

2022

STATISTICAL REVIEW OF GLOBAL LPG



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INTRODUCTION

The World LPG Association (WLPGA) and Argus Media are pleased to welcome you to the Statistical Review of Global LPG 2022, which provides data on supply, demand and trade in LPG for the calendar year 2021. As in previous years, we would like to note our appreciation of the efforts of WLPGA members and other organisations that have contributed to the data collection process and offered insight into market developments across the world.

The world faced unprecedented challenges from the spread of COVID-19 in 2020. The pandemic wreaked havoc on global economies and energy industries, including LPG. Compared with other fuels, LPG's resilience stood out — its use in diverse applications in the energy and non-energy sectors prevented a collapse in demand.

Post-pandemic, the recovery in LPG consumption in 2021 has been more rapid than its fall in 2020 — global demand increased by 3.7pc compared with 2020 and was 2pc higher than in 2019, at around 332mn t/yr.

This year's review shows a continuation of trends set in the past decade — rising supply from key producers such as North America and the Middle East, matched by robust demand growth from the energy and petrochemical sectors. At almost half of total consumption, domestic use continues to account for the majority of LPG consumed around the world. LPG's use as a cooking fuel benefits millions of people each year, especially in Asia-Pacific.

Production of LPG from renewable sources — rLPG — continued to gain momentum in 2021, driven by a supportive regulatory framework. Strong prospects for growth are expected to continue as many countries focus on decarbonisation in the coming years.

We hope that you find this review useful and that WLPGA members in particular continue to benefit from the insight it provides on global LPG markets.



James Rockall,
Chief Executive and Managing Director, WLPGA



Adrian Binks,
Chairman and Chief Executive, Argus Media group

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KEY LPG GLOBAL STATISTICS

Top 10 LPG Producers				'000t
Country	2020	2021	±% 20/21	
1 US	87,442	91,211	4.3	
2 China	44,286	47,570	7.4	
3 Saudi Arabia	26,420	25,119	-4.9	
4 Canada	14,631	15,712	7.4	
5 Russia	16,280	15,029	-7.7	
6 India	12,231	12,184	-0.4	
7 UAE	11,636	10,520	-9.6	
8 Qatar	10,730	10,511	-2.0	
9 Iran	7,808	8,976	15.0	
10 Algeria	7,996	7,733	-3.3	
Global total	327,020	332,678	1.73	

Top 10 LPG Consumers				'000t
Country	2020	2021	±% 20/21	
1 China	62,939	71,079	12.9	
2 US	43,649	43,455	-0.4	
3 India	28,309	29,036	2.6	
4 Saudi Arabia	19,678	19,775	0.5	
5 Japan	14,269	13,892	-2.6	
6 Russia	11,003	10,861	-1.3	
7 South Korea	10,242	10,390	1.4	
8 Mexico	9,100	9,111	0.1	
9 Indonesia	8,230	8,620	4.7	
10 Canada	8,427	8,396	-0.4	
Global total	319,869	331,608	3.67	

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EXECUTIVE SUMMARY

2021: Rapid revival

For the decade between 2010 and 2019, LPG demand grew uninterrupted, at an average of 3pc/yr. But the Covid-19 pandemic that wreaked havoc on the global economy in 2020 brought that growth to a sudden halt. Oil products demand declined by 5pc in 2020 compared with a year earlier. The impact on LPG demand was less severe, but it still fell by 2pc.

LPG’s use in diverse applications in energy and non-energy sectors helped buoy demand during the Covid-19 crisis. The residential sector accounts for around half of total consumption — cooking and heating remained essential activities when stay-at-home measures were in place. Global petrochemical consumption was supported by robust demand for packaging and medical equipment.

LPG again proved exceptionally resilient in 2021. Global demand reached 332mn t — up by 3.7pc from 2020 and 2pc higher than pre-pandemic 2019 levels.

The revival in LPG demand in 2021 was not matched by other fuels. Jet fuel consumption, which slumped by 44pc in 2020 compared with 2019, still remained 36pc below 2019 levels in 2021 and is not expected to reach pre-pandemic levels until around 2023.

Gasoline and diesel consumption dropped by 12pc and 8pc, respectively, between 2019 and 2020. Fuel efficiency and decarbonisation targets are expected to contribute to the structural decline of demand for fossil-based transport fuels over the long term. But for LPG, Argus forecasts growth to continue, especially in the petrochemical sector and potentially in residential markets.

Production followed the trend in consumption — with a 2pc decline in 2020 compared with the previous year. The collapse in demand for transport fuels prompted production-side management. Opec+ cut its crude production and refinery operators reduced run rates to balance the market. These measures resulted in lower LPG production.

LPG supply in 2021 recovered from 2020’s lows — reaching 333mn t, almost at parity with 2019 levels. Gas processing accounted for 64pc of production and refineries for 36pc.

The US remains the largest producer — at 91mn t — accounting for 27pc of global production, mostly from gas

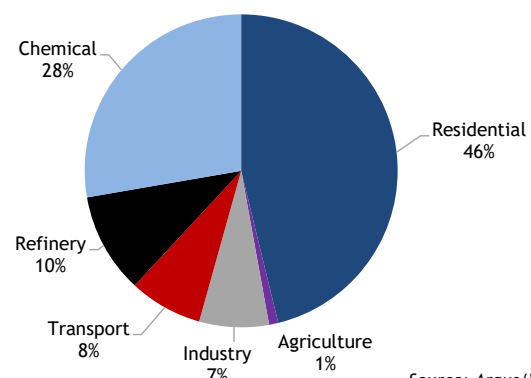
processing operations, which accounted for 89pc of US output. The US is also one of the largest consumers of LPG, at 43.5mn t in 2021. But with production more than double its domestic requirements, it has the highest export availability among all producers. The past year has seen the US fill supply gaps in China and Europe, underlying its role as a key global exporter.

China is the second-largest producer at 47.6mn t in 2021, entirely from refining operations. The country’s demand increased by 13pc during the same period, to 71mn t. The rise was driven by higher energy demand and an expanding petrochemical sector. With a deficit of around 24mn t/yr, China was the largest importer — a status that it is likely to retain over the coming years.

The Middle East is a key producer and exporter, especially to south Asia where LPG is used mostly as a cooking fuel. Production from the region was estimated at 65mn t in 2021, about 20pc of global supply. Saudi Arabia is the largest producer in the region at 25mn t/yr, followed by Qatar and the UAE with around 10.5mn t/yr each. Saudi Arabia’s high domestic LPG consumption — mostly from its petrochemical sector — limits its export availability to around 20pc of total supply. Qatar and the UAE, in comparison, exported 97pc and 78pc of their LPG production in 2021.

The LPG sector’s revival last year could be under threat as concerns over a potential recession intensify. Demand for manufactured goods is closely linked to GDP growth, leaving the petrochemical sector exposed to a demand slump in the event of a full-blown recession. But LPG has proven its resilience through the worst of the pandemic — drawing support from its multiple uses — and it could do so again.

LPG consumption by sector, 2021



Source: Argus/WLPGA

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Path to development

Demand from the domestic sector, which demonstrated the most resilience in 2020, rose by 2.5pc in 2021 to 153mn t. As economic activities resumed, demand for commercial consumption recovered as well. Asia-Pacific, which dominates residential use, continued to increase its global share of demand in 2021, to 55.7pc. This far exceeds the next largest demand centres, in South and Central America with 14pc, closely followed by North America at 10pc.

China with 32.8mn t and India with 26.5mn t of demand in 2021 are the biggest markets in Asia-Pacific, with consumption at 23kg and 19kg per capita, respectively. Other countries such as the Philippines, with consumption of 12kg per capita, still have further potential for growth. Asia-Pacific is a key importing region, with a supply deficit of around 70mn t in 2021. Middle East countries are key suppliers, specifically to south Asian countries. Northeast Asia — China, Japan and South Korea — is more dependent on trade with the US.

Demand growth in Bangladesh has been relentless in the past decade — even bucking the wider declining trend in 2020. Consumption exceeded 1mn t/yr in 2020 amid lockdown restrictions — rising to 1.23mn t from 0.9mn t in 2019. Another 13pc increase was recorded in 2021 — the highest year-on-year change in the region, taking demand to 1.39mn t. With a supportive policy framework in place, Bangladesh is mirroring the rapid penetration of LPG in India in recent years. Consumption still stands at 7kg per capita — one of the lowest in Asia-Pacific — suggesting that there is more room for growth.

Countries in Africa consumed 12mn t of LPG in 2021 — 4pc more than the previous year. North Africa — Egypt, Algeria and Morocco — dominates demand in the region. The sub-Saharan region remains full of potential growth markets, where consumption currently stands at 9kg per capita, compared with 45kg per capita in the northern part of the continent. LPG plays a key role in the less developed world and is essential to a low-carbon future.

Back on the road

The autogas sector saw the steepest decline in demand between 2019 and 2020 among all the LPG sectors, falling by 10pc. Global autogas consumption stood at 25mn t in 2021 — a 3pc recovery from 2020 — reflecting the easing of lockdown restrictions and the return of normal driving patterns.

In recent years, we observed stable market developments, with transport accounting for around 8pc of global LPG demand. But developments in the autogas markets have been diverse. The growth in thriving markets is offset by the contraction in those that are in structural decline, resulting in muted growth overall in the sector.

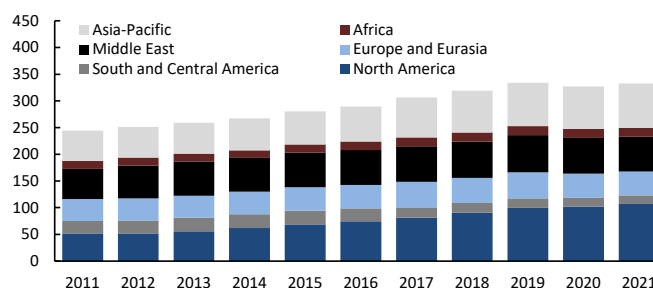
The Europe and Eurasian region accounted for 61pc of global autogas consumption in 2021, at 15.4mn t, and strong markets continue to take over market share from other regions. Turkey and Russia have the largest autogas markets with demand reaching more than 3mn t/yr each and posting average growth rates of 2pc/yr and 5pc/yr, respectively, over the past decade. Ukraine and Poland's consumption stood at 1.8mn t each in 2021, with further growth potential anticipated in the near term as a result of high prices in diesel and gasoline markets.

Asia-Pacific, the region with the second-largest share, accounted for 22.5pc of global autogas demand in 2021. But many sizeable autogas markets in Asia-Pacific have been shrinking since the beginning of the decade. Official data from South Korea show that demand stood at 2.56mn t in 2021, a 3pc fall from 2020 levels and 42pc lower compared with 2010. Japanese demand of 552,000t in 2021 was lower year on year, while Thailand's consumption saw no recovery from the exceptional circumstances of 2020.

Manufacturing matters

The petrochemical sector accounted for 28pc of global LPG consumption in 2021, at 91.9mn t — 4.3pc higher than in 2020. Although consumption of LPG feedstock was sustained by strong manufacturing demand throughout the pandemic, switching to the heavier grade and more competitively priced naphtha resulted in demand falling by 3pc between 2019 and 2020.

LPG production by region mn t



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As in the previous year, China led the expansion of propane dehydrogenation (PDH) capacity in 2021. The Chinese LPG market for petrochemicals stood at 13.7mn t in 2020 compared with 11.6mn t in 2019. The growth in 2021 was even more sizeable, increasing by 3.5mn t, or 26pc, to 17.2mn t by the end of the year. The expansion is far from over, but high feedstock costs and a bleaker economic outlook could see delays to start-up schedules for new projects.

The main petrochemical consumers for ethylene steam cracking in Europe — France, Germany, Belgium and the UK increased their demand compared with 2020. In Asia-Pacific, Japan, South Korea and Thailand are the largest markets, with stable demand expected in the future.

High crude and products prices, which have lifted LPG prices, have already resulted in bearish signs for demand. High feedstock costs prompted lower operating rates in PDH plants and steam crackers in Asia-Pacific and Europe as margins continued to come under pressure. This trend continued into 2022.

Smooth sailing

The very large gas carrier (VLGC) market sustained the strength it gained from 2019 — a breakthrough year after freight rates were in the doldrums for the previous three years. Spot rates averaged \$99/t for the Houston-Chiba route in 2021, up from \$91/t in 2020.

Several factors supported increased tonne-mile demand. China’s PDH expansion requires imports and these have come from the US. Europe’s import requirements also rose owing to lower domestic production as the pandemic accelerated refinery rationalisation in the region. This gap was also filled by US LPG.

The shipping market has taken note of the decarbonisation theme dominating the narrative in many industries, and LPG as a marine fuel has been gaining attention. Early testing indicates higher fuel efficiency as well as lower emissions of SOx, CO₂, NOx and particulate matter compared with other International Maritime Organisation (IMO) compliant fuels.

The VLGC orderbook in 2022 and 2023 features a large share of dual-fuel ships, which allow fuel switching, including to LPG. The incremental demand for LPG in shipping may not be significant yet but this path to sustainability is the way forward.

Grip on gas

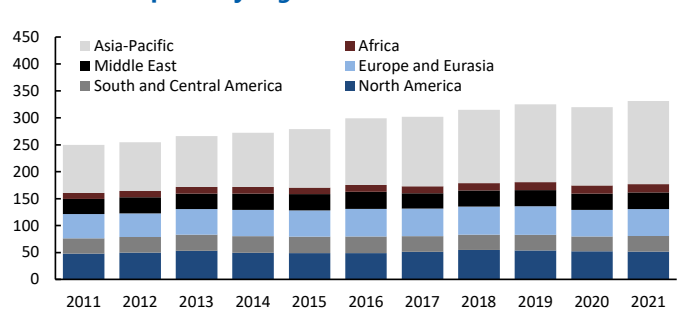
Natural gas prices began breaking record highs from the second half of 2021, driven by low stocks and limited production expansion as a result of a lack of investment in recent years. Developments in early 2022, specifically the Russia-Ukraine conflict, disrupted global markets. The conflict has since slashed essential energy supplies from Russia as Europe aims to cut energy dependence on its neighbour. Crude and refined product prices rose to record-highs earlier in the year and remain elevated.

The shortfall in Russian natural gas supply has ignited an energy crisis in Europe, pushing inflation up to multi-year highs. During the winter of 2021, high prices led to demand cuts and several sectors faced a choice between natural gas and alternatives. Some of this demand erosion represented power utilities and industrial consumers switching from gas to oil, driving crude and product prices higher.

Switching from natural gas to LPG, particularly propane, in refineries’ gas-fed operations was reportedly high during the winter of 2021/2022. The result was tighter spot LPG availability across Europe as lower volumes made it out of refineries. With regional supply already in decline and buyers facing a tight market, the natural gas crisis is expected to provide a further draw on LPG supplies. Natural gas producers can increase volumes but at the expense of extracting propane and butane from the gas stream — and with prices at their current levels, the choice is obvious.

Going into winter 2022, there is no respite in sight for the supply crunch. *Argus* anticipates that fuel switching to LPG will be rife during the final months of this year to reduce demand for natural gas. This year’s review has not reflected lower LPG supply, but this could become more evident in the data gathering for 2022.

LPG consumption by region



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Market conditions

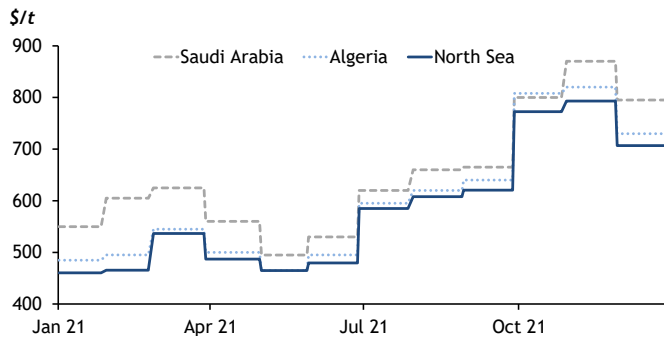
■ Crude prices collapsed following the sharp fall in demand for transport fuels caused by the Covid-19 pandemic in 2020. Atlantic basin benchmark, North Sea Dated averaged \$42/bl in 2020. The mass rollout of vaccines and the lifting of lockdown restrictions across the world saw demand gradually recover over 2021 — with North Sea Dated regaining strength to average \$71/bl.

■ The Opec+ alliance’s management of production in 2020 to keep prices from falling further as a result of the global oil demand crash was a necessary action, and one that played a key role in balancing the market. In 2021, the focus turned to increasing crude production to meet recovering demand and push stocks back to a more balanced position. But much of 2021 was characterised by lower OECD crude and product stocks, supporting prices.

■ The propane Argus Far East Index (AFEI) rose from an annual average of \$386/t in 2020 to \$671/t in 2021. In relation to naphtha, the competing petrochemical feedstock in flexible ethylene steam crackers, propane averaged 105pc in 2021, compared with 103pc in 2020.

■ Propane’s ratio to naphtha was particularly strong in the second half of 2021 — driven by bullish sentiment against a background of low US propane inventories. Stock levels were at five-year lows going into the peak heating season, resulting in panic and early stockpiling. Winter conditions turned out to be milder than expected and ample supply put pressure on prices towards the end of the year. Propane in Asia-Pacific was valued at an average of an 8pc premium to naphtha in the third and fourth quarters, compared with a 3pc premium during the same period in 2017, when similar market conditions — dominated by fears over low stock levels — prevailed.

Propane export prices



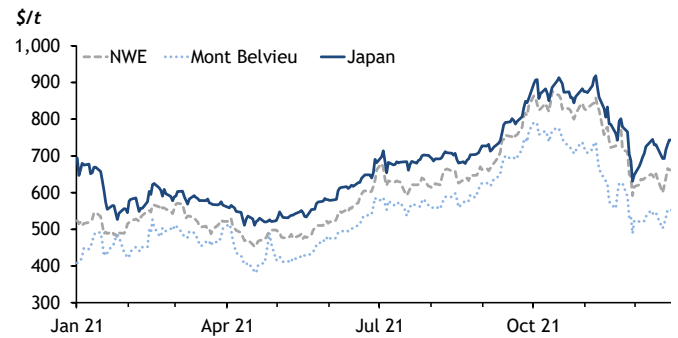
■ US LPG exports continued to flow at more than 1mn b/d in 2021. Export growth was driven by Asia-Pacific’s expanding petrochemical sector and Europe’s tightening supply situation. Refinery capacity in Europe shrunk in 2020, accelerated by the pandemic. But refinery rationalisations were already under way, as long-term demand is expected to decline owing to energy efficiency and decarbonisation policies.

■ The current natural gas crisis began in 2021. European gas stocks remained low with little possibility for stock-building as domestic production was undermined by a lack of investment. Prices broke record-highs — in December 2021, prices at the key Dutch TTF hub averaged \$37.20/mn Btu, compared with \$5.80/mn Btu during the same period in 2020. Soaring natural gas prices prompted substitution with other fuels — from fuel oil to LPG — in refinery operations, petrochemical plants and power generation.

■ In early 2022, the market was confronted with price shocks in the immediate aftermath of the outbreak of the Russia-Ukraine conflict. Western countries and companies were quick to turn away from Russian energy products — pushing prices of crude and products to record-highs. Price relationships and trade flows were distorted as a result of supply disruptions, sanctions and voluntary embargoes. As of October 2022, the conflict is still ongoing, with formal EU sanctions on Russian crude and products being countered by dwindling natural gas supplies from Russia — further igniting the energy crisis in Europe.

■ Switching from natural gas to LPG, particularly propane, for some refining operations was reportedly widespread in 2021. The result was lower spot LPG availability across Europe as refineries consumed more of their LPG output. Propane in Europe averaged 102pc of naphtha in the second half of 2021 — its highest in five years.

Propane NWE, Mont Belvieu, Japan



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RENEWABLE LPG

Renewable LPG (rLPG)

There is much enthusiasm for further development of a rLPG market as well as for renewable dimethyl ether (rDME), a product with similar characteristics and opportunities. A renewable, clean-burning fuel that doubles as a petrochemical feedstock and functions within existing LPG infrastructure is a very desirable product. rLPG and rDME production currently represents only a small proportion of total LPG production, but capacity is growing, having nearly tripled since 2016 to reach almost 250,000 t/yr in 2021.

The vast majority of rLPG is produced as a by-product of hydroprocessing used to produce hydrotreated vegetable oil (HVO) and sustainable aviation fuel. But this is not the only method of production. Converting bioethanol into rLPG has already seen commercial success, with Polish producer Ekobenz starting rLPG shipments in June 2022. Production from green hydrogen and carbon dioxide, known as the “power-to-X” process, is being developed through multiple projects, with one planning to start production in late 2022. SHV Energy and UGI international have announced plans to jointly develop a 50,000 t/yr rDME plant in Teesside, United Kingdom, due to start production in 2024, with five more to be completed by 2027.

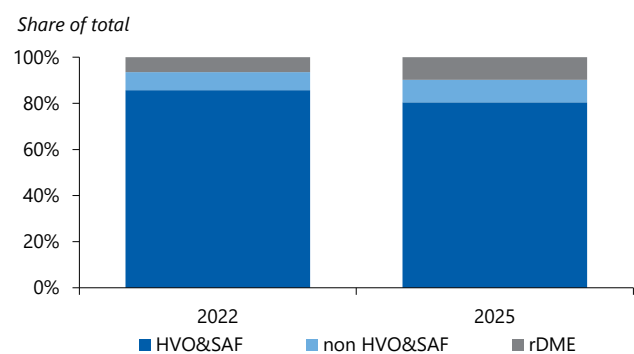
Like all green energy products, a major driver of rLPG uptake is the regulatory framework of the market in which it will be produced and consumed. The EU has some of the most ambitious carbon targets in the world and plenty of regulations to go with them. These go a long way to encouraging people to use renewable fuels such as rLPG, but many of the EU’s plans also present challenges. For example, one major target is to remove fossil fuel use in buildings by 2040, including removing gas boilers, which will limit the market for rLPG to be used in domestic heating.

One of the most welcoming countries to rLPG is the US, which offers biofuel subsidies for transport, residential and industrial usage, allowing LPG to make use of subsidies in most of the ways that it can be commercially utilised. China also provides subsidy support, but this is limited to power generation. The Chinese energy sector is poorly set up to handle large amounts of primary renewable electricity. As the energy transition becomes more urgent, China will be forced to continue to use fossil fuel designed infrastructure causing them to rely more heavily on biofuels than other countries, making it a prime candidate for large-scale rLPG use in the long term.

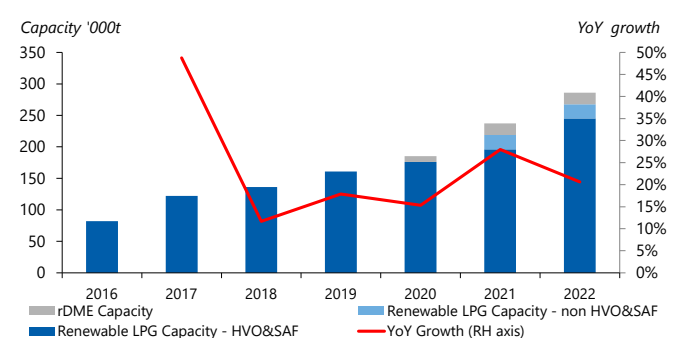
The two main challenges to expanding rLPG are the need to continually improve the technology that produces it and ensuring there is political support for efforts to encourage adoption. In terms of technology, there are many exciting developments in the pipeline. Power-to-X, coolLPG and IH² are all areas to be watched closely in the near future. Broad political support for biofuels such as biodiesel and sustainable aviation fuel (SAF) has helped promote the development of rLPG, which is produced alongside these in the hydroprocessing production route. There are far fewer measures aimed specifically at promoting rLPG, but there is a major effort to promote rLPG in many counties with strong LPG associations.

Looking forward, the rLPG industry has strong prospects for growth. The market has consistently grown at double-digit rates year on year and large-scale plants are becoming increasingly common. Production is forecast to exceed 500,000 t/yr by 2025 based solely on announced projects, and further investments are frequently announced. With further investment and exciting new technologies, rLPG has the capacity to be a major player in the energy sector for many years to come.

Renewable LPG capacity by type



Renewable LPG capacity growth



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PRODUCTION

LPG Production, 2011-21												'000t
Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	±%20/21
US	42,166	45,954	52,075	58,726	64,586	65,652	69,152	76,516	84,580	87,442	91,211	4.3
Canada	9,489	9,789	10,015	10,255	10,220	11,399	12,380	14,030	15,124	14,631	15,712	7.4
Total North America	51,655	55,743	62,090	68,981	74,806	77,051	81,532	90,546	99,704	102,073	106,923	4.8
Argentina	2,305	2,775	2,856	2,847	2,583	2,654	2,627	2,717	2,818	2,466	2,770	12.3
Bolivia	304	303	340	373	341	480	496	483	520	440	430	-2.2
Brazil	5,281	5,756	5,680	5,419	5,537	5,093	5,709	5,555	5,611	5,846	5,324	-8.9
Chile	405	604	312	338	332	279	204	250	280	278	443	59.3
Colombia	620	635	642	603	615	555	551	625	625	699	830	18.7
Costa Rica	1	0	0	0	0	0	0	0	0	0	0	-
Cuba	50	42	73	72	69	48	16	48	48	47	44	-6.9
Dominican Republic	28	15	13	16	7	17	11	11	11	11	11	0.0
Ecuador	255	266	250	197	150	248	252	218	218	218	218	0.0
El Salvador	12	6	0	0	0	0	0	0	0	0	0	-
Jamaica	11	9	6	6	8	9	13	11	10	9	4	-55.6
Mexico	6,585	6,423	6,487	6,464	5,490	4,987	4,586	3,839	3,372	3,209	2,837	-11.6
Netherlands Antilles	30	30	24	51	59	45	37	37	37	37	37	-0.4
Nicaragua	17	9	11	10	13	18	20	17	17	17	19	11.8
Panama	0	0	0	0	0	0	0	0	0	0	0	-
Paraguay	0	0	0	0	0	0	0	0	0	0	0	-
Peru	1,416	1,528	1,766	1,719	1,572	1,548	1,525	1,559	1,680	1,352	1,494	10.5
Trinidad & Tobago	932	707	703	668	607	490	537	450	469	365	301	-17.4
Uruguay	57	75	90	80	80	85	21	93	92	95	100	4.5
US Virgin Islands	0	0	0	0	0	0	0	0	0	0	0	-
Venezuela	5,857	6,113	6,069	6,279	6,110	5,786	2,603	2,095	1,989	1,219	1,152	-5.5
Other	72	86	105	121	119	120	125	117	77	77	77	-0.4
Total South & C. America	24,238	25,382	25,427	25,263	23,692	22,462	19,333	18,126	17,873	16,385	16,089	-1.8
Austria	270	257	240	245	349	450	376	447	431	452	422	-6.8
Azerbaijan	250	215	263	202	172	200	210	224	224	210	283	34.7
Belarus	558	640	637	682	649	458	546	525	552	512	516	0.8
Belgium	570	580	576	707	671	697	739	829	984	1,036	1,060	2.3
Bulgaria	119	118	92	98	101	102	120	112	129	77	64	-16.9
Croatia	266	281	250	225	248	248	283	256	219	214	212	-0.9
Czech Republic	227	240	217	267	248	283	383	380	443	312	394	26.3
Denmark	132	168	103	118	124	94	106	0	122	112	87	-22.3
Finland	387	256	310	293	241	275	285	255	289	245	174	-29.0
France	1,877	1,466	1,472	1,474	1,430	1,416	1,444	1,329	1,250	880	1,029	16.9
Germany	2,612	2,624	2,645	2,518	2,656	2,745	3,419	3,224	3,232	2,885	3,025	4.9
Greece	559	631	671	735	703	825	838	848	801	780	862	10.5
Hungary	212	208	239	289	251	222	188	180	167	159	145	-8.8
Ireland	66	72	63	59	47	42	48	57	45	52	42	-20.1
Italy	2,105	1,541	1,684	1,327	1,499	1,507	1,758	1,630	1,432	1,237	1,437	16.2

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LPG Production, 2011-21												'000t
Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	±%20/21
Kazakhstan	2,147	2,215	2,448	2,464	2,536	2,680	2,902	3,115	3,196	3,178	3,170	-0.3
Lithuania	258	221	253	218	265	288	310	315	350	294	288	-2.2
Macedonia	20	10	3	0	0	0	0	0	0	0	0	-
Malta	0	0	0	0	0	0	0	0	0	0	0	-
Moldova	0	0	0	0	0	0	0	0	0	0	0	-
Montenegro	0	0	0	0	0	0	0	0	0	0	0	-
Netherlands	1,544	1,551	1,507	1,632	1,735	1,790	1,719	1,690	1,690	1,489	1,736	16.6
Norway	5,684	5,730	5,625	5,833	5,512	5,160	5,548	4,883	5,240	5,100	4,806	-5.8
Poland	290	358	340	405	375	440	430	485	495	530	500	-5.7
Portugal	318	221	261	198	175	240	237	195	261	244	214	-12.1
Romania	582	527	523	560	567	590	617	624	592	522	463	-11.3
Russia	12,542	13,395	14,241	15,834	15,844	16,555	16,660	16,690	17,030	16,280	15,029	-7.7
Serbia	105	113	193	158	176	166	127	83	83	100	96	-4.0
Slovakia	131	122	172	155	181	177	177	180	133	163	163	0.0
Spain	1,080	1,344	1,335	1,241	1,087	1,541	1,401	1,824	1,698	1,474	1,623	10.1
Sweden	271	391	308	423	473	481	421	498	446	401	626	56.1
Switzerland	184	119	193	173	106	116	107	133	110	97	70	-27.8
Turkey	809	844	804	769	899	1,138	1,180	1,082	1,247	1,135	1,014	-10.7
Turkmenistan	461	365	467	476	437	435	410	430	468	365	355	-2.7
Ukraine	665	563	503	440	412	401	428	403	409	412	438	6.3
UK	4,043	3,509	3,523	3,268	3,301	3,301	3,324	2,969	4,115	3,739	3,322	-11.2
Uzbekistan	256	274	361	366	470	610	660	740	730	715	795	11.2
Other	133	127	121	101	231	236	236	236	243	228	221	-2.8
Total Europe & Eurasia	41,733	41,296	42,643	43,953	44,171	45,909	47,637	46,871	48,857	45,630	44,680	-2.1
Bahrain	226	216	201	216	220	239	225	225	393	376	363	-3.5
Iran	7,599	7,570	7,717	7,778	8,024	9,409	9,244	7,734	8,062	7,808	8,976	15.0
Iraq	1,394	1,538	1,310	1,100	1,578	1,986	1,832	1,930	1,642	1,874	1,858	-0.8
Israel	568	498	581	605	621	597	611	592	613	539	613	13.7
Jordan	84	102	78	91	80	81	78	80	80	76	76	0.0
Kuwait	4,519	4,992	4,843	4,760	4,804	4,925	4,914	6,099	6,287	5,769	5,580	-3.3
Lebanon	0	0	0	0	0	0	0	0	0	0	0	-
Oman	626	586	557	573	549	530	530	768	980	843	1,007	19.5
Qatar	10,268	10,479	10,829	10,917	11,203	10,159	10,458	10,669	10,807	10,730	10,511	-2.0
Saudi Arabia	26,006	27,798	26,273	27,325	26,445	30,324	27,239	28,891	27,687	26,420	25,119	-4.9
Syria	443	323	189	151	132	139	137	139	139	139	144	3.8
UAE	9,042	9,532	10,021	10,491	10,869	10,466	10,793	10,925	12,123	11,636	10,520	-9.6
Yemen	583	667	690	605	610	516	417	407	405	397	397	0.0
Other	0	0	0	0	0	0	0	0	0	0	0	-
Total Middle East	61,358	64,301	63,289	64,612	65,135	69,371	66,478	68,460	69,219	66,606	65,165	-2.2

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LPG Production, 2011-21												'000t
Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	±%20/21
Algeria	8,014	7,429	7,484	9,176	9,005	9,207	9,155	8,972	8,443	7,996	7,733	-3.3
Angola	596	542	712	591	526	732	760	837	1,054	1,266	1,114	-12.0
Cameroon	23	30	25	25	17	17	15	25	24	25	35	39.3
Chad	5	5	13	5	5	5	17	20	20	20	20	0.0
Congo	258	287	308	20	20	12	8	9	0	0	0	-
Egypt	2,051	1,996	2,312	2,342	2,448	2,533	2,480	2,513	2,502	2,376	2,546	7.2
Gabon	12	14	14	13	13	13	26	8	8	8	8	0.0
Ghana	45	27	26	7	92	114	205	222	70	85	95	11.8
Ivory Coast	22	45	44	53	42	21	22	22	22	22	22	0.0
Kenya	28	17	12	13	13	0	0	0	0	0	0	-
Libya	331	446	374	343	316	349	321	304	315	590	588	-0.3
Morocco	42	116	96	99	15	0	0	0	0	0	0	-
Nigeria	2,320	2,304	1,747	2,282	2,552	2,940	2,886	2,978	3,864	3,744	3,997	6.8
Senegal	2	1	1	3	5	3	3	3	3	3	3	0.0
South Africa	378	360	270	250	270	250	283	246	267	235	99	-57.9
Sudan	298	306	298	310	300	310	320	320	320	320	320	0.0
Tunisia	114	148	189	163	147	235	142	128	105	86	101	17.0
Other	121	156	169	182	38	40	40	40	76	69	64	-7.8
Total Africa	14,660	14,229	14,094	15,877	15,824	16,781	16,683	16,647	17,093	16,845	16,745	-0.6
Australia	2,765	2,606	2,454	2,553	2,174	2,325	2,068	2,175	3,359	3,647	3,677	0.8
Bangladesh	20	21	21	21	17	20	17	16	16	13	14	7.7
China	21,789	22,515	24,559	26,493	28,886	34,804	36,709	38,719	40,615	44,286	47,570	7.4
India	10,389	10,382	10,525	10,626	11,072	12,094	12,286	13,109	12,768	12,231	12,184	-0.4
Indonesia	2,260	2,415	2,299	2,437	2,752	2,241	2,241	2,026	1,977	1,936	1,917	-1.0
Japan	4,066	3,573	4,443	4,302	5,663	5,353	5,377	5,200	5,199	1,795	1,788	-0.4
Malaysia	3,045	2,725	2,388	2,162	1,797	3,075	2,621	2,734	3,057	3,050	3,001	-1.6
New Zealand	148	166	177	206	193	168	177	187	162	161	148	-8.2
Pakistan	386	423	398	440	629	650	677	784	784	720	753	4.6
Philippines	286	318	321	301	464	450	448	508	292	152	164	7.9
Singapore	951	1,043	934	966	967	989	828	785	614	614	614	0.0
South Korea	3,310	2,475	2,466	2,703	3,216	3,028	3,432	3,759	3,434	2,988	3,054	2.2
Sri Lanka	22	17	22	28	10	9	10	19	26	22	25	13.8
Taiwan	1,259	1,396	1,530	1,228	1,163	1,163	1,026	1,063	1,065	674	783	16.1
Thailand	5,422	5,687	5,447	5,506	5,513	5,719	6,056	6,247	5,980	5,496	5,671	3.2
Timor Leste	1,032	1,665	948	780	400	0	0	0	0	0	0	-
Vietnam	594	654	712	743	727	804	757	828	1,774	1,634	1,648	0.9
Other	72	86	105	121	119	120	125	117	77	77	77	5.4
Total Asia-Pacific	57,793	58,131	59,693	61,547	65,697	72,947	74,785	78,217	81,182	79,480	83,075	4.5
Total World	251,437	259,082	267,236	280,233	289,325	304,521	306,448	318,866	333,928	327,020	332,678	1.7

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Availability to Local Market, 2021							'000t
	Production			Imports	Exports	Consumption	
	Refinery	Gas processing	Total				
US	9,660	81,551	91,211	4,780	52,483	43,455	
Canada	1,478	14,235	15,712	294	7,276	8,396	
Total North America	11,138	95,786	106,923	5,074	59,759	51,851	
Argentina	790	1,980	2,770	0	1,030	1,756	
Bolivia	82	348	430	0	12	418	
Brazil	3,822	1,502	5,324	2,130	0	7,607	
Chile	443	0	443	1,514	197	1,448	
Colombia	383	447	830	36	91	775	
Costa Rica	0	0	0	198	0	200	
Cuba	24	20	44	148	0	192	
Dominican Republic	11	0	11	1,026	0	1,037	
Ecuador	218	0	218	1,018	0	1,224	
El Salvador	0	0	0	334	0	334	
Guatemala	0	0	0	643	129	505	
Honduras	0	0	0	221	0	221	
Jamaica	4	0	4	87	0	90	
Mexico	199	2,638	2,837	6,199	21	9,111	
Netherlands Antilles	37	0	37	0	28	6	
Nicaragua	19	0	19	122	0	146	
Panama	0	0	0	155	0	153	
Paraguay	0	0	0	95	0	92	
Peru	50	1,444	1,494	510	0	2,004	
Puerto Rico	0	0	0	83	0	76	
Trinidad & Tobago	0	301	301	0	228	73	
Uruguay	100	0	100	21	0	119	
US Virgin Islands	0	0	0	302	0	289	
Venezuela	83	1,069	1,152	504	406	927	
Other	77	0	0	205	52	208	
Total South & C. America	6,341	9,748	16,089	15,368	2,143	29,036	
Austria	422	0	422	64	110	347	
Azerbaijan	253	30	283	0	6	278	
Belarus	200	316	516	760	880	396	
Belgium	1,060	0	1,060	2,242	921	2,276	
Bulgaria	64	0	64	394	25	433	
Croatia	171	41	212	35	139	108	
Cyprus	0	0	0	55	0	65	
Czech Republic	394	0	394	170	131	433	
Denmark	87	0	87	22	51	60	
Estonia	0	0	0	42	10	34	
Finland	174	0	174	726	3	897	
France	1,029	0	1,029	3,184	912	3,110	
Germany	3,025	0	3,025	1,452	275	3,740	
Greece	862	0	862	43	337	505	
Hungary	124	21	145	488	86	547	
Republic of Ireland	42	0	42	144	19	161	
Italy	1,437	0	1,437	2,272	364	3,171	

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Availability to Local Market, 2021						'000t
	Production			Imports	Exports	Consumption
	Refinery	Gas processing	Total			
Kazakhstan	781	2,389	3,170	0	1,675	1,495
Latvia	0	0	0	149	76	73
Lithuania	288	0	288	55	223	121
Macedonia	0	0	0	83	2	82
Malta	0	0	0	22	0	24
Moldova	0	0	0	61	0	61
Montenegro	0	0	0	19	0	19
Netherlands	1,736	0	1,736	3,137	2,280	2,579
Norway	397	4,409	4,806	209	4,068	477
Poland	474	26	500	2,160	225	2,435
Portugal	214	0	214	645	35	839
Romania	463	0	463	203	148	518
Russia	4,098	10,931	15,029	0	3,880	10,861
Serbia	96	0	96	142	41	197
Slovakia	163	0	163	35	70	127
Slovenia	0	0	0	90	8	82
Spain	1,623	0	1,623	723	518	1,653
Sweden	626	0	626	1,055	712	969
Switzerland	70	0	70	91	0	161
Tajikistan	0	0	0	413	0	413
Turkey	1,014	0	1,014	3,104	217	4,164
Turkmenistan	230	125	355	0	185	170
Ukraine	131	307	438	1,540	0	1,978
UK	1,708	1,614	3,322	1,412	1,731	2,808
Uzbekistan	15	780	795	0	91	704
Other	94	127	221	48	65	200
Total Europe & Eurasia	23,565	21,115	44,680	27,489	20,519	49,801
Bahrain	44	319	363	0	285	78
Iran	1,877	7,100	8,976	0	5,778	3,198
Iraq	168	1,690	1,858	0	77	1,782
Israel	613	0	613	246	164	695
Jordan	76	0	76	409	0	484
Kuwait	665	4,915	5,580	0	4,952	627
Lebanon	0	0	0	233	0	233
Oman	599	408	1,007	0	779	228
Qatar	303	10,208	10,511	0	10,234	265
Saudi Arabia	1,436	23,683	25,119	0	5,344	19,775
Syria	63	81	144	339	0	484
UAE	590	9,930	10,520	0	8,164	2,356
Yemen	61	336	397	75	0	472
Other	0	0	0	198	0	178
Total Middle East	6,495	58,670	65,165	1,501	35,777	30,854
Algeria	621	7,113	7,733	0	5,230	2,503
Angola	24	1,091	1,114	52	907	272
Burkina Faso	0	0	0	87	4	83
Cameroon	0	35	35	106	0	141

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Availability to Local Market, 2021							'000t
	Production			Imports	Exports	Consumption	
	Refinery	Gas processing	Total				
Chad	20	0	20	21	0	41	
Congo	0	0	0	16	0	16	
Egypt	1,133	1,413	2,546	2,045	199	4,292	
Ethiopia	0	0	0	10	0	10	
Gabon	8	0	8	42	0	50	
Ghana	8	87	95	263	0	373	
Ivory Coast	16	6	22	402	55	369	
Kenya	0	0	0	407	33	374	
Libya	35	553	588	0	298	291	
Mali	0	0	0	23	0	23	
Mauritius	0	0	0	77	0	81	
Morocco	0	0	0	2,796	0	2,796	
Nigeria	45	3,952	3,997	0	2,281	1,715	
Reunion	0	0	0	22	0	22	
Senegal	3	0	3	203	7	199	
South Africa	99	0	99	459	77	455	
Sudan	320	0	320	255	0	575	
Togo	0	0	0	0	0	0	
Tunisia	20	81	101	500	0	616	
Uganda	0	0	0	24	0	24	
Other	64	0	64	244	0	269	
Total Africa	2,415	14,330	16,745	8,053	9,091	15,589	
Australia	417	3,261	3,677	386	2,613	1,014	
Bangladesh	11	3	14	1,381	0	1,395	
China	47,570	0	47,570	24,494	985	71,079	
Hong Kong	0	0	0	303	0	303	
India	10,325	1,859	12,184	17,269	517	29,036	
Indonesia	870	1,047	1,917	6,385	0	8,620	
Japan	1,788	0	1,788	10,383	147	13,892	
Malaysia	750	2,251	3,001	549	314	3,236	
Nepal	0	0	0	397	0	397	
New Zealand	0	148	148	27	16	193	
Pakistan	205	548	753	399	0	1,210	
Philippines	164	0	164	1,532	0	1,696	
Singapore	614	0	614	535	181	968	
South Korea	3,054	0	3,054	8,056	267	10,390	
Sri Lanka	25	0	25	355	0	382	
Taiwan	783	0	783	365	1	1,166	
Thailand	2,296	3,374	5,671	550	182	6,108	
Timor Leste	0	0	0	0	0	0	
Vietnam	1,218	430	1,648	1,780	282	3,145	
Other	64	0	64	371	56	246	
Total Asia-Pacific	70,154	12,921	83,075	75,515	5,560	154,476	
Total World	120,107	212,570	332,678	133,000	132,849	331,608	

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CONSUMPTION

LPG Consumption, 2011-21												'000t
Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	±% 20/21
US	40,863	41,994	46,368	42,726	42,035	41,493	43,256	46,223	47,250	43,649	43,455	-0.4
Canada	7,327	7,716	6,876	6,857	6,671	7,681	7,989	8,520	6,552	8,427	8,396	-0.4
Total North America	48,190	49,710	53,244	49,583	48,706	49,174	51,245	54,743	53,802	52,076	51,851	-0.4
Argentina	1,561	1,778	2,026	1988	1750	1775	1,672	1,577	1,559	1,407	1,756	24.8
Bolivia	364	368	374	387	395	401	377	389	398	380	418	9.9
Brazil	7,126	7,145	7,410	7428	7308	7400	7,390	7,300	7,539	7,688	7,607	-1.0
Chile	1,283	1,355	1,268	1412	1324	1237	1,294	1,317	1,326	1,353	1,448	7.1
Colombia	602	567	553	600	598	630	630	700	672	728	775	6.4
Costa Rica	117	120	127	137	146	159	168	176	187	181	200	10.1
Cuba	109	106	113	121	123	124	145	161	169	171	192	12.0
Dominican Republic	734	744	773	828	922	913	987	1,017	1,027	988	1,037	5.0
Ecuador	1,109	1,057	1,090	1139	1126	1073	1,118	1,127	1,229	1,237	1,224	-1.0
El Salvador	211	217	236	275	373	291	300	304	310	314	334	6.2
Guatemala	244	261	274	285	331	355	373	391	409	415	505	21.8
Honduras	81	104	114	119	139	144	159	168	182	174	221	27.2
Jamaica	82	85	78	73	79	89	92	87	89	84	90	7.4
Mexico	9,077	9,119	8,988	9070	8800	8947	8,976	8,753	9,010	9,100	9,111	0.1
Netherlands Antilles	8	8	7	7	6	6	6	6	6	6	6	2.0
Nicaragua	75	83	95	98	105	117	125	124	131	141	146	3.5
Panama	152	159	165	175	140	139	143	148	151	146	153	5.0
Paraguay	83	86	83	80	80	81	81	87	88	80	92	15.2
Peru	1,252	1,341	1,503	1579	1619	1600	1,764	1,919	1,985	1,767	2,004	13.4
Puerto Rico	95	96	102	102	98	91	83	79	76	75	76	2.0
Trinidad & Tobago	29	14	40	44	57	61	54	39	40	32	73	128.1
Uruguay	116	122	133	124	118	120	111	112	116	131	119	-8.9
US Virgin Islands	20	20	20	20	25	50	88	104	303	274	289	5.7
Venezuela	3,715	3,813	4,105	4385	4649	4529	2,723	2,324	1,500	499	927	85.9
Other	194	198	218	211	220	224	232	245	209	227	232	2.0
Total South & C. America	28,439	28,966	29,895	30,687	30,531	30,556	29,091	28,654	28,715	27,597	29,036	5.2
Austria	333	316	279	285	316	435	380	413	403	407	347	-14.7
Azerbaijan	135	123	167	169	150	140	133	136	133	182	278	52.7
Belarus	415	419	418	426	424	410	410	376	445	406	396	-2.5
Belgium	1,456	1,479	1,560	1,832	2,271	2,101	1,586	2,283	2,305	2,191	2,276	3.9
Bulgaria	335	339	387	411	432	441	447	437	427	438	433	-1.1
Croatia	150	147	146	139	140	145	132	138	127	100	108	7.7
Cyprus	57	56	51	47	54	55	57	54	61	65	65	0.0
Czech Republic	205	206	222	273	213	327	396	422	445	388	433	19.8
Denmark	51	50	48	48	50	54	58	57	54	59	60	1.9
Estonia	20	18	18	17	18	19	23	25	27	32	34	6.9
Finland	718	720	757	946	873	915	840	876	1,011	874	897	2.7
France	3,375	3,373	3,680	3,986	3,826	3,566	3,438	3,465	3,839	3,124	3,110	-0.4
Germany	3,141	3,289	3,384	2,846	2,956	3,083	4,478	3,625	3,889	3,493	3,740	7.1
Greece	364	406	493	497	512	601	563	546	555	483	505	4.4
Hungary	344	409	409	444	458	481	521	568	555	530	547	3.2

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CONSUMPTION

LPG Consumption, 2011-21												'000t
Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	±% 20/21
Ireland	125	121	135	133	136	145	148	159	165	165	161	-2.3
Italy	3,539	3,446	3,551	3,309	3,525	3,637	3,624	3,506	3,570	3,072	3,171	3.2
Kazakhstan	417	419	455	606	674	993	1,043	1,282	1,334	1,235	1,495	21.1
Latvia	55	73	85	93	97	91	92	86	75	74	73	-0.9
Lithuania	201	193	183	180	162	154	151	142	143	127	121	-5.1
Macedonia	58	56	58	63	71	78	76	79	82	67	82	22.2
Malta	23	24	24	25	26	24	24	25	27	25	24	-5.1
Moldova	58	63	74	77	74	77	72	71	67	63	61	-3.2
Montenegro	18	17	14	16	18	17	19	18	19	13	19	42.9
Netherlands	2,779	2,284	4,192	4,927	3,970	3,626	3,108	3,381	2,950	3,032	2,579	-14.9
Norway	848	885	872	776	715	722	692	413	459	485	477	-1.7
Poland	2,152	2,145	2,117	2,160	2,245	2,355	2,495	2,415	2,520	2,340	2,435	4.1
Portugal	700	589	823	996	843	865	796	676	862	861	839	-2.6
Romania	485	555	555	541	529	541	540	475	511	493	518	5.0
Russia	9,463	9,738	9,548	10,007	9,657	10,175	10,290	10,255	11,015	11,003	10,861	-1.3
Serbia	392	367	362	295	310	281	219	148	147	129	197	52.4
Slovakia	173	153	156	124	160	158	166	163	123	112	127	13.1
Slovenia	80	83	75	74	82	81	88	88	87	77	82	5.9
Spain	2,394	2,267	2,174	2,333	2,578	2,865	2,538	2,623	2,434	1,960	1,653	-15.7
Sweden	953	819	1,125	969	911	1,131	1,005	1,058	1,055	749	969	29.4
Switzerland	176	173	178	189	189	187	155	170	169	156	161	3.0
Tajikistan	130	171	225	296	336	349	360	381	431	448	413	-7.8
Turkey	3,747	3,826	3,808	3,856	4,131	4,268	4,243	4,311	4,343	4,034	4,164	3.2
Turkmenistan	10	10	10	10	10	197	229	209	224	200	170	-15.0
Ukraine	839	837	949	1,055	1,140	1,488	1,603	1,828	2,020	2,022	1,978	-2.2
UK	3,313	2,876	3,117	2,994	3,144	3,158	2,969	3,568	3,257	2,740	2,808	2.5
Uzbekistan	246	246	272	277	449	590	640	650	678	662	704	6.3
Other	348	347	336	238	225	217	216	212	209	193	200	3.4
Total Europe & Eurasia	44,821	44,133	47,492	48,985	49,100	51,243	51,063	51,813	53,247	49,309	49,801	1.0
Bahrain	49	55	55	58	60	64	69	73	77	74	78	5.4
Iran	3,300	3,262	3,281	3,116	3,243	3,135	3,165	3,265	3,030	2,985	3,198	7.1
Iraq	1,605	1,704	1,825	1,668	1,700	1,610	1,720	1,750	1,476	1,710	1,782	4.2
Israel	659	689	651	644	675	693	733	714	724	697	695	-0.4
Jordan	378	378	363	367	415	417	434	454	475	460	484	5.4
Kuwait	350	340	352	362	364	162	548	620	619	612	627	2.4
Lebanon	197	244	270	247	258	267	261	233	257	245	233	-5.2
Oman	102	121	141	168	181	192	207	218	231	214	228	6.5
Qatar	668	817	867	926	971	937	217	234	245	246	265	8.0
Saudi Arabia	18,306	20,098	18,973	20,625	19,644	21,810	18,583	19,622	19,585	19,678	19,775	0.5
Syria	837	600	516	471	456	456	400	471	510	517	484	-6.4
UAE	775	753	865	875	1,447	1,579	1,649	1,820	2,309	2,358	2,356	-0.1
Yemen	567	649	669	590	595	506	455	405	405	397	472	19.0
Other	43	48	50	51	50	54	169	186	181	173	178	2.6
Total Middle East	27,836	29,758	28,878	30,168	30,059	31,882	28,610	30,065	30,124	30,366	30,854	1.6

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CONSUMPTION

LPG Consumption, 2011-21												'000t
Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	±% 20/21
Algeria	1,998	2,112	2,065	1,943	1,918	1,897	1,983	2,221	2,435	2,368	2,503	5.7
Angola	191	254	266	247	259	239	274	285	295	247	272	10.0
Burkina Faso	36	43	50	54	58	63	69	74	82	75	83	10.1
Cameroon	57	70	82	87	94	102	105	117	125	133	141	5.8
Chad	7	8	8	10	17	26	28	35	41	39	41	6.3
Congo	na	na	na	na	11	12	13	15	16	15	16	3.9
Egypt	4,324	4,246	4,433	4,510	4,488	4,444	4,369	4,267	4,226	4,018	4,292	6.8
Ethiopia	5	6	6	7	9	8	9	10	11	10	10	0.0
Gabon	31	33	35	37	37	38	43	46	49	46	50	8.3
Ghana	215	262	243	241	280	267	356	394	340	359	373	3.9
Ivory Coast	127	189	213	245	271	280	319	332	356	346	369	6.5
Kenya	97	107	120	133	148	174	192	224	304	321	374	16.5
Libya	296	293	321	303	264	282	278	287	295	289	291	0.7
Mali	6	8	11	5	12	13	18	21	22	21	23	9.5
Mauritius	71	66	69	71	73	74	75	77	84	76	81	7.6
Morocco	1,997	2,137	2,186	2,277	2,380	2,494	2,500	2,599	2,740	2,829	2,796	-1.2
Nigeria	142	159	193	201	350	450	650	780	1,525	1,651	1,715	3.9
Reunion	20	22	20	20	20	21	21	22	21	22	22	-1.5
Senegal	107	101	103	106	127	139	143	152	161	199	199	0.0
South Africa	380	350	340	349	359	360	386	402	417	399	455	13.9
Sudan	380	410	453	472	475	478	507	537	569	554	575	3.8
Togo	na	na	na	na	15	17	18	0	0	0	0	0.0
Tunisia	473	485	511	509	529	528	559	573	604	603	616	2.2
Uganda	10	11	12	13	14	14	16	18	20	25	24	-4.0
Other	254	271	269	215	227	250	250	265	276	259	269	3.9
Total Africa	11,224	11,643	12,009	12,055	12,435	12,670	13,181	13,753	15,013	14,904	15,589	4.6
Australia	2,062	1,973	1,768	1,645	1,573	1,500	1,290	1,326	1,297	1,103	1,014	-8.0
Bangladesh	77	79	83	108	148	343	518	764	960	1,232	1,395	13.2
China	24,256	24,842	27,884	32,594	39,312	48,411	52,316	56,115	59,729	62,939	71,079	12.9
Hong Kong	400	392	390	403	373	371	337	339	338	289	303	4.7
India	15,881	16,317	16,527	18,343	19,780	22,041	23,762	24,642	27,046	28,309	29,036	2.6
Indonesia	4,347	5,032	5,608	6,094	6,400	6,667	7,192	7,564	7,825	8,230	8,620	4.7
Japan	16,656	16,781	16,368	15,930	16,450	16,046	15,576	15,934	15,836	14,269	13,892	-2.6
Malaysia	2,658	2,658	2,710	2,419	2,073	3,116	3,160	3,216	3,252	3,248	3,236	-0.4
Nepal	159	181	207	232	252	287	332	369	392	404	397	-1.6
New Zealand	137	150	144	152	163	167	179	180	190	185	193	4.1
Pakistan	476	487	522	566	868	1,124	1,179	1,187	1,156	1,141	1,210	6.1
Philippines	1,113	1,091	1,107	1,140	1,306	1,458	1,599	1,797	1,829	1,769	1,696	-4.1
Singapore	787	781	777	764	762	875	721	873	902	990	968	-2.3
South Korea	9,177	8,667	8,338	8,176	7,794	9,386	8,986	9,381	10,361	10,242	10,390	1.4
Sri Lanka	205	211	220	243	291	346	424	422	471	401	382	-4.8
Taiwan	2,428	2,162	2,890	2,991	2,621	3,111	2,504	2,679	2,775	1,723	1,166	-32.3
Thailand	6,891	7,387	7,527	7,516	6,695	6,136	6,341	6,621	6,562	5,743	6,108	6.3
Vietnam	1,258	1,212	1,307	1,316	1,550	1,751	1,979	2,106	3,075	3,160	3,145	-0.5
Other	152	152	165	176	213	210	220	234	245	238	246	3.5
Total Asia-Pacific	89,120	90,555	94,542	100,808	108,624	123,346	128,615	135,749	144,241	145,616	154,476	6.1
Total World	249,630	254,765	266,061	272,286	279,455	298,871	301,805	314,777	325,142	319,869	331,608	3.7

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CONSUMPTION

LPG Consumption for Energy Purposes Only, 2011-21											'000t
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
US	18,328	15,968	19,054	18,698	17,749	17,910	17,811	19,995	20,992	19,340	18,444
Canada	2,868	3,341	2,788	2,580	2,520	2,618	2,743	2,824	2,978	2,702	2,779
Total North America	21,196	19,309	21,842	21,278	20,269	20,528	20,554	22,819	23,970	22,042	21,223
Argentina	1,518	1,733	1,980	1,940	1,701	1,725	1,622	1,527	1,509	1,357	1,706
Bolivia	364	368	374	387	395	401	377	389	398	380	418
Brazil	7,114	7,145	7,340	7,423	7,308	7,400	7,390	7,300	7,290	7,510	7,428
Chile	1,228	1,344	1,231	1,398	1,310	1,237	1,281	1,304	1,313	1,339	1,435
Colombia	602	567	553	600	598	581	578	571	533	561	617
Costa Rica	117	120	127	137	146	159	168	176	187	181	200
Cuba	109	106	113	121	123	124	145	161	169	171	192
Dominican Republic	734	744	773	828	922	913	987	1,017	1,027	988	1,037
Ecuador	1,077	1,026	1,067	1,110	1,096	1,060	1,104	1,113	1,214	1,222	1,210
El Salvador	211	217	236	275	373	291	300	304	310	314	334
Guatemala	244	261	274	285	331	355	373	391	409	415	505
Honduras	81	104	114	119	139	144	159	168	182	174	221
Jamaica	82	85	78	73	79	89	92	87	89	84	90
Mexico	9,077	9,119	8,988	9,070	8,800	8,947	8,908	8,682	8,942	9,034	9,048
Netherlands Antilles	8	7	7	6	6	6	6	6	6	6	6
Nicaragua	74	81	91	94	101	113	121	120	127	128	133
Panama	152	159	165	175	140	139	143	148	151	146	153
Paraguay	83	86	83	80	80	81	81	87	88	80	92
Peru	1,252	1,341	1,503	1,579	1,619	1,600	1,764	1,919	1,985	1,767	2,004
Puerto Rico	96	102	102	98	98	91	83	79	76	75	76
Trinidad & Tobago	29	14	40	44	57	61	54	39	40	32	73
Uruguay	116	122	133	124	118	120	111	112	116	131	119
US Virgin Islands	20	20	20	25	25	50	88	104	303	274	289
Venezuela	1,498	1,605	1,513	1,400	1,460	1,376	916	878	504	336	351
Other	198	218	211	220	220	224	232	245	209	227	232
Total South & C. America	26,084	26,694	27,116	27,611	27,245	27,287	27,083	26,928	27,180	26,932	27,970
Austria	138	122	99	101	90	80	84	71	68	66	69
Azerbaijan	75	69	63	55	42	47	14	26	23	3	25
Belarus	276	280	279	286	283	270	270	266	265	246	236
Belgium	354	337	335	375	217	216	184	195	183	209	212
Bulgaria	335	339	387	411	432	441	447	437	427	438	433
Croatia	150	144	144	139	140	145	132	138	127	100	108
Cyprus	57	56	51	47	54	55	57	54	61	65	65
Czech Republic	106	104	102	109	121	172	166	180	165	178	176
Denmark	51	50	48	48	50	54	58	57	54	59	60
Estonia	20	18	18	17	18	19	23	25	27	32	34
Finland	278	212	253	266	273	277	263	267	246	110	109
France	1,985	2,007	1,978	1,710	1,791	1,769	1,756	1,691	1,661	1,524	1,609
Germany	1,721	1,783	1,844	1,730	1,589	1,722	1,679	1,690	1,593	1,446	1,446
Greece	352	370	416	456	471	506	507	515	524	453	471
Hungary	134	154	151	169	161	170	173	166	167	140	169
Ireland	125	121	135	133	136	145	148	159	165	165	161
Italy	3,205	3,138	3,280	3,079	3,253	3,355	3,361	3,264	3,314	2,834	2,995

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CONSUMPTION

LPG Consumption for Energy Purposes Only, 2011-21											'000t
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Kazakhstan	417	419	455	606	674	993	1,043	1,262	1,309	1,160	1,400
Latvia	55	73	85	93	97	91	92	86	75	74	73
Lithuania	201	193	183	180	162	154	151	142	143	127	121
Macedonia	58	56	58	63	71	78	76	79	82	67	82
Malta	23	24	24	25	26	24	24	25	27	25	24
Moldova	58	63	74	77	74	77	72	71	67	63	61
Montenegro	18	17	14	16	28	17	19	18	19	13	19
Netherlands	449	454	442	325	321	316	303	294	305	268	272
Norway	175	184	192	173	161	184	182	132	176	242	248
Poland	2,152	2,145	2,117	2,160	2,245	2,355	2,495	2,415	2,520	2,340	2,435
Portugal	611	574	557	542	518	512	473	402	466	462	463
Romania	444	507	515	499	487	499	500	475	469	451	475
Russia	3,842	4,051	3,967	4,114	4,600	4,385	4,490	4,530	4,595	4,440	4,350
Serbia	385	361	362	295	310	246	193	123	124	106	164
Slovakia	49	57	56	47	50	51	49	47	47	47	48
Slovenia	80	83	75	74	82	81	88	88	87	77	82
Spain	1,661	1,575	1,529	1,410	1,430	1,540	1,518	1,448	1,417	1,143	1,220
Sweden	377	342	352	347	338	346	356	339	346	288	340
Switzerland	100	90	86	77	76	80	74	76	74	64	66
Tajikistan	130	171	225	296	336	349	360	381	431	448	413
Turkey	3,677	3,754	3,737	3,785	3,966	4,103	4,078	4,146	4,178	3,869	3,999
Turkmenistan	10	10	10	10	10	11	12	12	12	10	10
Ukraine	839	837	949	1,055	1,140	1,488	1,603	1,725	1,909	1,970	1,901
UK	1,051	1,107	1,077	987	1,061	1,073	1,036	1,069	1,062	1,060	1,098
Uzbekistan	246	246	272	277	449	590	640	650	678	662	704
Other	347	336	238	225	225	217	216	212	209	193	200
Total Europe & Eurasia	26,817	27,033	27,234	26,889	28,058	29,303	29,465	29,447	29,896	27,736	28,644
Bahrain	49	55	55	58	60	64	69	73	77	74	78
Iran	2,246	2,208	2,227	2,059	2,020	1,954	1,942	1,999	1,734	1,742	1,777
Iraq	1,605	1,704	1,825	1,668	1,700	1,610	1,720	1,750	1,476	1,710	1,782
Israel	434	449	439	444	425	435	436	432	428	413	421
Jordan	378	378	363	367	415	417	434	454	475	460	484
Kuwait	139	129	141	141	141	162	165	205	211	198	215
Lebanon	197	244	270	247	258	267	261	233	257	245	233
Oman	102	121	141	168	181	192	207	218	231	214	228
Qatar	99	105	109	113	113	134	137	154	165	174	188
Saudi Arabia	1,577	1,410	1,315	1,309	1,390	1,544	1,450	1,290	1,339	1,457	1,490
Syria	837	600	516	471	456	456	400	471	510	517	484
United Arab Emirates	245	203	312	326	344	380	361	522	513	550	550
Yemen	567	649	669	590	595	506	455	405	405	397	472
Other	48	50	51	50	50	54	169	186	181	173	177
Total Middle East	8,523	8,305	8,433	8,011	8,148	8,175	8,206	8,392	8,001	8,325	8,578
Algeria	1,998	2,112	2,046	1,895	1,897	1,882	1,970	2,190	2,404	2,337	2,475
Angola	191	254	266	247	259	239	274	285	295	247	272
Burkina Faso	36	43	50	54	58	63	69	74	82	75	83
Cameroon	57	70	82	87	94	102	105	117	125	133	141

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CONSUMPTION

LPG Consumption for Energy Purposes Only, 2011-21											'000t
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Chad	7	8	8	10	17	26	28	35	41	39	41
Congo	na	na	na	58	11	12	13	15	16	15	16
Egypt	4,324	4,246	3,936	3,922	3,913	3,787	3,666	3,537	3,413	3,133	3,393
Ethiopia	5	6	6	7	9	8	9	10	11	10	10
Gabon	31	33	35	37	37	38	43	46	49	46	50
Ghana	215	262	243	241	280	267	356	394	340	359	373
Ivory Coast	127	189	213	245	271	280	319	332	356	346	369
Kenya	97	107	120	133	148	174	192	224	304	321	374
Libya	296	293	321	303	264	282	278	287	295	289	291
Mali	6	8	11	5	12	13	18	21	22	21	23
Mauritius	71	66	69	71	73	74	75	77	84	76	81
Morocco	1,997	2,137	2,186	2,277	2,380	2,494	2,500	2,599	2,740	2,829	2,796
Nigeria	120	140	160	190	350	450	650	780	992	1,150	1,213
Reunion	20	22	20	20	20	21	21	22	21	22	22
Senegal	107	101	103	106	127	139	143	152	161	199	199
South Africa	380	350	340	349	359	360	386	402	417	399	455
Sudan and South Sudan	380	410	453	472	475	478	507	537	569	554	575
Togo	na	na	na	na	15	17	18	0	0	0	0
Tunisia	473	485	511	509	529	528	559	573	604	603	616
Uganda	10	11	12	13	14	14	16	18	20	25	24
Other	271	269	215	227	227	250	250	265	276	259	269
Total Africa	11,219	11,622	11,406	11,478	11,839	11,998	12,465	12,992	13,635	13,488	14,159
Australia	1,803	1,710	1,540	1,444	1,323	1,276	1,190	1,119	1,091	897	821
Bangladesh	77	79	83	108	148	343	518	764	960	1,232	1,395
China	20,924	20,940	23,344	26,583	29,816	33,311	34,870	37,532	39,202	35,398	37,554
Hong Kong	400	392	390	403	373	371	337	339	338	289	303
India	15,209	15,645	15,855	17,671	19,040	21,232	22,992	23,872	26,276	27,441	27,908
Indonesia	4,347	5,032	5,608	6,094	6,400	6,667	7,192	7,564	7,825	8,230	8,620
Japan	12,498	12,661	11,724	11,423	11,738	11,487	11,185	11,557	11,308	10,515	10,473
Malaysia	1,469	1,353	1,479	1,360	1,304	1,281	1,357	1,357	1,335	1,293	1,319
Nepal	159	181	207	232	252	287	332	369	392	404	397
New Zealand	137	150	144	152	163	167	179	180	190	185	193
Pakistan	476	487	522	566	868	1,124	1,179	1,187	1,156	1,141	1,210
Philippines	1,113	1,091	1,107	1,140	1,306	1,458	1,599	1,797	1,829	1,769	1,696
Singapore	138	132	128	115	113	106	106	104	102	101	98
South Korea	7,215	7,064	6,958	6,336	6,030	6,073	6,047	5,742	5,810	5,378	5,573
Sri Lanka	205	211	220	243	291	346	424	422	471	401	382
Taiwan	1,503	1,412	1,389	1,369	1,355	1,337	1,331	1,205	1,177	886	878
Thailand	4,294	4,722	4,788	4,739	4,418	4,188	4,123	4,023	3,810	3,400	3,384
Vietnam	1,258	1,212	1,307	1,316	1,550	1,751	1,979	2,106	2,275	2,360	2,228
Other	152	165	176	213	213	210	220	234	245	238	246
Total Asia-Pacific	73,377	74,639	76,969	81,507	86,701	93,015	97,160	101,473	105,793	101,558	104,678
Total World	167,216	167,603	173,000	176,774	182,260	190,306	194,933	202,051	208,474	200,093	205,297

Note: Energy purposes includes domestic, agriculture, industrial, and transport sectors.

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CONSUMPTION

LPG Consumption by sector, 2021							'000t
	Residential	Agriculture	Industry	Transport	Refinery	Chemical	Total
US	14,831	1,504	1,920	189	9,647	15,364	43,455
Canada	1,000	188	1,376	216	4,501	1,116	8,396
Total North America	15,830	1,692	3,296	405	14,148	16,480	51,851
Argentina	1,430	85	187	3	0	50	1,756
Bolivia	409	0	9	0	0	0	418
Brazil	6,245	0	1,183	0	0	179	7,607
Chile	1,098	0	304	33	13	0	1,448
Colombia	503	0	114	0	158	0	775
Costa Rica	108	0	73	18	0	0	200
Cuba	176	0	16	0	0	0	192
Dominican Republic	512	0	61	464	0	0	1,037
Ecuador	1,102	19	82	6	14	0	1,224
El Salvador	248	0	84	1	0	0	334
Guatemala	408	0	92	5	0	0	505
Honduras	85	0	55	81	0	0	221
Jamaica	90	0	0	0	0	0	90
Mexico	6,553	106	998	1,390	63	0	9,111
Netherlands Antilles	6	0	0	0	0	0	6
Nicaragua	119	1	13	0	13	0	146
Panama	113	0	40	0	0	0	153
Paraguay	83	0	1	8	0	0	92
Peru	1,171	0	260	573	0	0	2,004
Puerto Rico	69	0	7	0	0	0	76
Trinidad & Tobago	73	0	0	0	0	0	73
Uruguay	105	6	9	0	0	0	119
US Virgin Islands	10	0	279	0	0	0	289
Venezuela	284	0	68	0	576	0	927
Other	208	0	0	0	0	0	208
Total South & C. America	21,233	217	3,937	2,583	837	229	29,036
Austria	38	3	25	3	7	272	347
Azerbaijan	2	0	1	22	1	253	278
Belarus	70	9	7	150	0	160	396
Belgium	160	1	8	43	8	2,056	2,276
Bulgaria	35	5	13	380	0	0	433
Croatia	49	2	8	49	0	0	108
Cyprus	47	1	16	1	0	0	65
Czech Republic	49	6	32	89	0	257	465
Denmark	20	4	35	1	0	0	60
Estonia	12	3	6	13	0	0	34
Finland	3	0	106	0	0	788	897
France	954	343	263	49	0	1,501	3,110
Germany	622	636	624	244	112	2,138	4,376
Greece	98	21	152	199	33	0	505
Hungary	85	22	39	23	0	378	547

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CONSUMPTION

LPG Consumption by sector, 2021							'000t
	Domestic	Agriculture	Industry	Transport	Refinery	Chemical	Total
Ireland	50	0	109	2	0	0	161
Italy	1,411	16	160	1,407	20	156	3,171
Kazakhstan	210	1	6	1,183	0	95	1,495
Latvia	23	11	14	25	0	0	73
Lithuania	24	4	8	84	0	0	121
Macedonia	13	0	12	56	0	0	82
Malta	18	0	5	1	0	0	24
Moldova	4	0	1	56	0	0	61
Montenegro	4	0	8	8	0	0	19
Netherlands	106	44	15	107	27	2,280	2,579
Norway	30	15	198	5	7	222	477
Poland	255	120	245	1,815	0	0	2,435
Portugal	379	3	50	30	1	375	839
Romania	165	10	18	281	43	0	518
Russia	770	160	170	3,250	1,045	5,467	10,861
Serbia	56	2	20	86	0	33	197
Slovakia	11	1	3	33	0	79	127
Slovenia	42	0	28	11	0	0	82
Spain	954	35	148	83	0	433	1,653
Sweden	18	1	321	0	0	629	969
Switzerland	14	4	46	2	1	94	161
Tajikistan	39	2	2	370	0	0	413
Turkey	796	0	86	3,117	0	165	4,164
Turkmenistan	9	1	0	0	155	5	170
Ukraine	28	36	27	1,810	0	77	1,978
United Kingdom	336	94	609	59	0	1,710	2,808
Uzbekistan	501	1	2	200	0	0	704
Other	156	1	33	9	0	0	200
Total Europe & Eurasia	8,667	984	3,681	15,356	1,491	19,622	49,801
Bahrain	78	0	0	0	0	0	78
Iran	1,742	0	30	5	0	1,421	3,198
Iraq	1,782	0	0	0	0	0	1,782
Israel	228	13	172	8	0	274	695
Jordan	473	0	12	0	0	0	484
Kuwait	215	0	0	0	0	413	627
Lebanon	205	0	28	0	0	0	233
Oman	185	0	43	0	0	0	228
Qatar	188	0	0	0	78	0	265
Saudi Arabia	1,158	0	332	0	0	18,285	19,775
Syria	484	0	0	0	0	0	484
UAE	520	0	30	0	0	1,806	2,356
Yemen	395	0	0	77	0	0	472
Other	166	0	11	0	0	0	178
Total Middle East	7,817	13	658	90	78	22,198	30,854

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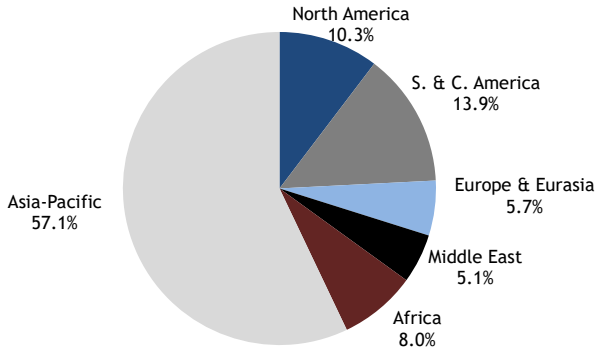
CONSUMPTION

LPG Consumption by sector, 2021							'000t
	Domestic	Agriculture	Industry	Transport	Refinery	Chemical	Total
Algeria	1,503	18	63	891	28	0	2,503
Angola	257	0	2	13	0	0	272
Burkina Faso	83	0	0	0	0	0	83
Cameroon	137	0	4	0	0	0	141
Chad	41	0	0	0	0	0	41
Congo	16	0	0	0	0	0	16
Egypt	3,373	0	19	0	0	900	4,292
Ethiopia	10	0	0	0	0	0	10
Gabon	45	0	5	0	0	0	50
Ghana	177	1	100	95	0	0	373
Ivory Coast	319	0	50	0	0	0	369
Kenya	325	1	42	6	0	0	374
Libya	264	0	0	27	0	0	291
Mali	23	0	0	0	0	0	23
Mauritius	74	0	5	3	0	0	81
Morocco	2,491	106	199	0	0	0	2,796
Nigeria	1,213	0	0	0	0	502	1,715
Reunion	19	1	2	0	0	0	22
Senegal	193	0	6	0	0	0	199
South Africa	231	0	224	0	0	0	455
Sudan	557	0	19	0	0	0	575
Togo	0	0	0	0	0	0	0
Tunisia	578	0	25	12	0	0	616
Uganda	24	0	0	0	0	0	24
Other	269	0	0	0	0	0	269
Total Africa	12,222	127	765	1,045	28	1,402	15,589
Australia	133	0	532	157	0	193	1,014
Bangladesh	1,191	0	181	22	0	0	1,395
China	32,812	105	3,707	930	16,339	17,186	71,079
Hong Kong	63	0	7	233	0	0	303
India	26,513	8	990	396	0	1,128	29,036
Indonesia	8,495	0	125	0	0	0	8,620
Japan	7,215	0	2,706	552	1,342	2,077	13,892
Malaysia	1,194	0	125	0	0	1,917	3,236
Nepal	397	0	0	0	0	0	397
New Zealand	112	2	75	3	0	0	193
Pakistan	1,018	0	125	67	0	0	1,210
Philippines	1,272	0	370	55	0	0	1,696
Singapore	84	0	14	0	0	870	968
South Korea	1,829	0	1,181	2,563	0	4,817	10,390
Sri Lanka	346	1	34	1	0	0	382
Taiwan	688	1	183	6	40	248	1,166
Thailand	2,049	3	664	668	76	2,648	6,108
Vietnam	1,766	0	462	0	0	917	3,145
Other	234	0	7	5	0	0	246
Total Asia-Pacific	87,412	120	11,489	5,657	17,797	32,001	154,476
Total World	153,182	3,153	23,826	25,136	34,379	91,932	331,608

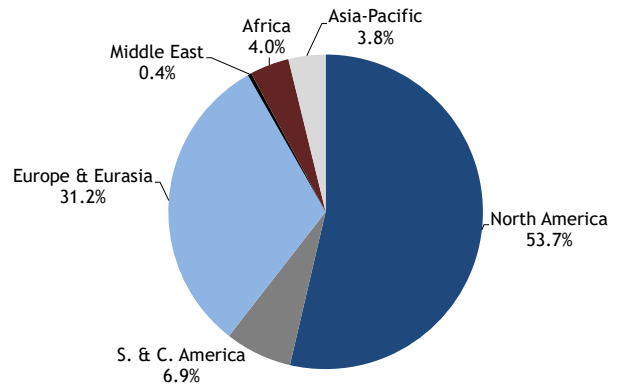
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LPG REGIONAL SHARE OF MARKET SUBSECTORS, 2021

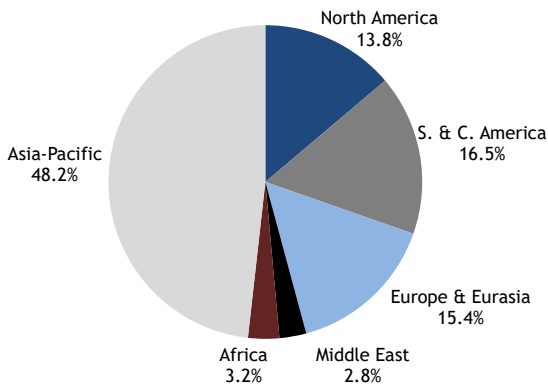
Domestic



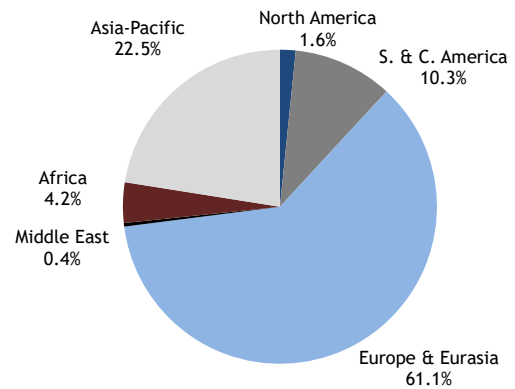
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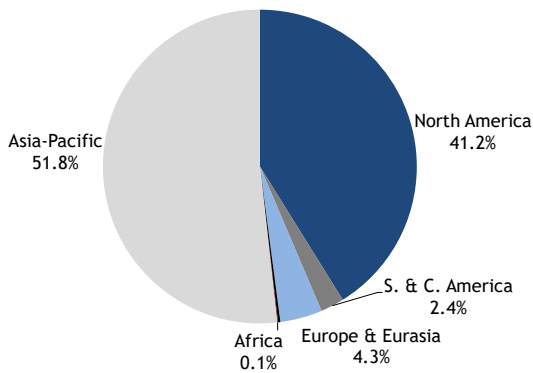
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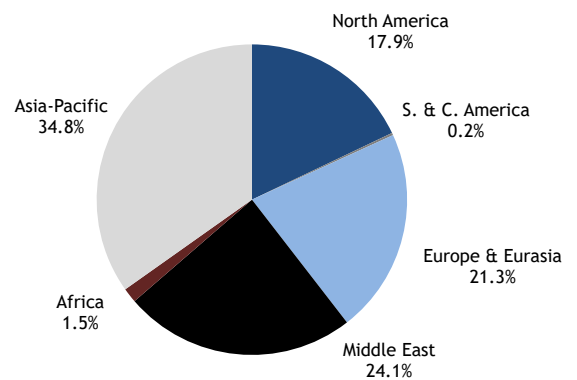
Transport



Refinery

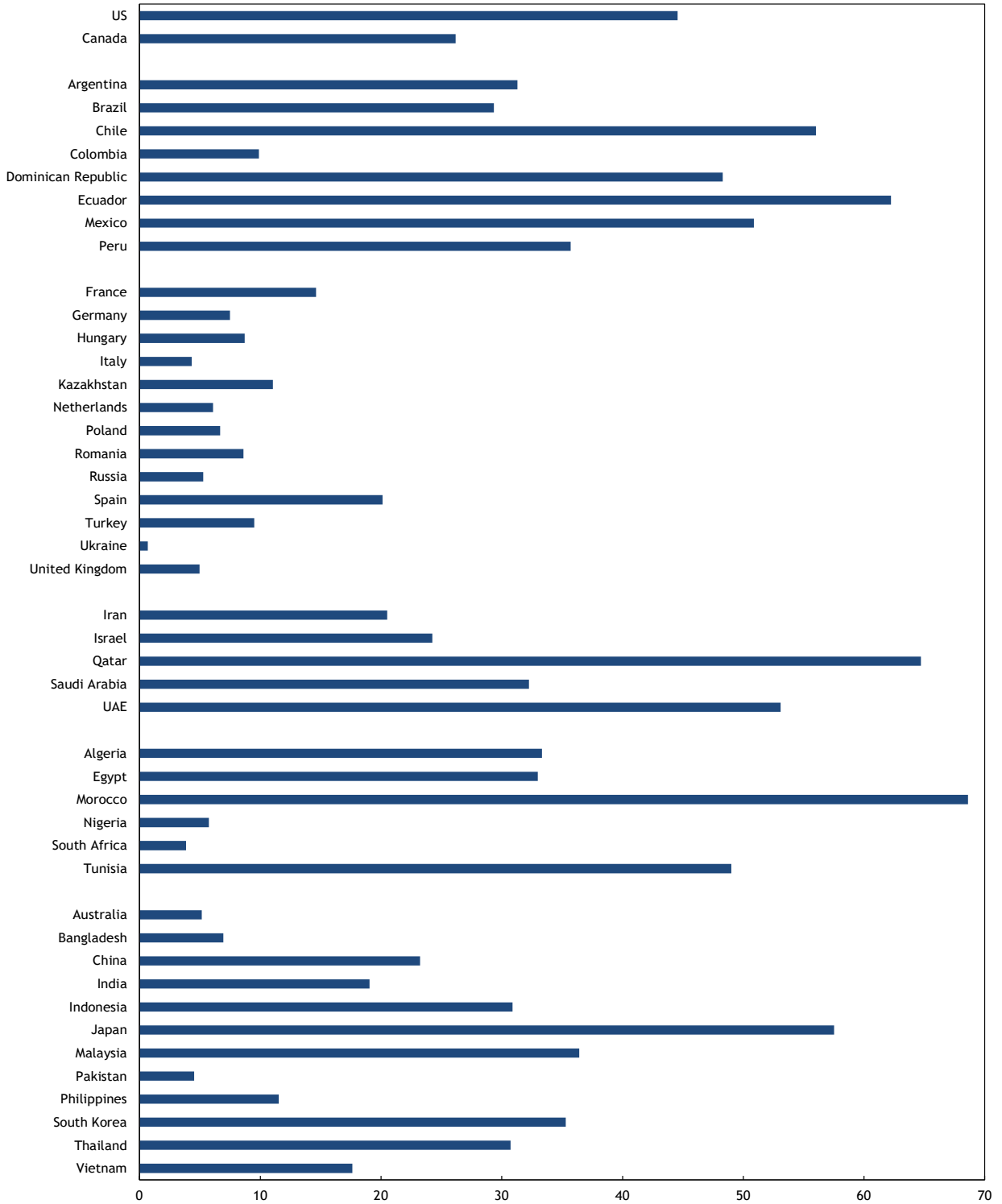


Chemical



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Domestic LPG consumption per person for selected countries, 2021 (kg/person)



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AUTOGAS

Autogas Consumption, Vehicles and Dispensing Sites							
	Consumption ('000t)			Vehicle fleet		Retail sites	
	2020	2021	±% 20/21	2020	2021	2020	2021
US	177	189	7.1	184,000	188,000	3,000	3,100
Canada	210	216	2.9	54,000	53,500	2,250	2,230
Total North America	386	405	4.8	238,000	241,500	5,250	5,330
Chile	31	33	7.8	23,000	23,000	200	200
Costa Rica	19	18	-5.3	9,000	9,000	100	100
Dominican Republic	405	464	14.7	230,000	230,000	1,550	1,550
Ecuador	7	6	-11.0	4,500	4,500	20	20
Guatemala	4	5	43.8	5,500	5,500	22	22
Honduras	75	81	7.8	65,000	65,000	220	230
Mexico	1,187	1,390	17.1	407,000	407,000	2,080	2,080
Paraguay	7	8	8.6	11,000	11,500	35	40
Peru	454	573	26.2	250,000	262,500	800	850
Total South & C. America	2,194	2,583	17.7	1,010,000	1,024,500	5,067	5,132
Austria	5	3	-41.8	5,500	5,225	38	35
Azerbaijan	1	22	2,310.4	8,800	8,800	120	120
Belarus	160	150	-6.3	96,040	94,200	300	300
Belgium	43	43	-0.7	25,000	25,000	350	350
Bulgaria	390	380	-2.6	480,200	480,200	2,700	2,700
Croatia	46	49	6.1	70,000	71,400	450	500
Czech Republic	91	89	-2.4	165,000	160,500	880	870
Denmark	1	1	1.9	20	20	3	5
Estonia	11	13	18.2	12,000	13,000	85	90
France	38	49	29.6	182,500	220,000	1,547	1,559
Germany	234	244	4.3	346,765	331,481	6,229	6,028
Greece	205	199	-3.0	300,000	290,000	1,300	1,350
Hungary	19	23	26.3	23,000	23,000	550	550
Ireland	2	2	8.5	3,500	3,500	45	45
Italy	1,309	1,407	7.5	2,678,656	2,846,644	4,300	4,450
Kazakhstan	954	1,183	24.0	425,000	516,000	2,343	2,494
Latvia	40	25	-37.1	45,893	22,106	262	255
Lithuania	88	84	-4.7	99,820	94,829	350	300
Macedonia	44	56	26.1	19,400	20,000	225	250
Malta	1	1	42.9	2,200	2,300	11	11
Moldova	57	56	-1.8	55,000	55,000	561	560
Montenegro	5	8	52.4	7,000	7,400	49	55
Netherlands	107	107	0.0	132,924	128,936	1,223	1,124
Norway	4	5	25.0	1,500	1,500	94	94
Poland	1,735	1,815	4.6	3,327,000	3,393,500	7,409	7,450
Portugal	28	30	8.5	58,310	59,401	396	405
Romania	258	281	9.0	230,000	230,000	1,100	1,100
Russia	3,220	3,250	0.9	3,000,000	3,000,000	4,900	4,900
Serbia	67	86	28.4	110,000	112,200	500	550
Slovakia	31	33	5.2	16,000	16,000	360	360
Slovenia	9	11	20.8	14,000	14,300	136	150
Spain	66	83	26.0	98,000	98,500	1,100	1,100
Sweden	0	0	-	80	80	25	25
Switzerland	2	2	12.0	1,000	900	61	50
Tajikistan	404	370	-8.4	202,000	202,000	1,200	1,200

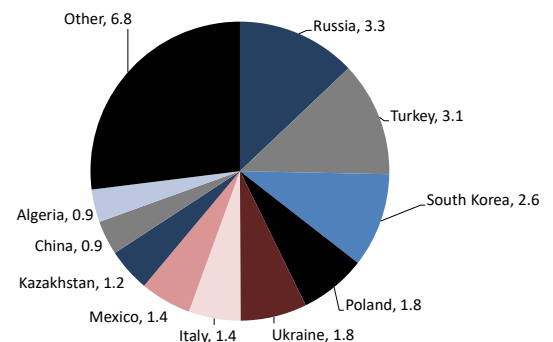
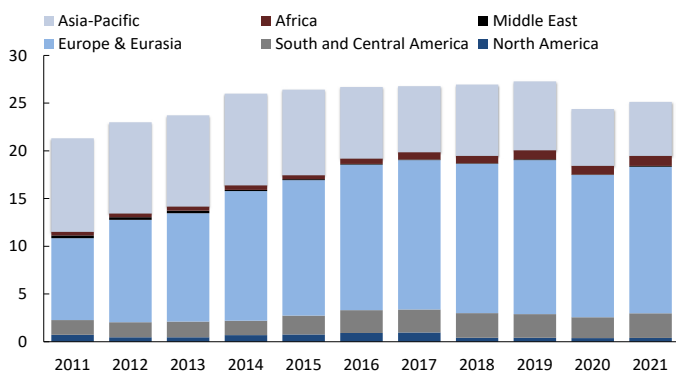
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AUTOGAS

Autogas Consumption, Vehicles and Dispensing Sites							
	Consumption ('000t)			Vehicle fleet		Retail sites	
	2020	2021	±% 20/21	2020	2021	2020	2021
Turkey	3,065	3,117	1.7	4,180,018	4,923,275	10,800	10,950
Ukraine	1,865	1,810	-2.9	2,600,000	2,660,000	5,500	5,500
United Kingdom	58	59	2.1	100,000	100,000	1,000	1,000
Uzbekistan	214	200	-6.4	310,000	310,000	900	900
Other	9	9	3.2	11,000	10,000	120	110
Total Europe & Eurasia	14,886	15,356	3.2	19,443,376	20,546,447	59,531	59,802
Iran	4	5	34	4,800	4,750	70	65
Israel	6	8	38.8	19,000	19,000	90	90
Yemen	45	77	72.8	50,000	55,000	200	250
Total Middle East	54	90	66.5	73,800	78,750	360	405
Algeria	773	891	15.2	407,000	407,000	800	800
Mauritius	2	3	5.0	7,000	7,000	6	6
Tunisia	10	12	27.5	10,500	10,500	22	22
Total Africa	919	1,045	13.8	430,000	430,000	866	866
Australia	216	157	-27.4	330,000	270,000	2,500	2,400
Bangladesh	20	22	13.2	7,000	7,500	20	25
China	978	930	-5.0	185,000	176,000	560	520
Hong Kong	219	233	6.2	17,000	16,700	60	60
India	390	396	1.7	2,600,000	2,704,000	1,450	1,510
Indonesia	0	0	-	1,000	1,000	28	28
Japan	573	552	-3.7	149,530	137,496	1,322	1,212
Nepal	0	0	-	0	0	0	0
New Zealand	3	3	4.1	2,400	2,400	150	150
Pakistan	66	67	0.9	3,600	3,650	270	270
Philippines	50	55	9.1	25,000	25,500	170	175
South Korea	2,655	2,563	-3.5	1,995,740	1,960,971	1,954	1,992
Sri Lanka	1	1	-10.0	1,000	1,000	10	10
Taiwan	8	6	-27.7	10,000	8,000	40	36
Thailand	752	668	-11.2	744,955	707,800	1,651	1,570
Vietnam	0	0	0.0	0	0	0	0
Other	5	5	-4.7	6,000	6,000	55	55
Total Asia-Pacific	5,937	5,657	-4.7	6,078,225	6,028,017	10,240	10,013
Total World	24,376	25,136	3.1	27,273,400	28,349,214	81,314	81,548

Autogas demand by region

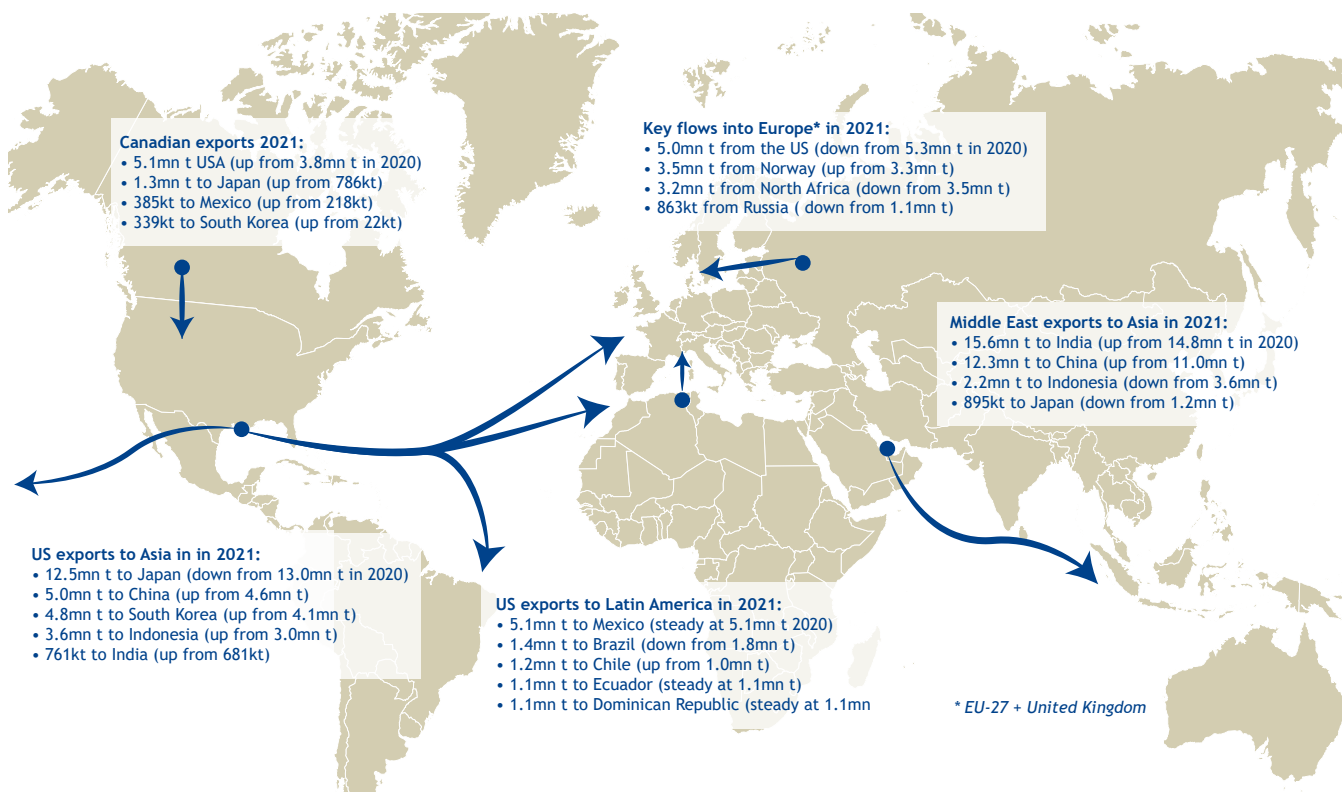
Autogas consumption top 10



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TRADE, INFRASTRUCTURE AND SHIPPING

Global Trade Flows



	2011		2021	
	Imports	Exports	Imports	Exports
North America	3,528	7,573	5,074	59,759
South and Central America	8,570	4,522	15,368	2,143
Europe and Eurasia	20,674	18,661	27,489	20,519
Middle East	1,280	32,030	1,501	35,777
Africa	5,542	9,227	8,053	9,091
Asia-Pacific	36,472	4,806	75,515	5,560
Total	76,066	76,818	133,000	132,849

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LPG shipping

Total LPG shipments rose by almost 5mn t in 2021. Despite this spot VLGC freight rates eased across all major shipping routes, in particular Houston-Chiba averaged \$91/t in 2021, a decline of \$7/t compared with 2020. Prices rapidly fell after their peak in late 2020, with average prices halving between January and February.

Increased vessel availability was the key reason for weaker pricing in 2021. The number of fully refrigerated vessels rose by 23, adding nearly 2mn m³ of capacity to the market. This compares with increases of 1.7mn m³ in 2020 and 1.2mn m³ in 2019. We also saw semi-refrigerated capacity rise by 50,000m³. This was more than enough to make up for a strong dry-docking schedule as scrubbers continued to be an enticing investment for shipowners owing to IMO regulations on sulphur emissions introduced in 2020.

After several years of low water levels, the Panama Canal is planning to introduce changes designed to preserve water. Chief among these is a new toll structure planned to be phased in over 2023 to 2025. When fully implemented it could add upwards of \$5/t to the cost of transport for VLGCs.

LPG shipping fleet capacity by type 2021			'000m ³
Type	Number of vessels	Capacity	
Semi-refrigerated	365	4,411	
Fully refrigerated	471	32,002	
Pressurised	721	2,486	

– Clarksons

The ongoing war in Ukraine has created a massive local LPG supply shortfall in Europe. Simultaneously, continued propane dehydrogenation (PDH) start-ups in China have increased demand in Asia-Pacific and resulted in increased traffic at the Panama Canal. An ageing global fleet has increased scrapping, which mutes the high number of new-builds arriving in 2022. This has put increased pressure on shipping availability and driven up prices, leading to strong profits for shipowners in the LPG space. These conditions look likely to continue for the remainder of the year.

Shipping freight rates 2011-21												1\$/t
Spot freight rates	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
AG-Japan	55	55	59	91	90	29	29	34	58	59	52	
Assessed 12 Month Timecharter Rates												
84,000m ³	781	917	944	1,575	1,919	750	554	607	999	1,062	1,035	
59,000m ³ (57,000-59,000m ³ until 2009)	720	886	976	1,394	1,887	747	509	546	801	886	887	
22,500m ³ (22,500-24,000m ³ until 2011)	637	728	774	844	862	643	374	423	483	567	593	

– Clarksons

LOOKING TO THE FUTURE

- The effects of the coronavirus pandemic are still being felt. Chinese lockdowns continue to interrupt supply chains and weaken the country's demand. Many economies are close to full recovery, but high volatility remains.

- The war in Ukraine and the subsequent economic fallout look to be here for at least the next couple of years. The cost of living crisis, caused by rising food and oil prices has

brought on a recessionary environment that has slashed GDP growth and impoverished millions, leading to a darker outlook on demand for LPG.

- Poland's LPG flows have reversed. Previously it imported Russian LPG then traded it to western Europe and now finds itself importing from western Europe and exporting east to other eastern European countries, in particular Ukraine.

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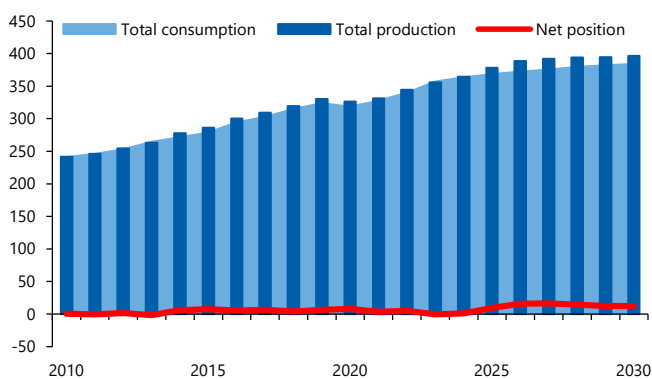
LOOKING TO THE FUTURE

- High natural gas prices are eating into LPG supply, particularly in Europe. Local producers are leaving LPG in their gas streams or siphoning refinery production into refinery gas, while importers of LNG are blending LPG into their product. This has further increased reliance on US exports for many countries.
- Petrochemical margins have been consistently negative for more than a year and are forcing run rate cuts and shutdowns at many plants, particularly in Asia-Pacific. The recessionary environment, inflation and the housing crisis and lockdowns in China, have depressed demand for petrochemical products while high oil prices have ramped up feedstock prices. Margins may improve in 2023 but systemic oversupply of naphtha because of the war in Ukraine will continue to weigh on LPG demand from petrochemicals.
- Demand in Asia is expected to continue to rise. The strongest sectors will be domestic and petrochemical as south Asia expands its bottled LPG sector and China continues to construct more propane dehydrogenation (PDH) plants. Domestic demand in the Malay archipelago will also drive consumption, particularly as a cooking fuel.
- Supplies to meet Asia’s growing demand will continue to be provided primarily by the Middle East and US. Other important producers are Russia, whose product has been redirected from Europe, and Canada, which recently expanded Prince Rupert port on the Pacific coast to export LPG to the Pacific region.
- European and North American energy demand for LPG is likely to have reached its peak already. Increased renewables

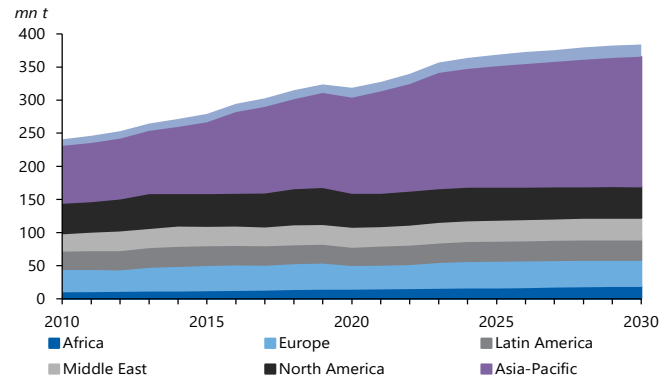
and electrification, as well as improved energy efficiency, lower the market for LPG. Demand from petrochemicals will continue to rise but not by enough to compensate, particularly in North America where petrochemicals are likely to continue to transition towards ethane as the primary feedstock. As such overall consumption in these regions is expected to fall.

- North American LPG supply is expected to continue its growth through the 2020s before flattening out in the 2030s. Net exports should continue to increase strongly though, as lower domestic consumption means more LPG is available for export. Supply growth is primarily driven by increasing gas processing production caused by use of natural gas as a bridge fuel towards decarbonisation.
- The region with the most potential growth in the long term is sub-Saharan Africa. Domestic fuel is primarily biomass in many countries and the large population makes for a sizeable untapped market. Many governments are planning to expand LPG usage in the region and the currently weak penetration means the market could grow rapidly over the coming years. The large population means that global trade patterns could be shifted drastically by increased uptake.
- Latin American countries have high LPG penetration owing to long-standing government subsidies. Demand in the region is likely to stabilise at 29mn-30mn t even with new initiatives being announced. Increased demand for US LPG from Europe and Asia will cause increased competition for US supplies.

World LPG production and consumption 2010-30 *mn t*



World LPG consumption by region 2010-30 *mn t*



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LPG STORAGE

Total LPG storage by country		'000t
Country	Total storage	
North America		
United States		46,962
Canada		5,984
South and Central America		
Argentina		374
Brazil		551
Chile		417
Colombia		13
Costa Rica		28
Dominican Republic		126
Ecuador		109
El Salvador		23
Jamaica		4
Mexico		1,082
Peru		121
Trinidad and Tobago		57
US Virgin Islands		6
Europe and Eurasia		
Austria		2
Belarus		10
Belgium		277
Bulgaria		17
Czech Republic		4
Denmark		10
Finland		315
France		319
Germany		147
Greece		10
Hungary		18
Ireland		11
Italy		85
Kazakhstan		61
Lithuania		5
Netherlands		194
Norway		366
Poland		27
Portugal		132
Romania		10
Russia		264
Serbia		11
Spain		201
Sweden		622
Switzerland		1
Turkey		306
Turkmenistan		9
Ukraine		58
UK		736
Uzbekistan		9

Total LPG storage by country		'000t
Country	Total storage	
Middle East		
Bahrain		40
Iran		314
Iraq		222
Israel		17
Jordan		89
Kuwait		1,280
Lebanon		18
Qatar		533
Saudi Arabia		1,222
UAE		708
Africa		
Algeria		418
Cameroon		3
Egypt		355
Ghana		27
Ivory Coast		3
Kenya		24
Libya		57
Morocco		244
Nigeria		206
Senegal		3
South Africa		34
Tunisia		22
Asia-Pacific		
Australia		556
Bangladesh		93
China		5,336
India		743
Indonesia*		1,167
Japan		4,405
Malaysia		181
New Zealand		11
Pakistan		15
Philippines		143
Singapore		46
South Korea		1,389
Sri Lanka		41
Taiwan		301
Thailand		160
Vietnam		372

Notes: LPG storage of over 1,000t is included but some volumes are unconfirmed and totals may not be comprehensive

* Indonesia - includes floating storage

— LPG Storage Survey from Argus LPG World

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PRICES

Propane monthly contract prices, plus key regional spot prices, 2021												
	Jan 21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Middle East \$/t												
Saudi Arabia	550.00	605.00	625.00	560.00	495.00	530.00	620.00	660.00	665.00	800.00	870.00	795.00
Kuwait	550.00	605.00	625.00	560.00	495.00	530.00	620.00	660.00	665.00	800.00	870.00	795.00
Mediterranean \$/t												
Algeria (Sonatrach)	485.00	495.00	545.00	500.00	465.00	495.00	595.00	620.00	640.00	808.00	820.00	730.00
Spot Prices \$/t												
Large cargo cif ARA	509.74	537.70	528.05	483.74	486.55	560.48	629.49	638.71	725.64	837.63	785.01	642.48
Large cargo cif Lavera	520.31	548.13	538.55	485.90	482.12	556.73	625.68	637.58	742.89	855.10	801.88	655.48
Large cargo Japan CFR	622.34	584.63	581.32	534.77	545.53	614.76	684.32	696.75	767.49	878.30	827.03	715.55
Large cargo East China CFR	622.34	584.63	581.32	534.77	545.53	614.76	684.32	696.75	767.49	878.30	827.03	715.55
Large cargo South China CFR	622.34	584.63	581.32	534.77	545.53	614.76	684.32	696.75	767.49	878.30	827.03	715.55
Large cargo Far East Index	622.34	584.63	581.32	534.77	545.53	614.76	684.32	696.75	767.49	878.30	827.02	715.55
Asia spot premiums to CP\$/t												
Mideast Gulf	-24.45	-24.42	-29.39	-11.33	-8.84	2.14	0.71	2.10	2.55	0.81	-9.43	-14.00
South China (pressurised)	75.95	70.21	70.00	70.00	68.53	70.41	73.00	72.33	66.91	63.86	63.00	60.95
East China (refrigerated)	61.14	-22.00	-30.73	-9.51	44.95	67.81	56.56	34.71	80.81	69.16	-29.88	-68.09
South China (refrigerated)	61.14	-22.00	-30.73	-9.51	44.95	67.81	56.56	34.71	80.81	69.16	-29.88	-68.09
Taiwan	32.44	-20.63	-9.42	27.20	41.32	33.95	43.70	29.85	41.26	43.77	-2.41	-25.87
Japan	32.44	-20.63	-9.42	27.20	41.32	33.95	43.70	29.85	41.26	43.77	-2.41	-25.87
Mont Belvieu €/USG												
LDH	87.43	91.53	92.35	81.96	82.48	96.99	109.39	111.31	128.98	144.56	126.00	103.71
Non-LDH	86.68	89.60	92.06	83.65	81.96	96.75	108.93	110.75	129.24	144.58	125.83	103.04
Europe \$/t												
Coasters fob NWE	527.38	600.75	578.13	529.53	503.79	575.44	638.57	652.39	761.39	871.67	833.33	721.60
Barges fob NWE	550.10	591.30	644.17	579.50	551.47	575.68	618.48	620.55	763.99	956.31	990.31	896.19
Coasters fob Med	547.00	606.00	599.70	476.20	436.86	497.38	615.93	657.62	724.25	877.43	856.01	751.88

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PRICES

Butane monthly contract prices, plus key regional spot prices, 2021												
	Jan 21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Middle East \$/t												
Saudi Arabia	530.00	585.00	595.00	530.00	475.00	525.00	620.00	655.00	665.00	795.00	830.00	750.00
Kuwait	530.00	585.00	595.00	530.00	475.00	525.00	620.00	655.00	665.00	795.00	830.00	750.00
Mediterranean \$/t												
Algeria (Sonatrach)	490.00	510.00	535.00	510.00	460.00	492.00	605.00	650.00	670.00	742.00	825.00	715.00
Spot Prices \$/t												
Large cargo cif ARA	458.99	520.69	516.60	484.64	479.21	550.98	638.73	647.98	706.16	803.87	784.63	696.65
Large cargo cif Lavera	458.95	521.06	513.34	468.91	457.83	529.98	617.73	630.55	686.13	784.23	766.13	677.69
Large cargo Japan CFR	591.14	564.21	553.40	513.73	539.11	613.45	678.80	691.18	763.90	852.49	793.36	688.96
Large cargo East China CFR	591.14	564.21	553.40	513.73	539.11	613.45	678.80	691.18	763.90	852.49	793.36	688.96
Large cargo South China CFR	591.14	564.21	553.40	513.73	539.11	613.45	678.80	691.18	763.90	852.49	793.36	688.96
Large cargo Far East Index	591.14	564.21	553.40	513.73	539.11	613.44	678.80	691.18	763.90	852.49	793.36	688.95
Asia spot premiums to CP\$/t												
Mideast Gulf	-24.45	-24.42	-29.39	-11.33	-9.00	2.14	0.71	2.10	2.55	0.81	-9.43	-14.00
India cfr	46.29	-26.11	-32.90	-7.85	50.63	65.40	46.94	28.52	73.86	na	na	na
South China (pressurised)	75.95	70.21	70.00	70.00	68.53	70.41	73.00	72.33	66.45	61.00	63.00	60.95
East China (refrigerated)	51.29	-21.58	-27.90	-2.85	55.63	70.40	51.94	33.52	78.86	50.87	-24.17	-51.87
South China (refrigerated)	51.29	-21.58	-27.90	-2.85	55.63	70.40	51.94	33.52	78.86	50.87	-24.17	-51.87
Taiwan	31.19	-16.68	-7.34	30.54	44.90	33.40	42.75	29.71	42.08	35.58	2.17	-14.87
Japan	31.19	-16.68	-7.34	30.54	44.90	33.40	42.75	29.71	42.08	35.58	2.17	-14.87
Mont Belvieu €/USG												
LDH	87.64	97.78	101.74	82.13	87.38	105.59	123.06	129.63	146.35	164.83	151.12	133.30
Non-LDH	88.24	95.17	98.91	85.61	94.46	112.29	125.43	130.64	147.26	161.74	147.61	127.25
Europe \$/t												
Coasters fob NWE	491.71	543.48	517.35	440.43	447.20	522.93	633.22	669.11	668.70	834.20	808.69	712.63
Barges fob NWE	478.53	534.29	503.88	429.44	457.76	517.05	636.83	640.36	695.98	860.58	784.94	710.74
Coasters fob Med	510.50	554.00	581.19	475.40	433.86	552.23	621.32	659.00	688.57	873.00	877.48	815.73

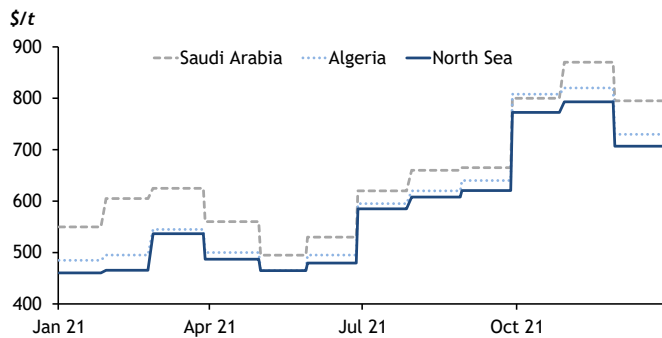
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PRICES

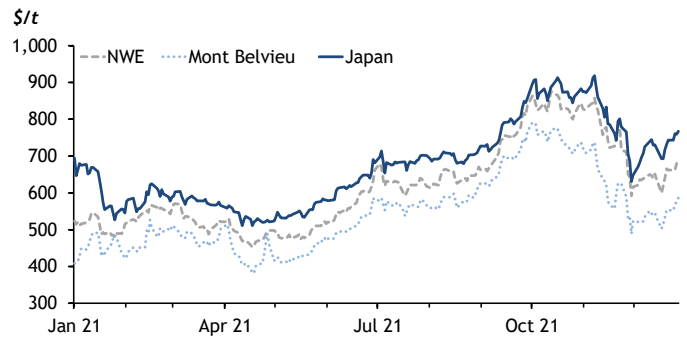
Naphtha													\$/t
	Jan 21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Cargoes cif NWE	500.98	556.31	574.28	559.29	594.26	635.18	673.84	648.65	680.73	763.76	736.73	700.64	
Cargoes c+f Japan	513.53	564.81	593.32	571.20	602.19	643.90	684.10	653.48	689.58	770.62	760.53	702.70	

Ethane													¢/USG
	Jan 21	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Mont Belvieu	23.59	26.55	21.68	23.74	26.11	27.78	31.37	33.56	38.99	43.46	40.24	33.63	

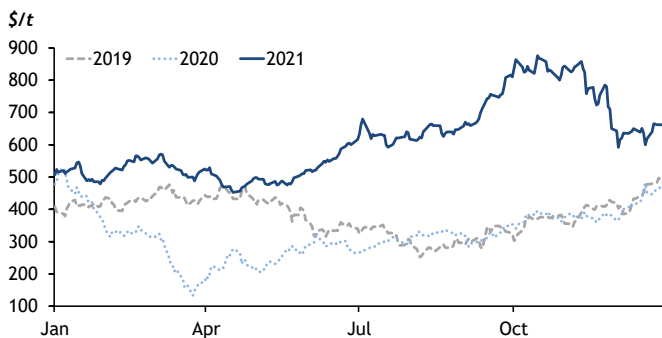
Propane export prices



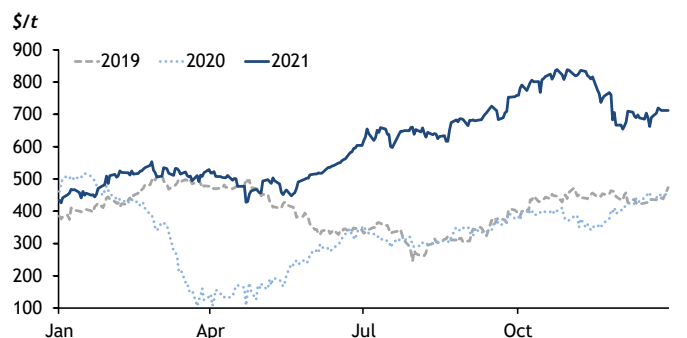
Propane NWE, Mont Belvieu, Japan



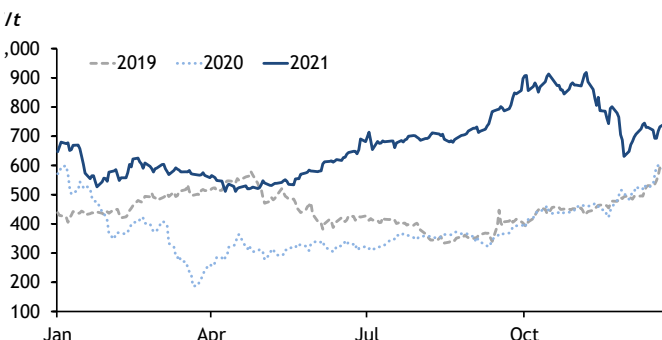
Propane cif NWE cargoes large



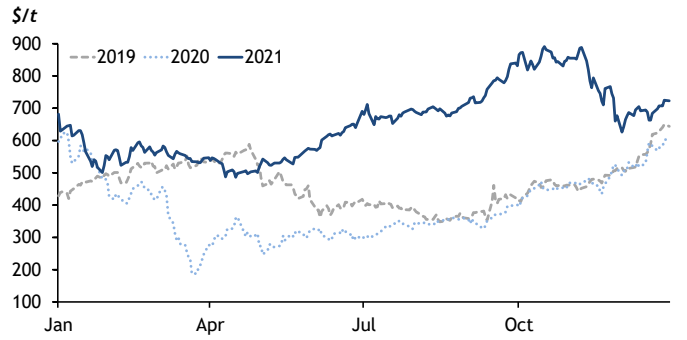
Butane cif NWE cargoes large



Propane Argus Far East Index



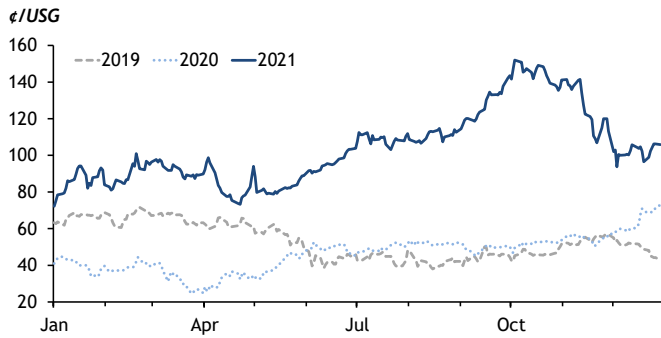
Butane Argus Far East Index



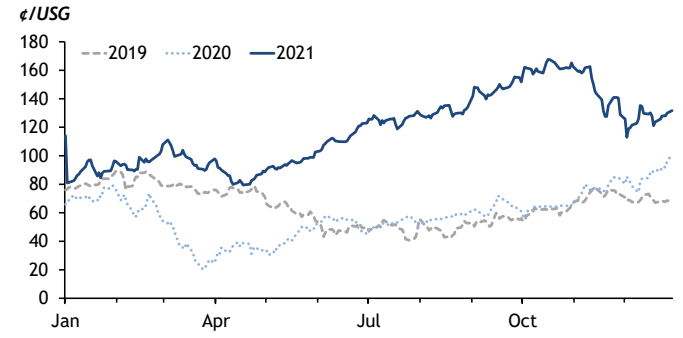
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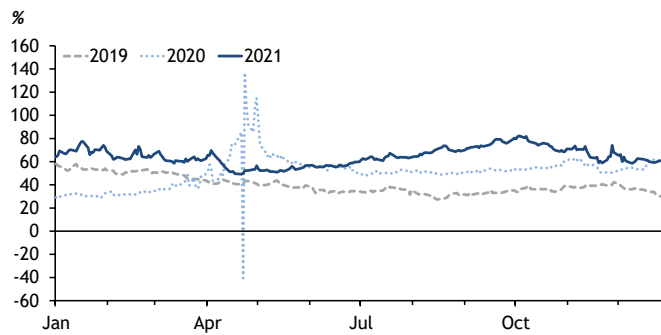
Propane Mont Belvieu non-LST



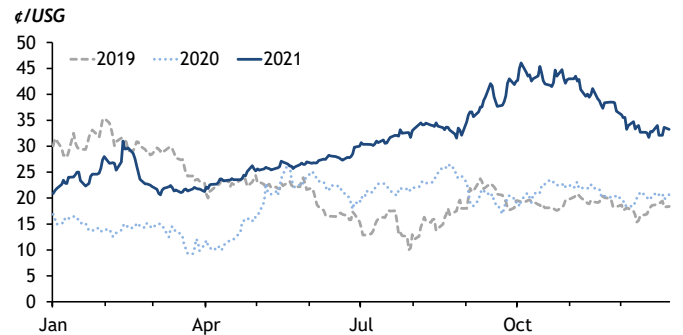
Butane Mont Belvieu non-LST



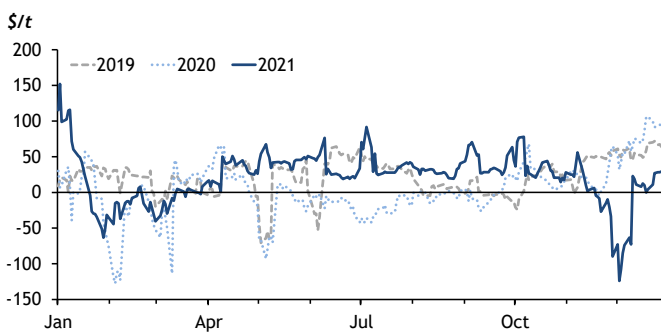
Propane Mont Belvieu LST vs Nymex WTI



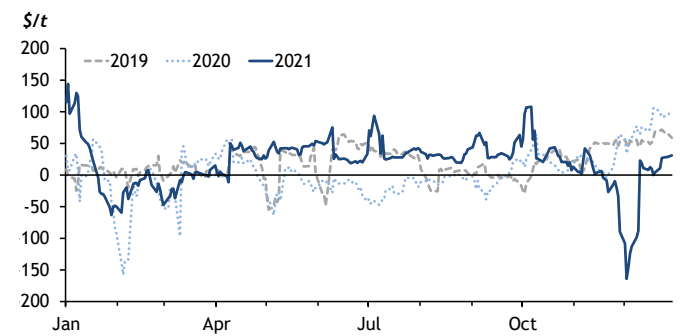
Ethane Mont Belvieu



Propane CFR Japan differential to Saudi CP



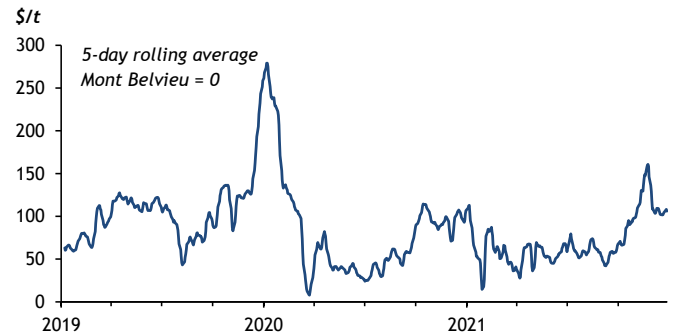
Butane CFR Japan differential to Saudi CP



NWE: Propane differential to naphtha



Propane: NWE differential to Mont Belvieu



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BACKGROUND

Primary energy developments 2021

The recovery in energy consumption in 2021 has been even more rapid than its destruction in 2020. A rise of 5.5pc to 14.2bn t of oil equivalent (toe) pushes 2021's consumption above even 2019's at 14bn toe. This recovery was driven largely by vaccine roll-outs allowing Covid-19 restrictions to be lifted and allowing regular economic activity to resume.

In terms of consumption, oil was strong with an increase of almost 2bn bl, demonstrating a general trend of higher demand. Natural gas is up by 5pc and coal 6pc year on year. Renewables follow suit emphatically with an increase of 15pc and even nuclear energy increased by 4pc. The only decrease was in hydroelectricity at a drop of 2pc.

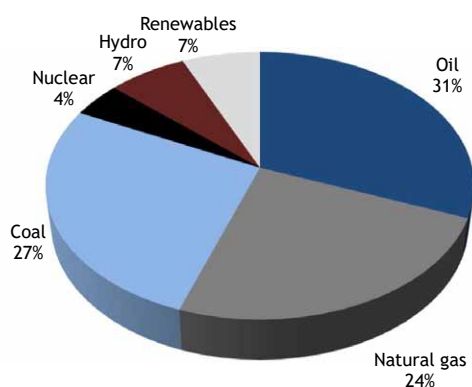
China's energy consumption continues to grow rapidly and now makes up 27pc of global consumption. China's 3.77bn toe is the main constituent of Asia-Pacific's 46pc of global energy consumption, followed by India at 6pc, totalling 846mn toe. Much of this growth, in both countries, has come from coal, totalling 154mn toe across the two countries as it continues to be the largest supplier of energy in these regions, making up 55pc in Chinese and 57pc of Indian energy mixes. Although in China oil and renewables have also made significant increases in contributions of 32mn toe and 67mn toe, an increase of 6.5pc and 33pc, respectively.

Other significant consumers were Japan making up 424mn toe of consumption, an amount that increased from 2020 but still below pre-pandemic levels. South Korea grew by 5pc pushing it to 300mn toe, and Indonesia is at 198mn toe. These demand increases have come largely in oil, renewables and coal. Japanese coal consumption is up by 5pc in 2021, oil in South Korea is up by 7pc, and across all three countries renewables have increased by 6.69mn toe. All three countries remain dominated by fossil fuels with oil taking the largest portion of Japanese and South Korean use, while Indonesia is still mostly a coal-consuming country.

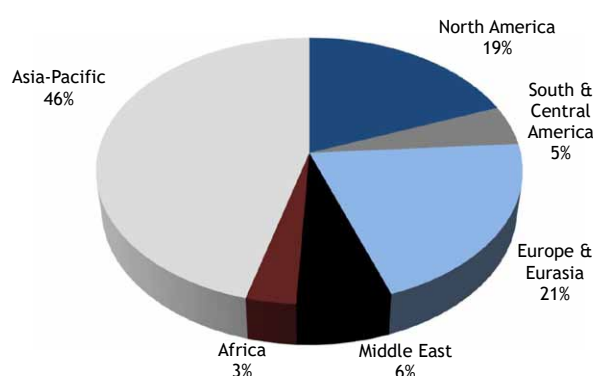
European energy in 2021 was highly variable. Many countries posted rapid recoveries from the 2020 demand shock. Double-digit percentage growth was posted in Belgium, Bulgaria and Estonia with many others growing upwards of 5pc such as Spain, Poland, Turkey and France. In contrast, although many countries either stagnated or even continued to shrink such as Ireland at minus 0.1pc, Switzerland at minus 3.2pc, and many small markets falling by upwards of 7pc. Meanwhile, the UK and Germany recorded modest consumption growth of 1.2pc and 2.1pc, respectively.

The US continues to grow its renewable sector at a remarkable rate, managing a 12pc increase over 2020. However,

Primary energy consumption by fuel, 2021



Primary energy consumption by region, 2021



Primary Energy Consumption by Fuel							mn toe
	Oil	Natural gas	Coal	Nuclear	Hydroelectric	Renewables	Total
Total World 2020	4,159	3,306	3,608	584	981	831	13,469
Total World 2021	4,399	3,471	3,823	604	961	953	14,212
Difference	5.8%	5.0%	6.0%	3.6%	-2.0%	14.7%	5.5%

– BP Statistical Review, July 2022

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BACKGROUND

most US growth came in the oil sector with an increase of 67mn toe propelling the US to a total market of 2.2bn toe, a 5pc increase on last year.

The CIS posted strong region-wide consumption growth led by Russia with 8.7pc growth to a total of 747mn toe, beyond even its 2019 numbers. As in past years, this was dominated by natural gas consumption making up 55pc of the market and posting a 44mn toe increase on 2020.

Many markets in Latin America showed strong growth in 2021 with countries such as Ecuador and Peru growing by 16pc each in 2021. Overall growth in the region was strong at 7pc but held back by lower growth from Brazil of 5pc, only just reaching pre-pandemic levels. In a region that is usually heavily dependent on hydroelectricity, a poor year for the power generation left the region dependent on fossil fuels to make up the difference. Oil consumption grew by 25mn toe and natural gas by 13mn toe, a respective 10pc and 11pc increase between 2020 and 2021.

Primary Energy Consumption, 2021							<i>mn toe</i>
	Oil	Natural gas	Coal	Nuclear	Hydroelectric	Renewables	Total
US	844	711	252	177	58	179	2,220
Canada	100	102	11	20	86	14	333
Total North America	1,004	889	269	199	151	202	2,715
Argentina	29	39	2	2	4	5	82
Brazil	106	35	17	3	82	57	300
Chile	17	5	6	0	4	7	40
Colombia	17	11	3	0	13	2	46
Ecuador	12	0	0	0	6	0	18
Mexico	61	76	6	3	8	9	162
Peru	12	7	1	0	7	1	29
Trinidad & Tobago	1	13	0	0	0	0	15
Venezuela	14	21	0	0	14	0	49
Other	61	9	6	0	19	8	102
Total South & C. America	270	140	35	6	148	80	680
Austria	12	8	3	0	10	4	35
Azerbaijan	4	11	0	0	0	0	16
Belarus	8	16	1	1	0	0	26
Belgium	31	15	2	11	0	6	65
Czech Republic	10	8	13	7	1	2	40
Finland	8	2	3	5	4	6	28
France	69	37	6	82	13	18	225
Germany	100	78	51	15	4	54	302
Greece	12	6	2	0	1	4	25
Hungary	8	9	1	3	0	2	24
Italy	56	62	5	0	10	18	152
Kazakhstan	15	13	37	0	2	1	68
Netherlands	36	30	6	1	0	10	83
Norway	9	4	1	0	32	3	49
Poland	33	20	45	0	1	8	106
Portugal	10	5	0	0	3	5	23
Romania	11	10	4	2	4	2	34
Russia	160	408	81	48	48	1	747
Spain	59	29	4	12	7	23	134
Sweden	13	1	1	11	16	12	55
Switzerland	9	3	0	4	8	1	26
Turkey	45	49	42	0	13	15	163

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BACKGROUND

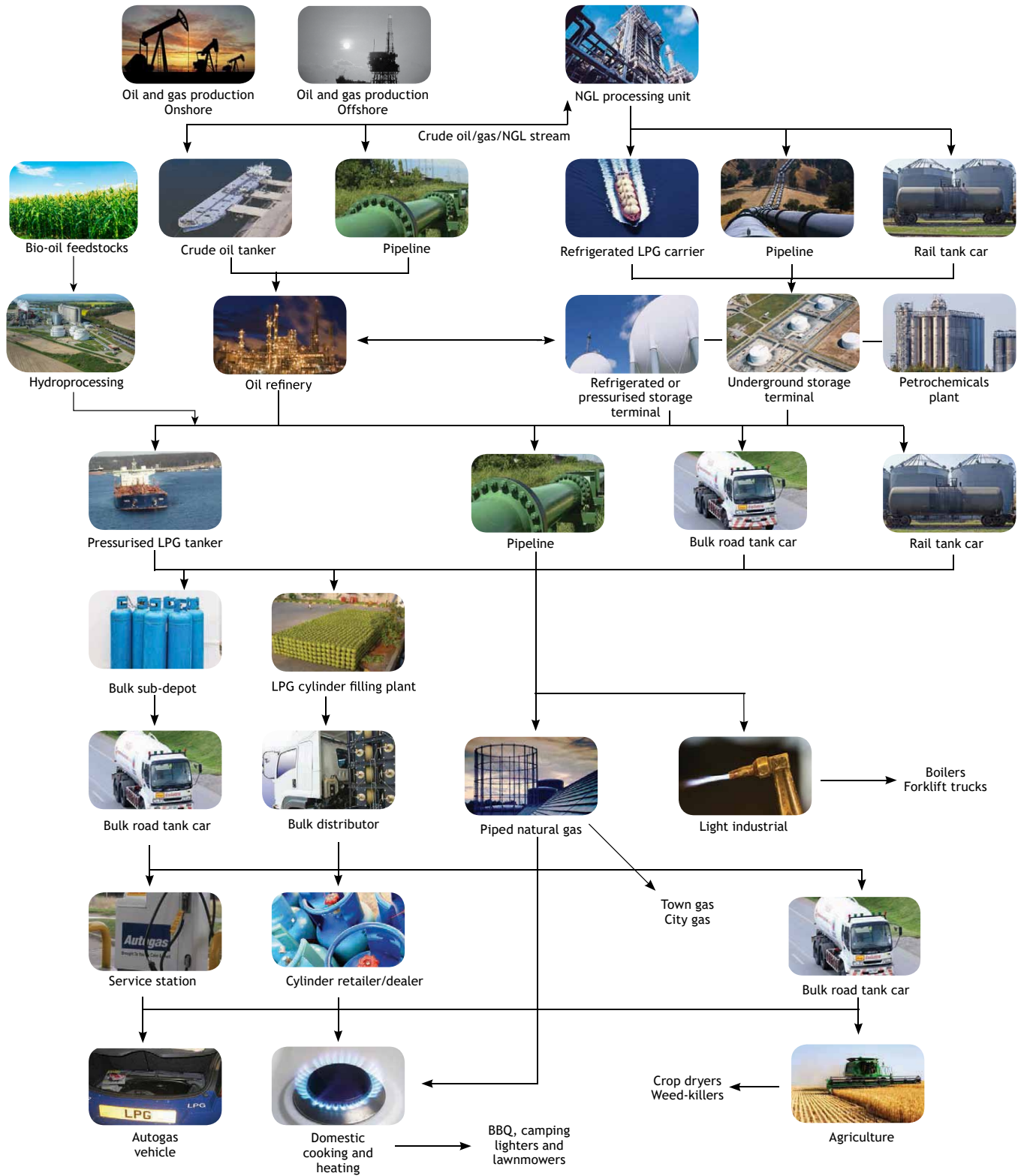
Primary Energy Consumption							mn toe
	Oil	Natural gas	Coal	Nuclear	Hydroelectric	Renewables	Total
Turkmenistan	7	32	0	0	0	0	38
Ukraine	11	22	23	19	2	3	80
UK	60	66	5	10	1	30	171
Uzbekistan	4	40	2	0	1	0	47
Other	61	32	25	9	26	17	169
Total Europe & Eurasia	861	1,016	363	240	206	245	2,930
Iran	78	207	2	1	3	0	291
Iraq	35	15	0	0	1	0	51
Israel	10	10	4	0	0	1	25
Kuwait	20	22	0	0	0	0	42
Oman	10	25	0	0	0	0	36
Qatar	12	34	0	0	0	0	46
Saudi Arabia	157	101	0	0	0	0	258
UAE	43	60	2	2	0	1	108
Other	24	21	0	0	0	1	47
Total Middle East	389	495	8	3	4	4	904
Algeria	19	39	0	0	0	0	59
Egypt	31	53	1	0	3	2	91
Morocco	13	1	7	0	0	2	23
South Africa	25	3	84	2	0	4	119
Other	100	45	7	0	31	3	186
Total Africa	188	141	100	2	35	11	477
Australia	46	34	39	0	4	14	137
Bangladesh	9	27	3	0	0	0	39
China	731	326	2,058	88	292	270	3,765
Hong Kong	13	4	4	0	0	0	21
India	225	53	480	9	36	43	846
Indonesia	68	32	78	0	6	15	198
Japan	158	89	115	13	17	31	424
Malaysia	35	35	21	0	7	2	100
New Zealand	7	3	2	0	5	3	20
Pakistan	24	39	16	3	8	1	92
Philippines	20	3	19	0	2	4	47
Singapore	70	11	1	0	0	0	83
South Korea	129	54	73	34	1	10	300
Sri Lanka	6	0	1	0	2	0	9
Taiwan	46	23	40	6	1	3	119
Thailand	54	40	19	0	1	8	122
Vietnam	22	6	51	0	17	6	103
Other	26	9	28	0	17	1	81
Total Asia-Pacific	1,687	789	3,048	154	417	411	6,506
Total World	4,399	3,471	3,823	604	961	953	14,212

^ Less than 0.5

– BP Statistical Review, July 2022

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LPG DISTRIBUTION CHAIN



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METHODOLOGY

Definitions

LPG:

Liquefied petroleum gas including propane, n-butane, iso-butane, butane mixtures and propane-butane mixtures only. In some markets a small amount of unsaturated product may be included.

rLPG:

Renewable LPG (rLPG) is a low-carbon energy source as its carbon footprint is up to 80pc lower than of conventional LPG. It is identical in its chemical structure to conventional LPG. It is a flexible drop-in fuel, making it easy for a conventional LPG user to switch to a renewable alternative.

Consumption by sectors*

Domestic:

Includes residential and commercial use for LPG as a cooking and heating fuel primarily from cylinders and bulk tanks.

Agriculture:

LPG use in crop drying, weed and pest control, irrigation and non-highway agricultural vehicles.

Industry:

LPG consumed in manufacturing and light industrial applications, such as glass-blowing, ceramics manufacture, welding, food processing and heating for boilers. Some volumes in the commercial sector may be included.

Autogas:

Use as automotive vehicle fuel in passenger cars, taxi fleets, company vehicle fleets, buses and light trucks, but excluding forklift trucks.

Refinery:

LPG used as a feedstock for crude oil refining processes or as a fuel at refineries.

Chemical:

LPG used as a feedstock for olefins production and other chemical processes. Some feedstock use in refineries may be included.

*A comprehensive resource on the over 1,000 applications of LPG can be found at the WLPGA's global portal on LPG Applications, found at <http://www.lpg-apps.org>.

LPG properties and conversion factors

LPG Properties		
Property	Propane (C ³ H ⁸)	Butane (C ⁴ H ¹⁰)
Liquid density	0.50-0.51	0.57-0.58
Gas density/Air	1.40-1.55	1.90-2.10
Ratio Gas/Liquid	274 Vols	233 Vols
Boiling Point	-45 °C	-2 °C
Latent Heat Vaporisation	358 KJ/kg	372 KJ/kg
Specific Heat Liquid	0.60 Btu/ft ³	0.57 Btu/ft ³
Sulphur Content	0-0.02%	0-0.02%
Flammability Limit	2.2-10.0%	1.8-9.0%
Calorific Values	2,500 Btu/ft ³	3,270 Btu/ft ³
	21,500 Btu/lb	21,200 Btu/lb
	11,900 Kcal/kg	11,800 Kcal/kg
	50.4 MJ/kg	49.5 MJ/kg
Minimum ignition temp.	460 °C	410 °C

Useful Conversion Factors		
	Propane (C ³ H ⁸)	Butane (C ⁴ H ¹⁰)
USG/t	521	458
Imperial gallons/t	433	381
Litres/t	1,968	1,732
Therms/t	474	465
b/t	12	11
t/m ³	0.582	0.600
1t of LPG = 1.18t of oil equivalent		
1 nautical mile = 1.85km		

VLGC: very large gas carrier.

LGC: large gas carrier.

NGLs: natural gas liquids

Common Units of Measurement

Barrels: bl

Cubic feet: ft³

Cubic metres: m³

Litres: l

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WORLD LPG ASSOCIATION AND ARGUS MEDIA

About the WLPGA

The World LPG Association (WLPGA) is the authoritative voice of the global LPG industry, representing all its sectors. The primary aim of the association is to add value to the sector through driving premium demand for LPG, while also promoting compliance to good business and safety practices. It brings together private and public companies involved in one, several or all activities of the industry. It develops partnerships with international organisations and implements projects on local and global scales. The association was established in 1987 and granted Special Consultative Status with the UN Economic and Social Council in 1989.

WLPGA Vision

The WLPGA promotes the use of LPG worldwide to foster a safer, cleaner, healthier and more prosperous world.

WLPGA Mission Statement

The WLPGA mission statement forms the three principal goals of the WLPGA, namely Advocacy, Business Improvement, and Innovation and Growth.

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Note on data revisions

Each year *Argus* updates the previous year's figures in cases where new data have become available and revised data have been published — or statistical mismatches have been identified. In particular, we would like to highlight the following changes to figures in this edition of the *Statistical Review of Global LPG*:

- **North America production:** Historical 2020 production figures for the US and Canada have been revised upward as better data became available.

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