the COVID-19 pandemic. And in February, Qatar, which was runner-up to Australian capacity until it slipped to third place due to recent U.S. additions, took FID on the first of two supersized projects to expand its LNG capacity. In today's RBN blog, we discuss Qatar's expansion plans and how they relate to developments elsewhere.

As regular readers of RBN blogs know, talk about developing new U.S. liquefaction capacity represents a welcome contrast to conditions in mid-2020, when offtakers were canceling LNG cargoes and construction plans were being delayed or canceled amid collapsing project economics. This year, as we pointed out in [Crossroads](#), the market has swung into undersupply. Pandemic-suppressed economies are recovering (fingers crossed), [LNG prices are soaring in Europe and Asia](#), and prospects are brighter for several projects, not only in the U.S. but in Canada and Mexico as well, as we described in our [Go West](#) series. The most recent edition of the [RBN LNG Voyager Quarterly Report](#) identifies nine LNG trains under construction at six U.S. projects. These new trains alone would add 52.1 million tonnes per annum (MMtpa; ~6.9 Bcf/d) to U.S. liquefaction capacity, which now totals 80.05 MMtpa (10.6 Bcf/d). And at least 13 other U.S. capacity-expansion projects are in early stages of development, with widely varying prospects for advancing to FID. Underlying decisions about construction in the U.S. and elsewhere are expectations that rising global gas demand will make more liquefaction capacity necessary and that price relationships will reflect that need.

The prospects for major growth in LNG supply are reinforced by Qatar's decision in February to increase its liquefaction capacity by more than 30 MMtpa to 110 MMtpa (14.6 Bcf/d) in a project that is estimated will also yield the equivalent of 67 Mb/d of ethane, 260 Mb/d of condensate, 130 Mb/d of LPG, and 20 tons/d of pure helium. The initial step might be followed by a second phase that would add a further 16 MMtpa (2.1 Bcf/d) of liquefaction capacity. A distinguishing feature of both projects, and of Qatar's existing LNG industry, is train scale. Both expansion steps incorporate what Qatari industry observers call "mega trains" with capacities of 7.8 MMtpa (1.0 Bcf/d) each, nearly double the size of the next-biggest units currently in operation.

Another distinguishing feature of Qatar's projects is governmental control. State-owned Qatar Energy, which until last October was known as Qatar Petroleum (QP), holds majority interests in all 14 of the country's LNG trains, which are operated by subsidiary Qatargas in joint ventures (JVs) with international companies (Figure 1). That control is slowly consolidating. In 2018, QP merged a separate operating company, Ras Laffan Liquefied Natural Gas Co. Ltd. (RasGas), with Qatargas. And in March 2021, QP announced it would not renew its 25-year JV agreements in Qatargas 1, which operates Qatar's original three LNG trains, and will assume 100% ownership on January 1, 2022 (red oval in Figure 1).

Qatargas Joint Ventures, LNG Trains, and Interests				
Joint Venture	Date Established	LNG Train Number	LNG Capacity (MMtpa)	Interests
Qatargas 1	1984	1, 2, and 3	3.3 each	Qatar Energy (65%), ExxonMobil and Total (10% each), Mitsui and Marubeni (7.5% each); <i>Qatar Energy to own 100% as of Jan. 1, 2022</i>
Qatargas 2	2004	4	7.8	Qatar Energy (70%) and ExxonMobil (30%)
		5	7.8	Qatar Energy (65%), ExxonMobil (18.3%), and Total (16.7%)
Qatargas 3	2005	6	7.8	Qatar Energy (68.5%), ConocoPhillips (30%), and Mitsui (1.5%)
Qatargas 4	2007	7	7.8	Qatar Energy (70%) and Shell (30%)
RL*	1993	1 and 2	3.3 each	Qatar Energy (63%), ExxonMobil (25%), Korea Ras Laffan LNG (5%), Itochu (4%), and LNG Japan (3%)
RL (II)*	2001	3, 4, and 5	4.7 each	Qatar Energy (67%), ExxonMobil (31%), and OPIC Middle East Natural Gas (2%)
RL (3)*	2005	6 and 7	7.8 each	Qatar Energy (70%) and ExxonMobil (30%)
TOTAL			77.4 MMtpa (10.3 Bcf/d)	
*Built by Ras Laffan Liquefied Natural Gas Co. Ltd. (RasGas), which was integrated with Qatargas in 2018.				

Figure 1. Qatargas Joint Ventures, LNG Trains, and Interests. Source: Qatargas

All of Qatar's LNG trains are in Ras Laffan Industrial City on the country's northeast coast (red ship icon in Figure 2). They receive and liquefy natural gas from the offshore North Field (green area in map), the world's largest reserves of gas unassociated with oil at more than 900 trillion cubic feet (Tcf). The huge Persian Gulf reservoir extends across Qatar's maritime boundary with Iran, where it is known as South Pars field (brown area). Qatar's government set the new round of LNG expansion in motion in 2017 when it lifted a 12-year moratorium on North Field development.

Qatar North Field and Ras Laffan LNG export project



eia Source: U.S. Energy Information Administration
Representation of international boundaries and names not authoritative

Figure 2. Qatar North Field and Ras Laffan LNG Export Project. Source: EIA

Qatar’s newly sanctioned \$28.75 billion expansion is named North Field East (NFE) and is to be developed with the drilling of 80 wells to supply feedgas to new liquefaction trains. Qatargas plans to start up NFE facilities in the fourth quarter of 2025. JV partners and interests haven’t been determined. In June, Minister of State for Energy Affairs Saad Sherida Al-Kaabi, president and chief executive officer of what was then QP, said that bidding for the NFE project had attracted offers for twice the equity available to potential partners.

The possible second expansion, North Field South (NFS), would push Qatar’s liquefaction capacity to 126 MMtpa (16.7 Bcf/d) with the construction of two more mega-trains. Qatargas envisions NFS startup in 2027 and expects to discuss project details in the first quarter of 2022.

To support its LNG projects, Qatar Energy in June 2020 entered into agreements with shipyards in Asia to reserve an estimated 60% of global shipbuilding capacity through 2027 for at least a near doubling of its LNG carrier fleet (Figure 3).

Qatargas’s Chartered LNG Vessel Fleet		
Vessel Type	Number	Capacity (cubic meters)
Conventional	25	135,000-152,000
Q-Flex	31	210,000-217,000
Q-Max	14	263,000-266,000

Figure 3. Qatargas’s Chartered LNG Vessel Fleet. Source: Qatargas

Like most growing LNG exporters, Qatar Energy is emphasizing environmental performance, which, as we've discussed in many blogs (such as [Only The Strong Survive, Part 3](#)), is generally viewed as essential to the success of new projects. At a press conference about the company's new name, Al Kaabi embraced energy decarbonization and said the change "reflects our understanding of the global changes and our response to the need to protect our planet and the environment." And the effort goes beyond rebranding. The NFE project includes a carbon capture and sequestration (CCS) system to be integrated with a larger scheme in Ras Laffan. Also, the project will receive much of its electrical power from the national power grid, which will include an 800-megawatt (MW) solar energy project under construction at Al-Kharsaah and a similar-sized solar project planned by Qatar Energy. Among other environmental innovations, NFE has a jetty boil-off gas system to reduce greenhouse gas (GHG) emissions by 1 million MT/year of carbon dioxide-equivalent.

For any company or country, LNG construction risks large amounts of capital for long-term projects whose economic viability depends on the interplay of difficult-to-predict variables like gas demand in end-use markets, transportation costs, and prices of delivered LNG and feedgas. Many projects never progress from planning to FID, and some that do reach FID sometimes stall when the economic viability turns doubtful. The pandemic-related swings from go-go LNG planning in the U.S. to project delays and cancellations and back to the measured growth of the moment show how rapidly momentum can shift. Even with its advantages of scale, proximity to markets, governmental support, and low feedgas cost, Qatar's NFE and NFS projects can also be vulnerable to adverse market changes.

The bar chart in Figure 4 breaks down the projects in the Top 3 countries into four categories: existing (blue bar segments), projects with FIDs that are either under construction or awaiting start of construction (orange segments), pre-FID projects we judge as likely to be built (gray segments), and pre-FID projects with weaker prospects (yellow segments). It should be noted that U.S. natural gas production is a little shy of 100 Bcf/d (see our [NATGAS Billboard](#) for details) and so it would be unrealistic to assume that export capacity would ever approach half that total. Even assuming that many of the "possible" projects in that last category will not be built, it seems all but certain that within the next few years the U.S. (right bar) will be the LNG capacity leader. Discounting the yellow, "possible" projects, Qatar (center bar) would be a close second and Australia (left bar), now with 88 MMtpa (11.7 Bcf/d) of capacity, would slip into third place.

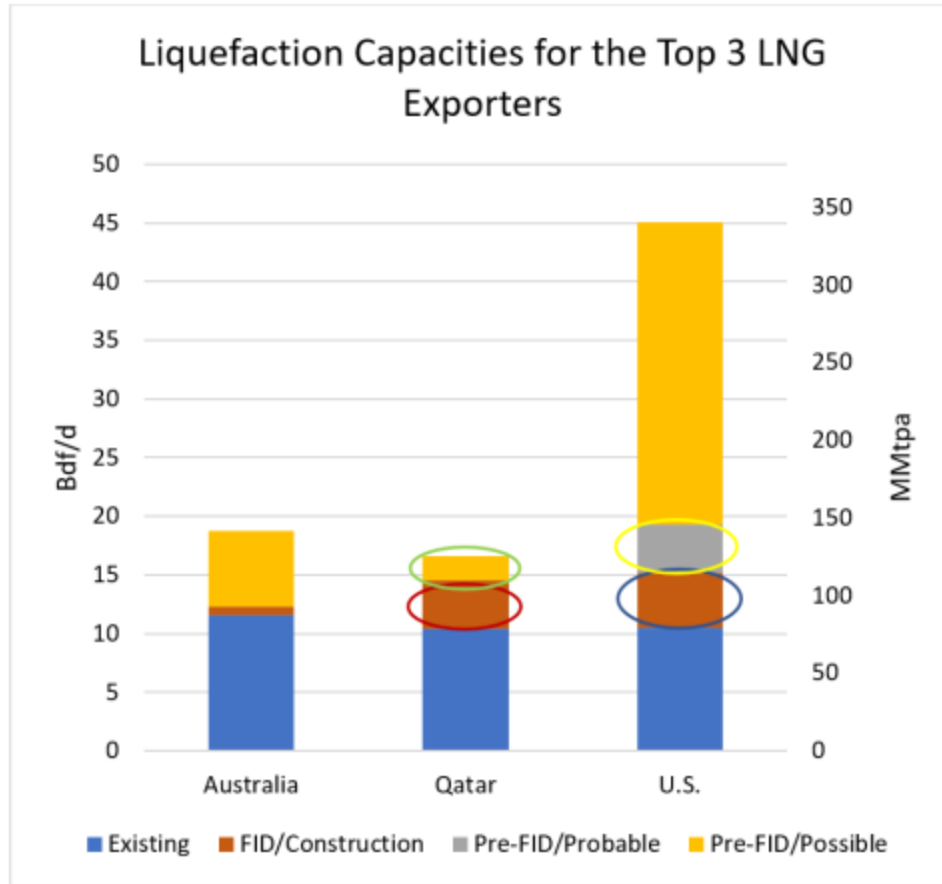


Figure 4. Liquefaction Capacities for the Top 3 LNG Exporters (in Bcf/d).

Sources: RBN, Qatargas, International Gas Union, project announcements

Australia’s only recently sanctioned project (in November) is Woodside’s development of a 5.3-MMtpa (700-MMcf/d) second train at the Pluto LNG plant near Karratha, Western Australia. We understand that most other planned LNG spending in Australia will be for field development to backfill gas supplies of existing plants and that no major liquefaction capacity additions are likely for at least several years. Qatar’s preference for scale shows up clearly in Figure 4. Its post-FID capacity under development, totaling 31 MMtpa (4.1 Bcf/d; red oval), reflects just one project: NFE. The nearly equivalent U.S. total, 35.5 MMtpa (4.7 Bcf/d; blue oval), represents four: new trains at Sabine Pass and Corpus Christi and the new Golden Pass and Calcasieu Pass facilities. (In the three-train, 15-MMtpa (2-Bcf/d) Golden Pass facility, Qatar Energy holds a 70% interest with ExxonMobil and will be able to price LNG sales based on Henry Hub linkage, which it has been unwilling to do for supplies from Qatar.) The gray segment in the U.S. bar (yellow oval) represents three pre-FID liquefaction projects we classify as “probable” in RBN’s [LNG Voyager](#) report: Plaquemines, Driftwood Phase 1, and Corpus Christi Phase 3, which we detailed in [The Race is On](#). We’re leaving Qatar Energy’s NFS project as “pre-FID/possible” (green oval).

Although other countries are adding liquefaction capacity, none is within striking range of the current leaders. Even if, as seems likely, Australia slips to third place behind the U.S. and Qatar, its position will be solid. Malaysia ranks a distant fourth in liquefaction capacity with 31.7 MMtpa (4.2 Bcf/d). Although the rankings will probably change, the Top 3 will remain the world’s LNG capacity leaders.

“Three’s a Crowd” was written by George Jones, Darrell Edwards and Herby Treece. It appears as the first song on Side 1 of George Jones’ 10th studio album, *The New Favorites of George Jones*. “Three’s a Crowd” is a classic country cheatin’ song with the line: “One is lonely, two’s a marriage, three’s a crowd.” Personnel on the record were: George Jones (lead vocals) and unknown studio musicians.

The New Favorites of George Jones was recorded in Nashville and produced by Pappy Daily. The album was released in September 1962 and produced one single, "Open Pit Mine," which went to #13 on the Billboard Hot Country Songs Singles chart.

George Jones was an American country music singer, songwriter, and musician. As a solo artist he released 87 studio albums, three live albums, 43 compilation albums, and 134 singles. With Tammy Wynette, he released nine studio albums, five compilation albums, and 14 singles. Jones won three Billboard Awards, five Cash Box Awards, three Grammy Awards, two ACM Awards (including the Pioneer Award), and nine CMA Awards. He is a member of the Country Music Hall of Fame and the Texas Country Music Hall of Fame, a Kennedy Center Honoree, and recipient of a U.S. National Medal of Arts from the National Endowment of the Arts. Writer Nick Tosches described Jones' vocal style as "a voice of exceptional range, natural elegance, and lucent tone. George Jones ranks with Frank Sinatra and Billie Holiday." Jones died in Nashville in April 2013 at the age of 81.

Germany announced no changes in certification of the Nord Stream 2 operator

The head of the German regulator Jochen Homan said earlier that he does not expect a decision on the certification of the Nord Stream 2 operator in the first half of 2022

BERLIN, December 29. / TASS /. There are currently no changes in the situation around the certification of the Nord Stream 2 operator. This was reported on Wednesday to a TASS correspondent at the Federal Network Agency of Germany.

"Our November 16 press release is still the current state of [the situation]," said a spokeswoman for the department. She recalled that earlier at a press conference, the head of the German regulator, Jochen Homan, said that he did not expect a decision on certification of the Nord Stream 2 operator in the first half of 2022, and the operator had not yet received the necessary documents from the operator on the reorganization of the company.

On November 16, the German Federal Grid Agency suspended the certification of Nord Stream 2 AG as an independent transport operator due to organizational and legal issues. The regulator noted that the process will resume when the company, headquartered in the Swiss city of Zug, transfers the share capital related to the German segment to the ownership of the German subsidiary. The process has been suspended until the transfer of major assets and human resources to the subsidiary is completed and the Federal Grid Agency can verify the new documents. As soon as they are received, the countdown of the verification period will start again.

The construction of Nord Stream 2 was fully completed on September 10, 2021. It was originally planned to be completed by the end of 2019, but construction was delayed due to US sanctions. The gas pipeline consists of two lines with a total capacity of 55 billion cubic meters. m per year, which run from the coast of Russia through the Baltic Sea to Germany.

To launch the gas pipeline, you need to obtain registration as an independent transport operator - the Federal Network Agency should have initially published the draft decision by January 8, 2022. This department cannot prohibit the pumping of gas, but if it starts before registration is received, the operator will be fined. This registration is required to comply with the EU Gas Directive.

Северный поток — 2

Газопровод проходит через территориальные воды и исключительные экономические зоны Германии, Дании, России, Финляндии и Швеции.

- Северный поток
 - Северный поток — 2
 - Границы территориальных вод
- Дали разрешение на строительство:
- Германия
 - Финляндия
 - Швеция
 - Россия
 - Дания



Газопровод состоит из двух ниток



1 230 км

протяженность маршрута

27,5 млрд м³

ежегодная пропускная способность каждой нитки

1 нитка =

100 000 труб

#

Dan Tsubouchi

Meeting on heating season

The President held a meeting, via videoconference, on the autumn-winter heating season.

December 29, 2021 18:15 St Petersburg

Meeting on heating season (via videoconference).

1 of 2

Meeting on heating season (via videoconference).

The meeting was attended by Presidential Aide Maxim Oreshkin, Energy Minister Nikolai Shulginov, Gazprom CEO Alexei Miller, and Director General of Rosseti Andrei Ryumin.

* * *

Excerpts from transcript of meeting on the autumn-winter heating season

President of Russia Vladimir Putin: Good afternoon, colleagues.

The New Year holidays are approaching and by tradition, many of our people will spend them at home, with their families and friends. All of us understand how important it is to ensure, during these long holidays, the reliable, failsafe operation of all housing and utility companies, continuous production cycle businesses, transport, and many other economic and social branches that provide services for the daily life of our cities and villages.

Today, I suggest discussing in detail how the national energy complex copes with peak loads. This year it is taking place against the backdrop of economic recovery and increasing energy consumption. In December, this indicator hit a historical high.

I would like to note that in general the national energy complex is working steadily. That said – I must put it straight – far from all regions keep their grids and equipment in proper condition. Meanwhile, before the start of the heating season, we discussed this situation many times, and I was assured that everything was in excellent shape everywhere. As usual, there are setbacks: some constituent entities of the Federation are facing difficulties in the operation of their housing and utility sectors and require additional material and human resources.

During the news conference last week, a journalist from Buryatia spoke about a major utility accident in Ulan-Ude. True, a fire at a station triggered it, but it was still an accident. Because of this emergency, many city residents were left without hot water and heating. I know that the regional authorities and relevant companies are doing all they can to eliminate the consequences of this accident.

At the same time, it is obvious that the federal authorities must also keep this issue under their permanent control. I would like to hear what measures to help Buryatia have been taken and what the plan is for them.

One more point. Another journalist, from Daghestan, said during the news conference that the region's energy companies are failing to meet the needs of the regional economy and social sphere. I know they have a tangle of longstanding problems such as low payment discipline, a non-transparent and ineffective structure of ownership of generating facilities and grids. I would also like to ask you to specifically look into this problem today.

Again, it is our most important responsibility to make sure that every flat and house, industrial and social facility across the country, every city and community is reliably supplied with heat and electricity. We need to ensure that the housing and utilities system works smoothly and accurately, especially in winter, during low temperatures, that energy resources are supplied regularly, predictably and at affordable prices. By the way, unfortunately, this is far from the case today in many countries.

The situation in the housing and utilities sector is primarily the responsibility of the regions and municipalities, and it is clear why. This industry is huge, and it is better to monitor locally the state of the heating and power grids, generating facilities, boiler houses, etc., to check what sections should be put into operation and when and what needs to be repaired in time.

At the same time, I would like to point out that the relevant federal ministry and the Government also need to constantly monitor the hands-on situation in the regions. Consumers do not have to care whose responsibility it is – it is important that everything functions properly, especially in those places where the climate is the most severe.

In those climates, any accident or abnormal situation can have the most serious consequences. It is extremely important to respond to emergencies quickly, as quickly as possible, to help our colleagues in the regions deal with any problem that might emerge.

Today I ask you to report on the tools and mechanisms you propose to employ in emergencies, as well as on your systemic work that is being done to improve the reliability of energy distribution. In this regard, let me remind you that housing and utility upgrades are among the key projects eligible for the easy-term infrastructure loans we provide to the regions.

I would like to close my opening remarks with yet another important matter. As you are aware, steady gas supply to the domestic market is our top priority when it comes to expanding gas infrastructure in our country, which is why major gas infrastructure development projects are underway in the regions. Residents of communities with pipeline gas availability will have gas brought to their houses before the end of 2022, as agreed.

To ensure reliable and stable distribution for the long term, the domestic fuel and energy companies are carrying out long-term development plans and developing new fields. Given the challenging circumstances our foreign partners are now in, Russia can increase gas exports.

The first string of the Nord Stream 2 gas pipeline was filled with technical gas in October. As I understand it – and I want Mr Miller, Gazprom CEO, to cover this in his report – the second string Nord Stream 2 will be filled with gas today. This pipeline's total capacity is 55 billion cubic metres of gas, all supplied to our colleagues in Europe.

Again, I would like Mr Miller to cover this in detail. This additional route will undoubtedly help stabilise prices on the European market. I would like you to discuss this at the meeting today as well as the overall situation in Europe, because our main consumers are in Europe.

Let's move on to discussing the issues under review.

<...>

Gazprom CEO Alexei Miller: Mr President,

Ensuring a successful heating season in Russia is Gazprom's main task. Prior to pumping gas from underground storage facilities, we had 72.638 billion cubic metres of reserve gas. It is possible to pump 847.9 million cubic metres daily. Reserve gas volumes and daily pumping capacities have hit an all-time high in this country.

There was a steep drop in ambient temperatures in Russia from the second week of December. On December 23, the average temperature was minus 17 degrees Celsius in all regions covered by the Unified Gas Supply System. This is 9.3 degrees lower than the average seasonal level. These days gas supplies to Russian consumers on the domestic market and the pumping of gas from the country's underground gas reservoirs have reached an all-time high for the last 10 years since 2012.

At the same time, Gazprom has, as always, reliably supplied gas to Russian consumers and to our customers abroad, and it continues to do so. We completely fulfil our export contract obligations under long-term bilateral contracts in accordance with specific requests.

As of today, 12.36 billion cubic metres of gas, or 17 percent of all reserve gas, have been pumped from Russia's underground storage facilities which are now filled to 83 percent of their capacity.

Mr President, as per your instruction, Gazprom pumped its own gas into Europe's underground reservoirs throughout November and December. In late December, the volume of gas involved will total one billion cubic metres.

On December 21–25, European operators pumped record-breaking volumes of gas from underground European reservoirs, reaching the highest levels for many years. Today, Europe's underground reservoirs have been depleted by 44 percent, and those of Germany, by 47 percent.

At the same time, it should be noted that reserve gas volumes in Europe's underground reservoirs are 21 billion cubic metres less than for the same period in 2020. They are 28 percent or almost one-third lower. Underground reservoirs have a substantial shortage of gas, and this continues to have a serious impact on the European gas market.

Gazprom has completely fulfilled its obligations under a contract to pump gas via Ukrainian territory. We were to pump 40 billion cubic metres of gas, and we have already pumped 41.5 billion cubic metres of gas via Ukraine. On December 24, Ukraine's underground reservoirs hit an all-time low in terms of reserve gas volumes. Today, Ukraine holds less than 14 billion cubic metres of gas reserves, which is ten billion less than it had in late December 2020.

Mr President, today at 12.58 pm Moscow time Gazprom completed filling the second string of Nord Stream 2, and now both legs of the pipeline are at the operating pressure and ready to go. The Nord Stream 2 gas pipeline has a design capacity of 55 billion cubic metres per year and is the longest offshore gas pipeline in the world, at 1,234 kilometres.

Mr President, the Nord Stream 2 gas pipeline is ready for operation.

<...>

Vladimir Putin: I would like to congratulate Gazprom and your Nord Stream 2 partners on the completion of this project to build this large additional pipeline and on this pipeline being ready for operation. Now the start is up to our partners, consumers in Europe, in Germany. As soon as they make the decision on the launch of operation, a large additional amount of Russian gas will immediately begin to flow towards Europe. Let me remind you that we are talking about 55 billion cubic metres a year. By the way, this should immediately affect the price on the market, on the spot market. And all those countries and consumers of Russian gas are bound to feel it right away. This applies to businesses and households alike.

Even in Ukraine, this should shift prices downward, because they buy a significant amount of Russia-produced gas at European market prices, which are fairly high – \$1,000 or more, \$1,000 per 1,000 cubic metres. This will immediately influence the prices in a country like Ukraine, which, for political reasons, unfortunately, refuses to

buy gas directly from Russia and has to pay such a high price because of this. But if the Nord Stream begins operation, it will also have a positive effect on prices for a country like Ukraine.

But again, now it is our European partners' turn to act, and it is up to them. We have completed a project to develop this additional gas transportation route with our partners, by the way, European companies, with five European companies. Nord Stream 2 is ready to go.

So much for our exports. I would like to return to where we started, back to the matters that brought us together today. We need to make sure that Russia goes through the period of the lowest temperatures safely and reliably, without any failures. We know that certain disruptions are inevitable in such cold weather as we observe today. As long as the response is instantaneous, and all repairs are performed as quickly as possible and with high quality, people will not feel any disruptions in the energy system's operation.

I would like to ask Mr Maxim Oreshkin and his colleagues to prepare draft instructions following this meeting.

Happy New Year, everyone!

Goodbye, and all the best.

DEC 30, 02:04

Germany did not rule out the stop of Nord Stream 2 in the event of a conflict between the Russian Federation and Ukraine

Vice-Chancellor of Germany Robert Habeck stressed that the government does not intend to interfere in the approval process of the project



Vice-Chancellor, Minister for Economic Affairs and Climate Protection of the Federal Republic of Germany Robert Habeck
© AP Photo / Markus Schreiber

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BERLIN, December 30. / TASS /. Vice-Chancellor, Minister for Economic Affairs and Climate Protection of the Federal Republic of Germany Robert Habeck did not rule out the imposition of sanctions against Nord Stream 2 in the event of a military conflict between Russia and Ukraine, while stressing that the government does not intend to interfere in the approval process of the project. He stated this on the air of the ZDF TV channel, excerpts from which the DPA agency cites on Thursday .

"We are a rule-of-law state, and permits are issued in accordance with the law. Politicians should focus on the political sphere," Khabek said. However, he argued, "in light of the situation in eastern Ukraine and the build-up of the Russian army there, [it may] need to make a political decision on what sanctions to impose under certain circumstances if it comes to a heated conflict again."

The Vice-Chancellor welcomed the planned bilateral talks between Moscow and Washington on Ukraine on January 10. "If the United States and Russia talk to each other, it's only good," he said. At the same time, Habeck called on Europe to "use its own formats, its own chances" for a dialogue with the Russian Federation. Among them, he named the Normandy format and the Russia-NATO Council.

Recently, in Western countries, as well as in Kiev, allegations have been made about a possible Russian invasion of Ukraine. The press secretary of the Russian president Dmitry Peskov called such information empty and groundless escalation of tension. He stressed that Russia poses no threat to anyone. At the same time, Peskov did not rule out the likelihood of provocations from Ukraine to justify such statements and warned that attempts to resolve the crisis in Donbass by force would have the most serious consequences.

Novak named oil price comfortable for Russia in 2022

According to the Deputy Prime Minister of the Russian Federation, this is \$ 65-80 per barrel

MOSCOW, December 29. / TASS /. The oil price of \$ 65-80 per barrel in 2022 will be comfortable for Russia, its volatility in the market is not excluded. This was stated by Russian Deputy Prime Minister Alexander Novak in an interview with RBC , published on Wednesday.

"Now the price of oil is about \$ 75 per barrel. Next year the price of \$ 65-80 per barrel will be comfortable for us. I deliberately take such a large range, because volatility in the market is not excluded. In principle, our budget in 2021 is balanced at \$ 43 , 3 per barrel, for 2022 \$ 44.2 is provided, and the forecast of socio-economic development assumes higher prices, "Novak said.

Novak added that "the market has been stable, with the ever-growing demand this year being supported by a recovery in production." "We expect that total demand in 2021 will grow by about 4.5-5 million barrels per day. 4 million barrels per day, "the Deputy Prime Minister said.

"There has been a major rebound in the global economy after the fall last year (primarily due to lockdowns). Now we are seeing that even the spread of new strains of the delta and omicron coronavirus does not have the same effect on reducing population mobility. countries have adapted and fewer of them are "closed." Of course, vaccination also affects this - in 195 countries, billions of doses of vaccines have already been made, "Novak said.

Oil consumption continues to rise despite the ongoing pandemic, he said. "This suggests that the economy continues to recover. Growth will continue next year," he said.

He also said that the government is approaching the issue of increasing oil production, which was asked by countries such as the United States and China, systematically because of the long-term vision of the development of the market situation.

"We believe that it is more correct for the market in the mid-term to determine how much we will increase production in response to an increase in demand. Mining companies must understand in advance what investments to plan in order to ensure an increase in production. We cannot constantly ensure production fluctuations - up, down ", - said the Deputy Prime Minister of the Russian Federation.

He also noted that it should be borne in mind that in winter there is usually a fall in demand by 2 million barrels compared to summer consumption.

Novak stressed that some countries are not calling on their companies to increase production of shale oil, which has dropped significantly over the past two years. On the contrary, they deliberately limit their production, the Deputy Prime Minister said. There is a contradiction in their actions, he noted.

Oil production

Russia will maintain oil production at 550-560 million tons until the end of 2030. The distribution between the domestic market and exports will depend on the market situation, Novak said.

"Our companies are implementing their long-term production plans based on the forecast of oil consumption in the world market and taking into account the decrease in the share of hydrocarbons [in the energy balance]. Until 2030, we forecast that production in Russia will remain at the level of 550-560 million tons. This is spelled out in the strategy energy development until 2035. The distribution between the domestic market and exports will depend on the market situation, "Novak said.

He also added that the Russian Federation is guided by the forecast of an increase in demand. "Next year, consumption of about 100 million barrels per day is expected worldwide. I think that it will increase to 110 million barrels by 2030. The physical volume of oil will grow, but its share in the energy balance will decrease," the Deputy Prime Minister said.

When asked about a possible 30% reduction in oil production by 2030 in the event of insufficient energy spending, Novak said that "in theory, this is feasible." "But at the same time, it is impossible to reduce oil consumption by 30% by 2030. How can production be reduced if there is demand?" - he said.

On September 2, the head of the Ministry of Energy of the Russian Federation Nikolai Shulginov said that the volume of oil production in Russia at the end of 2021, taking into account the OPEC + restrictions, could reach 506 million tons, which is 1% less than in 2020. At the same time, the volume of processing exceeds the last year's indicator by 2%. The head of the Ministry of Energy added that the volume of oil production with condensate could reach a pre-pandemic level by May 2022.

Gas supplies to Europe

Russia is ready to increase the volume of gas production and supplies to meet demand in Europe in any volume, but long-term contacts are needed, Novak said.

"Physically, we are ready to increase production and supply volumes. The resource base that exists in Russia allows us to meet the demand of European consumers in any volume. But, of course, this is not a quick process, because the policy that was carried out in the EU was aimed at reducing demand. . "Gazprom" needs long-term contracts, because to increase production requires large investments, which should pay off in the long term, "- said Novak.

He added that Russia is accused of not supplying additional volumes of gas to Europe. "Enter into long-term contracts, we will be ready to supply more. This offer is always valid," the Deputy Prime Minister said.

"The European Commission is deliberately abandoning the basic principles - from long-term investments in the industry and long-term contracts in favor of spot contracts. Spot involves the satisfaction of applications in the near future, without understanding what will happen on the market in the medium and long term," Novak said. In his opinion, the lack of investment in the industry and long-term contracts in favor of the spot, the fall in domestic gas production, the cold winter of 2020-2021, as well as the risks of its recurrence, became the main reasons for the rise in gas prices in the EU.

In October, Russian President Vladimir Putin emphasized that gas supplied by Gazprom to Europe under long-term contracts costs the EU countries four times cheaper than purchased on the spot market. According to the head of state, Russia is interested in long-term contracts, while the philosophy of the EU countries in regulating the gas market has recently been to abandon long-term contracts in favor of spot contracts, which are supposedly a more market instrument. At the same time, in 2021 it turned out that it was more profitable to supply gas to Asia and Latin America, and not to Europe, which was one of the reasons for the crisis, Putin noted.

On the situation in the global gas market

The global gas market is facing a supply crunch amid a sharp recovery in Asian demand and a shortage of liquefied natural gas (LNG) capacity. The increased demand for gas in Asia caused a rise in prices and pulled off the main supply of LNG, which contributed to the intensification of the crisis in Europe. There, the situation was aggravated by low reserves in gas storage facilities.

Against this background, the gas price at the Dutch TTF hub in the fall of 2021 for the first time in history exceeded the mark of \$ 1,000 per thousand cubic meters. m, and in December - and \$ 2,000 per thousand cubic meters. m. However, the price of futures on the TTF hub is volatile due to the speculative factor and does not reflect the real price of physical supplies to Europe.

The average gas export price under Gazprom contracts in 2021 will be \$ 280 per thousand cubic meters. .

We're Here For A Good Time, Part 2 - What's Driving The Wider WCS/WTI Price Spreads?

Sunday, 12/26/2021

Published by: [Martin King](#)

You would expect the start-up of Enbridge's Line 3 Replacement project early this fall to have eased the constraints on crude oil pipelines from Western Canada to the U.S. — and it did. You'd also expect that L3R coming online would narrow the price spread between Western Canadian Select and West Texas intermediate — but it didn't. The latest widening of the WCS-WTI spread, one of many in recent years, is another reminder that oil price differentials can be affected by many factors other than pipeline capacity availability. In today's RBN blog, we discuss the host of issues that affect this all-important Canadian oil price metric.

Over the past two decades, Canadian crude oil producers and shippers have often found themselves short of pipeline capacity to transport rising production to the U.S., their primary export market. These episodes typically resulted in deeper price discounts for Western Canadian Select (WCS) and other crude oil streams out of Canada versus West Texas Intermediate (WTI).

The solution would seem to be simple: Add more pipeline export capacity to reduce or eliminate the periods of deeper WCS price discounts. Building out new pipeline capacity has proven to be an immense regulatory and legal challenge over the years, but expansions have still occurred, with the latest addition being an upgrade to part of the existing Enbridge Mainline network, a series of crude oil pipelines that link Alberta to refiners in the U.S. Midwest, as well as important refiner destinations in Eastern Canada.

That upgrade — the Line 3 Replacement (L3R) project, which was discussed in [Part 1](#) — involved the replacement of nearly all 1,100 miles of the original Line 3 pipeline to increase its capacity from a previously pressure-restricted 390 Mb/d back to its originally intended 760 Mb/d. After working its way through a multi-year legal and regulatory quagmire, Enbridge finally brought the L3R project into service on October 1. The L3R start-up increased available pipeline export capacity out of Canada to a level higher than existing production, seemingly solving the WCS price discount problem, at least for the time being. However, as we noted near the end of [Part 1](#), the price of WCS actually trended to a *deeper* discount versus WTI *after* the L3R project had begun operations and was already transporting light and heavy crude oil to the Midwest and Eastern Canada.

This would seem to be the opposite of what one would expect. In the months and especially weeks before L3R came online, the WCS-WTI price spread (blue line in Figure 1) had narrowed considerably into the range of \$12/bbl (dashed green oval), the tightest for this price spread since the spring, when intense turnaround activity [reduced oil sands-related output](#) and freed up pipeline capacity. With pipeline transportation costs from Alberta and the Midwest pegged in the range of \$8 to \$12/bbl, depending on the destination, the price spread seemed to be capturing the appropriate transportation cost-adjusted discount for Canadian heavy oil barrels, rather than deeper discounts often related to a lack of pipeline capacity. In other words, it looked like the market was looking with favor upon the eagerly anticipated additional pipeline capacity.

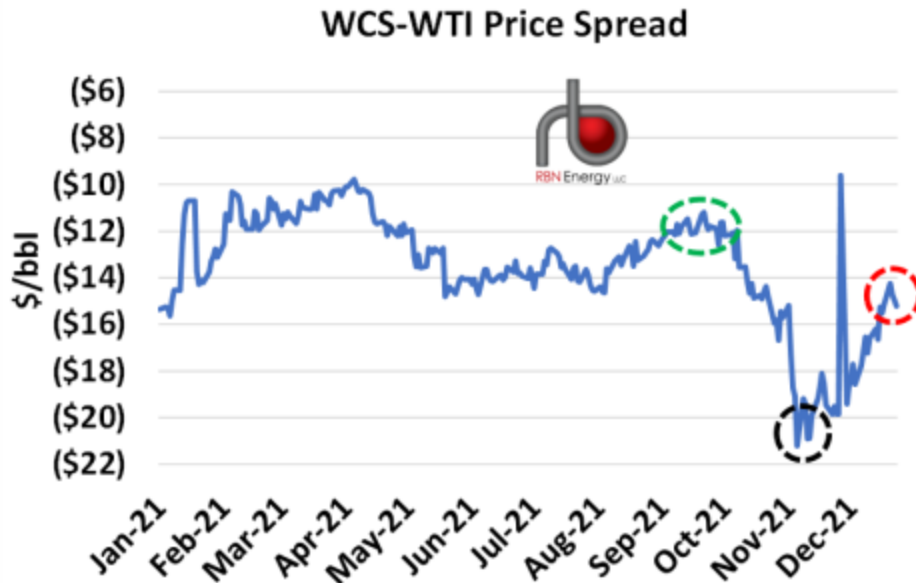


Figure 1. WCS-WTI Price Spread. Source: Bloomberg

But, as Robert Burns once wrote, “The best-laid plans of mice and men often go awry.” No sooner did L3R begin service than the price spread began to widen. By November 5, it had reached \$21.22/bbl (dashed black circle in Figure 1), a widening of \$9.60/bbl since the beginning of October. Since that low point, the spread narrowed to around \$15/bbl by mid-December (dashed red circle), but still \$3/bbl wider than just before L3R started up. (There was a brief spike in the price spread around the Thanksgiving holiday in the U.S., when WTI prices collapsed by about \$10/bbl, spurring WCS prices to do something similar soon thereafter.)

Does the widening of the price spread after the L3R start-up mean that Canadian producers filled the additional pipeline capacity immediately, or that not all the additional capacity was actually available? As with so many things in the complex dynamics of crude oil pricing, the most recent widening and subsequent narrowing of the spread is about more than just infrastructure issues. Although sufficient available pipeline capacity clearly plays a critical role in the efficient connection of regional markets and the pricing of crude oil that reflects the reality of transportation costs between these markets, many other factors can drive short-term swings in the price spreads that separate various crude oil streams such as WCS and WTI.

We think some of the most important drivers for the widening of the price spread in October and November, along with a few others, can be summarized as below:

- With about 80% of Canadian crude oil exports supplying a little more than 70% of the crude used by Midwest refiners, they form the single largest demand component for Canadian exports. As (bad) luck would have it, refinery runs in the first week of October suddenly fell (dashed black oval in Figure 2) as a refinery outage, combined with the onset of other seasonal maintenance, rapidly cut Midwest crude runs by about 300 Mb/d for the remainder of the month and most of November. The reduction quickly undermined demand for heavy Canadian crude, forcing a widening of the WCS-WTI price spread. Typically, Canadian production and refinery demand are not this suddenly mismatched as upstream maintenance in the oil sands production area is timed to overlap with the seasonal downturns in Midwest (and other regional) refining demand to mitigate the possibilities of undersupply or oversupply.

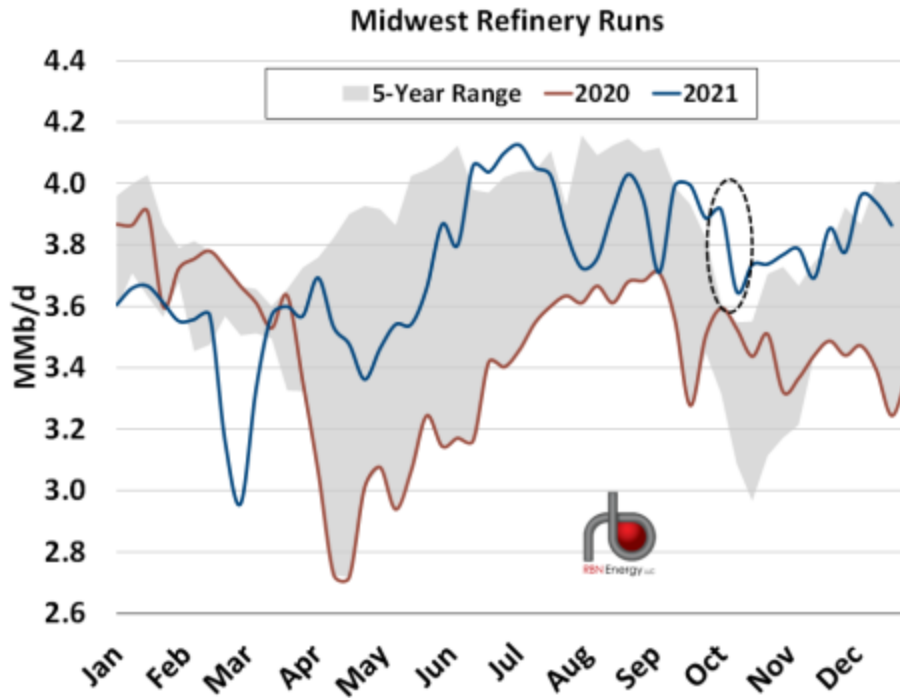


Figure 2. Midwest Refinery Runs. Source: Energy Information Administration

- Around the same time that Midwest refiners were experiencing the sudden reduction in crude runs, it seems Canadian oil producers could not help themselves and began to push up production sharply. In apparent giddy anticipation of the L3R start-up as well as the resolution of other production issues from prior months, Alberta's oil production (Figure 3) rose by nearly 300 Mb/d between September and October to a record 3.84 MMb/d (red bar), mostly driven by higher synthetic crude oil (SCO) production (the upgraded form of oil sands bitumen). Although SCO is not a heavy oil, it does compete for pipeline capacity with other crude streams. Between the 300 Mb/d of lost Midwest refinery demand and the 300 Mb/d production surge in Alberta, the mismatch was in the neighborhood of 600 Mb/d, well in excess of the 370 Mb/d of additional pipeline capacity brought online by L3R.

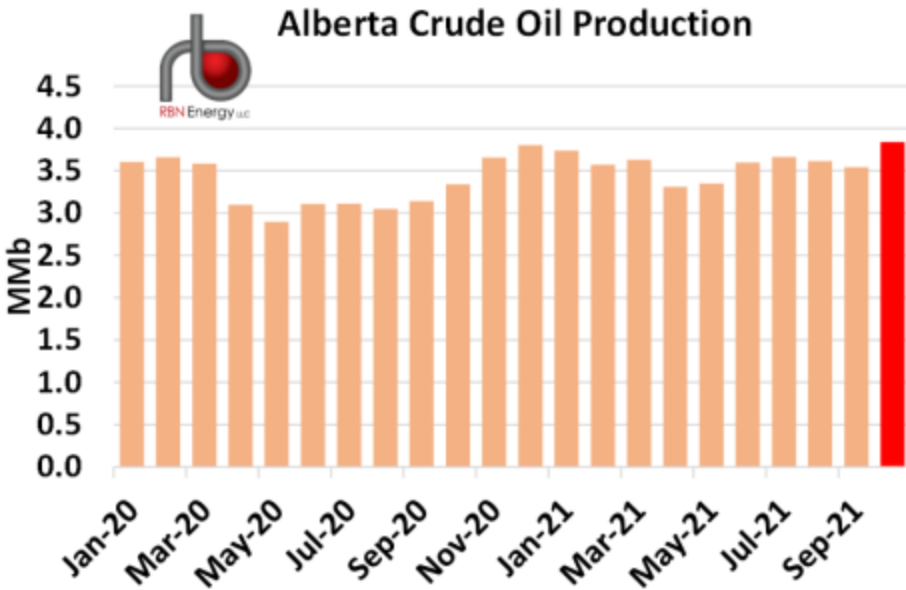


Figure 3. Alberta Crude Oil Production. Source: Alberta Energy Regulator

- Given the degree to which supply and demand were mismatched during October, it is no wonder that Alberta’s inventories of crude oil (Figure 4) hit a record high in the same month (blue bar) — a level not too far below the estimated 84 MMbbl total available capacity (solid black line). With less demand, rising production, and inventories nearing capacity, the stars were aligned for the WCS-WTI price spread to widen, despite the additional pipeline capacity on hand to export crude oil.

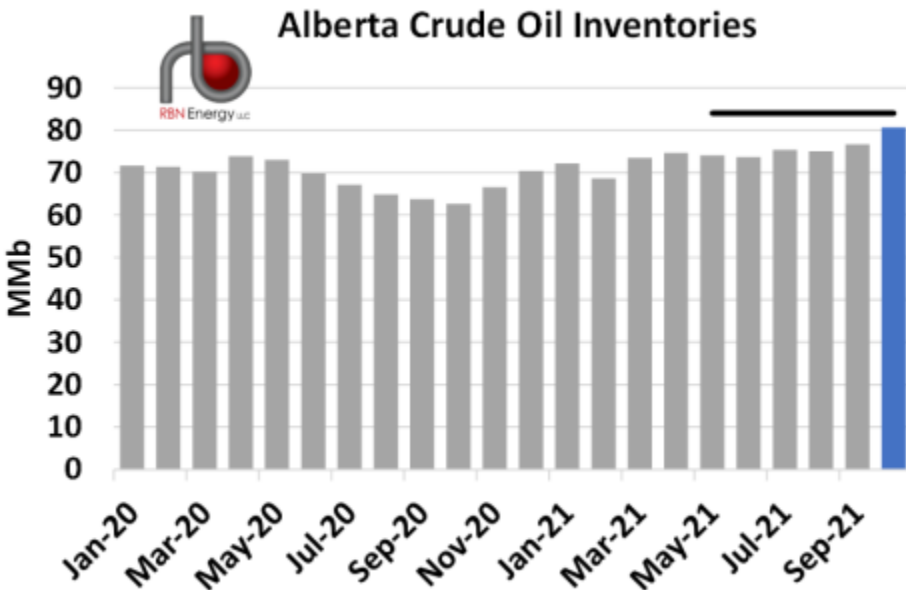


Figure 4. Alberta Crude Oil Inventories. Source: Alberta Energy Regulator

Although supplies may have increased in October, the end result was not another overpacked pipeline unable to accommodate oil flows. Instead, overall apportionment of Enbridge's Mainline, after including the additional capacity from L3R, was actually lower in October and November than it was in September.

In keeping with another old saying — “When it rains, it pours” — there were a few other unwelcome items that affected the Canadian crude oil market during October and November, likely adding some fuel to the fire of widening price spreads at the time. First, the Trans Mountain Pipeline (TMP), which links Alberta to Canada's West Coast and the U.S. Pacific Northwest, experienced a precautionary shutdown of 300 Mb/d of capacity on November 14 due to extensive flooding along portions of the pipeline's route. As we said in [Lost Without You](#), the shutdown from November 14 to December 5 appears not to have had an overly adverse negative impact on the WCS-WTI price spread, as TMP shipped much more light crude oil than heavy crude oil, but it was another factor weighing on the Canadian market and a lack of capacity to move barrels elsewhere.

International crude oil production developments may have also played a small role in the widening of the WCS-WTI price spread. As OPEC (and OPEC+) countries have been [increasing output over the course of 2021](#) in accordance with prior agreements, a sizeable portion of that increased supply is medium and sour in nature. With more of those barrels again reaching the U.S. Gulf Coast in the past couple of months, there has been some pressure on the price spread between medium and heavy sour barrels versus light sweet barrels. The bulk of Canadian crude oil exports are in the form of heavy sour barrels, and with some of these reaching the Gulf Coast at the same time as supplies from producers like Mexico and Saudi Arabia (both members of OPEC+), the increased competition likely created some additional negative feedback on the pricing of Canadian crude, providing another small push to the widening of the WCS-WTI price spread.

Finally, the surge in North American natural gas prices over the summer and fall may have also led to some deterioration in the pricing economics of heavy oil barrels. With natural gas an important input for refineries that utilize it to produce hydrogen to process heavy oil barrels in cokers, the sharp increase in natural gas prices may have marginally reduced the demand for heavy oil for some Midwest and Gulf Coast refiners.

Just like the good times, the bad times do not last forever, and there has been a clear narrowing of the WCS-WTI price spread since the beginning of December (see Figure 1). The most important reason for that narrowing is that Midwest refiners have upped their crude runs by around 300 Mb/d since the beginning of December (see Figure 2), creating additional demand for Canadian barrels. Second, the TMP restart has reopened an important outlet for Canadian production to the West Coast, further alleviating the buildup of barrels in Alberta. What is worth noting since the publication of [Lost Without You](#) is that TMP has informed its customers that the pipeline will be running at about 75% of its 300 Mb/d capacity until at least late January, instead of quickly returning to full capacity as previously announced. This may be a contributing factor to the slow narrowing of the price spread that has been underway during December. Third, natural gas prices are lower than they were back in September and October, helping to improve the economics of running heavy oil barrels through refineries.

Lastly, a very important new development in pipeline infrastructure for Canadian barrels was the recent reversal of the Capline pipeline, which allows crude oil to be sent south from Patoka, IL, to St. James, LA (instead of the opposite). The reversal began interim service December 18, with full service scheduled for January 1. As we discussed in our [Part of the Plan](#) series, this pipeline will open another large outlet and options for Canadian crude oil flowing south toward the Gulf Coast from the Midwest. Although ultimate throughput to the Midwest and other pipelines that connect with Capline will still be dictated by capacity of the Enbridge Mainline (including L3R capacity), further downstream optionality is another welcome development that should help offset some of the temporary pricing upsets that can happen to Canadian barrels when there is a sudden reduction in demand among Midwest refiners, as seen during October and November. Put another way, when Midwest refinery demand pulls back for any reason, some of those unwanted barrels can simply flow through the Midwest and move further south instead of being backed up in Alberta.

As to whether the WTI-WCS price spread will narrow to where it was in late September, around \$12/bbl, remains unclear. After what may have been a leveling off in production in November after the October

increase, Canadian oil producers have been mentioning in year-end conference calls and press releases that they have been increasing production again in December, with further increase being planned for 2022. These increases are likely to result in a gradual filling of all of the available capacity on the Enbridge Mainline, including L3R, over the course of next year, and could weigh on market expectations regarding any further narrowing of the price spread.

At least one “thumbs up” for a structurally improved price spread — and one that seems unlikely to widen to the blowout days of late 2018 when it was in the \$40/bbl range — recently came from the Alberta provincial government. Announcing on December 9 that it was formally ending the policy of [oil production curtailments](#), which were in effect over much of 2019 and early 2020 and were intended to lower oil production to a level more in line with available pipeline capacity, the provincial government cited recently increased pipeline export capacity as one of the major factors driving its decision.

There are clearly many factors, some more transitory than others, that will affect the WCS-WTI price spread and the economic value of Canadian heavy crude oil. For the time being, a lack of pipeline export capacity does not seem to be one of the factors that will negatively affect this value, but we remain diligent in continuing to monitor any developments and will blog about them in the future.

“We’re Here for a Good Time (Not a Long Time)” was written by Ra McGuire and Brian Smith, and appears as the first song on side one of Trooper’s third studio album, *Knock ’Em Dead Kid*. Released as a single in August 1977, the song went to #12 on the RPM magazine chart in Canada. Personnel on the record were: Ra McGuire (vocals), Brian Smith (guitar), Doni Underhill (bass), Tommy Stewart (drums), and Frank Ludwig (keyboards).

Knock ’Em Dead Kid was produced by Randy Bachman (The Guess Who, Bachman-Turner Overdrive), and released in June 1977. It would be Trooper’s first Canadian Platinum (80,000 units sold) album. Two singles were released from the LP.

Trooper is a Canadian rock band developed from a group formed in Vancouver in 1975 by vocalist Ra McGuire and guitarist Brian Smith. McGuire and Smith’s musical relationship goes back to 1967, when they were part of the band Winter’s Green, who released two singles in Canada. Trooper has released nine studio albums, two compilation albums, and 25 singles. Twenty-two members have passed through the band’s ranks since its formation. Singer Ra McGuire released a book, “Here for a Good Time: On the Road with Trooper, Canada’s Legendary Rock Band,” in April 2006. Trooper, with original members McGuire and Smith, still perform live.

Octavio Romero Oropeza presented the 10 tasks to strengthen PEMEX

12/28/2021 | 227

- **It is expected to achieve energy autonomy**
- **Raises a new business strategy to recover the lost market**
- **This decalogue marks the unprecedented support for Petróleos Mexicanos by the Federal Executive**

The CEO of Petróleos Mexicanos (PEMEX), Octavio Romero Oropeza, presented at the National Palace, before the President of the Republic, Andrés Manuel López Obrador, and in the company of the Secretary of Energy, Rocío Nahle, the 10 tasks for PEMEX, through which the Government of Mexico establishes as a priority the support to the Company and marks a new course towards the strengthening of the country in energy matters.

He specified that it is proposed to maintain the value of proven reserves, the requirement of the National Refining System will be covered to serve the domestic market, so oil exports will stop starting in 2023. It is estimated to reach an oil production of 2 million barrels per day in 2024, the production of fertilizers will be promoted, as well as the modernization of gas processing centers and the recovery of the fuel market.

Through these tasks, it is expected to achieve energy autonomy, improve operational, environmental and safety performance, in addition to increasing efficiency and competitiveness, as well as contributing to job improvement.

With the aim of counteracting the asymmetric regulation applied to PEMEX after the Energy Reform of 2015, a new subsidiary was created to achieve the recovery of the Company in the fuel market and strengthen the commercialization of oil, gas and petrochemical products, in by virtue of the impact that the sales of these energies have on the income of Petróleos Mexicanos.

In terms of fertilizers, he indicated that from 2022, 300 million dollars will be invested, of which 216 million come from the surcharge and 84 million dollars from a capitalization of the Federal Government, to continue with the process of rehabilitation of the plants, which above with the objective of increasing the contribution from 24 to 49 percent of the national demand.

He specified that this administration resumed the natural gas exploitation project with the platform in the Lakach field, suspended since 2016, with which PEMEX recovers almost \$ 1.2 billion.

He added that, with the start-up of Gas Bienestar, low-income families are supported and abuse by distributors who have increased prices disproportionately and deliver incomplete cylinders was stopped.

He added that for the next few years a program of attention to more than 1,000 critical security risks, fully identified and validated, will be carried out. Additionally, and for the first time in the company, environmental risks are being considered as critical risks, for which reason they are being given the priority that corresponds to them for their attention in the next three years. PEMEX's accident rate has decreased by 40 percent.

Finally, the head of PEMEX reiterated that the company's commitment to its main asset is its workers, so the objective is to start in February 2022 the basification of 17,000 temporary employees, without increasing the workforce and thereby achieving an employment stability. Likewise, the ladder promotions will recognize performance and functions, with a salary benefit for 21,000 workers.

This decalogue marks the unprecedented support for Petróleos Mexicanos by the Federal Executive, through substantial reductions in the tax burden, direct support for the payment of amortizations of the Company's debt and direct contributions for the construction of the refinery of Dos Bocas and the acquisition of the Deer Park refinery, in Texas, United States of America.

Mentions of Pemex may refer to Petróleos Mexicanos or any of its Subsidiary Productive Companies.

Last modified 12/28/2021 11:36 **AM** Pemex **#PEMEX**

Ecuador oil flow to return to normal in Feb: Update

Published date: 31 December 2021

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Adds ministry comment on force majeure status.

Ecuador expects oil production to return to normal levels in February, after its two main export pipelines that had been threatened by recurring land erosion resumed operations.

State-owned PetroEcuador restarted the 360,000 b/d SOTE crude pipeline after a 20-day suspension caused by works designed to prevent damage from the erosion, energy minister Juan Carlos Bermeo said.

A parallel crude pipeline, the underutilized 450,000 b/d OCP owned by a consortium of other producers, is scheduled to restart today. The OCP was initially slated to restart next week, but the company said work on a ninth bypass was completed ahead of schedule.

Bermeo projects that oil field activity will resume in around seven to 10 days as individual wells are evaluated.

Ecuador's crude production on 25 December fell to a nadir of 36,106 b/d, down by 92pc from an average of around 471,000 b/d from January-November 2021, not including storage withdrawals and internal transfers, according to regulatory data. On 27 December, output recovered to 48,829 b/d. Producers other than PetroEcuador, led by China's state-owned Andes Petroleum, registered zero flows on 22, 23 and 25 December.

The closure of the two strategic arteries in early December prompted Ecuador to declare force majeure on its medium and heavy sour exports on 12 December.

"Crude pumping has restarted, but we have to wait until refining and exports also return to normal in order to lift the force majeure", the energy ministry told *Argus*.

PetroEcuador and the OCP have built multiple bypasses to help safeguard the infrastructure from the advancing erosion of nearby riverbeds.

From January-October the 498km (309mi) SOTE transported around 318,000 b/d of crude to the Pacific coast, according to PetroEcuador data. The 485km OCP transported less than 150,000 b/d before the suspension.

The pipeline shutdowns caused PetroEcuador and other producers to slash oil output and reschedule exports. PetroEcuador also suspended refining at its 110,000 b/d Esmeraldas and 40,000 b/d Libertad refineries.

By Alberto Araujo

Oil production in Colombia registered a slight increase during November 2021

Minenergy. Bogotá, D.C., December 29, 2021. Oil production in Colombia averaged 746,845 barrels per day in November 2021, a slight increase of 0.89% compared to the data reported during October 2021 (740,265 bpd). With respect to the production of November 2020 (760,940 bpd), a decrease of 1.85% was registered.

The increase in production was mainly due to the reactivation of the La Belleza (Plato, Magdalena) field and the reestablishment of production in the Rubiales (Puerto Gaitán, Meta), Jacana (Villa Nueva, Casanare), Tigana (Tauramena) fields. , Casanare), Platanillo (Puerto Asís, Putumayo) and Yariguí-Cantagallo (Cantagallo, Bolívar).

In the first 11 months of 2021, the average oil production reached 735,457 barrels per day, which shows a reduction of 6.1% compared to the same period in 2020, when there was a production of 783,291 barrels per day.

Regarding commercialized gas production, it was 1,101 million cubic feet per day (mcf) in November 2021, which represents a decrease of 2.3% compared to last October (1,127 mcf). However, compared to November 2020 (1,098 mcf), production had an increase of 0.26%.

The decrease in commercialized gas was registered mainly in the Cupiagua (Aguazul, Casanare), Nelson (Pueblo Nuevo, Córdoba), Pandereta (Caimito, Sucre), Cusiana, Carmentea (Tauramena-Casanare), Corazón (Sabana de Torres, Santander) and Ballena (Manaure, La Guajira), due to the reduction in gas demand during the month.

During the first 11 months of 2021, the average production of commercialized gas in Colombia registered an increase of 4.65%, reaching 1,083 million cubic feet per day (mpcpd) compared to the 1,035 mpcpd reported in the same period of 2020.

Finally, during November 2021, the drilling of 5 exploratory wells and 47 development wells began in Colombia, for a total of 34 exploratory wells and 381 development wells so far this year. In addition, during this month 57.9 kilometers of equivalent 2D seismic were acquired, for a total so far this year of 1,250 kilometers.

By Dina Khrennikova and Olga Tanas

(Bloomberg) -- Russia failed to boost oil output last month despite a generous ramp-up quota in its OPEC+ agreement, indicating the country has deployed all of its current available production capacity.

With OPEC+ meeting in two days to consider output policy in the face of the fast-spreading omicron variant, Russia's lack of growth highlights the limits of the group's attempt to boost supply if demand continues to recover. Saudi Arabia, Iraq and the UAE can raise output, but others such as Angola, Nigeria and Kuwait are struggling to meet their quotas.

Russian companies pumped 46.11 million tons of crude oil and condensate last month, according to preliminary data from the Energy Ministry's CDU-TEK unit. That equates to 10.903 million barrels a day -- based on a 7.33 barrel-per-ton conversion rate -- and is flat to November.

It's difficult to assess Russia's compliance with the OPEC+ deal, as the CDU-TEK data don't provide a breakdown between crude and condensate -- which is excluded from the agreement. If condensate output was the same as in November -- some 930,000 barrels a day -- then daily crude-only production was around 9.973 million barrels, about 37,000 barrels below its December quota.

Until recently, Russia ramped up production by restoring operations at wells that were shut-in or idled in spring 2020 as the pandemic shattered global demand. Now any further growth in output will mostly come from newly drilled wells, officials at Lukoil PJSC and Gazprom Neft PJSC said late last year.

OPEC+ will meet Jan. 4 to discuss output plans for February as uncertainty remains over the impact of the omicron strain on energy consumption.

"We'll monitor the situation and see how the market behaves," Deputy Prime Minister Alexander Novak said in an interview with RBC news outlet on Dec. 29, when asked whether the spread of omicron could delay OPEC+ output ramp-ups.

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Novak believes that oil demand will continue after 2050

According to the Deputy Prime Minister, the oil price by 2050 will remain in the range of \$ 40-70 per barrel

MOSCOW, December 24. / TASS /. Oil in current volumes will be in demand in the world for at least the next 10-15 years, and its consumption will continue after 2050. At the same time, the price of oil by 2050 will still remain quite high - in the range of \$ 40-70 per barrel, said Russian Deputy Prime Minister Alexander Novak in an article for the Energy Policy magazine .

"According to preliminary forecasts, in 2040 the demand for oil in various scenarios will amount to 74-114 million bpd (compared to 100 million bpd in 2019). The oil price by 2050 in real terms (that is, in prices 2019) will be in the range of \$ 40-70 per barrel, depending on the scenario, "he said.

"By 2040, more than 70% of the energy balance will come from fossil fuels. At the same time, the most realistic forecasts indicate that, in volumes comparable to the current day, oil will be in demand in the world for at least the next 10-15 years. leaves in 2050, "added Novak.

According to Novak, Russia's efforts as a leading player in the oil market should be focused on maintaining the demand for the country's resources. According to him, for this, it is necessary to work on increasing the efficiency of oil use, technological equipment, ensuring maximum decarbonization of the industry, as well as on the development of the petrochemical sector of the economy.

According to him, the November decision of the United States and a number of major oil consumers to release part of the strategic oil reserves may have only a short-term impact on the market.

Extraction of hydrocarbons

Russian hydrocarbons remain one of the most competitive in the world, more than 50% of their total production are profitable even at an oil price of \$ 20-25 per barrel. In the long term, Russia will not only retain its share of the hydrocarbon market, but also has the ability to increase it, the Deputy Prime Minister noted.

"The prime cost of hydrocarbon production in Russia is one of the lowest in the world. More than 50% of Russian production remains competitive even with oil prices in the range of \$ 20-25 per barrel. Thus, Russia will be able to maintain demand for its oil resources for as long as possible. certain scenarios - even to increase the share of global fossil fuel markets," he said.

Novak also added that hard-to-recover reserves (TRIZ) now account for at least 17% of Russia's oil reserves. At the same time, the total volume of additional production of TRIZ will reach 45 million tons by 2030.

"In turn, this can contribute to additional revenues for the budgetary system in the amount of 200-250 billion rubles per year, the formation of a market for Russian technologies for the production of TRIZ at 200 billion rubles a year, as well as the creation of thousands of new jobs," the Deputy Prime Minister said.

Ministry of Energy: almost all oil produced in Russia in 10 years will become hard-to-recover

Deputy Head of the Ministry of Energy Pavel Sorokin noted that hydrocarbons in the next 25-30 years will still remain the basis of the global energy balance, but their price may fall



Deputy Head of the Ministry of Energy of the Russian Federation Pavel Sorokin

© Petr Kovalev / TASS

MOSCOW, November 24. / TASS /. The quality of oil produced in Russia will deteriorate in 10 years to such an extent that almost all of it will pass into the category of hard-to-recover, that is, the cost of its production will be significantly higher than traditional reserves. Pavel Sorokin, Deputy Head of the RF Ministry of Energy, said this at the conference "Technological Development of the Oil and Gas Industry of the Russian Federation".

"On the horizon of ten years, almost 100% of production will be hard-to-recover," he said. Sorokin recalled that the deterioration of reserves means the need to stimulate oil production in Russia, as well as geological exploration.

Speaking at another meeting - in the Federation Council - he noted that hydrocarbons in the next 25-30 years will still remain the basis of the world energy balance, but their price may fall.

"Hydrocarbons will still form the basis of the energy balance in the next 25-30 years, at least. This means that if the price falls in the long term due to overproduction, then we will not have to reduce production, our place in the market will remain ", - said the deputy minister.

Sorokin also added that fiscal revenues from the sale of hydrocarbons in the future may fall, as well as dividend payments from oil and gas companies in Russia, but the industry will retain the volume of investments and jobs. "This is more important," the deputy head of the Ministry of Energy stressed.

<https://tass.ru/ekonomika/12290253>

SEP 2, 17:44

Ministry of Energy: production of half of oil reserves in Russia is unprofitable at a price of \$ 50 per barrel

Deputy head of the department Pavel Sorokin considers the range of \$ 55-60 per barrel as a balanced oil price for 2022

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MOSCOW, September 3. / TASS /. The production of about half of the oil reserves in the Russian Federation at a price of \$ 50 per barrel is unprofitable. It is worth focusing on working with the current resource base, Deputy Energy Minister Pavel Sorokin said in an interview with the *Izvestia* newspaper published on Friday.

“Even in our current structure of reserves, a significant part of it is unprofitable at a price of \$ 50 - about half there. There is a very large layer of opportunities for working with the current resource base: with small fields, with depleted, with tailing assets, with deeper and more difficult layers. what you need to concentrate on,” Sorokin said.

The Deputy Minister considers the range of \$ 55-60 per barrel to be a balanced oil price for next year, but only after the completion of the recovery in the world of production under the OPEC + deal, which under the current terms of the agreement should take place in May 2022.

“In general, after everyone has restored their production to the pre-pandemic level, all other things being equal (and if there are no shocks), the equilibrium price, we think, is in the range of \$ 55-60,” he said.

Google Translate of TASS Russian story “В Минэнерго сообщили, что рентабельными в России являются только 36% запасов нефти” <https://tass.ru/ekonomika/10559021>

27 JAN, 04:40

The Ministry of Energy said that only 36% of oil reserves in Russia are profitable

Deputy head of the department Pavel Sorokin noted that the development of deep horizons of Western Siberia will require investments comparable to the cost of drilling in the Arctic

MOSCOW, January 27. / TASS /. Only 36% of 30 billion tons of oil reserves in Russia are profitable, which is associated with the deterioration of development conditions and a drop in the quality of reserves, writes the Deputy Minister of Energy of the Russian Federation Pavel Sorokin in an article for the Energy Policy magazine.

"According to the data of the inventory of the economics of field development, carried out on behalf of the Russian government, out of 30 billion tons of recoverable oil reserves in Russia, only 36% is profitable in the current macroeconomic conditions. This is due to the deterioration of development opportunities: an increase in water cut, the need to permeability and compartmentalization of reservoirs, withdrawal into marginal zones and strata with small thicknesses, and so on, "Sorokin explained.

"All this not only increases the cost of production, but also increases the risks of not confirming the planned development indicators due to the complexity of modeling processes and errors during drilling, for example, the exit from the productive formation during horizontal drilling. As a result, for some assets, the actual profitability of drilling may differ significantly from plans, and reserves are not confirmed, "the deputy minister stressed.

According to him, the quality of reproduction of the resource base is also deteriorating. The average size of new field discoveries in 2015-2019 amounted to 9-14 million tons (excluding several large ones on the shelf and the Payakhskoye field). The increase in reserves in recent years is provided by additional exploration in the operating regions of production, as well as by revaluation of reserves. Basically, in traditional regions, the growth is due to the search for missed deposits or drilling into deep horizons. At the same time, the technological complexity of geological exploration increases significantly.

"It is important to understand that the omission of promising formations when using traditional methods of data interpretation is associated with their small size and complexity. Therefore, it is necessary to apply completely new technologies for exploration and modeling of assets," Sorokin said.

Thus, the question of the future of the Russian oil industry is associated with advanced technological development and increased efficiency. "Only this will allow maintaining the position of one of the lowest producers in terms of cost on the world oil supply curve," the deputy minister sums up.

Investments in the further development of Western Siberia

The development of the deep horizons of Western Siberia will require investments comparable to the costs of drilling in the Arctic, which are traditionally very high, Sorokin also noted.

"The development of deep horizons requires increased investment. For example, for the pre-Jurassic complex of Western Siberia, capital expenditures for exploratory drilling are comparable to the Arctic - from 500 million rubles or more per well. In terms of major discoveries, the most promising region is the Arctic and the shelf. Here Several major discoveries have already been made in recent years - Neptune, Triton, Payakha with total reserves of more than 1.3 billion tons of oil However, these basins are poorly studied and, given the high cost of exploratory drilling, it is necessary to use completely new modeling technologies for effective localization hydrocarbon deposits, "Sorokin noted.

"Thus, the question of the future of the Russian oil industry is associated with advanced technological development and efficiency gains. Only this will allow us to maintain the position of one of the lowest producers in terms of cost on the world oil supply curve," the deputy minister added.

According to him, the oil and gas industry is currently facing a number of problems that reduce its competitiveness in the world market.

A common problem is the gradual depletion of reserves in developed fields and a drop in oil production in traditional oil-producing regions. The highest rates are observed in the key oil-producing region of Russia - Western Siberia, where production has decreased by 10% over the past ten years - to 288 million tons, Sorokin concludes.

TASS English Posted Story <https://tass.com/economy/1249505>

27 JAN, 04:26

Only 36% of oil reserves profitable in Russia, energy minister says

This is related to worsening of development opportunities, according to the minister

MOSCOW, January 27. /TASS/. Just 36% of 30 bln tonnes of oil reserves are profitable, Deputy Energy Minister of Russia Pavel Sorokin wrote in his article for the Energy Policy magazine.

"According to data of fields' development economics inventory completed on the instruction of the Russian government, just 36% out of 30 bln tonnes of recoverable reserves of Russian oil are profitable in current macroeconomic environment. This is related to worsening of development opportunities: growing water cut, the need to build costly wells of complex design, low permeability and compartmentalization of reservoirs, the move to marginal areas and beds with low thickness, and so on," the official said.

"All that does not merely increase the lifting costs but also moves upward risks of failure to confirm target development figures because of the complexity of processes modeling and drilling errors, for example, leaving the pay bed in horizontal drilling. The result is the actual profitability of drilling may considerably differ from plans for certain assets and reserves will not be confirmed," Sorokin said.

December 28, 2021 4:30 AM MST Last Updated 13 hours ago

[Middle East](#)

Iran sees Azadegan oilfield development completed by 2023

Reuters

1 minute read

DUBAI, Dec 28 (Reuters) - The development of Iran's largest oilfield, Azadegan, is to be completed by mid-2023 with a total production of 320,000 barrels per day (bpd), the Iranian Oil Ministry said on Tuesday.

The report came as indirect talks between Iran and the United States on salvaging the 2015 Iran nuclear deal resumed on Monday with Tehran focused on lifting sanctions to allow it to sell oil without hindrance and collect its revenue. [read more](#)

Report ad

"With the completion of the development project of this field, #crude_oil production will reach 320,000 barrels per day from the field," said Mohsen Khojastehmehr, CEO of the National Iranian Oil Co. (NIOC), according to the ministry's Twitter account.

In July 2020, a unit of state-run NIOC signed a deal with the local company Petropars to raise output capacity to 320,000 bpd from 140,000 bpd within 30 months at the Azadegan field, Iran's largest, which is shared with its neighbour Iraq, according to state media.

The United States under Donald Trump's presidency withdrew from the nuclear deal in 2018 and reimposed sanctions, slashing Iran's vital crude oil exports and chasing away foreign energy companies from potential Iranian oil projects.

Reporting by Dubai newsroom; Editing by Kirsten Donovan

Our Standards: [The Thomson Reuters Trust Principles.](#)

UAE's Fujairah to move ahead with ADNOC's crude caverns in 2022

HIGHLIGHTS

Dry bulk export facility being built

Caverns will store crude in Fujairah mountains

LNG bunkering may be added

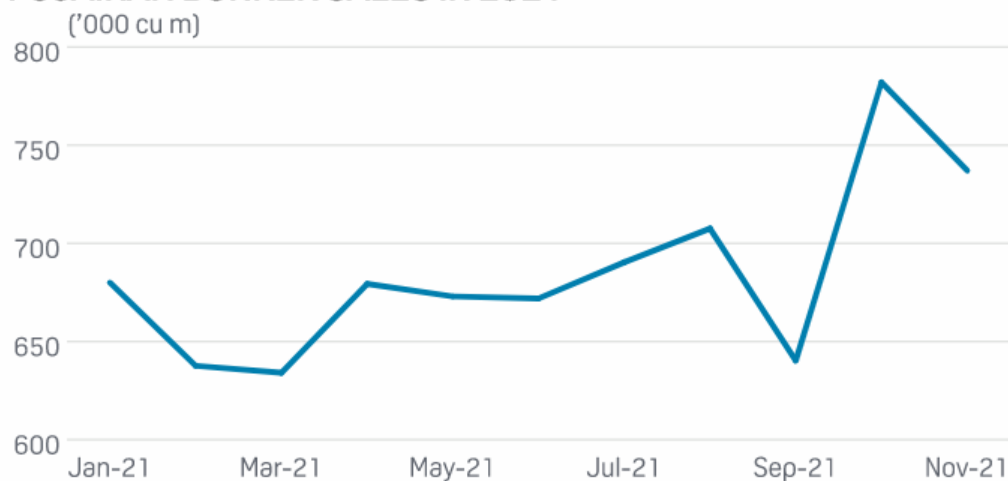
- Author Claudia Carpenter

The UAE's Fujairah port, which is coming off a record year in terms of liquid bulk throughput, is closer to a major expansion of its crude oil storage capacity in 2022 at the same time refineries are planning additions, while container shipping may get a boost when the Etihad Rail connects to the hub.

Abu Dhabi National Oil Co. is building underground caverns in Fujairah to store 42 million barrels of oil, with completion set for 2022. Two other UAE companies -- Ecomar Energy Solutions and Brooge Petroleum -- are investing in storage and refining facilities in the UAE, while the national Etihad Rail is building a link to the Port of Fujairah that could boost container shipping activity. Uniper Energy DMCC, one of three refineries at the port, may also boost its refinery output.

A Dirham 1 billion (\$272 million) dry bulk export facility to ship from Fujairah's Dibba is set to open later in 2022, possibly providing a boost to bunkering activities, while LNG bunkering may also be introduced, Martijn Heijboer, Port of Fujairah business development manager told S&P Global Platts.

FUJAIRAH BUNKER SALES IN 2021



Source: Fujairah Oil Industry Zone

The port probably set record liquid bulk throughput volume in 2021 despite the constraints of the pandemic, he said. Total crude and product volumes handled at the port exceeded 120 million mt in 2020, up from around 110 million mt in 2019, Heijboer said previously. The total figure includes volumes at the port's own Fujairah Oil Tanker Terminals, or FOTT, ADNOC's three single point moorings, the VOPAK Horizon jetty, as well as ship-to-ship transactions, floating storage and bunkering at the anchorage.

Carrying sulfur

Etihad Rail has said it has completed nine tunnels in the Fujairah mountains, with plans to reach Fujairah, without giving a timeline. Stage one started in 2016 and carries sulfur from Abu Dhabi emirate's Shah to Habshan and Ruwais regions.

Fujairah, with its strategic position outside the volatile Strait of Hormuz, has risen rapidly in the last two decades to become the third-largest global bunkering port after Singapore and Rotterdam. At the free zone, just north of the main city, the landscape between the rugged mountains and the ocean is dominated by rows of tall, cylindrical oil tanks on both sides of the highway. Uniper Energy DMCC, which operates one of three refineries at the port, is planning to operate as normal for 2022, although there is "potential for slightly increased production and therefore slightly more supply going forward," the company said in response to a request for a comment on the 2022 outlook.

MURBAN CRUDE OIL EXPORTS FROM FUJAIRAH



Source: Kpler

"It is very likely to see a busy year for Fujairah next year, given incremental crude trade out of the Middle East and the UAE, incremental products demand fully out of COVID-19 and incremental HSFO bunker demand given the resumption of scrubber installations, which were slower than anticipated since the pandemic outbreak in 2020," said Iman Nasser, managing director, Middle East, for FGE consultancy.

If Iran's nuclear talks are successful, and US sanctions on its energy trade are removed, it's not clear whether that would boost or reduce port throughput because Iran may choose to ship its products directly rather than through the port, he added.

Cavern storage

ADNOC has a crude export terminal at Fujairah, fed from its 1.5 million b/d Habshan pipeline. Under one of the mountains, ADNOC is excavating caverns that will form the world's largest single-site underground crude oil storage reserve. ADNOC said it did not have any new information on the project when asked for an update.

"The Fujairah underground oil storage project, upon completion, will strengthen ADNOC's position as a reliable crude oil supplier thanks to its strategic location. Also, it will grant ADNOC more flexibility to manage market changes and seize commercial opportunities," said Dong Wang, analyst, Middle East oil markets at S&P Global Platts Analytics.

Futures trading on ADNOC's Murban, its most important crude oil grade, started in March on the ICE Futures Abu Dhabi exchange (IFAD), with Fujairah an optional delivery point.

The caverns may increase flexibility for Murban buyers who currently "get a short loading window, which is inconvenient," Nasser said. "Caverns and higher IFAD Murban deliveries will support more exports, bring in more VLCCs, and hence incremental bunker demand."

Murban futures have not yet brought many benefits to Fujairah due to COVID-19-related OPEC output constraints, he said. However, ADNOC's crude flexibility program at Ruwais will allow the refinery there to process more than just Murban and much heavier crudes, allowing for more Murban exports, he said. Once ADNOC boosts its crude oil production capacity to 5 million b/d by 2030, from about 4 million b/d currently, that should raise Fujairah's exports of Murban by about 250,000 b/d to 950,000 b/d in the next few years and ultimately boost flows through the ADNOC ADCOP pipeline, which stretches from Abu Dhabi to Fujairah, to full capacity of 1.8 million b/d, he said.



1/4 ASG, Mission Coordinator and Officer-in-Charge of UNSMIL, Raisedon Zenenga, met today in Tripoli with Acting Speaker of Parliament, Mr. Fawzi Al Nouairi, to discuss the latest deliberations in the HoR on finding a way forward on holding elections..>



1:56 PM · Dec 29, 2021 · Twitter for iPhone



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Replying to @UNSMILibya

2/4 ..< as the main priority and the expectation of the 2.8 million Libyan people who had registered to vote.



UNSMIL @UNSMILibya · Dec 29, 2021

3/4 The Mission Coordinator underlined the importance of broad consultations among all relevant Libyan entities and stakeholders towards overcoming the present challenges and charting a path to elections that would bring stability for the country, and..>



UNSMIL @UNSMILibya · Dec 29, 2021

4/4 ..< reiterated continued UNSMIL support to the Libyan-led and -owned political, economic and security tracks. The Acting Speaker shared the main issues discussed by the HoR and the next steps.



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المؤسسة الوطنية للنفط National Oil Corporation

6 hrs ·

The National Oil Corporation announces that it has been decided, starting from midnight of Sunday, January 2, 2022, and at 00:01, to conduct the necessary maintenance operations for the main crude oil pumping line linking between the fields of Samah - Al Dhahra and from there to the port of ESidra.

Waha Oil Company has confirmed that it has completed all the technical equipment to start reducing production until Monday and starting the operations of treating and cutting the lost pipe as of Tuesday, 04 of January 2022, for a period of one week, which means, in numbers, a loss of 200 thousand barrels per day and a loss of sales opportunities exceeding 107 Million US dollars.

Despite all this, the National Oil Corporation and its subsidiaries are keen to reduce the maintenance period and work in a fast-paced manner. We have great confidence in our technical cadres and their ability to work periodically and continuously to resume production.

It is mentioned that the Chairman of the Board of Directors has confirmed on many occasions that "the infrastructure in the oil sector has become in a situation where it is not possible to continue its regular operation due to the large number of leaks and the deterioration of surface facilities, due to the consequences of illegal closures in the past years, as well as the absence of approved budgets for the sector, which It will ensure the preservation of the integrity of the assets of the national oil sector. Moreover, the revenues of the public treasury will be negatively affected, and all this is a result of the failure of decision-making bodies to liquidate approved budgets for the second year in a row.

May Allah Bless Libya

Jan 01 2022

Pakistan Grapples With Natural Gas Shortage

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Published:

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Author [Rakesh Sharma, New Delhi](#)

Editor [Andrew Kelly](#)

Pakistan is facing a shortage of natural gas that has triggered street protests and is forcing power plants to burn fuel oil to keep the lights on.

The crisis has been triggered by suppliers failing to deliver several cargoes of imported LNG as well as a dip in Pakistan's own gas production.

"Homes have no gas to cook or heat water and factories are shut because of no gas," Miftah Ismail — who served a brief term as the country's finance minister in 2018 — said in a Twitter post.

Pakistan is highly dependent on natural gas, which meets about 43% of its primary energy demand.

According to local media reports, suppliers have failed to deliver two LNG cargoes that were scheduled under term supply deals.

That comes after Pakistan's October tender for eight LNG cargoes — four for delivery in December and four in January — did not attract a single bid.

Force Majeure Declared

Local media reports said Gunvor and Eni both defaulted on LNG cargoes scheduled for delivery in November.

Gunvor also told the government that it will also be unable to deliver a cargo due in January, they added.

Meanwhile, Karachi-based brokerage Arif Habib Ltd. estimates that Pakistan's domestic gas production has declined 4% to 3.4 billion cubic feet a day over the last six months.

Energy Minister Hammad Azhar said over the weekend that the LNG suppliers in question invoked force majeure clauses in their contracts.

Pakistan LNG and Pakistan State Oil are looking into whether those claims are valid, he added.

Penalties Applicable

Pakistan has a term LNG contract with Eni for delivery of 750,000 tons per year and a term contract with Gunvor for 780,000 tons/yr.

The price formula for the Eni contract has a "slope" equal to 11.95% of the price of Brent crude oil. The Gunvor contract has a Brent slope of 11.625%.

Azhar said that in the case of a default, the suppliers must pay a penalty equal to 30% of the price of the cargo, adding that they have indicated they are willing to pay the penalty.

With spot LNG prices recently shooting up to levels around \$40 per million Btu in Asia, it has become prohibitively expensive to find replacement spot cargoes to bridge the supply gap, the minister added.

Switch to Fuel Oil

Pakistan has responded to the gas shortage by making greater use of fuel oil for power generation and asking people to cook with electric stoves. It is also cutting gas supplies to industry to meet demand from households.

Consumption of fuel oil, which had been running at around 6,000 tons per day, is likely to reach 14,000 tons per day soon, Azhar said.

The government has imported 200,000 tons of fuel oil and is well stocked to meet demand if there are more defaults on LNG cargoes, he added.

Azhar said Pakistan's gas woes are likely to worsen in the coming years as its gas reserves are falling at an annual rate of 9%, equal to eight to ten years of supply at recent rates of consumption.

However, economic growth has been boosting demand for gas, which means the gap between supply and demand is set to widen.

This means the government will have to shift the country to alternative source of energy such as liquefied petroleum gas or renewable power, because dependence on imported LNG is not sustainable, Azhar added.

Dallas Fed Energy Survey

Fourth Quarter | December 29, 2021

Oil and Gas Activity Continues Expanding; Cost Pressures Intensify

What's New This Quarter

[Special questions](#) this quarter focus on capital spending in 2022; the oil price that firms are using for budgeting; whether countries will meet their commitments for reducing greenhouse gas emissions; upstream firms' primary goals for the coming year; plans for reducing greenhouse emissions; and oil and gas support services firms' expectations for how much selling prices and input prices will change next year.

The oil and gas sector continued growing in fourth quarter 2021, according to oil and gas executives responding to the Dallas Fed Energy Survey. The business activity index—the survey's broadest measure of conditions facing Eleventh District energy firms—remained elevated at 42.6, essentially unchanged from its third-quarter reading.

Oil production increased at a faster pace, according to executives at exploration and production (E&P) firms. The oil production index moved up from 10.7 in the third quarter to 19.1 in the fourth quarter. Similarly, the natural gas production index advanced seven points to 26.1.

Costs rose sharply for a third straight quarter. Among oilfield services firms, the index for input costs increased from 60.8 to 69.8—a record high and suggestive of significant cost pressures. Only one of the 44 responding oilfield services firms reported lower input costs this quarter. Among E&P firms, the index for finding and development costs advanced from 33.0 in the third quarter to 44.9 in the fourth. Additionally, the index for lease operating expenses also increased, from 29.4 to 42.0. Both of these indexes reached their highest readings in the survey's five-year history.

Oilfield services firms reported improvement across all indicators, although the pace of growth for some indicators has slowed. The equipment utilization index edged up from 47.8 in the third quarter to 51.1 in the fourth. The operating margin index remained positive but declined from 21.8 to 11.6. The index of prices received for services also remained positive but fell from 42.2 to 30.3.

Labor market indicators showed further growth in the fourth quarter. The aggregate employment index posted a fourth consecutive positive reading, though it edged down from 14.0 to 11.9. Employment growth continued to be driven primarily by oilfield services firms; the employment index was 22.7 for services firms versus 6.7 for E&P firms. The aggregate employee hours index was largely unchanged at 18.0. The aggregate wages and benefits index moved higher, from 30.3 to 36.6—a record high.

Six-month outlooks improved, with the index remaining positive but declining from 58.9 last quarter to 53.2 in the fourth quarter. The outlook uncertainty index fell to -1.5, with the near-zero reading indicating that uncertainty is relatively unchanged compared with the prior quarter.

On average, respondents expect a West Texas Intermediate (WTI) oil price of \$75 per barrel by year-end 2022; responses ranged from \$50 to \$125 per barrel. Survey participants expect Henry Hub natural gas prices of \$4.06 per million British thermal units (MMBtu) at year-end 2022. For reference, WTI spot prices averaged \$71 per barrel during the survey collection period, and Henry Hub spot prices averaged \$3.76 per MMBtu.

Next release: March 23, 2022

Data were collected Dec. 8–16, and 134 energy firms responded. Of the respondents, 90 were exploration and production firms and 44 were oilfield services firms.

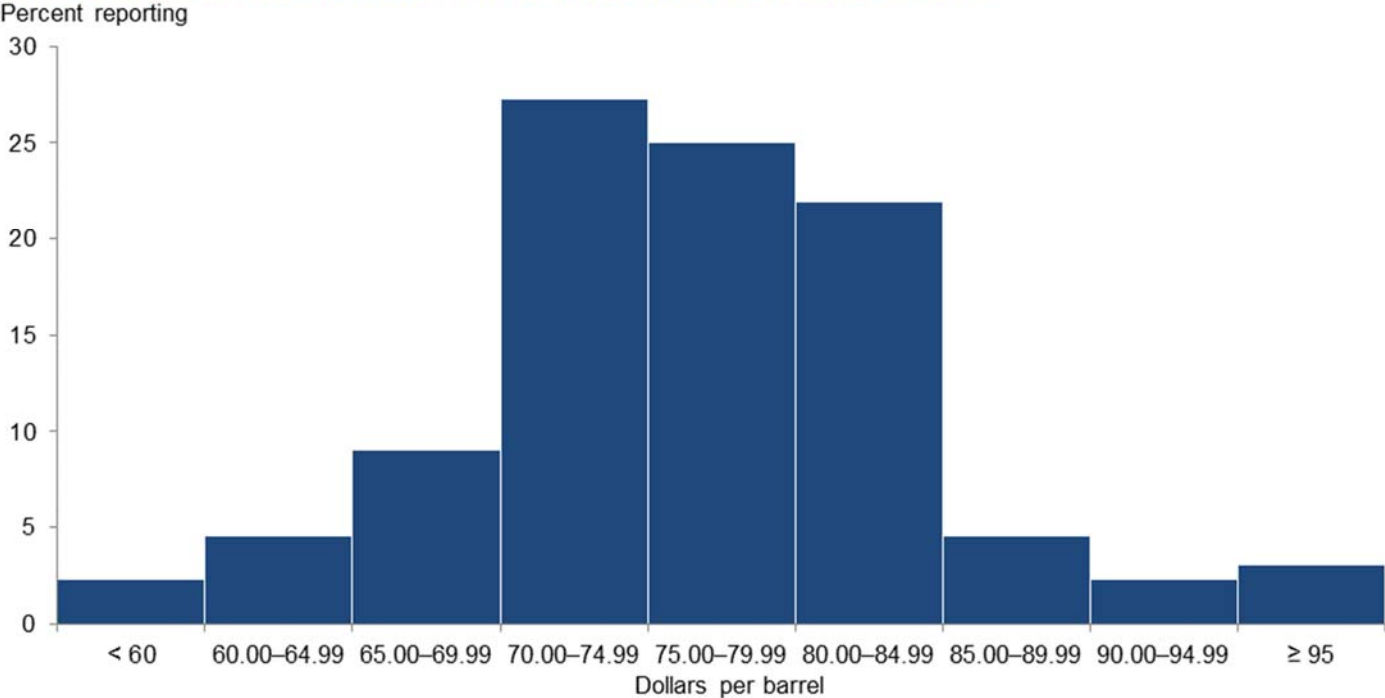
The Dallas Fed conducts the Dallas Fed Energy Survey quarterly to obtain a timely assessment of energy activity among oil and gas firms located or headquartered in the Eleventh District. Firms are asked whether business activity, employment, capital expenditures and other indicators increased, decreased or remained unchanged compared with the prior quarter and with the same quarter a year ago. Survey responses are used to calculate an index for each indicator. Each index is calculated by subtracting the percentage of respondents reporting a decrease from the percentage reporting an increase. When the share of firms reporting an increase exceeds the share reporting a decrease, the index will be greater than zero, suggesting the indicator has increased over the previous quarter. If the share of firms reporting a decrease exceeds the share reporting an increase, the index will be below zero, suggesting the indicator has decreased over the previous quarter.

Fourth Quarter | December 29, 2021

Price Forecasts

West Texas Intermediate Crude

What do you expect the WTI crude oil price to be at the end of 2022?



NOTES: Executives from 132 oil and gas firms answered this question during the survey collection period, Dec. 8–16, 2021. For reference, WTI (West Texas Intermediate) spot prices averaged \$71.43 per barrel during the period. SOURCES: Federal Reserve Bank of Dallas; Energy Information Administration (reference price).

West Texas Intermediate crude oil price (dollars per barrel), year-end 2022

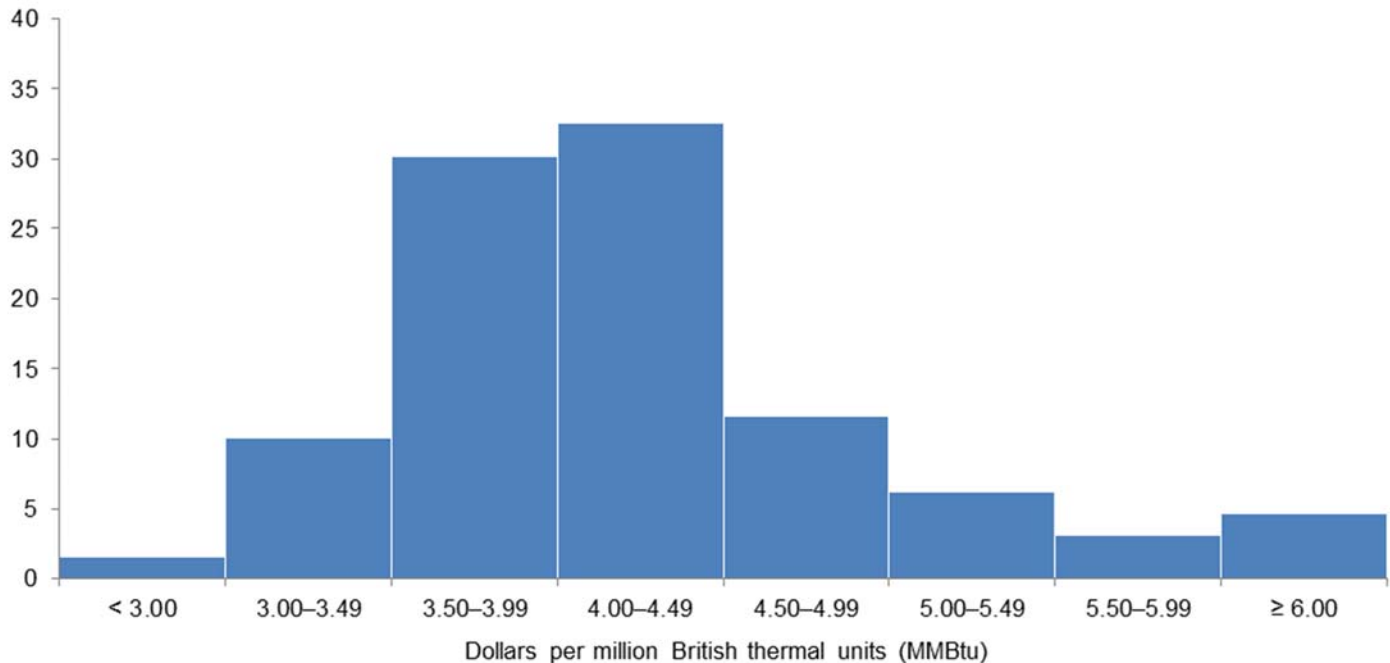
Indicator	Survey Average	Low Forecast	High Forecast	Price During Survey
Current quarter	\$74.69	\$50.00	\$125.00	\$71.43
Prior quarter	N/A	N/A	N/A	N/A

NOTE: Price during survey is an average of daily spot prices during the survey collection period.
 SOURCES: Energy Information Administration; Federal Reserve Bank of Dallas.

Henry Hub Natural Gas

What do you expect the Henry Hub natural gas price to be at the end of 2022?

Percent reporting



NOTES: Executives from 129 oil and gas firms answered this question during the survey collection period, Dec. 8–16, 2021. For reference, Henry Hub spot prices averaged \$3.76 per MMBtu during the period.
 SOURCES: Federal Reserve Bank of Dallas; *Wall Street Journal* (reference price).

[Downloadable chart](#) | [Chart data](#)

Henry Hub natural gas price (dollars per MMBtu), year-end 2022

Indicator	Survey Average	Low Forecast	High Forecast	Price During Survey
Current quarter	\$4.06	\$2.25	\$7.50	\$3.76
Prior quarter	N/A	N/A	N/A	N/A

NOTE: Price during survey is an average of daily spot prices during the survey collection period.
 SOURCES: Federal Reserve Bank of Dallas; Wall Street Journal.

Special Questions

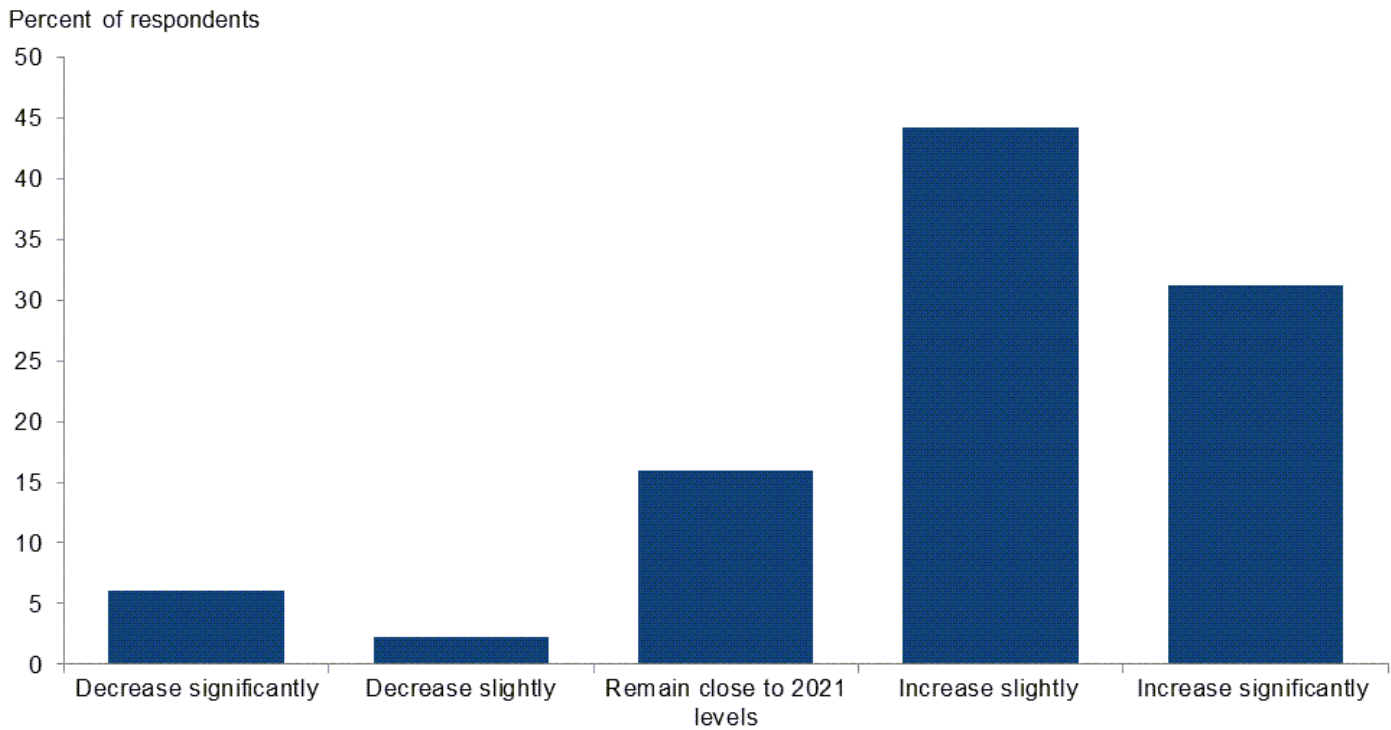
Data were collected Dec. 8–16; 131 oil and gas firms responded to the special questions survey.

All Firms

What are your expectations for your firm’s capital spending in 2022 versus 2021?

Most executives expect their firm’s capital spending to rise in 2022 compared with 2021. Forty-four percent of executives said they expect capital spending to increase slightly, while an additional 31 percent anticipate a significant increase. Sixteen percent expect spending in 2022 to remain close to 2021 levels. Only 8 percent expect reductions in spending in 2022.

A breakdown of the data for exploration and production (E&P) versus oil and gas support services can be found in the table below.



NOTE: Executives from 131 oil and gas firms answered this question during the survey collection period, Dec. 8–16, 2021.
SOURCE: Federal Reserve Bank of Dallas.

[Downloadable chart](#) | [Chart data](#)

Response	Percent of respondents		
	All	E&P	Services
Increase significantly	31	35	24
Increase slightly	44	43	48
Remain close to 2021 levels	16	15	19
Decrease slightly	2	1	5
Decrease significantly	6	7	5

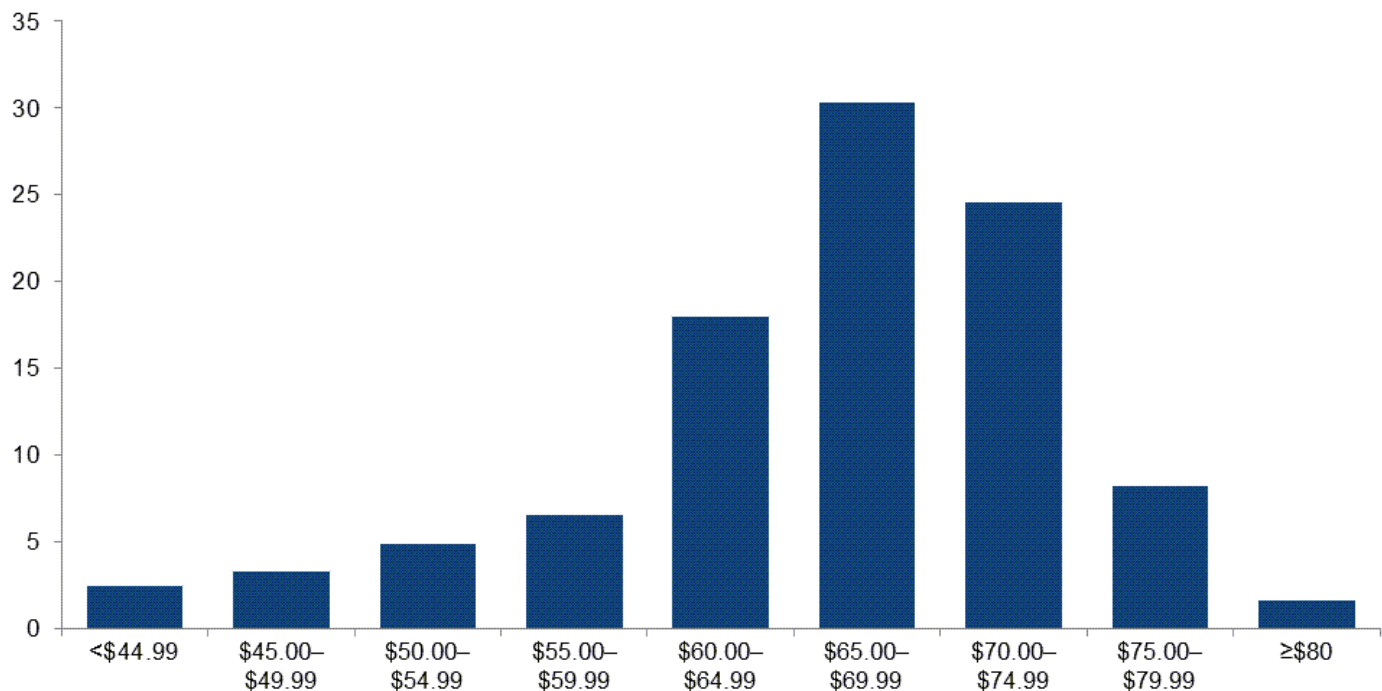
NOTES: Executives from 89 exploration and production firms and 42 oil and gas support services firms answered this question during the survey collection period, Dec. 8–16, 2021. The “All” column reports the percentage out of the total 131 responses. The “E&P” column reports the percentage for exploration and production firms and “Services” reports the percentage for oil and gas support services firms. Percentages may not sum to 100 due to rounding.

SOURCE: Federal Reserve Bank of Dallas.

What West Texas Intermediate crude oil price is your firm using for capital planning in 2022?

For this special question, executives were asked to provide the WTI price they used for planning their capital expenditures in 2022. The average response was \$64 per barrel, with the median and the mode at \$65 per barrel. The average price used is higher relative to what was used for prior budgets (2019: \$54; 2020: \$54; 2021: \$44).

Percent of respondents

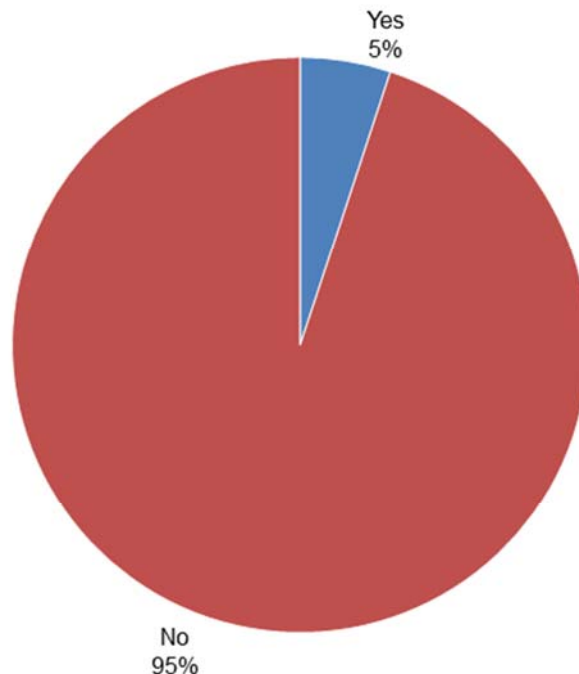


NOTE: Executives from 122 oil and gas firms answered this question during the survey collection period, Dec. 8–16, 2021.
SOURCE: Federal Reserve Bank of Dallas.

[Downloadable chart](#) | [Chart data](#)

Do you believe countries will be able to meet their commitments for 2030 for reducing greenhouse gas emissions?

Ninety-five percent of executives said they believe countries will be unable to meet their 2030 commitments for reducing greenhouse gas emissions. The remaining 5 percent believe they will.



NOTE: Executives from 118 oil and gas firms answered this question during the survey collection period, Dec. 8–16, 2021.
SOURCE: Federal Reserve Bank of Dallas.

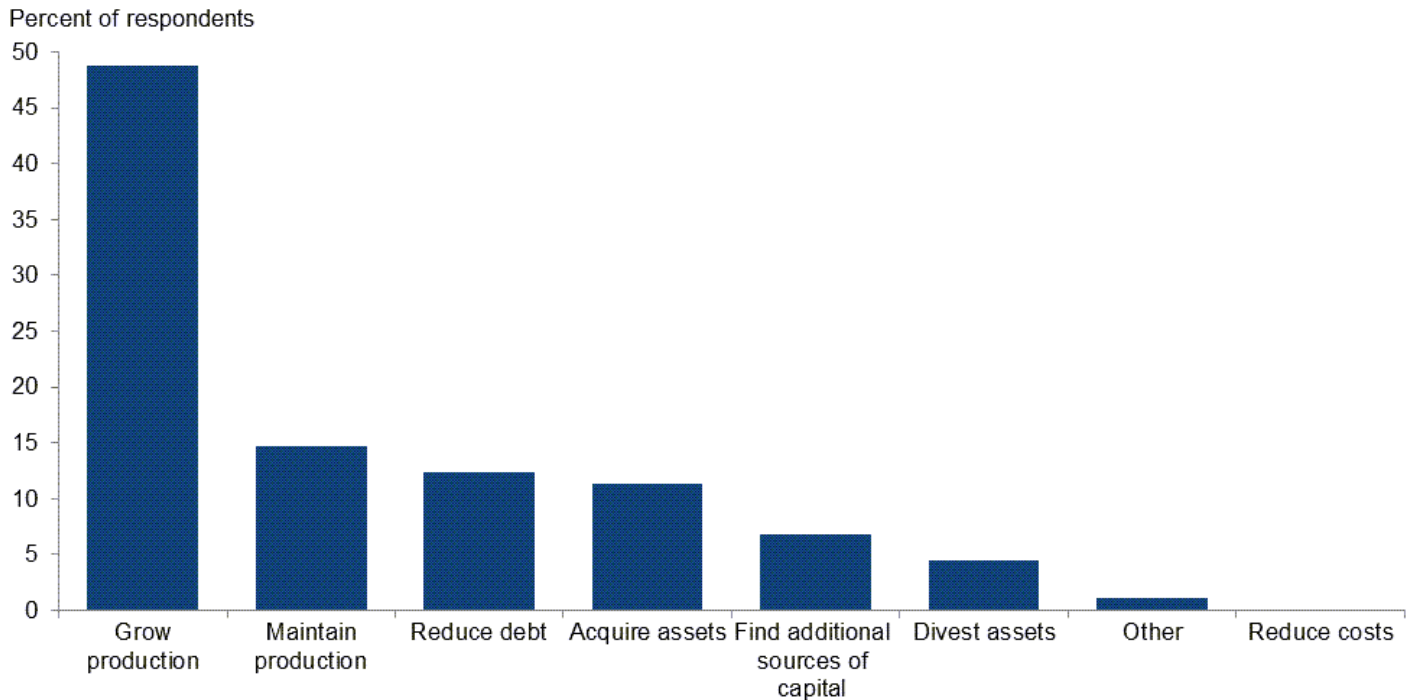
[Downloadable chart](#) | [Chart data](#)

Exploration and Production (E&P) Firms

Which of the following is your firm's primary goal in 2022?

Executives from E&P firms were presented with eight potential goals for 2022 and asked to select their firm's primary one from the list. Forty-nine percent of executives selected "grow production" as the primary goal in 2022. A total of 15 percent said "maintain production," and 13 percent indicated "reduce debt."

A breakdown of the data for small and large E&P firms can be found in the table below. Firms were classified as "small" if they produced less than 10,000 barrels per day (b/d) or "large" if they produced 10,000 b/d or more. The most-selected response among small firms was "grow production," whereas the most-selected response among large firms was "reduce debt."



NOTE: Executives from 88 exploration and production firms answered this question during the survey collection period, Dec. 8–16, 2021.

SOURCE: Federal Reserve Bank of Dallas.

[Downloadable chart](#) | [Chart data](#)

Response	Percent of respondents		
	All firms	Small firms	Large firms
Grow production	49	57	24
Maintain production	15	16	10
Reduce debt	13	7	29
Acquire assets	11	9	19
Find additional sources of capital	7	7	5
Divest assets	5	3	10
Other	1	0	5
Reduce costs	0	0	0

NOTES: Executives from 88 exploration and production firms answered this question during the survey collection period, Dec. 8–16, 2021. Small firms produced less than 10,000 b/d in fourth quarter 2021, while large firms produced 10,000 b/d or more. Responses came from 67 small firms and 21 large firms.
 SOURCE: Federal Reserve Bank of Dallas.

Which of the following plans does your firm have? (Check all that apply.)

E&P firms were first asked to classify themselves based on fourth quarter 2021 crude oil production and then asked if they had any of the following plans: to reduce carbon emissions; reduce methane emissions; reduce flaring; recycle/reuse water. Respondents could choose more than one answer for this special question.

Firms were classified as “small” if they produced less than 10,000 barrels per day (b/d) or “large” if they produced 10,000 b/d or more. In the U.S., small E&P firms are greater in number, but large E&P firms make up the majority of production (greater than 80 percent).

For the larger firms, 68 percent of executives said their firm plans to reduce methane emissions, 63 percent noted that their firm plans to reduce CO₂ emissions, 58 percent plan to reduce flaring, and 42 percent plan to recycle/reuse water.

For the smaller firms, 26 percent of executives said their firm plans to reduce flaring, 24 percent plan to reduce methane emissions, 21 percent plan to reduce CO₂ emissions, and 18 percent plan to recycle/reuse water. Among the smaller E&P firms, 53 percent said they don’t have any mitigation plans, compared with 11 percent of large E&P firms. Relative to when this same question was asked in [fourth quarter 2020](#), a similar share of firms said they had at least one of these mitigation plans.

Response	Percent reporting		
	Small firms	Large firms	All firms
Plan to reduce CO ₂ emissions	21	63	31
Plan to reduce methane emissions	24	68	35
Plan to reduce flaring	26	58	33
Plan to recycle/reuse water	18	42	23
None of the above	53	11	43

NOTES: Executives from 81 exploration and production firms answered this question during the survey collection period, Dec. 8–16, 2021. Small firms produced less than 10,000 b/d in fourth quarter 2021, while large firms produced 10,000 b/d or more. Responses came from 62 small firms and 19 large firms.
 SOURCE: Federal Reserve Bank of Dallas.

By how much do you expect your firm to reduce greenhouse gas emissions from 2020 to 2025 in terms of barrel-of-oil equivalent produced?

Of the large firms, 38 percent said their firm plans to reduce greenhouse gas emissions by 10 percent or more by 2025. Of the remaining firms, 10 percent of respondents reported planned reductions of more than 5 percent but not more than 7.5 percent; 5 percent of respondents put the range at more than 2.5 percent but not more than 5 percent; 5 percent of respondents put the range at more than zero but not more than 2.5 percent; 5 percent reported no planned decreases.

The majority of the largest firms producing 100,000 b/d or more (not shown in the table) plan to reduce greenhouse gas emissions by more than 10 percent.

Among the executives of small firms, 8 percent said their firm plans to reduce greenhouse gas emissions by more than 10 percent by 2025. An additional 2 percent put the range at more than 7.5 percent but not more than 10 percent, 8 percent cited a range of more than 5 percent but not more than 7.5 percent, 9 percent said more than 2.5 percent but not more than 5 percent, 11 percent gave a range of more than zero but not more than 2.5 percent and 25 percent said they didn't plan to decrease emissions.

Among both small and large E&P firms, 38 percent reported they were unsure of their plans. Relative to when this same question was asked in [fourth quarter 2020](#), more firms are targeting reductions in greenhouse gas emissions of more than 10 percent, and fewer firms said they were unsure of their plans.

Response	Percent reporting		
	Small firms	Large firms	All firms
0%	25	5	20
More than 0% but not more than 2.5%	11	5	9
More than 2.5% but not more than 5%	9	5	8

More than 5% but not more than 7.5%	8	10	8
More than 7.5% but not more than 10%	2	0	1
More than 10%	8	38	15
Don't know	38	38	38

NOTES: Executives from 86 exploration and production firms answered this question during the survey collection period, Dec. 8–16, 2021. Small firms produced less than 10,000 b/d in fourth quarter 2021, while large firms produced 10,000 b/d or more. Responses came from 65 small firms and 21 large firms.

SOURCE: Federal Reserve Bank of Dallas.

Oil and Gas Support Services Firms

For your firm's primary service or product, by what percent do you expect its selling price to change from December 2021 to December 2022?

For this special question, executives were asked to provide the percentage change for the selling price of their firm's primary service or product. The average response was an increase of 8.5 percent, and the median was an increase of 10 percent.

Response	Percent of respondents
Less than 0%	2
0%	22

More than 0% but not more than 5%	5
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More than 5% but not more than 10%	12
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More than 10% but not more than 15%	32
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More than 15% but not more than 20%	15
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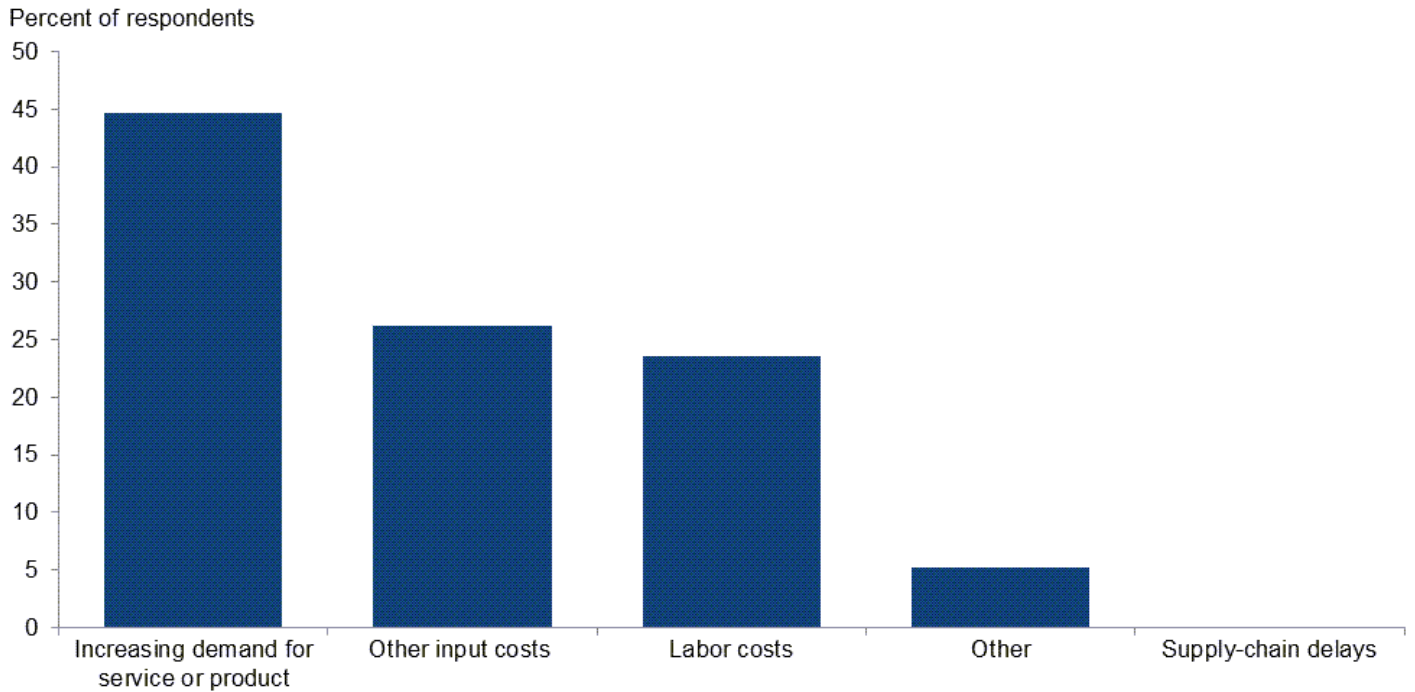
More than 20%	12
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NOTES: Executives from 41 oil and gas support services firms answered this question during the survey collection period, Dec. 8–16, 2021.

SOURCE: Federal Reserve Bank of Dallas.

What is the main factor that will influence the change in your selling price for next year?

Forty-five percent of executives identified increasing demand for service or product as the main factor that will influence the change in their firm's selling price for next year. Twenty-six percent said other input costs (besides labor), and 24 percent said labor costs. Five percent chose "other." None said supply-chain delays.



NOTE: Executives from 38 oil and gas support services firms answered this question during the survey collection period, Dec. 8–16, 2021.

SOURCE: Federal Reserve Bank of Dallas.

[Downloadable chart](#) | [Chart data](#)

For your firm’s primary service or product, by what percent do you expect its input prices to change from December 2021 to December 2022?

For this special question, executives were asked to provide the percentage change in input prices for their firm’s primary service or product. The average response was an increase of 9.8 percent, and the median was an increase of 10 percent.

Response	Percent of respondents
Less than 0%	0
0%	10
More than 0% but not more than 5%	10

More than 5% but not more than 10%	18
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More than 10% but not more than 15%	38
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More than 15% but not more than 20%	13
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More than 20%	10
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NOTES: Executives from 39 oil and gas support services firms answered this question during the survey collection period, Dec. 8–16, 2021.

SOURCE: Federal Reserve Bank of Dallas.

Special Questions Comments

Exploration and Production (E&P) Firms

- The U.S. E&P industry is working quite hard to bring oil and gas supplies affordably and sustainably in the transitioning energy landscape. The E&P industry needs bright individuals who know energy to change energy.
- Greenhouse emission issues are challenging for small upstream operators. Lack of developed infrastructure in certain areas have made planning and cost forecasting very difficult. Pipeline gathering systems are inadequate—non-existent in certain areas—and reduced ability to flare gas will impact exploration activity negatively in otherwise potentially developable areas.
- Just look to Europe for what an energy “revolution” looks like instead of an “evolution.” There are unintended consequences. Historically high power prices caused by low wind speeds, cold weather and low solar irradiance are the result of underinvestment in traditional natural gas power and transportation infrastructure (and a general antagonism toward nuclear energy). There is a massive unintended consequence: higher carbon emissions. Per [an analyst quoted in] the New York Times: “Around \$41 per million British thermal units, the gas futures are priced at more than 10 times what gas is selling for in the United States and comparable to about \$230 a barrel for oil.” What happens? Analysts estimate that gas-to-oil switching for power is over one million barrels per day. If countries in the Middle East can sell natural gas for over \$230 per barrel of oil equivalent, they sell gas and burn oil for electricity instead (i.e., gas-to-oil switching), resulting in higher carbon emissions than if we were just using natural gas all along.
- Permian greenhouse gas (GHG) emissions’ intensity is highly correlated with basin gas processing, compression and takeaway capacity. If takeaway stays ahead of production, GHG emission intensity will stay low.
- We issued the industry’s first sustainability-linked bonds in conjunction with our commitment to reduce GHG emissions by 50 percent over the next five years.

- Polarizing politics are forcing different sides into opposing corners when, to effectively move forward, all should be working together. Denigrating and piling costs onto operators “because you can” is not an effective “policy.” The country needs all of us pulling together. We all know changes are required. That said, changes do not need to be spewed forth in policies that actually undermine the goals of supplying energy and reducing pollution. Texas is just as messed up as California is but, obviously, reflecting opposite sides of the spectrum. Both need to get their act together and manage, not pander.
- The type of stripper well production I have does not emit hardly any CO2 or methane. The reservoirs are near depletion and the gas/oil ratios are very low—there is very little reservoir energy left.
- We are hedging our portfolio with a nod to invest in solar and tree farms. It is not a significant portion of our budget but is a learning opportunity.
- Regarding our primary goal for 2022, we are planning on growing our production and will simultaneously seek divestment opportunities based on higher values.

Oil and Gas Support Services Firms

- Oil services, and in particular seismic data providers, are still largely in survival mode. Like most in the business, we expect that the lack of capital investment will drive supply stagnation, which will ultimately drive commodity pricing higher, which will create opportunities for those who do survive.

[Additional Comments »](#)

Fourth Quarter | December 29, 2021

[Historical data](#) are available from first quarter 2016 to the most current release quarter.

Business Indicators: Quarter/Quarter

Business Indicators: All Firms
Current Quarter (versus previous quarter)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	42.6	44.3	49.3	44.0	6.7
Capital Expenditures	36.9	37.1	45.9	45.1	9.0
Supplier Delivery Time	25.6	15.7	40.6	44.4	15.0
Employment	11.9	14.0	20.9	70.1	9.0
Employee Hours	18.0	19.0	26.3	65.4	8.3
Wages and Benefits	36.6	30.3	40.3	56.0	3.7
Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened

Company Outlook	53.2	58.9	61.1	31.0	7.9
Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Uncertainty	-1.5	4.3	25.6	47.4	27.1
Business Indicators: E&P Firms Current Quarter (versus previous quarter)					
Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	33.3	38.9	41.1	51.1	7.8
Oil Production	19.1	10.7	36.0	47.2	16.9
Natural Gas Wellhead Production	26.1	19.3	37.5	51.1	11.4
Capital Expenditures	35.9	36.6	44.9	46.1	9.0
Expected Level of Capital Expenditures Next Year	46.0	48.9	51.7	42.5	5.7
Supplier Delivery Time	24.5	10.5	36.7	51.1	12.2
Employment	6.7	8.4	15.6	75.6	8.9
Employee Hours	5.6	8.4	13.5	78.7	7.9
Wages and Benefits	30.0	19.0	34.4	61.1	4.4
Finding and Development Costs	44.9	33.0	48.3	48.3	3.4
Lease Operating Expenses	42.0	29.4	47.7	46.6	5.7
Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	45.8	61.0	55.4	34.9	9.6
Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Uncertainty	1.1	0.0	27.8	45.6	26.7

Business Indicators: O&G Support Services Firms
Current Quarter (versus previous quarter)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	61.4	55.3	65.9	29.5	4.5
Utilization of Equipment	51.1	47.8	55.8	39.5	4.7
Capital Expenditures	38.6	38.3	47.7	43.2	9.1
Supplier Delivery Time	27.9	26.7	48.8	30.2	20.9
Lag Time in Delivery of Firm's Services	9.3	26.7	16.3	76.7	7.0
Employment	22.7	25.5	31.8	59.1	9.1
Employment Hours	43.2	40.5	52.3	38.6	9.1
Wages and Benefits	50.0	53.1	52.3	45.5	2.3
Input Costs	69.8	60.8	72.1	25.6	2.3
Prices Received for Services	30.3	42.2	32.6	65.1	2.3
Operating Margin	11.6	21.8	27.9	55.8	16.3

Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	67.4	55.4	72.1	23.3	4.7

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Uncertainty	-7.0	12.7	20.9	51.2	27.9

Business Indicators: Year/Year

Business Indicators: All Firms
Current Quarter (versus same quarter a year ago)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	67.5	66.7	77.0	13.5	9.5
Capital Expenditures	66.9	55.5	75.0	16.9	8.1
Supplier Delivery Time	30.4	19.3	49.6	31.2	19.2
Employment	17.5	18.9	31.0	55.6	13.5
Employee Hours	28.8	27.1	36.8	55.2	8.0
Wages and Benefits	52.3	44.6	56.3	39.7	4.0
Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	74.1	77.0	83.0	8.0	8.9
Business Indicators: E&P Firms Current Quarter (versus same quarter a year ago)					
Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	59.5	61.3	70.2	19.0	10.7
Oil Production	26.5	21.7	50.6	25.3	24.1
Natural Gas Wellhead Production	36.5	28.6	52.4	31.7	15.9
Capital Expenditures	68.3	52.3	75.6	17.1	7.3
Expected Level of Capital Expenditures Next Year	67.1	61.3	73.2	20.7	6.1
Supplier Delivery Time	30.9	13.0	48.8	33.3	17.9
Employment	11.9	9.7	25.0	61.9	13.1
Employee Hours	18.1	16.3	25.3	67.5	7.2

Wages and Benefits	47.6	34.8	52.4	42.9	4.8
Finding and Development Costs	54.2	42.2	60.2	33.7	6.0
Lease Operating Expenses	48.8	43.7	57.3	34.1	8.5
Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened
Company Outlook	72.9	77.8	82.4	8.1	9.5

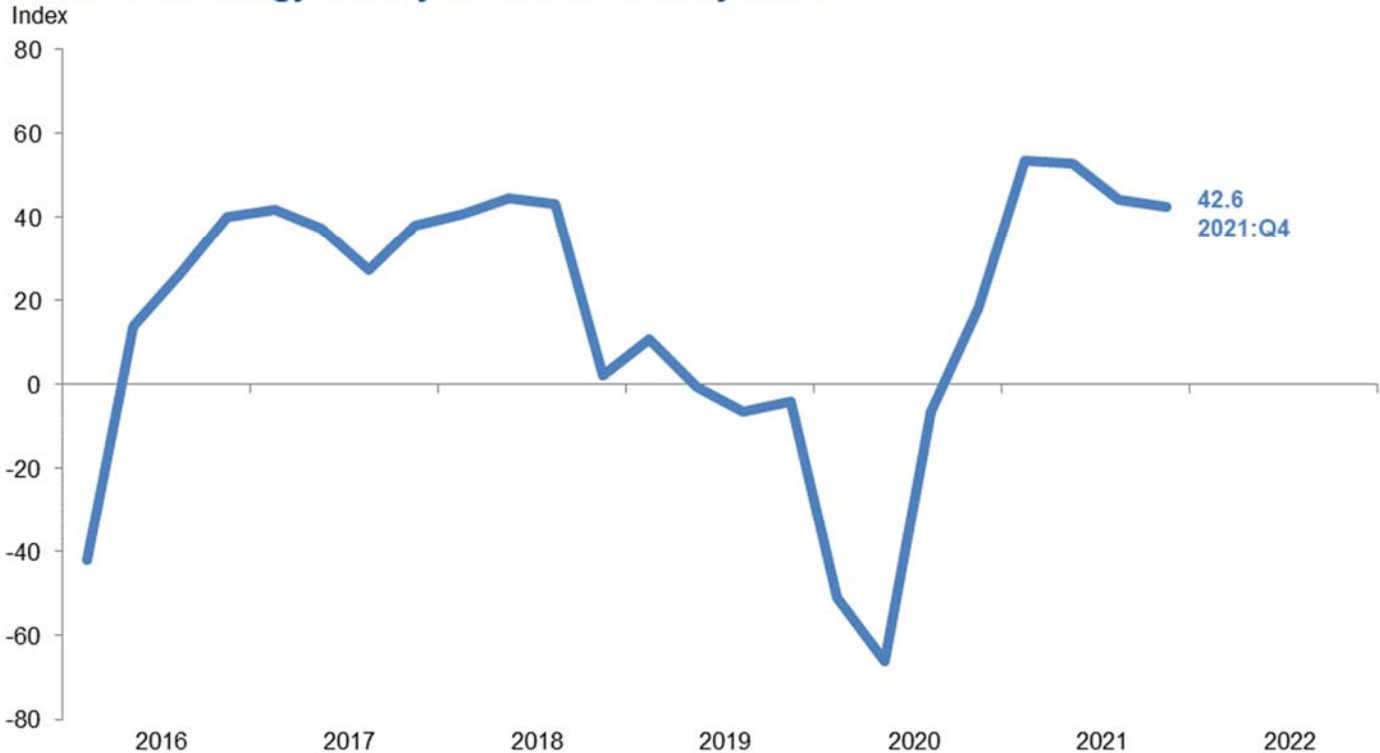
Business Indicators: O&G Support Services Firms
Current Quarter (versus same quarter a year ago)

Indicator	Current Index	Previous Index	% Reporting Increase	% Reporting No Change	% Reporting Decrease
Level of Business Activity	83.4	77.7	90.5	2.4	7.1
Utilization of Equipment	78.0	70.5	82.9	12.2	4.9
Capital Expenditures	64.3	62.2	73.8	16.7	9.5
Supplier Delivery Time	29.2	32.5	51.2	26.8	22.0
Lag Time in Delivery of Firm's Services	17.0	30.2	26.8	63.4	9.8
Employment	28.6	37.8	42.9	42.9	14.3
Employment Hours	50.0	48.8	59.5	31.0	9.5
Wages and Benefits	61.9	64.4	64.3	33.3	2.4
Input Costs	70.0	72.7	72.5	25.0	2.5
Prices Received for Services	46.3	55.8	51.2	43.9	4.9
Operating Margin	30.0	37.2	47.5	35.0	17.5
Indicator	Current Index	Previous Index	% Reporting Improved	% Reporting No Change	% Reporting Worsened

Fourth Quarter | December 29, 2021

Activity Chart

Dallas Fed Energy Survey Business Activity Index



SOURCE: Federal Reserve Bank of Dallas.

[Downloadable chart](#) | [Chart data](#)

Fourth Quarter | December 29, 2021

Comments from Survey Respondents

These comments are from respondents' completed surveys and have been edited for publication. Comments from the Special Questions survey can be found below the [special questions](#).

Exploration and Production (E&P) Firms

- The push for going all green will cause more energy shortages and much higher prices. Like the pilot said, "Sit down and put your seat belts on. It's going to get a bit bumpy."
- It is impossible to make realistic assessments for capital expenditure budgets given the current administration's policies and, for that reason, capital expenditure commitments are being restrained and limited. Why would any rational person feel comfortable with expanding capital commitments beyond minimum maintenance requirements at most when nominees at the federal level are hoping for bankruptcy and closure of the oil and gas sector.
- We're keeping a watchful eye on price increases in the field.
- Inflation and labor availability are affecting our business. Rising supply-chain disruption and associated inflation have the potential to delay and impact drilling and completion activity in 2022.
- Despite us being one of the top-performing energy funds in America, investors are cutting our funding by 80 percent. We believe this is a two-edged sword—if it is happening to us, it is likely happening to

everyone. Constrained capital will lead to significantly higher commodity prices. And it isn't the administration's fault—this is a Wall Street and environmental, social and governance-led charge.

- The political pressure forcing available capital away from the energy industry is a problem for everyone. Banks view lending to the energy industry as having a “political risk.” The capital availability has moved down-market to family offices, etc., and it is drastically reducing the size and availability of commitments regardless of commodity prices.
- Supply-chain issues continue to create logistical challenges, and it is difficult to plan and/or coordinate upstream operational activity. Labor shortages have contributed to this issue as well. Pandemic worries are definitely impacting the oil demand side, with resultant uncertainty with respect to commodity pricing and supply forecasting.
- The Permian [Basin] labor market continues to be tight but better in December 2021 than third quarter 2021 at the margin. Major power provider connections continue to be slow, with projected connection times falling behind schedule consistently. Power availability is a material headwind to efficient capital development and opportunity to electrify field operations for lower emissions. Electrical system components (transformers in particular) are in extremely short supply. Inflationary pressures continue to build in services.
- With the current administration in Washington being so anti-fossil-fuel industry, I question how much longer I will stay in the business. The good news is that they have so little understanding of the free market that prices usually spike with the Democrats in charge.
- The main question related to energy policy on federal lands is how outwardly punitive do they want to be in the face of obvious energy-related inflation.
- My main issue of uncertainty is due to politics in Washington.
- Availability of workover rigs is a big problem. Costs for supplies have jumped up.
- Our finances have improved significantly. Uncertainty over what the administration will do to the oil and gas industry keeps me from investing too heavily in oil and gas at this time.
- Our bank forced us to release our rig, per an agreement last year at the time of our credit facility extension to cap our capital budget. We hit the cap in October and reluctantly released our only drilling rig. We've signed a yearlong contract for 2022, when we will not have the bank limitation and plan to run a continuous drilling program for years to come unless oil prices drop below \$50 per barrel for a sustained period.
- The COVID-19 virus and vaccination levels will continue the same trend that is occurring now. World economic activity will increase. Our weak image to the world is inviting conflict. Conflict will be instrumental in energy prices. Liquefied natural gas has changed natural gas from being domestic energy to global energy. [Global] demand now on domestic production raises the pricing mechanism. Rig counts and permits are not going to drive pricing down. Regulations and climate shaming on money providers will hinder development of production.
- The regulatory environment in our state has led us to the decision to sell all of our operated and nonoperated interests. We believe the future for oil and gas in our state is not good.
- Uncertainty is the main concern for our firm. Also, how will inflation and the countless waves of COVID-19 craziness affect demand going forward? Overall, we're positive about the energy outlook but still have some ongoing concerns.
- We are feeling pressure and delays from governmental agencies in ways that will require added costs and additional time for project completion.
- Fossil fuels have been affected by the same economic repercussions caused by COVID-19, supply-chain issues, and anti-oil and gas sentiment in both the state and federal governments. The oil community I live in feels the regulatory pressures, cost increases and general anti-oil public sentiment. This may cause many small producers to sell their companies or cut back drastically. The higher oil prices of \$75 per barrel have kept many small producers engaged. My concern for the future is for the very small producers.

- With the Omicron variant having a [dampening] impact on oil pricing, it is anticipated that we will see an increase in oil pricing throughout 2022.

Oil and Gas Support Services Firms

- Hiring qualified personnel is a huge issue for our firm.
- We are seeing an across-the-board increase in demand for our services, but we are fighting to get back to acceptable margins for our products and services.
- There is a lot of uncertainty about commodity prices and activity. Many small to medium-sized service companies are just managing to remain in business. Current activity and service company pricing do not provide enough income for the service industry to remain healthy. Unless there is a marked improvement in pricing, I expect there will be many more companies exiting the business. Service companies have very little access to new capital, and cash reserves are being exhausted.
- Attracting and retaining new employees continues to be a challenge for oilfield services.
- I am a one-pickup-and-trailer hot shot. Most of the companies that we were running for are closed right now. My company is woman-owned by myself, but the companies that are open and using hot shots still put me in the same pot with big trucking companies which demand \$5 million in liability coverage and \$1 million in cargo. I can't compete, and I may be closed soon.
- Demand from our Middle East clients has been erratic. European suppliers are busy and do not have bandwidth for small orders. We are seeing increased activity in the fourth quarter of 2021 from Trinidad, Europe and Australia.

Questions regardin

SAF Group created transcript of excerpts from Bloomberg interview with CalSTRS CIO Christopher Ailman on Dec 31, 2021 <https://www.bloomberg.com/news/videos/2021-12-31/calstrs-cio-exxon-in-danger-of-being-next-blockbuster-video>

Items in *“italics”* are SAF Group created transcript

At 4:00 min mark. Bloomberg asks if they are satisfied with Exxon’s progress since the election of new board members following that proxy fight from Engine No. 1 earlier this year? Ailman *“Tim, great question and No, I am not. I’m not satisfied with the way they have integrated our board members. They have not embraced them holistically and recognized recognizes that this is shareholders talking to them and wanting a change. Hopefully, they will put them all back up for re-election and will continue the dialogue. But I have to say, you know between you and me, I think management has been a bit stubborn and they need to be more open. And if we need to raise our voice again on ExxonMobil, we will, because change has to happen. Change is going to happen around the world. And if these companies want to survive and not be Eastman Kodak, not want to be Blockbuster Video, darn it, they better get their act together and become energy companies, not just oil and gas firms.”*

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

<https://www.calstrs.com/statement/statement-calstrs-backed-directors-joining-exxonmobil-board>

Statement on CalSTRS-backed directors joining ExxonMobil board

STATEMENT MAY 26, 2021 [KAREN DORON](#)

WEST SACRAMENTO, Calif. (May 26, 2021) – CalSTRS issued the following statement today regarding the voting results at ExxonMobil’s Annual Shareholder Meeting in which at least two directors nominated by Engine No. 1 and supported by CalSTRS from the beginning were elected by shareholders to the ExxonMobil board:

We called for change at ExxonMobil, and a record number of shareholders, including many of the largest investors in the world, voted to hold the company accountable.

This historic vote represents a tipping point for companies unprepared for the global energy transition. While the ExxonMobil board election is the first of a large U.S. company to focus on the global energy transition, it will not be the last.

Climate change is the greatest threat to our future. We believe change is necessary for companies that do not have a long-term strategy for a responsible transition to a low-carbon economy.

Shareholders must continue to hold the ExxonMobil board accountable to mitigate risk and contribute to the sustainable value of their investments.

The links between climate change, business and financial investments are undeniable, and we are taking action to prepare our investment portfolio for the global energy transition while maximizing returns for California’s educators.

About CalSTRS

CalSTRS provides a secure retirement to more than 975,000 members whose CalSTRS-covered service is not eligible for Social Security participation. In 2019–20, members retired on average after more than 24 years in the classroom with a monthly benefit of approximately \$4,614. Established in 1913, CalSTRS is the largest educator-only pension fund in the world with approximately \$299.8 billion in assets under management as of April 30, 2021. CalSTRS demonstrates its strong commitment to long-term corporate sustainability principles in its annual Global Reporting Initiative [Sustainability Report](#). For more information, visit [CalSTRS.com](https://www.calstrs.com).

ELECTRIC COMPANIES JOIN TOGETHER TO FORM NATIONAL ELECTRIC HIGHWAY COALITION

WASHINGTON (December 7, 2021) – The Edison Electric Institute (EEI) today announced the formation of the National Electric Highway Coalition, which merges the Electric Highway Coalition and the Midwest Electric Vehicle Charging Infrastructure Collaboration and now includes additional participating electric companies from across the country. Currently consisting of 51 investor-owned electric companies, one electric cooperative, and the Tennessee Valley Authority, the coalition is committed to providing electric vehicle (EV) fast charging ports that will allow the public to drive EVs with confidence along major U.S. travel corridors by the end of 2023.

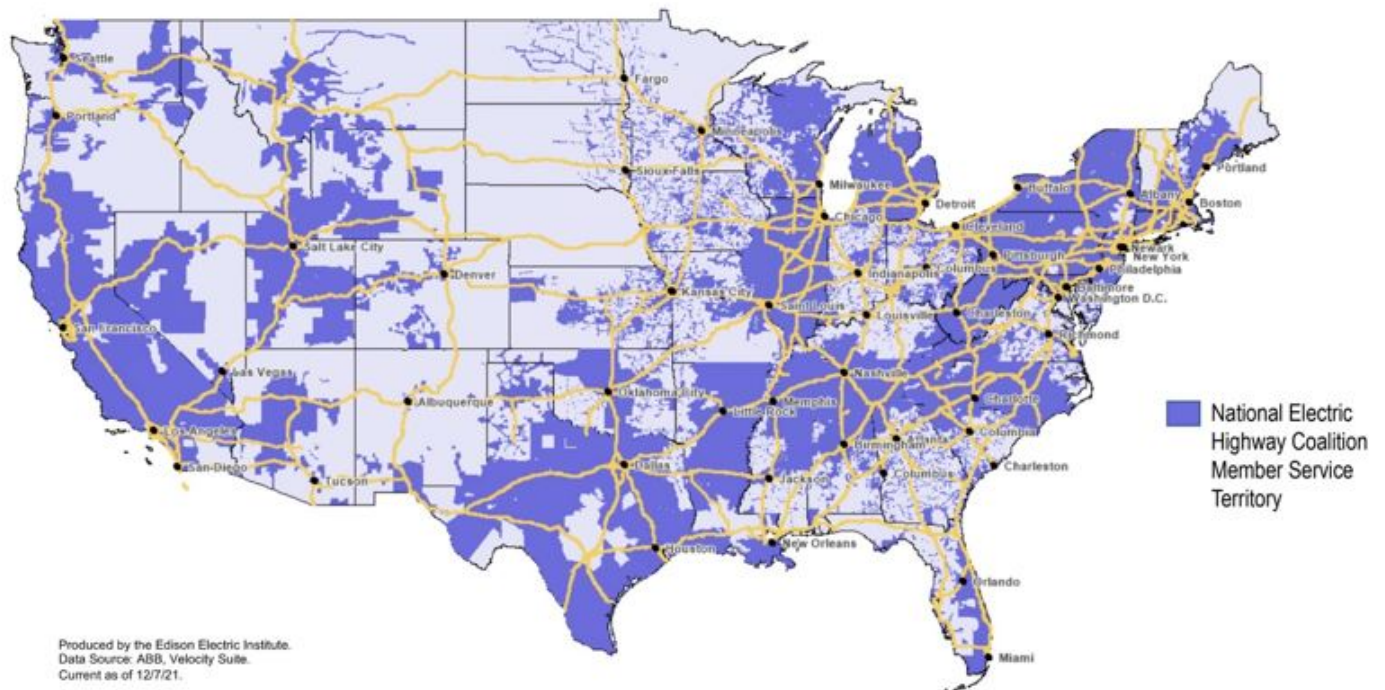
“EEI and our member companies are leading the clean energy transformation, and electric transportation is key to reducing carbon emissions across our economy,” said EEI President Tom Kuhn. “With the formation of the National Electric Highway Coalition, we are committed to investing in and providing the charging infrastructure necessary to facilitate electric vehicle growth and to helping alleviate any remaining customer range anxiety.”

To date, EEI’s member companies have invested more than \$3 billion in customer programs and projects to deploy EV charging infrastructure and to accelerate electric transportation. As EV sales continue to grow, EEI estimates that more than 100,000 EV fast charging ports will be needed to support the projected 22 million EVs that will be on U.S. roads in 2030.

“By merging and expanding the existing efforts underway to build fast charging infrastructure along major travel corridors, we are building a foundational EV charging network that will help to encourage more customers to purchase an electric vehicle,” said Kuhn. “We owe a great deal of gratitude to the electric companies that created so much momentum at the regional level, paving the way for us to expand this effort nationally.”

“We are delighted to see this collaboration come together with both regional and national scopes to develop a framework and to provide charging stations across state boundaries,” said Alliance for Transportation Electrification Executive Director Philip B. Jones. “EV owners want to charge conveniently and quickly without a fear of running out of electric fuel. Moreover, the EV industry, led by electric companies and cooperatives, automobile OEMs, and EV service providers, need to accelerate the deployment of charging infrastructure now. With scores of new battery-electric vehicles coming to market over the next couple of years, we need to get the charging infrastructure sited, built, and funded. The federal infrastructure funding will help a great deal in this effort, but this is only a down payment of a much larger effort. Electric companies, which are regulated by state commissions, can help leverage all funding sources, help fill the infrastructure gaps, and help manage the deployment of these chargers with a long-term view.”

The National Electric Highway Coalition Will Support EV Charging Along Major U.S. Travel Corridors



"The auto industry is committed to vehicle electrification and will invest over \$330 billion in the technology by 2025. Additionally, a record number of EV models are expected to be available in this time frame," said Alliance for Automotive Innovation President and CEO John Bozzella. "This, however, is only one piece of the puzzle. Addressing issues such as grid resiliency, energy demands for charging, and equitable rollout of charging infrastructure will be an integral part of a successful future for EVs in America. The National Electric Highway Coalition will support the EV transition by facilitating electric power industry engagement in transportation electrification across the country. We look forward to continuing our partnership with EEI and collaborating with public and private sector stakeholders to expand the charging infrastructure necessary to meet the ambitious targets for electrification in the coming years."

EEI member companies are electrifying their own fleets and, collectively, are on track to electrify more than one-third of all fleet vehicles by 2030. Electric companies also remain engaged with commercial fleet customers and are working together on electrification planning for medium- and heavy-duty vehicles.

More information about the National Electric Highway Coalition and a full list of participating electric companies can be found on the [coalition's webpage](#).

Interpretation of the "Notice of the Development and Reform Commission of the Ministry of Industry and Information Technology of the Ministry of Finance on the Promotion and Application of New Energy Vehicles in 2022"

December 31, 2021 Source: Department of Economic Construction

Recently, the Ministry of Finance, the Ministry of Industry and Information Technology, the Ministry of Science and Technology, and the Development and Reform Commission (hereinafter referred to as the four ministries) jointly issued the "Financial Subsidy Policy for the Promotion and Application of New Energy Vehicles by the Development and Reform Commission of the Ministry of Industry and Information Technology of the Ministry of Finance" "Notice" (Caijian [2021] No. 466, hereinafter referred to as the "Notice"), the interpretation is as follows:

1. About the background of the "Notice"

In accordance with the decisions and deployments of the Party Central Committee and the State Council, since 2009, the Ministry of Finance and relevant departments have strongly supported the development of the new energy automobile industry. With the joint efforts of all parties, my country's new energy vehicle technology level has been continuously improved, product performance has been significantly improved, and the scale of production and sales has ranked first in the world for six consecutive years.

In April 2020, the four ministries and commissions jointly issued the "Notice on Improving Financial Subsidy Policies for the Promotion and Application of New Energy Vehicles" (Caijian [2020] No. 86), clarifying that "in principle, the subsidy standards for 2020-2022 will be based on the previous year. Upgrading 10%, 20%, 30%, the vehicle that meets the requirements in the public transportation field, the subsidy standard will not decline in 2020, and the subsidy standard for 2021-2022 will be reduced by 10% and 20% on the basis of the previous year, in principle The upper limit of the annual subsidy scale is about 2 million vehicles." In 2021, the new energy automobile industry will continue to achieve substantial growth in the face of the unfavorable effects of the global epidemic and chip shortages, and the industry is developing well. **In 2022, the subsidy policy will continue to decline in an orderly manner in accordance with the established arrangements to create a stable policy environment.** The four ministries and commissions have recently jointly issued the "Notice", clarifying the relevant requirements of the fiscal subsidy policy.

2. Regarding the purchase subsidy standard for new energy vehicles in 2022

According to document No. 86 of Caijian [2020], **the subsidy standard for purchase of new energy vehicles in 2022 will be reduced by 30% on the basis of 2021**; urban public transportation, road passenger transportation, rental (including online car-hailing), environmental sanitation, urban logistics and distribution, and postal services Express delivery, civil aviation airports, and new energy vehicles that meet the requirements in the public affairs of party and government agencies will be subsidized by 20% in 2022 on the basis of 2021. According to this, the "Notice" clarifies the subsidy standards for different types and fields of vehicle products, and it will be implemented from January 1, 2022.

3. Regarding the technical index requirements of new energy vehicle products in 2022

In recent years, driven by the subsidy policy to support the good and strong, the quality of my country's new energy vehicle product supply has continued to improve, the technical level has improved significantly, and the product practicability has been greatly improved. According to Caijian [2020] No. 86 document "2021-2022, in principle to maintain overall stability of technical indicators", the purchase subsidy policy in 2022 maintains the technical indicator thresholds such as power battery system energy density, driving mileage, and energy consumption. , Stabilize business expectations.

4. Regarding clarifying the deadline for purchase subsidies

In accordance with the requirements of Caijian [2020] No. 86, comprehensive technological progress, scale effect and other factors, the implementation period of the new energy vehicle promotion and application of the fiscal subsidy policy will be extended to the end of 2022. Taking into account the development plan of the new energy automobile industry, market sales trends, and the smooth transition of enterprises, in order to maintain the good development momentum of the new energy automobile industry and stabilize the industry and consumer expectations, the "Notice" clarifies the purchase of new energy vehicles on December 31, 2022. The subsidy policy is terminated, and vehicles with a license after December 31 will no longer be subsidized.

V. Regarding further strengthening product safety supervision

The safety of new energy vehicle products is related to the vital interests of consumers and is an important guarantee for the healthy and orderly development of the new energy vehicle industry. In recent years, new energy vehicle products with intelligent network connection characteristics have gradually been applied to the market, and the data security, network security and other issues brought about by it have become important concerns. my country's new energy vehicle fires and safety accidents still occur from time to time. In order to further strengthen product safety supervision, ensure vehicle quality and information security, and effectively protect the interests of consumers, the "Notice" clearly proposes to improve the safety supervision system of new energy vehicles, and further consolidate measures such as the main responsibility of new energy vehicle manufacturers. At the same time, a cross-departmental information sharing mechanism and a vehicle accident reporting system have been established to focus on vehicle fires and major accidents. For companies that conceal accidents and fail to cooperate with investigations, subsidies for vehicles involved will be suspended or cancelled depending on the severity of the circumstances.

related articles:

- [Notice on the promotion and application of financial subsidy policies for new energy vehicles in 2022](#)

Excerpt Hedges & Company “New Car Buyer Demographics 2022 (Updated)” [\[LINK\]](#)

New car & truck buyer demographics by income

Two household income groups account for most new vehicle purchases: Under \$50,000 per year (mostly single-person households) and \$100,000 per year and up (mostly families).

New SUV Buyers by Household Income

Under \$50,000	31%
\$50,000 to \$74,999	19%
\$75,000 to \$99,000	10%
\$100,000 and up	40%

New Sedan Buyers by Household Income

Under \$50,000	39%
\$50,000 to \$74,999	18%
\$75,000 to \$99,000	9%
\$100,000 and up	34%

New Truck Buyers by Household Income

Under \$50,000	37%
\$50,000 to \$74,999	20%
\$75,000 to \$99,000	10%
\$100,000 and up	33%

New Plug-In Hybrid Buyers by Household Income

Under \$50,000	21%
\$50,000 to \$74,999	12%
\$75,000 to \$99,000	10%
\$100,000 and up	57%

New Battery Electric (BEV) Buyers by Household Income

Under \$50,000	20%
\$50,000 to \$74,999	16%
\$75,000 to \$99,000	4%
\$100,000 and up	60%

The average buyer of a new car, according to the National Automobile Dealers Association (NADA) in 2015, earned about \$80,000 per year.

A study by the University of California-Davis showed that in California, people with income over \$150,000 per year purchase a third of electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs). People with household income of \$100,000 to \$149,000 account for about 20% and people with household income of \$50,000 to \$99,999 per year account for about 27%

Excerpt from <https://www.stm.dk/statsministeren/taler/statsminister-mette-frederiksens-nytaarstale-den-1-januar-2022/>

TALK 01.01.22

Prime Minister Mette Frederiksen's New Year's speech on 1 January 2022

And first of all. Should we solve the biggest and most important challenge of our time: the climate crisis.

Collectively, we must be as impatient as the planet needs us to be.

2021 was a year in which we - with broad agreements - took decisive steps on the road to a green future.

Denmark is again the green pioneer country we want to be. It should give us even more courage.

Rising temperatures are destroying our planet.

I know many are worried. What will our future be like? And the children's? And the grandchildren's?

I can promise you one thing. The political majority that is right now in Denmark. We do not fail. We do what needs to be done. That is our promise. That's my promise.

This year we will decide on a new and ambitious tax on CO2. It must ensure that companies that pollute the climate pay for their emissions themselves.

Many are already in the process of adjusting. For others, it will take longer.

But the starting point is simple. The Danish principle that the widest shoulders should carry the most. This must also apply in the green transition: If you emit CO2 - then you have to pay.

That is the most reasonable thing.

When other countries in the world are too slow. Then Denmark must take the lead. And raise the bar even more.

This also applies to air traffic. To travel is to live, and that is why we fly. But at the same time it is harmful to our climate.

Imagine if Denmark could help solve that problem.

We need to make it green to fly.

Therefore, the government will set an ambitious goal: By 2025, Danes must have the opportunity to fly green on a domestic route. And by 2030 at the latest, we must be able to fly completely green when we fly domestically in Denmark.

Will it be difficult? Yes. Is it possible? Yes I think so. We are already on our way. Skilled researchers and companies are working on the solutions.

If we succeed. Then it will be a green breakthrough. Not just for Denmark. But for the whole world.

If there is anything the past few years have taught us. In dealing with major crises. Then it is that we must never hesitate.

* * *

Should we reach our climate goals. At the same time, we must ensure that there are enough employees.

We lack manpower. And if we do nothing, then we risk both slowing down progress and straining legs for the green transition.

That is why we have proposed a number of initiatives to get more people into work.

Among other things, we will remove the set-off in the pension if your partner is employed.

We want to tighten the graduate rules. So that new graduates enter the labor market faster.

More at work. Faster. This is good for companies and the Danish economy. And at the same time allows us to invest a billion in making the education of young people better.

In the debate on the government's reform proposal, the business community has wanted it to be easier to get labor from outside. We are willing to discuss that.

But we must do it wisely.

We decided many years ago that we should not have free immigration to Denmark. We want to stick to that decision.

Therefore, we only need to bring in labor that is in short supply. It must be for a limited period. And that, of course, has to happen in a proper way.

Where we also strengthen the conditions of Danish employees and make a joint effort to get those who are still out of the labor market into work.

That is the Danish social contract.

Denmark must build on right and duty.

Many of you who have come here from the outside over the years have taken those values to heart. You often have some of the hardest jobs. In bones.

Now we need to bring more.

Therefore, the government has proposed that we replace passive support with a unique working logic for citizens with an integration need.

The best thing is to get a job. If you can not do that, you must in future make use of your service.

And to you - especially women with non-Western backgrounds who do not have a job, even though you have been in Denmark for many years:

We need you.

We will target our proposal for a 37-hour work duty in places where there is a real shortage of staff. This is not least the case in elderly care.

I know very well that from one day to the next you cannot go in and work on an equal footing with colleagues who have education and experience.

But then you can do some other things. Grease foods. Washing clothes. Make extra clean.

You start by making use of the nursing home for your benefit. As soon as you are ready for education or job, then you need to earn your own money.

It is good for equality. For integration. And that mom and dad are at work is the best safeguard against child poverty.

<https://www.census.gov/newsroom/press-releases/2021/news-years-day-2022.html>

Census Bureau Projects U.S. and World Populations on New Year's Day

DEC. 30, 2021 — As the nation prepares to ring in the new year, the U.S. Census Bureau today projected the U.S. population will be 332,403,650 on Jan. 1, 2022. This represents an increase of 706,899, or 0.21%, since New Year's Day 2021, and 954,369, or 0.29%, since Census Day (April 1) 2020.

In January 2022, the U.S. is expected to experience a birth every nine seconds and one death every 11 seconds. Meanwhile, net international migration is expected to add one person to the U.S. population every 130 seconds. The combination of births, deaths and net international migration increases the U.S. population by one person every 40 seconds.

The projected world population on Jan. 1, is 7,868,872,451, an increase of 74,235,487, or 0.95%, since New Year's Day 2021. During January 2022, 4.3 births and 2.0 deaths are expected worldwide every second. The Census Bureau's [Population Clock](#) displays simulated real-time growth of the U.S. and world populations.

<https://www.census.gov/newsroom/press-releases/2019/new-years-2020.html>

Census Bureau Projects U.S. and World Populations on New Year's Day

DEC. 30, 2019 — As the nation prepares to ring in the new year, the U.S. Census Bureau projects the U.S. population will be 330,222,422 on Jan. 1, 2020. This represents an increase of 1,991,085, or 0.61%, from New Year's Day 2019. Since Census Day (April 1) 2010, the population has grown by 21,476,884 or 6.96%.

In January 2020, the United States is expected to experience one birth every eight seconds and one death every 11 seconds. Meanwhile, net international migration is expected to add one person to the U.S. population every 34 seconds. The combination of births, deaths and net international migration will increase the U.S. population by one person every 19 seconds.

The projected world population on Jan. 1, 2020, is 7,621,018,958, an increase of 77,684,873, or 1.03%, from New Year's Day 2019. During January 2020, 4.3 births and 1.9 deaths are expected worldwide every second. The Census Bureau's U.S. and World Population Clock simulates real-time growth of the United

<https://www.census.gov/newsroom/press-releases/2017/new-years-2018.html>

Census Bureau Projects U.S. and World Populations on New Year's Day

Dec. 28, 2017 — As our nation prepares to ring in the new year, the U.S. Census Bureau projects the U.S. population will be 326,971,407 on Jan. 1, 2018. This represents an increase of 2,314,238, or 0.71 percent, from New Year's Day 2017. [Since Census Day \(April 1\) 2010](#), the population has grown by 18,225,587, or 5.90 percent.

In January 2018, the United States is expected to experience one birth every 8 seconds and one death every 10 seconds. Meanwhile, net international migration is expected to add one person to the U.S. population every 29 seconds. The combination of births, deaths and net international migration will increase the U.S. population by one person every **18 seconds**.

The projected world population on Jan. 1, 2018, is 7,444,443,881, an increase of 78,521,283, or 1.07 percent, from New Year's Day 2017. During January 2018, 4.3 births and 1.8 deaths are expected worldwide every second.

The Census Bureau's U.S. and World Population Clock simulates real-time growth of the United States and world populations at www.census.gov/popclock.



Vancouver #Canucks ✓
@Canucks



#HockeyTwitter, we need your help!

Please RT to spread the word and help us connect Red with the woman he considers his hero.

LETTER FROM BRIAN "RED" HAMILTON

My name is Brian "Red" Hamilton and I am the assistant equipment manager for the Vancouver Canucks. I am trying to find a very special person and I need the hockey community's help. To this woman I am trying to find, you changed my life, and now I want to find you to say
THANK YOU SO VERY MUCH!

Problem is, I don't know who you are or where you are from. I do know that you were sitting behind the Canucks bench the night the Seattle Kraken played their first ever home game. That evening, Oct 23rd, and the message you showed me on your cell phone will forever be etched into my brain and has made a true life-changing difference for me and my family. Your instincts were right and that mole on the back of my neck was a malignant melanoma and thanks to your persistence and the quick work of our doctors, it is now gone.

I want you all to know that this isn't about me. It's about an incredible person taking the time to notice something concerning and then finding a way to point it out during the chaos of a hockey game. Going to great lengths to get my attention from the stands while I did my job on the Canucks bench. We are looking for this incredible person and we need you to share this with your friends and families to help us find a real life hero, so I can express my sincerest gratitude.



SAF **Dan Tsubouchi @Energy_Tidbits · 11h** ...

#Vortexa crude **#Oil** floating storage for 12/31 est 86.82 mmb, -5.81 WoW vs revised up 12/24 92.63 mmb. 12/31 is basically flat to end of June when **#OPEC+** started big production increases ie. OPEC+ increased **#Oil** volumes are being absorbed. Thx **@Vortexa @TheTerminal #OOTT**

Source: Bloomberg, Vortexa

1 5 20

SAF **Dan Tsubouchi @Energy_Tidbits · 11h** ...

A "planned" **#Oil** supply interruption in Libya. **@NOC_Libya** says pipeline maintenance to take 200,000 b/d offline for ~1 week. Separately, still worry about the risk of more unplanned interruptions if election limbo continues much longer. Map courtesy of **@business #OOTT**

<https://www.facebook.com/noclibya/>
 @noclibya National Oil Corporation
 6 hrs

The National Oil Corporation announces that it has been decided starting from midnight of Sunday, January 2, 2022, and at 00:01:00, to reduce the production of the oil fields of the interior and to start the production and Monday and starting the operations of loading and during the last part of Tuesday, Jan 4, 2022, for a period of one week, which means, in numbers, a loss of 200 thousand barrels per day. A loss of 200 thousand barrels per day is not a big deal.

Despite all this, the National Oil Corporation and its subsidiaries are keen to reduce the maintenance period and work in a fast-paced manner. We have great confidence in our technical cadres and their ability to work periodically and continuously to resume production.

It is mentioned that the Chairman of the Board of Directors has confirmed on many occasions that "the infrastructure in the oil sector has become in a situation where it is not possible to continue its regular operation due to the large number of leaks and the deterioration of surface facilities, due to the consequences of illegal closures in the past years, as well as the absence of approved budgets for the sector, which it will ensure the preservation of the integrity of the assets of the national oil sector. Moreover, the revenues of the public treasury will be negatively affected, and all this is a result of the failure of decision-making bodies to liquidate approved budgets for the second year in a row.

May Allah Bless Libya
 Jan 01, 2022

1 6 8

SAF **Dan Tsubouchi** @Energy_Tidbits · 12h
Denmark domestic air flights to be green by 2030. PM says difficult but possible & "it will be a green breakthrough. Not just for Denmark. But for the whole world." Really? DK tip to tip max is 400 km N/S, 350 km E/W. Will take decades to replace global #JetFuel #OOTT #NetZero

Excerpt from <https://www.sbm.dk/statministeren/taler/statminister-mette-frederiksen-nytaarstale-den-1-januar-2022>
TALK 01 01 22
Prime Minister Mette Frederiksen's New Year's speech on 1 January 2022
The time of all the world's nations is now the time of the climate. The time of the climate is the time of all the world's nations.
2022 will be a year in which we, with several agreements, have achieved steps on the road to a green future.
Denmark is again the green pioneer country we want to be. It should give us even more courage.
Rising temperatures are destroying our planet.
I know many are worried. What will our future be like? And the children's? And the grandchildren's?
I can promise you one thing. The political majority that is right now in Denmark. We do not fail. We do what needs to be done. That is our promise. That is my promise.
The time of all the world's nations is now the time of the climate. If most nations that pollute do not pay for their emissions themselves.
Many are already in the process of adjusting. For others, it will take longer.
But the starting point is simple. The Danish principle that the polluter should carry the cost. The one who causes the problem should pay for it. If you don't pay, then you have to pay.
That is the most reasonable thing.
When other countries in the world are too slow. Then Denmark must take the lead. And raise the bar even more.
The time of all the world's nations is now the time of the climate. To know is to act, and that is why we say that all the time now it is necessary to do things.
The time of all the world's nations is now the time of the climate.
We need to make it green for us.
Denmark, the government has set the ambitious goal. By 2030, Denmark must have the opportunity to fly green on a domestic route. And by 2040, at the latest, we must be able to fly green on a long-haul route.
Can it be difficult? Yes, it is possible. Yes, it is possible. We are already on our way. Several researchers and companies are working on the solution.
If we succeed, then it will be a green breakthrough. Not just for Denmark. But for the whole world.
If there is anything the past few years have taught us. In dealing with major crises. Then it is that we must never hesitate.

1 3 4

SAF **Dan Tsubouchi** @Energy_Tidbits · 19h
wonder what the #zamboni driver did on New Year's Eve that he is driving the zamboni to work at the rink this morning in #Canmore? luckily it's only -15c and he can enjoy the view of the Cdn Rockies.



1 8

SAF **Dan Tsubouchi @Energy_Tidbits · 23h** ...

#CalSTRS @CJAtheCIO warns #Exxon "change has to happen" "better get their act together & become energy companies, not just oil and gas firms" if they want to survive & not be the next Kodak or Blockbuster. Fight is on for next director vote. See SAF transcript below. #OOTT

SAF Group created transcript of excerpts from Bloomberg interview with CalSTRS CIO Christopher Allman on Dec 31, 2021 <https://www.bloomberg.com/news/videos/2021-12-31/calstrs-cio-exxon-in-danger-of-being-next-blockbuster-video>

Items in "italics" are SAF Group created transcript

At 4:00 min mark, Bloomberg asks if they are satisfied with Exxon's progress since the election of new board members following that proxy fight from Engine No. 1 earlier this year? *Allman, "Tim, great question and No, I am not. I'm not satisfied with the way they have integrated our board members. They have not embraced them holistically and recognized recognizes that this is shareholders talking to them and wanting a change. Hopefully, they will put them all back up for re-election and will continue the dialogue. But I have to say, you know between you and me, I think management has been a bit stubborn and they need to be more open. And if we need to raise our voice again on ExxonMobil, we will, because change has to happen. Change is going to happen around the world. And if these companies want to survive and not be Eastman Kodak, not want to be Blockbuster Video, darn it, they better get their act together and become energy companies, not just oil and gas firms."*

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

<https://www.calstrs.com/pressroom/statements/calstrs-backed-directors-joining-exxonmobil-board>

Statement on CalSTRS-backed directors joining ExxonMobil board

STATEMENT MAY 26, 2021 **KAREN JOHNSON**

WEST SACRAMENTO, Calif. (May 26, 2021) – CalSTRS issued the following statement today regarding the voting results at ExxonMobil's Annual Shareholder Meeting in which at least two directors nominated by Engine No. 1 and supported by CalSTRS from the beginning were elected by shareholders to the ExxonMobil board:

We called for change at ExxonMobil, and a record number of shareholders, including many of the largest investors in the world, voted to hold the company accountable. This historic vote represents a tipping point for companies unprepared for the global energy transition. While the ExxonMobil board election is the first of a large U.S. company to focus on the global energy transition, it will not be the last.

Climate change is the greatest threat to our future. We believe change is necessary for companies that do not have a long-term strategy for a responsible transition to a low-carbon economy.

Shareholders must continue to hold the ExxonMobil board accountable to mitigate risk and contribute to the sustainable value of their investments.

The links between climate change, business and financial investments are undeniable, and we are taking action to prepare our investment portfolio for the global energy transition while maximizing returns for California's educators.

About CalSTRS

CalSTRS provides a secure retirement to more than 975,000 members whose CalSTRS-covered service is not eligible for Social Security participation. In 2019–20, members retired on average after more than 24 years in the classroom with a monthly benefit of approximately \$4,614. Established in 1913, CalSTRS is the largest educator-only pension fund in the world with approximately \$299.8 billion in assets under management as of April 30, 2021. CalSTRS demonstrates its strong commitment to long-term corporate sustainability principles in its annual Global Reporting Initiative [Sustainability Report](#). For more information, visit CalSTRS.com.

3 2 6 ↑

SAF **Dan Tsubouchi @Energy_Tidbits · 23h** ...

a great sunrise to begin 2022. happy new year from **#Canmore** in the Cdn Rockies. wish everyone health, happiness and prosperity in 2022. let's all try to do a little more to help others.



4 ↑ 31 ↑

SAF

Dan Tsubouchi @Energy_Tidbits · Jan 1

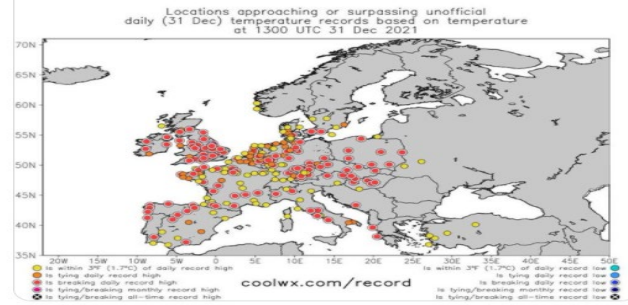
Record warm temps across Europe for last week. No wonder Europe #NatGas prices down huge in last 10 days ie. UK 12/31/21 are Oclosed down 62% since 12/21. But UK 12/31/21 are still at 3x vs year ago 12/31/20. #OOT

MCCStudy @mccstudy · Jan 1

Locations in Europe approaching or breaking historical maximum #temperature records for a December 31st !!

coolwx.com/record/

#ClimateChange #ClimateCrisis #ClimateAction



SAF

Dan Tsubouchi @Energy_Tidbits · Dec 31, 2021

was just sending my china EVs tweet and just above my monitor noticed one of the local #Canmore coyotes out for a little food hunt. it's always great to see the local coyotes, elk, deer, etc. makes remember we are in the Rockies



0:22 343 views



SAF **Dan Tsubouchi** @Energy_Tidbits · Dec 29, 2021
 For those not near their laptop. @EIAgov weekly #Oil #Gasoline #Distillates inventory data for Dec 24 just out. Prior to release, WTI was \$76.05. #OOTT

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

Inventory Dec 24: EIA, Bloomberg Survey Expectations,

	EIA	Expectations
	-3.60	-2.70
	-1.46	-0.90
	-1.73	-0.35
	-6.79	-3.95

Commercial so builds in impact of 1.4 mmb draw from SPR for Dec 24. In the data, Cushing had an injection of 1.06 mmb for Dec 24. #OOTT
 Bloomberg
 SAF Group

🗨️ ↺️ ❤️ 9 ↗️

SAF **Dan Tsubouchi** @Energy_Tidbits · Dec 28, 2021
 ICYMI. Putin is asked "what is your greatest concern?", he replies "demographics is one of our main problems for our humanitarian and economic considerations" ie. Russia's shrinking population. A big factor why he needs stronger for longer #Oil #NatGas #Metals prices. #OOTT

Excerpt SAF Group Dec 26, 2021 Energy Tidbits Memo

Demographics – Putin's greatest concern is Russia's shrinking population
 Putin's big press conference comments on Russia's population reminded us of an item we forgot to include in our Dec 5, 2021 Energy Tidbits – Putin's greatest concern is the shrinking Russia population. This week, Putin noted "There are issues that cannot but cause concern, including life expectancy, which has slightly decreased from 71.5 to 70.1 years." The item we forgot to include was Putin's comments at the "Russia Calling! Investment Forum" on Nov 30. [LINK] Putin was asked "What keeps you awake at night?" In the sense, "What is your greatest concern?" Putin responds "We have domestic issues typical of Russia, primarily demographic problems. We had two natural declines in our demographic development: during World War II or the Great Patriotic War, as we call it, in 1943–1944, and in the early and middle 1990s after the collapse of the Soviet Union. There was an equal drop in the birth rate. It was the lowest in 1999 – I believe a little over 1,200,000. In 2006, we already had almost two million births – more than 1,900,000. This problem has acquired a systemic and economic character due to the shortage of workforce in the labour market. We have a little over 80 million there and our losses amount to 1.1–1.2 percent a year. In this context, demographics is one of our main problems both for humanitarian and economic considerations, and because we need to strengthen our statehood as well. I will not enumerate all the measures and instruments we are using and intend to continue using in the future in order to tackle this problem. In general, we managed to get things moving in the recent past. Overall, we understand what we can do and know how to do it."

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

🗨️ 2 ↺️ 3 ❤️ 6 ↗️

SAF

Dan Tsubouchi @Energy_Tidbits · Dec 28, 2021

Pemex/MEX stopping crude oil exports is the only forecast that has been pretty accurate. Just noted the year ago Dec 23, 2020 AMLO tweet on this. Arguably part of it is that Pemex is much lower than their 2022/2023 production forecasts from 2020. twitter.com/Energy_Tidbits... #OOTT

SAF — Dan Tsubouchi @Energy_Tidbits · Dec 28, 2021

Pemex/MEX will stop exporting crude in 2023 after reducing exports to 435k b/d in 2022 says @Pemex CEO, vs ~1 mmb/d in 2021. PADD 3 Gulf Coast gets >50% of MEX #Oil exports. Cdn heavy/med wins when MEX oil exports go down. Thx @amystillman. #OOTT twitter.com/Energy_Tidbits...

The screenshot shows a tweet with a report snippet and two line charts. The report snippet is titled "SAF Group Research" and discusses Pemex's refinery capacity and export forecasts. It mentions that Pemex's refinery capacity is 435,000 bbl/d and that exports are expected to decline from 1.1 mmb/d in 2021 to 0.435 mmb/d in 2022. The top chart is titled "Figure 10: Gulf Coast PADD 3 Crude Oil Imports (mmb/d)" and shows a line graph from 2017 to 2021. The bottom chart is titled "Figure 11: Gulf Coast PADD 3 Crude Oil Imports (mmb/d)" and shows a similar line graph.

5 3

SAF

Dan Tsubouchi @Energy_Tidbits · Dec 28, 2021

Pemex/MEX will stop exporting crude in 2023 after reducing exports to 435k b/d in 2022 says @Pemex CEO, vs ~1 mmb/d in 2021. PADD 3 Gulf Coast gets >50% of MEX #Oil exports. Cdn heavy/med wins when MEX oil exports go down. Thx @amystillman. #OOTT

This is an identical screenshot to the one above, showing the same tweet content, report snippet, and charts.

3 10 44

SAF — Dan Tsubouchi @Energy_Tidbits · Oct 27, 2021

H2/22 #Oil supply gap >0.5 mmbd heavy/med to PADD 3. #Pemex Dos Bocas refinery start up 07/01/22, AMLO says MX oil prod needed for refineries & to stop exports. Should be upside to heavy/med. Thx @CarolinaBGP. See SAF Group 12/27/20 Energy ...



SAF

Dan Tsubouchi @Energy_Tidbits · Dec 27, 2021

Looks like another @EDFofficial unplanned nuclear reactor shutdown. This time Cruas #2. Dec 15 reactor issues were at Civaux and Chooz nuclear power plants. #NatGas #OOTT

edf.fr/en/the-edf-gro...



https://www.edf.fr/en/the-edf-group/dedicated-sections/journals/all-areas-releases/reactors-of-the-civaux-and-chooz-nuclear-power-plants-replacements-and-preventive-checks-on-parts-of-the-piping-of-a-safety-system

Reactors of the Civaux and Chooz nuclear power plants: replacements and preventive checks on parts of the piping of a safety system

During preventive maintenance checks on the primary circuit of reactor number 1 of the Civaux Nuclear Power Plant (in the Vienne Department of France), scheduled as part of its ten-yearly in-service inspection, some defaults were detected close to the welds on the piping of the safety injection system (SIS)* circuit. The French nuclear safety authority, Autorité de Sécurité Nucléaire (ASN), was informed of the detection.

Checks initiated on the same equipment of reactor number 2 of the Civaux Nuclear Power Plant revealed similar defects.

Today, a decision has been taken to replace the affected parts on the two Civaux reactors, the work being governed by a technical instruction prepared in cooperation with the ASN, which leads to extend the shutdown of the two reactors.

The four reactors of the Chooz (in the Ardennes Department) and Civaux nuclear power plants use the same technology and form the N4 reactor series of the French nuclear fleet. As a responsible nuclear operator, and as a precautionary measure, EDF has therefore taken the decision to shut down the two reactors of the Chooz Nuclear Power Plant so that, proceeding reactively, it can carry out the same checks on the SIS circuit which can only be possible as the reactors are offline. The Chooz number 2 reactor will be shut down on Thursday 16 December and the Chooz number 1 reactor will be shut down on Saturday 18 December.

These checks, together with the deployment of the technical solution, are being implemented in close cooperation with the ASN.

The extension of the Civaux's reactors outage and Chooz's reactors shutdown will result in a loss of about 1 TWh by the end of 2021, adding EDF to revise its EBITDA estimate, based on current market prices, to a range of 17.5 to 18 billion euros, against the previous target of an EBITDA of more than 17.7 billion euros. EDF confirms its target NFD/EBITDA of less than 2.6x.

1 5 4

SAF

Dan Tsubouchi @Energy_Tidbits · Dec 27, 2021

Novak says half of RUS #Oil production extremely low cost & work at \$20-25 price. But he didn't discuss the cost of the other half. In Sept, his deputy Sorokin said half of RUS oil reserves aren't profitable at \$50 ie. RUS needs stronger for longer oil prices. #OPEC+ #OOTT

Novak believes that oil demand will continue after 2050

According to the Deputy Prime Minister, the oil price by 2050 will remain in the range of \$ 40-70 per barrel

MOSCOW, December 24. / TASS /. Oil in current volumes will be in demand in the world for at least the next 10-15 years, and its consumption will continue after 2050. At the same time, the price of oil by 2050 will still remain quite high - in the range of \$ 40-70 per barrel, said Russian Deputy Prime Minister Alexander Novak in an article for the *Energy Daily* magazine.

"According to preliminary forecasts, in 2040 the demand for oil in various scenarios will amount to 7.6-11.4 million bpd (compared to 100 million bpd in 2019). The oil price by 2050 in real terms (that is, in prices 2019) will be in the range of \$ 40-70 per barrel, depending on the scenario," he said.

"By 2040, more than 70% of the energy balance will come from fossil fuels. At the same time, the most realistic forecasts indicate that, in volumes comparable to the current day, oil will be in demand in the world for at least the next 10-15 years.

According to Novak, Russia's efforts as a leading player in the oil market should be focused on maintaining the demand for the country's resources. According to him, for this, it is necessary to work on increasing the efficiency of oil use, technological equipment, ensuring maximum decarbonization of the industry, as well as on the development of the petrochemical sector of the economy.

According to him, the November decision of the United States and a number of major oil consumers to release part of the strategic oil reserves may have only a short-term impact on the market.

Extraction of hydrocarbons

to the long term, Russia will not only retain its share of the hydrocarbon market, but also has the ability to increase it, the Deputy Prime Minister noted.

Novak also added that hard-to-recover reserves (TRIZ) now account for at least 17% of Russia's oil reserves. At the same time, the total volume of additional production of TRIZ will reach 40 million tons by 2026.

"In turn, this can contribute to additional revenues for the budgetary system in the amount of 200-250 billion rubles per year, the formation of a market for Russian technologies for the production of TRIZ at 200 billion rubles a year, as well as the creation of thousands of new jobs," the Deputy Prime Minister said.

Ministry of Energy: production of half of oil reserves in Russia is unprofitable at a price of \$ 50 per barrel

Deputy head of the department Pavel Sorokin considers the range of \$ 55-60 per barrel as a balanced oil price for 2022.

MOSCOW, September 3. / TASS /. The Deputy Minister of Energy of Russia, Pavel Sorokin, said that the production of half of the country's oil reserves is unprofitable at a price of \$ 50 per barrel. He also noted that the current market price of oil is "unprofitable" for Russia.

"Even in our current structure of reserves, a significant part of it is unprofitable at a price of \$ 50 per barrel. This is a very high price for oil. It is not profitable to produce it," Sorokin said.

The Deputy Minister considers the range of \$ 55-60 per barrel to be a balanced oil price for next year, but only after the completion of the recovery in the world of production under the OPEC+ deal, which under the current terms of the agreement should take place in May 2022.

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Dan Tsubouchi @Energy_Tidbits · Dec 27, 2021

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Good news, Europe #NatGas prices are down >50% from week ago peak. Bad news is that still \$30/mcf, which is still about 8x US prices. #OOTT

<https://www.bbc.com/economy/181122>
ENERGY CRISIS IN EUROPE
7 DEC, 10:51

Gas price in Europe down below \$1,100 per 1,000 cubic meters

The total decrease since the beginning of the day has almost reached 18%

MOSCOW, December 27. /ITASS: The gas price in Europe fell below \$1,100 per 1,000 cubic meters during Monday exchange trading, according to ICE trading data.

The price of gas futures for January delivery at the TTF hub in the Netherlands was down at \$1,064 per 1,000 cubic meters, or 90.915 euro per MWh (on the basis of the current euro exchange rate against the dollar, prices at ICE are in euro per MWh).

The total decrease of the gas price since the beginning of the day has almost reached 18%.

The gas price soared on December 21 in Europe as it consecutively surpassed \$1,800 and \$1,900 per 1,000 cubic meters, hitting a fresh all-time high, after which it breached the psychological mark of \$2,000. Later it exceeded \$2,100 and neared \$2,200, rising to \$2,190.4 per 1,000 cubic meters, or 187.47 euro per MWh. However, volatile due to the speculative factor, the price of gas futures at the TTF hub does not reflect the real price of physical supplies to Europe.

The average price of gas export under Gazprom contracts in 2021 will total \$280 per 1,000 cubic meters.



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Current Alberta -30c cold spell reminds of how EV ranges gets hammered when its cold. On 04/04/21 @Writer_StevenL noted #TeslaModel3 range test in Winnipeg was >110 miles vs EPA rated range of 263 miles. #OOTT #EVs



insideevs.com

Tesla Model 3 Highway Range Test In One Of The Coldest Cities

Winnipeg may not be the coldest city in the world, but it's certainly very cold.



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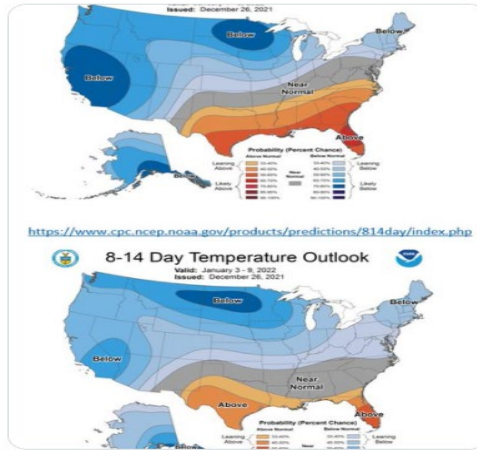
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Finally some near term weather support for #NatGas prices. @NOAA forecasts cold temps moving broadly across US in early Jan. #OOTT



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Dan Tsubouchi @Energy_Tidbits · Dec 26, 2021

Our weekly SAF Dec 26, 2021 Energy Tidbits memo is posted on our SAF Group website. This 44-pg energy research memo expands upon & covers more items than tweeted this week. See news/insights section of SAF website #Oil #OOTT #LNG #NatGas #EnergyTransition safgroup.ca/news-insights/

Dec 26, 2021

Energy Tidbits

Produced by Dan Tsubouchi

Norway's Wealth Fund is Another Major Investor, Like CPPIB, to Keep Investing in Oil & Gas Stocks

Welcome to new Energy Tidbits memo readers. We are continuing to add new readers to our Energy Tidbits memo, energy blogs and tweets. The focus and concept for the memo was set in 1999 with input from P&G, who were looking for research (both positive and negative) that helped them shape their investment thesis in the energy space, and not just focusing on daily trading. Our priority was and still is to not just report on events, but also try to interpret and point out important insights. The best example is our review of investor days, conferences and earnings calls focusing on sector developments that are relevant to the sector and not just a specific company results. Our target is to write on 48 to 50 weekends per year and to post by noon mountain time on Sunday.

This week's memo highlights:

- Norway's Wealth Fund is following CPPIB's lead last week to say they will keep investing in oil and gas stocks [Click Here](#)
- High Europe natural gas prices affect US LNG exports providing some temporary relief to the crazy high prices [Click Here](#)
- Another Asian LNG buyer agrees to lock in long term LNG supply [Click Here](#)
- Does Shell's Russia asset include LNG Canada Phase 2 as an "other region" if they develop that one is close proximity to Asia demand? [Click Here](#)
- Elys is now in talks with Dec 24 Presidential election postponement, will need to set a new date soon to avoid a black hole [Click Here](#)
- Happy New Year! Wishing everyone happiness, health, and good fortune in 2022
- Please follow us on Twitter at [@E_TID](#) for breaking news that ultimately ends up in the weekly Energy Tidbits memo that doesn't get posted until Sunday noon MT
- For new readers to our Energy Tidbits and our blogs, you will need to sign up at our blog sign up to receive future Energy Tidbits memos. The sign up is available at [@E_TID](#)

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