

# Energy Tidbits

Imagine if Toyota or GM, not BYD, had Announced its Hybrids  
Had a Range of >2,000 Km Without Refueling/Recharging

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USA NATIONAL FORECAST

## June Temperature Forecast Update Trends Hotter For Nation's Northern Tier

By weather.com meteorologists 2 days ago

At a Glance

The June outlook is now hotter in the nation's northern tier.

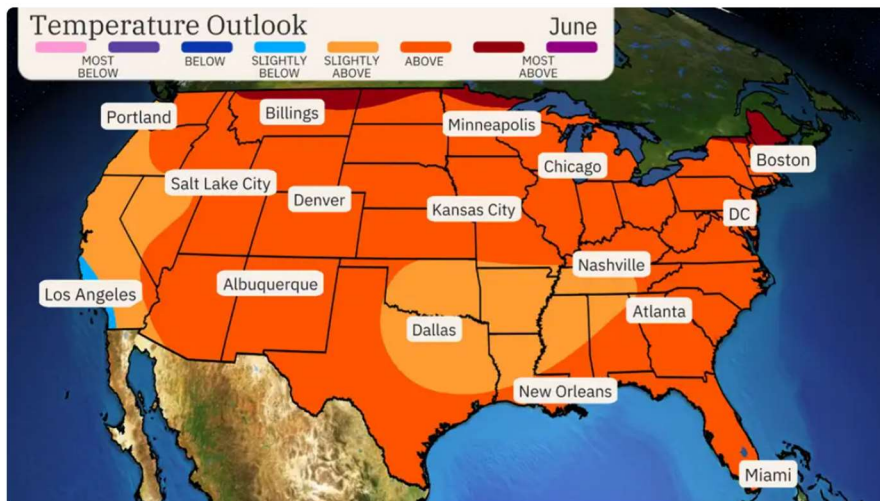
Conditions in the South will be typical of June, and the West might see a split in temperatures.

The Southeast and southern mid-Atlantic could be in for a soggy start to summer.

June's temperature forecast has trended hotter for the northern tier of the United States and a touch cooler for parts of the South, while the West may see changeable conditions in the month, according to an updated outlook released Friday by The Weather Company and Atmospheric G2.

A hotter-than-average first month of summer is in store for much of the Lower 48: Just about everywhere from the East Coast to the Rockies is predicted to have temperatures above the norm for June as a whole, with the forecast for the northern half of the country now warmer than a previous outlook issued earlier in May.

One note is the Midwest and Great Lakes jet stream pattern might favor cooler than average conditions for a time beginning late in June's first full week, so think of this outlook as an overview of how the month will fair as a whole.



June's Temperature Outlook

Meanwhile, the updated outlook has trended a tad cooler from Oklahoma and northeast Texas to the lower Mississippi and Tennessee valleys. Temperatures are predicted to be only slightly above average in these areas, but the typical heat and humidity that goes hand-in-hand with June is still expected.

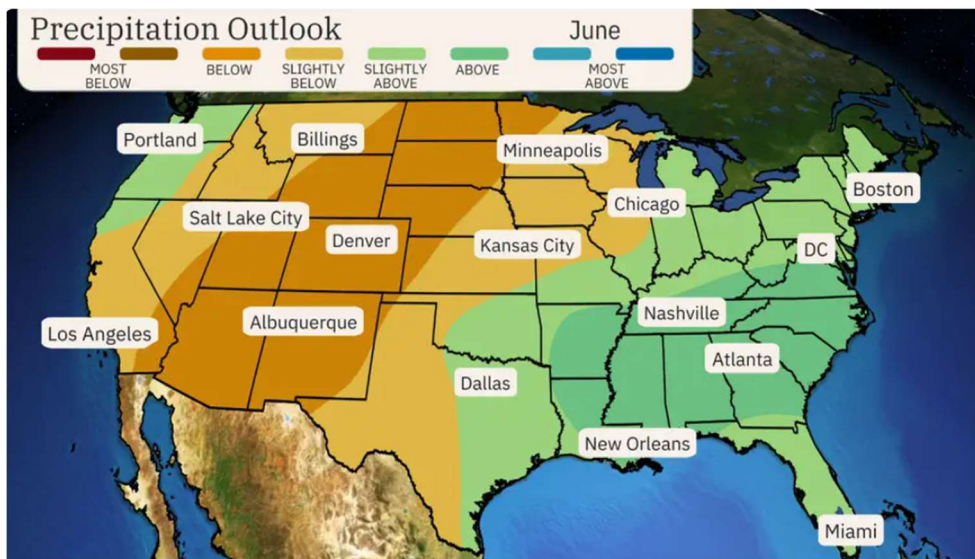
June could be a temperature split in the West: A hot ridge of high pressure is expected to build over the West in June's first full week. That means much of the region will see hotter-than-average temperatures compared to what early June usually features.

That hot pattern might not persist deeper into the month. Another pattern shift could allow the above-average warmth in parts of the region to abate during the second half of June, according to Dr. Todd Crawford, Vice President of Meteorology at Atmospheric G2 and lead author of the forecast.

(192-hours: Further beef up your forecast with our detailed, hour-by-hour breakdown for the next 8 days – only available on our Premium Pro experience.)

Wet start to summer possible in South, southern mid-Atlantic: Thunderstorms that blossom with the heating of day in summer might be a bit more common this June, from the lower Mississippi Valley to Georgia, the Carolinas and Virginia, where above-average rainfall is favored.

The driest conditions compared to average are expected from the Southwest into the Rockies and Northern Plains. June is already one of the driest months for the southwestern part of that area, so little rainfall is typical this time of year until the monsoon's wet phase arrives later in summer.



**Table 1. Summary of natural gas supply and disposition in the United States, 2019-2024**

billion cubic feet

Year and month	Gross withdrawals	Marketed production	NGPL production <sup>a</sup>	Dry gas production <sup>b</sup>	Supplemental gaseous fuels <sup>c</sup>	Net imports	Net storage withdrawals <sup>d</sup>	Balancing item <sup>e</sup>	Consumption <sup>f</sup>
<b>2019 total</b>	<b>40,780</b>	<b>36,447</b>	<b>2,548</b>	<b>33,899</b>	<b>61</b>	<b>-1,916</b>	<b>-503</b>	<b>-408</b>	<b>31,132</b>
<b>2020 total</b>	<b>40,730</b>	<b>36,521</b>	<b>2,710</b>	<b>33,811</b>	<b>63</b>	<b>-2,734</b>	<b>-180</b>	<b>-357</b>	<b>30,603</b>
<b>2021 total</b>	<b>41,677</b>	<b>37,338</b>	<b>2,809</b>	<b>34,529</b>	<b>66</b>	<b>-3,845</b>	<b>83</b>	<b>-188</b>	<b>30,646</b>
<b>2022</b>									
January	3,628	3,235	252	2,983	6	-315	1,013	-95	3,593
February	3,266	2,914	227	2,687	5	-288	673	-17	3,059
March	3,663	3,282	256	3,026	6	-380	171	-43	2,781
April	3,568	3,199	250	2,950	6	-342	-220	-33	2,360
May	3,695	3,332	260	3,072	6	-386	-412	-39	2,241
June	3,565	3,232	252	2,980	6	-325	-332	-13	2,317
July	3,736	3,375	263	3,112	6	-303	-187	-46	2,583
August	3,730	3,392	265	3,128	6	-322	-213	-39	2,559
September	3,669	3,330	260	3,071	6	-293	-446	-50	2,288
October	3,814	3,438	268	3,170	6	-315	-432	-66	2,364
November	3,712	3,327	259	3,067	6	-308	78	-77	2,767
December	3,755	3,370	263	3,107	6	-304	588	-21	3,376
<b>Total</b>	<b>43,802</b>	<b>39,428</b>	<b>3,075</b>	<b>36,353</b>	<b>73</b>	<b>-3,880</b>	<b>281</b>	<b>-539</b>	<b>32,288</b>
<b>2023</b>									
January	£3,820	£3,429	270	£3,159	7	-333	456	15	3,303
February	£3,456	£3,103	247	£2,856	6	-331	399	19	2,949
March	£3,858	£3,475	286	£3,189	6	-401	224	R-5	3,014
April	£3,729	£3,362	283	£3,079	5	-400	-269	5	2,421
May	£3,869	£3,500	289	£3,210	6	-422	-452	-27	2,315
June	£3,720	£3,375	278	£3,098	4	-376	-344	-20	2,363
July	£3,827	£3,495	290	£3,205	6	-378	-134	-33	2,666
August	£3,850	£3,534	294	£3,240	5	-388	-133	-51	2,673
September	£3,761	£3,426	291	£3,135	3	-396	-323	-46	2,373
October	£3,909	£3,537	302	£3,235	3	-421	-321	-58	2,438
November	£3,841	£3,469	292	£3,177	5	-403	65	-21	2,823
December	£3,994	£3,592	292	£3,300	6	-432	284	11	3,169
<b>Total</b>	<b>£45,633</b>	<b>£41,296</b>	<b>3,413</b>	<b>£37,883</b>	<b>63</b>	<b>R-4,681</b>	<b>-548</b>	<b>R-211</b>	<b>32,507</b>
<b>2024</b>									
January	RE3,872	RE3,480	269	RE3,211	6	-350	844	R-13	R3,697
February	RE3,718	RE3,344	276	RE3,068	5	-385	262	R19	2,969
March	£3,875	£3,483	303	£3,180	6	-427	48	-16	2,791
<b>2024 3-month YTD</b>	<b>£11,464</b>	<b>£10,306</b>	<b>847</b>	<b>£9,459</b>	<b>17</b>	<b>-1,162</b>	<b>1,154</b>	<b>-10</b>	<b>9,457</b>
<b>2023 3-month YTD</b>	<b>£11,133</b>	<b>£10,006</b>	<b>803</b>	<b>£9,204</b>	<b>19</b>	<b>-1,065</b>	<b>1,078</b>	<b>29</b>	<b>9,266</b>
<b>2022 3-month YTD</b>	<b>10,557</b>	<b>9,432</b>	<b>736</b>	<b>8,697</b>	<b>17</b>	<b>-983</b>	<b>1,857</b>	<b>-155</b>	<b>9,433</b>

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

<sup>b</sup> Equal to marketed production minus NGPL production.

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

<sup>d</sup> Monthly and annual data for 2019 through 2022 include underground storage and liquefied natural gas storage. Data for January 2023 forward include underground storage only. Appendix A, Explanatory Note 5, contains a discussion of computation procedures.

<sup>e</sup> Represents quantities lost and imbalances in data due to differences among data sources. Net imports and balancing item excludes net intransit deliveries. These net intransit deliveries were (in billion cubic feet): 91 for 2022; 184 for 2021; 207 for 2020; and -8 for 2019. Appendix A, Explanatory Note 7, contains a full discussion of balancing item calculations.

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

<sup>R</sup> Revised data.

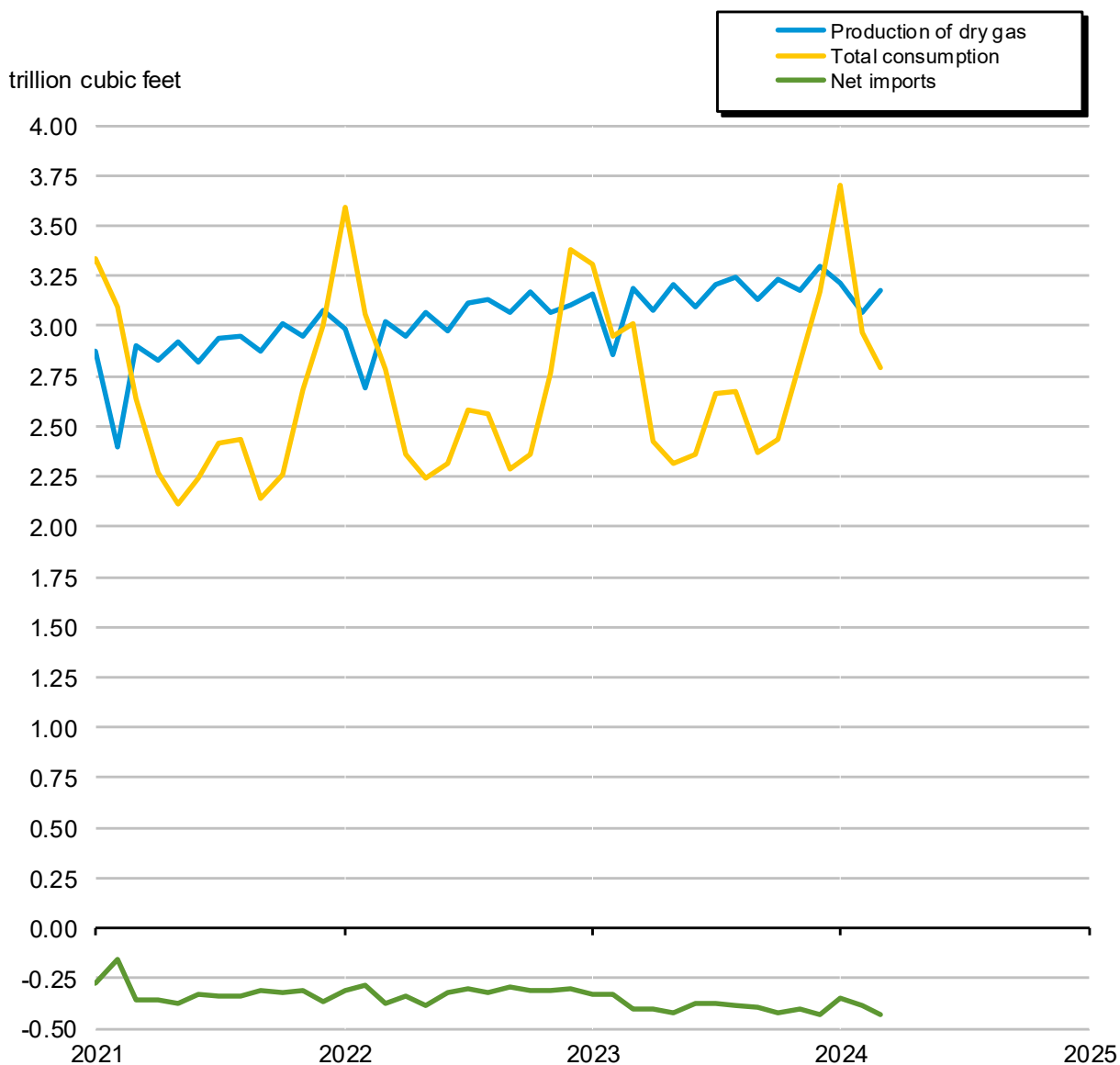
<sup>RE</sup> Revised estimated data.

<sup>E</sup> Estimated data.

**Source:** 2019-2022: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2022*. January 2023 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; Form EIA-191, *Monthly Underground Gas Storage Report*; EIA computations and estimates; and Office of Fossil Energy and Carbon Management, *Natural Gas Imports and Exports*. Table 7 includes detailed source notes for Marketed Production. Appendix A, Notes 3 and 4, includes discussion of computation and estimation procedures and revision policies.

**Note:** Data for 2019 through 2022 are final. All other data are preliminary unless otherwise indicated. Geographic coverage is the 50 states and the District of Columbia. Totals may not equal sum of components because of independent rounding.

Figure 1. Production, consumption, and net imports of natural gas in the United States, 2021-2024



Source: 2021-2022: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2022*. January 2023 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; Form EIA-191, *Monthly Underground Gas Storage Report*; EIA computations and estimates; and Office of Fossil Energy and Carbon Management, *Natural Gas Imports and Exports*.

**Table 2. Natural gas consumption in the United States, 2019-2024**

billion cubic feet, or as indicated

Year and month	Lease and plant fuel <sup>a</sup>	Pipeline and distribution use <sup>b</sup>	Delivered to consumers						Total consumption	Heating value <sup>c</sup> (Btu per cubic foot)
			Residential	Commercial	Industrial	Electric power	Vehicle fuel	Total		
<b>2019 total</b>	<b>1,823</b>	<b>1,018</b>	<b>5,019</b>	<b>3,515</b>	<b>8,417</b>	<b>11,288</b>	<b>53</b>	<b>28,291</b>	<b>31,132</b>	<b>1,038</b>
<b>2020 total</b>	<b>1,851</b>	<b>1,020</b>	<b>4,674</b>	<b>3,163</b>	<b>8,213</b>	<b>11,632</b>	<b>49</b>	<b>27,731</b>	<b>30,603</b>	<b>1,037</b>
<b>2021 total</b>	<b>1,851</b>	<b>1,131</b>	<b>4,717</b>	<b>3,289</b>	<b>8,375</b>	<b>11,229</b>	<b>54</b>	<b>27,663</b>	<b>30,646</b>	<b>1,037</b>
<b>2022</b>										
January	154	137	958	551	826	961	6	3,302	3,593	1,038
February	139	116	791	464	729	815	5	2,804	3,059	1,038
March	157	105	588	385	761	779	6	2,519	2,781	1,036
April	153	88	384	276	706	748	5	2,120	2,360	1,035
May	159	83	201	183	684	925	6	1,999	2,241	1,034
June	154	86	124	146	655	1,146	5	2,076	2,317	1,033
July	161	97	110	144	665	1,400	6	2,325	2,583	1,033
August	162	96	103	141	677	1,375	6	2,302	2,559	1,035
September	159	85	114	150	653	1,122	5	2,044	2,288	1,036
October	164	88	242	223	692	950	6	2,112	2,364	1,036
November	159	104	513	353	729	903	5	2,504	2,767	1,036
December	161	128	835	492	761	993	6	3,087	3,376	1,041
<b>Total</b>	<b>1,883</b>	<b>1,212</b>	<b>4,964</b>	<b>3,509</b>	<b>8,537</b>	<b>12,118</b>	<b>65</b>	<b>29,193</b>	<b>32,288</b>	<b>1,036</b>
<b>2023</b>										
January	£164	£124	799	475	770	967	£5	3,015	3,303	1,039
February	£148	£111	684	424	708	870	£4	2,690	2,949	1,038
March	£166	£113	633	408	757	932	£5	2,735	3,014	1,036
April	£161	£91	338	253	706	869	£4	2,170	2,421	1,035
May	£167	£87	197	183	681	996	£5	2,061	2,315	1,034
June	£161	£89	129	149	654	1,176	£4	2,113	2,363	1,034
July	£167	£100	111	143	669	1,471	£5	2,399	2,666	1,035
August	£169	£100	104	145	688	1,462	£5	2,404	2,673	1,035
September	£164	£89	113	146	665	1,191	£4	2,120	2,373	1,034
October	£169	£92	227	224	706	1,016	£5	2,178	2,438	1,035
November	£166	£106	493	346	743	965	£4	2,551	2,823	1,037
December	£172	£119	656	413	791	1,014	£5	2,878	3,169	1,038
<b>Total</b>	<b>£1,972</b>	<b>£1,221</b>	<b>4,483</b>	<b>3,310</b>	<b>8,538</b>	<b>12,930</b>	<b>£53</b>	<b>29,314</b>	<b>32,507</b>	<b>1,036</b>
<b>2024</b>										
January	£166	£139	919	535	802	1,131	£5	3,392	£3,697	1,039
February	RE160	£111	646	416	718	914	£4	2,698	2,969	1,039
March	£166	£105	509	346	745	915	£5	2,520	2,791	1,037
<b>2024 3-month YTD</b>	<b>£492</b>	<b>£355</b>	<b>2,074</b>	<b>1,297</b>	<b>2,264</b>	<b>2,961</b>	<b>£13</b>	<b>8,610</b>	<b>9,457</b>	<b>1,039</b>
<b>2023 3-month YTD</b>	<b>£478</b>	<b>£348</b>	<b>2,116</b>	<b>1,307</b>	<b>2,235</b>	<b>2,769</b>	<b>£13</b>	<b>8,440</b>	<b>9,266</b>	<b>1,038</b>
<b>2022 3-month YTD</b>	<b>450</b>	<b>358</b>	<b>2,337</b>	<b>1,400</b>	<b>2,316</b>	<b>2,555</b>	<b>16</b>	<b>8,624</b>	<b>9,433</b>	<b>1,038</b>

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

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

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

<sup>R</sup> Revised data.

<sup>RE</sup> Revised estimated data.

<sup>E</sup> Estimated data.

**Source:** 2019-2022: U.S. Energy Information Administration (EIA): Form EIA-857, *Monthly Report of Natural Gas Purchases and Deliveries to Consumers*; state and federal agencies; EIA estimates based on historical data; and *Natural Gas Annual 2022*. January 2023 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; Form EIA-857; Form EIA-923, *Power Plant Operations Report*. Appendix A, Explanatory Note 6, contains an explanation of computation procedures and revision policy.

**Note:** Data for 2019 through 2022 are final. All other data are preliminary unless otherwise indicated. Geographic coverage is the 50 states and the District of Columbia. Totals may not equal sum of components because of independent rounding. Appendix A, Explanatory Note 6, contains a definition of sectors.

Table 5. U.S. natural gas exports, 2022-2024

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

	2024	2023	2022	2024			2023
	3-month YTD	3-month YTD	3-month YTD	March	February	January	Total
<b>Exports</b>							
Volume (million cubic feet)							
<b>Pipeline</b>							
Canada	323,275	307,291	261,281	116,204	114,539	92,532	1,026,097
Mexico	536,405	496,488	500,384	181,856	169,473	185,076	2,241,553
<b>Total pipeline exports</b>	<b>859,680</b>	<b>803,780</b>	<b>761,665</b>	<b>298,060</b>	<b>284,012</b>	<b>277,608</b>	<b>3,267,651</b>
<b>LNG</b>							
Exports							
By vessel							
Antigua and Barbuda	2	7	3	0	0	2	47
Argentina	0	4,630	0	0	0	0	76,921
Bahamas	111	121	109	35	34	42	499
Bangladesh	3,281	3,369	9,317	3,281	0	0	24,147
Barbados	88	0	92	29	37	22	11
Belgium	30,540	19,016	39,221	6,899	9,386	14,255	97,017
Brazil	14,473	1,334	30,217	0	6,180	8,292	38,595
Chile	13,657	10,578	6,376	6,439	3,522	3,696	31,217
China	41,631	25,593	10,884	17,376	16,312	7,944	173,247
Colombia	20,540	0	486	7,974	6,101	6,465	32,014
Croatia	23,042	12,613	18,311	10,202	3,377	9,464	55,439
Dominican Republic	19,146	8,033	13,177	4,552	7,106	7,489	73,761
El Salvador	0	0	0	0	0	0	1
Finland	0	6,462	0	0	0	0	R38,469
France	137,983	102,162	154,145	60,572	49,363	28,049	R493,209
Germany	51,146	47,384	0	17,060	16,715	17,371	204,605
Greece	13,530	13,144	14,012	3,240	3,136	7,153	39,426
Haiti	22	27	46	0	6	16	113
India	38,057	31,251	24,513	13,842	13,530	10,685	164,325
Indonesia	0	805	717	0	0	0	3,157
Italy	46,478	38,178	27,754	10,256	11,455	24,767	197,513
Jamaica	7,165	808	289	1	588	6,576	9,048
Japan	71,091	51,857	49,438	28,923	22,827	19,340	310,190
Jordan	3,477	0	0	3,477	0	0	3,282
Kuwait	10,382	0	5,277	7,207	3,175	0	35,185
Lithuania	11,898	10,312	12,349	3,641	7,174	1,083	55,332
Malta	0	2,592	2,345	0	0	0	2,592
Mexico	87	6,270	0	0	87	0	13,661
Netherlands	144,544	136,771	72,791	57,169	45,501	41,873	588,557
Pakistan	0	0	0	0	0	0	3,141
Panama	7,125	5,927	6,324	3,448	0	3,677	19,565
Philippines	0	0	0	0	0	0	6,823
Poland	20,133	29,121	15,002	3,685	10,702	5,746	139,635
Portugal	21,820	19,087	17,299	2,932	9,384	9,503	73,158
Singapore	17,076	0	6,725	7,031	6,851	3,194	23,320
South Korea	57,856	57,986	68,602	21,023	16,193	20,640	275,779
Spain	74,322	84,220	147,961	21,849	13,660	38,812	269,202
Taiwan	30,079	20,338	24,487	10,374	13,151	6,555	104,075
Thailand	31,450	9,816	8,370	14,737	8,809	7,904	59,477
Turkiye	72,110	64,593	105,407	8,963	20,454	42,693	156,403
United Kingdom	90,709	205,233	142,161	13,663	34,117	42,928	R450,181
By truck							
Canada	0	7	17	0	0	0	85
Mexico	47	335	449	12	14	21	604
Re-exports							
By vessel							
United Kingdom	607	0	0	0	607	0	0
<b>Total LNG exports</b>	<b>1,125,705</b>	<b>1,029,982</b>	<b>1,034,672</b>	<b>369,892</b>	<b>359,553</b>	<b>396,260</b>	<b>R4,343,027</b>
<b>CNG</b>							
Canada	0	1	*	0	0	0	1
<b>Total CNG exports</b>	<b>0</b>	<b>1</b>	<b>*</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>Total exports</b>	<b>1,985,385</b>	<b>1,833,762</b>	<b>1,796,337</b>	<b>667,952</b>	<b>643,565</b>	<b>673,868</b>	<b>R7,610,678</b>

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2022-2024

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

	2023						2023
	December	November	October	September	August	July	June
<b>Exports</b>							
Volume (million cubic feet)							
<b>Pipeline</b>							
Canada	111,869	89,446	66,936	76,619	68,390	76,567	75,320
Mexico	174,602	179,002	200,466	202,402	213,050	208,625	204,115
<b>Total pipeline exports</b>	<b>286,471</b>	<b>268,448</b>	<b>267,402</b>	<b>279,021</b>	<b>281,440</b>	<b>285,193</b>	<b>279,435</b>
<b>LNG</b>							
Exports							
By vessel							
Antigua and Barbuda	6	4	7	7	5	4	3
Argentina	0	0	0	0	0	11,162	22,663
Bahamas	32	34	34	51	47	47	45
Bangladesh	3,257	3,240	0	0	7,095	0	3,624
Barbados	11	0	0	0	0	0	0
Belgium	14,272	10,288	20,775	13,697	3,363	0	6,953
Brazil	3,708	3,563	3,720	6,561	3,287	0	8,628
Chile	0	0	0	0	3,065	7,144	4,011
China	13,949	25,601	18,013	10,222	14,252	35,337	20,261
Colombia	7,162	1,844	6,689	10,322	3,149	0	0
Croatia	3,050	9,995	0	10,542	3,023	10,121	0
Dominican Republic	3,177	8,647	8,826	6,734	10,055	6,076	7,443
El Salvador	0	0	0	0	0	1	0
Finland	2,762	3,335	0	7,057	6,630	3,666	1,622
France	40,692	58,907	54,072	32,016	34,332	20,589	45,569
Germany	19,439	14,382	17,901	17,228	20,709	17,245	15,769
Greece	8,287	0	0	1,968	4,700	0	2,924
Haiti	13	8	8	10	9	8	6
India	17,062	7,441	13,698	24,452	13,713	20,494	14,488
Indonesia	0	0	0	489	766	1,097	0
Italy	21,283	23,786	6,850	22,094	21,519	13,923	13,959
Jamaica	480	122	1,831	4,038	3	1,443	3
Japan	27,461	24,896	24,357	33,375	31,302	44,016	28,031
Jordan	0	0	0	0	0	3,282	0
Kuwait	0	0	0	6,636	3,289	7,081	10,670
Lithuania	3,409	0	6,476	10,666	7,005	3,375	3,629
Malta	0	0	0	0	0	0	0
Mexico	3,660	0	1,776	0	0	1,954	0
Netherlands	48,658	36,150	49,701	39,745	53,596	53,296	45,866
Pakistan	3,141	0	0	0	0	0	0
Panama	328	3,530	0	3,196	0	3,295	0
Philippines	0	3,445	3,378	0	0	0	0
Poland	10,862	14,500	14,213	14,121	10,550	3,635	18,046
Portugal	2,945	3,204	7,125	6,437	6,660	9,845	3,194
Singapore	0	0	3,279	6,649	3,384	0	10,009
South Korea	35,187	26,140	28,224	24,112	34,932	16,462	17,044
Spain	15,629	17,280	49,792	9,933	20,023	34,106	12,274
Taiwan	6,655	3,104	6,686	13,201	14,117	13,090	6,848
Thailand	3,818	7,581	7,538	0	14,793	7,463	4,242
Turkiye	42,304	27,560	4,507	3,531	0	0	0
United Kingdom	60,209	47,642	24,900	7,464	3,655	0	0
By truck							
Canada	7	7	0	16	8	8	17
Mexico	20	26	27	35	19	25	34
Re-exports							
By vessel							
United Kingdom	0	0	0	0	0	0	0
<b>Total LNG exports</b>	<b>422,935</b>	<b>386,262</b>	<b>384,403</b>	<b>346,604</b>	<b>353,059</b>	<b>349,292</b>	<b>327,872</b>
<b>CNG</b>							
Canada	0	0	0	0	0	0	0
<b>Total CNG exports</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total exports</b>	<b>709,406</b>	<b>654,710</b>	<b>651,805</b>	<b>625,625</b>	<b>634,499</b>	<b>634,485</b>	<b>607,307</b>

See footnotes at end of table.



Table 5. U.S. natural gas exports, 2022-2024

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

	2023					2022	
	May	April	March	February	January	Total	December
<b>Exports</b>							
Volume (million cubic feet)							
<b>Pipeline</b>							
Canada	77,984	75,674	106,178	95,691	105,422	959,630	98,718
Mexico	193,623	169,179	177,653	152,807	166,028	2,078,627	158,638
<b>Total pipeline exports</b>	<b>271,608</b>	<b>244,853</b>	<b>283,832</b>	<b>248,498</b>	<b>271,450</b>	<b>3,038,257</b>	<b>257,355</b>
<b>LNG</b>							
Exports							
By vessel							
Antigua and Barbuda	3	3	2	2	4	22	1
Argentina	26,930	11,536	2,343	2,287	0	66,939	0
Bahamas	45	43	53	27	42	489	42
Bangladesh	3,561	0	0	0	3,369	12,663	0
Barbados	0	0	0	0	0	93	0
Belgium	3,809	4,844	8,053	7,322	3,640	80,245	3,274
Brazil	4,196	3,598	1,334	0	0	71,998	0
Chile	6,419	0	7,271	0	3,307	30,131	0
China	6,593	3,426	5,132	2,565	17,896	96,659	6,992
Colombia	2,847	0	0	0	0	5,703	0
Croatia	2,932	3,163	3,694	6,006	2,913	77,286	6,204
Dominican Republic	7,871	6,901	876	3,514	3,643	50,824	6,644
El Salvador	0	0	0	0	0	0	0
Finland	6,935	0	6,462	0	0	329	329
France	51,658	53,211	28,581	39,457	34,124	571,399	38,311
Germany	16,002	18,546	24,841	8,229	14,314	7,113	7,112
Greece	4,498	3,905	3,156	6,781	3,207	69,031	2,869
Haiti	12	11	8	11	8	115	9
India	7,140	14,585	10,230	14,064	6,956	122,518	14,139
Indonesia	0	0	0	0	805	6,579	3,256
Italy	18,542	17,378	13,699	17,555	6,925	116,034	6,992
Jamaica	289	31	540	161	107	1,516	147
Japan	31,208	13,687	20,102	14,058	17,696	209,220	20,535
Jordan	0	0	0	0	0	0	0
Kuwait	3,802	3,707	0	0	0	57,018	0
Lithuania	7,048	3,412	3,599	0	6,713	77,212	3,281
Malta	0	0	0	0	2,592	5,273	0
Mexico	0	0	3,051	0	3,219	3,832	539
Netherlands	64,538	60,234	61,017	39,301	36,453	378,329	39,893
Pakistan	0	0	0	0	0	3,074	0
Panama	3,289	0	3,209	0	2,718	13,759	249
Philippines	0	0	0	0	0	0	0
Poland	17,422	7,165	7,236	10,347	11,538	127,404	13,885
Portugal	10,424	4,237	6,133	6,138	6,816	69,583	10,025
Singapore	0	0	0	0	0	22,980	0
South Korea	10,958	24,734	10,807	22,672	24,507	292,732	24,700
Spain	12,266	13,680	38,096	32,138	13,987	426,657	33,847
Taiwan	10,262	9,774	10,311	6,557	3,471	106,738	9,203
Thailand	0	4,225	4,249	1,829	3,738	25,988	0
Turkiye	0	13,908	11,866	13,444	39,283	192,067	17,979
United Kingdom	25,242	75,836	70,499	71,702	63,032	464,462	69,332
By truck							
Canada	7	7	7	0	0	76	8
Mexico	26	58	96	106	133	1,552	160
Re-exports							
By vessel							
United Kingdom	0	0	0	0	0	0	0
<b>Total LNG exports</b>	<b>366,774</b>	<b>375,843</b>	<b>366,552</b>	<b>326,275</b>	<b>337,155</b>	<b>3,865,643</b>	<b>339,960</b>
<b>CNG</b>							
Canada	0	0	*	*	*	2	0
<b>Total CNG exports</b>	<b>0</b>	<b>0</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>2</b>	<b>0</b>
<b>Total exports</b>	<b>638,382</b>	<b>620,697</b>	<b>650,384</b>	<b>574,773</b>	<b>608,605</b>	<b>6,903,902</b>	<b>597,316</b>

See footnotes at end of table.

Table 5. U.S. natural gas exports, 2022-2024

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

	2022						
	November	October	September	August	July	June	May
<b>Exports</b>							
Volume (million cubic feet)							
<b>Pipeline</b>							
Canada	90,179	72,738	61,926	75,220	69,774	70,105	79,214
Mexico	160,986	171,766	169,159	182,596	189,652	182,995	186,003
<b>Total pipeline exports</b>	<b>251,165</b>	<b>244,505</b>	<b>231,086</b>	<b>257,816</b>	<b>259,426</b>	<b>253,100</b>	<b>265,217</b>
<b>LNG</b>							
Exports							
By vessel							
Antigua and Barbuda	2	2	3	2	2	3	2
Argentina	0	0	0	2,202	9,448	25,246	20,111
Bahamas	35	40	43	53	45	47	42
Bangladesh	0	0	0	0	0	0	3,346
Barbados	1	0	0	0	0	0	0
Belgium	0	7,190	9,165	3,589	0	7,023	3,441
Brazil	0	3,439	0	10,542	5,192	3,857	15,303
Chile	0	0	3,365	0	6,917	0	9,943
China	17,308	22,598	10,275	10,272	784	7,329	0
Colombia	0	3,699	0	606	0	912	0
Croatia	5,122	2,922	9,073	7,824	4,600	7,925	8,543
Dominican Republic	0	3,469	3,196	3,357	6,532	5,838	4,964
El Salvador	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0
France	50,655	41,959	57,943	33,885	53,443	37,564	47,150
Germany	1	0	0	0	0	0	0
Greece	421	4,424	0	10,763	12,922	9,633	12,650
Haiti	0	0	8	11	8	13	9
India	10,138	7,005	10,528	10,265	13,902	10,653	7,152
Indonesia	505	625	509	967	0	0	0
Italy	3,205	0	8,355	15,462	9,914	7,137	21,696
Jamaica	137	144	240	110	121	48	144
Japan	24,396	10,684	7,005	20,156	18,189	21,561	24,024
Jordan	0	0	0	0	0	0	0
Kuwait	0	3,299	7,038	6,415	5,382	8,105	14,204
Lithuania	3,708	7,072	3,541	7,579	7,947	6,729	11,237
Malta	2,928	0	0	0	0	0	0
Mexico	0	0	0	0	0	3,292	0
Netherlands	20,645	39,703	30,924	50,020	32,637	34,420	28,902
Pakistan	0	0	0	0	0	0	0
Panama	3,833	0	0	0	0	623	1,192
Philippines	0	0	0	0	0	0	0
Poland	3,453	7,095	16,917	6,885	17,780	14,282	18,224
Portugal	3,732	7,005	5,806	3,202	6,412	5,582	3,888
Singapore	0	6,628	0	0	6,275	3,352	0
South Korea	14,069	38,844	19,736	36,033	34,342	25,054	17,538
Spain	26,445	26,369	21,263	26,140	34,396	29,639	40,337
Taiwan	3,592	9,041	9,753	8,901	9,353	6,892	15,975
Thailand	0	0	3,673	3,607	0	6,920	3,419
Turkiye	31,430	10,333	5,458	0	0	7,542	7,281
United Kingdom	76,693	46,040	51,467	21,263	3,797	3,326	10,608
By truck							
Canada	0	19	0	0	0	8	8
Mexico	153	175	94	103	76	105	115
Re-exports							
By vessel							
United Kingdom	0	0	0	0	0	0	0
<b>Total LNG exports</b>	<b>302,608</b>	<b>309,823</b>	<b>295,379</b>	<b>300,215</b>	<b>300,415</b>	<b>300,659</b>	<b>351,448</b>
<b>CNG</b>							
Canada	*	1	*	*	1	*	0
<b>Total CNG exports</b>	<b>*</b>	<b>1</b>	<b>*</b>	<b>*</b>	<b>1</b>	<b>*</b>	<b>0</b>
<b>Total exports</b>	<b>553,774</b>	<b>554,328</b>	<b>526,465</b>	<b>558,031</b>	<b>559,842</b>	<b>553,760</b>	<b>616,665</b>

See footnotes at end of table.

**Table 5. U.S. natural gas exports, 2022-2024**

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

	2022			
	April	March	February	January
<b>Exports</b>				
Volume (million cubic feet)				
<b>Pipeline</b>				
Canada	80,475	105,074	74,630	81,577
Mexico	176,447	169,885	155,032	175,467
<b>Total pipeline exports</b>	<b>256,922</b>	<b>274,958</b>	<b>229,662</b>	<b>257,045</b>
<b>LNG</b>				
Exports				
By vessel				
Antigua and Barbuda	3	2	0	2
Argentina	9,933	0	0	0
Bahamas	34	43	31	34
Bangladesh	0	3,421	5,896	0
Barbados	0	34	31	28
Belgium	7,341	17,743	7,691	13,786
Brazil	3,448	2,236	10,660	17,322
Chile	3,530	3,214	0	3,162
China	10,217	7,527	3,357	0
Colombia	0	0	0	486
Croatia	6,763	3,358	5,870	9,084
Dominican Republic	3,645	6,530	0	6,647
El Salvador	0	0	0	0
Finland	0	0	0	0
France	56,343	64,415	39,646	50,084
Germany	0	0	0	0
Greece	1,336	4,116	8,094	1,802
Haiti	11	10	16	20
India	14,223	10,438	7,210	6,866
Indonesia	0	0	717	0
Italy	15,519	7,088	13,629	7,037
Jamaica	135	92	111	86
Japan	13,231	17,697	10,214	21,527
Jordan	0	0	0	0
Kuwait	7,298	0	5,277	0
Lithuania	13,770	5,700	3,131	3,518
Malta	0	0	2,345	0
Mexico	0	0	0	0
Netherlands	28,395	24,922	31,591	16,279
Pakistan	3,074	0	0	0
Panama	1,536	0	3,069	3,255
Philippines	0	0	0	0
Poland	13,882	3,831	7,475	3,695
Portugal	6,632	10,728	3,703	2,868
Singapore	0	6,725	0	0
South Korea	13,813	19,289	27,489	21,824
Spain	40,259	59,224	39,359	49,379
Taiwan	9,541	12,161	6,115	6,211
Thailand	0	0	4,880	3,490
Turkiye	6,637	16,629	43,697	45,081
United Kingdom	39,775	56,799	25,301	60,060
By truck				
Canada	15	0	4	13
Mexico	122	144	157	148
Re-exports				
By vessel				
United Kingdom	0	0	0	0
<b>Total LNG exports</b>	<b>330,463</b>	<b>364,116</b>	<b>316,766</b>	<b>353,791</b>
<b>CNG</b>				
Canada	0	*	0	0
<b>Total CNG exports</b>	<b>0</b>	<b>*</b>	<b>0</b>	<b>0</b>
<b>Total exports</b>	<b>587,385</b>	<b>639,074</b>	<b>546,428</b>	<b>610,836</b>

See footnotes at end of table.

**Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2019-2024**

million cubic feet

Year and month	Alaska	Arkansas	California	Colorado	Kansas	Louisiana	Montana	New Mexico	North Dakota	Ohio
<b>2019 total</b>	<b>329,361</b>	<b>524,757</b>	<b>196,823</b>	<b>1,986,916</b>	<b>183,087</b>	<b>3,212,318</b>	<b>43,534</b>	<b>1,769,086</b>	<b>850,826</b>	<b>2,651,631</b>
<b>2020 total</b>	<b>339,337</b>	<b>481,205</b>	<b>155,979</b>	<b>1,996,740</b>	<b>163,362</b>	<b>3,205,574</b>	<b>38,191</b>	<b>1,965,533</b>	<b>887,445</b>	<b>2,389,629</b>
<b>2021 total</b>	<b>354,660</b>	<b>448,283</b>	<b>136,034</b>	<b>1,890,260</b>	<b>152,986</b>	<b>3,443,767</b>	<b>38,719</b>	<b>2,237,165</b>	<b>999,094</b>	<b>2,278,731</b>
<b>2022</b>										
January	32,865	36,087	11,347	155,786	12,478	318,772	3,119	199,405	81,490	190,930
February	30,014	32,336	9,814	141,557	11,122	290,031	2,977	184,452	75,867	172,453
March	32,473	36,319	11,603	159,101	12,465	319,562	3,370	218,272	88,106	190,930
April	30,910	35,043	11,384	153,816	12,347	324,537	3,175	216,047	68,665	181,993
May	31,677	35,781	11,593	154,313	12,826	348,337	3,170	222,902	81,340	188,060
June	28,644	34,299	11,296	149,081	12,302	336,152	3,208	215,334	86,437	181,993
July	29,654	35,096	11,734	153,856	12,659	348,334	3,367	228,003	90,288	193,328
August	29,380	35,394	12,177	155,140	12,814	351,777	3,544	229,728	89,688	193,328
September	29,288	34,211	11,260	151,515	11,854	348,817	3,491	231,482	90,550	187,092
October	31,122	35,112	11,520	156,992	13,008	365,742	3,560	250,312	93,103	190,335
November	30,934	33,568	11,095	151,304	12,206	357,021	3,266	239,821	85,482	184,195
December	36,181	32,951	11,396	150,558	11,764	355,708	2,461	251,472	76,605	190,335
<b>Total</b>	<b>373,141</b>	<b>416,196</b>	<b>136,220</b>	<b>1,833,019</b>	<b>147,846</b>	<b>4,064,791</b>	<b>38,709</b>	<b>2,687,231</b>	<b>1,007,621</b>	<b>2,244,971</b>
<b>2023</b>										
January	33,391	£34,788	£11,055	£151,849	£11,783	£363,863	£3,538	£254,905	£83,384	£198,189
February	30,726	£31,085	£10,042	£135,238	£10,528	£352,464	£3,233	£233,411	£80,766	£174,917
March	32,676	£34,429	£10,900	£150,138	£11,441	£370,158	£3,565	£268,590	£88,736	£199,571
April	31,313	£32,911	£10,652	£146,856	£11,228	£363,538	£3,475	£259,515	£88,066	£187,566
May	31,288	£33,689	£11,243	£152,690	£11,555	£379,548	£3,577	£263,626	£92,326	£191,104
June	28,991	£32,280	£10,795	£149,138	£10,817	£345,747	£3,469	£252,650	£92,129	£179,766
July	28,478	£33,094	£11,217	£155,584	£10,985	£363,583	£3,551	£264,909	£96,906	£189,040
August	26,756	£32,973	£11,217	£157,964	£11,293	£365,347	£3,654	£270,933	£97,655	£195,216
September	28,784	£31,874	£10,827	£152,177	£10,902	£351,720	£3,535	£265,057	£98,252	£188,594
October	31,535	£32,602	£10,908	£157,416	£11,305	£360,678	£3,579	£271,482	£100,209	£186,975
November	30,734	£31,377	£10,272	£154,244	£10,869	£343,826	£3,376	£270,985	£98,324	£185,717
December	33,356	£32,093	£10,619	£160,934	£10,952	£345,516	£3,621	£288,346	£103,484	£186,819
<b>Total</b>	<b>368,027</b>	<b>£393,193</b>	<b>£129,747</b>	<b>£1,824,228</b>	<b>£133,657</b>	<b>£4,305,988</b>	<b>£42,174</b>	<b>£3,164,408</b>	<b>£1,120,237</b>	<b>£2,263,473</b>
<b>2024</b>										
January	34,077	RE29,234	£10,457	RE155,450	RE10,083	RE339,634	RE3,478	RE275,658	RE89,672	RE179,681
February	31,472	RE29,748	£9,721	RE150,022	RE10,095	RE329,426	RE3,329	RE273,272	RE94,134	RE179,998
March	33,621	£31,704	£10,430	£161,388	£10,722	£332,108	£3,648	£296,264	£98,573	£186,768
<b>2024 3-month YTD</b>	<b>99,170</b>	<b>£90,686</b>	<b>£30,608</b>	<b>£466,860</b>	<b>£30,901</b>	<b>£1,001,167</b>	<b>£10,456</b>	<b>£845,194</b>	<b>£282,379</b>	<b>£546,446</b>
<b>2023 3-month YTD</b>	<b>96,793</b>	<b>£100,301</b>	<b>£31,998</b>	<b>£437,225</b>	<b>£33,752</b>	<b>£1,086,486</b>	<b>£10,336</b>	<b>£756,906</b>	<b>£252,886</b>	<b>£572,677</b>
<b>2022 3-month YTD</b>	<b>95,351</b>	<b>104,742</b>	<b>32,764</b>	<b>456,444</b>	<b>36,065</b>	<b>928,366</b>	<b>9,466</b>	<b>602,130</b>	<b>245,463</b>	<b>554,312</b>

See footnotes at end of table.

**Table 7. Marketed production of natural gas in selected states and the Federal Gulf of Mexico, 2019-2024**

million cubic feet – continued

Year and month	Oklahoma	Pennsylvania	Texas	Utah	West Virginia	Wyoming	Other states	Federal Gulf of Mexico	U.S. total
<b>2019 total</b>	<b>3,036,052</b>	<b>6,896,792</b>	<b>9,378,489</b>	<b>271,808</b>	<b>2,155,214</b>	<b>1,488,854</b>	<b>456,024</b>	<b>1,015,343</b>	<b>36,446,918</b>
<b>2020 total</b>	<b>2,673,207</b>	<b>7,168,902</b>	<b>9,813,035</b>	<b>241,965</b>	<b>2,567,990</b>	<b>1,206,122</b>	<b>435,117</b>	<b>791,491</b>	<b>36,520,826</b>
<b>2021 total</b>	<b>2,555,430</b>	<b>7,647,068</b>	<b>9,949,156</b>	<b>239,422</b>	<b>2,675,145</b>	<b>1,109,416</b>	<b>401,892</b>	<b>780,632</b>	<b>37,337,860</b>
<b>2022</b>									
January	216,347	657,613	878,743	20,719	234,795	89,680	30,986	64,105	3,235,266
February	196,621	577,251	795,295	18,516	209,707	78,589	31,234	56,642	2,914,480
March	225,203	634,328	903,364	21,502	239,344	87,991	34,249	64,273	3,282,454
April	226,464	614,569	880,176	21,243	235,580	86,485	31,383	65,402	3,199,218
May	235,497	638,527	918,979	22,306	247,179	85,606	32,053	61,895	3,332,041
June	231,202	616,619	881,753	21,786	240,568	85,970	31,592	64,090	3,232,326
July	239,209	644,039	920,414	22,646	251,625	89,886	34,763	66,176	3,375,077
August	238,619	635,404	937,041	23,549	255,603	87,801	33,420	67,976	3,392,383
September	238,112	618,364	925,985	21,849	245,734	83,339	32,595	64,875	3,330,414
October	245,755	637,050	941,968	22,103	251,647	88,939	33,226	66,250	3,437,743
November	234,562	613,000	910,587	21,297	255,298	85,621	32,901	64,414	3,326,572
December	236,429	624,415	934,211	22,675	253,533	82,730	32,644	64,307	3,370,376
<b>Total</b>	<b>2,764,019</b>	<b>7,511,179</b>	<b>10,828,515</b>	<b>260,192</b>	<b>2,920,613</b>	<b>1,032,634</b>	<b>391,046</b>	<b>770,406</b>	<b>39,428,350</b>
<b>2023</b>									
January	€241,437	€646,645	€935,962	€22,310	€256,931	€79,538	€31,536	€67,666	€3,428,769
February	€217,813	€572,742	€842,907	€18,969	€231,585	€69,492	€27,372	€59,490	€3,102,781
March	€240,498	€642,354	€961,177	€22,752	€266,638	€78,520	€27,921	€64,871	€3,474,934
April	€232,276	€619,656	€932,661	€22,593	€256,029	€75,109	€30,110	€58,454	€3,362,007
May	€237,558	€648,124	€982,394	€24,031	€268,279	€81,880	€30,706	€56,290	€3,499,909
June	€233,220	€627,912	€949,437	€24,338	€266,083	€80,375	€31,225	€57,076	€3,375,450
July	€238,429	€643,265	€985,195	€24,165	€279,996	€70,816	€32,548	€63,043	€3,494,802
August	€236,507	€648,577	€996,400	€25,154	€282,678	€79,142	€32,273	€59,986	€3,533,722
September	€234,235	€616,784	€966,776	€24,587	€268,946	€78,776	€31,376	€62,802	€3,426,002
October	€239,892	€640,992	€999,974	€25,742	€284,310	€85,128	€32,256	€61,707	€3,536,693
November	€229,910	€643,405	€974,811	€25,583	€282,583	€84,830	€30,876	€57,038	€3,468,760
December	€235,522	€669,263	€1,012,273	€26,418	€295,117	€87,440	€31,385	€59,102	€3,592,260
<b>Total</b>	<b>€2,817,297</b>	<b>€7,619,721</b>	<b>€11,539,96</b>	<b>€286,642</b>	<b>€3,239,174</b>	<b>€951,046</b>	<b>€369,584</b>	<b>€727,526</b>	<b>€41,296,088</b>
<b>2024</b>									
January	RE225,757	RE666,020	RE972,060	RE26,309	RE287,332	RE84,996	€30,998	RE58,709	RE3,479,605
February	RE220,046	RE617,860	RE936,971	RE24,116	RE269,064	RE81,331	RE29,008	RE54,201	RE3,343,814
March	€232,322	€601,108	€1,002,013	€25,732	€284,523	€85,955	€30,582	€55,142	€3,482,603
<b>2024 3-month YTD</b>	<b>€678,125</b>	<b>€1,884,988</b>	<b>€2,911,044</b>	<b>€76,157</b>	<b>€840,919</b>	<b>€252,282</b>	<b>€90,588</b>	<b>€168,052</b>	<b>€10,306,022</b>
<b>2023 3-month YTD</b>	<b>€699,748</b>	<b>€1,861,742</b>	<b>€2,740,046</b>	<b>€64,031</b>	<b>€755,153</b>	<b>€227,550</b>	<b>€86,828</b>	<b>€192,028</b>	<b>€10,006,483</b>
<b>2022 3-month YTD</b>	<b>638,170</b>	<b>1,869,192</b>	<b>2,577,403</b>	<b>60,737</b>	<b>683,846</b>	<b>256,260</b>	<b>96,469</b>	<b>185,020</b>	<b>9,432,200</b>

RE Revised estimated data.

E Estimated data.

Source: 2019-2022: U.S. Energy Information Administration (EIA), *Natural Gas Annual 2022*, Bureau of Safety and Environmental Enforcement (BSEE), IHS Markit, and Enverus.January 2023 through current month: Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*; and EIA computations.

Note: For 2023 forward, we estimate state monthly marketed production from gross withdrawals using historical relationships between the two. We collect data for Arkansas, California, Colorado, Kansas, Louisiana, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia, Wyoming, and federal offshore Gulf of Mexico individually on the EIA-914 report. The "other states" category comprises states/areas not individually collected on the EIA-914 report (Alabama, Arizona, Federal Offshore Pacific, Florida, Idaho, Illinois, Indiana, Kentucky, Maryland, Michigan, Mississippi, Missouri, Nebraska, Nevada, New York, Oregon, South Dakota, Tennessee, and Virginia). Before 2023, Federal Offshore Pacific is included in California. We obtain all data for Alaska directly from the state. Monthly preliminary state-level data for all states not collected individually on the EIA-914 report are available after the final annual reports for these series are collected and processed. Final annual data are generally available in the third quarter of the following year. The sum of individual states may not equal total U.S. volumes because of independent rounding.



## Santos signs LNG SPA

28 May 2024

### Santos signs long-term LNG supply contract with Hokkaido Gas

Santos today announced the signing of a binding long-term LNG Supply and Purchase Agreement (SPA) with Hokkaido Gas Co., Ltd. to provide LNG from Santos' portfolio of world-class LNG assets.

The long-term SPA will supply up to approximately 0.4 million tonnes per annum of LNG for 10 years, commencing in 2027, from Santos' LNG portfolio on a delivered ex-ship basis.

Hokkaido Gas and Santos also intend to collaborate to explore carbon sequestration and e-methane opportunities to reduce carbon emissions across their respective portfolios.

Santos Managing Director and Chief Executive Officer Kevin Gallagher said the contract is consistent with Santos' strategy of maintaining long-term LNG pricing and demonstrates the value of Santos' high-quality LNG portfolio. This agreement further demonstrates the strong demand for high heating value LNG from projects such as Barossa and PNG LNG.

"This SPA is a significant step in developing Santos' equity LNG portfolio and establishes a long-term relationship with Hokkaido Gas, a Japanese gas utility providing natural gas within the Hokkaido region of Japan."

"Our agreement with Hokkaido Gas demonstrates Santos' commitment to providing reliable, competitive energy supplies to support our valued customers in Asia. We also look forward to working together to explore CCS and e-methane opportunities to support Japan's and Santos' decarbonisation targets," Mr Gallagher said.

Ends.

*This ASX announcement was approved and authorised for release by Kevin Gallagher, Managing Director and Chief Executive Officer.*

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• 23 May 2024 | 08:42 UTC

## India's AMNS signs 500,000 mt/year LNG deal with Shell at 11.5% slope to crude oil

HIGHLIGHTS

**First LNG deal priced below 12% slope since Russia-Ukraine war**

**Supply for 10 years, to start in 2027**

**Deal includes one cargo upper quantity tolerance**

• Author Suyash Pande

Arcelor Mittal Nippon Steel India has signed a deal with Shell for the supply of 500,000 mt/year of LNG starting from 2027 for 10 years, at an 11.5% slope to crude oil, sources told S&P Global Commodity Insights May 23.

This marks the first deal priced below 12% slope to crude oil since Europe switched to consuming LNG after reducing pipeline gas consumption from Russia following its invasion of Ukraine.

The deal involves certain flexibilities that the seller can exercise, such as one additional cargo per year, sources said.

"The contract is signed for 10 years for 500,000 mt/year starting in 2027 and there is no DQT (downward quantity tolerance)," one of the sources said.

Sources added that the deal was likely to include some flexibility around deliveries at the Hazira LNG terminal.

Official spokespersons for Arcelor Mittal Nippon Steel India and Shell did not respond to queries at the time of writing.

### Below 12% slope

After Russia's invasion of Ukraine, the LNG market was focused on energy security. As global LNG markets adjusted to the change and spot prices eased from the record high seen in 2022, affordability has become an important component of energy security for South Asian and Southeast Asian buyers.

A Singapore-based source said the news was big because, with this deal, it seemed that the market has corrected below 12% slope to crude oil.

A Europe-based source said the price was understandable if there was some flexibility afforded in the deal for the supplier.

LNG buyers have been negotiating hard to lower oil-linked price slopes for long-term contracts as market participants expect additional volumes from the US and Qatar to be made available later this decade.

The expectation of additional supply being available from 2025 onward has put pressure on long-term pricing slopes, especially as LNG spot prices have eased from the elevated levels seen in 2022 and early 2023.

Platts assessed the West India Marker, the benchmark price for LNG cargoes delivered to west India ports and the Middle East, for July at \$11.163/MMBtu on May 21, according to S&P Global Commodity Insights data.

According to the forward curve on May 21, the WIM derivative for calendar year 2027 was assessed at \$9.675/MMBtu.



05/31/2024 05:29:43 [BN] Bloomberg News

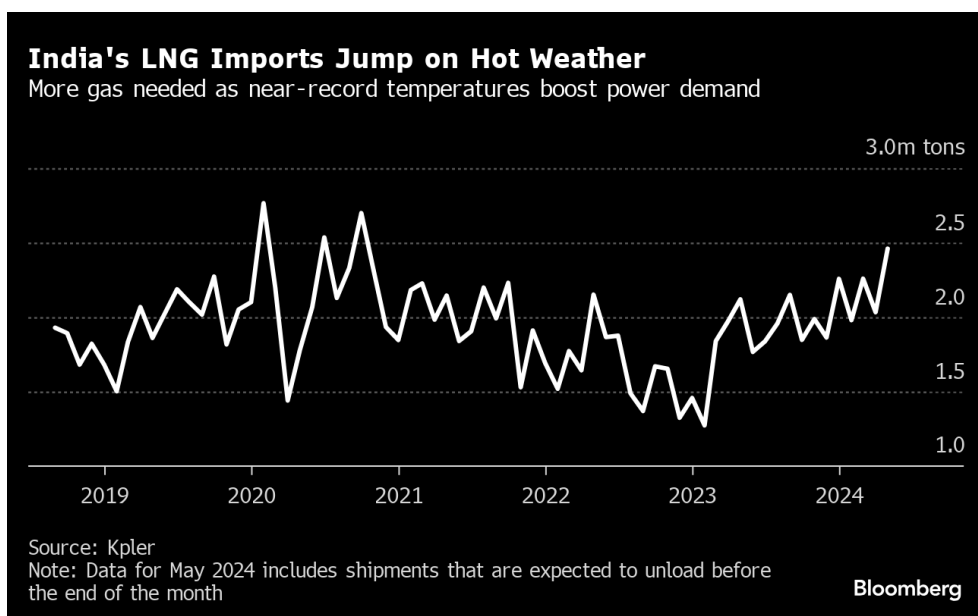
## India's LNG Imports at Highest Since 2020 on Extreme Heat (1)

- Near-record temperatures push peak power demand to a high
- Deliveries rise as companies including Gail buy spot cargoes

By Stephen Stapczynski

(Bloomberg) -- India rushed to secure liquefied natural gas as extreme heat lifts demand for the power plant fuel.

LNG deliveries for May are expected to rise to 2.5 million tons, according to ship-tracking data compiled by Kpler. That's the highest since October 2020 and an increase of nearly 20% from the same month last year.

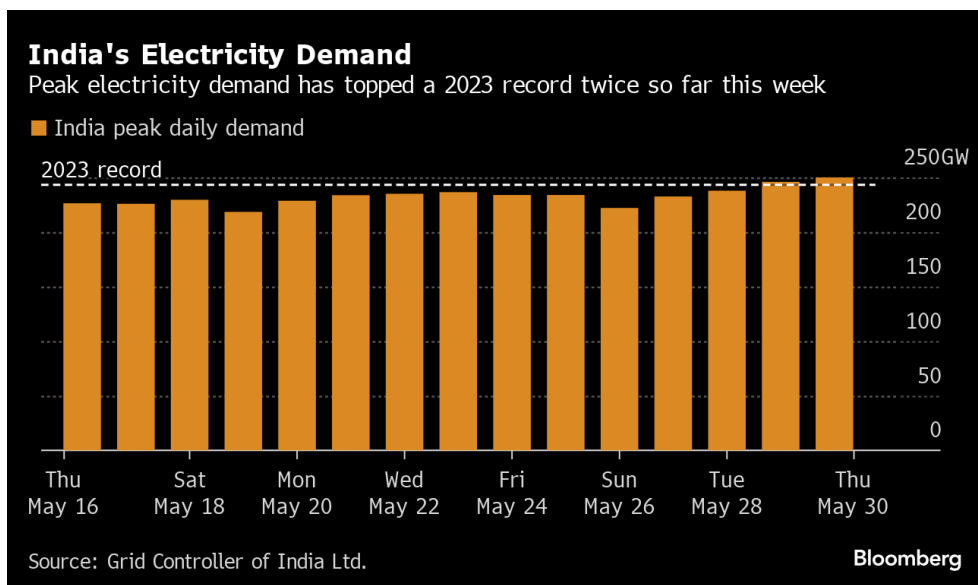


Near-record temperatures across northern and western parts of the country have forced homes and businesses to crank up air conditioners and other cooling appliances, pushing the nation's peak electricity demand to a new record Thursday. Companies including Gail India Ltd. have procured additional shipments on the spot market to help feed higher consumption.

While coal is used to generate most of India's power, the hot weather has pushed up gas demand by as much as 12% from a year ago and prompted some idled plants to be restarted, Kamal Kishore Chatiwal, managing director of Indraprastha Gas Ltd., told Bloomberg Television in an interview on Thursday.

Read More: [India Meets Record 250GW Power Demand Amid Searing Temperatures](#)

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Not all the deliveries were related to heat. India's LNG importers also booked some May deliveries during previous months when prices were lower, increasing the super-chilled fuel's attractiveness relative to alternatives.

The strong buying in South Asia and supply disruptions in [Brunei](#) and [Malaysia](#) have pushed Asian spot LNG prices to near the highest level so far this year.

The rising prices may prompt LNG traders in China – the world's top importer – to resell cargoes for higher profits instead of bringing them to the domestic market where rates are lower. [Cnooc](#) released a tender offering to sell a strip of cargoes for August delivery.

Other spot market news:

- [Indian Oil](#) purchased two LNG cargoes on a DES basis for June–July delivery at the high-\$11/mmbtu level
- [Tokyo Gas](#) is looking to buy two LNG cargoes in July

#### Drivers:

- [Power draw](#) to the Freeport LNG plant in Texas dropped to about 81% of full capacity, according to data from Wood Mackenzie seen by Bloomberg, indicating there could be reduced output at one of its three production trains
  - [Estimated gas flows](#) to all US export terminals were at 13.7 bcf/day on Thursday, +6.4% w/w: BNEF
- [Chevron](#) resumed full LNG production from its Gorgon facility in Australia after an outage, the company said in a statement on Friday
- [European gas storage](#) was 69% full on Wednesday, compared with the 5-year seasonal average of 57%

### Read more:

- [NTPC Buys LNG Cargoes From Gail to Meet Summer Power Demand](#)
- [OIL/GAS WEEKLY AGENDA: OPEC+ Production Talks; Tanker Trackers](#)
- [Gas-Price Rally Amid Scorching Asia Heatwaves May Be Short-Lived](#)

### Buy tender:

Company	Cargoes	Port	Delivery	Offers Due	Valid Until
<a href="#">PGN</a>	8 DES cargoes/yr	Japan	2025-2027	Aug.	
<a href="#">FGEN</a>	1 DES cargo	Batangas	July 1-5		Award June 11
<a href="#">Kogas</a>	At least 0.7m tons/year	Korea	2027 or 2028 for 7-15 years	June 10	
<a href="#">Kogas</a>	At least 0.7m tons/year	Korea	2025-2027	June 3	
<a href="#">Tokyo Gas</a>	2 DES cargoes	Japan	July	May 31	
<a href="#">RPGCL</a>	1 DES cargo	Bangladesh	June 28-30	June 1	June 7

### Sell tender:

Company	Cargoes	Port	Delivery	Bids Due	Valid Until
<a href="#">Cnooc</a>	7 DES cargo slots	North Asia	Aug.	June 3	

### Vessel Rates:

- Pacific spot earnings for a 174k cubic-meter vessel were \$45,250/day on Thursday, unchanged from the previous session, according to [Spark Commodities](#), based on assessments from LNG shipbrokers
  - Atlantic earnings at \$52,250/day, down \$750
  - NOTE: Spark values calculated on a round-trip basis, including hire, ballast bonus and lump sum estimates

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**Prices:**

- Japan–Korea Marker futures for July delivery +1.1% to \$11.960/mmbtu on Thursday
  - August contract +2.2% to \$12.445

*(Updates with LNG spot market details after fifth paragraph.)*

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--With assistance from David Stringer.

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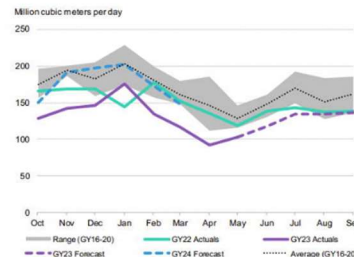
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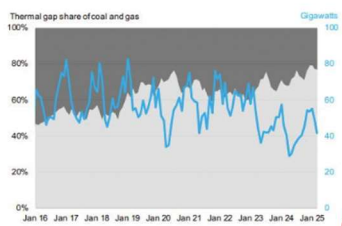
Demand

**Gas demand for power generation well below the five-year range despite coal burn already hitting a bottom**

Outlook for gas demand for power in the 'Europe 5', by gas year



Thermal gap in the 'Europe 5' and percentage share of gas and coal in the gap



Source: BloombergNEF. Note: 'GY' refers to gas year, a 12-month period starting from October. 'Europe-5' comprises Italy, Belgium, the UK, Germany and France. 2024 actuals are through May 20, 2024.

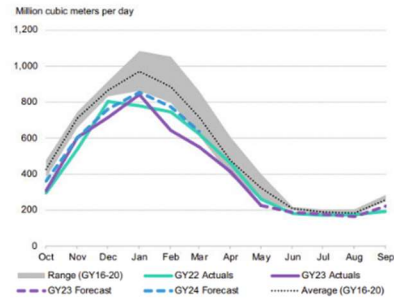
- Gas-fired power generation in the 'Europe 5' (Italy, Belgium, the UK, Germany and France) has been averaging below the five-year range amid a shrinking 'thermal gap' – the amount of electricity consumption met by fossil fuels. In the first 20 days of May, the drop in wind generation due to a wind lull provided upside for gas to increase its share of the power mix to 15%, from the low of 12% recorded in April. However, weak power demand has been a consistent trend across the region. Now, with temperatures expected to remain above normal, all eyes are on the level of recovery in demand due to cooling requirements.
- Our estimate for gas demand across the rest of the summer (June through the end of September) has dropped by 13 million cubic meters per day compared to our April Monthly, driven by the anticipated muted power demand and recent repositioning of gas prices in the coal-to-gas switching range. Our outlook for gas demand for power in the winter (October 2024 to March 2025) remains unchanged.

BloombergNEF

Demand

**Mild shoulder month in May slashed any marginal demand requirement**

Outlook for LDZ gas demand in the BNEF Europe Perimeter, by gas year



Historical and forecast temperatures across Northwest European markets



Source: BloombergNEF. Note: LDZ refers to the residential and commercial sectors. The BNEF Europe Perimeter covers Northwest Europe, Italy and Austria. 'GY' refers to gas year, a 12-month period starting from October. 2024 actuals are through May 20, 2024.

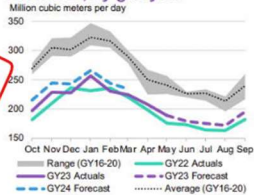
- Temperatures across Northwest European countries averaged around 15C in the first 20 days of May. With forecasts indicating temperatures will remain 2C above the norm, demand is expected to sit below the five-year range for the month. From the middle of June onwards, LDZ gas demand may only be affected by commercial activities and small consumers' base gas needs.
- Our estimate for demand for the rest of summer 2024 (June to September) is slightly reduced by 3Mcm/d compared to our April Monthly, mainly driven by the higher forecast temperatures in June and strong demand savings still observed in markets such as Germany and the UK. Our winter (October 2024 to September 2025) demand forecast remains unchanged at 664Mcm/d.

BloombergNEF

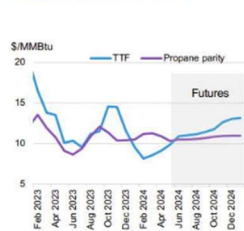
Demand

**A rise in gas prices may trip up the industrial gas demand recovery**

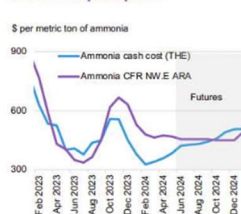
Outlook for industrial gas demand in the BNEF Europe Perimeter, by gas year



Propane price versus TTF



Ammonia production cost versus import price



Source: BloombergNEF. Note: TTF is Title Transfer Facility. Parity price compares the gas price for one unit of energy to propane price for the same unit of energy. Futures as of May 22, 2024.

- Industrial gas demand in the Europe Perimeter has averaged 189Mcm/d so far in May, in line with our forecast in the April Monthly. This translates to a marginal 8% year-on-year recovery, while remaining 20% (or 52Mcm/d) below the 2016-2020 average. Our estimates for the rest of the summer (June to September 2024) and coming winter (October 2024 to March 2025) factor in some year-on-year rebound in industrial gas demand, though it is expected to remain well below the five-year average. In our base case, industrial gas demand for the remainder of summer and upcoming winter is forecast at 181Mcm/d and 241Mcm/d, respectively. This is a 6% year-on-year recovery, although still 20% below the historical average.
- This month's gas price rally brings a downside risk to our forecast. TTF futures are now above propane prices, which might encourage switching back from gas to propane in some energy-intensive industries like refining and petrochemicals. Similarly, higher gas prices narrowed the discount between domestic ammonia production costs and import prices. The German Chemicals Industry Association said that the mood in the chemicals industry is only slowly improving. The April survey of German economic think tank the Ifo Institute reported that companies still rate their current situation negatively.

BloombergNEF

**Table 1. Production of crude oil and lease condensate in the United States**

thousand barrels per day

State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>2024</b>												
Alabama	9	9	9									
Alaska	427	432	433									
Arizona	0	0	0									
Arkansas	11	12	12									
California	299	293	294									
Colorado	446	468	473									
Florida	3	3	3									
Idaho	0	0	0									
Illinois	17	20	19									
Indiana	4	5	5									
Kansas	61	73	74									
Kentucky	4	7	7									
Louisiana	87	89	89									
Michigan	11	12	13									
Mississippi	33	35	35									
Missouri	0	0	0									
Montana	61	67	72									
Nebraska	3	4	4									
Nevada	0	1	0									
New Mexico	1,862	1,982	2,014									
New York	1	1	1									
North Dakota	1,102	1,248	1,214									
Ohio	88	81	81									
Oklahoma	388	397	400									
Pennsylvania	14	12	13									
South Dakota	2	2	2									
Tennessee	0	0	0									
Texas	5,373	5,548	5,584									
Utah	167	160	162									
Virginia	0	0	0									
West Virginia	46	42	39									
Wyoming	279	299	297									
Federal Offshore Gulf of Mexico	1,743	1,793	1,823									
Federal Offshore Pacific	10	11	11									
<b>U.S. Total</b>	<b>12,553</b>	<b>13,105</b>	<b>13,182</b>									
<b>2023</b>												
Alabama	10	10	10	10	9	10	10	10	9	10	10	9
Alaska	448	446	435	434	430	423	397	396	415	426	428	433
Arizona	0	0	0	0	0	0	0	0	0	0	0	0
Arkansas	11	12	12	12	12	12	11	12	12	12	12	12
California	312	303	305	310	310	311	308	306	307	306	305	303
Colorado	429	420	433	451	456	462	452	461	457	464	476	485
Florida	3	1	2	3	3	3	3	3	3	3	3	3
Idaho	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	19	20	19	18	19	19	18	19	19	19	19	19
Indiana	4	4	4	4	4	4	4	4	4	4	4	4
Kansas	76	76	77	77	77	76	74	74	75	73	74	73
Kentucky	3	4	6	6	2	10	2	7	7	3	4	7

See notes and sources at end of table.

**Table 1. Production of crude oil and lease condensate in the United States, continued**

thousand barrels per day

State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Louisiana	100	100	98	97	93	94	93	96	94	91	89	89
Michigan	13	12	12	12	13	13	13	13	12	12	12	12
Mississippi	34	35	34	35	35	34	34	34	35	35	35	35
Missouri	0	0	0	0	0	0	0	0	0	0	0	0
Montana	64	65	68	65	63	62	58	63	64	64	64	64
Nebraska	4	4	5	5	4	4	4	4	4	4	4	4
Nevada	1	1	1	1	1	1	1	1	1	1	1	1
New Mexico	1,808	1,799	1,840	1,860	1,806	1,770	1,759	1,802	1,831	1,839	1,905	1,925
New York	1	1	1	1	1	1	1	1	1	1	1	1
North Dakota	1,049	1,128	1,094	1,108	1,122	1,166	1,187	1,229	1,308	1,273	1,288	1,274
Ohio	81	84	82	86	87	79	75	75	84	89	94	93
Oklahoma	432	422	434	440	444	440	439	429	426	424	421	420
Pennsylvania	12	13	13	15	14	13	12	12	12	13	16	13
South Dakota	3	2	3	3	3	3	2	3	3	2	2	2
Tennessee	0	0	0	0	0	0	0	0	0	0	0	0
Texas	5,318	5,306	5,454	5,408	5,500	5,538	5,560	5,603	5,570	5,586	5,658	5,631
Utah	129	132	134	143	154	155	151	159	168	172	175	174
Virginia	0	0	0	0	0	0	0	0	0	0	0	0
West Virginia	51	55	57	52	54	56	50	52	48	55	51	46
Wyoming	245	243	259	252	260	267	263	273	272	278	289	294
Federal Offshore Gulf of Mexico	1,903	1,828	1,874	1,736	1,708	1,859	1,935	1,890	1,997	1,950	1,845	1,824
Federal Offshore Pacific	6	5	5	6	9	9	9	10	10	10	10	10
<b>U.S. Total</b>	<b>12,568</b>	<b>12,532</b>	<b>12,770</b>	<b>12,650</b>	<b>12,694</b>	<b>12,894</b>	<b>12,925</b>	<b>13,041</b>	<b>13,247</b>	<b>13,219</b>	<b>13,295</b>	<b>13,264</b>
<b>U.S. Total</b>												
<b>2022</b>	<b>11,480</b>	<b>11,258</b>	<b>11,806</b>	<b>11,770</b>	<b>11,734</b>	<b>11,800</b>	<b>11,834</b>	<b>11,985</b>	<b>12,325</b>	<b>12,378</b>	<b>12,376</b>	<b>12,138</b>
<b>2021</b>	<b>11,137</b>	<b>9,916</b>	<b>11,351</b>	<b>11,318</b>	<b>11,390</b>	<b>11,366</b>	<b>11,392</b>	<b>11,276</b>	<b>10,921</b>	<b>11,564</b>	<b>11,782</b>	<b>11,678</b>
<b>2020</b>	<b>12,850</b>	<b>12,844</b>	<b>12,795</b>	<b>11,911</b>	<b>9,714</b>	<b>10,446</b>	<b>11,004</b>	<b>10,579</b>	<b>10,926</b>	<b>10,456</b>	<b>11,196</b>	<b>11,172</b>
<b>2019</b>	<b>11,871</b>	<b>11,652</b>	<b>11,911</b>	<b>12,145</b>	<b>12,153</b>	<b>12,216</b>	<b>11,896</b>	<b>12,479</b>	<b>12,584</b>	<b>12,805</b>	<b>13,000</b>	<b>12,980</b>
<b>2018</b>	<b>10,000</b>	<b>10,262</b>	<b>10,466</b>	<b>10,499</b>	<b>10,434</b>	<b>10,640</b>	<b>10,896</b>	<b>11,391</b>	<b>11,443</b>	<b>11,508</b>	<b>11,885</b>	<b>11,944</b>

**Notes:** Volumes are rounded to the nearest whole number; a zero may indicate volume of less than 0.5 thousand barrels per day. The sum of individual states/areas may not equal total U.S. volumes due to independent rounding. Data are subject to revision.

**Sources:** All data for Alaska are sourced directly from Alaska Oil and Gas Conservation Commission.

For 2023 and 2024, data collected on Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*, have been used to estimate the following states/areas: Arkansas, California, Colorado, Federal Offshore Gulf of Mexico, Kansas, Louisiana, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Pennsylvania, Texas, Utah, West Virginia, and Wyoming. The remaining states/areas are estimated based on various sources including first purchase volumes collected on Form EIA-182, Domestic Crude Oil First Purchase Report, state regulatory agencies, the Bureau of Safety and Environmental Enforcement (BSEE), Enverus, and S&P Global.

For 2018-2022, volumes originally estimated have typically been revised using data sourced from various state regulatory agencies and the Bureau of Safety and Environmental Enforcement. Commercial data sources may also have been used for revision purposes (e.g., Enverus, S&P Global).

Table 3. Natural gas gross withdrawals in selected states and the Federal Gulf of Mexico

million cubic feet per day

State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>2024</b>												
Alaska	10,455	10,572	10,351									
Arkansas	943	1,026	1,023									
California	341	339	340									
Colorado	5,019	5,177	5,210									
Kansas	325	348	346									
Louisiana	10,970	11,374	10,727									
Montana	121	124	127									
New Mexico	8,969	9,505	9,639									
North Dakota	3,077	3,452	3,382									
Ohio	5,796	6,207	6,025									
Oklahoma	7,282	7,588	7,494									
Pennsylvania	21,485	21,306	19,391									
Texas	33,598	34,619	34,633									
Utah	852	835	833									
West Virginia	9,269	9,278	9,178									
Wyoming	3,445	3,524	3,484									
Other States	1,019	1,020	1,006									
Federal Offshore Gulf of Mexico	1,929	1,903	1,811									
<b>U.S. Total</b>	<b>124,894</b>	<b>128,195</b>	<b>125,000</b>									
<b>2023</b>												
Alaska	10,533	10,561	10,198	10,073	9,637	9,137	8,418	7,734	8,776	9,633	9,993	10,590
Arkansas	1,122	1,110	1,111	1,097	1,087	1,076	1,068	1,064	1,062	1,052	1,046	1,035
California	361	363	356	359	367	364	366	366	365	356	346	346
Colorado	4,902	4,834	4,847	4,899	4,929	4,975	5,023	5,100	5,077	5,082	5,146	5,196
Kansas	380	376	369	374	373	361	354	364	363	365	362	353
Louisiana	11,753	12,604	11,956	12,134	12,259	11,540	11,744	11,801	11,739	11,650	11,476	11,160
Montana	123	124	124	125	124	125	123	127	127	124	121	126
New Mexico	8,294	8,408	8,739	8,725	8,577	8,494	8,619	8,815	8,912	8,833	9,111	9,382
North Dakota	2,861	3,068	3,045	3,122	3,168	3,266	3,325	3,350	3,483	3,438	3,486	3,551
Ohio	6,393	6,247	6,438	6,252	6,165	5,992	6,098	6,297	6,286	6,031	6,191	6,026
Oklahoma	7,788	7,779	7,758	7,743	7,663	7,774	7,691	7,629	7,808	7,738	7,664	7,597
Pennsylvania	20,860	20,455	20,721	20,655	20,907	20,930	20,750	20,922	20,559	20,677	21,447	21,589
Texas	32,350	32,256	33,222	33,311	33,955	33,910	34,052	34,439	34,529	34,563	34,816	34,988
Utah	722	680	737	756	778	814	783	815	823	834	856	855
West Virginia	8,288	8,271	8,601	8,534	8,654	8,869	9,032	9,119	8,965	9,171	9,419	9,520
Wyoming	3,224	3,118	3,183	3,146	3,319	3,366	2,870	3,208	3,299	3,450	3,553	3,544
Other States	1,037	996	918	1,023	1,010	1,061	1,070	1,061	1,066	1,061	1,049	1,032
Federal Offshore Gulf of Mexico	2,223	2,164	2,131	1,984	1,849	1,938	2,071	1,971	2,132	2,027	1,936	1,942
<b>U.S. Total</b>	<b>123,214</b>	<b>123,415</b>	<b>124,452</b>	<b>124,312</b>	<b>124,821</b>	<b>123,993</b>	<b>123,458</b>	<b>124,182</b>	<b>125,373</b>	<b>126,086</b>	<b>128,018</b>	<b>128,833</b>
<b>U.S. Total</b>												
<b>2022</b>	<b>117,043</b>	<b>116,651</b>	<b>118,156</b>	<b>118,944</b>	<b>119,207</b>	<b>118,827</b>	<b>120,509</b>	<b>120,336</b>	<b>122,311</b>	<b>123,026</b>	<b>123,740</b>	<b>121,123</b>
<b>2021</b>	<b>113,036</b>	<b>104,951</b>	<b>113,218</b>	<b>114,280</b>	<b>113,704</b>	<b>112,992</b>	<b>113,183</b>	<b>114,030</b>	<b>114,691</b>	<b>116,546</b>	<b>118,815</b>	<b>119,985</b>
<b>2020</b>	<b>116,077</b>	<b>116,080</b>	<b>115,480</b>	<b>112,533</b>	<b>106,149</b>	<b>107,364</b>	<b>109,243</b>	<b>108,655</b>	<b>109,139</b>	<b>109,081</b>	<b>112,374</b>	<b>113,421</b>
<b>2019</b>	<b>108,927</b>	<b>109,176</b>	<b>109,130</b>	<b>110,509</b>	<b>110,452</b>	<b>109,993</b>	<b>109,548</b>	<b>111,229</b>	<b>113,219</b>	<b>114,580</b>	<b>116,976</b>	<b>116,855</b>
<b>2018</b>	<b>96,554</b>	<b>98,258</b>	<b>99,009</b>	<b>99,204</b>	<b>99,953</b>	<b>99,091</b>	<b>101,234</b>	<b>103,425</b>	<b>105,133</b>	<b>106,925</b>	<b>108,664</b>	<b>109,402</b>

**Notes:** The "Other States" category comprises the following states/areas that are not individually collected on Form EIA-914: Alabama, Arizona, Federal Offshore Pacific waters, Florida, Idaho, Illinois, Indiana, Kentucky, Maryland, Michigan, Mississippi, Missouri, Nebraska, Nevada, New York, Oregon, South Dakota, Tennessee, and Virginia. For data prior to 2023, Federal Offshore Pacific production is included in California.

The sum of individual states/areas may not equal total U.S. volumes due to independent rounding.

Data are subject to revision.

**Sources:** All data for Alaska are sourced directly from Alaska Oil and Gas Conservation Commission.

For 2023 and 2024, natural gas gross withdrawals have been estimated from data collected on Form EIA-914, *Monthly Crude Oil and Lease Condensate, and Natural Gas Production Report*.

For 2018-2022, volumes originally estimated from EIA-914 have typically been revised using data sourced from various state regulatory agencies and the Bureau of Safety and Environmental Enforcement (BSEE). Commercial data sources may also have been used for revision purposes (e.g., Enverus, S&P Global).



## Salamanca Refinery Accident: At Least 3 Workers Die From Possible Poisoning

Several workers were poisoned by toxic gases at the Salamanca refinery due to a failure.



(ARCHIVE) An accident has been reported at the refinery in Salamanca, Guanajuato. (Darkroom)

By Luciano Vázquez and Héctor Usla May 31, 2024 | 19:30 pm hrs

A fault caused an accident [at the Salamanca refinery](#), located in **Guanajuato**, on Friday afternoon.

At least three workers have been reported to have died and three others have been injured due to sulfuric acid inhalation poisoning.

The incident at **Pemex's 'Antonio M. Amor' refinery** occurred due to a failure in the catalytic plant and in Unit 12 of the site.

Sulfur can be very dangerous and can even be deadly for a person who breathes it; In the atmosphere, it reacts and becomes acidic.

According to the State System for Air Quality in Guanajuato, the Salamanca station (DIF) is reported as "Bad", in orange, with 116 PM10 points at 7:00 p.m. A second station, Salamanca (Nativitas), reports 87 ppb of the same pollutant.

What happened at the Salamanca refinery on May 31?

The 'Antonio M. Amor' refinery in Salamanca suffered power failures on Friday, which caused alterations in its operations, including a toxic gas leak, which left at least three people dead, according to local media.

Pemex was consulted by *El Financiero* about this incident, however, no further information has been received.

According to videos published on social networks, around 3:00 p.m. on Friday it began to be documented that **the Salamanca refinery exhaled gas fumaroles, which would have caused poisoning and injuries**. The affected people were transferred to the Pemex Regional Hospital in Salamanca.

The power failure would have caused the refinery's dozens of crude oil processing plants to halt operations.

How old is the Salamanca Refinery?

The refinery located in Salamanca is the oldest in the National Refining System (SNR), having been inaugurated in 1950.

It has a capacity to process 245,000 barrels of crude oil per day.

In April, the Salamanca refinery processed 140.3 thousand barrels of crude oil per day, which represented a monthly increase of 2.2 percent.

It is the second refinery that processes the least in the SNR, only above the facility located in Madero, Tamaulipas.

During the first quarter of 2024, the cumulative frequency index for PEMEX personnel stood at 0.31 accidents per million man-hours worked with risk exposure, this figure was 44.6 percent lower than that recorded in the first quarter of 2023 of 0.56 accidents per million man-hours worked with risk exposure, according to the company's latest financial report.

The Productive Companies, Subsidiaries and Corporate Areas that contributed to the accident rate during the first quarter were Pemex Industrial Transformation with 12 injuries; PEMEX Corporativo with six injured workers and one death, Pemex Logística with six injured workers; and Pemex Exploration and Production with two injuries.

## Mexico's Likely Next President Is a Climate Scientist

2024-05-31 10:25:29.629 GMT

Kate Aronoff (The New Republic)

On Sunday, Mexico is likely to elect its first woman president: a left-wing climate scientist, contributing author to a report of the Intergovernmental Panel on Climate Change, and former mayor of Mexico City. Claudia Sheinbaum, who's running in a coalition led by her ruling Morena party, is widely favored to succeed her longtime ally Andrés Manuel López Obrador, known as AMLO. Sunday's elections will also come on the heels of a deadly heat wave and a dire, climate-fueled water crisis that could see Mexico City run out of water as early as next month. So what could a prospective Sheinbaum administration mean for Mexico's climate policies?

The water crisis hasn't become a top issue in this election, says Edwin Ackerman, a sociology professor specializing in Latin American studies at Syracuse University's Maxwell School of Citizenship and Public Affairs. That's thanks in part, he explains, to the fact that states governed by parties across the political spectrum have faced their own water crises in recent years, "so it's not really politicized in a concrete way." While opposition candidate Xóchitl Gálvez's center-right coalition has tried to focus the election on questions of crime and violence—especially that related to drug trafficking—much of the debate domestically has revolved around the future of a suite of popular social programs implemented by AMLO's government, including a universal pension for Mexicans over the age of 65 as well as cash transfers to students, working mothers, and people with disabilities. "It's electorally unviable to openly criticize them," Ackerman says. Gálvez—whose National Action Party voted against those programs—is now in the awkward position of both defending their existence while criticizing them as wasteful, clientelistic handouts to the poor.

Sheinbaum, who served as AMLO's environment secretary, is looking to build on the success of those social programs, which have also involved raising the minimum wage and making it easier to organize new unions. One of the areas where she's likely to differ the most from her predecessor is in her approach to climate and environmental issues.

Sheinbaum unveiled her climate platform on March 18, a national holiday commemorating the 1938 nationalization of Mexico's oil reserves. Her platform includes a goal to have 50 percent of Mexico's electricity demand met through zero-carbon sources by 2030, using a mix of wind and solar as well as hydroelectric and geothermal power; investing \$13.6 billion in renewable energy; adding nearly 2,400 miles of transmission lines; and expanding on her work as mayor of Mexico City in expanding electrified mass transit via buses and passenger trains.

Sheinbaum's climate campaign leans heavily on strengthening and transforming Mexico's state-owned enterprises, including beleaguered oil producer Pemex and

the utility Comisión Federal de Electricidad, or CFE. This might sound odd for readers in the United States, where—with notable exceptions—both electricity and energy production are largely controlled by for-profit companies. Mexico's Constitution, though, stipulates that the country's transmission and distribution lines must be state-owned, while generation and retail capacities—i.e., who makes the power and who you pay your bills to—can be run by the private sector. AMLO's government has looked to reverse power-sector liberalization carried out by Enrique Peña Nieto's government starting in 2013, which guaranteed private companies a segment of that market. Now more than 60 percent of power generation must be state-owned.

Private energy developers that have launched legal challenges to AMLO's reforms under the U.S.-Mexico-Canada Agreement, or USMCA, have argued that these changes threaten both their profits and climate and environmental goals. They point to the fact that the state-owned utility CFE's generation capacity is largely fossil fuel-powered. "By that narrative, public energy is dirty and green energy is coming from the private sector," says Ackerman. The reality is more complicated. While AMLO has certainly emphasized a largely fossil fuel-powered vision of energy sovereignty, Ackerman notes—pushing through a refinery development in the southern state of Tabasco, and other infrastructure projects that have been controversial among environmental advocates—there's no straightforward reason why state-owned companies are fated to be dirtier than private-sector energy developers.

Alonso Romero, the Sheinbaum campaign's energy ambassador of dialogues for transformation, sees Mexico's state-owned enterprises as an asset not just for the energy transition but for building competitive green export sectors. An early step will be refinancing Pemex's considerable debt; the world's most indebted oil producer, Pemex has \$6.8 billion in bonds coming due next year. In renegotiating Pemex's debt, Sheinbaum has stated that she intends for its long-term plans to include new investments in lower-carbon lines of business. "In the face of climate change," she said last month, "Pemex has to enter new markets."

A Sheinbaum government, Romero told me during our conversation last Saturday, will emphasize coordination among Mexico's state-owned firms so as to best play to their strengths. Mexico, for instance, has massive geothermal energy reserves, which can be accessed with drilling techniques already utilized by Pemex workers and engineers. That zero-carbon power could then be used for green hydrogen development in partnership with CFE, which can leverage its own expertise in scaling up wind and solar power. Having holistic planning across government departments and state-owned enterprises, Romero told me, can help to meet today's energy needs while planning for the future and protecting ratepayers from volatility.

"It's cheaper and more efficient to implement these policies through state-owned companies," Romero told me. "We believe that state-owned companies have a longer-term horizon that can sustain these kinds of investments. Sometimes private companies don't, or the investment and return horizons are

not within the range that investors are expecting, so they need to be incentivized and subsidized,” he added. These investments will still involve a sizable role for the private sector—particularly for financing—but higher-level coordination, Romero argues, can offer investors, certainly in terms of pricing and scheduling, things that private sector-led projects often can’t. In the U.S., for instance, several high-profile offshore wind projects have been canceled in recent months by developers citing supply chain constraints, insufficient subsidies, and related disinterest from investors seeking larger and steadier returns.

“Energy transitions are faster if implemented by the state,” Romero said, and better at meeting goals other than profit, like expanding access to cleaner and more affordable electricity. “It’s not that it’s not possible with the private sector only, but it’s faster, easier, and cheaper to mandate a public company do something rather than incentivize and subsidize private companies to do something they might not end up doing.” There’s evidence to back up that approach, even if it might seem a bit alien in the U.S. Researchers at MIT’s Center for Energy and Environmental Policy Research found that state-owned utilities in the European Union had a “significantly higher tendency” to invest in renewables than their private-sector counterparts.

Not all of Sheinbaum’s plans will be great news for climate advocates. Her plan for PEMEX involves boosting refinery capacity, investing heavily in petrochemicals, and increasing oil production to 1.8 million barrels per day before stabilizing it there. “We believe that Pemex needs to continue to produce oil and gas,” Romero told me, noting that Pemex won’t follow a similar path to Dong Energy, the Danish state-owned fossil fuel firm that has transformed into a major wind power developer, Ørsted.

Private investors may also be angry, since they stand to lose market share to state-owned competitors. Though the U.S.-Mexico-Canada Agreement excised many of the dubious investor-state dispute settlement clauses found in its predecessor—the North American Free Trade Agreement, or Nafta—investors in Mexico’s energy sector are still eligible to sue the state for infringing on their expected profits. Fourteen of the 16 claims brought against governments under the USMCA have been brought against Mexico, many of them asserting that the government’s preference for state-owned generation unfairly targets their own, cleaner energy projects. The U.S. itself, in 2022, requested “consultations” under that treaty in the name of the climate, alleging (among other things) that amendments to Mexico’s electricity law would “prioritize the distribution of CFE-generated power over cleaner sources of energy provided by private sector suppliers, such as wind and solar.”

How the U.S. might react to a state-led energy transition—and how successful that transition will be—remains to be seen. The more immediate concern for a Sheinbaum government over trade with its northern neighbor relates to a country very far away from either: China. As the U.S. implements increasingly punitive tariffs on Chinese electric vehicles, semiconductors, and renewables, that is, politicians here have fretted that Chinese firms will see Mexico as a

place to sneak their products into the U.S. under the auspices of its free trade partner just to the south. Given that the United States is Mexico's most important trading partner, AMLO's government has trodden carefully on this front, declining, for example, to extend incentives like cheaper land and tax breaks to Chinese automaker BYD as it looks to build a plant there. In any case, Mexico stands to see considerable investment as companies look to chase U.S. clean energy incentives requiring that an escalating percentage of components to green technologies, including E.V.s, be sourced either in the U.S. or from countries with which it has a free trade agreement.

Romero stressed that Sheinbaum's government would be keen to avoid Mexico being merely a source of cheap labor and resources in the energy transition, for companies either from the U.S. or who are looking for ways to access that market. "We want to have high-paying jobs here," he told me. "We lived through that with the first wave of 'nearshoring' with Nafta. Very high up on the agenda is to invest in technology and basic science. It's going to be an industrial policy more like the Entrepreneurial State," he said, referencing Mariana Mazzucato's 2011 book on the central role of governments in fueling innovation. "The state must take risks. The state must be a de-risking agent, but also the state must grow capacities in the public sector."

Part of that approach will be developing the country's lithium sector. Unlike in the nearby "lithium triangle," spanning Chile, Argentina, and Bolivia, the vast majority of Mexico's comparatively modest lithium reserves are held in clay in the Sonoran Desert. Accessing those resources is extraordinarily difficult, which is why Sheinbaum is championing a government-led research effort led by the Mexican Petroleum Institute, or IMP. As of 2022, Mexico's lithium is legally treated as a "public utility" there, and its extraction will be overseen by the newly created state-owned firm Lito Para Mexico, or LitoMx. Other South American governments have similar arrangements, and Romero signaled that Sheinbaum's team would be keen to learn from them. In the long run, the hope is for Mexico not just to extract and export lithium but to refine it in-country, as well, as part of fully developed supply chains that include battery production and electric vehicle manufacturing for both export and internal consumption.

As Sheinbaum continues to enjoy a commanding lead over Gálvez, Mexico is poised to make history this weekend in electing its first woman as president. Depending on the success of Sheinbaum's plans, it could also break new ground in another way: by forging a new balance between the public and private sectors' respective roles in navigating the energy transition.

-0- May/31/2024 10:25 GMT

To view this story in Bloomberg click here:

<https://blinks.bloomberg.com/news/stories/SECIAHBLVY81>



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# Geopolitical Update: Temperatures Rising

## Analysis and Updates on Conflicts in Ukraine and the Middle East

March 27, 2024

RBC Capital Markets, LLC

Helima Croft (Head of Global Commodity Strategy and MENA Research) (212) 618-7798; [helima.croft@rbccm.com](mailto:helima.croft@rbccm.com)

**President Biden faces the prospect of a cruel summer if the Russia-Ukraine and Middle East conflicts continue to pose risks to global energy supplies.**

- **This week brought more attacks by Ukraine on Russian refineries with drones circling back to two previously targeted refineries, Novokuibyshevsky and Kuibyshevsky, in the Samara region, resulting in significant damage to the latter's primary crude distillation unit.** As a result, we now count 5 refineries facing significant throughput disruptions, with our estimates for downed refining capacity rising to 13% of Russia's total. These attacks seem to be serving the twin purposes of partially denying the Russian frontlines diesel as well as reducing Russia's essential energy revenue to fund the war. Preliminary estimates already show aggregate Russian refinery runs in March down 650 kb/d y/y. While it is still too early to see how these disruptions will ultimately affect seaborne refined product export flows, the largest impacts would be seen on global gasoil and fuel oil markets. Turkey, Africa, and Brazil have been the top destinations for Russian gasoil since exports were barred from Europe.
- **There have been reports that the White House has tried to dissuade Kyiv from this strategy, fearing the energy price impact – we find this entirely credible based on our conversations.** As we have repeatedly noted, the White House has sought to avert a Russian supply disruption and has shaped policy towards this end; including price caps designed as a release valve to ensure Russian barrels locked out of Europe would flow to Asia, or directly telling Ukraine to not target Black Sea oil tankers. However, with US assistance being held up in Congress, and Russia making battlefield gains, Ukraine and key regional allies appear to be questioning the utility of this energy bargain with Washington.
- **A key dynamic worth watching is whether Congress moves to approve the \$60bn supplementary military, budgetary, and humanitarian aid package being held up in the House after already passing in the Senate.** House Speaker Mike Johnson (R-LA) has signaled a willingness to hold a vote on Ukraine support after Congress's Easter recess, however at the time of writing, there are no clear indications of imminent passage. Moreover, with a complete cutoff of funding potentially in the offing if President Trump wins in November, the window for Ukraine to make battlefield advances in the two-year conflict may be closing.

- **Hence, we will be closely watching whether Ukraine moves at some stage to target actual export facilities to strike a deeper blow on the Russian balance sheet.** We continue to contend that Ukraine seemingly has the capability to target the majority of export facilities in western Russia, which would put ~60% of Russia's crude exports at risk. While Washington would certainly not be happy with such a move because of the serious price implications, Kyiv could decide that such asymmetrical measures may be necessary. Resilient energy revenue has been essential for Russia's continued military strength – the 2024 budget contains record defense spending, with the Russian Federation for the time poised to spend over 6% of GDP on military and defense spending. At the same time, Moscow is forecasting a shrinking deficit based on an anticipated rise in revenue this year. According to the Carnegie Endowment, the 2024 budget is based on the assumption that revenue will climb by over a third to over R35trn (\$378bn), of which R11.5trn (\$124bn) is expected to come from the oil and gas sector.
- **While OPEC is sitting on over 2 mb/d of spare capacity, we do not think the producer group would rush in to cool the rally and ramp up output given what transpired in the months immediately following the Russian invasion of Ukraine.** Washington made unprecedented interventions in the market by releasing 180 mb from the SPR after the IEA and other market participants warned of a multimillion b/d Russian disruption that never materialized. Certainly, we do not see any indications that the recent run up in prices due to the heightened Russian infrastructure risk will prompt any policy reversal at next week's Joint Ministerial Monitoring Committee Meeting. Any serious shift will likely have to wait until the June 1 Ministerial Meeting, and even then, we believe the group will be very judicious when it comes to unwinding any cuts.
- **Complicating the challenge for the White House is the lack of progress in resolving the six-month Middle East war.** The Houthis continue to attack ships in the Red Sea, claiming six attacks on Tuesday, while Houthi officials this week have renewed threats against Saudi Arabia over providing support and airspace access to US jets conducting strikes in Yemen. In addition, the continuing exchange of fire between Hezbollah and Israel – with Hezbollah launching “dozens” of rockets in response to deadly Israeli strikes in southern Lebanon yesterday – still represents a serious contagion risk.
- **Hence, it is our view that Washington may once again have to resort to policy tools such as the SPR if these twin conflicts continue to imperil global energy supplies. Certainly, this raises a campaign risk for President Biden, as his opponents will likely accuse him of endangering energy security by tapping further into the strategic reserve. However, if President Biden cannot find a way to ameliorate the risk from these conflicts, the White House may decide that SPR releases are more politically palatable than retail gasoline prices north of \$4/gallon for the summer driving season.**

## Continue Reading

RBC Capital Markets, LLC

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Link to **Full Research Report**, including Required Disclosures and Disclaimer.



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### Russia's Seaborne Crude Exports Drop Ahead of OPEC+ Meeting

Four-week average flows were down for a third straight week

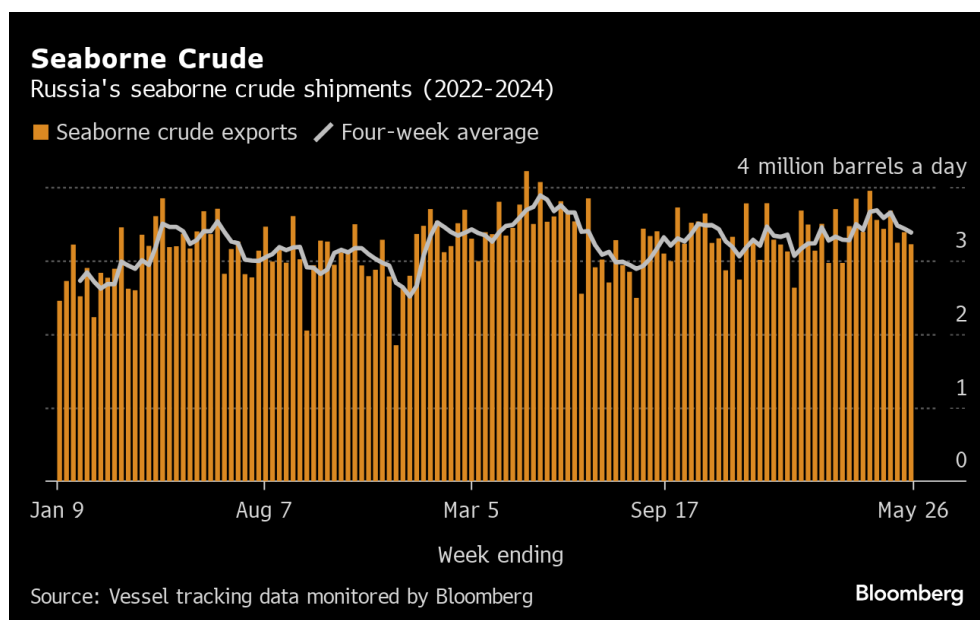
By Julian Lee

(Bloomberg) -- Russia's four-week average crude exports fell for a third week, with shipments hitting a two-month low before a virtual meeting of the OPEC+ producer group to be held on Sunday.

Increased flows from the country's Pacific ports were more than offset by lower volumes from the Black Sea and the Arctic. Cargoes from Russia's Baltic ports were unchanged week on week, but are scheduled to drop this month compared with April.

Russia has pledged to compensate for overproduction against its April target, which it blamed on the "technicalities of making significant output cuts." Reduced output will feed through into lower overseas shipments, unless refinery runs also fall. But Russia processed 5.45 million barrels a day of crude in the first 15 days of May, 4% higher than the April level, following repairs to refineries hit by Ukrainian drone strikes.

Lower volumes were compounded by another small week-on-week decline in prices, driving the value of Russia's shipments to a 10-week low.



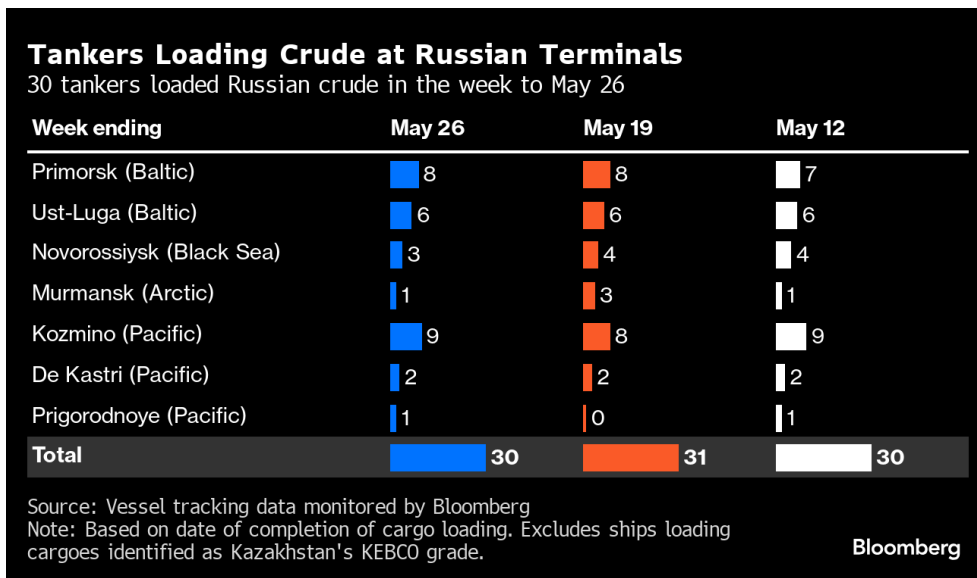
Moscow is continuing to test US-led restrictions on its oil shipments. A second sanctioned Russian tanker loaded a cargo of crude at Novorossiysk last week. The Bratsk, until recently named the NS Burgas, took on about 1 million barrels of Urals crude and is now headed toward the Suez Canal. The first sanctioned vessel to load, the SCF Primorye, has disappeared from AIS tracking east of Singapore, a popular location for hidden ship-to-ship oil transfers.

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If the Primorye’s cargo ultimately ends up being delivered to an oil refinery, it could pave the way for other sanctioned tankers owned by state-controlled Sovcomflot PJSC to return to work. The company has renamed and reflagged at least 10 of its 21 ships that have been listed by the US Treasury Department for breaching the G7-led price cap on Russian oil.

### Crude Shipments

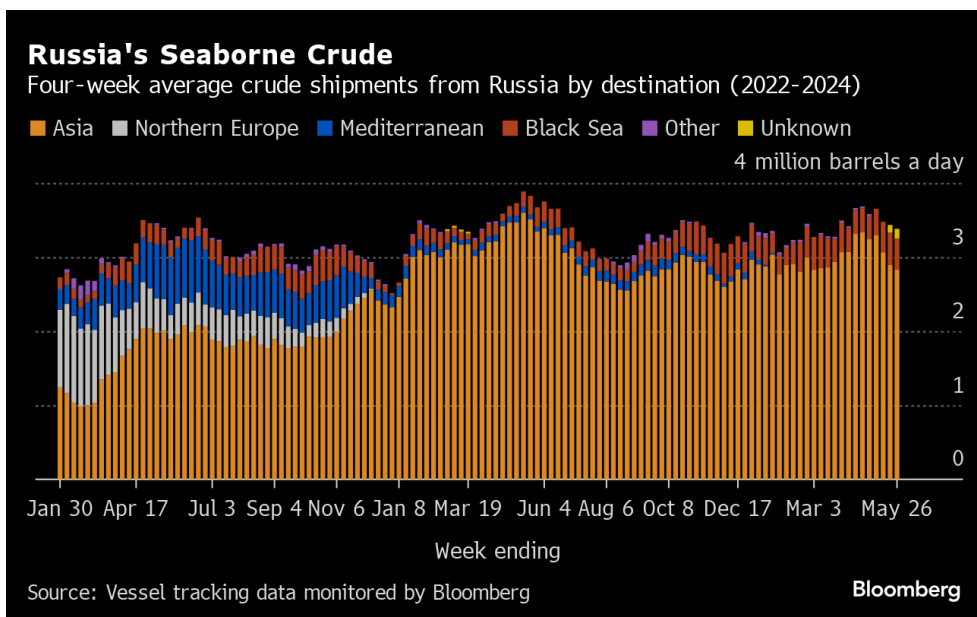
A total of 30 tankers loaded 22.54 million barrels of Russian crude in the week to May 26, vessel-tracking data and port agent reports show. That was down by about 1.16 million barrels from the previous week.



Russia’s seaborne crude flows in the week to May 26 fell by about 170,000 barrels a day to 3.22 million from 3.39 million for the week to May 19. The less volatile four-week average also dropped, down by about 50,000 barrels a day to 3.38 million, for the third straight decline.

The decline in the weekly figures was driven by fewer shipments from the Black Sea port of Novorossiysk and the Arctic terminals at Murmansk, which were partly offset by two more departures from the Pacific ports of Kozmino and Prigorodnoye.

Crude shipments so far this year are running about 10,000 barrels a day above the average for 2023.



Russia told OPEC+ that it would cut crude exports during April by 121,000 barrels a day from their average May–June level, while May shipments would be 71,000 barrels a day below the same starting point. Weekly shipments were about 290,000 barrels a day below the target for this month, while the four-week average was about 130,000 barrels a day below. Seaborne shipments in the first three months of the year exceeded Russia’s target level for that period by just 16,000 barrels a day.

OPEC+ oil ministers are scheduled to meet virtually on June 2 to discuss production policy for the second half of the year. The meeting was delayed by a day and moved online last week, with the group giving no reason for the change. Ministers are expected to extend voluntary cuts made by several countries including Russia. Group-wide cuts of almost 2 million barrels a day are already scheduled to run until the end of the year.

	To May 26	To May 19
Weekly shipments	3.220	3.386
Four-week average shipments	3.382	3.434
May-June 2023 average shipments	3.583	3.583
May target to meet OPEC+ commitment	3.512	3.512
Weekly shipments versus OPEC+ target	-0.292	-0.126
<b>Four-week shipments versus OPEC+ target</b>	<b>-0.131</b>	<b>-0.065</b>

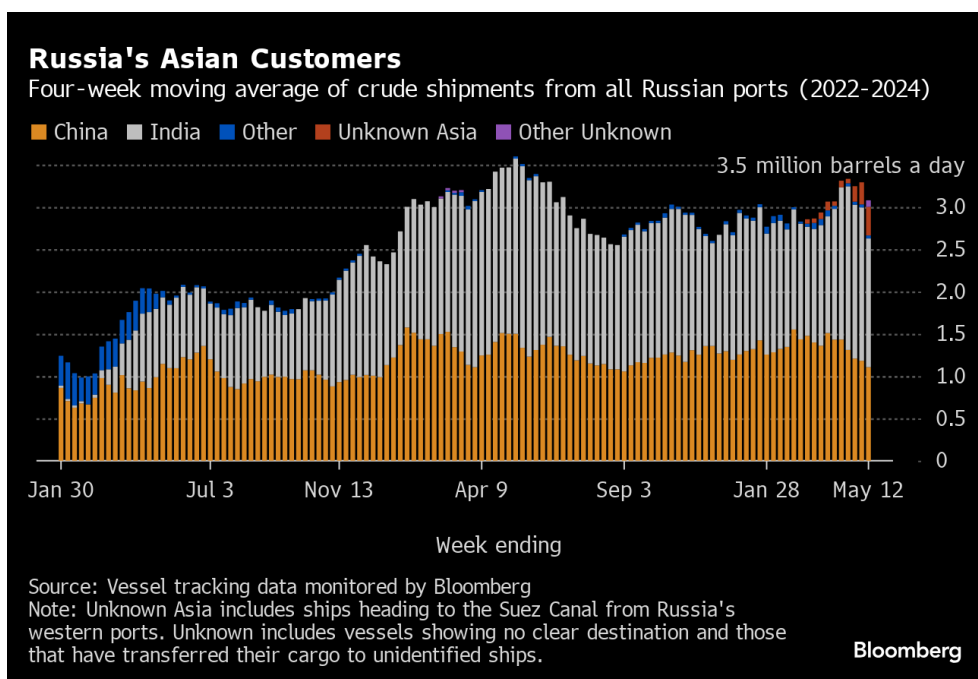
Source: Vessel tracking data compiled by Bloomberg  
Note: Positive numbers in the last two rows reflect exports above target. For the calculation in the final row, the four-week average target is the figure for May.

One cargo of Kazakhstan's KEBCO was loaded at Novorossiysk during the week.

### Flows by Destination

- **Asia**

Observed shipments to Russia's Asian customers, including those showing no final destination, fell to a nine-week low of 2.96 million barrels a day in the four weeks to May 26, from 3 million in the previous four-week period.



About 1.23 million barrels a day of crude was loaded onto tankers heading to China. The Asian nation's seaborne imports are boosted by about 800,000 barrels a day of crude delivered from Russia by pipeline, either directly, or via Kazakhstan.

Flows on ships signaling destinations in India averaged about 1.49 million barrels a day.

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

The equivalent of about 140,000 barrels a day was on vessels signaling Port Said or Suez in Egypt. Those voyages typically end at ports in India or China and show up as "Unknown Asia" until a final destination becomes apparent.

The "Other Unknown" volumes, running at about 100,000 barrels a day in the four weeks to May 26, are those on tankers showing no clear destination. Most originate from Russia's western ports and go on to transit the Suez Canal, but some could end up in Turkey. Others may be moved from one vessel to another, with most such transfers now taking place in the Mediterranean, or more recently off Sohar in Oman.

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Russia's oil flows were also complicated once again by the Greek navy carrying out exercises in an area that's become synonymous with the transfer of the nation's crude. The activities, which briefly halted on May 19, have resumed and will continue until June 3.

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

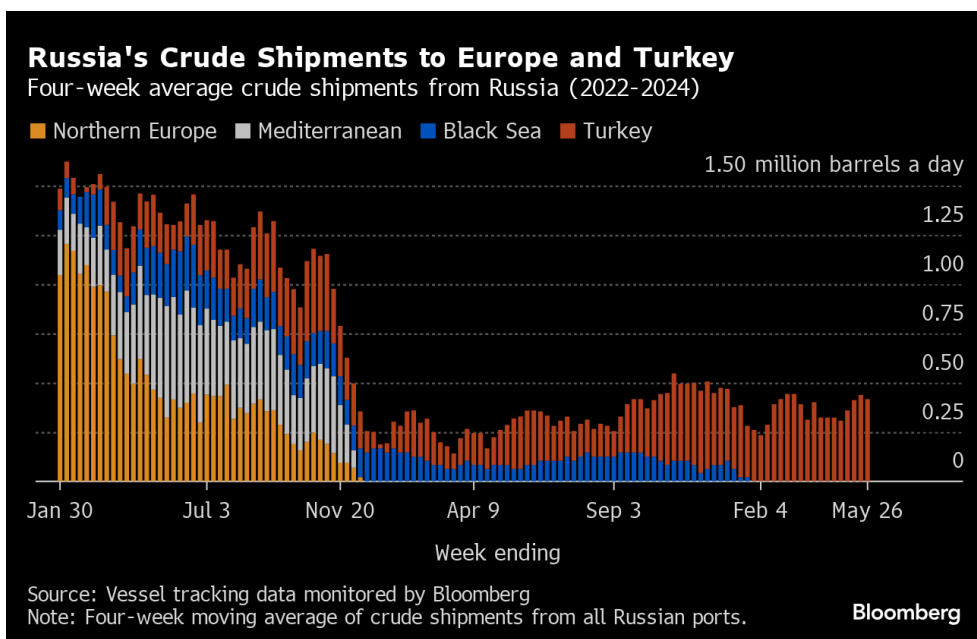
4 weeks ending	China	India	Other	Unknown Asia	Other Unknown	Total
April 21, 2024	1.31	1.99	0.04	0.00	0.00	3.33
April 28, 2024	1.23	1.92	0.04	0.05	0.00	3.25
May 5, 2024	1.25	1.96	0.04	0.05	0.00	3.29
May 12, 2024	1.17	1.78	0.04	0.08	0.00	3.06
May 19, 2024	1.20	1.55	0.00	0.17	0.08	3.00
May 26, 2024	1.23	1.49	0.00	0.14	0.10	2.96

Source: Vessel tracking data compiled by Bloomberg **Bloomberg**

### • Europe and Turkey

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

Turkey is now the only short-haul market for shipments from Russia's western ports, with flows in the 28 days to May 26 slipping to about 420,000 barrels a day.



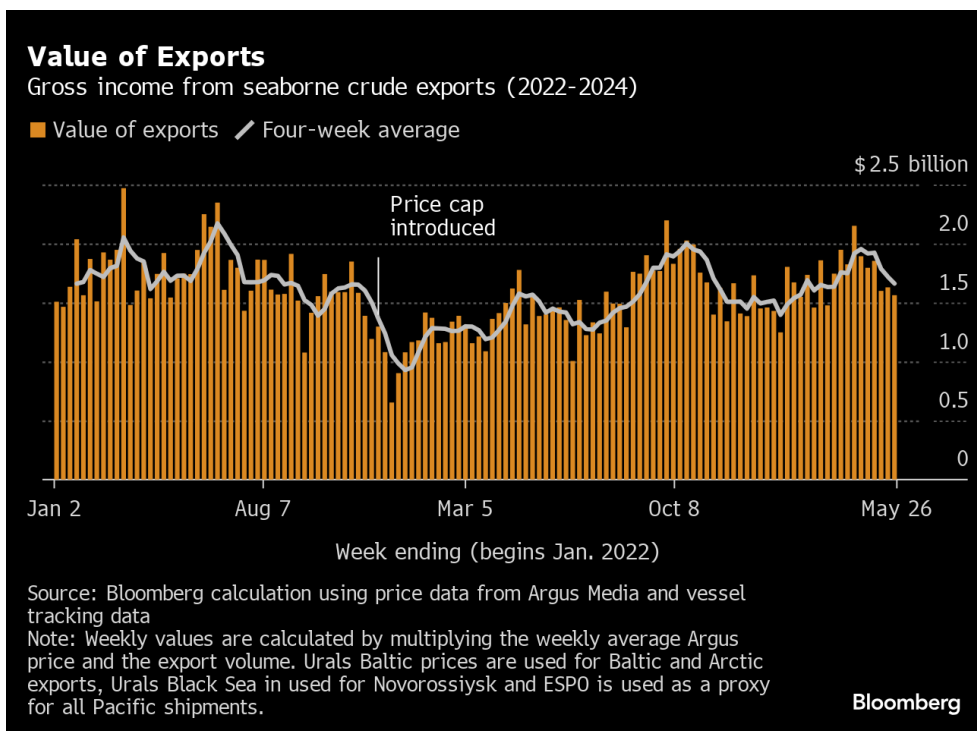
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**Export Value**

The gross value of Russia’s crude exports fell to \$1.56 billion in the seven days to May 26 from about \$1.63 billion in the period to May 19. Four-week average income was also down, dropping by about \$60 million to \$1.66 billion a week. The four-week average peak of \$2.17 billion a week was reached in the period to June 19, 2022.

A decline in the amount exported was compounded by a small drop in prices week on week to drive the decrease in oil revenues. Four-week average export value saw its third straight drop, falling to a nine-week low.

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



**NOTES**

This story forms part of a weekly series tracking shipments of crude from Russian export terminals and the gross value of those flows. The next update will be on Tuesday, June 4.

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

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

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other information providers including Kpler and Vortexa Ltd.

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

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--With assistance from [Sherry Su](#).

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# 37th OPEC and non-OPEC Ministerial Meeting

No 08/2024

Vienna, Austria

02 Jun 2024

**In light of the continued commitment of the OPEC and non-OPEC Participating Countries in the Declaration of Cooperation (DoC) to achieve and sustain a stable oil market, and to provide long-term guidance and transparency for the market, and in line with the approach of being precautionary, proactive, and pre-emptive, which has been consistently adopted by OPEC and non-OPEC Participating Countries in the Declaration of Cooperation, the Participating Countries decided to:**

1. Reaffirm the Framework of the Declaration of Cooperation, signed on 10 December 2016 and further endorsed in subsequent meetings; as well as the Charter of Cooperation, signed on 2 July 2019.
2. **Extend the level of overall crude oil production for OPEC and non-OPEC Participating Countries in the DoC as per the attached table starting 1 January 2025 until 31 December 2025.**
3. **Extend the assessment period by the three independent sources to the end of November 2025, to be used as guidance for 2026 reference production levels.**
4. Reaffirm the mandate of the Joint Ministerial Monitoring Committee (JMMC) to closely review global oil market conditions, oil production levels, and the level of conformity with the DoC, assisted by the Joint Technical Committee (JTC) and the OPEC Secretariat. The JMMC meeting is to be held every two months.
5. Hold the OPEC and non-OPEC Ministerial Meeting (ONOMM) every six months in accordance with the ordinary OPEC scheduled conference.
6. Grant the JMMC the authority to hold additional meetings, or to request an OPEC and non-OPEC Ministerial Meeting at any time to address market developments, whenever deemed necessary.
7. Reaffirm that the DoC conformity is to be monitored considering crude oil production, using the average of the approved seven secondary sources, and according to the methodology applied for OPEC Member Countries.
8. Reiterate the critical importance of adhering to full conformity and compensation mechanism.
9. Hold the 38th OPEC and non-OPEC Ministerial Meeting on 1 December 2024.

Country	Required Production Level for 2025
Algeria	1,007 <sup>(2)</sup>
Congo	277
Eq. Guinea	70
Gabon	177
Iraq	4,431 <sup>(2)</sup>
Kuwait	2,676 <sup>(2)</sup>
Nigeria	1,500
Saudi Arabia	10,478 <sup>(2)</sup>
UAE	3,519 <sup>(1)(2)</sup>
Azerbaijan	551
Bahrain	196
Brunei	83
Kazakhstan	1,628 <sup>(2)</sup>
Malaysia	401
Mexico	1,753
Oman	841 <sup>(2)</sup>
Russia	9,949 <sup>(2)</sup>
Sudan	64
South Sudan	124
<b>OPEC</b>	<b>24,135</b>
<b>Non-OPEC</b>	<b>15,590</b>
<b>OPEC+</b>	<b>39,725</b>

**Notes:**

**(1)** UAE required production has been increased by 300 kbd. This increase will be phased in gradually starting January 2025 until the end of September 2025.

**(2)** The required production level is before applying any additional production adjustments.



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**2 June 2024**

**THE GOVERNMENT OF THE KINGDOM OF SAUDI ARABIA AND SAUDI ARAMCO  
ANNOUNCE THE COMMENCEMENT OF A SECONDARY PUBLIC OFFERING OF  
ORDINARY SHARES OF SAUDI ARAMCO**

The Government of the Kingdom of Saudi Arabia (the “**Government**”) and Saudi Arabian Oil Company (Saudi Aramco), the world’s largest integrated energy and chemicals company (the “**Company**”), today announce the commencement of a secondary public offering of ordinary shares (the “**Offer Shares**”) of the Company (the “**Offering**”) by the Government.

**OFFERING HIGHLIGHTS**

- The Offering comprises a secondary public offering of 1.545 billion shares of the Company, representing approximately 0.64% of the Company’s issued shares.
- The price range for the Offer Shares has been set between SAR 26.70 and SAR 29.00 per share.
- The Government currently holds 82.19% of the Company’s issued shares. Upon closing of the Offering, the Government will hold approximately 81.55% of the Company’s issued shares if the Over-allotment Option is not exercised, or approximately 81.48% assuming the Over-allotment Option is exercised in full.
- For the purposes of allowing the Stabilizing Manager (as defined below) to cover short positions resulting from any over-allotments, the Government has granted the Stabilizing Manager an option (the “**Over-allotment Option**”) or “**greenshoe**”, pursuant to which the Stabilizing Manager may purchase from the Government up to 10% of the number of Offer Shares, at the final offer price. The Over-allotment Option will be exercisable in whole or in part upon notice by the Stabilizing Manager, at any time on or before 30 calendar days after the commencement of trading of the Offer Shares on the Saudi Exchange, which is expected to be Sunday, 9 June 2024. Assuming the exercise of the Over-allotment Option in full, the Offering will comprise approximately 0.70% of the Company’s issued shares.
- Pursuant to the Bookrunners’ Agreement and the Coordination Agreement, the Government and the Company will be restricted from disposing of the Company’s shares and the Company will be restricted from issuing or disposing of new shares, in each case, for six months following the closing date of the

Offering, which is expected to be Tuesday, 11 June 2024, subject to certain exceptions and unless waived by the Joint Global Coordinators (as defined below).

- The Offering will be made to institutional investors in the Kingdom of Saudi Arabia, institutional investors located outside the Kingdom of Saudi Arabia who are qualified in accordance with the Rules for Foreign Investment in Securities to invest in listed securities and eligible retail investors in the Kingdom of Saudi Arabia and other GCC countries. Outside the Kingdom, the Offering will be made in compliance with Regulation S under the US Securities Act of 1933, as amended (the “**US Securities Act**”).
- In relation to the Offering, Saudi Aramco intends to conduct a series of meetings with institutional investors from Sunday, 2 June to Thursday, 6 June 2024.
- 154.5 million Offer Shares, representing 10% of the number of Offer Shares (excluding shares issued pursuant to the Over-allotment Option), will be allocated to retail investors, subject to receiving sufficient demand from retail investors.
- The Government will receive all of the net proceeds of the Offering and will reimburse the Company for all fees, costs and expenses it incurs in connection with the Offering. Accordingly, the Company will not receive any of the proceeds of the Offering and the Offering will not result in any dilution of the shares of the other shareholders of the Company.

An offering document in relation to the Offering (the “**Offering Document**”) has been published and is available at [www.aramco.com/share-offering](http://www.aramco.com/share-offering).

#### **ADVISORS AND OFFERING SYNDICATE**

- M. Klein and Company and Moelis & Company UK LLP are acting as Independent Financial Advisors (the “**IFAs**”) for the Offering.
- Citigroup Saudi Arabia, Goldman Sachs Saudi Arabia, HSBC Saudi Arabia, J.P. Morgan Saudi Arabia Company, Merrill Lynch Kingdom of Saudi Arabia, Morgan Stanley Saudi Arabia and SNB Capital Company are acting as joint global coordinators and joint bookrunners (the “**Joint Global Coordinators**”) for the Offering.
- Al Rajhi Capital, Credit Suisse Saudi Arabia, part of UBS Group, EFG Hermes KSA, Riyadh Capital and Saudi Fransi Capital are acting as domestic joint bookrunners for the Offering (the “**Domestic Bookrunners**”).
- BNP PARIBAS, BOCI Asia Limited and China International Capital Corporation Hong Kong Securities Limited are acting as foreign joint bookrunners (residing outside of the Kingdom) for the Offering (together with the Joint Global Coordinators and the Domestic Bookrunners, the “**Bookrunners**”).
- SNB Capital Company is acting as the Lead Manager of the Offering. Alinma Bank, Al Rajhi Banking and Investment Corporation, Arab National Bank, Banque Saudi Fransi, Riyadh Bank, Saudi Awwal Bank and The Saudi National Bank are acting as the receiving entities for the Offering. Merrill Lynch Kingdom of Saudi Arabia is acting as the stabilizing manager (the “**Stabilizing Manager**”) for the Offering.

## Key Offering Dates

Event	Date
Announcement of the launch of the Offering	Before 9:00 a.m. (Riyadh time) on Sunday, 2 June 2024.
Book-building period for institutional investors	A period starting at 9:00 a.m. (Riyadh time) on Sunday, 2 June 2024 and ending at 5:00 p.m. (Riyadh time) on Thursday, 6 June 2024.
Subscription period for retail investors	A period starting at 9:00 a.m. (Riyadh time) on Monday, 3 June 2024 and ending at 5:00 p.m. (Riyadh Time) on Wednesday, 5 June 2024.
Announcement of the final offer price	Friday, 7 June 2024.
Announcement of the final allocation of the Offer Shares for institutional investors and retail investors	Friday, 7 June 2024.
Deadline for completion of the execution of the negotiated trades	Sunday, 9 June 2024 prior to the commencement of trading on the Saudi Exchange.
Deadline for the deposit of the shares into retail investors' investment portfolio	Sunday, 9 June 2024 prior to the commencement of trading on the Saudi Exchange.
Expected commencement of trading in the Offer Shares	Investors are expected to be able to commence trading in the Offer Shares on the Saudi Exchange after the negotiated trades of the institutional investors are executed and retail investors' shares are deposited in their respective investment portfolios on Sunday, 9 June 2024.
Deadline for the refund of excess subscription amounts (or as applicable, full subscription amounts) (if any) for retail investors	Tuesday, 11 June 2024.
The announcement of the cash settlement and refund of the excess subscription amounts (or as applicable, full subscription amounts) (if any)	Tuesday, 11 June 2024.
The announcement of the completion of the Offering and the total final Offering value	Tuesday, 11 June 2024.
Stabilization Period	From Sunday, 9 June 2024 until Tuesday, 9 July 2024.

## **SUBSCRIPTION AND SETTLEMENT**

Retail investors will subscribe at the higher end of the Offer Price Range. Each retail investor who subscribes to the Offer Shares must subscribe through the electronic channels of one of the appointed Receiving Banks. Retail investors will be required to specify the number of Offer Shares they are willing to purchase at the top end of the Offer Price Range. Excess funds or the full amount will be refunded to retail investors no later than Tuesday, 11 June 2024, if: (a) the Final Offer Price is less than the Retail Subscription Price, (b) not all of the Offer Shares subscribed for by the relevant Individual Investor have been allocated thereto or (c) if the Final Offer Price is higher than the closing market price of the Shares on the Saudi Exchange on the last day of the Book-building Period on Thursday, 6 June 2024.

The settlement process and delivery of the Offer Shares to institutional investors will be made by way of out-of-market negotiated trades that will be executed in accordance with the Saudi Exchange's "Negotiated Trades" framework.

The settlement process for retail investors will be made via the Lead Manager and the Securities Depository Center Company (Edaa). The Offer Shares allocated to retail investors will be deposited to the investors portfolios / brokerage accounts with the associated Capital Markets Institution of the respective Receiving Bank.

The deposit of the Offer Shares allocated to institutional and retail investors will be completed before market open of the Saudi Exchange on Sunday, 9 June 2024, and accordingly both institutional and retail investors will be able to trade their Offer Shares upon opening of the Saudi Exchange on that day.

Surplus subscription amounts will be refunded to retail investors, equal to the difference between the price at which retail investors subscribed (SAR 29.0 per share) and the Final Offer Price, in addition to surplus amounts for any shares that were not allocated to retail investors, if any, on Tuesday, 11 June 2024.

## **COMPANY OVERVIEW**

The Company is the world's largest integrated energy and chemicals company. It seeks to enhance its preeminent upstream position by maintaining its oil and growing its gas production capacity and continuing to pursue integration of its upstream and downstream operations to secure demand for its crude oil. It is continuing to enhance the resilience and strategic integration of its refining and chemicals portfolios to capture additional value across the hydrocarbon value chain and to improve the balance of its fuels and chemicals production. The Company aims to grow its business sustainably by leveraging technology and innovation to continue to lower its climate impact and by undertaking low carbon energy and sustainability initiatives throughout its operations both in the Kingdom of Saudi Arabia and abroad with international partners.

## **FOR FURTHER INFORMATION**

Investors may access further information on the Offering at [www.aramco.com/share-offering](http://www.aramco.com/share-offering).

## **CONTACT**

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[LINK]

May 25, 2003, 19:16

**At the second meeting of the Economic Council in 1403 under the chairmanship of the Mohabar,**

## **Increasing oil production from 3.6 million to 4 million barrels per day approved**



Tehran, IRNA - At the second meeting of the Economic Council in 1403 under the chairmanship of the Acting President, the increase of the country's oil production from 3.6 million to 4 million barrels per day, the realization of \$7 billion in revenue for the country by implementing the plan to increase crude oil production and the general plan to report the latest status of the proposed plans for the use of foreign financial facilities was approved.

**According to IRNA**, at the second meeting of the Economic Council in 1403 which was held on the afternoon of Saturday, May 26, 1403 under the chairmanship of Acting President Mohammad Mokhber, the general plan to report the latest status of the proposed plans for the use of foreign financial facilities as well as the plan to increase crude oil production was discussed and approved by the National Iranian Oil Company.

The meeting attended by the head of the President's Office, the Ministers of Oil, Interior, Economy, Cooperatives, Labor and Social Welfare, Agricultural Jihad, Energy, Industry, Mining and Trade, Head of the Planning and Budget Organization and relevant officials, and the general plan to report the latest status of six proposed plans for the use of \$5.5 billion of foreign financial facilities.

In the continuation of this meeting, the plan to increase crude oil production by National Iranian Company as well as the plan to reduce the consumption of petroleum products was reviewed, decided and approved. According to this plan, the country's oil production from 3.6 million barrels to four million barrels per day under the impact of the country's crude oil production will be implemented, which by implementing this plan, the amount of crude oil production in the country will increase by 400 thousand barrels per day He did.

In the plan to increase crude oil production by the National Iranian Company with an investment of three billion dollars only in 1403 and with an increase of 400,000 barrels per day equivalent to seven billion oil revenues for the country, it was emphasized on this plan at the meeting, this huge oil investment should be implemented and finalized with the priority of popular participation.

## Biden Administration Presses Allies Not to Confront Iran on Nuclear Program

U.S. is arguing against an effort by Britain and France to censure Iran at the IAEA's member-state board

By [Laurence Norman](#) Follow

Updated May 27, 2024 11:42 am ET

BERLIN—The Biden administration is pressing European allies to back off plans to rebuke Iran for [advances in its nuclear program](#), even as it expands its stockpile of near-weapons-grade fissile material to a record level, according to diplomats involved in discussions.

The U.S. is arguing against an effort by Britain and France to censure Iran at the International Atomic Energy Agency's member-state board in early June, the diplomats said. The U.S. has pressed a number of other countries to abstain in a censure vote, saying that is what Washington will do, they said.

U.S. officials deny lobbying against a resolution.

The differences are emerging as Western officials' [concerns have deepened](#) about Iran's nuclear activities.

On Monday, the U.N. atomic-energy agency reported that Iran's stockpile of 60% highly enriched uranium rose 20.6 kilograms to 142.1 kg as of May 11 from three months earlier, its highest level to date.

U.S. officials say that material could be converted into weapons-grade enriched uranium in a matter of days. It would then be enough to fuel three nuclear weapons.

Some U.S. officials say they fear Iran [could be more volatile](#) as the country moves toward elections for a new leader [after the death](#) of President Ebrahim Raisi in a helicopter crash earlier this month. The Biden administration has long said it is seeking a diplomatic solution on Iran's nuclear program.

European diplomats have warned that failure to take action would undermine the authority of the IAEA, which polices nonproliferation of nuclear weapons. They say it also weakens the credibility of Western pressure on Iran. And they are frustrated over what they see as U.S. efforts to undermine their approach.

A U.S. official said Washington is "tightly coordinated" with its European partners ahead of the IAEA board meeting next month: "Any speculation about decisions is premature."

"We are increasing pressure on Iran through sanctions and international isolation," the official added, citing measures taken by the Group of Seven advanced democracies after an Iranian [missile and drone attack](#) on Israel last month.

A second U.S. official said it was "totally false" that Washington is aiming to avoid disruption with Iran before the U.S. elections.

The IAEA board last passed a resolution rebuking Iran in November 2022. U.S. and European officials in Vienna have repeatedly warned since then that they would take action if Tehran didn't rein in its nuclear advances and step up cooperation with the agency.

At the heart of the dispute are concerns in some European countries, particularly France and Britain, that Washington lacks a strategy for dealing with Iran's nuclear advances. European diplomats have said that the Biden administration appears unwilling to either pursue a serious diplomatic effort with Iran or take punitive actions against Tehran's nuclear transgressions.

The Europeans were strong supporters of [the 2015 nuclear deal](#), which lifted most international sanctions on Iran in exchange for tight but temporary restrictions on Iran's nuclear work. Europe sought to preserve the accord after the Trump administration exited it in 2018.

The Biden administration set revival of the nuclear agreement as a top foreign-policy goal when it took office. But talks collapsed in August 2022 when Iran hardened its demands. Since then, U.S. officials have sought to contain tensions with Iran.

U.S. officials argue that Europe could do more to increase pressure on Iran, including cutting off Iranian banks that work on the continent and listing Iran's elite Islamic Revolutionary Guard Corps as a terror group. They note they have coordinated sanctions efforts with Europe against Iran over its missile and drone transfers.

Washington has its own strategy for raising pressure on Iran over its nuclear activities, which includes asking the IAEA to prepare a comprehensive report setting out everything it knows about Iran's failure to cooperate.

While a report would have no automatic consequences, a similar effort in 2011 focused international attention on Tehran's nuclear buildup, generating momentum for international sanctions on Iran.

U.S. officials say if Iran doesn't change direction, such a report could build the case for a snapback of international sanctions lifted under the nuclear deal, which is an option that expires in October 2025. European officials say they have been told Washington is considering asking the agency to present such a report after U.S. elections in November but has no immediate plans to request it.

Iran is already effectively a threshold nuclear state, and there are growing Western worries it could seek [to become a nuclear-weapon state](#).

In addition to accumulating highly enriched uranium, Iranian officials have suggested Tehran has mastered the process of building a nuclear weapon. Others have suggested that Tehran could reverse Supreme Leader Ayatollah Ali Khamenei's [ban on weapons of mass destruction](#).

Iran insists its nuclear program is for civilian purposes. The U.S. intelligence community and the IAEA say they have no evidence that Tehran is building a nuclear weapon. Tehran started expanding its nuclear program after the U.S. pulled out of the nuclear deal.

Iran has reduced the IAEA's oversight of its nuclear program and for years stonewalled an agency probe into undeclared nuclear material found in recent years in Iran.

A censure resolution at the IAEA Board can open the way to pushing Iran's alleged noncompliance on nuclear issues to the U.N. Security Council for an international response.

Tehran has repeatedly escalated its nuclear program or taken fresh action to limit inspectors' access in recent years when it has come under Western pressure over its nuclear program at the IAEA meetings. Last year, after facing verbal criticism at the board, it banned a number of experienced European inspectors from the country.

The U.S. fears a repeat of those kinds of steps if a censure motion goes through.

The administration is also skeptical that a formal rebuke will achieve anything. Even if Iran's nuclear work is eventually pushed up to the U.N. Security Council, it would likely be doomed there. Russia and China, who hold veto power at the U.N., would almost certainly veto any attempt to sanction Tehran for its activities.

This time, British and French officials have told Washington they want to press ahead with a censure resolution, saying it was time to draw a line, according to people involved in discussions.

Whether the Europeans actually would do that is unclear. If they proposed a censure motion that failed, it would be a major diplomatic coup for Tehran, suggesting Western pressure on Iran was crumbling.

The U.S. has pushed against a censure resolution at the IAEA ahead of other recent board meetings, but past disagreements over how to handle Iran's nuclear work have largely stayed between Washington and the Europeans.

However, at the most recent board meeting in March, Washington's ambassador to the IAEA, Laura Holgate, warned that Iranian noncooperation with the agency couldn't be allowed to continue.

"Iran's level of cooperation with the agency remains unacceptable," she said at the meeting. "The board must be prepared to take further action should Iran's cooperation not improve dramatically."

Earlier this month, IAEA Director General Rafael Grossi traveled to Iran to try to improve cooperation, calling for Tehran to take concrete deliverable steps before the June board meeting to show its good intention. No such steps have been taken, and diplomats in Vienna say they don't immediately expect any.

In a bid to contain flashpoints, U.S. officials this month held their first discussions since January with Iranian officials in Oman. The indirect talks, which involved Omani officials going back and forth between the sides, touched on regional and nuclear issues, according to people briefed on discussions.

Mark Dubowitz, chief executive of the Foundation for Defense of Democracies, said a censure resolution would help set out a record of Iranian noncompliance that could ultimately lead to a snapback of international sanctions.

Kelsey Davenport, director for nonproliferation policy at the Arms Control Association, said a censure was overdue but that it should be tied with a diplomatic effort to rein in Iran's nuclear program for sanctions relief.

"The board needs to send a message to Iran that there are consequences for stonewalling," she said. "But it needs to be part of a broader strategy. The goal should be pressuring and incentivizing Iran to cooperate with the IAEA and expand their access."

*Michael R. Gordon contributed to this article.*

Write to Laurence Norman at [laurence.norman@wsj.com](mailto:laurence.norman@wsj.com)

## Baghdad, Erbil, oil producers to meet this week: MP

4 hours ago

### Rudaw

ERBIL, Kurdistan Region - Iraq's oil ministry, the Kurdistan Regional Government (KRG), and international oil companies (IOCs) will meet this week with the goal of finally resolving all obstacles preventing the resumption of Kurdish oil exports, a member of parliament said on Saturday.

"The meeting is to get the process right. The negotiations are in this direction and it is expected to resolve this matter. The oil contracts will be reviewed and an agreement will be reached regarding the entitlements of the IOCs," Yahya al-Issawi, a member of the Iraqi parliament's oil and gas committee, told Rudaw.

On Tuesday, the federal oil ministry invited the KRG's natural resources ministry and the IOCs for an urgent meeting to reach an agreement on the resumption of exports. A day later, the natural resources ministry stated that it was ready for the meeting. The Association of the Petroleum Industry of Kurdistan (APIKUR), an association of oil companies working in the Kurdistan Region, also welcomed the invitation.

Oil exports from the Kurdistan Region through the Iraq-Turkey pipeline have been halted since March 2023 after a Paris-based arbitration court ruled in favor of Baghdad that Ankara had breached a 1973 pipeline agreement by allowing Erbil to begin independent oil exports in 2014.

Despite multiple talks between Kurdish, Iraqi, and Turkish officials, the exports have yet to resume and many international oil companies have suspended production. Billions of dollars in revenue have been lost.

Kurdistan Region President Nechirvan Barzani in November said the problem is technical rather than political. Iraqi Prime Minister Mohammed Shia' al-Sudani told Bloomberg in January that the main obstacle is that the IOCs "have an issue with the cost of producing barrels."

Before the halt, around 400,000 barrels a day were being exported by Erbil through the pipeline, in addition to some 75,000 barrels of Kirkuk's oil.

27 MAY 2024

## APIKUR calls for tripartite discussions to resume oil exports via the Iraq-Türkiye Pipeline

May 27, 2024

### Key Points:

- APIKUR notes recent media reports that incorrectly blame International Oil Companies (IOCs) for the impasse on reopening the Iraq-Türkiye Pipeline (ITP)
- APIKUR members believe tripartite discussions between the Government of Iraq (GoI), Kurdistan Regional Government (KRG), and IOCs are required to find a mutually beneficial solution

APIKUR notes recent media reports that mistakenly point to a lack of flexibility from IOCs as the reason for the continuing impasse on resumption of oil exports via the ITP.

Such reports suggest that there are ongoing talks that have stalled due to an intransigent position taken by IOCs. However, no joint discussions between IOCs and representatives of the KRG and the GoI have occurred since January 7-9, 2024.

APIKUR member companies reiterate that they are prepared to resume exports, contingent upon reaching agreements that provide for payment surety for past and future exports, direct payment and preservation of commercial terms. Should such agreements require modifications to existing contracts, APIKUR member companies are willing to consider this if agreed between the GoI, KRG and individual IOCs.

“APIKUR’s member companies believe tripartite talks between GoI, KRG, and IOCs are the best way to find solutions that will lead to the resumption of ITP exports,” said Myles B. Caggins III, spokesman, Association of the Petroleum Industry of Kurdistan. “APIKUR’s member companies stand ready to constructively participate in any such talks.”

- Ends -

### About APIKUR:

APIKUR’s objective and purpose is to promote the KRI as an attractive destination for international oil and gas companies, service providers and investors. In addition, APIKUR aims to advocate for and represent the common interests of its members, function as a joint and effective voice towards all relevant stakeholders whether in the KRI, or elsewhere, and provide a forum for its members to share appropriate public industry information and best practices.

For more information, visit [www.apikur.uk](http://www.apikur.uk)

### For media inquiries:

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## Analysis: Monthly drop hints that China's CO2 emissions may have peaked in 2023



**LAURI MYLLYVIRTA**

28.05.2024 | 12:01am

**CHINA ENERGY** Analysis: Monthly drop hints that China's CO2 emissions may have peaked in 2023

This guest post is by:

**Lauri Myllyvirta**, senior fellow at [Asia Society Policy Institute](#) and lead analyst at the [Centre for Research on Energy and Clean Air](#) (CREA).

China's carbon dioxide (CO2) emissions fell by 3% in March 2024, ending a 14-month surge that began when the economy reopened after the nation's "zero-Covid" controls were lifted in December 2022.

The new analysis for Carbon Brief, based on official figures and commercial data, reinforces the view that China's emissions could have [peaked in 2023](#).

The drivers of the CO2 drop in March 2024 were expanding solar and wind generation, which covered 90% of the growth in electricity demand, as well as declining construction activity.

Oil demand growth also ground to a halt, indicating that the post-Covid rebound may have run its course.

A 2023 peak in China's CO2 emissions is possible if the buildout of clean energy sources is kept at the record levels seen last year.

However, there are divergent views across the industry and government on the outlook for clean energy growth. How this gap gets resolved is the key determinant of when China's emissions will peak – if they have not done so already.

Other key findings from the analysis include:

- Wind and solar growth pushed fossil fuels' share of electricity generation in China down to 63.6% in March 2024, from 67.4% a year earlier, despite strong growth in demand.
- The ongoing contraction of real-estate construction activity in China saw steel production fall by 8% and cement output by 22% in March 2024.
- Electric vehicles (EVs) now make up around one-in-10 vehicles on China's roads, knocking around 3.5 percentage points off the growth in petrol demand.

- Some 45% of last year's record solar additions were smaller-scale "distributed" systems, creating an illusory "missing data problem".

## Why did emissions fall in March?

Looking at the first quarter of 2024 as a whole, China's CO2 emissions increased significantly, based on [preliminary data](#) on energy consumption from the National Bureau of Statistics.

January and February of this year still saw large increases from the low base of 2023, when the economy was still subdued by the recent ending of zero-Covid restrictions.

As a result, CO2 emissions during the quarter increased by 3.8% year-on-year, with coal consumption growing 3%, oil 4% and gas 11% compared with the same period in 2023.

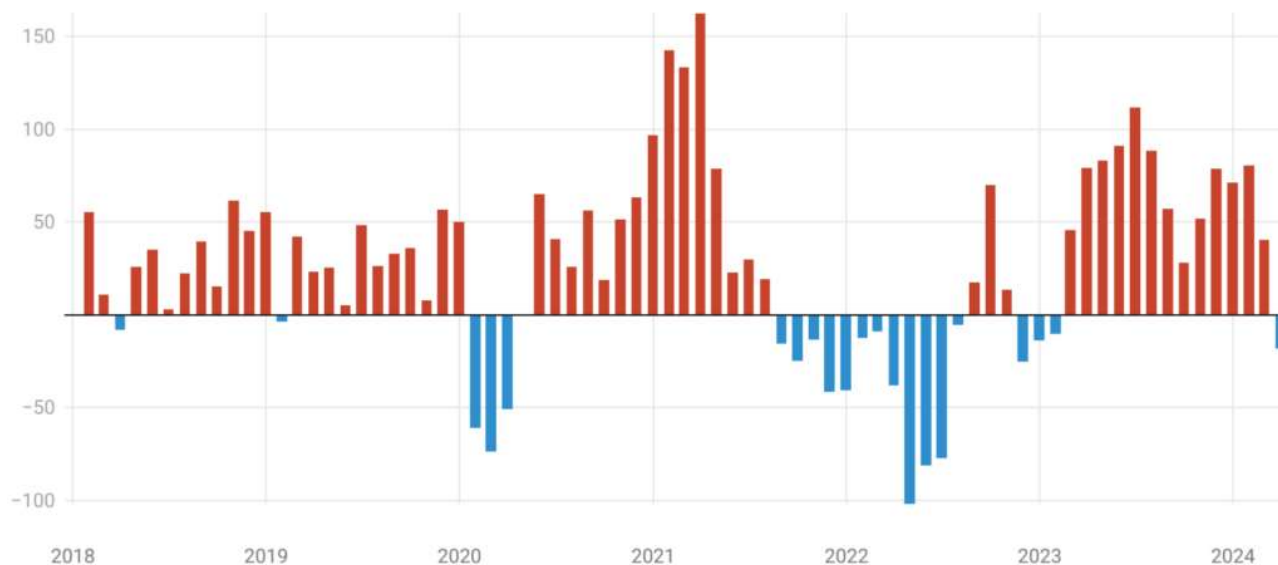
The turnaround happened in March, when CO2 emissions fell by 2%, due to a 1% fall in coal use, flat oil demand and a 22% drop in cement production. **The reduction in CO2 emissions came despite a 14% rise in gas consumption, as the fuel is a minor part of China's mix.**

As seen in the figure below, China's CO2 emissions had started increasing in February 2023, after Covid-19 controls were lifted in December 2022.

The year-on-year comparison to January-February 2023 is, therefore, still affected by the low base caused by the last year of zero-Covid, making March the first month to give a clear indication of the emissions trends after the rebound.

## China's CO2 emissions fell 3% in March 2024, ending a 14-month surge

Year-on-year change in monthly emissions from fossil fuels and cement, MtCO2



Source: Lauri Myllyvirta for Carbon Brief

**CarbonBrief**  
CLEAR ON CLIMATE

Year-on-year change in China's monthly CO2 emissions from fossil fuels and cement, million tonnes of CO2. Emissions are estimated from [National Bureau of Statistics data](#) on production of different



fuels and cement, [China Customs data](#) on imports and exports and [WIND Information](#) data on changes in inventories, applying emissions factors from China's latest national greenhouse gas [emissions inventory](#) and [annual emissions factors](#) per tonne of cement production until 2023. Sector breakdown of coal consumption is estimated using coal consumption data from [WIND Information](#) and electricity [data](#) from the National Energy Administration. Chart by Carbon Brief.

The [main driver](#) of China's emissions growth in recent years has been the power sector (see below).

Conversely, the main reason the emissions trend turned into a reduction in March was that power-sector emissions growth slowed down sharply. Emissions from the sector only increased by 1% year-on-year, due to strong growth in solar and wind power generation.

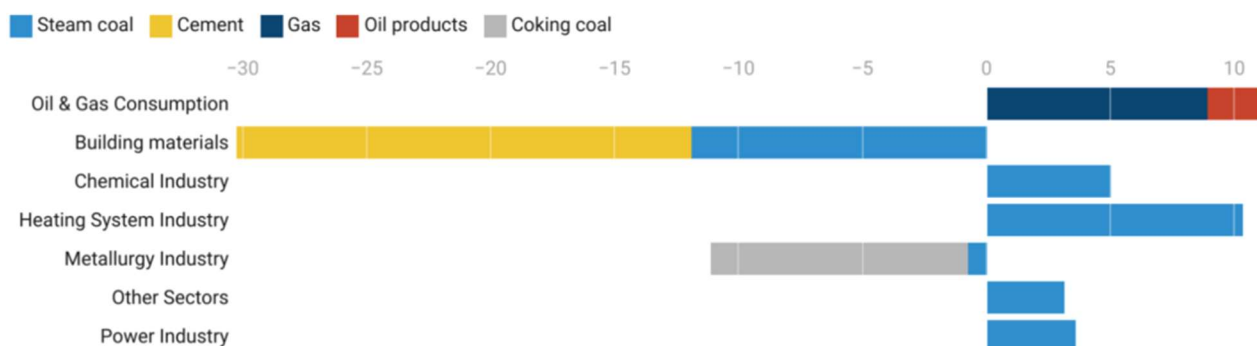
While power-sector emissions stabilised, the largest source of reductions in emissions in March was the continued decline in demand for steel and cement from the construction sector, as illustrated in the figure below.

Steel production fell by 8% and, as a result, there was also a fall in production of the main fuel used by steel mills – coking coal. Cement production fell dramatically, by 22% year-on-year.

These trends seem set to continue, as real-estate investment [continued](#) to contract – for the third year – as a result of a government [clampdown](#) on excess leverage and financial risk in the sector, and [sizable supply](#) resulting from booming construction in the past.

## Construction-industry contraction and clean power growth saw China's CO2 emissions drop in March 2024

Year-on-year change in emissions in March 2024, MtCO2, by sector and fuel



Source: Lauri Myllyvirta for Carbon Brief

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Change in CO2 emissions in March 2024 relative to March 2023, broken down by sector and fuel, millions of tonnes. Emissions are estimated from [National Bureau of Statistics data](#) on production of different fuels and cement, [China Customs data](#) on imports and exports and [WIND Information](#) data on changes in inventories, applying emissions factors from China's latest national greenhouse gas [emissions inventory](#) and [annual emissions factors](#) per tonne of cement production until 2023. Sector breakdown of coal consumption is estimated using coal consumption data from [WIND Information](#) and electricity [data](#) from the National Energy Administration. Chart by Carbon Brief.

The contraction in construction volumes has not resulted in as large a drop in China's demand for steel and other energy-intensive metals as might be expected.

The reason is rapid [growth and investment](#) in manufacturing, which uses metals for the construction of facilities and the production of industrial machinery.

It is unlikely that this manufacturing growth can continue, as global markets for different goods and commodities become saturated. The government's economic policy now emphasises "[new productive forces](#)", in the latest attempt to shift economic growth away from traditional heavy industry. The term refers to high-end manufacturing and R&D, which are, for the most part, less energy intensive than China's traditional industrial sectors.

Looking at other sectors in March 2024, oil demand for transport was unchanged on a year earlier – following months of strong increases – suggesting that the post-Covid rebound could be petering out.

The production of jet fuel (+35%) and petrol (+7%) still increased, indicating growth in demand from passenger transport, but diesel production stagnated (+1%) and total crude oil refining volumes also only increased 1%.

The rise in the share of electric vehicles (EVs) is making a meaningful dent in oil demand, with the share of electric vehicles out of all vehicles on the road increasing to 10.5%, from 7.0% a year ago, as estimated on the basis of cumulative sales over the past 10 years. This indicates that EV adoption lowered petrol demand growth by 3.5 percentage points.

Gas demand rebounded sharply, increasing 14% year-on-year, after a drop caused by high gas prices. Growth in gas consumption came predominantly from industry and households.

Power-sector gas consumption increased 8%, as the utilisation of gas-fired power plants recovered, but this only contributed a small fraction of the overall growth.

The share of gas in China's energy mix fell from 2021 to 2023, after more than two decades of continuous increases, and has only now started to resume growth.

One recent driver of emissions increases continued: coal consumption in the chemical industry increased 14%, extending the double-digit growth seen in 2022 and 2023.

While there is not yet enough data to estimate CO2 emissions in April, [industrial data](#) for the month indicates that the trends seen in March continued.

Thermal power output – mostly from coal – grew at a slow rate of 1.3%, with most demand growth being covered by solar. Steel, cement and coke output fell by 8%, 9% and 7%, respectively, reflecting continued decline in construction volumes. Oil refining volumes fell 3%.

Domestic coal mining output fell 3% while imports increased 11%, meaning total supply fell 5%.

Gas demand saw further strong growth, with imports increasing 15% and domestic production 3%. Among energy-intensive industries, the chemical and non-ferrous metal industries continued rapid output growth.

## Solar and wind covering demand growth

The stabilising emissions in the power sector are notable because electricity demand growth [continued](#) at a high rate of 7.4% – and hydropower utilisation stayed below the long-term average, [affected](#) by a prolonged drought.

Electricity demand growth has been exceptionally fast during the past few years, driven [predominantly](#) by industrial power use. In March, industrial demand growth slowed down, but a rebound in the service sector sustained overall growth.

Half of demand growth came from industry, with non-ferrous metals, chemicals, machinery and electronics the largest growth areas. One third came from services, with wholesale and retail trading the largest growth driver, and one sixth from households.

Household power demand has also seen a surge in the past couple of years, driven by a [wave](#) of air conditioning unit purchases triggered by the [historic heatwave](#) in 2022, especially in lower-income households that lacked air conditioning before.

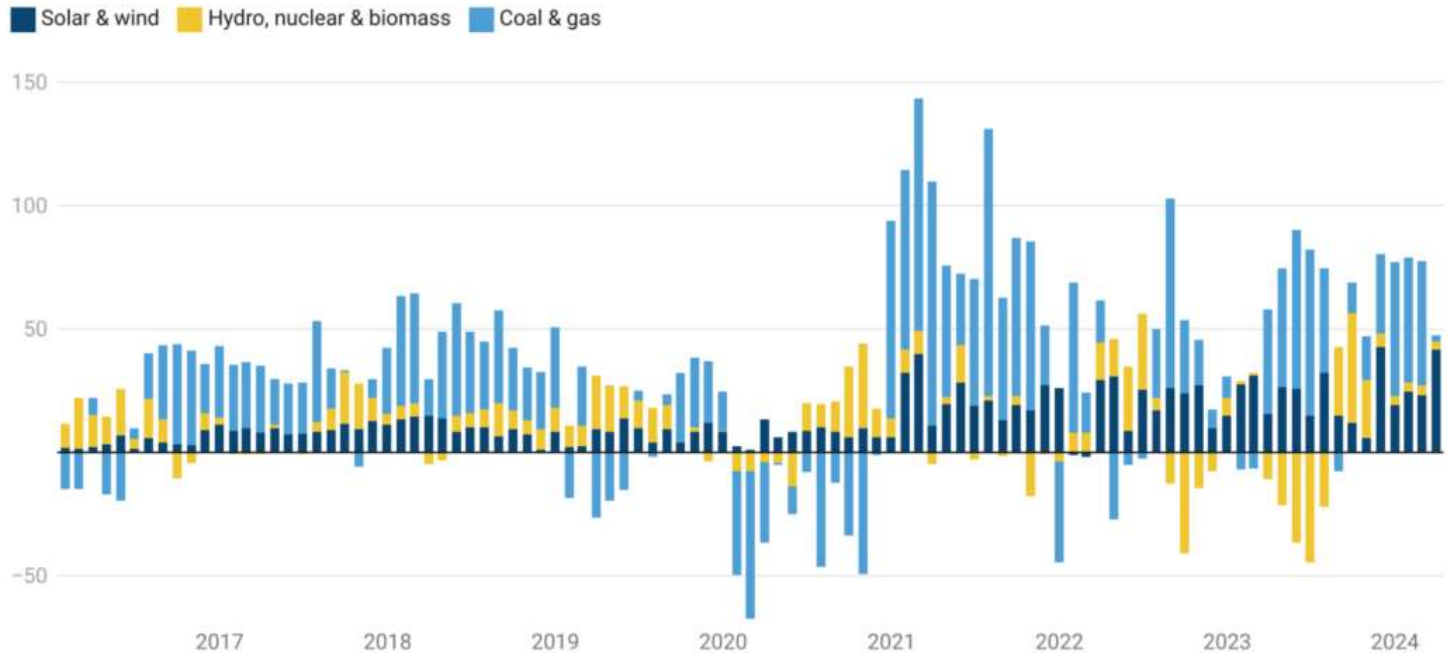
Despite rapid growth in electricity demand, the rate of growth for large-scale power generation [slowed](#) to 3%, due to rising distributed solar power generation.

([Distributed solar](#) refers to smaller-scale installations, often on the [rooftops](#) of homes and businesses, in contrast to the large, [centralised](#) solar farms.)

Overall, the [record addition](#) of solar and wind capacity in 2023 enabled these sources to deliver 22% of power generation and almost 90% of year-on-year growth in March, as shown in the figure below. The share of non-fossil power generation rose to 36.2%, from 32.6% last year.

# Wind and solar met 90% of China's electricity demand growth in March 2024

Year-on-year change in monthly electricity generation, TWh by source



Source: Lauri Myllyvirta for Carbon Brief

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Year-on-year change in China's monthly electricity generation by source, terawatt hours, 2016-2024. Source: Wind and solar output calculated from capacity and utilisation [reported](#) by National Energy Administration; other sources from National Bureau of Statistics [monthly releases](#); thermal power breakdown by fuel calculated from capacity and utilisation reported by [WIND Information](#). Chart by Carbon Brief.

The growing contribution of distributed solar power to generation has been somewhat hidden by the way that China's monthly electricity data is reported. The National Bureau of Statistics only reports monthly power generation from very large-scale solar and windfarms. It has also made systematic upward revisions of previous year's data, suggesting it had not captured output from new firms entering the market in real time.

As 45% of last year's record solar additions [were](#) distributed generation, the exclusion of small solar installations is affecting these numbers a lot more than it used to.

This has caused a lot of confusion in [China](#) and [overseas](#), especially as the reported electricity consumption became [much larger](#) than generation – an apparent impossibility. [Bloomberg](#) even called this a “missing data problem”.

The widening gap between electricity consumption and large-scale power generation makes it clear, however, that distributed solar is increasingly contributing to meeting electricity demand.

Unlike the monthly figures, there is no “missing” data in China's annual reporting, as the yearly statistics include all power plants regardless of size. In 2023, for example, the [annual statistics](#) reported twice as much solar and 10% more wind power generation than the [monthly statistics](#).

Indeed, calculating generation from [reported](#) installed capacity and utilisation hours of the capacity on a monthly basis reproduces the annual numbers closely. This makes it clear that the expansion of small-scale solar is contributing substantially to meeting electricity demand, even if the statistics bureau's monthly data does not cover the power generation.

## Clean energy boom continues

The fall in emissions in March was enabled by last year's massive solar and wind power additions, with almost 300 gigawatts (GW) of new capacity connected to the grid. This boom accelerated in the first three months of 2024, with a 40% increase compared with the year before.

Solar power installations [stood at](#) 46GW, up 36% on year, and wind power installations at 16GW, increasing 50% year-on-year.

The first months of the year tend to be slower in terms of installations – and there are also gaps in reporting that mean that quite a bit of new capacity is only reported at the end of the year.

The strong year-on-year growth indicates that [concerns](#) about grid access for new projects have not affected the pace of capacity additions yet. Even if growth rates are tempered for the rest of the year, the numbers to date indicate that last year's record pace could be maintained in 2024.

Solar panel production [grew](#) another 20% in January-March from last year's already significant numbers, signalling strong demand from China and overseas.

EV production [grew](#) 29% while total vehicle production resumed its fall, so the share of EVs continued its rapid climb, [reaching](#) 31% in the first quarter compared with 26% the [year before](#).

As the economics of solar and wind projects are [strong](#), the main constraint on capacity additions will be grid access. Numerous provincial grid operators already [began](#) to limit additions of new wind and solar last year, as they were concerned that they would not be able to fully integrate the additional generation.

This highlights the shortcomings in China's grid operation, because such challenges are arising when the share of wind and solar power in China's power generation is still modest, at 15%, compared with [27%](#) in the EU and 40% in Germany, Spain and Greece.

Action is being taken. The NDRC has [begun](#) to relax requirements for the grid access of solar and wind generators. This will increase the uncertainty for investors in wind and solar projects, but makes it easier for grid operators to integrate more capacity and will, therefore, support growth in capacity and generation.

The NDRC also [issued](#) a policy on developing electricity storage, pledging that, by 2027, the power system would be able to integrate new solar and wind capacity while keeping the share of their output that is wasted due to grid issues to a low level.

While solar and wind are beginning to cover most or all of power demand growth, investment in coal power is continuing. Additions of thermal power capacity slowed down slightly year-on-year in the first quarter, but provinces' "[key project lists](#)" for 2024 [include](#) over 200GW of thermal power projects, which are mainly coal-fired.

## Future ambition a major question mark

The fall in China's emissions in March could mark the turnaround after blistering growth since 2020. As explained in analysis for [Carbon Brief](#) published last autumn, the current growth rate of clean energy has the potential to peak the country's emissions.

Whether the clean energy growth will continue is, therefore, the key question for the future path of China's emissions. However, views about the pace of future wind and solar developments diverge widely.

The China Photovoltaic Industry Association (CPIA) [forecasts](#) average annual capacity additions of 225GW from 2024 to 2030 in its "conservative" scenario, a slight increase from the 217GW installed in 2023. Its "optimistic" scenario would see this accelerate to 280GW per year. Under the CPIA's projections, China's total installed solar capacity reaches 2200-2600GW in 2030, up from 660GW today.

According to the wind power industry, China [needs](#) to install more than 50GW of new wind power capacity annually from 2021-2025 and more than 60GW annually from 2026 onwards, in order to reach the 2060 carbon neutrality target. This is a fairly modest trajectory, since capacity additions in 2023 [were](#) already 76GW.

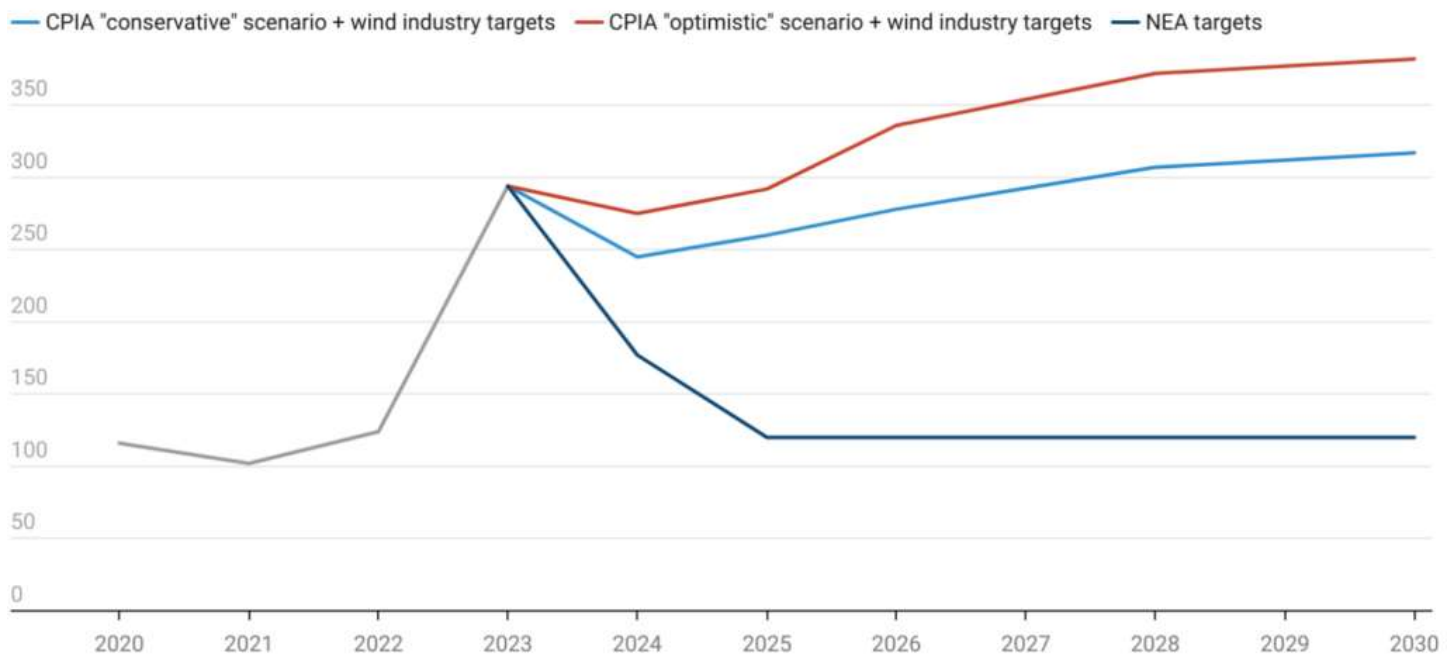
On the other hand, the head of the National Energy Administration (NEA) Zhang Jianhua [wrote](#) in a recent article that clean-energy capacity additions should be kept above 100GW per year, less than half of the level achieved in 2023, implying that he views the recent acceleration as an anomaly and not something to be maintained.

Similarly, the NEA's 2024 [workplan](#) targets 170GW of non-fossil power capacity added, as implied by the targets for total generating capacity and the share of non-fossil energy capacity. (Despite the 160GW target in the [2023 workplan](#), additions reached nearly 300GW.)

These alternative visions of wind and solar expansion are shown in the figure below. The dark blue line shows Zhang's expectation that annual capacity additions would return to levels seen during 2020-2022, while the light blue and red lines show the renewable industry forecasts of growth broadly being maintained at 2023 levels – or steadily increasing.

# China's renewable industry expects stronger wind and solar growth than the government

Past and projected future annual wind and solar capacity additions, gigawatts



Source: Lauri Myllyvirta for Carbon Brief

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Past and potential future annual capacity additions for wind and solar, gigawatts, 2020-2030. The target of “above 100GW” proposed by the head of the NEA is illustrated as 120GW/year (dark blue line). Renewable industry forecasts are shown in light blue and red. Sources: CPIA, Global Wind Energy Council, National Energy Administration’s (NEA) 2024 workplan, article by the head of the NEA Zhang Jianhua. Chart by Carbon Brief.

The difference between the CPIA and NEA levels of ambition amounts to 1,400-1,800GW of solar and wind power capacity by 2030. If the resulting clean power generation were to replace coal in 2030, the difference in CO<sub>2</sub> emissions would amount to 10-15% of China’s current emissions. By 2035, with a continuing trend in wind and solar growth, the CO<sub>2</sub> saving would reach 20-25% of current emissions.

In his article, Zhang points to a number of challenges that could justify the lower level of clean-energy capacity additions that he is proposing, including the lack of a robust pricing mechanism for electricity storage, the need for better coordination of policies on the energy transition, as well as managing the land and marine area requirements for large new energy projects.

Still, dialling back the additions of solar and wind, as well as the associated battery storage, would be a cold shower to China’s economy, as these clean energy sectors have become a [key source](#) of economic growth.

Moreover, massive recent investments in manufacturing capacity in these sectors will only be utilised and pay off with continued growth in the demand for clean energy equipment.

The lower level of ambition of the government is also reflected in official targets for this year. The environmental ministry recently [set a target](#) to reduce carbon intensity – the level of emissions per unit of GDP – by 3.9% in 2024.

This target, if met, is an increase over the past three years when carbon intensity improved by only 1.5% per year on average. Yet, given that the target for GDP growth is “around 5%”, the carbon intensity target allows emissions to increase by more than 1%.

After rapid emission increases in 2021 to 2023, China is already [severely off track](#) for its 2025 and 2030 carbon intensity targets – and the annual targets for 2024 fail to close this gap.

Instead, it is exactly the required annual average that would have been needed every year to meet the 14th five-year plan target of 18%. As such, it avoids the existing shortfall from getting wider, but does nothing to make up for slow progress to date. The NDRC [set](#) a less ambitious target of reducing “fossil energy intensity” by 2.5% in 2024, which allows emissions to increase by more than 2%.

Zhang Jianhua also argued that clean energy should cover 70% of energy consumption growth in 2026-30, a target that is consistent with a slowdown in clean energy additions.

This would mean that 30% of energy consumption growth would still be covered by increasing the use of fossil fuels – and, therefore, CO<sub>2</sub> emissions would also continue to increase.

Continued emissions growth would imply a major risk of missing China’s 2030 carbon intensity commitment – which is part of its [international climate pledge](#) under the Paris Agreement – as there is no space for energy-sector CO<sub>2</sub> emissions to increase from 2023 to 2030 under the commitment, assuming average GDP growth of 5% or less.

China’s pledge, therefore, depends on clean energy growth continuing to significantly exceed the central government’s targets – or those targets being ratcheted up.

## **About the data**

Data for the analysis was compiled from the National Bureau of Statistics of China, National Energy Administration of China, China Electricity Council and China Customs official data releases, and from WIND Information, an industry data provider.

Power sector coal consumption was estimated based on power generation from coal and the [average heat rate](#) of coal-fired power plants during each month, to avoid the [issue](#) with official coal consumption numbers affecting recent data. Power generation from coal was calculated from total [thermal power generation](#) and the [reported](#) capacity and utilisation hours of power plants firing coal, gas and biomass, to obtain the fuel mix of thermal power generation.

When data was available from multiple sources, different sources were cross-referenced and official sources used when possible, adjusting total consumption to match the consumption growth and changes in the energy mix [reported](#) by the National Bureau of Statistics.



The data for the first quarter of 2024 was scaled to match the reported year-on-year growth rates for the whole quarter in preliminary official [data](#) from the National Bureau of Statistics. The conclusion that emissions fell in March holds both with and without this adjustment.

CO2 emissions estimates are based on National Bureau of Statistics default calorific values of fuels and emissions factors from China's [latest](#) national greenhouse gas emissions inventory, for the year 2018. Cement CO2 emissions factor is based on annual [estimates](#) up to 2023.

For oil consumption, apparent consumption is calculated from refinery throughput, with net exports of oil products subtracted.



Interview: China's renewables 'pave the way to rapidly reduce coal reliance'

**CHINA ENERGY**

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16.05.24

## India Makes Rare Request for Refiners to Join on Russia Oil Deal

2024-05-21 08:32:36.347 GMT

By Rakesh Sharma and Sudhi Ranjan Sen

(Bloomberg) -- India has made a rare request to its state-run oil refiners and private processor Reliance Industries Ltd. to jointly negotiate a long-term supply deal with Russia, according to people familiar with the matter.

The government wants its refiners to lock in at least a third of their contracted supply from Russia at a fixed discount to help shield the nation's economy from volatile prices, the people said, asking not to be named due to the sensitivity of talks. The appeal to join forces was informal, they added.

However, Reliance is unlikely to share sensitive information with the state oil refiners given they're competitors in the domestic fuel market, stifling the government's efforts at collaboration, they said.

An oil ministry spokesman didn't immediately reply to a text message seeking comment. Reliance, Indian Oil Corp., Bharat Petroleum Corp. and Hindustan Petroleum Corp. also didn't reply to emails seeking comment.



India has been a major buyer of Russian crude since the invasion of Ukraine, but tighter enforcement of US sanctions crimped the trade and led to refiners needing to buy more expensive oil. The South Asian nation wants state processors to work together and boost their bargaining power during supply negotiations, rather than competing, the people said.

There is precedent for collaboration. State refiners have held joint talks with suppliers in the Middle East and West Africa previously to secure more favorable terms, but it's unusual for India to request help from a private refiner.

State refiners have been seeking oil at a discount of more than \$5 a barrel to Dated Brent, but Moscow is offering crude at a discount of \$3 and is showing an unwillingness to budge, according to the people. The discount for one Russian grade blew out to more than \$30 after the war before narrowing.

Indian Oil is the only state refiner to previously have a long-term supply deal with Russia, but that expired at the end of March and hasn't been renewed due to a lack of consensus on volumes and price.

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<https://tipro.org/news/texas-upstream-employment-dips-oil-production-grows-and-electricity-demand-accelerates-at-unprecedented-pace/>

## **TEXAS UPSTREAM EMPLOYMENT DIPS, OIL PRODUCTION GROWS AND ELECTRICITY DEMAND ACCELERATES AT UNPRECEDENTED PACE**

Austin, Texas – Citing the latest Current Employment Statistics (CES) report from the U.S. Bureau of Labor Statistics (BLS), the Texas Independent Producers and Royalty Owners Association (TIPRO) today highlighted new employment figures showing a decline in upstream employment for the month of April 2024. According to TIPRO's analysis, direct Texas upstream employment for April totaled 193,300, representing a decrease of 3,400 jobs from March employment numbers. The decline in employment follows March data showing the highest increase in monthly Texas upstream jobs since June of 2011. TIPRO notes that fluctuations in CES employment data throughout the year are normal and that demand for talent within the industry remains robust.

TIPRO's new employment data yet again indicated strong job postings for the Texas oil and natural gas industry during the month of April. According to the association, there were 11,012 active unique jobs postings for the Texas oil and natural gas industry last month, including 4,821 new job postings added during the month by companies, which represented a 26 percent increase from March. In comparison, the state of California had 4,209 unique job postings last month, followed by Florida (2,194), New York (1,788), Louisiana (1,681) and Pennsylvania (1,547). TIPRO reported a total of 56,348 unique job postings nationwide last month within the oil and natural gas sector.

Among the 19 specific industry sectors TIPRO uses to define the Texas oil and natural gas industry, Gasoline Stations with Convenience Stores led in the ranking for unique job listings in April with 2,798 postings, followed by Support Activities for Oil and Gas Operations (2,655) and Crude Petroleum Extraction (919). The leading three cities by total unique oil and natural gas job postings were Houston (2,932), Midland (797) and Odessa (459), said TIPRO.

The top three companies ranked by unique job postings in April were Cefco (1,375), Love's (463) and Zachry Brands (333), according to the association. Of the top ten companies listed by unique job postings last month, five companies were in the services sector, followed by two in the gasoline stations with convenience stores category, two midstream companies and one upstream company. Top posted industry occupations for April included first-line supervisors of retail sales workers (688), retail salespersons (382) and heavy tractor-trailer truck drivers (358). The top posted job titles for April included store managers (294), customer service representatives (266) and maintenance people (180).

Top qualifications for unique job postings included valid driver's license (1,814), CDL Class A License (247) and commercial driver's license (CDL) (215). TIPRO reports that 41 percent of unique job postings had no education requirement listed, 32 percent required a bachelor's degree and 29 percent required a high school diploma or GED. There were 1,723 advertised salary observations (16 percent of the 11,012 matching postings) with a median salary of \$57,500. The highest percentage of advertised salaries (30 percent) were in the \$85,000 to \$500,000 range.

**Additional TIPRO workforce trends data:**

- – A sample of 500 industry job postings in Texas for April 2024 can be viewed [here](#).
- – The top three posting sources in April included [www.indeed.com](http://www.indeed.com) (5,489), [www.simplyhired.com](http://www.simplyhired.com) (3,279) and [www.dejobs.org](http://www.dejobs.org) (1,384).

TIPRO also highlights recent data released from the Texas comptroller's office showing gains for the month of April in tax contributions provided by the Texas oil and natural gas industry. Texas energy producers last month paid \$518 million in oil production taxes, up from the prior month and 15 percent higher than amounts paid a year ago in April 2023. Producers in April also contributed an additional \$170 million in revenue from natural gas production taxes. Oil and natural gas severance taxes remain an important source of revenue for state and local governments and continue to be used help to support and pay for road and infrastructure investments, water conservation projects, schools and education, first responders and other essential public services across the Lone Star State.

TIPRO notes that following record production last year, oil output is expected to keep growing this summer. The U.S. Energy Information Administration (EIA) said this week in its latest *Drilling Productivity Report* that oil production in the Permian Basin will rise next month by almost 18,000 barrels per day (bpd) to reach 6.19 million bpd. In the Eagle Ford Shale, oil output is set to grow by about 4,000 bpd to top 1.1 million bpd, according to the EIA. Overall, total oil production in the nation's biggest shale basins will increase by nearly 17,000 bpd to total 9.85 million bpd in June. Pricing conditions for natural gas, meanwhile, will continue to slow production levels in the U.S. Total natural gas output is likely to dip in June in the biggest shale gas formations to 99.2 billion cubic feet per day (bcfd), down from 99.5 bcfd produced in May, said the EIA in its report. Though nationally natural gas output will be lower, in the Permian, natural gas production is once again forecasted to go up to 25.393 bcfd, up from 25.250 bcfd that will be produced in May.

"Past and present contributions provided by the Texas oil and natural gas industry from an economic and national security perspective are truly unmatched. Oil production trends indicate a strong resilience and commitment within the sector in response to increasing demand for our product, while domestic producers face a growing number of punitive federal regulations that could endanger U.S. energy security," said Ed Longanecker, president of TIPRO.

"We are also witnessing a historic period for new additions to the power grid in Texas driven by a growing population, Artificial Intelligence (AI), data centers, crypto mining, as well as the electrification of sectors including oil and natural gas operations. AI is by far the most energy-consumptive technology ever introduced, and electricity demand is expected to accelerate at an unprecedented pace. Natural gas will continue to play a dominant role in providing a reliable baseload supply for decades to come, but further investments in infrastructure and natural gas power generation will be critical to meet this demand. These realities are not optional, nor is the need for rational energy policy at all levels of government," concluded Longanecker.

Finally, TIPRO is pleased to provide updated economic data for the oil and natural gas industry from 2023. As communicated earlier this year, due to a delay in the release of some government data used to calculate Gross Regional Product (GRP), TIPRO utilized available data sources to estimate GRP for 2023 in the *TIPRO 2024 State of Energy Report* released in March. TIPRO has updated the report with finalized GRP data at the state and national level with historical figures for comparison purposes. Last year, direct GRP for the Texas oil and natural gas industry totaled \$381 billion, directly supporting 17 percent of the state economy. Once a conservative multiplier of 2.5 percent is applied, last year the Texas

oil and natural gas industry directly and indirectly supported 42 percent of the Texas economy. At the national level, total GRP for the oil and natural gas industry exceeded \$1 trillion dollars in 2023, as previously reported, and directly supported 5 percent of the U.S. economy.

GRP is simply Gross Domestic Product (GDP) for a region of study. GRP measures the final market value of all goods and services produced in the region of study and is the sum of total industry earnings, taxes on production and imports, and profits, less subsidies. It is based on data from the Census Bureau's Current Population Survey and American Community Survey; as well as the Bureau of Economic Analysis' National Income and Product Accounts, Input-Output Make and Use Tables, and Gross State Product data. In addition, several in-house data sets are used, as well as data from Oak Ridge National Labs on the cost of transportation between counties.

Updated 2023 GRP data for the oil and natural gas industry can be found on pages 50 and 51 in the *TIPRO 2024 State of Energy Report*, available [here](#). Please note the scrolling features in the tables. Customized data at the state, county, metropolitan and national level is available upon request.

TIPRO provides analysis on various economic factors and trends throughout the year, which culminate in the association's annual *State of Energy Report*, the most comprehensive annual economic report for the U.S. oil and natural gas industry. This publication utilizes all available data sources outlined in the methodology section of the report to provide a detailed, national perspective on oil and gas economic trends with an emphasis on Texas, the nation's leading producer of oil and natural gas.



# Country Analysis Brief: Canada

Last Updated: May 30, 2024

Next Update: May 2026

The U.S. Energy Information Administration (EIA), the statistical and analytical agency within the U.S. Department of Energy (DOE), prepared this report. By law, our data, analyses, and forecasts are independent of approval by any other officer or employee of the U.S. Government. The views in this report do not represent those of DOE or any other federal agencies



## Overview

**Table 1. Canada's energy overview, 2022**

	Crude oil and other petroleum liquids	Natural gas	Coal	Nuclear	Hydro	Other renewables	Total
Primary energy consumption (quads)	4.85	4.83	0.24	0.93	1.23	0.19	12.27
Primary energy consumption (percentage)	39.5%	39.4%	2.0%	7.6%	10.0%	1.6%	100.0%
Primary energy production (quads)	11.15	6.98	0.87	0.93	1.10	0.52	21.55
Primary energy production (percentage)	51.7%	32.4%	4.0%	4.3%	5.1%	2.4%	100.0%
Electricity generation (terawatthours)	4.44	68.61	36.83	82.30	392.35	53.46	638.00
Electricity generation (percentage)	0.7%	10.8%	5.8%	12.9%	61.5%	8.4%	100.0%

Data source: U.S. Energy Information Administration, International Energy Statistics; the International Energy Agency, *World Energy Statistics 2022*; and Energy Institute, *Statistical Review of World Energy 2023*

Note: *Other renewables* contain solar, wind, and biomass and waste. Quads=quadrillion British thermal units

- Canada is a major energy producer, consumer, and exporter with a diverse and dynamic energy sector. Historically, hydroelectric power dominated Canada's energy mix, but oil and natural gas production have grown. The majority of Canada's oil and natural gas output is in Alberta; in contrast, hydroelectric and renewable energy make up a larger share of energy output in Quebec and British Columbia.
- Primary energy production in Canada grew at an average annual rate of 2.6% between 2012 and 2022; Canada's share increased from 3.2% to 3.6% of total global energy production.<sup>1</sup> Crude oil production followed by natural gas production mainly drove this growth. By 2022, oil production accounted for 51.7% of Canada's total energy production, followed by natural gas at 32.4% (Table 1). As of 2022, Canada was the world's sixth-largest energy producer.
- Canada's energy consumption has remained stable despite inflation-adjusted GDP per capita growth, mainly because of improvements in energy efficiency (Figure 3). Between 2012 and 2022, natural gas use increased at an annual growth rate of 2.6%, making it the primary source of energy with the largest growth contribution.
- According to the Canadian Centre for Energy Information (CCEI), the energy sector contributes significantly to government revenues. Between 2017 and 2021, the energy sector accounted for 4.6% of total industry tax revenue. The oil and natural gas extraction industry accounts for about 83% of government petroleum-related revenues.

In 2022, the combination of rising oil and natural gas prices and higher production volumes contributed to the overall increase in revenue for the oil and natural gas extraction industry.<sup>2, 3</sup> According to CCEI, Canada's energy sector accounted for approximately 11.8% of the nominal gross domestic product (GDP) and approximately 3.5% of total employment in 2022.<sup>4</sup>

- Canada's distribution bottlenecks hinder crude oil flow outside the domestic refining market, including to refiners on the U.S. Gulf Coast. The [Trans Mountain Expansion \(TMX\)](#) Project on the Trans Mountain Pipeline aims to increase Canada's crude oil exports to the worldwide market through Pacific coast ports. The expansion will more or less triple the pipeline's present capacity of 300,000 barrels per day (b/d) for transporting crude oil from Alberta's oil sands to Canada's Pacific coast, where it will be exported to markets in Asia or the United States. The TMX pipeline began operations in May 2024.<sup>5, 6, 7</sup>
- Canada has many policy measures to support the transition to lower carbon fuels, including carbon pricing, clean fuel regulations, coal phaseout, nuclear power plant expansion, methane regulations, energy-efficiency programs, and the decarbonization of the transportation sector.<sup>8</sup> Canada's energy-related carbon dioxide (CO<sub>2</sub>) emissions from oil and coal consumption have declined, while natural gas has increased between 2012 and 2022 (Figure 5).<sup>9</sup> However, as of 2022, oil remains the largest source of energy-related CO<sub>2</sub> emissions with 51% of the total. In December 2023, Canada's government proposed a cap-and-trade system to reduce greenhouse gas emissions in the oil and natural gas sector to achieve net-zero emissions by 2050. If signed into law, the cap-and-trade system would be implemented in 2030, limiting emissions to between 131 metric tons (mt) of CO<sub>2</sub> equivalent per year and 137 mt of CO<sub>2</sub> equivalent per year, down from 171 mt of CO<sub>2</sub> equivalent per year in 2019.<sup>10</sup>

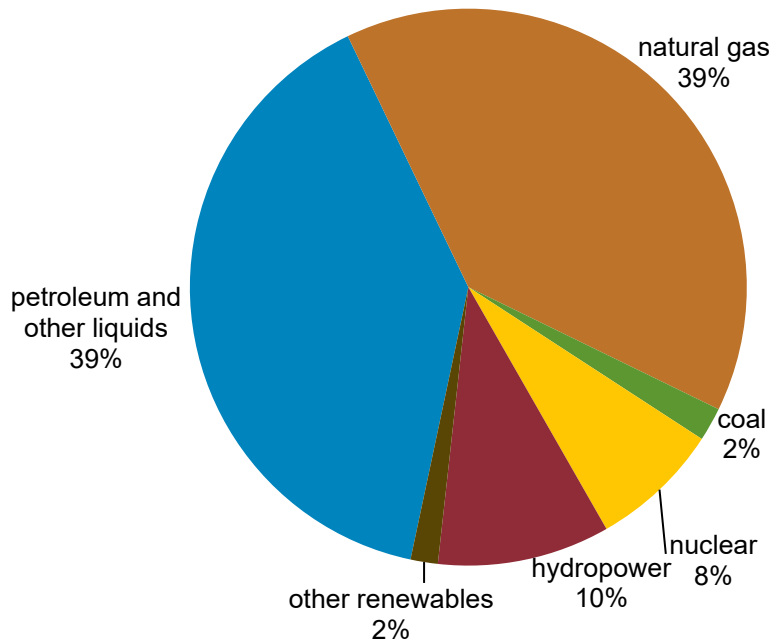
**Figure 1. Map of Canada**



Data source: U.S. Central Intelligence Agency, [CIA World Factbook—Canada](#)

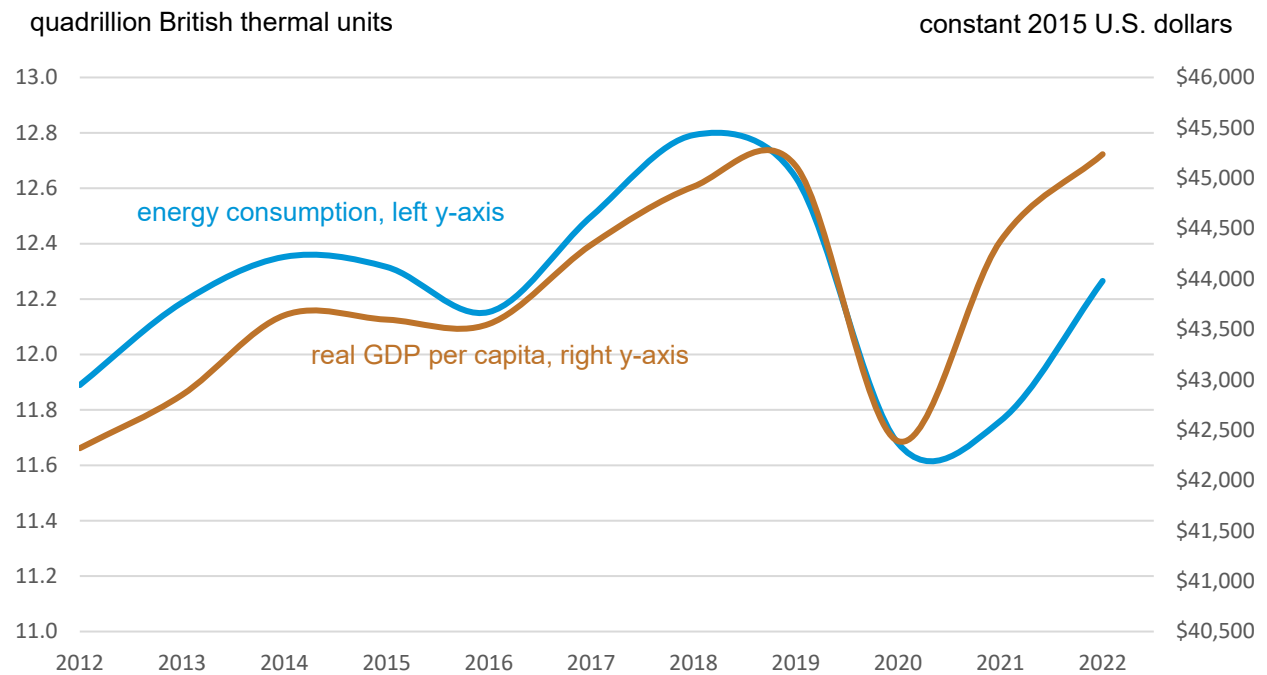
**Figure 2. Canada's total energy consumption by fuel type, 2022**

percentage of total energy consumption



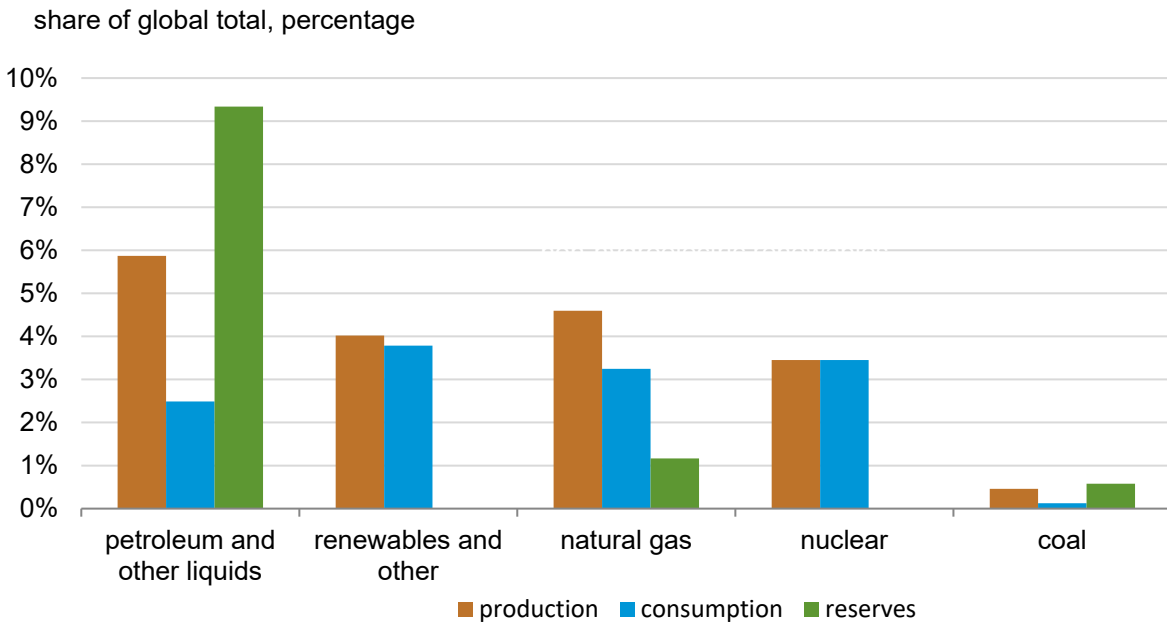
Data source: U.S. Energy Information Administration, International Energy Statistics; Energy Institute, *Statistical Review of World Energy 2023*


**Figure 3. Canada's total energy consumption and inflation-adjusted GDP per capita, 2012–2022**



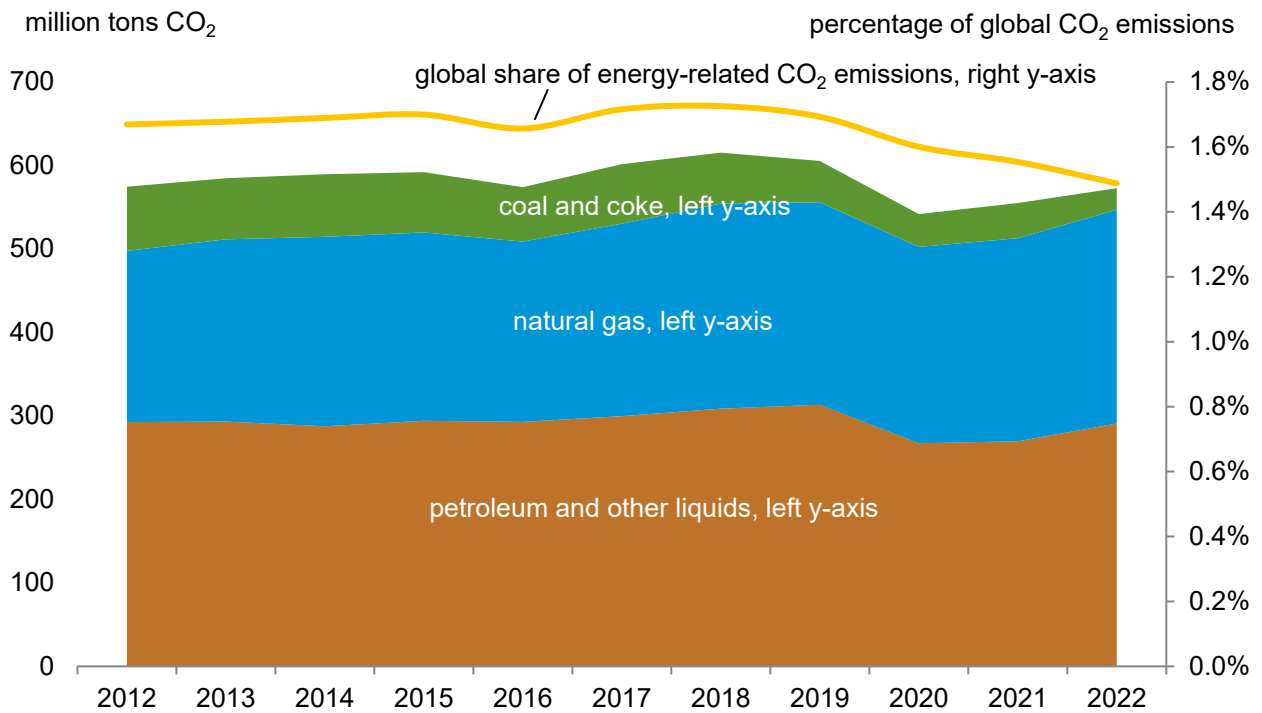
Data source: U.S. Energy Information Administration, International Energy Statistics; World Bank, *World Development Indicators*


**Figure 4. Canada's energy production, consumption, and reserves, by source, 2022**



 Data source: U.S. Energy Information Administration, International Energy Statistics  
 Note: *Renewables and other* contain hydropower, geothermal, tide, wave, fuel cell, solar, wind, and biomass and waste.

**Figure 5. Canada's energy-related CO<sub>2</sub> emissions, 2012–2022**



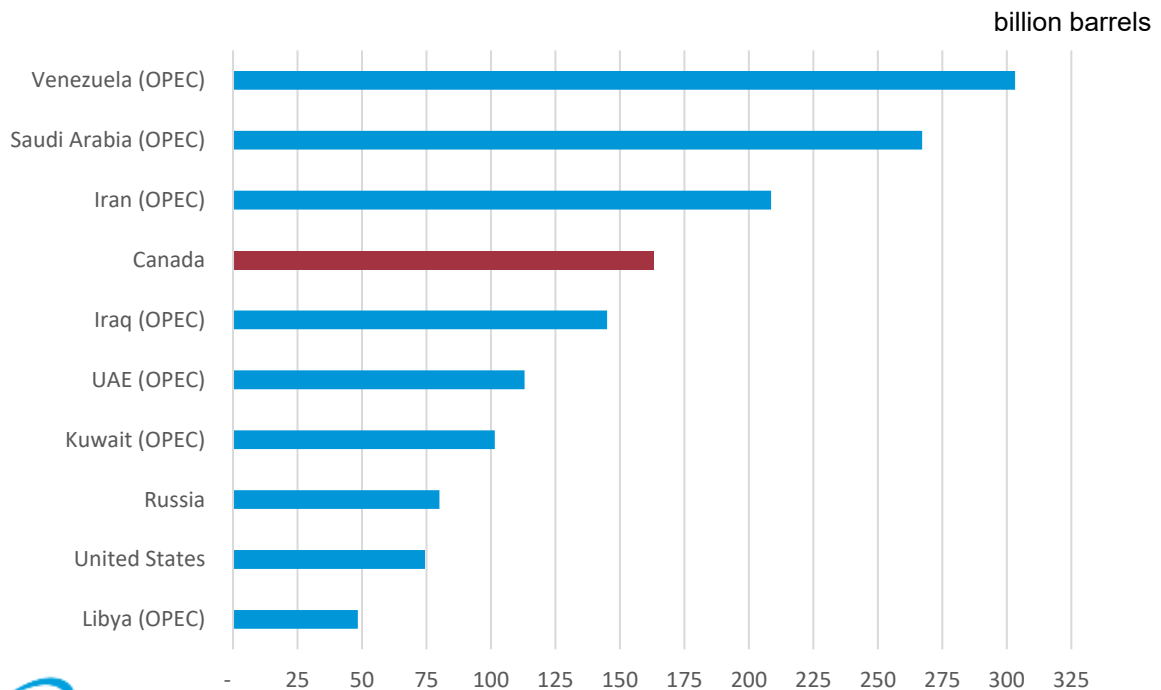
 Data source: U.S. Energy Information Administration, International Energy Statistics

## Petroleum and Other Liquids

- Canada had proved oil reserves of 163 billion barrels as of January 2024, ranking fourth in the world behind Venezuela, Saudi Arabia, and Iran (Figure 6).<sup>11</sup> Oil sands account for 97% of the country's total oil reserves.<sup>12</sup> These large deposits are spread across three regions in Alberta and Saskatchewan: Athabasca, Peace River, and Cold Lake.
- In 2023, Canada was the world's fourth-largest petroleum and other liquids producer and was a liquid fuels net exporter. Nearly all of Canada's energy exports are destined for the United States. Many U.S. refineries are configured to process heavy oils like those produced in Canada's oil sands.
- In 2023, 5.8 million b/d of petroleum and other liquid fuels were produced in Canada, growing at an average annual rate of 3.8% between 2013 and 2023. Crude oil (including condensate) contributed 2.9% to the growth, and the remaining 0.9% growth was from natural gas liquids (NGLs). Liquid fuels production in Canada has increased because of increasing production from Alberta's oil sands and upgraded synthetic crude oil.<sup>13</sup> Approximately 83% of crude oil production in Canada in 2022 originated in Alberta. In 2022, oil sands production accounted for 65% of total crude oil production, and conventional, offshore, and tight oil accounted for the remaining 35%.<sup>14</sup>
- Offshore production in Canada is concentrated in the eastern provinces and accounts for less than 5% of total production. Severe weather and difficult deep-water conditions have hampered the progress of three projects in Newfoundland, Labrador, and Nova Scotia. These challenges exacerbate both technical difficulties and exploration and production costs.
- Western Canadian Sedimentary Basin (WCSB) producers have traditionally focused on natural gas production, but because of a lack of midstream infrastructure and export capacity, the focus has shifted to producing liquid fuels for use as domestic diluents in nearby oil sands projects. Alberta's extra-heavy crude oil must be mixed with lighter liquids, such as plant condensate or pentanes before it can flow through pipelines and reach downstream facilities.
- Canada's petroleum and other liquids consumption was 2.5 million b/d in 2023, of which 32% was motor gasoline, 24% was distillate fuel oil, and 7% was liquefied petroleum gases. The main petroleum and other liquids consuming sectors were transportation (60%), [non-energy use](#) (24%), and industry (7%).
- Pipelines account for 88% of the crude oil transportation modes. The Canadian Energy Regulator (CER) regulates Canada's pipelines. Canada's oil operating capacity is 4.3 million b/d as of 2021. Canada's pipelines transport crude oil from the western provinces to refineries in the United States and Quebec and Ontario and to export terminals. Four primary crude oil export pipelines are in Western Canada: Enbridge Canada Main Pipeline, Keystone Pipeline, Trans Mountain Pipeline, and Express Pipeline. Together, these pipelines can ship 96% of all withdrawals from the WCSB. Enbridge Canadian Mainline, which is owned by Enbridge Pipelines Inc., accounts for approximately 58% of all Canada's oil exports.<sup>15, 16, 17</sup>
- As of 2023, Canada had 14 refineries and a nameplate crude oil processing capacity of 1.7 million b/d (Table 2). These refineries process crude oil into various products, such as gasoline, diesel, and home heating oil, that are essential for transportation and heating. The refineries are in six provinces, and the largest concentrations are in Alberta and Ontario, which account for 49% of the total capacity. Most of the crude oil is refined into motor gasoline and diesel fuel.<sup>18, 19</sup>

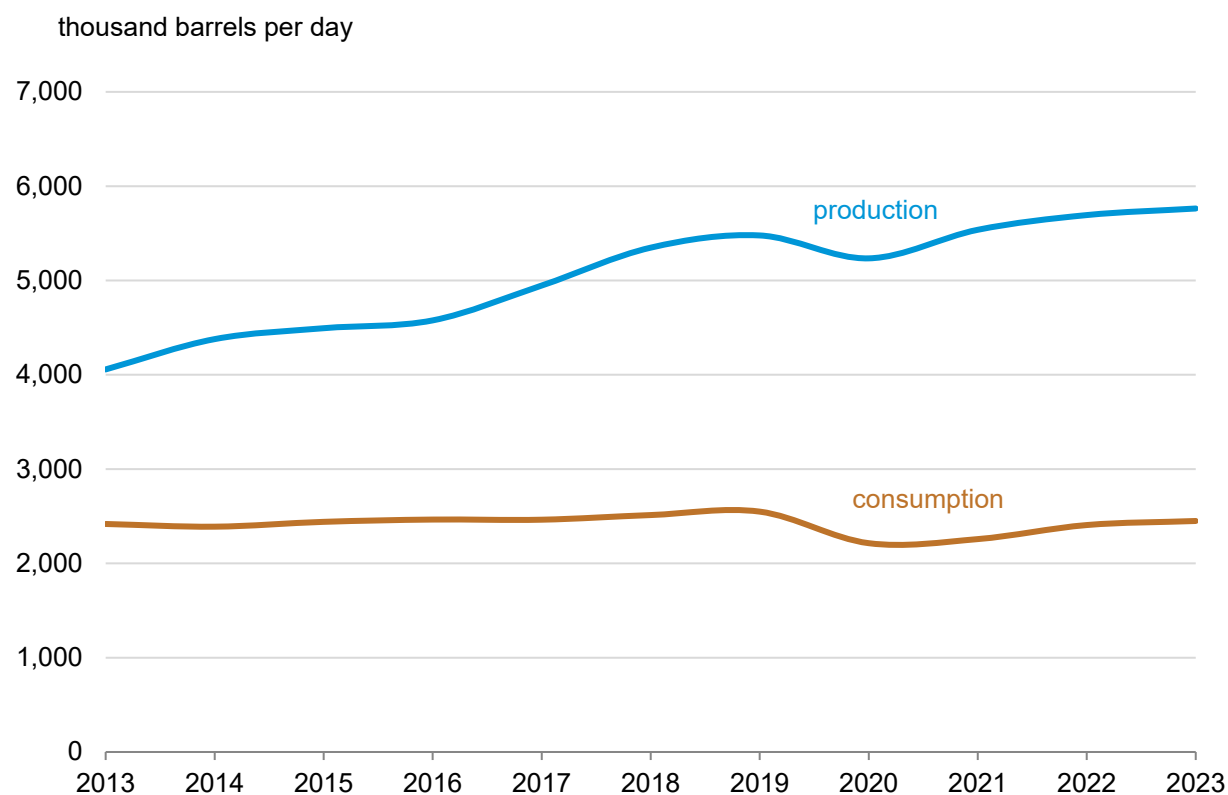
- Canada’s refineries supply petroleum to domestic and export markets, and the United States is the main destination for Canada’s refined products. In Canada, more crude oil is produced than refined domestically, but it imported an average 57% of its total crude oil trade between 2019 and 2023 because eastern refineries are not connected to domestic crude oil production supplies.<sup>20</sup> The nine refineries in Western Canada have a combined capacity of 653,000 b/d, or 38% of Canada’s total nameplate refining capacity.
- Oil sands are a mixture of sand, water, and bitumen. Bitumen is a crude oil extracted from the ground that is too thick to transport via pipelines. Bitumen can be either upgraded into a lighter synthetic crude oil or diluted with light hydrocarbon condensate, which is referred to as diluted bitumen or *dilbit*.<sup>21</sup>
- Upgraders are partial refiners that convert the residue of the bitumen and remove all the sulfur, making the synthetic crude oil easier to process. This process makes it ideal for less sophisticated refineries, like those in Canada. About half of the synthetic crude oil produced in Alberta is sold domestically, and the rest is exported to the United States.<sup>22</sup>
- Dilbit contains around 60% bitumen, which produces a lot of residue during distillation. Dilbit refineries require a lot of residue conversion capacity, which Canada's refineries do not have. As a result, nearly 95% of Alberta's dilbit is exported to the United States, leaving very little dilbit to be used in Canada.<sup>23</sup>

**Figure 6. Canada’s crude oil proved reserves ranking, 2023**



Data source: *Oil & Gas Journal*, 2023 Worldwide Reserves and Production

**Figure 7. Canada's total petroleum and other liquids production and consumption, 2013–2023**



Data source: U.S. Energy Information Administration, International Energy Statistics

**Table 2. Canada's oil refineries, 2023**

Refinery	Operator	Nameplate crude oil distillation capacity (thousand barrels per day)	Location
Saint John Refinery	Irving Oil Ltd.	320,000	Saint John, New Brunswick
The Jean Gaulin Refinery	Valero Energy Corp.	218,500	Levis, Quebec
Strathcona Refinery	Imperial Oil Ltd.	186,200	Strathcona, Alberta
Edmonton Refinery	Suncor Energy Inc.	146,000	Edmonton, Alberta
Montreal Refinery	Suncor Energy Inc.	137,000	Montreal, Quebec
Co-op Refinery Complex	Federated Co-operatives Limited	130,000	Regina, Saskatchewan
Sarnia Refinery	Imperial Oil Ltd.	113,050	Sarnia, Ontario
Nanticoke Refinery	Imperial Oil Ltd.	107,350	Nanticoke, Ontario
Scotford Refinery	Shell Canada Ltd.	95,000	Scotford, Alberta
Sarnia Refinery	Suncor Energy Inc.	85,000	Sarnia, Ontario
Corunna Refinery	Shell Canada Ltd.	80,750	Sarnia, Ontario

Burnaby Refinery	Parkland Fuel Corp.	55,000	Burnaby, British Columbia
The Cenovus Lloydminster Refinery	Husky Energy Inc.	29,000	Lloydminster, Alberta
Prince George Refinery	Tidewater Midstream & Infrastructure Ltd.	12,000	Prince George, British Columbia
<b>Total</b>		<b>1,714,850</b>	

Data source: *Oil & Gas Journal*, 2023 Worldwide Refining Survey

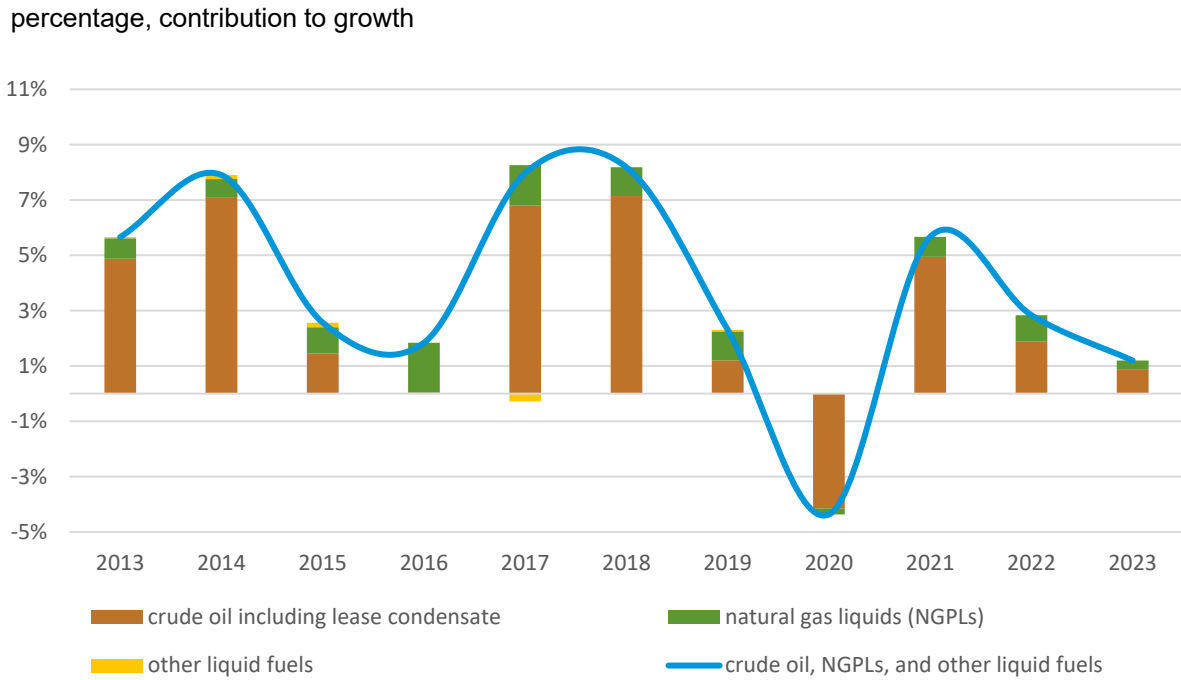
**Table 3. Canada's operating oil pipelines, 2021**

Name	Operator	Capacity (thousand barrels per day)
Enbridge Canadian Mainline	Enbridge Inc	2,890
Keystone Pipeline	TC Energy	591
Express Pipeline	Express Pipeline LLC	310
Trans Mountain Pipeline	Trans Mountain Corporation (TMC)	300
Milk River Pipeline	Inter Pipeline Ltd. (IPL)	98
Aurora Pipeline	Aurora Pipeline Company Ltd.	45
Wascana Pipeline	Plains Midstream Canada ULC (PMC)	40
<b>Total</b>		<b>4,274</b>

Data source: Canada Energy Regulator—REGDOCS

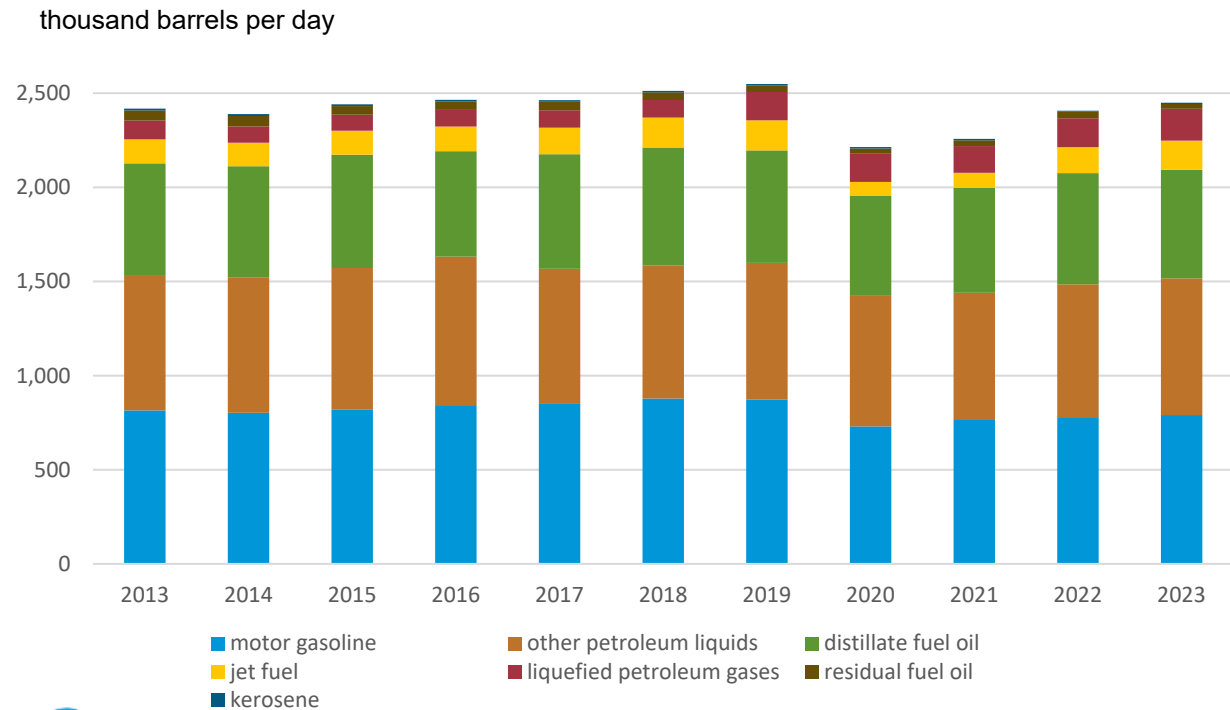


**Figure 8. Canada's petroleum and other liquids production growth, year-over-year, 2013–2023**



Data source: U.S. Energy Information Administration, International Energy Statistics

**Figure 9. Canada's refined petroleum products consumption, 2013–2023**

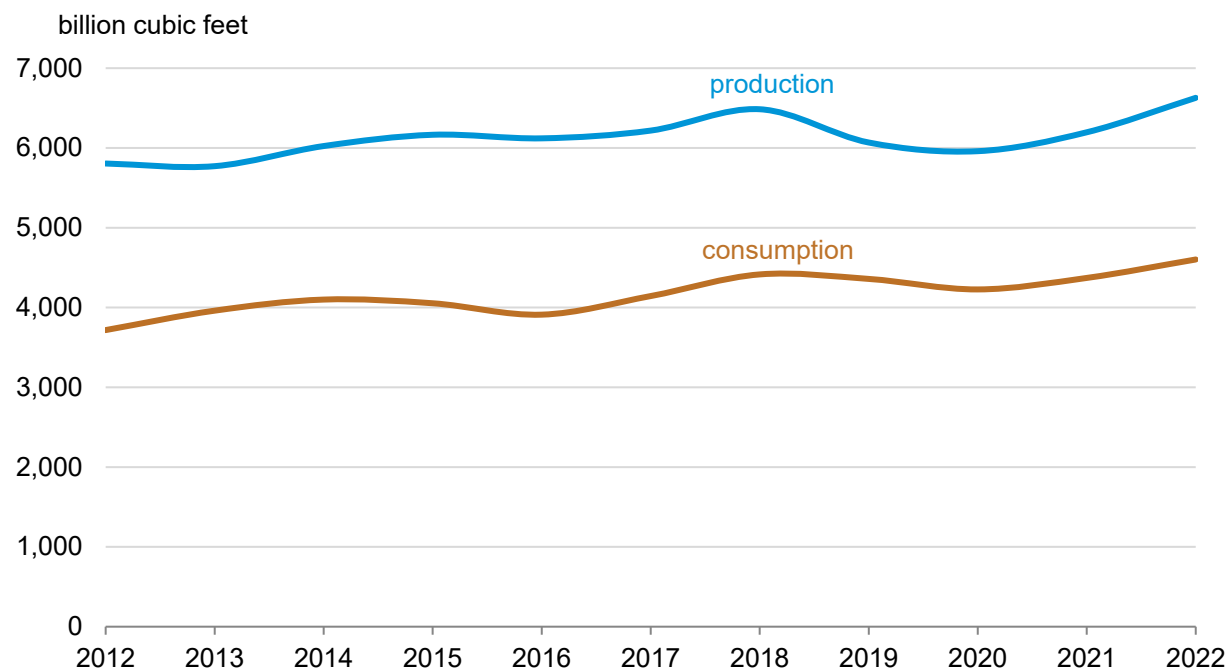


Data source: U.S. Energy Information Administration, International Energy Statistics

## Natural Gas and LNG

- Canada's proved natural gas reserves are estimated to be 87 trillion cubic feet (Tcf) as of January 2024.<sup>24</sup> Most of these reserves are found in the Western Canadian Sedimentary Basin (WCSB). Natural gas reserves are also present in other regions of Canada, such as offshore fields off the eastern coast of Newfoundland and Nova Scotia, the Arctic region, and the Pacific coast. In March 2016, the Canadian Energy Regulator published a study on the Liard Basin located in northwest Canada that spans the borders of British Columbia, Yukon, and the Northwest Territories. The study found that it contains 219 Tcf of marketable unconventional natural gas, making it the world's ninth-largest shale gas resource.
- Canada is the world's fifth-largest natural gas producer, following the United States, Russia, Iran, China, and Qatar, and produced 6.6 Tcf of dry natural gas in 2022.<sup>25</sup> Most natural gas production in Canada takes place in the WCSB, mainly concentrated in British Columbia and Alberta, which accounted for 98.7% of the total output in 2022.
- Natural gas production in Canada increased from 5.8 Tcf in 2012 to 6.6 Tcf in 2022, despite a decline in the number of wells drilled. The productivity of individual wells increased because of technological advancements in horizontal drilling and hydraulic fracturing.<sup>26</sup>
- Natural gas consumption in Canada has increased by an average of 2% per year between 2012 and 2022. Natural gas consumption was 4.6 Tcf in 2022; 32% was used by industry, 27% by residential customers, and 26% by commercial and public services. Natural gas consumption is highest in Alberta (44%), followed by Ontario (30%), and British Columbia (BC) (9%).<sup>27</sup>
- Canada currently has eight LNG export projects in different stages of development. Together, these projects have a potential production capacity of 2.5 Tcf of LNG. Although most export projects are in British Columbia, one export project has been proposed that includes Newfoundland and Labrador. Canada also has four LNG liquefaction plants and two LNG import plants that serve the domestic market, although most of them operate at low volumes. LNG Canada in Kitimat (BC) is set to become Canada's first large-scale LNG export facility, and it has a target to start exporting by 2025. Most of the other projects will begin operations between 2027 and 2030.<sup>28</sup>
- The NOVA Inventory Transfer (NIT) is a pricing point for natural gas produced in the WCSB. It's a trading hub in Alberta linked to several export markets and storage facilities. Other reference points include Dawn, Ontario, and Station 2 on the Enbridge BC Pipeline. The Canada Energy Regulator (CER) has approved many natural gas pipeline projects in the last five years, including Nova Gas Transmission Ltd. System's projects to add capacity in key areas. Westcoast Energy has also proposed upgrades to its Enbridge BC Pipeline because of growing BC production. In late October 2023, TC Energy announced that it had completed construction of the Coastal GasLink earlier that month.<sup>29, 30</sup>
- New natural gas-fired power plants in Canada are replacing coal-fired plants. The Canadian government has pledged to phase out coal use for power generation by 2030. In its place, 18 natural gas-fired facilities are in the planning and approval stages, and four are currently under construction. These facilities include the Suncor Oilsands Cogeneration Base Plant with a power generation capacity of 800 megawatts (MW), ATCO Strathcona Cogeneration Plant in Alberta (116 MW), and the Great Plains Power Station in Saskatchewan (360 MW).

**Figure 10. Canada’s dry natural gas production and consumption, 2012–2022**



Data source: U.S. Energy Information Administration, International Energy Statistics

**Table 4. Canada’s operating natural gas pipelines, 2020**

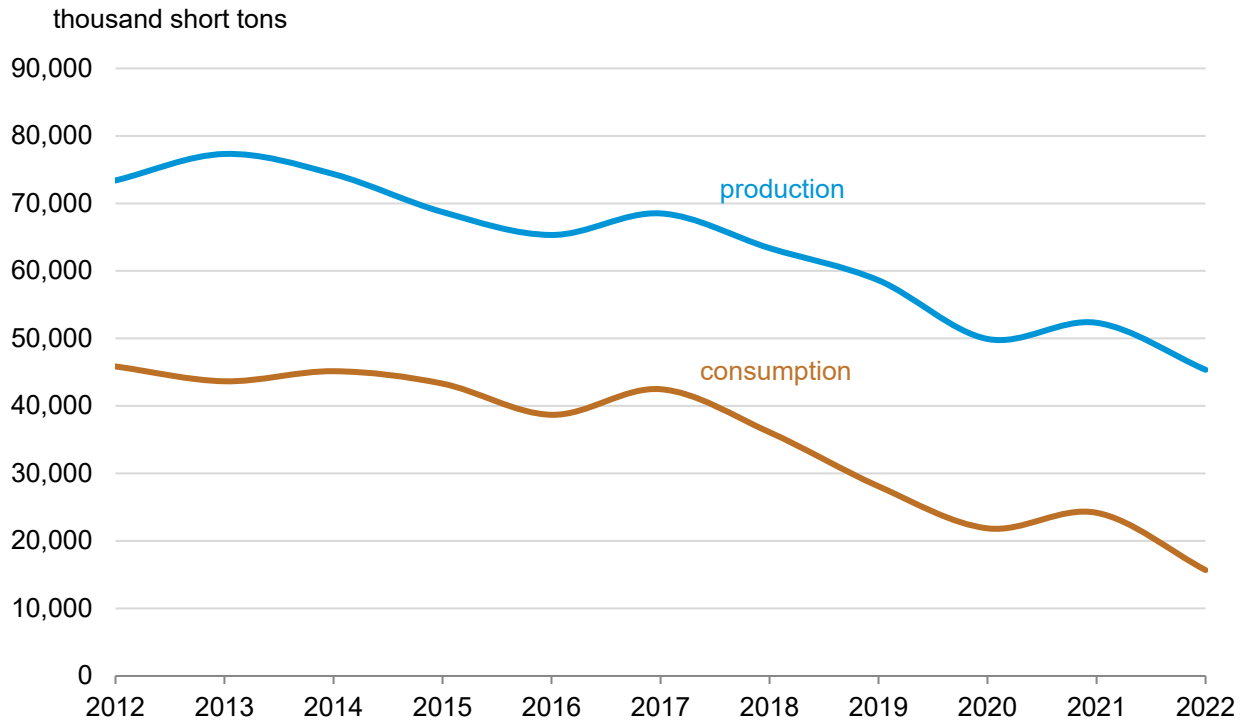
Name	Capacity utilization (percentage)	Capacity (billion cubic feet per day)
NGTL System—Upstream of James River—Intra-Canada	88%	11.2
TC Canadian Mainline—Prairies—Intra-Canada	47%	6.2
Foothills System—Kingsgate—Export	78%	2.9
NGTL System—West Gate—Intra-Canada	89%	2.8
Foothills System—Monchy—Export	26%	2.2
Alliance Pipeline—Border—Export	82%	1.6
Enbridge BC Pipeline—Huntingdon—Export	53%	1.6
TC Canadian Mainline—Iroquois—Export	29%	1.2
TC Canadian Mainline—Niagara—Import	95%	0.7
M&NP Pipeline—St. Stephen—Import	34%	0.5
<b>Total</b>		<b>30.9</b>

Data source: Canada Energy Regulator—Pipeline Profiles

## Coal

- Canada's large coal reserves totaled 7.3 billion short tons in 2021.<sup>31</sup> The majority of the reserves consist of anthracite and bituminous coal. The rest of the reserves are subbituminous and lignite. More than 90% of Canada's coal reserves are in the western provinces, which provides a strategic advantage because of its proximity to West Coast ports for export.<sup>32</sup>
- Because the national electricity grid has reduced its coal use, Canada's overall coal production has also declined, reaching 45.4 million short tons in 2021, compared with a peak of 86.7 million short tons in 1997. Metallurgical coal, used for steel manufacturing, accounted for 61% of Canada's coal production in 2022.<sup>33</sup> British Columbia produces 57% of the coal in Canada, followed by Alberta (25%) and Saskatchewan (17%).<sup>34</sup>
- As of 2022, Canada's coal accounts for 4% of the country's total energy supply and 2% of total consumption, making Canada a net exporter of coal (Table 1). Canada's exports are primarily metallurgical coal. Lignite coal, used to generate electricity, accounted for 45% of Canada's coal consumption in 2022, mostly for electricity generation in Alberta and Saskatchewan.<sup>35</sup>
- In 2022, Nova Scotia, New Brunswick, Saskatchewan, and Alberta were still using thermal coal plants to generate electricity. Ontario stopped using coal-fired power plants in 2014, and Manitoba followed suit in 2019. Alberta has announced that it will phase out coal-fired power plants by 2024, and Nova Scotia and New Brunswick have confirmed plans to phase out coal by 2030.<sup>36</sup>
- In 2018, Canada's government committed to phasing out coal use for electricity generation by 2030, except for power plants that can meet certain emissions standards through carbon capture and storage technology. The federal government has established strict emissions requirements that require coal-fired power plants to either close at the end of their lifecycle or to install carbon capture and storage (CCS) technology.
- The lignite-fired Boundary Dam Power Station in Saskatchewan is currently the only power plant in Canada using CCS technology. The site began carbon capture and storage in 2014, making it the first of its kind in the world.<sup>37</sup>

**Figure 11. Canada's coal production and consumption, 2012–2022**



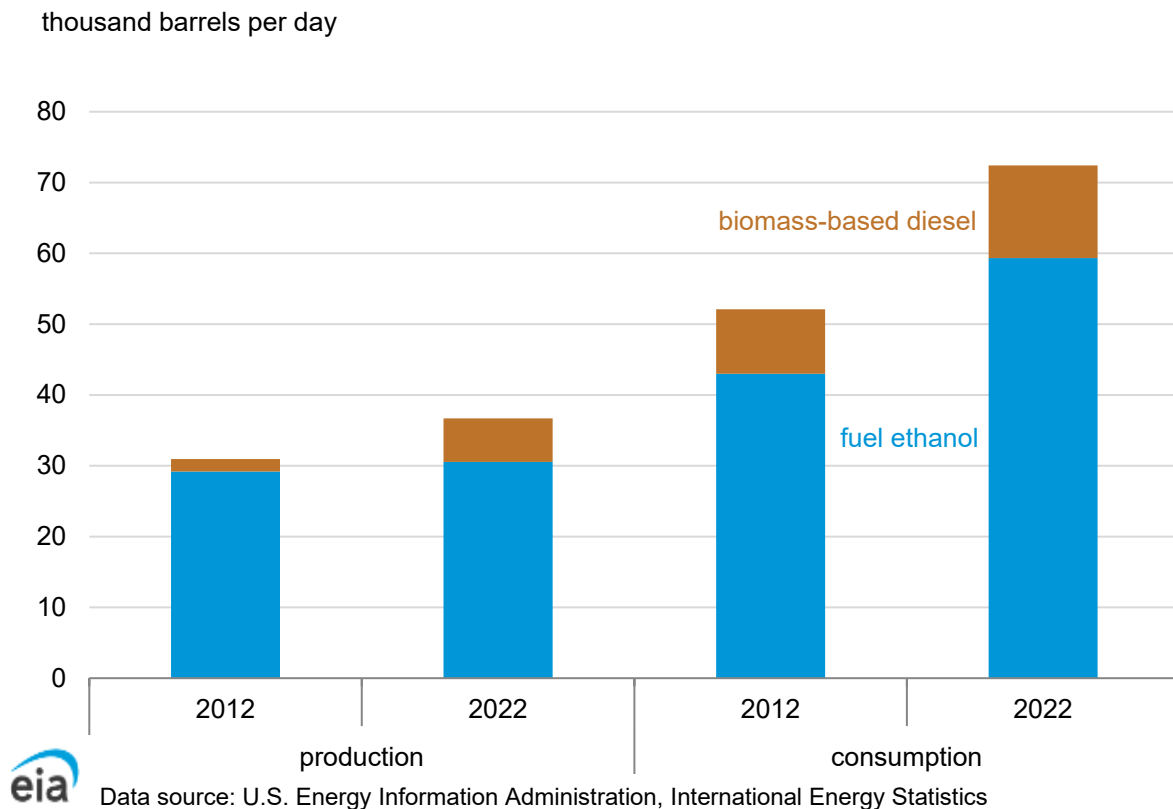
Data source: U.S. Energy Information Administration, International Energy Statistics

## Biofuels

- In Canada, biofuels are primarily produced from corn and wheat for ethanol and from canola and soybean for biodiesel. Canada produced 31,000 b/d of fuel ethanol and 6,000 b/d of biomass-based diesel in 2022, meeting 51% and 47% of the domestic demand, respectively.<sup>38, 39</sup>
- Biofuel production in Canada increased by an annual average of 1.6% between 2012 and 2022, with biomass-based diesel contributing 1.2% and fuel ethanol contributing 0.4% of the increase. Ethanol is the top biofuel in Canada, accounting for 83% of biofuel production and 82% of biofuel consumption in 2022.
- The demand for biofuels, particularly ethanol and renewable diesel, is rising because of regulations; biofuel consumption grew at an average annual rate of 7.6% between 2012 and 2022. As of 2022, Canada was the world's seventh-largest biofuel consumer. Industry accounted for 58% of total biofuel consumption, followed by transportation (22%) and residential use (20%).<sup>40</sup>
- Renewable diesel, a biomass-based fuel that can be blended with or used as a replacement fuel for petroleum diesel, is becoming increasingly popular. In June 2023, Tidewater Midstream's stand-alone renewable diesel facility, the first of its kind in Canada, began operating. Covenant Energy in Saskatchewan has announced plans to move forward with a renewable diesel facility on the edge of Lloydminster, and Imperial Oil has committed to constructing a renewable diesel facility near Edmonton.<sup>41</sup>

- Several provinces, such as British Columbia and Ontario, have implemented biofuel requirements. These policies require a certain percentage of biofuels, typically ethanol in gasoline and biodiesel in diesel, to be blended into conventional fuels. Starting January 2023, Quebec required gasoline to contain 10% renewable content and diesel to contain 15%.<sup>42</sup>
- Canada's biofuels market is driven by federal and provincial regulations, such as the Renewable Fuels Regulations, the Clean Fuel Standard, and the low-carbon fuel standards in British Columbia and Quebec.
- The Clean Fuel Regulation (CFR), implemented in 2022, requires the carbon intensity of transportation fuels to be reduced and promotes biofuels. In June 2021, the Net Zero Canada Act became law, committing the government to achieving net zero emissions by 2050.<sup>43</sup>

**Figure 12. Canada's biofuels production and consumption, 2012–2022**



## Electricity

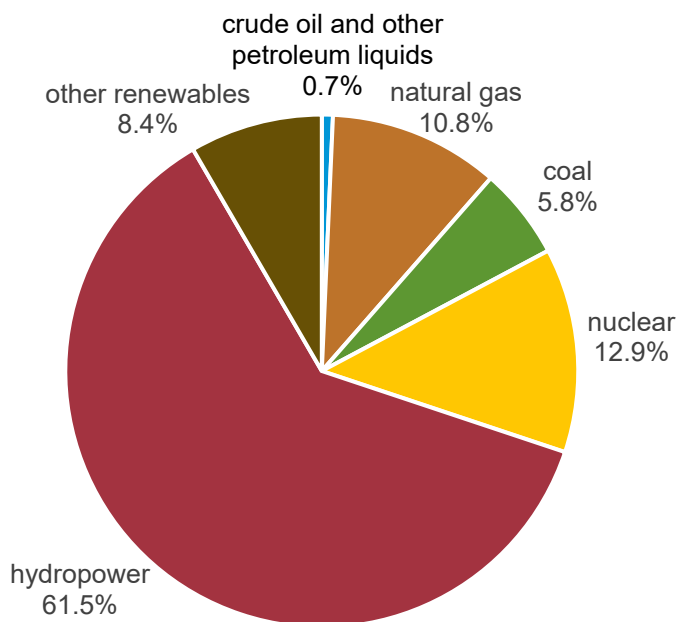
- Canada is the world's seventh-largest electricity generator, at an average 638 billion kilowatthours (kWh) in 2022, and renewables accounted for 70% of electricity generation. Canada's electric power sector contributed about 1.7% to the country's 2022 gross domestic product (at current prices) and accounted for 0.5% of Canada's total employment.<sup>44</sup> Hydropower contributed 62% of Canada's electricity generation in 2022 and has been Canada's primary source of electricity generation for over a century. China and Brazil are the only countries that produce more hydropower than Canada on a kilowatthour basis. Apart from hydropower, nuclear and natural gas plants are the primary sources of electricity in Canada (Table 1).
- Canada is the world's seventh-largest electricity consumer on a per capita basis, at 14,500 kilowatthours (kWh) per person in 2022 (Figure 16). Canada's ranking is mainly because of the presence of energy-intensive industries, cold climate, and affordable electricity prices. In 2021, the largest electricity-consuming sector in Canada was industry (35%), followed by residential (34%), and commercial and public services (28%).<sup>45</sup> Most electricity is used in Quebec (37%), Ontario (26%), British Columbia (12%), and Alberta (11%).<sup>46</sup>
- Canada's electricity market is divided into provincial markets; each province has its regulatory authority overseeing generation, distribution, and pricing. Provinces with surplus electricity can sell it to neighboring provinces through a network of transmission lines. This connectivity enhances reliability and efficiency.
- Canada has three electricity grids: Western Grid, Eastern Grid, and Quebec Grid. The border between Alberta and Saskatchewan is where the Eastern and Western grids meet. Canada's electricity grids are connected to the U.S. grids by 37 major transmission lines spanning from New England to the Pacific Northwest. The Canada Energy Regulatory Commission (CER) characterizes Canada's electricity grid as "fragmented," with few interconnections between different locations. Major grid connections mostly link the provinces to the United States, and electricity flows from north to south. Nunavut is the only region in Canada without an electricity grid; it relies on local diesel generation.
- All of Canada's provinces and territories except Nunavut and Prince Edward Island generate hydropower. Quebec, Manitoba, British Columbia, Ontario, and Newfoundland and Labrador use the most hydropower to meet their electricity needs, combined accounting for 97% of Canada's total hydropower capacity. A large 1,100-MW hydropower project, Site-C in British Columbia, is underway and is expected to be completed in 2025. Provinces like Alberta have a mix of energy sources, including natural gas and coal, while others, such as Ontario, have a significant nuclear power presence.
- Nuclear energy contributes in powering Canada's electricity supply. As of 2022, nuclear power plants accounted for 13% of the country's total electricity generation. The 19 commercial reactors in the country provide a net capacity of 14,629 MW. Ontario holds 95% of Canada's nuclear power capacity, and the remaining 5% is in New Brunswick. In recent years, Canada has focused on updating and improving its existing reactors, as well as developing small modular reactors (SMRs), in part to address climate change, meet regional energy demand, and promote economic development.<sup>47, 48</sup>
- Federal and provincial commitments to reduce carbon emissions from the electric power sector by 2030 and increase renewable energy have driven the development of

non-hydro renewable energy in Canada. Between 2012 and 2022, non-hydroelectric renewable electricity generation significantly increased. On average, it grew by 9.8% per year. Wind energy contributed 8.1% to this growth, solar power contributed 1.4%, and biomass and waste contributed 0.2%. Canada has favorable market conditions for wind energy and has abundant high-quality wind resources, especially offshore and along coastlines, making it an ideal location for wind electricity.<sup>49</sup> Most solar power is in Ontario, but provinces such as British Columbia, Saskatchewan, and Alberta are also developing solar capacity.

- Between 2000 and 2021, emissions from power generation decreased by 43% because of Ontario’s and Québec’s successful phaseout of coal-fired generation.<sup>50, 51</sup> Renewable and natural gas power plants will replace coal-fired power generation by 2030.<sup>52</sup> SaskPower, Saskatchewan's main utility company, plans to increase the share of renewables in its portfolio from 25% to 50% by 2030, investing in wind, solar, geothermal, hydropower, and biomass.

**Figure 13. Canada’s electricity generation supply, 2022**

percentage of total electricity generation

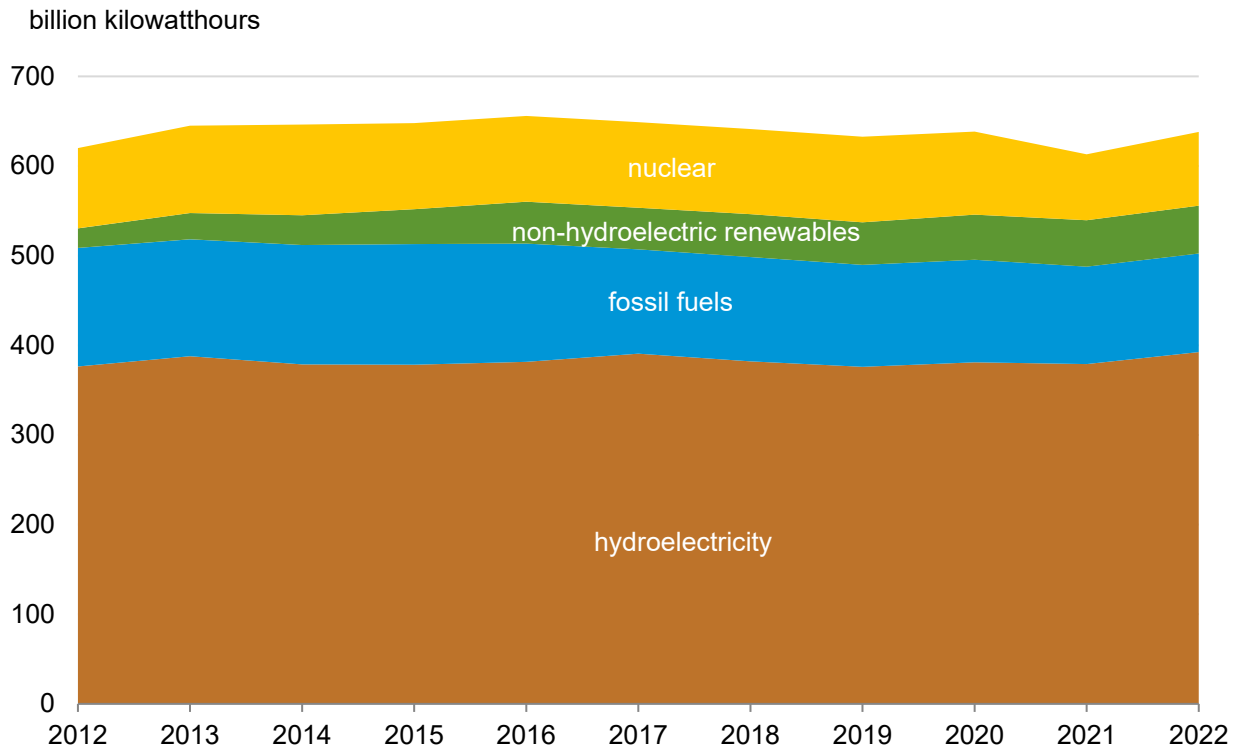


Data source: U.S. Energy Information Administration, International Energy Statistics; and International Energy Agency, Electricity Information 2022

Note: *Other renewables* contain solar, wind, and biomass and waste sources.

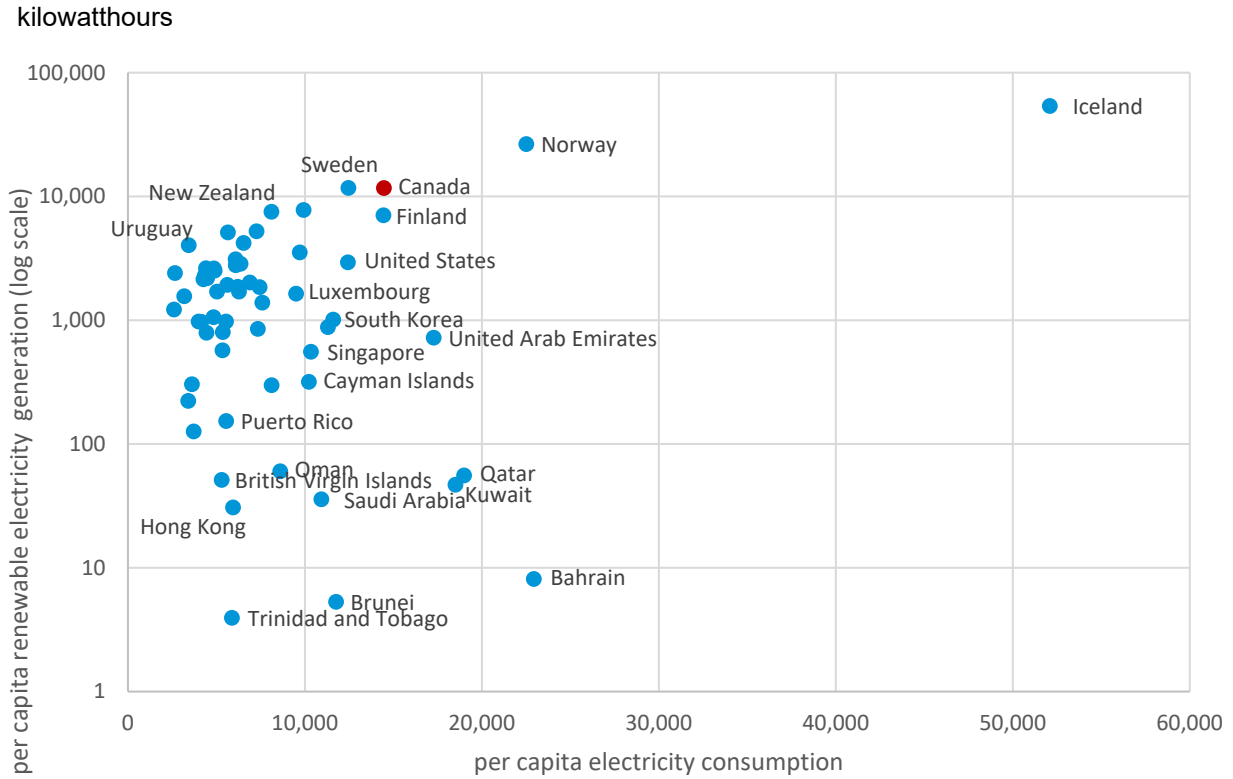


**Figure 14. Canada's electricity generation by source, 2012–2022**



Data source: U.S. Energy Information Administration, International Energy Statistics

**Figure 15. Comparison of Canada’s renewable generation and energy consumption with other high-income countries, 2022**



Data source: U.S. Energy Information Administration, International Energy Statistics  
 Note: A *high-income economy* is defined by the World Bank as a country with a gross national income per capita of US \$13,845 or more in 2022, calculated using the Atlas method. The World Bank's Atlas method is a data compilation methodology that converts a country's local currency estimates to U.S. dollars for cross-country comparisons.



**Table 5. Canada’s operating hydroelectric plants, 2022**

Name	Owner	Start year	Capacity (megawatts)	Type	Location
Pine Falls hydroelectric plant	Manitoba Hydro	1952	9,084	Conventional storage	Manitoba
Robert-Bourassa hydroelectric plant	Hydro Québec	1979	5,616	Conventional storage	Quebec
Churchill Falls hydroelectric plant	Nalcor Energy and Hydro-Quebec	1971	5,428	Conventional storage	Newfoundland and Labrador
La Grande 4 hydroelectric plant	Hydro Québec	1984	2,779	Conventional storage	Quebec
Mica hydroelectric plant	BC Hydro	1973	2,746	Conventional storage	British Columbia
Gordon M Shrum hydroelectric plant	BC Hydro	1968	2,730	Conventional storage	British Columbia
Revelstoke hydroelectric plant	BC Hydro	1984	2,480	Conventional storage	British Columbia

La Grande 3 hydroelectric plant	Hydro Québec	1982	2,417	Conventional storage	Quebec
La Grande 2A hydroelectric plant	Hydro Québec	1991	2,106	Conventional storage	Quebec
Beauharnois hydroelectric plant	Hydro Québec	1932	1,912	Run-of-river	Quebec
Manic 5 hydroelectric plant	Hydro Québec	1970	1,596	Conventional storage	Quebec
Sir Adam Beck 2 hydroelectric plant	Ontario Power Generation	1954	1,499	Conventional storage	Ontario
La Grande 1 hydroelectric plant	Hydro Québec	1994	1,436	Run-of-river	Quebec
Limestone hydroelectric plant	Manitoba Hydro	1990	1,350	Run-of-river	Manitoba
Manic 3 hydroelectric plant	Hydro Québec	1975	1,326	Run-of-river	Quebec
Kettle hydroelectric plant	Manitoba Hydro	1970	1,253	Run-of-river	Manitoba
Manic 2 hydroelectric plant	Hydro Québec	1965	1,229	Run-of-river	Quebec
Bersimis 1 hydroelectric plant	Hydro Québec	1956	1,178	Conventional storage	Quebec
Shipsaw hydroelectric plant	Rio Tinto Group	1943	1,145	Conventional storage	Quebec
Manic 5PA hydroelectric plant	Hydro Québec	1989	1,064	Conventional storage	Quebec
Other conventional storage	Other conventional storage	1968 (average)	21,209	64 conventional storage	17 Quebec; 15 British Columbia; 32 other
Other run-of-river	Other run-of-river	1964 (average)	12,318	42 run-of-river	26 Quebec; 7 Ontario; 9 other
Other unknown	Other unknown	1943 (average)	1,052	5 unknown	2 Quebec; 3 other
Other pumped storage	Other pumped storage	1957 (average)	174	1 pumped storage	1 Ontario
<b>Total</b>			<b>85,127</b>		

Data source: Global Energy Monitor, Global Hydropower Tracker, May 2023

## Energy Trade

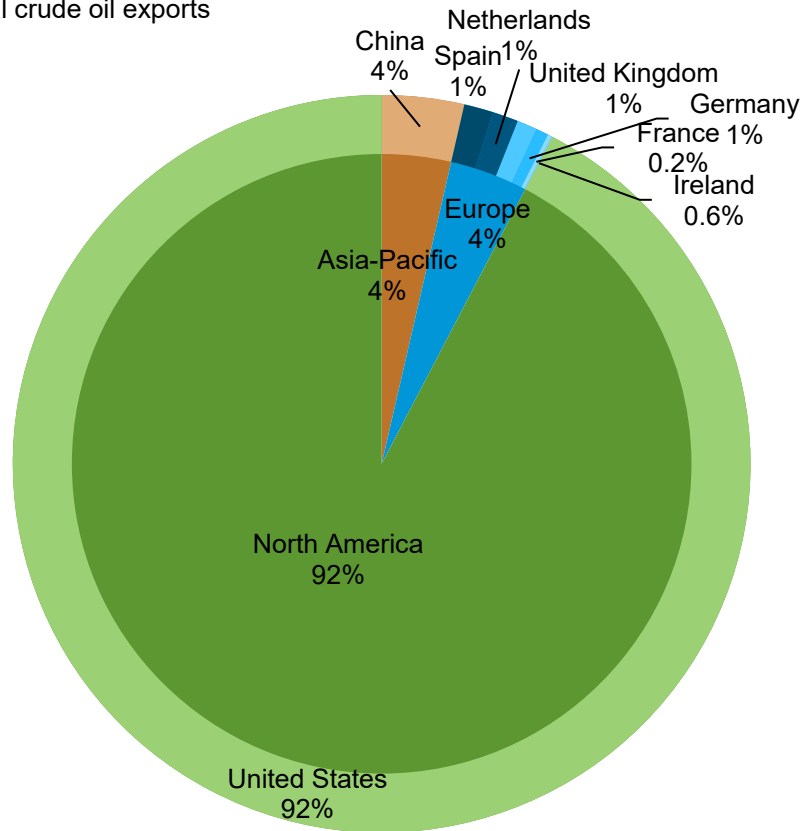
- Canada exports more energy than it imports (net exporter), and its largest and most important trading partner is the United States. Canada's 2022 energy exports amounted to \$240.5 billion, equivalent to 33% of the country's total goods exports, and 90% of those energy exports were destined for the United States. The energy goods exported include crude oil, natural gas, refined petroleum products, electricity, and coal. Among these, oil and natural gas made up 90% of the total energy exports.<sup>53</sup> Canada's energy imports were \$65.3 billion in 2022, amounting to 9% of Canada's total goods imports.
- In 2023, 92% of Canada's crude oil exports went to the United States. Inland regions of the United States, particularly the Midwest (PADD 2) and Rocky Mountain (PADD 4) regions, are highly integrated with Canada's oil markets, and Canada's crude oil makes up a significant portion of U.S. refinery inputs in these regions. For this reason, Canada is the top crude oil supplier to the United States, providing 60% of U.S. crude oil imports in

2023. U.S. imports of refined products from Canada accounted for 18% of total U.S. petroleum product imports.

- Canada's crude oil producers face complex market and logistical challenges. The transportation capacity of pipelines serving foreign markets is less than Western Canada's crude oil supply. Canadian oil producers rely on rail for transportation as export pipelines are operating at full capacity. Since 2022, the Marathon Capline pipeline has allowed producers to increase oil sands volume from Alberta through the Gulf Coast to Asia. The Trans Mountain Expansion Project (TMX) has been in operation since May 2024 and has significantly increased the pipeline capacity to Canada's Pacific Coast, enabling export to foreign markets. The pipeline runs parallel to the existing 715-mile pipeline route between Strathcona County (near Edmonton) and Burnaby, British Columbia, which is Canada's only crude oil pipeline to its West Coast. The expansion project aims to enhance the capacity of the Trans Mountain pipeline system, facilitating the delivery of more crude oil to global markets.
- Canada's natural gas exports were 3.1 Tcf Bcf in 2023, and 100% of those exports went to the United States. Canada is the top natural gas supplier to the United States, providing 99.9% of U.S. imports in 2023. Most of Canada's natural gas exports to the United States come from Western Canada and are transported to U.S. markets in the West and Midwest regions.
- Canada is the world's top electricity exporter; it exported 52 terawatt-hours (TWh) to the United States in 2023.<sup>54</sup> Hydropower is the main source of Canada's electricity, and the United States was the primary import recipient. Provinces with abundant hydroelectric resources, such as Quebec and British Columbia, export electricity to neighboring regions and the United States, particularly the U.S. Northeast and Midwest. Canada imported 17 TWh of electricity from the United States; almost all of it came from the Pacific Northwest.<sup>55</sup>
- Canada is the eighth-largest coal exporter in the world, as of 2022, and Asia was its primary market. In 2023, Canada exported 44.7 million short tons (MMst) of coal, which includes lignite and peat. Japan (31%), China (22%), and Korea (20%) were the top destinations. On the other hand, Canada imported 6,526 MMst of coal in 2023, which mainly came from the United States (77%) and Colombia (22%). For over a decade, coal imports have been decreasing, but exports have remained mostly stable. Canada is planning to phase out traditional coal-fired electricity by 2030 domestically. However, because coal is utilized for metallurgical processes, Canada continues to export coal, which constitutes almost two-thirds of its production as of 2022.<sup>56</sup>

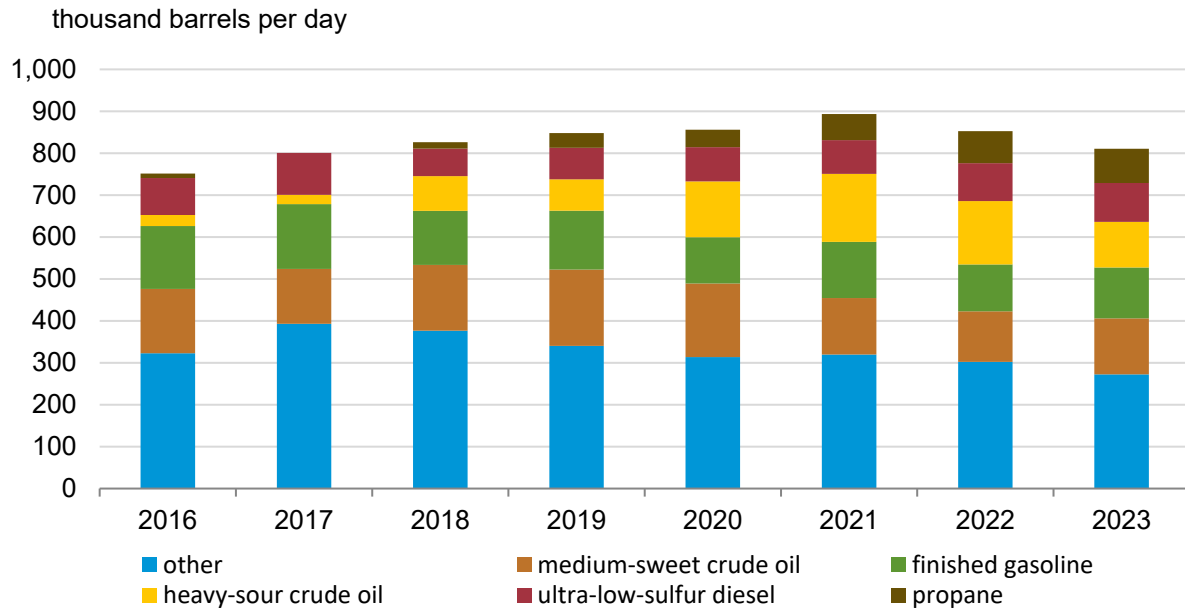
Figure 16. Canada's crude oil exports by region and country, 2023

percentage of total crude oil exports



Data source: Global Trade Tracker, provided by Zen Innovations AG © 2024

**Figure 17. Canada's petroleum exports via vessel, 2016–2023**

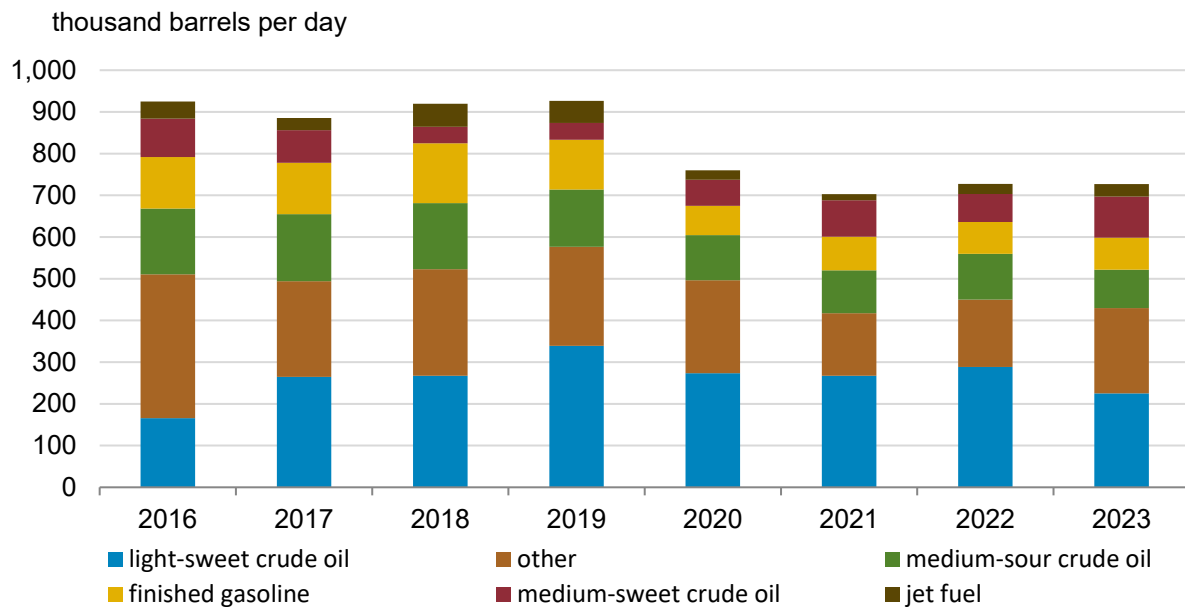


Data source: Vortexa Ltd.

Note: *Other* includes asphalt, biodiesel feedstock, bitumen, blending components, chemicals, cycle oils, diesel, finished biodiesel, full range naphtha, gasoil, heavy-sweet crude oil, kerosene, light-sour crude oil, light-sweet, low sulfur fuel oil, lube oils, medium-sour crude oil, olefins or other chemicals, other biodiesel or edible oils, propane, ultra-low sulfur diesel, undetermined, and vacuum gas oil.



**Figure 18. Canada's petroleum imports via vessel, 2016–2023**

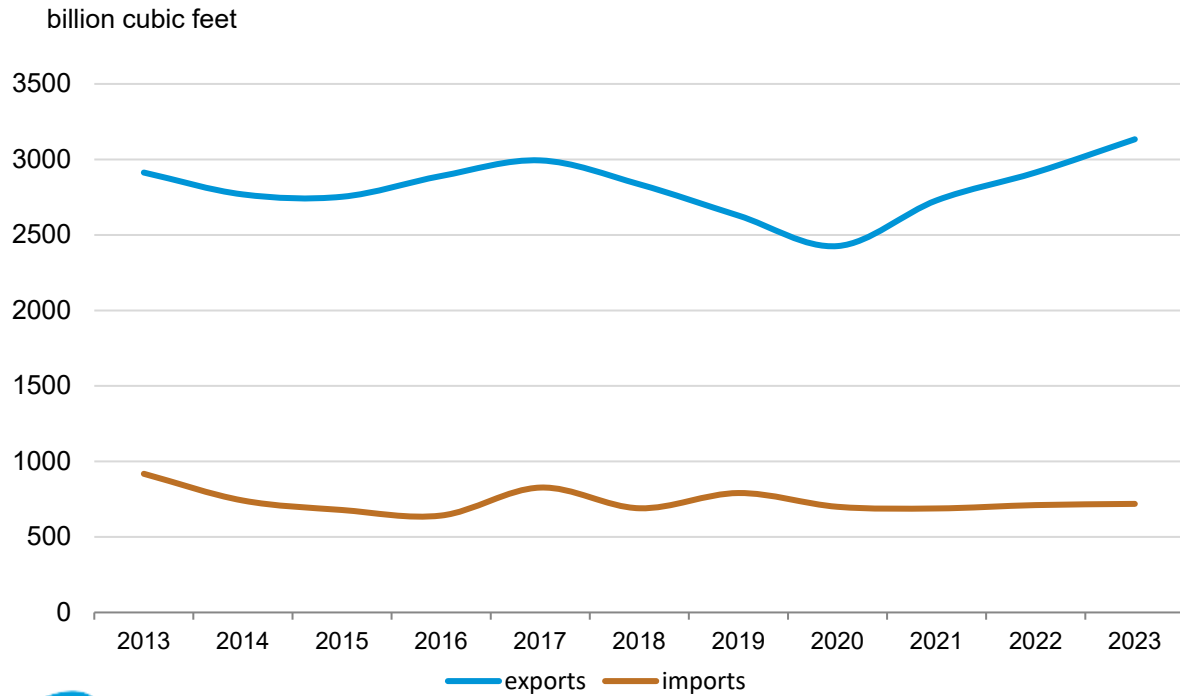


Data source: Vortexa Ltd.

Note: *Other* contains biodiesel feedstock, bitumen, blending components, butane, chemicals, diesel, dirty condensates, finished biodiesel, full range naphtha, gasoil, heavy-sour crude oil, heavy-sweet crude oil, high sulfur fuel oil, jet fuel, light naphtha, light-sour crude oil, light-sweet crude oil, low sulfur fuel oil, lube oils, medium-sweet crude oil, olefins or other chemicals, other biodiesel or edible oils, propane, undetermined, and vacuum gas oil.

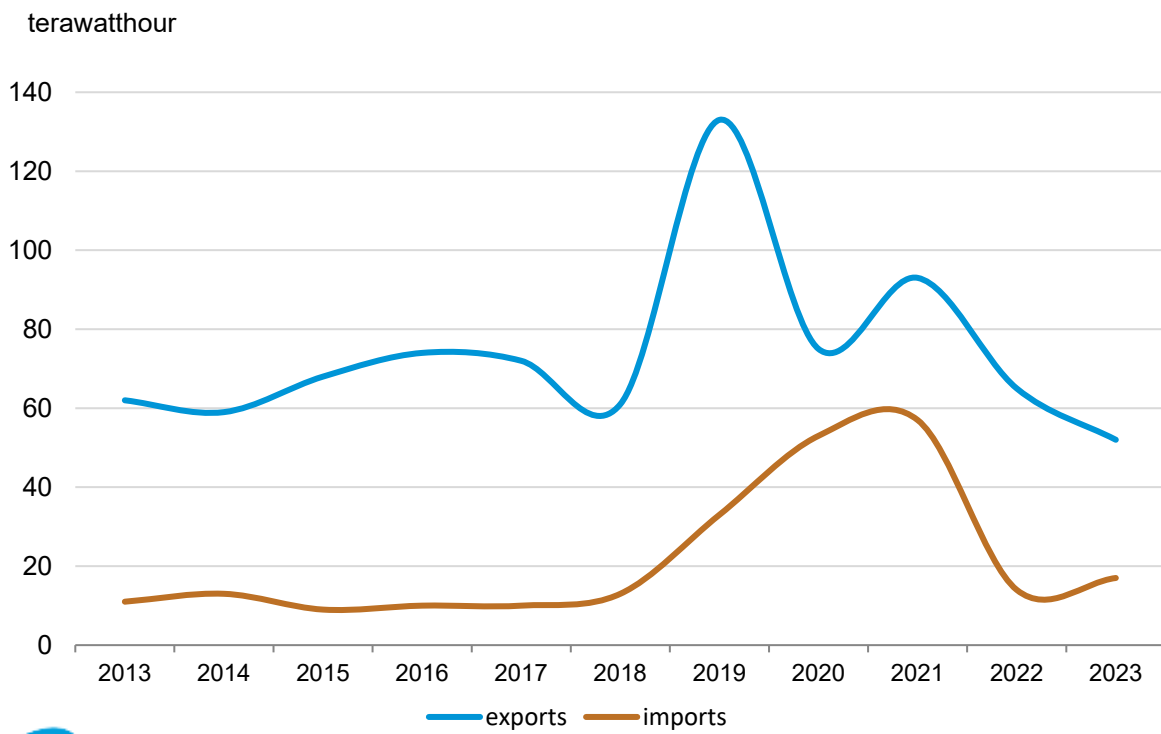


**Figure 19. Canada's natural gas trade, 2013–2023**



Data source: Global Trade Tracker, provided by Zen Innovations AG © 2024

**Figure 20. Canada's electricity trade, 2013–2023**



Data source: Global Trade Tracker, provided by Zen Innovations AG © 2024









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<sup>55</sup> “Solutions - Global Trade Tracker Global Trade Tracker.” Global Trade Tracker - Get the best tool to explore global trade data. Accessed April 29, 2024. <https://www.globaltradetracker.com/>.

<sup>56</sup> Canada, Natural Resources. “Coal Facts.” Natural Resources Canada, April 3, 2024. <https://natural-resources.canada.ca/our-natural-resources/minerals-mining/mining-data-statistics-and-analysis/minerals-metals-facts/coal-facts/20071>.



# Country Analysis Brief: Guyana

Last Updated: May 29, 2024

Next Update: May 2026

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## Overview

**Table 1. Guyana's energy overview, 2022**

	Crude oil and other petroleum liquids	Natural gas	Coal	Nuclear	Hydro	Other renewables	Total
Primary energy consumption (quads)	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Primary energy consumption (percentage)	99.2%	0.4%	0.0%	0.0%	0.0%	0.3%	100.0%
Primary energy production (quads)	0.61	0.00	0.00	0.00	0.00	0.00	0.61
Primary energy production (percentage)	99.9%	0.0%	0.0%	0.0%	0.0%	0.02%	100.0%
Electricity generation (terawatthours)	1.10	0.02	0.00	0.00	0.00	0.02	1.14
Electricity generation (percentage)	96.7%	1.4%	0.0%	0.0%	0.0%	1.9%	100.0%

Data source: U.S. Energy Information Administration, International Energy Statistics

Note: Other renewables contain solar and biomass and waste. Quads=quadrillion British thermal units

- Guyana's petroleum production has grown rapidly, increasing from 15,000 barrels per day (b/d) in December 2019, when crude oil production in the country began, to 630,000 b/d in January 2024.<sup>1</sup> Three additional projects are underway with the potential to reach a combined production capacity of 1.3 million b/d of crude oil by 2027.<sup>2</sup>
- As a result, the country has had an economic boom, with double-digit GDP growth reported since 2020, including a 62% increase in 2022. The oil and natural gas industry accounted for 56% of GDP growth, and the non-oil industries accounted for 6%.<sup>3</sup> The International Monetary Fund forecasts continued double-digit GDP growth over its outlook period, between 2023 and 2028.<sup>4</sup>
- ExxonMobil, leading a consortium, has discovered over 30 oil reserves since 2015 in the offshore Stabroek Block; the latest discoveries are the Fangtooth SE-1 and Lancetfish-1 wells in 2023 and the Bluefin well in 2024.<sup>5, 6</sup>
- Petroleum and other liquids account for 99.2% of Guyana's energy production and 99.9% of its energy consumption. The remainder is made up of natural gas and renewables such as wood and sugar cane residue.<sup>7</sup>
- In December 2022, Guyana's government passed the [Local Content Act 2021](#) for the country's expanding oil and natural gas industry, requiring companies to use local goods, services, and labor in 40 different sectors. The law specifies minimums for local content, ranging from 5% to 100%. Although some of the requirements are lower than those

outlined in an earlier version of the bill, the government also introduced additional provisions covering government monitoring procedures, reporting requirements, and penalties for non-compliance.<sup>8, 9</sup>

- In December 2023, Venezuela held a referendum on whether or not to recognize Essequibo, an oil and natural gas-rich territory belonging to Guyana, as part of Venezuela and to authorize the government to annex the territory. In March 2024, Venezuela's National Assembly passed a law stating that Essequibo is a Venezuelan state, prohibiting maps of the country without the territory. Guyana has condemned Venezuela's new law as a violation of international law and an escalation of tensions. In February 2024, Guyana's government announced that it would not approve oil exploration in acreage north of the Venezuelan 70-degree line, which cuts through the Stabroek and Kaieteur blocks, until the UN court rules on the borders. As of May 2024, this issue has not limited Guyana's oil production or projects currently in development.<sup>10, 11, 12, 13, 14, 15</sup>

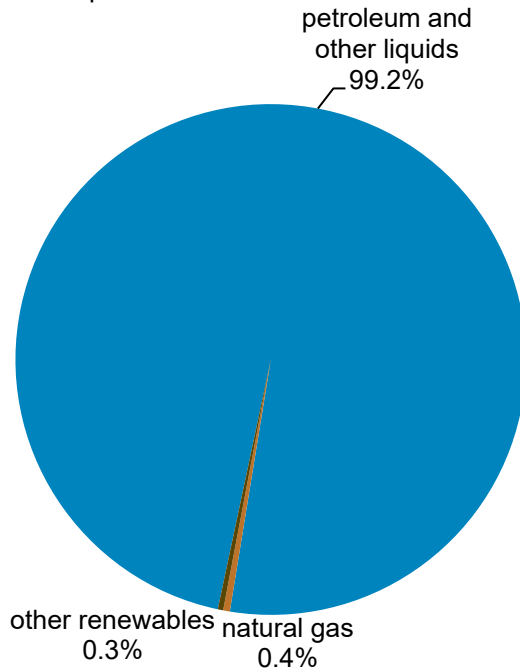
Figure 1. Map of Guyana



Data source: U.S. Central Intelligence Agency, [CIA World Factbook—Guyana](#)

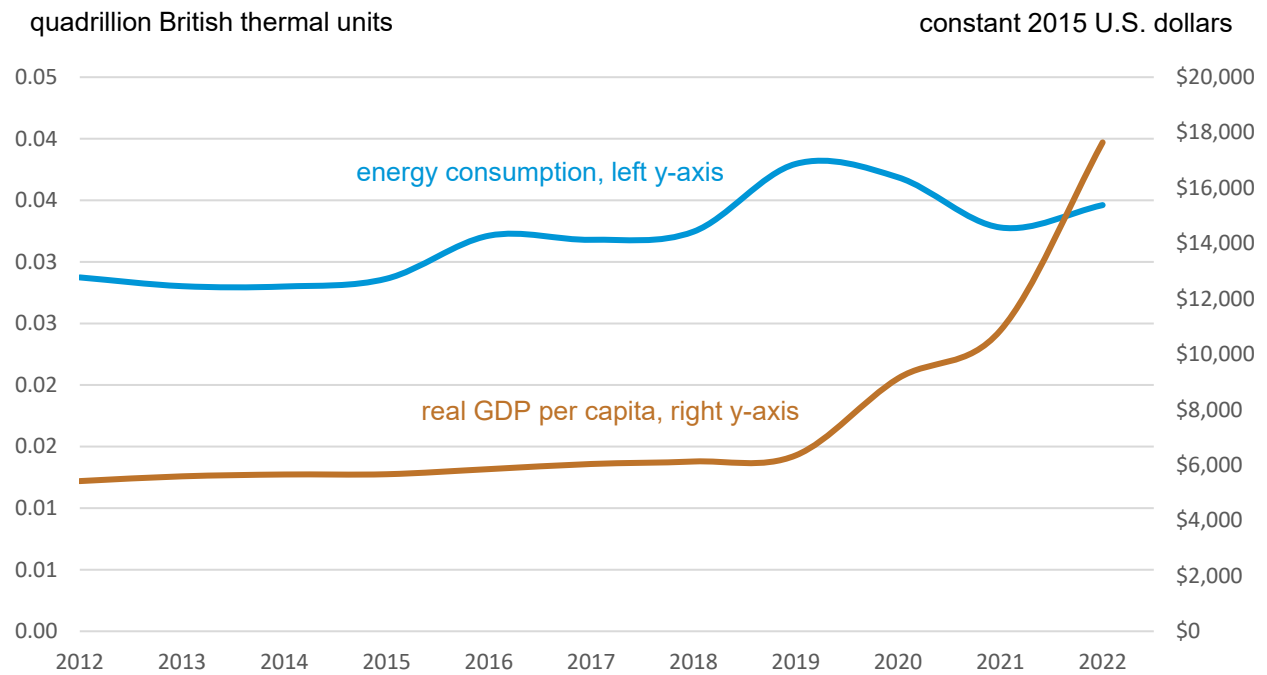
**Figure 2. Guyana's total energy consumption by fuel type, 2022**

percentage of total energy consumption



Data source: U.S. Energy Information Administration, International Energy Statistics  
 Note: Total may differ because of rounding.

**Figure 3. Guyana's total energy consumption and inflation-adjusted GDP per capita, 2012–2022**



Data source: U.S. Energy Information Administration, International Energy Statistics; World Bank, *World Development Indicators*



## Petroleum and Other Liquids

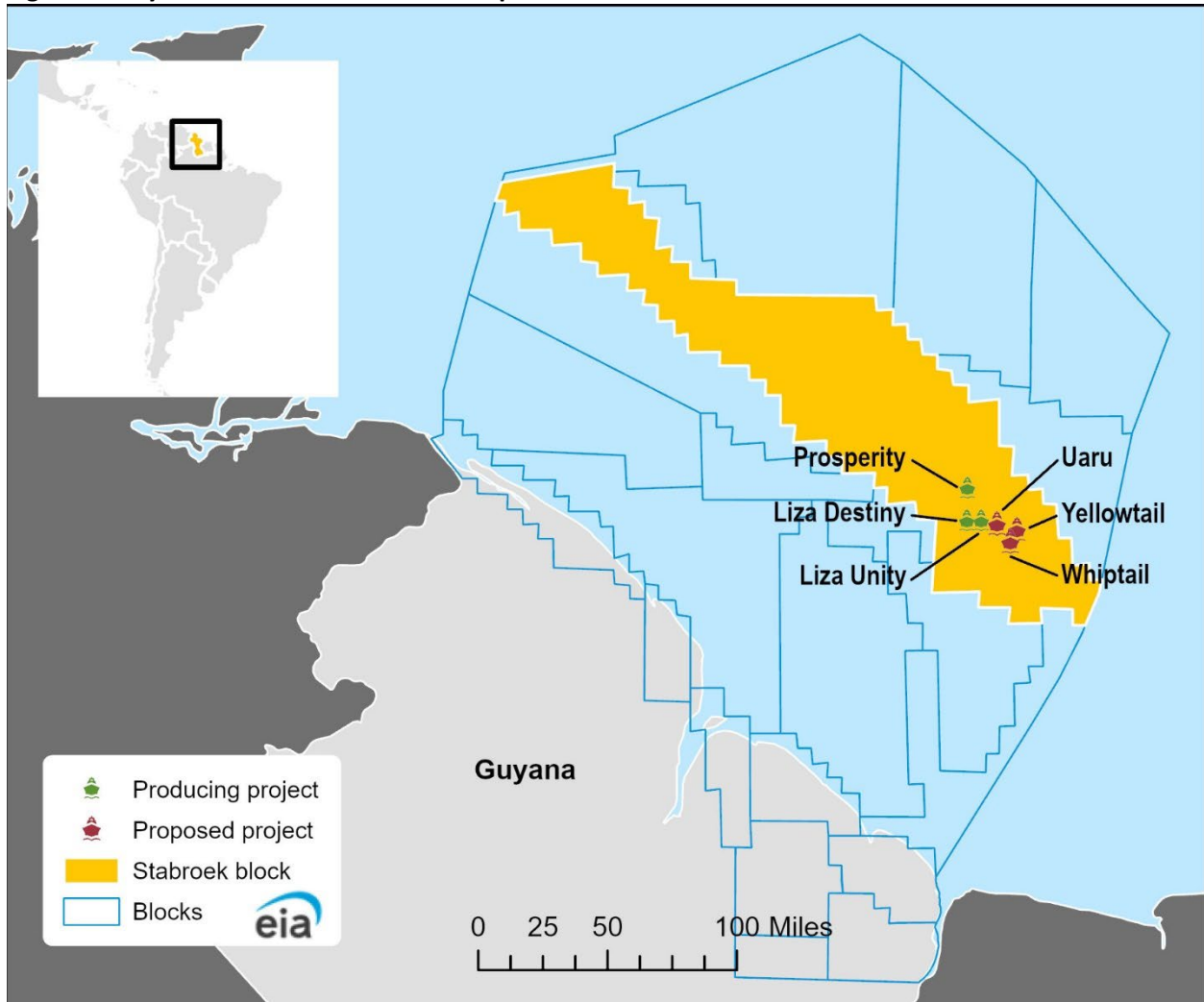
- Guyana had an estimated 11 billion barrels (b) of proved oil reserves as of January 2024.<sup>16</sup> The most significant offshore exploration program started in 2008 when ExxonMobil started collecting and analyzing seismic data, focusing on the Stabroek Block (Figure 4). The Stabroek Block spans 6.6 million acres off Guyana's Atlantic coast. The block is operated by ExxonMobil, which holds 45% of the working interest. The remaining stake is divided between Hess (30%) and CNOOC (25%). In 2015, the ExxonMobil-led consortium discovered the Liza field, a significant formation with more than 295 feet of high-quality oil-bearing sandstone reservoirs.<sup>17, 18</sup> Sandstones are highly porous and, therefore, often serve as ideal reservoirs for natural gas or crude oil. Reservoir quality varies based on the location within the sandstone formation. Thick channel sandstones form high-quality reservoirs in the middle, and poor reservoirs are found in the upper or lower parts because of intense compaction and cementation.<sup>19, 20</sup> Guyana's current break-even prices range from US \$25/b to US \$35/b, according to estimates from Hess, making it one of the most attractive projects globally.<sup>21</sup>
- All projects currently producing crude oil as well as those under development are in the Stabroek Block (Figure 4). ExxonMobil has made over 30 discoveries in the Stabroek Block offshore of Guyana since 2015, including the Payara, Snoek, Liza Deep, Turbot, Ranger, Pacora, Longtail, Hammerhead, Pluma, and Tilapia discoveries, since the Liza field discovery. In 2024, ExxonMobil announced the Bluefin discovery, located 5.3 miles southeast of the Sailfin-1 well, as the first discovery for 2024. The Bluefin well has about 197 feet of hydrocarbon-bearing sandstone and a reservoir of about 66 feet of oil and natural gas.<sup>22, 23, 24</sup>
- The Orinduik Block is strategically located near the prolific Stabroek Block, just 6.8 miles away from ExxonMobil's Liza discovery. In 2019, Tullow Oil discovered two new oil fields in the offshore Orinduik Block (Jethro-1 and Joe-1), which contain 180 feet of heavy crude oil with a high sulfur content. The Jethro-1 well could be the first crude oil production project in Guyana outside the Stabroek Block. The Orinduik Block is situated 105.6 miles away from Guyana's shore and has a shallow water range of 223 feet–4,593 feet. Eco Atlantic Oil & Gas Ltd. has acquired a 60% operating interest in the block from Tullow Oil, increasing its total interest to 75%. Having the majority share allows Eco Atlantic to take a leading role in exploring and developing the block's potential.<sup>25, 26, 27</sup>
- Repsol operates the Kanuku Block with a 37.5% working interest, Tullow Guyana also holds a 37.5% stake, and Total E&P Guyana owns the remaining 25% interest. The block is about 93.2 miles offshore of Guyana in water depths of 230 feet–328 feet. In January 2020, Tullow Oil discovered light oil at the Carapa-1 well. However, the reservoir was smaller than the company had expected, and the discovery was determined to be non-commercial. In August 2022, Tullow Oil completed the drilling on the Beebei-Potaro exploration well in the Kanuku Block, but the primary and secondary targets were found to be water-bearing.<sup>28, 29</sup>
- Guyana also has onshore resources. The onshore Guyana Basin boundary extends 150 miles from the coastline into the land.<sup>30</sup> The eastern part of the basin has the thickest sediment, reaching up to 8,202 feet. Since 1916, 13 wells have been drilled in the onshore Guyana Basin, and only two of those wells, Rose Hall-1 and Drill-1, encountered crude oil, in 1941 and 1967, respectively.<sup>31</sup> Offshore estimates of the Guyana Basin suggest the presence of more than 10 billion barrels of crude oil and 30 trillion cubic

feet of natural gas.<sup>32</sup> For this reason, exploration efforts have shifted from onshore to offshore Guyana Basin.<sup>33</sup>

- The Takutu Basin is in the southwestern part of Guyana and extends across the border into the Brazilian state of Roraima. Four wells have been drilled in the Takutu Basin: Lethem-1 (1980), Turantsink-1 (1992), Karanambo-1 (1982), and Apoteri K2I (2011). Of these wells, the Karanambo-1 well yielded the best results. The tests of oil samples from the Karanambo-1 well indicated a light, sweet oil (42 degrees API gravity), containing less than 0.5% sulfur. Home Oil Company drilled the Karanambo-1 well, and although they found crude oil, the commercial viability did not materialize at the time. In 2011, a private Canadian oil and natural gas company, Groundstar Resources, resumed an exploratory campaign in Takutu Basin, drilling one well (Apoteri K2) with limited production success.<sup>34, 35</sup>
- Crude oil production in Guyana began in December 2019 in the Liza 1 field, ExxonMobil's first offshore discovery in the country. Esso Exploration and Production Guyana, an affiliate of ExxonMobil, operates the Liza 1 field and produces from a floating production, storage, and offloading (FPSO) vessel called the Liza Destiny. The vessel produces more than 120,000 b/d and has a storage capacity of 1.6 million barrels. The Liza 1 project has four drilling centers and 17 wells, including eight oil and natural gas production wells, six water injection wells, and three natural gas injection wells. In December 2023, Liza 1 peaked at 163,000 b/d, exceeding its original capacity. The Liza Phase 1 conventional oil field has recovered 24.9% of total recoverable reserves, with a production peak in 2021. As of February 2024, the oil field accounted for about 30% of the country's daily production.<sup>36, 37, 38, 39</sup>
- In May 2019, ExxonMobil announced the final investment decision for the Liza Phase 2 project in offshore Guyana after receiving all necessary approvals. The Liza Phase 2 project involves a second FPSO, Liza Unity, and was designed to produce up to 220,000 b/d and was later optimized to produce 250,000 b/d. The project includes six drilling centers with approximately 30 wells, consisting of 15 oil production wells, 9 water injection wells, and 6 natural gas injection wells. Esso Exploration and Production Guyana delivered the first crude oil from Liza Phase 2 ahead of schedule in mid-February 2022. Since then, the project's production has grown rapidly.<sup>40, 41, 42</sup>
- ExxonMobil began production at the Payara field in November 2023. The Payara field is the third offshore oil development in the Stabroek Block and is operated by Esso Exploration and Production Guyana. The Prosperity FPSO has an initial production capacity of approximately 220,000 b/d. With the addition of the Payara field, Guyana's total oil production capacity increased to approximately 620,000 b/d. This project includes 10 drilling centers with 40–45 wells, of which about 20 wells would be used for oil production. As of February 2024, the field accounted for approximately 8% of the country's daily production.<sup>43, 44, 45, 46, 47</sup>
- The American Bureau of Shipping gave the SUSTAIN-1 designation to the Liza Unity and the Prosperity FPSOs. This designation recognizes the strength of the FPSO's sustainable design, documentation, and operating procedures.<sup>48, 49</sup>
- Three grades of crude oil are produced in Guyana: Liza, Unity Gold, and Payara Gold. Liza has an API gravity of 32 degrees and 0.58% sulfur content, making it a medium-sweet crude oil. Unity Gold crude oil, which is a lighter and sweeter grade than Liza, has a 35.3-degree API gravity and 0.39% sulfur content. Payara Gold, which started shipping in December 2023, has a 28-degree API gravity and 0.58% sulfur content.<sup>50</sup>

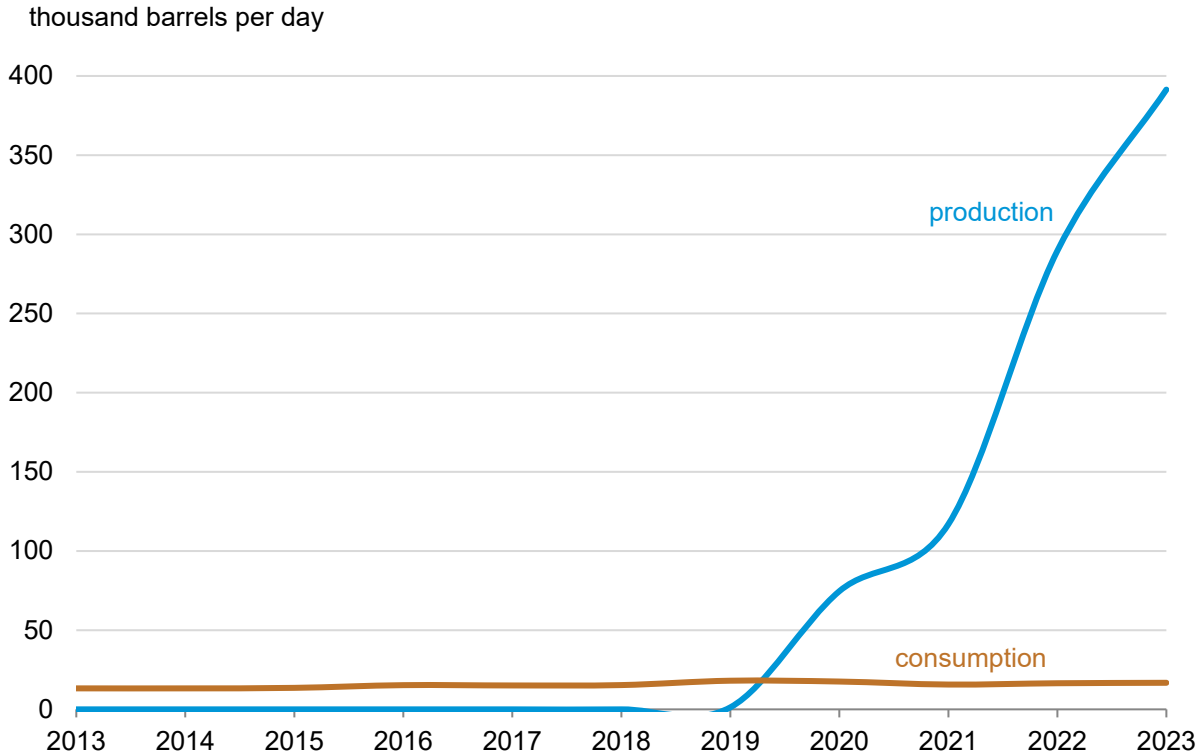
- As of May 2024, Guyana relies on imported fuels because it has no refining capacity. Therefore, it exports its crude oil to other countries for refining. However, Guyana is actively working toward establishing its oil refinery. The country aims to meet regional demand and market crude oil components for various uses, including transportation, paving roads, electricity generation, and chemical manufacturing.<sup>51, 52</sup>
- Guyana has three major fuel distributors: Guyana Oil Co, Sol Petroleum, and Rubis. The latter two operate in the wider Caribbean region, and Guyana Oil has the largest network of service stations in the country, with over 50 stations.<sup>53</sup>


**Figure 4. Guyana's oil blocks reference map**



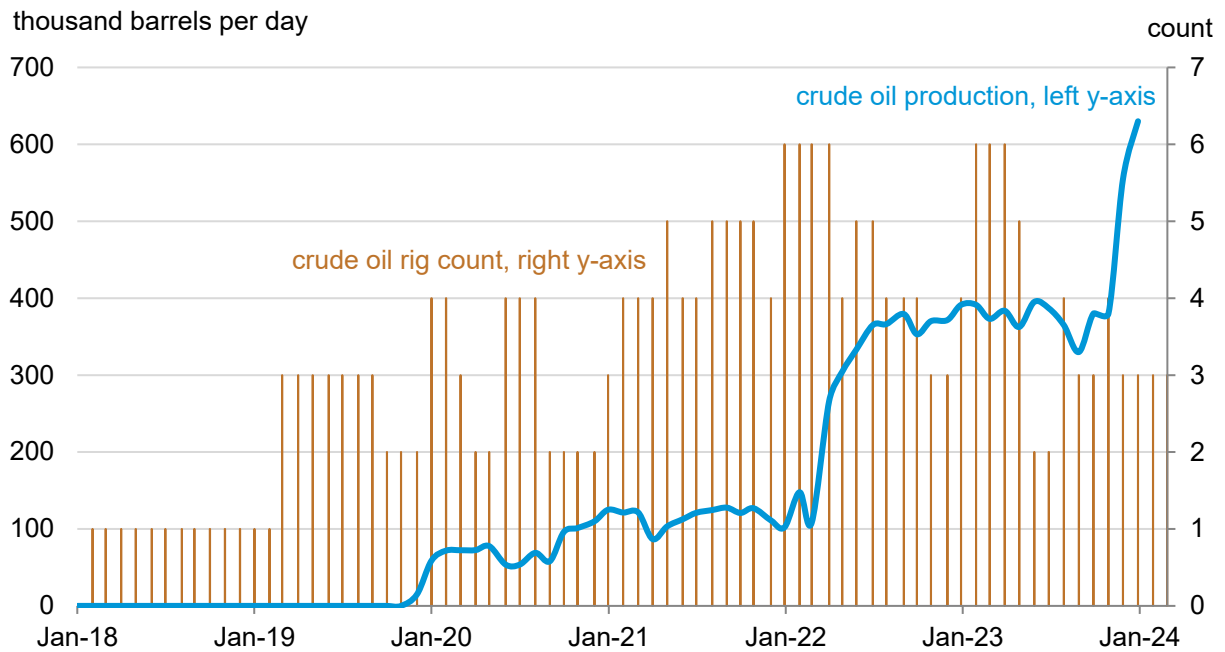
Data source: U.S. Energy Information Administration, World Bank, and [Guyana Geology and Mines Commission](#)  
 Note: FPSO=floating production, storage, and offloading vessel

Figure 5. Guyana’s total petroleum and other liquids production and consumption, 2013–2023



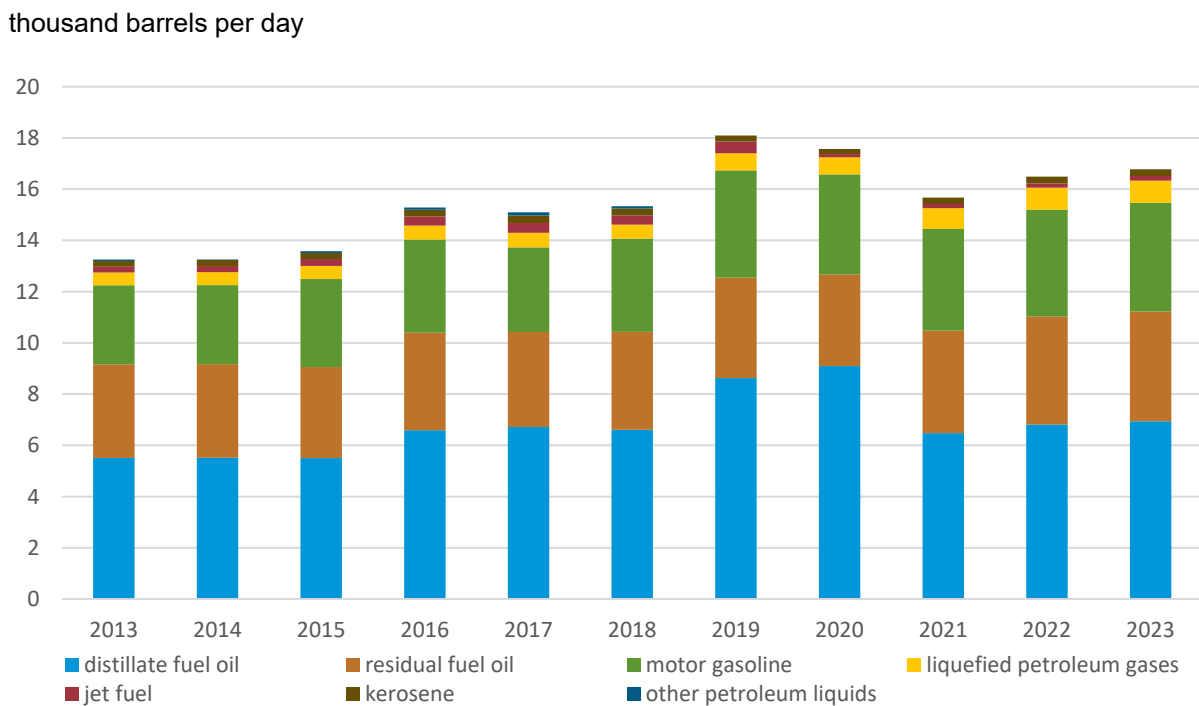
 Data source: U.S. Energy Information Administration, International Energy Statistics and Short-Term Energy Outlook

**Figure 6. Guyana's crude oil rig count and crude oil production, 2018–2024**



Data source: U.S. Energy Information Administration, International Energy Statistics; Baker Hughes  
 Note: Crude oil rig count data through March 2024; crude oil production data through January 2024

**Figure 7. Guyana's refined petroleum products consumption, 2013–2023**

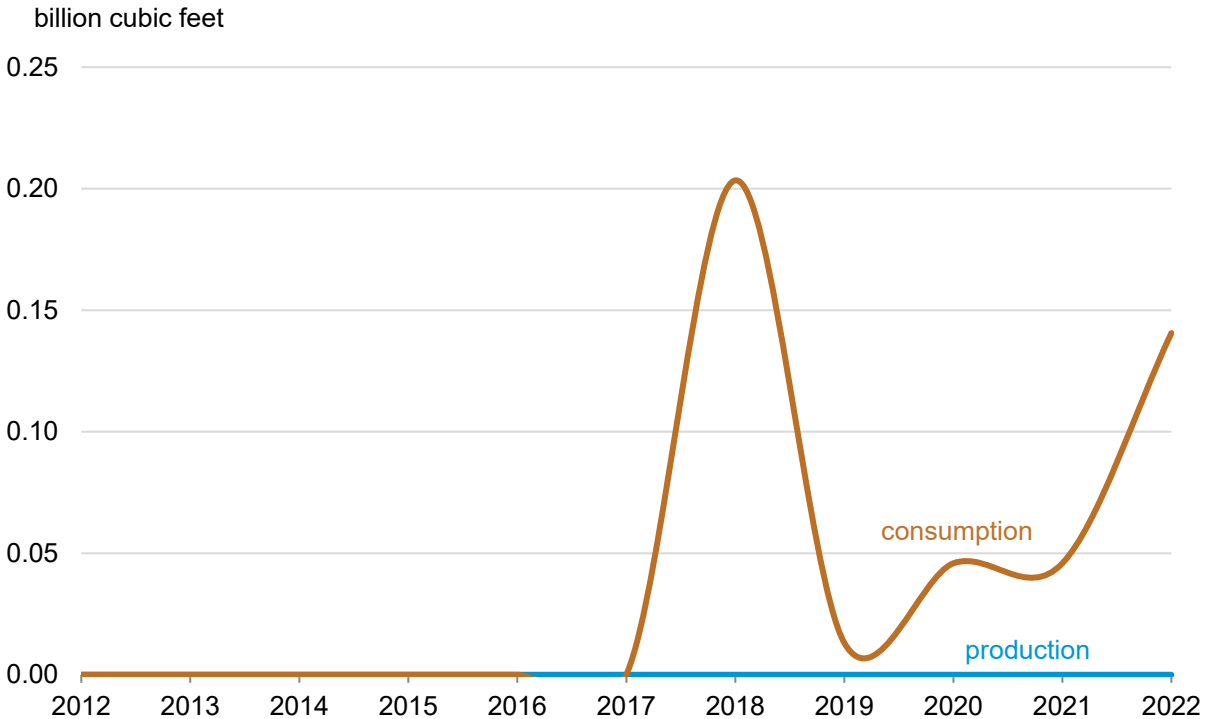


Data source: U.S. Energy Information Administration, International Energy Statistics and Short-Term Energy Outlook

## Natural Gas and LNG

- Guyana’s proved natural gas reserves are estimated to be 16 trillion cubic feet (Tcf) as of January 2024.<sup>54</sup>
- As of April 2024, Guyana has no natural gas pipelines. However, a proposed project called Gas-to-Shore (also sometimes called Gas-to-Energy) has been seeking investors since July 2021. This project aims to transport the associated natural gas production from Liza Destiny and Liza Unity FPSOs to the coast through a 140-mile-long natural gas offshore pipeline to feed a 300-megawatts (MW) combined-cycle power plant and a natural gas liquids (NGLs) facility. Among other goals, this project aims to reduce carbon emissions and diversify Guyana’s energy mix, which primarily uses fuel oil. The new power plant would be the first to use the associated gas produced from the oil field that, to date, has been reinjected underground.<sup>55, 56</sup>

**Figure 8. Guyana’s dry natural gas production and consumption, 2012–2022**



Data source: U.S. Energy Information Administration, International Energy Statistics

## Coal

- Guyana does not produce, consume, or import coal.

## Biofuels

- Guyana's biofuels sector is still in its early stages of development and accounts for 0.02% of total energy production.
- According to a study by CEPAL, Guyana has high biofuel potential, especially from sugarcane, which is a source of significant economic output in the country. The study suggested that if domestic vehicles used a blend of gasoline with 10% ethanol, Guyana could produce almost three times the expected demand for ethanol.<sup>57</sup>
- In September 2023, Guyana became a member of the Global Biofuels Alliance (GBA). The GBA is a collaborative effort comprising 19 countries and 12 international organizations, including both G20 members and non-member countries. The goal of the alliance is to promote the use of biofuels. It was launched at the G20 Summit in India in September 2023, with India leading the effort along with the United States and Brazil.<sup>58,</sup>  
59

## Electricity

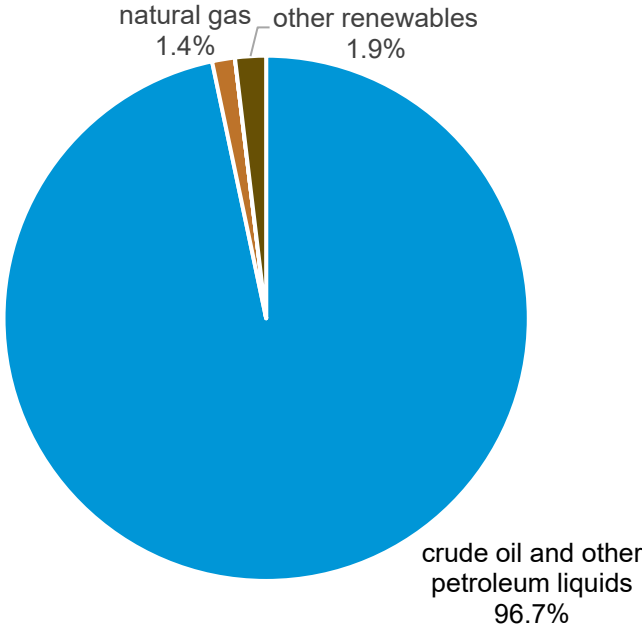
- Guyana primarily relies on heavy fuel oil for electricity generation (Figure 9). The vertically integrated, state-owned company called Guyana Power and Light (GPL) controls almost all of the country's electric power sector. Despite Guyana's potential in hydropower and bagasse-based power generation, Guyana's installed capacity comes primarily from diesel-engine-driven generators. This high use of fossil fuels makes the electric power sector expensive and unreliable; electricity costs average \$0.32 per kilowatt-hour, which is among the highest in the region. Electricity is unstable in many areas, and constant power outages affect business operations. Investors interested in renewable energy opportunities in Guyana face challenges because of current energy laws that give GPL a monopoly on power generation.<sup>60</sup>
- As of May 2024, Guyana had only one operational biomass power plant—the Skeldon Biomass Power Plant in East Berbice-Corentyne. The power plant became operational in 2008 and is equipped with two steam turbines with 30 MW of generating capacity. Bagasse, a residue of sugarcane, is used as the primary fuel source for this power plant. The generated electricity is sold to GPL through a power purchase agreement.<sup>61</sup>
- Guyana's electricity transmission lines and power grid are in poor condition and need modernization. Inefficient grid systems mean that the GPL loses approximately 26% of its capacity, and the government is embracing microgrids as a potential clean energy solution to meet the energy needs of remote areas by reducing grid congestion and peak loads on the main grid.<sup>62</sup>
- The Guyana Energy Agency (GEA) reported significant progress in solar projects in 2023, when it distributed 26,398 solar units. A total of 4.8 MW will be installed once the Home Energy Systems project adds 30,000 solar photovoltaic (PV) units. Two solar PV mini-grids were installed in Orealla and Siparuta, with capacities of 45 kilowatts each and battery storage systems. In March 2023, the government commissioned a second 1.5-MW utility solar power plant in Bartica as part of the Guyana Utility-Scale Solar Photovoltaic Program (GUY SOL), which plans to transition the country's grid to 19% renewable energy. In March 2024, Guyana signed a \$38 million contract with the Chinese company SUMEC to build solar energy farms in the regions of Pomeroun-

Supenaam, Mahaica-Berbice, and East Berbice-Corentyne, which will add about 10 MW of electricity to the country's grid.<sup>63, 64</sup>

- One of Guyana's most important energy projects is developing the 165-MW Amalia Falls hydropower plant in the interior of the country. The project was originally awarded to China Railway Group Limited in January 2022, but it faced financing issues, leading the government of Guyana and China Railways to part ways in July 2022. Because of its extensive river networks, the government of Guyana is exploring other hydropower projects to meet the country's growing energy needs.<sup>65, 66</sup>

**Figure 9. Guyana’s electricity generation supply, 2022**

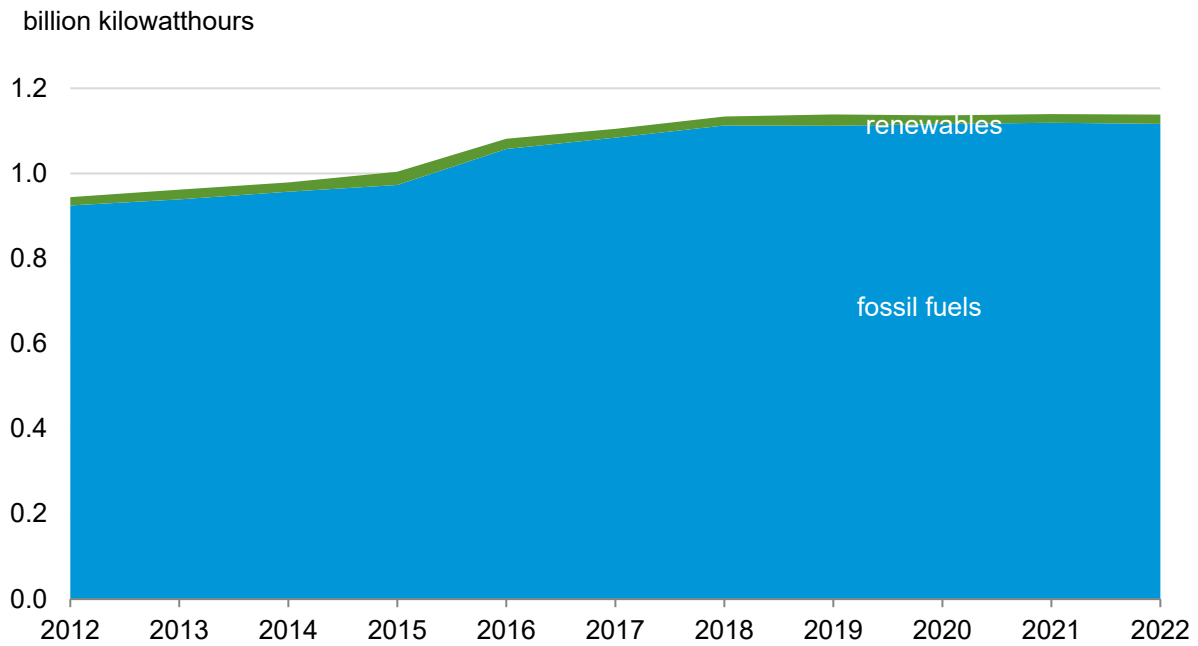
percentage of total electricity generation



Data source: U.S. Energy Information Administration, International Energy Statistics  
Note: *Other renewables* contain solar and biomass and waste sources.



**Figure 10. Guyana’s electricity generation by source, 2012–2022**



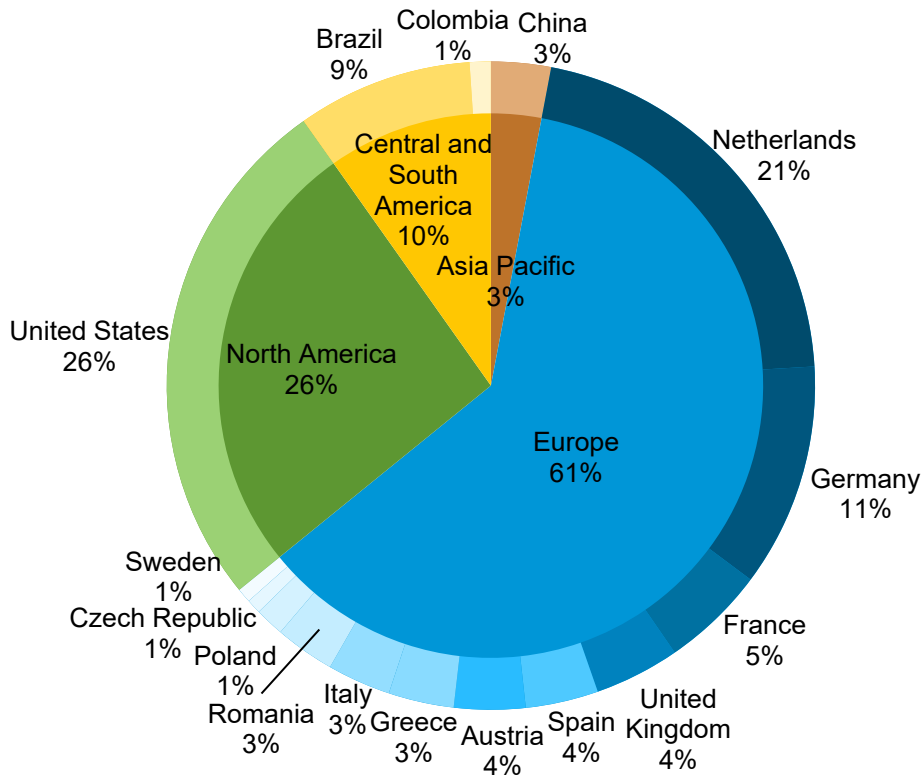
Data source: U.S. Energy Information Administration, International Energy Statistics

## Energy Trade

- Guyana started producing crude oil from the Liza 1 field in late 2019 and has since become a net exporter of petroleum and other liquids. Between 2021 and 2023, the country's crude oil exports rose by an average of 82% annually, reaching 135 million barrels exported in 2023. As of 2023, Guyana’s primary crude oil export destinations were the United States (26%), the Netherlands (21%), and Germany (11%) (Figure 11).<sup>67, 68</sup>
- In 2023, Guyana imported 3.9 million barrels of petroleum products and other liquids, most of which came from the United States. Petroleum products and other liquids imports declined by an average of 4% annually between 2021 and 2023. In 2023, gasoil made up the largest share of petroleum products and other liquids imports, accounting for 23% of the total, followed by finished gasoline (15%) and chemicals (10%) (Figure 13).<sup>69, 70</sup>
- Despite its strategic geographic location, Guyana's infrastructure limitations are commonplace across the transport sector. The size of the main port and its freight capacity remain a challenge, limiting the volume and size of shipping vessels that can be fully used for fuel trade. Guyana's small inland waterways play a significant role in transporting goods, which is partly due to the low-quality road and rail infrastructure, as well as varied topography. Transshipping plays a large role in the volume of goods handled by the Port of Georgetown due to its geographical location.<sup>71, 72</sup>

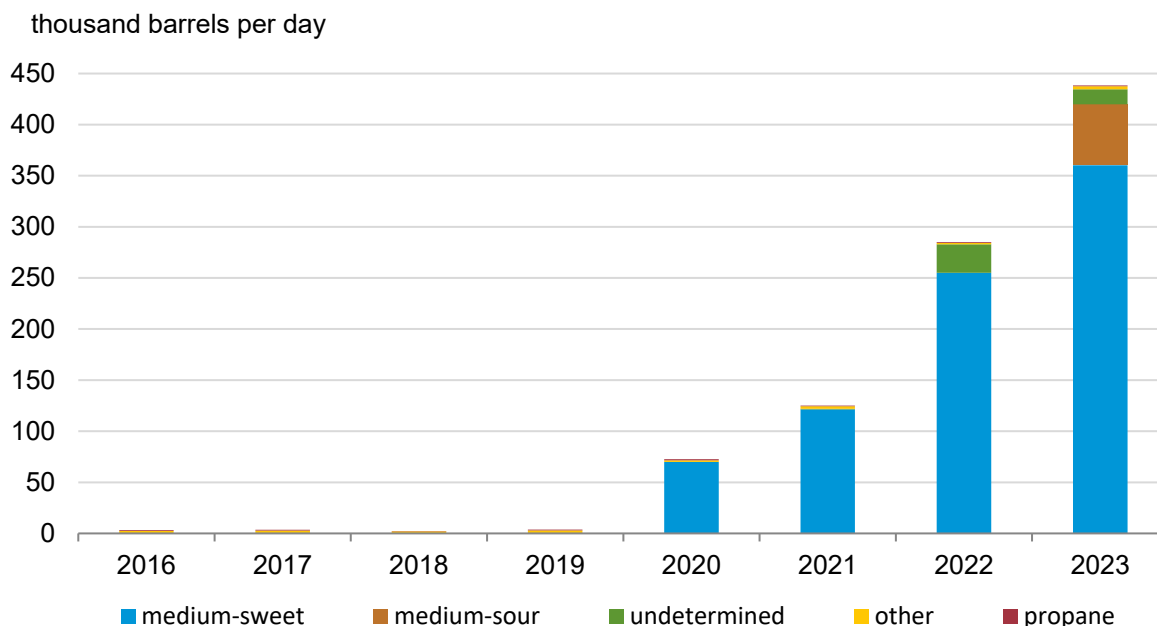
**Figure 11. Guyana's crude oil exports by region and country, 2023**

percentage of total crude oil exports



Data source: Global Trade Tracker, provided by Zen Innovations AG © 2024

**Figure 12. Guyana's petroleum exports via vessel, 2016–2023**

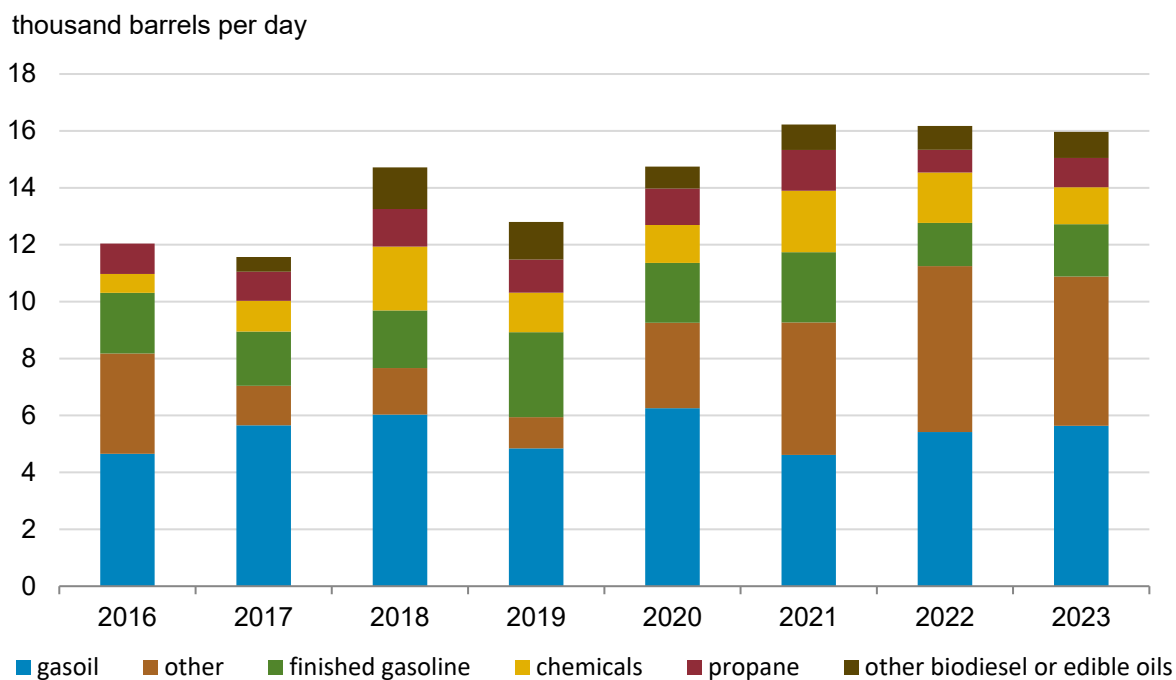


Data source: Vortexa Ltd.

Note: *Other* contains blending components, butane, butane or propane, chemicals, finished gasoline, gasoil, high sulfur fuel oil, jet fuel, low sulfur fuel oil, lube oils, olefins or other chemicals, and other biodiesel or edible oils.



**Figure 13. Guyana's petroleum imports via vessel, 2016–2023**



Data source: Vortexa Ltd.

Note: *Other* contains biodiesel feedstock, blending components, butane, diesel, heavy-sour crude oil, high sulfur fuel oil, jet fuel, kerosene, low-sulphur fuel oil, lube oils, medium-sweet crude oil, olefins or other chemicals, ultra-low sulfur diesel, and undetermined.





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- <sup>19</sup> “Petroleum: A Primer for Kansas--Geology of Petroleum.” KGS. Accessed April 22, 2024. <https://www.kgs.ku.edu/Publications/Oil/primer03.html#:~:text=Sandstones%2C%20because%20of%20the%20inherent,a%20%22sand%22%20fig>.
- <sup>20</sup> “Quality Characterization of Tight Sandstone Reservoirs in the Yanchang Formation of the Honghe Oilfield, Ordos Basin, Central China.” Energy Geoscience, July 9, 2021. <https://www.sciencedirect.com/science/article/pii/S2666759221000330#:~:text=It%20suggests%20that%20the%20high,the%20middle%20and%20downstream%20sections>.
- <sup>21</sup> Presentation. Accessed April 22, 2024. <https://investors.hess.com/static-files/cd1529dc-ddd7-41b4-8c08-07f973fe8ceb>.
- <sup>22</sup> “Guyana Project Overview.” ExxonMobil. Accessed April 7, 2024. <https://corporate.exxonmobil.com/locations/guyana/guyana-project-overview>.
- <sup>23</sup> editors, OGI. “ExxonMobil Makes First Discovery of 2024 at Stabroek Block Offshore Guyana.” Oil & Gas Journal, March 15, 2024. <https://www.ogi.com/exploration-development/discoveries/article/14310398/exxonmobil-makes-first-discovery-of-2024-at-stabroek-block-offshore-guyana>.
- <sup>24</sup> “ExxonMobil Makes ‘Significant’ Oil, Natural Gas Discovery in Prolific Stabroek Block Offshore Guyana.” World Oil - Upstream News. Accessed April 7, 2024. <https://worldoil.com/news/2023/10/27/exxonmobil-makes-significant-oil-natural-gas-discovery-in-prolific-stabroek-block-offshore-guyana/>.
- <sup>25</sup> OilNOW. “Tullow Walks Away from South America’s Hottest Basin.” OilNOW, August 10, 2023. <https://oilnow.gy/news/tullow-walks-away-from-south-americas-hottest-basin/>.
- <sup>26</sup> “Eco Atlantic Set to Assume Outright Ownership of Offshore Guyana Block.” Offshore, January 22, 2024. <https://www.offshore-mag.com/business-briefs/company-news/article/14303910/eco-atlantic-set-to-assume-outright-ownership-of-offshore-guyana-block>.
- <sup>27</sup> “Guyana.” Eco (Atlantic) Oil & Gas Plc, February 7, 2024. <https://www.ecoilandgas.com/projects/guyana/>.
- <sup>28</sup> “Repsol in South America - Find out about the Kanuku Project in Guyana.” REPSOL, December 14, 2023. <https://www.repsol.com/en/about-us/repsol-worldwide/the-americas/guyana/guyana-faqs/index.cshtml>.
- <sup>29</sup> “Repsol Starts Survey on Low-Yield Block in Guyana.” The Energy Year, August 9, 2023. <https://theenergyyear.com/news/repsol-starts-survey-on-low-yield-block-in-guyana/>.
- <sup>30</sup> Assessment of undiscovered oil and gas resources in ... Accessed May 20, 2024. <https://pubs.usgs.gov/fs/fs-0037-01/fs-0037-01.pdf>.
- <sup>31</sup> Tue, Submitted on. “Petroleum.” Guyana Geology and Mines Commission. Accessed April 8, 2024. <https://www.ggmc.gov.gy/services/all/petroleum>.
- <sup>32</sup> “Guyana-Suriname Basin: Rise from Obscurity to Super Potential.” World Oil - Upstream News. Accessed April 8, 2024. <https://www.worldoil.com/magazine/2021/may-2021/features/guyana-suriname-basin-rise-from-obscurity-to-super-potential>.
- <sup>33</sup> “Guyana-Suriname Basin: Rise from Obscurity to Super Potential.” World Oil - Upstream News. Accessed April 8, 2024. <https://www.worldoil.com/magazine/2021/may-2021/features/guyana-suriname-basin-rise-from-obscurity-to-super-potential>.
- <sup>34</sup> OilNOW. “Guyana Takatu Basin May Have Yet-to-Be-Found Oil Resources.” OilNOW, June 8, 2020. <https://oilnow.gy/featured/guyana-takatu-basin-may-have-yet-to-be-found-oil-resources/>.
- <sup>35</sup> Liddell, Jared. “Investors Eyeing Takutu Basin for Oil Exploration.” Guyana Chronicle. Accessed April 8, 2024. <https://guyanachronicle.com/2022/02/17/investors-eyeing-takutu-basin-for-oil-exploration/>.
- <sup>36</sup> “Oil & Gas Field Profile: Liza Phase 1 Conventional Oil Field, Guyana.” Offshore Technology, February 19, 2024. <https://www.offshore-technology.com/marketdata/oil-gas-field-profile-liza-phase-1-conventional-oil-field-guyana/?cf-view>.
- <sup>37</sup> “Guyana Project Overview.” ExxonMobil. Accessed April 8, 2024. <https://corporate.exxonmobil.com/locations/guyana/guyana-project-overview>.
- <sup>38</sup> “ExxonMobil Begins Production from \$4.4bn Liza Phase 1 Project in Guyana.” NS Energy, December 23, 2019. <https://www.nsenergybusiness.com/news/exxonmobil-liza-phase-1-guyana/>.

- 
- <sup>39</sup> KNews. "ExxonMobil Surpasses Major Production Milestones for Liza 1 & 2 - Data Show." Kaieteur News, January 30, 2024. <https://www.kaieteurnews.com/2024/01/30/exxonmobil-surpasses-major-production-milestones-for-liza-1-2-data-show/>.
- <sup>40</sup> "ExxonMobil Starts Production at Guyana's Second Offshore Development." ExxonMobil, February 11, 2022. <https://corporate.exxonmobil.com/news/news-releases/2022/0211-exxonmobil-starts-production-at-guyanas-second-offshore-development>.
- <sup>41</sup> KNews. "Guyana Begins Oil Production at Liza Phase Two without Full Coverage Insurance." Kaieteur News, February 11, 2022. <https://www.kaieteurnews.com/2022/02/12/guyana-begins-oil-production-at-liza-phase-two-without-full-coverage-insurance/>.
- <sup>42</sup> Spencer, Starr. "First Oil Lifting of Liza Phase 2 Planned for End-March, Full Production in Q3: Hess." S&P Global Commodity Insights, January 26, 2022. <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/oil/012622-first-oil-lifting-of-liza-phase-2-planned-for-end-march-full-production-in-q3-hess>.
- <sup>43</sup> "ExxonMobil Starts Production at Guyana's Second Offshore Development." ExxonMobil, February 11, 2022. <https://corporate.exxonmobil.com/news/news-releases/2022/0211-exxonmobil-starts-production-at-guyanas-second-offshore-development>.
- <sup>44</sup> News Source Guyana. "ExxonMobil Begins Production at Payara Development; Total Production Increases to 620,000 Barrels of Oil per Day." News Source Guyana, November 14, 2023. <https://newssourcegy.com/business/exxonmobil-begins-production-at-payara-development-total-production-increases-to-620000-barrels-of-oil-per-day/>.
- <sup>45</sup> "CNOOC Announces Safe Commencement of Production at Payara Project in Guyana." World Oil - Upstream News. Accessed April 8, 2024. <https://www.worldoil.com/news/2023/11/17/cnooc-announces-safe-commencement-of-production-at-payara-project-in-guyana/>.
- <sup>46</sup> ExxonMobil's Production Falls, profit rises as growth plans progress | hart energy. Accessed April 9, 2024. <https://www.hartenergy.com/exclusives/exxonmobils-production-falls-profit-rises-growth-plans-progress-31003>.
- <sup>47</sup> "Oil & Gas Field Profile: Payara Conventional Oil Field, Guyana." Offshore Technology, February 17, 2024. <https://www.offshore-technology.com/data-insights/oil-gas-field-profile-payara-conventional-oil-field-guyana/?cf-view>.
- <sup>48</sup> "ExxonMobil Starts Production at Guyana's Second Offshore Development." ExxonMobil, February 11, 2022. <https://corporate.exxonmobil.com/news/news-releases/2022/0211-exxonmobil-starts-production-at-guyanas-second-offshore-development>.
- <sup>49</sup> "Payara: Offshore Oil Development in Guyana." ExxonMobil, November 14, 2023. <https://corporate.exxonmobil.com/news/news-releases/2023/1114-guyana-oil-payara-exxonmobil-offshore>.
- <sup>50</sup> "Guyanese Crude in the Crosshairs." Latest Market News, December 18, 2023. <https://www.argusmedia.com/en/news-and-insights/latest-market-news/2520130-guyanese-crude-in-the-crosshairs>.
- <sup>51</sup> "Guyana Engaging Five Potential Investors Regarding Oil Refinery – VP Jagdeo." BNamericas. Accessed April 8, 2024. <https://app.bnamericas.com/article/section/all/content/xqswk31jp-guyana-engaging-five-potential-investors-regarding-oil-refinery-here--vp-jagdeo>.
- <sup>52</sup> OilNOW. "Refinery or Strategic Reserves? Guyana Explores Options for Fuel Security." OilNOW, January 8, 2024. <https://oilnow.gy/featured/refinery-or-strategic-reserves-guyana-explores-options-for-fuel-security/#:~:text=Guyana%20is%20still%20considering%20a%20refinery%2C%20according,Jagdeo%2C%20with%20five%20prospective%20investors%20already%20identified>.
- <sup>53</sup> "Guyoil." Ministry of Finance, January 12, 2021. <https://finance.gov.gy/about-us-2/sub-agencies/guyoil/#:~:text=The%20Guyana%20Oil%20Company%20Limited,oil%2C%20ULSD%20and%20Castrol%20lubricants>.
- <sup>54</sup> "Worldwide Reserves and Production." Oil & Gas Journal, December 12, 2023. <https://www.ogi.com/ogi-survey-downloads/worldwide-production/document/14302483/worldwide-reserves-and-production>.
- <sup>55</sup> Guyana gas-to-power project to shave weeks off oil output, hit revenue | Reuters. Accessed April 9, 2024. <https://www.reuters.com/business/energy/guyana-gas-to-power-project-shave-weeks-off-oil-output-hit-revenue-2024-04-08/>.

- 
- <sup>56</sup> “Guyana President Calls for ‘Immediate’ Development of Natural Gas Resources.” World Oil - Upstream News. Accessed April 8, 2024. <https://www.worldoil.com/news/2024/2/19/guyana-president-calls-for-immediate-development-of-natural-gas-resources/>.
- <sup>57</sup> Economic Commission for Latin America and the Caribbean. “Biofuels Potential in Guyana.” CEPAL. Accessed April 9, 2024. <https://www.cepal.org/en/publications/3547-biofuels-potential-guyana>.
- <sup>58</sup> “Launch of Global Biofuels Alliance.” BioFuturePlatform, January 1, 1970. <https://biofutureplatform.org/news/launch-of-global-biofuels-alliance/#:~:text=Other%20countries%20that%20have%20joined%20the%20Alliance,Guyana%2C%20Paraguay%2C%20Seychelles%2C%20Sri%20Lanka%2C%20Uganda%20and.>
- <sup>59</sup> “The Global Biofuel Alliance Has Just Launched, but What Exactly Are Biofuels?” World Economic Forum. Accessed April 9, 2024. <https://www.weforum.org/agenda/2023/10/global-biofuel-alliance/#:~:text=Energy%20Transition,-Follow&text=expand%20biofuel%20use.-,The%20Global%20Biofuel%20Alliance%20launched%20at%20the%20G20%20Summit%20in,the%20use%20of%20sustainable%20biofuels.>
- <sup>60</sup> “Guyana -Renewable Energy.” International Trade Administration | Trade.gov. Accessed April 9, 2024. <https://www.trade.gov/country-commercial-guides/guyana-renewable-energy>.
- <sup>61</sup> “Power Plant Profile: Skeldon Biomass Power Plant, Guyana.” Power Technology, July 25, 2023. <https://www.power-technology.com/data-insights/power-plant-profile-skeldon-biomass-power-plant-guyana/#:~:text=Skeldon%20Biomass%20Power%20Plant%20is,Buy%20the%20profile%20here.>
- <sup>62</sup> “Guyana -Renewable Energy.” International Trade Administration | Trade.gov. Accessed April 9, 2024. <https://www.trade.gov/country-commercial-guides/guyana-renewable-energy>.
- <sup>63</sup> Stabroek News. “Successful Renewable Energy Projects in 2023 Helped to Address Growing Demand for Electricity – Gea.” Stabroek News, February 12, 2024. <https://www.stabroeknews.com/2024/02/12/news/guyana/successful-renewable-energy-projects-in-2023-helped-to-address-growing-demand-for-electricity-gea/>.
- <sup>64</sup> “US\$38M Contract Signed to Construct Solar Farms in Regions Two, Five, Six.” BNamericas. Accessed April 9, 2024. <https://app.bnamericas.com/article/section/all/content/xpgmg8vj0-us38m-contract-signed-to-construct-solar-farms-in-regions-two-five-six>.
- <sup>65</sup> “Guyana -Renewable Energy.” International Trade Administration | Trade.gov. Accessed April 9, 2024. <https://www.trade.gov/country-commercial-guides/guyana-renewable-energy>.
- <sup>66</sup> Stabroek News. “Successful Renewable Energy Projects in 2023 Helped to Address Growing Demand for Electricity – Gea.” Stabroek News, February 12, 2024. <https://www.stabroeknews.com/2024/02/12/news/guyana/successful-renewable-energy-projects-in-2023-helped-to-address-growing-demand-for-electricity-gea/>.
- <sup>67</sup> “Solutions - Global Trade Tracker Global Trade Tracker.” Global Trade Tracker - Get the best tool to explore global trade data. Accessed April 9, 2024. <https://www.globaltradetracker.com/>.
- <sup>68</sup> Vortexa. Accessed April 9, 2024. <https://analytics.vortexa.com/>.
- <sup>69</sup> “Solutions - Global Trade Tracker Global Trade Tracker.” Global Trade Tracker - Get the best tool to explore global trade data. Accessed April 9, 2024. <https://www.globaltradetracker.com/>.
- <sup>70</sup> Vortexa. Accessed April 9, 2024. <https://analytics.vortexa.com/>.
- <sup>71</sup> “Guyana - Infrastructure Sector.” International Trade Administration | Trade.gov. Accessed April 9, 2024. <https://www.trade.gov/country-commercial-guides/guyana-infrastructure-sector#:~:text=Guyana's%20aging%20road%20network%20requires,the%20embassy%20when%20submitting%20bids.>
- <sup>72</sup> “Guyana - Market Challenges Guyana - Market Challenges.” Guyana - Market Challenges | Privacy Shield. Accessed April 9, 2024. <https://www.privacyshield.gov/ps/article?id=Guyana-Market-Challenges#:~:text=Infrastructure:%20Infrastructure%20in%20Guyana%20remains%20generally%20inadequate,high%20telecommunication%20costs%2C%20and%20an%20underdeveloped%20transportation.>

• 24 May 2024 | 20:28 UTC

# US power sector gas demand to peak in 2024 on renewables buildout: Commodity Insights

HIGHLIGHTS

**Rising gas prices limits further fuel switching**

**Data center demand to undershoot utility forecasts**

• Author

• **Killian Staines** ✉

**Valarie Jackson**

• Commodity

Power sector gas demand in the US is expected to peak in 2024 thanks to a massive buildout of renewables that will offset rising power demand, including from data centers, S&P Global Commodity Insights analysts wrote in their latest short-term natural gas outlook.

The outlook, which now includes 2029, forecasts a total decline of 12% in power sector gas demand by 2029 compared with 2023.

"Even though net on-grid electricity demand is anticipated to grow robustly over 2023-2029, gas-fired generation is expected to decline as the US Inflation Reduction Act (IRA) promotes a surge in renewable capacity build," analysts wrote late May 23.

Coal could also claw back some market share from gas from 2025 as higher gas prices "lead to a reversal of the coal to-gas switching happening in 2023-24," the outlook said. Commodity Insights is forecasting a sharp increase in Henry Hub prices in 2025 and 2026 as a swift growth in LNG feedgas demand will keep inventories "mostly below the five-year average, with production growth chasing the feedgas escalation pace."

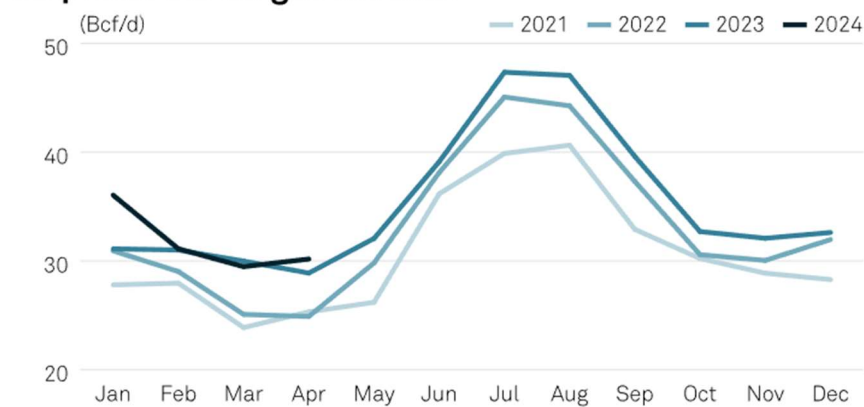
## Summer 2024

Power demand in April-October 2024 is forecast to be similar to 2023 levels, assuming normal weather, the analysts wrote. "This is dependent on several factors such heat levels, coal-gas switching and renewable generation performance."

Power sector gas demand has set a time-of-year record in every quarter since the second quarter of 2022 and has remained strong in Q2. It was 1.3 Bcf/d higher year on year in April, and 1.2 Bcf/d higher year on year May 1-24, Commodity Insights data showed.



## US power sector gas demand



Source: S&P Global Commodity Insights

Strong coal stockpiles at power stations are seen as a potential downside risk for US gas demand and prices this summer. There are signs that coal producers are scaling back production in response, "but peak-demand burn will be the most important factor for a better balance in this market," the outlook said.

Stockpiles increased by 5.1% month on month to 134 million st in March 2023, the Energy Information Administration reported May 23. EIA estimates there are on average around 145 days of burn held at both bituminous and subbituminous coal power plants.

Coal production fell to 33.1 million st in April, down from 41 million st in March and 47 million st in April 2023, according to EIA estimates.

## Data center demand

Midstream gas companies including **Kinder Morgan** and **TC Energy** were confident of continued growth in demand from power plants during Q1 earnings calls, often citing demand from data centers. US **utilities** also struck a bullish tone, partially from data centers.

Commodity Insights power analysts are less bullish. Growth from data centers is expected to be "substantial, but below utility forecasts owing to significant data center electric energy efficiency gains," analysts wrote April 24. Companies driving the data center buildout, like Microsoft, Alphabet and Amazon, "have strong incentives to improve efficiency and minimize environmental impacts."

Major chip suppliers, including Nvidia, have announced "huge efficiency gains" in their next-generation chip designs, the analysts wrote. Outside of chips, "AI models can be configured to be more energy efficient, such as by using fewer bits. More water-based cooling mechanisms are emerging as an alternative or supplement to air cooling, further reducing energy use."

# Another Roadblock to the EV Transition: Personal Politics

## As automakers look to push their electric vehicles, some consumers are resisting for political reasons

By [Mike Colias](#)

Follow May 27, 2024 5:30 am ET

On paper, Robert Olson is a prime candidate to buy an electric vehicle.

The retired Arizona engineer loves cars, has owned hybrid vehicles and has the means to pay the premium for an EV. And he owns two gas-powered cars, including a Porsche, that he could use for longer road trips.

But Olson is turned off by electric cars. He thinks their potential to help the climate is overstated, and he resents the Biden administration's pro-EV policies.

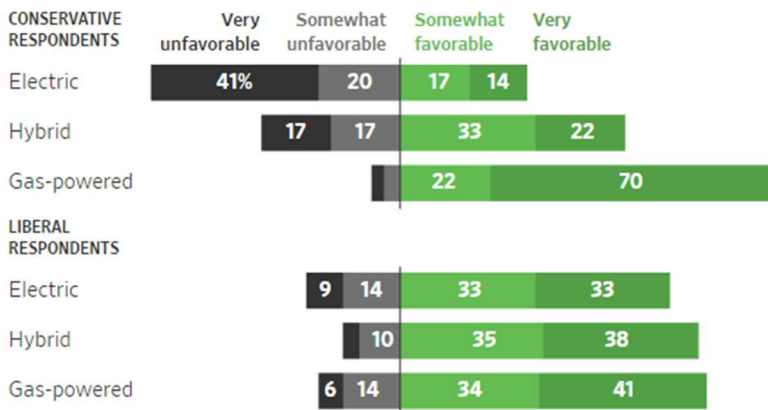
"It is being pushed down our throats," said Olson, who says he is a Republican.

Automakers are fixated on easing the practical concerns around electric-vehicle ownership, primarily high prices and charging hassles. But in the industry's quest to persuade more Americans to consider EVs, a swath of the buying public could prove tough to convince: those opposed to EVs for political or ideological reasons.

In a recent Morning Consult poll of about 2,200 American adults conducted for The Wall Street Journal, about four in 10 said they had an unfavorable view of EVs. Of those who are opposed to them, 38% said their political views were a factor. Even more of those with unfavorable views—63%—cited China's dominance of the EV supply chain as a reason.

As for party affiliation, 31% of people who identified themselves as conservative said they had a favorable view of EVs, compared with 66% of liberals.

### Opinion of electric, hybrid and gas-powered vehicles



Note: Respondents who didn't know or had no opinion aren't shown.  
Source: Morning Consult weighted poll of 744 conservative and 669 liberal U.S. adults conducted March 9-11 for The Wall Street Journal; margin of error: +/- 4 pct. pts.  
Andrew Mollica/THE WALL STREET JOURNAL

Conservatives tend to criticize public subsidies to support electric cars and dislike regulations that attempt to steer consumers toward certain products. Liberals are more likely to drive EVs for environmental reasons and tend to favor public investment in green energy.

Still, the subject of EVs doesn't fall neatly along party lines. [Tesla](#) is the world's top-selling EV company, but some Democrats have moved away from the brand, as Chief Executive [Elon Musk](#) has expressed conservative views on contentious social topics.

Steven Center, head of U.S. operations for [Kia](#), said he is aware that electric cars have become a hot-button political issue lately.

“You know that old saying, ‘Don’t talk about religion or politics?’ I think you can add EVs to that,” he said.

### ‘Hearts-and-minds resistance’

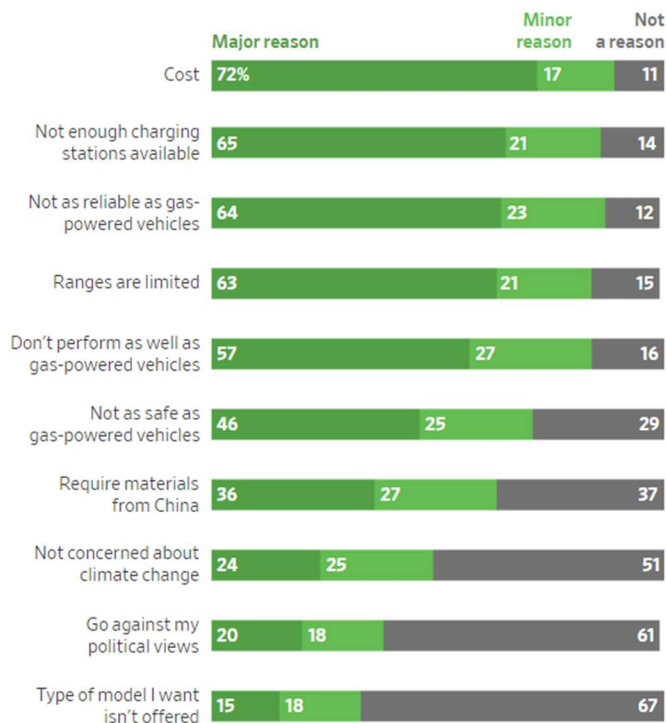
The political divide poses a challenge for car executives as they grapple with [a deceleration in the pace of U.S. EV sales](#). Automakers are betting hundreds of billions of dollars on moving consumers to EVs and are planning dozens of new electric models in the U.S.

Also, meeting [tougher U.S. tailpipe-emissions regulations](#) approved this spring by the Biden administration will hinge largely on carmakers’ ability to warm up many more Americans to the idea of plugging in their cars. By early next decade, more than 60% of new vehicles sold would need to be a combination of EVs and plug-in hybrids for the industry to comply.

The fact that millions of Americans are ideologically dug in against electric cars will make it harder for automakers to comply with those rules, said Mike Murphy, a Republican strategist who has been frustrated by his own party’s bashing of EVs. The Detroit native formed a nonprofit to ease the political divide on EVs and consult with carmakers on ways to tamp down the negativity.

“There is a hearts-and-minds resistance to EVs, mostly on the Republican side,” Murphy said. “If you can’t break down that tribalism, the industry isn’t going to sell enough EVs” to meet the rules.

Reasons for why a respondent has an unfavorable view of EVs



Note: Shares may not total 100% due to rounding.

Source: Morning Consult weighted poll of 864 U.S. adults conducted March 9-11 for The Wall Street Journal; margin of error: +/- 3 pct. pts.

Andrew Mollica/THE WALL STREET JOURNAL

Green cars long ago became swept up in the culture wars. In the early 2000s, many conservative commentators maligned Toyota’s Prius hybrid, which became a hit with liberals and Hollywood celebrities.

In 2012, then-Republican presidential hopeful Newt Gingrich criticized [General Motors’](#) Chevrolet Volt plug-in hybrid for not being able to fit a gun rack. During a congressional hearing around that time, then GM CEO [Dan Akerson told lawmakers](#): “We did not engineer the Volt to be a political punching bag.”

In the run-up to the November election, some Republican candidates have criticized Biden for trying to force EV sales. Democrats, meanwhile, have touted the tens of billions of dollars in federal funding for battery factories and other EV projects.

Automakers not only have to win over conservative car buyers. Some of their own dealers have a dim view of battery-powered cars due to ideological reasons. Dealer David Ferraez said he thinks the media and government espouse an inflated view of the risks of carbon emissions to push more EVs into the market.

Nonetheless, Ferraez, who sells GM’s Buick, GMC and Chevrolet brands in New Jersey, has spent more than \$300,000 to install electric-car chargers at his stores.

“I do want to sell what the customer wants,” he said.

### Giving buyers a choice

At Kia, Center said the brand has emphasized an array of options—straight gas-engine models, hybrids, plug-in hybrids and full electrics—to make clear it isn’t trying to force anyone into an electric vehicle. But Kia is also heavily advertising its EVs.

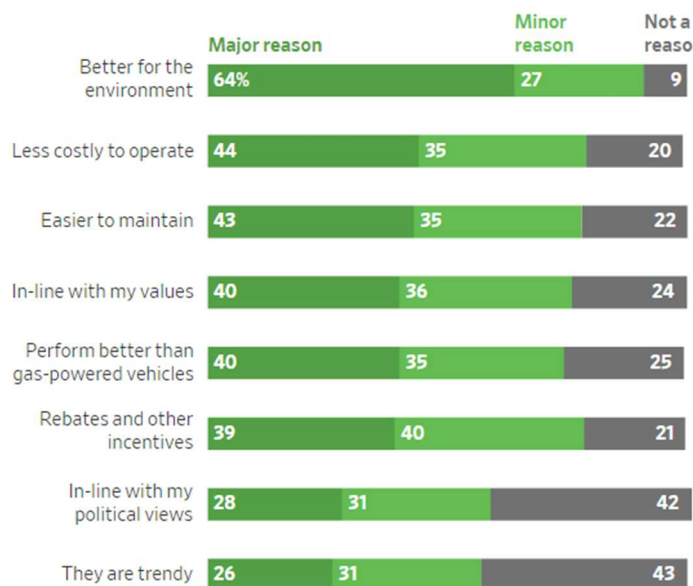
“We’re talking to the broader part of the market that has an open mind about EVs, rather than trying to convince the part that has their heels dug in,” he said.

John Bozzella, president of the Alliance for Automotive Innovation, which represents most major car companies, said the group has stressed to regulators that consumers should have choices even as emissions rules are tightened.

The group lobbied the Biden administration to include plug-in hybrid models, which travel in electric mode for some distance before a gas engine kicks on, in its calculation of the Environmental Protection Agency’s new emissions standards.

“Political persuasion is a pretty good indicator of a willingness to purchase an EV right now,” Bozzella said. “I don’t think that is a forever situation.”

Reasons for why a respondent has a favorable view of EVs



Note: Shares may not total 100% due to rounding.  
 Source: Morning Consult weighted poll of 1,034 U.S. adults conducted March 9-11 for The Wall Street Journal; margin of error: +/- 3 pct. pts.  
 Andrew Mollica/THE WALL STREET JOURNAL

South Florida car dealer Bill Wallace has noticed that more customers have been expressing a sour view of EVs over the past year.

His company sells several brands that have relatively popular electric models, including Ford, Hyundai, Kia and Cadillac, and EVs account for about 5% of his total sales. But he estimates about one-third of the customers he speaks with about EVs express adamant opposition.

“They are angry,” Wallace said. “They feel like it’s the government trying to control their lives.”

Wallace said he broached the subject during a conversation with GM CEO Mary Barra at a private luncheon in Florida late last year. GM, more than many other car companies, has bet its future on EVs and is marketing them aggressively.

“I said, ‘Mary, you have to understand the red-state mentality. These people want no part of it,’” he said.

Tesla has opened its charging network to other EV brands, starting with Ford. With an adapter, non-Teslas can now use Superchargers. Is it easy to get started? How do the speed and price compare? To test it, WSJ’s Joanna Stern hit up 10 Tesla Superchargers in her Ford Mustang Mach-E. Photo illustration: Jacob Reynolds for The Wall Street Journal

*This article may be periodically updated.*

Write to Mike Colias at [mike.colias@wsj.com](mailto:mike.colias@wsj.com)

## New BYD Hybrid Can Drive Non-Stop for More Than 2,000 Kilometers

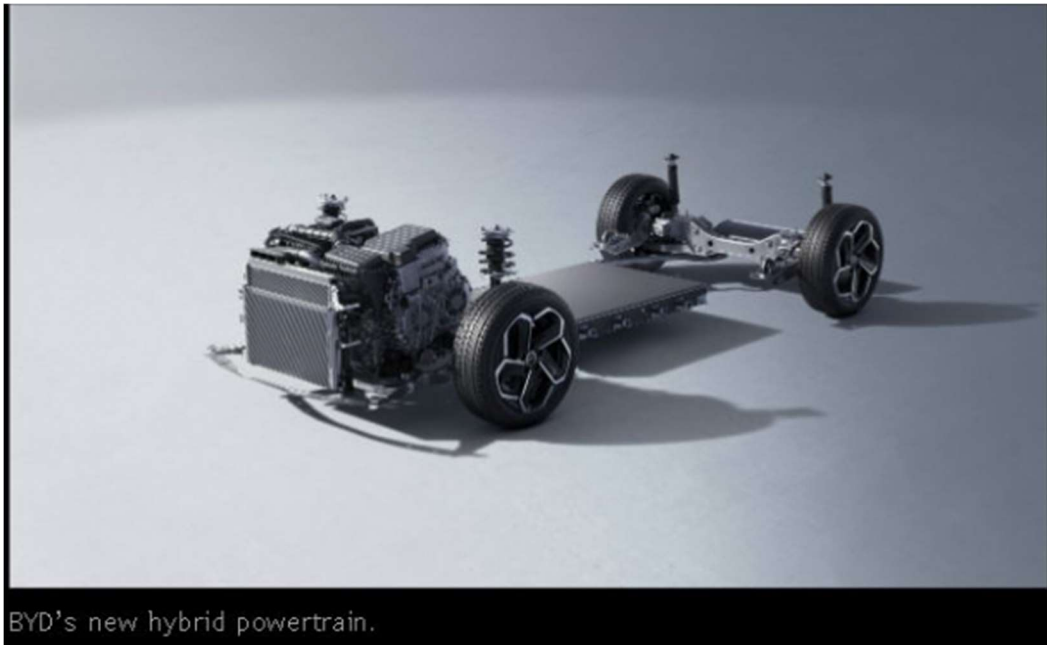
2024-05-29 02:54:26.442 GMT

By Danny Lee

(Bloomberg) -- BYD Co. unveiled a new hybrid powertrain capable of traveling more than 2,000 kilometers (1,250 miles) without recharging or refueling, intensifying the EV transition competition with the likes of Toyota Motor Corp. and Volkswagen AG.

The upgraded tech, which aims to put more distance between BYD and its rivals, will be launched in two sedans immediately that cost under 100,000 yuan (\$13,800), the automaker said at an event live-streamed Tuesday evening from China.

The longer range means some of BYD's dual-mode plug-in electric hybrid cars can cover the equivalent of Singapore to Bangkok, New York to Miami, or Munich to Madrid on each charge and full tank of gas. The milestone marks BYD's latest achievement in slashing fuel consumption since introducing its first hybrids in 2008.



BYD's new hybrid powertrain.

Shenzhen-based BYD has upended China's auto market with widespread price cuts — at some expense to its own profitability — and the positioning of the long-range hybrids may further stoke the price war. The company sold 3 million cars last year and has delivered almost 1 million this year through April. One of every two hybrids sold in China is a BYD, underlining the extent to which they're a key revenue and profit driver for the manufacturer.

BYD's Hong Kong-listed shares rose as much as 4% on Wednesday.

Automakers globally are trying to ease consumers' range anxiety while offering vehicles that are better for the environment. Toyota unveiled prototypes on Tuesday of a new

generation of internal combustion engine that can run on hydrogen, gasoline or other fuels, alongside batteries.

During the event, BYD claimed that in tests, its plug-in hybrid managed to achieve as much as 2,500 kilometers of range. For now, the upgrades are destined for made-in-China cars, but they're likely to be exported soon.

## BYD's Ultra-Long Range Hybrid Outstrips Camry, Tesla Model 3

Model	Range
BYD Hybrid	2,000km
Geely Galaxy L6 Hybrid	1,370
Toyota Camry Hybrid	1,100
Tesla Model 3	630

Source: Bloomberg

**Bloomberg**

Electric and hybrid vehicles alike are pushing the boundaries on range to tackle what some consumers still see as a detraction when switching from gas. BYD stopped producing cars powered entirely by fossil fuels in early 2022 and has been ramping up hybrid exports to emerging markets that lack battery-charging infrastructure. The first two vehicles to come with its the long-range capabilities are mid-size sedans — the Qin L and the Seal 06 — that BYD unveiled at the Beijing Auto Show in April. They're part of the Dynasty and Ocean series, respectively.

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To view this story in Bloomberg click here:



**Copper Development  
Association Inc.**  
Copper Alliance

## Copper Drives Electric Vehicles

The market for electric vehicles (EV) is rapidly changing as leading manufacturers debut new products, battery prices drop and government incentives continue around the world. Copper is essential to EV technology and its supporting infrastructure. The evolving market will have a substantial impact on copper demand.

### Projections for Increased Electric Vehicle Demand

**1 million + vehicles** – the number of annual sales of PEVs by 2023. This will reach more than 7 percent of annual vehicle sales by 2025.

**7 million** – the number of vehicles projected to be on U.S. roads by 2025, up from 567,000 today. This makes up 3 percent of the 258 million vehicles, including cars and light trucks, expected to be registered in the U.S. in 2025.

### Required Investment in Charging Infrastructure

**5 million** – the number of charging ports required to support 7 million PEVs in 2025. This will require a significant investment in PEV charging infrastructure.

There are three types of charge ports, which are typically installed at homes, workplaces or public locations:

- Level 1: 120 Volts; Charging Time: Overnight
- Level 2: 220 volts; Charging Time: Several Hours
- DC Fast Chargers: DCFC; Charging Time: Under an Hour

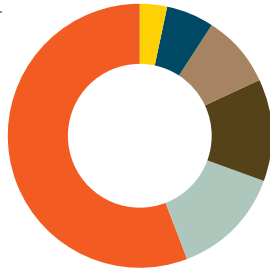
There currently are **between 50,000 and 70,000 Level 2 ports in work or public locations in the U.S.;** and that number needs to be **increased to between 2,230,000 and 2,240,000 by 2025.**



## Copper is Essential to Electric Vehicle Technology

Copper is used throughout electric vehicles, charging stations and supporting infrastructure because of the metal's durability, high conductivity and efficiency.

- Conventional cars 18–49 lbs of copper
- Hybrid electric vehicles (HEV) 85 lbs
- Plug-in hybrid electric vehicles (PHEV) use 132 lbs
- Battery electric vehicles (BEVs) contain 183 lbs
- A hybrid electric bus contains 196 lbs
- Battery electric bus contains 814 lbs



While conventional cars have **18–49 pounds** of copper, hybrid electric vehicles (HEV) contain approximately **85 pounds**, plug-in hybrid electric vehicles (PHEV) use **132 pounds**, battery electric vehicles (BEVs) contain **183 pounds**, a hybrid electric bus contains **196 pounds**, and a battery electric bus contains **814 pounds**, most of which is used in the battery.

In 2016, the total estimated amount of copper used in all electric vehicles manufactured by BYD, the world's largest electric vehicle maker, was nearly **26 million pounds**.

Copper is also required for charge ports. BYD's total sale of chargers in 2016 used more than **295,419 pounds of copper**.



## Copper Demand in a Sustainable World

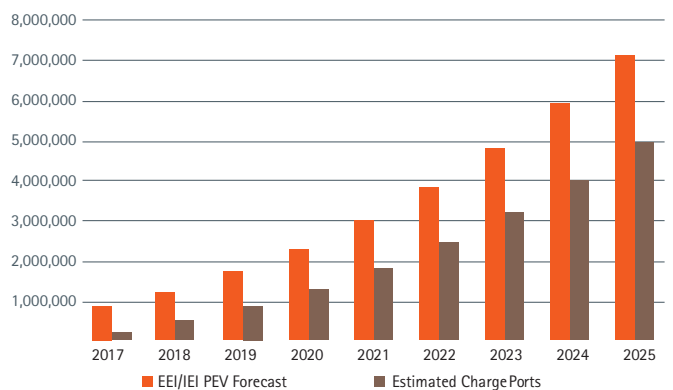
The increase in the electric vehicles market will significantly impact copper. The demand for copper due to electric vehicles is expected to increase by **1,700 kilotons by 2027**.

As the world continues to move toward a sustainable and energy efficient future, copper has a major role to play. The metal is used to increase the efficiency of numerous electrical technology, from motors and transformers to solar and wind energy systems.

Copper is itself a sustainable material. It is 100 percent recyclable and can be used and reused without losing its important engineering qualities.



## PEV Stock and Charging Infrastructure Needed



\*Sources: IDTechEx 2017, the Edison Electric Institute and the Institute for Electric Innovation





Alison Simmons and Noah Feldman.

*Credits: Harvard Staff Photo; Mark Dunn*

## CAMPUS & COMMUNITY

# When should Harvard speak out?

Institutional Voice Working Group provides a roadmap in new report

Jessica McCann  
Harvard Correspondent  
May 28, 2024 long read

In April, interim President Alan M. Garber and interim Provost John F. Manning **announced** two University-wide **initiatives** to explore how best to cultivate and reinforce open inquiry, constructive dialogue, and academic freedom on campus. The first, the Open Inquiry and Constructive Dialogue Working Group, is examining how to nurture and support engagement across differing viewpoints in Harvard's teaching, learning, and dialogue. The second, the Institutional Voice Working Group, has taken up the more specific question of whether and **when Harvard as a University should speak on matters of social and political significance and who should be authorized to speak for the institution as a whole**. On Tuesday, Garber, Manning, and the deans of Harvard's Schools announced that they had accepted the working group's proposed statement of principles.

The Institutional Voice Working Group began its work by conducting a broad review of the types of public statements that Harvard and peer institutions have made in recent years. It also invited community feedback. The group has engaged in extensive outreach to members of the Harvard community, conducting a survey, soliciting input via email, and hosting more than 30 virtual and in-person listening sessions. Discussions covered the criteria by which the University and its various units should make official statements about public matters, the rationale behind these criteria, and the consequences that might arise for Harvard and its community when they do so.

The Gazette spoke with co-chairs Noah Feldman and Alison Simmons about the working group's **report**. Feldman is the Felix Frankfurter Professor of Law at Harvard Law School and chair of Harvard's Society of Fellows. Simmons is the Samuel H. Wolcott Professor of Philosophy and faculty co-director, Embedded EthiCS, in the Faculty of Arts and Sciences. The interview has been edited for clarity and length.

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### Can you summarize the report and what it seeks to do?

**Simmons:** Our charge was to answer the question: **When, if at all, should the University make official statements about global events, and why/why not?** We leaned into the why/why not. When the University speaks on an event or issue, why? What makes speaking *about that event* appropriate? **Recognizing that not speaking about an event or issue is itself a speech act that will be "heard," a compelling reason needs to be**

given for that too. We aimed to produce a guiding document that sets out the principles underlying the decision whether or not to issue a formal statement.

**Feldman:** The main point of the report is that the University's leadership can and should speak out on anything relevant to the core function of the University, which is creating an environment suitable for free, open inquiry, teaching, and research. That environment is threatened these days, and we need to defend it. At the same time, the University as an institution should not make official statements on issues outside its core function. Harvard isn't a government. It shouldn't have a foreign policy or a domestic policy.

In the end, we believe this approach is actually more inclusive to the whole community. We heard loud and clear from many stakeholders that if we speak out some of the time on some global or national issues, then many people feel we are ignoring other issues. And on some issues, our community is divided or the world is divided in such a way that we are going to drive controversy no matter what we say.

"Given the broad consensus we heard, we hope these principles will serve the University's diverse community well for many years to come."

Alison Simmons

**The report describes the University's purpose as "the pursuit of truth." Why is this the core principle that should inform the use of Harvard's institutional voice?**

**Feldman:** Here at Harvard, we hold firmly to our ideal of Veritas. Our charge was to think about how institutional statements affect the carrying out of this purpose. As members of a university, we pursue truth through inquiry, debate, research, and a range of other methods. Our expertise lies in our scholarship. As an institution, Harvard doesn't add to the truth by announcing a single official position on what is true in science or politics or whatever. In fact, it undermines our mission if the University makes official declarations about matters outside its core function.

**Simmons:** Pursuing truth looks different in different fields of study. Some of us think we are after *understanding* (a text, an artwork, a religious tradition). Some of us think of ourselves as producing *knowledge* (scientific, social, medical, legal). Some of us think we are *preserving* (cultural forms, objects, ideas). And methodologies vary widely across academic disciplines and Harvard's Schools. So, by "truth" we mean to cast a wide net.

If what we do in the University is to pursue truth — and to pursue it by reasoned argument and debate, controlled experiment, and so on — then the job of the University as an institution is to create an environment in which we can have a healthy, productive, and free exchange of ideas and argument among diverse points of view on issues of science, society, values, culture, etc. We make progress by encountering friction with the things we take to be obviously true now, so long as the friction comes from a desire to get it right and not to shut down argument. We all have to be open to being challenged and to changing our minds in the face of new evidence. And we all have to engage people who think differently from us with curiosity and openness.

**Feldman:** One comment from a focus group with students that stands out in my mind is, "Everyone gets the emails and then everyone feels bad." We've come to understand just how unsatisfactory statements truly are and how far they stray from our core function as an institution of higher learning. Leadership cares deeply for the community and they want to respond to the community's desire for solutions to difficult social and political events playing out all over the world — but statements can't provide this. Even expressions of empathy, when sent to such a broad community, can fall flat. What we recommend in our report is a return to what a university does best — teaching, research, learning, and service as an answer to these events.

**In this report, who is the "we" when you say "institutional voice"?**

**Feldman:** Our report applies to anyone authorized to speak on behalf of the University officially (the president, provost, deans, and other administrative leaders). Individual faculty and students have academic freedom. But they don't speak on behalf of the whole University. That needs to be understood by the whole world.

**Simmons:** It is the individual community members who have academic freedom to pursue the questions they find important and interesting, to develop expertise in their chosen field, to teach the material they think is important, and to speak out on issues they find compelling. The University does not tell us what to say or think. And when we speak, we do not speak for the University. The University (i.e., its leadership) must use its voice to protect and promote the ability of all its community members to do precisely those things.

**What did you hear in the listening sessions and from those who submitted thoughts and ideas through the survey or via email? How did it inform the report?**

**Simmons:** One thing I learned is just how much people care about this institution. They really want Harvard to be the best place it can be. In that respect, I felt we were all trying to figure out how to answer this question together. We also heard a lot from people who feel pressure to "speak for Harvard" when they do not want to (because they recognize they cannot speak for everyone).

**Feldman:** We also heard a lot about how institutional statements and statements by individuals are taken up by the media, including social media. In an age of social media, it is easy for the public to think that anyone who posts wearing a crimson sweatshirt speaks "for" Harvard. They don't! And we need to make that clear.

**Given that Harvard is often the subject of intense public interest, some community members have called for the University to adopt a policy of institutional neutrality. This would be similar to the University of Chicago's policy, as outlined in a document known as the [Kalven Report](#), which calls for the neutrality of the university "out of respect for free inquiry and the obligation to cherish a diversity of viewpoints." Does your report call for institutional neutrality?**

**Feldman:** Our report has some meaningful overlap with the Kalven Report. A key difference between the Kalven Report and ours is that we're saying that, as an institution with values, we have a responsibility to promote our core function as an educational institution and defend ourselves against forces that seek to undermine our academic values. In that sense, we aren't neutral, and we can't be. Another big difference is our reason for restraint, which is based on speaking where we are experts and not speaking where the University as an institution isn't expert.

**Is the report a response to the many challenges Harvard and other higher ed institutions have faced since Oct. 7?**

**Simmons:** The University has been making statements about all sorts of things for a long time. Conversations about whether it *should* be making so many statements have also been taking place for a long time. But the reality in which the University operates has changed over the past 10 years or so in ways that make it pressing to form a policy on the "to speak or not to speak" question.

First, news travels rapidly and widely through social media. When the University issues a statement, it reaches the entire world (intact or in distorted pieces) in seconds. (By contrast, when Derek Bok was president from 1971 to 1991, he wrote up quite long statements that were physically slid under the doors of faculty and students!) What's more, anyone with a social media account can appear to the public to speak for Harvard. And that makes it hard for people outside the University to know what is and what is not an "official" Harvard statement. There's just a lot less control over University communications.

Second, we now live in a world of extreme political polarization. And that means both that people tend to react to University statements (again, intact or distorted) in a polarized way, and also put pressure on the University to speak or not speak in polarized ways.

These two changes were certainly on display in the wake of Oct. 7. But they have been in place for quite some time. And the combination of these two new realities has made it important to form a policy.

### **How will this work dovetail with the work of the Open Inquiry and Constructive Dialogue Working Group?**

**Feldman:** We were fortunate that we were asked for a clear deliverable — a set of principles for when the University should and should not issue official statements. The Open Inquiry Working Group has been asked to address a broader and more complex set of issues about how we can maintain and improve the work we do as a University. The two are connected, though. Both are concerned with how we achieve the core purpose we share.

**Simmons:** I think that our report might help to provide a framework and some core principles that can support the important work of the Open Inquiry and Constructive Dialogue Working Group. They are already thinking hard about how to promote constructive dialogue in the classroom, in the dining hall, and in the Houses — i.e., on the ground. I think they will help us learn how best to encourage our students to learn from each other through constructive disagreement, genuine curiosity, intellectual give and take, and a desire to grow.

We think our proposal can support that and we take it as a reminder to all of us that the University must commit itself to the value of creating an environment that facilitates open inquiry, and to acknowledge that the University itself must positively promote it and take great care not to jeopardize it, even if only inadvertently.

### **What's next? How does the University translate these principles into action?**

**Simmons:** For one, the community will need some time to get used to the idea that the University will not be speaking on a great number of things.

**Feldman:** Absolutely. With the University's decision to take up these principles, there will need to be a significant culture shift as people realize, inside Harvard and outside, that the University has genuinely adopted a "say less" policy.

**Simmons:** We have come to expect those emails from the president's office (and then the deans' offices and then other School-based offices) when something urgent happens in the world. It will be startling, and possibly unsettling for a while, not to get them. University leadership will have to remind us all why it is not making as many statements as it used to. Another thing University leadership will have to do is figure out how to translate our recommendation into concrete policy and how to operationalize it.

Our working group set out to provide principles for a strong foundation for the University and any other university that might find these principles valuable. We received thoughtful input from more than 1,000 people across the University. Given the broad consensus we heard, we hope these principles will serve the University's diverse community well for many years to come.

**Feldman:** Our goal is for the individual, expert voices of the University to be heard loud and clear. When the University focuses its institutional voice on its core function — and only on its core function — that will highlight the extraordinary work the members of the University do. When the University flourishes, we all can make more valuable contributions to knowledge and to the world.




Dan Tsubouchi @EnergyTidbits · 1m

"And that's the sentiment right now, which is a little softer" Vitol's @michaelwmuller when asked on outlook for H2 Asian #Oil demand.

See 🗨️ SAF Group transcript for longer answer.

#OOTT

Thx @gulf\_intel @vitolnews @ColumbiaUEnergy @sean\_evers



SAF Group created transcript of comments by Mike Muller (Head, Vitol Asia) with Sean Evers (Founder & Managing Partner Gulf Intelligence) and Christof Ruhl (Senior Research Scholar, Center on Global Energy Policy, Columbia University) on Gulf Intelligence's Daily Energy Markets Podcast on June 2, 2024. [\[LINK\]](#)

[Note this podcast was about five hours before the OPEC+ meeting.]

Items in "italics" are SAF Group created transcript.

At 19:27 min mark, Evers asks "... your *thoughts* as it *relates* Asia's demand being a supporting pillar that could even grow further in the 2<sup>nd</sup> half of the year if China starts to come back stronger. The outlook for the 2<sup>nd</sup> half from an Asian demand point of view and what OPEC+ can think about that?" Muller "... the situation is pretty much as outlined for July and August. We have adequate stocks on the water of refined products. We have slightly and I will emphasize slightly less *put on* Atlantic imports from Asia. Maybe as a *consequence* of a little bit of over-purchasing that you refer to there in May. That said, the outlook in economies like India are and continue to be robust. I mean, you will have seen, not just the elections but the *recent* weather temperatures. These, in advanced Asian nations, tend to lead to increased *demands* *in* air conditioning usage and therefore place extreme strain on the power grid. Sometimes *occasional* *uses* of energies other than those obvious ones. Japan will go from burning LNG to maybe having to burn fuel *in order* to make up for local shortfalls. However, the heat is in India, of course. And there it could have different consequences. It could affect crops and harvests and mean less diesel that gets consumed by tractors if the fields aren't fertile. So there many *many* possible pathways this could take. *But*, I think on the whole, the outlook for gas feels very much buoyed by these heat events. *But*, if you want to look any further than what's happening on products, oil products in Asia, you look at refining margins. And to *ok* *in particular* at gasoline cracks and these are trading at multi-year lows if you strip out the Covid period of 2020/2021. Singapore gasoline has been generally trading at double digits per barrel premium to Brent. What we call the crack, a big component of the margin. And that's sunk to negligible single digits. *So* we're at all time lows on that particular front. And that doesn't bode particularly well even though there was a view that gasoline demand growth is particularly robust in places like China. Then you look at what that means for refinery behaviour. And refiners of course will be very quick to advertise that they might consider cutting runs *in order* to stopping the view of the crude oil sellers they are facing. And it is that time of month when we are, the beginning of the month, when programs get nominated and people call for how much OPEC oil they wish to see in their buying programs. *So* you generally hear a little bit more

*notice* at this time of month from those refiners that have marginal capacity as to whether they will be running that capacity or not. And that's the sentiment right now, which is a little softer."



35





SAF

Dan Tsubouchi @EnergyTidbits · 16h

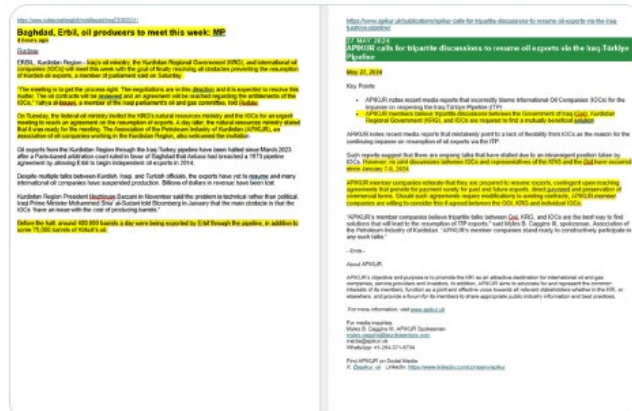
Finally!

@RudawEnglish: Baghdad, Erbil & oil producers to finally meet to try to get to an agreement.

Follows @apikur\_oil saying its producers are willing to consider contract modifications.

1st step towards resuming 400,000 b/d Kurdistan #Oil to export markets.

Show more



2 5 1.6K

SAF

Dan Tsubouchi @EnergyTidbits · 23h

Vortexa oil floating storage est 78.47 mmb at May 31.

Want to watch as last 3 wks probably closer to ~75 mmb, excl Gulf Coast temporary increase, whereas floating storage had been trending more to ~70 mmb.

Thx @vortexa @business #OOTT



2 9 2.1K



SAF Dan Tsubouchi @EnergyTidbits · Jun 1  
Daily Europe air traffic only 0.8% below pre-Covid.

7-day average as of:  
 May 30: -0.8% below pre-Covid  
 May 23: -1.9%  
 May 16: -1.2%  
 May 9: -3.2%  
 May 2: -2.9%  
 Apr 25: -3.2%  
 Apr 22: -1.5%...  
[Show more](#)



2 3 9 2K

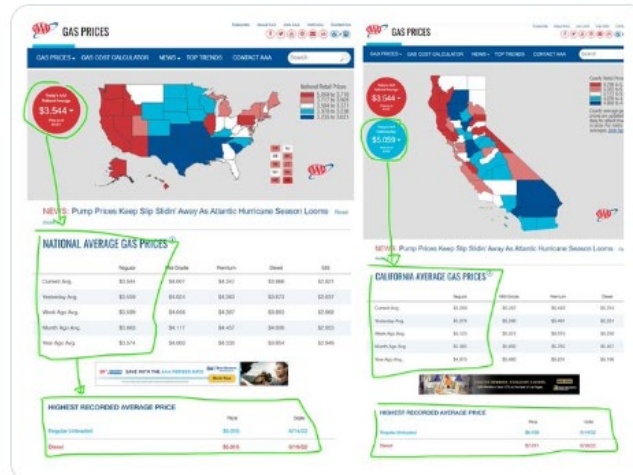
SAF Dan Tsubouchi @EnergyTidbits · Jun 1  
US gasoline prices keep drifting down.

At \$3.54, -\$0.06 WoW, \$0.12 MoM and -\$0.03 YoY.

California at \$5.06 is -\$0.07 WoW, -\$0.33 MoM.

See 📅 05/24 @GusBuddy expects "progressive decreases between Memorial Day, July 7 & Labor Day"

Good news for Biden...  
[Show more](#)



SAF Dan Tsubouchi @EnergyTidbits · May 24



Biden hopes this forecast turns out true!

US #Gasoline prices +\$0.06 YoY BUT well followed @GasBuddyGuy expects "progressive decreases between Memorial Day, July 4 and Labor Day" subjec...

SAF Dan Tsubouchi @Energy\_Tidbits · May 31  
 321 crack spreads down again this week, -\$1.61 WoW to \$24.04 and WTI was -\$0.74 WoW to \$76.99 at close on May 31.

Crack spreads have drifted down for past 5 weeks so keep pointing to near term WTI softness.

Key wildcard is OPEC+ on Sunday.

Thx @business  
 #OOTT



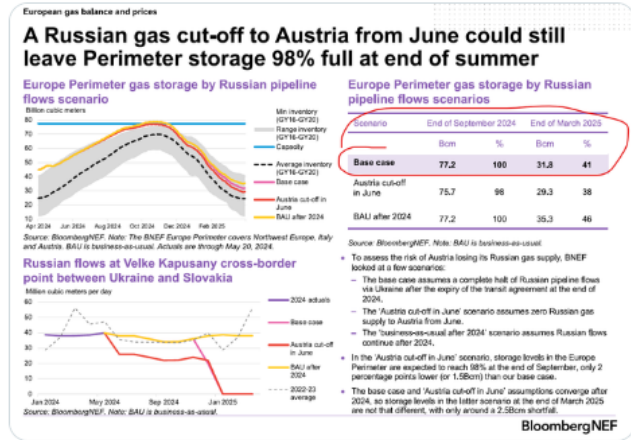
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SAF Dan Tsubouchi @Energy\_Tidbits · May 31  
 ICYMI.

@BloombergNEF base case forecasts Europe #NatGas storage full by Sept 30!

If so, it won't just hurt Europe TTF prices but also push back on US #HH prices.

#OOTT



2 7 10 4K

SAF Dan Tsubouchi @Energy\_Tidbits · May 31

Russia says massive drone attack but "all of them suppressed".

"no casualties or destruction" at major #Oil export city of Novorossiysk.

but nearby Temryuk "infrastructure of the oil depot was damaged by an air strike. 3 tanks with oil products were damaged & burning"

#OOTT



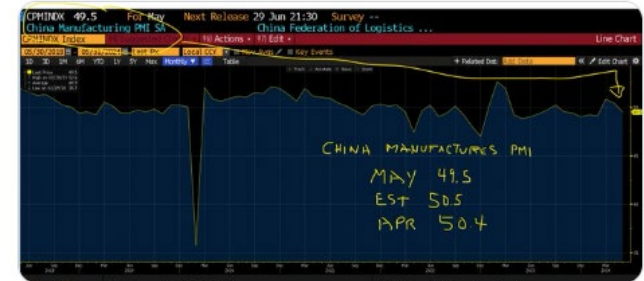
1 3 1.1K

SAF Dan Tsubouchi @Energy\_Tidbits · May 30

Back to contraction after 2 months of expansion.

China official National Bureau of Statistics Manufacturing PMI just out.

- May 49.5.
  - Est. 50.5
  - Apr 50.4
  - Mar 50.8
  - Feb 49.1
  - Jan 49.2....
- Show more



2 1 5 1.9K

SAF Dan Tsubouchi @Energy\_Tidbits · 1h ...  
 For those not near their laptop, @EIAgov just released #Oil #Gasoline #Distillates inventory as of May 24 at 8:30am MT. Table below compares EIA data vs @business expectations and vs @APIenergy yesterday. Prior to release, WTI was \$78.85. #OOTT

**Oil/Products Inventory May 24: EIA, Bloomberg Survey Expectations, API**

(million barrels)	EIA	Expectations	API
Oil	-4.16	-1.80	-6.49
Gasoline	2.02	-1.38	-0.45
Distillates	2.54	-0.46	2.05
	0.40	-3.64	-4.89

Note: Oil is commercial. So excludes a +0.5 mmb build in SPR for the May 24 week  
 Note: Included in the oil data, Cushing had a 1.77 mmb draw for May 24 week  
 Source EIA, Bloomberg  
 Prepared by SAF Group <https://safgroup.ca/news-insights/>

1 1 3 910

SAF Dan Tsubouchi @Energy\_Tidbits · 2h ...  
 GLP-1 drugs here to stay!

"It's a major innovation in weight loss & something that I think the world has been waiting for a # of decades now" Nestle CEO to @Silvia\_Amaro.

So adding "Companion Products" i.e. "higher protein intake to avoid the loss of lean muscle mass"



2 1 3 1.2K



Dan Tsubouchi @EnergyTidbits · May 29

India's AMNS buys 10-yr LNG starting in 2027 from Shell.

Why would AMNS take LNG starting in peak of oversupply unless they agree with 05/18 Qatar/TotalEnergies view late 2020s oversupply is gone in early 2030s?

Plus ANBS locks in low 11.5% slope to 2037.

Thx @suyashp26  
Show more

India's AMNS signs 500,000 mt/year LNG deal with Shell at 11.5% slope to crude oil

First LNG deal priced below 12% slope since Russia-Ukraine war

Supply for 10 years, to start in 2027

Deal includes one cargo upper quantity tolerance

Accor to M&A analyst, Shell India has signed a deal with Shell for the supply of 500,000 mt/year of LNG starting from 2027 for 10 years, at an 11.5% slope to crude oil, sources told SAF Global Commodity Insights May 28.

This marks the first deal priced below 12% slope to crude oil since Europe switched to consuming LNG after reducing pipeline gas consumption from Russia following its invasion of Ukraine.

The deal involves certain flexibilities at the seller's cost recovery, such as one additional cargo per year, sources said.

The contract is signed for 10 years for 500,000 mt/year starting in 2027 and there is no LNG quantity tolerance, one of the sources said.

Sources added that the deal was likely to include some flexibility around deliveries at the Hazira LNG terminal.

Other spokespeople for Accor to M&A analyst Shell India and Shell did not respond to queries at the time of writing.

**Below 12% slope**

After Russia's invasion of Ukraine, the LNG market was focused on energy security. As global LNG markets adjusted to the change and spot prices eased from the record high seen in 2022, affordability had become an important component of energy security for South Asian and Southeast Asian buyers.

A Singapore-based source said the move was big because, with this deal, it seemed that the market had somewhat broken 12% slope to crude oil.

A European-based source said the price was underwritten since it there was some flexibility allowed in the deal for the supplier.

LNG buyers have been negotiating hard to lower oil-linked price slopes for long-term contracts as market participants expect additional volumes from the US and Qatar to be made available later this decade.

The importance of additional supply being available from 2025 created has put pressure on long-term contracts buyers, especially as LNG spot prices have risen from the December levels seen in 2022 and early 2023.

Platts assessed the West India Market, the benchmark price for LNG cargoes delivered to west India ports and the Middle East, for July at \$11.103/MMBtu on May 28, according to SAF Global Commodity Insights data.

According to the forward curve on May 21, the WIM derivative for calendar year 2027 was assessed at \$10.73/MMBtu.

Dan Tsubouchi @EnergyTidbits · May 18



LNG oversupply to end 2020s?

Qatar Energy & TotalEnergies CEOs sees strong & growing long-term demand but wave of supply projects point to #LNG oversupply to end 2020s before ...

3

4

7

3.7K



If western govt go all-in on Hybrids & dump EVs, will that stop forecasts for peak oil demand from keep getting pushed out as has been happening every year?

BYD new long-distance hybrid (~\$13,800) claims capable of >2,000 km without recharging or refueling.


Thx  
[Show more](#)

**New BYD Hybrid Can Drive 1000 Miles for More Than 2,000 Kilowatt-hours**  
2024-05-29 02:34:26 442 1401

By Dennis Lee  
(Shenzhen) — BYD Co. unveiled a new hybrid powertrain capable of traveling more than 2,000 kilometers (1,243 miles) without refueling or recharging, introducing the EV for sale in competition with the likes of Toyota Mirai, GM, and Volkswagen AG.

The 1000-mile range, which seems to set a new distance between BYD and its rivals, will be launched in two weeks, reportedly in the United States.

The longer range means sales of BYD's new plug-in hybrid electric vehicle can cover the gap between Singapore and Bangkok, New York, or Miami, or between London and New York and full tank of gas. The milestone marks BYD's second achievement in exceeding fuel consumption level a benchmark in the industry in 2024.



Shenzhen-based BYD has expanded China's auto market with replacement price cuts — at some expense to its own profitability — and the positioning of the long-range hybrids may further drive the price war. The concept car 2 million cars last year and has delivered almost 1 million this year through April. One of every two hybrids sold in China is a BYD, underselling the extent to which BYD is a key revenue and profit driver for the manufacturer.

BYD's Hong Kong-listed shares rose as much as 4% on Wednesday.

Automakers globally are trying to ease consumers' range anxiety with offering vehicles that are better for the environment. Toyota unveiled prototypes on Tuesday of a new generation of internal combustion engine that can run on hydrogen, ethanol, or other fuels, alongside hybrids.

During the event, BYD claimed that in fact, its plug-in hybrid managed to achieve as much as 2,000 kilometers of range. For now, the application is deemed for made-in-China cars, but the company will be expected soon.

**BYD's 1000-Kilometer Range Hybrid Outstrips Camry, Tesla Model 3**

Model	Range
BYD Model 3	2,000 km
Toyota Camry Hybrid	1,100 km
Tesla Model 3	700 km
Camry	Hybrid

Electric and hybrid vehicles alike are pushing the boundaries on range to tackle what some consumers still see as a detraction when switching from gas.

BYD stopped producing cars powered entirely by fossil fuels in early 2022 and has been ramping up hybrid exports to emerging markets that lack battery-charging infrastructure.

The 1000-mile vehicles fit come with its long-range capabilities are not new vehicles — the Qin L and the Seal 06 — but BYD unveiled at the Beijing Auto Show in April. They're part of the Dynasty and Ocean series, respectively.

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Dan Tsubouchi @EnergyTidbits · May 28



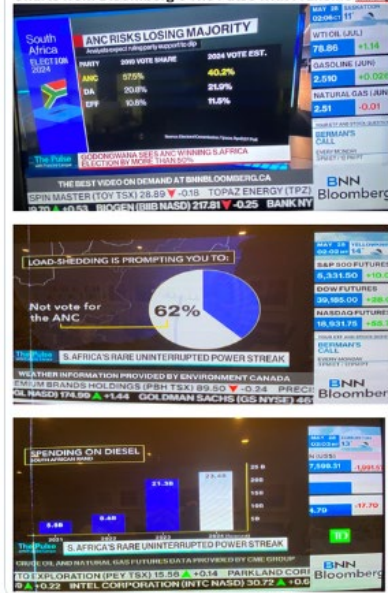
#Diesel to rescue!

Big increase in diesel power generation provides rare uninterrupted power >50 days ahead of ZA election.

@jennzaba "last year the power utility company, Eskom, could only keep the lights on for the equivalent of 82 days. but with an election on the horizon,

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Charts from Bloomberg's The Pulse with Francine Lacqua on March 28, 2024



6



6



12



2.7K



Dan Tsubouchi @EnergyTidbits · May 28

Good indicator Europe heavy industry still hurting. Industrial demand for #NatGas -20% or -1.8 bcf/d vs 2016-20 average.

Separately, low weather driven NatGas demand despite low Wind generation & low coal burn.

EU gas storage should be full before winter.

Thx @BloombergNEF  
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Dan Tsubouchi @EnergyTidbits · May 28

Today Iran interim president, Mohammad Mokhber says #oil production reached 3.6 mmb/d during Raisi leadership


See 📌 05/25 tweet, negative to oil is that Iran says can add 400,000 b/d to get to 4.0 mmb/d at crazy cheap cost of \$3b.

#OOTT

<https://en.shana.ir/news/642409/3-6-mb-d-of-Oil-Production-the-Great-Achievement-of-13th-Administration>

SHANA PETRO ENERGY INFORMATION NETWORK  
26 May 2024 - 13:52  
News ID: 642409

### 3.6 mb/d of Oil Production, the Great Achievement of 13th Administration



SHANA (Tehran) - Iran's interim president, Mohammad Mokhber, says that boosting of production to 3.6 million barrels per day was one of the most important achievements of the 13th administration under the leadership of Ibrahim Raisi.

Speaking at the opening ceremony of the new parliament, the 12th round of opening the parliament after the victory of the Islamic Revolution in 1979, the interim minister said that despite the tragic loss of the president Ibrahim Raisi and his companions in a chopper crash, none of projects of the country was interrupted even for a single day and this approach of serving the people will be continued until Iranian people's problems are solved.

He congratulated the newly elected representatives for their success in parliamentary elections adding while the executive branch has lost one of its most important characters and nearly all the sectors of the country are mourning, the new parliament is holding its opening ceremony on schedule which is a clear sign of the importance of the place of the Supreme Leader of the Islamic Revolution and the people as the main assets of the country and Islamic System.

According to him, without doubt, promoting Iran's relations with other countries and good connections with the leaders of different countries was one of the greatest successes of president Raisi that could change power equilibrium in the world scene.

Ibrahim Raisi, the late president, lost his life on 19 May when the chopper carrying him and 7 others crashed in a mountainous area in the northwest of the country. He was on his way returning from the opening ceremony of a dam, built on Azas River, to inaugurate a number of refining projects in Tabriz, the capital of East Azerbaijan province.

SAF Dan Tsubouchi @EnergyTidbits · May 25



WOW!  
Decades of sanctions & very low foreign capital = lots of low hanging fruit to add oil b/d  
...

6 2 5 4.1K

SAF

Dan Tsubouchi @EnergyTidbits · May 28

FED's Kashkari on CNBC 📌

CNBC "can you rule out a rate hike?"  
Kashkari "No. I don't think anybody should, I don't think we should rule anything out at this point...."

Kashkari "I'm not seeing the need to hurry and do rate cuts. I think we should take our time and get it right"

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4 3 11 2.7K

**SAF** Dan Tsubouchi @Energy\_Tidbits · May 27  
Less China construction = less emissions.

📌 China CO2 emissions in Mar down YoY, industrial data for Apr indicates Mar trends continued.

*"largest source of reductions in emissions in March was the continued decline in demand for steel & cement from the construction sector"*

Thx  
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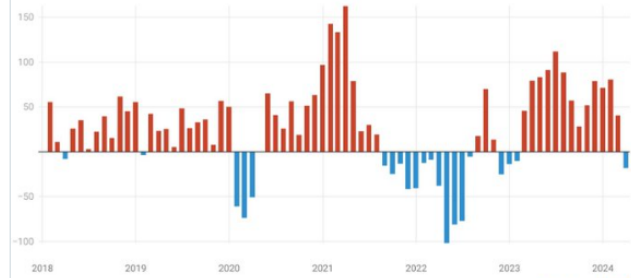
**CB Carbon Brief** @CarbonBrief · May 27

NEW – Analysis: Monthly drop hints that China's CO2 emissions may have peaked in 2023 | @laurimyllyvirta

Read here: [buff.ly/3yBm5yX](https://buff.ly/3yBm5yX)

**China's CO2 emissions fell 3% in March 2024, ending a 14-month surge**

Year-on-year change in monthly emissions from fossil fuels and cement, MtCO2



Source: Lauri Myllyvirta for Carbon Brief

CarbonBrief

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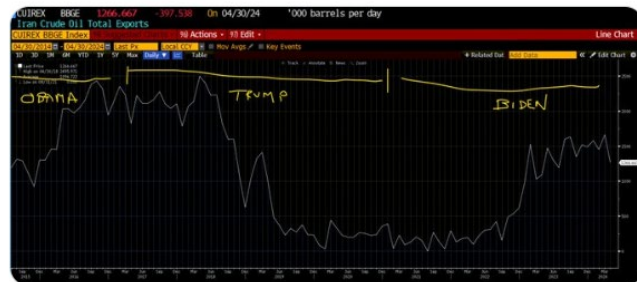
**SAF** Dan Tsubouchi @Energy\_Tidbits · 7m  
Continued negative on #Oil in 2024.

📌 Iran oil exports up big under Biden.

Biden Administration Presses Allies Not to Confront Iran on Nuclear Program reports @laurnorman.

Reinforces unlikely for Biden to strictly enforce Iran oil sanctions.

#OOTT  
[wsj.com/world/middle-e...](https://www.wsj.com/world/middle-e...)



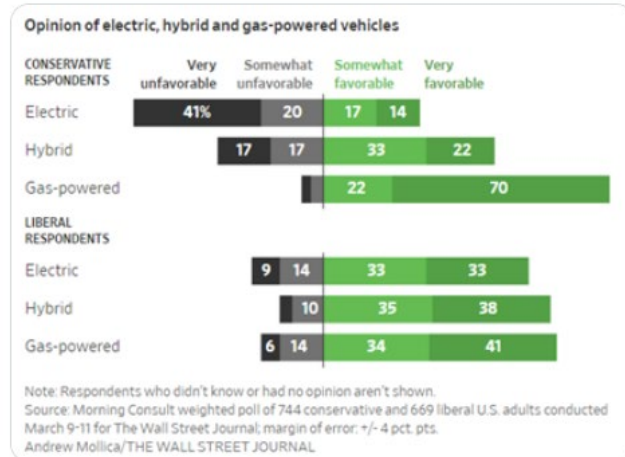
1 152

**SAP** Dan Tsubouchi [@Energy\\_Tidbits](#) · 1h  
Biden won't like this #EVs poll by [@WSJ](#) [@MorningConsult](#)

Liberals have highest favorable opinion of 75% for ICE, then 73% for Hybrid & last 66% for EVs.

No surprise conservatives 92% favorable for ICE, then 55% for Hybrid & 31% for EVs.

Thx [@MikeColias](#) #OOTT  
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4    ↻    5    773    📌