

The LNG industry

GIIGNL ANNUAL REPORT

2017

THE LNG INDUSTRY IN 2016

Editorial

Dear Colleagues,

In 2016, global LNG trade recorded a growth rate of around **7.5%** compared to 2015, returning to a robust pace experienced before 2011.

Primarily driven by new Australian volumes, additional supply was not as abundant as expected due to production delays, slower ramp-ups and lower exports from historical suppliers. As a result, the expected “wave” of LNG has not materialized yet, and some signs of market tightness have even been observed towards year-end due to colder weather than usual in Europe and North East Asia.

On the import side the year was marked by soaring deliveries to the Middle East, confirming the region’s status of rising star amongst importers. After a moderate growth performance in 2015, China and India came back onto the front stage and confirmed their strong appetite for competitively priced LNG.

Sluggish oil prices have continued to exert downward pressure on LNG contract prices. In the Pacific Basin, a combination of more than adequate supply and of slow demand growth also pushed spot prices to a seven-year low. This situation and the looming supply overhang are causing a slow-down in investment with several FIDs being cancelled or deferred.

Despite the addition of new supply sources in 2016 (APLNG, GLNG, Gorgon, Sabine Pass, Malaysia LNG train 9), import patterns remain largely regional. We observed a slight shift in trade towards Asia Pacific, as additional volumes from Australia and Indonesia went into Asia and kept more Qatari LNG into the Middle East. Shipping costs have become a determining factor of LNG trade. While the general consensus predicted that US exports would essentially end-up in Asia and transit through the newly-expanded Panama Canal, more than two thirds of the cargoes leaving Sabine Pass in 2016 eventually remained in the Atlantic Basin.

Looking at future years, with Australian projects ramping-up and new trains from the United States progressively coming online, the global LNG market could become oversupplied until the mid 2020’s. Nevertheless, surplus capacity could be progressively absorbed by additional imports and/or by shut-ins, both as a consequence of low price levels, resulting in a market rebalancing in the first part of the decade. Given the scarce number of FIDs taken in recent months (only 1 in Indonesia and 1 in the US) a tightening of supplies in the long run can be expected, perhaps slowing down the emergence of a more flexible and liquid traded LNG market. In this context more than ever, cooperation along the value chain will be needed in order to reduce costs and develop new projects in due time.

In order to respond to market changes and cope with the uncertainty of future supply and demand, LNG contracting strategies have grown in importance. In this respect, most buyers pay particular attention to flexibility—in terms of destination as well as off-take obligations— and price competitiveness. In a well-supplied market and given the significant quantities under long-term contracts which are due to expire in the medium-term—particularly in Japan—the share of spot and short-term volumes (which remained stable at around 28% of total trade) could increase further in the coming years.

Facilitated by the development of FSRU solutions, LNG imports appear today as an expedient, efficient and safe solution to provide new markets with a clean and secure source of energy. A valuable alternative to diesel, LNG is also poised to be increasingly used as a fuel for heavy-duty trucks and public transportation. In light of the Paris COP21 agreement and given the necessity to quickly reduce emissions, the role of gas should indeed be pivotal in order to partner with renewables and offer flexibility to meet the growing energy requirements in the power generation, urban



development and transport sectors. In maritime transport, the recent decision of IMO to implement a global cap on sulphur emissions by 2020 is opening new opportunities for LNG as a marine fuel and several terminal operators worldwide are developing bunkering services.

Committed to the promotion of LNG imports worldwide and to the exchange of best practices, GIIGNL remains determined to assist in facilitating the cooperation of LNG players along the value chain with a view to optimizing efficiency and maintaining the highest safety standards of our industry.

Yours sincerely,

Jean-Marie Dauger
President

A handwritten signature in black ink, appearing to read 'J. Dauger', written over a horizontal line.

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2016



263.6 million tons imported
or a **7.5%** increase vs. 2015

74.6 million tons traded on a spot or short
term basis or **28%** of total trade

73% of global LNG demand in Asia

30% of global LNG volumes
supplied from Qatar

45% of global LNG volumes
supplied from the Pacific Basin

4 NEW IMPORTING COUNTRIES
11 NEW LNG REGASIFICATION TERMINALS

39
IMPORTING COUNTRIES

830 MTPA
TOTAL REGASIFICATION CAPACITY

19
EXPORTING COUNTRIES

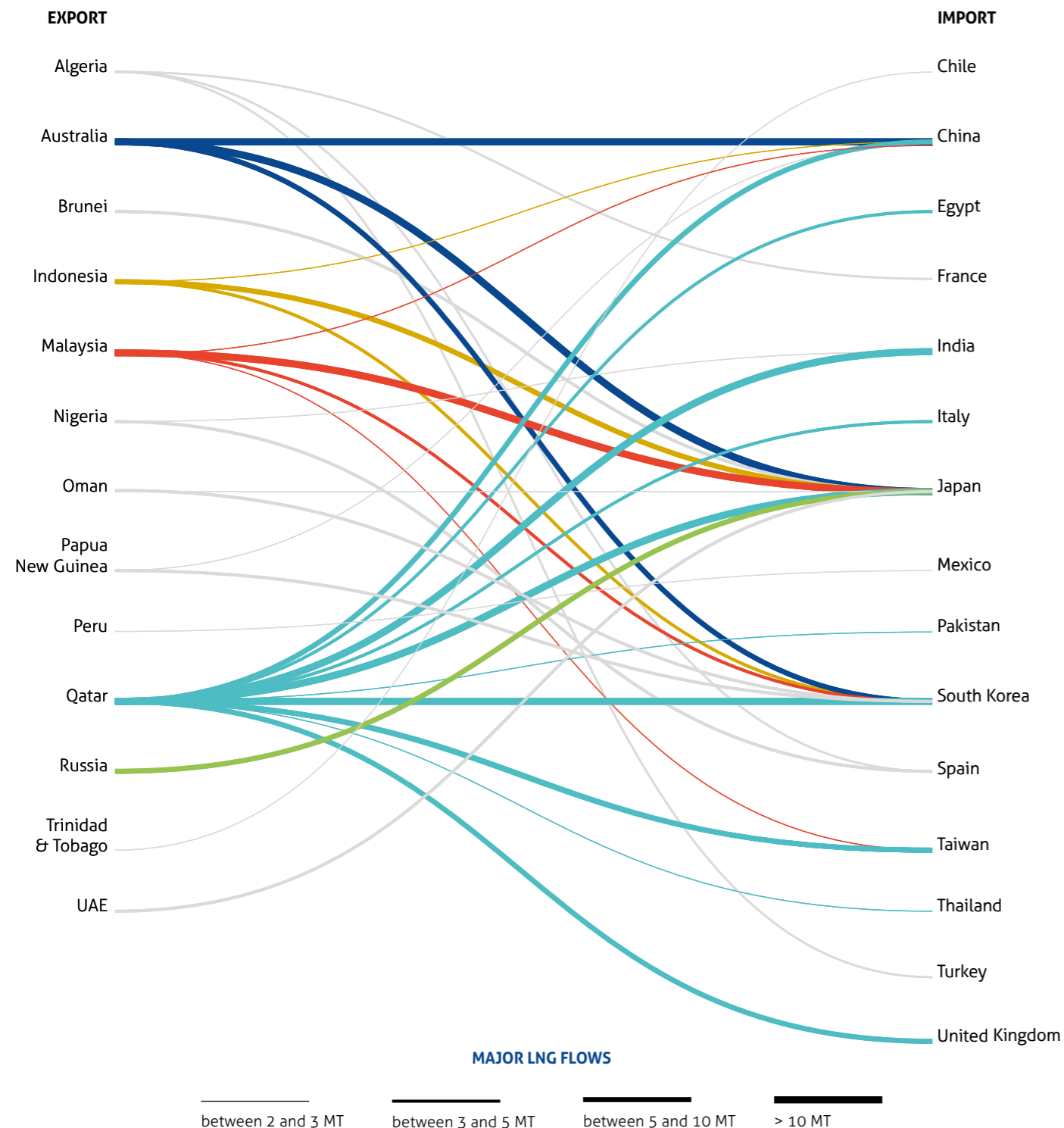
340 MTPA
TOTAL NAMEPLATE LIQUEFACTION CAPACITY



LNG TRADE IN 2016

In 2016, global LNG imports increased by +18 MT (+7.5 % y.o.y, compared with an average annual growth rate of +0.5% over the previous four years).

TOTAL IMPORTS AT THE END OF 2016 AMOUNTED TO 263.6 MT, COMPARED WITH 158.9 MT IN 2006.



LOWER THAN EXPECTED BUT ROBUST SUPPLY GROWTH

On the supply side, 2016 was marked by a lower than expected but still robust supply growth (+7.5%). The year did not see any “wave” of LNG breaking over the market, despite a number of favorable developments, such as the resumption of production in Angola and Egypt, the start-up of exports from the US Gulf of Mexico and the commissioning of five new liquefaction trains in Australia. In addition, a 9th train was commissioned in Malaysia at the end of the year.

Due to the slow ramp-up of several Australian projects, the combined new liquefaction capacity of 36 MT worldwide starting up in the course of the year, only added 18MT of actual new supply in 2016. Australia alone produced 15.4MT of additional quantities, essentially from new production by APLNG Train 1 and 2, Gorgon Train 1 and 2 and GLNG Train 2.

As a result, the Pacific Basin reconquered the top position among producing regions with 45% of global supply, followed by the Middle-East (35.5%) and the Atlantic Basin (19.5%).

In the Atlantic Basin, shortage of feed-gas in Trinidad and political uncertainty in Nigeria resulted in production declines of respectively -1.4MT and -1.7MT. These declines were partially offset by the restart of the Soyo liquefaction plant in Angola and of the Idku plant in Egypt, with both facilities supplying a combined 1.3MT to the market. The Atlantic Basin’s most notable supply addition came from the United States, where Sabine Pass Train 1 and 2 came on-stream and delivered 2.6MT.

In the Middle East, Qatar produced above its nominal capacity (79.6MT vs 77MT), remaining the largest producing country with 30.2% of global LNG supply.

CHINA, INDIA AND EMERGING IMPORTERS DRIVING DEMAND GROWTH

After a moderate growth performance in 2015, Chinese demand soared in 2016 due to an increase in gas-fired power generation and in demand from the industrial sector. As a result, China experienced a strong rally in LNG imports in 2016, with an impressive 36.9% growth.

Thanks in part to low spot prices and to a price sensitive LNG demand, Indian imports also jumped (+30%), reaching 19MT and confirming the country’s rank of 4th largest LNG buyer worldwide.

Emerging importers recorded strong gains in 2016. For their second year as LNG importers, Egypt, Pakistan and Jordan imported a combined 13.5MT in 2016 vs 5.5MT in 2015. Growth was led by Egypt, who experienced a steep increase in 2016 with 7.5MT imported (almost tripling from its 2015 level) mainly via spot and short-term imports.

In contrast, demand in mature importing markets such as Japan, South Korea and Europe remained sluggish. In Japan, LNG imports declined for the second year in a row to 83.3 MT (-1.7 MT) due to the restart of several nuclear units, to energy conservation efforts and to the uptake in renewable power generation.

Against expectations, Europe did not function as a sink for the production increase in 2016. The UK recorded the largest decline in imports year-on-year (-2.6MT or -26%), due to higher supply of pipeline gas and domestic production. Belgium and the Netherlands also recorded declines of respectively -58% and -42%. France showed an opposite trend (+1.2MT or +28%, net of re-exports).

TOWARDS A MORE FLEXIBLE MARKET?

Despite the addition of new supplies from Australia and the United States, the share of spot and short-term transactions (defined as transactions under contracts of 4 years or less) remained stable for the second consecutive year, at around 28% of total trade.

As in 2015, international LNG flows remained largely intra-regional due to the large quantities having been contracted long-term with fixed destination and to relatively low price differentials between the different basins, which in turn held back cargo diversions during most of the year. Primarily driven by Australian volumes and by growing demand in China and India, intra-Pacific LNG trade still held the lion’s share (43%) of global LNG flows in 2016.

As a result of the long-term contracts in force, the largest flows of 2016 included shipments from Australia to Japan (22.4MT) and China (12.7MT), from Malaysia to Japan (15.5MT), and from Qatar to Japan (12.1MT), South Korea (11.9) and India (11.4MT).

Contrary to expectations, the much heralded new exports from the Gulf of Mexico (Sabine Pass Train 1 and 2) were primarily delivered to countries in Latin America (58%), followed by Asia (19%) and the Middle-East (14%). European countries only absorbed 9% of these volumes.

On the supply side, Qatar was the main source of spot and short-term volumes to global markets (27% in 2016, vs 30% in 2015), followed by Australia (14% in 2016 thanks in part to the ramp-up cargoes from its new trains, vs 9% in 2015). Nigeria did not supply as much spot and short-term LNG as in 2015 due to a lower overall output.

On the demand side, spot and short-term imports were negatively impacted by the overall reduction of LNG imports into Brazil—traditionally a large importer of spot LNG volumes—as well as by a decline in spot and short-term purchases in Japan (-5.5MT) and South Korea (-1.1MT). The start-up of a long-term contract in Pakistan came at the expense of the country’s demand growth on the spot and short-term market.

Although China imported 7.4MT of additional LNG in 2016, the country increased its spot and short-term imports by only 1.6MT, the rest being already covered by long-term commitments.

In 2016, a total 4.5 MT was re-exported from 11 countries to 21 importing countries, on a par with 2015 re-exports. Re-exports from Spain dropped from 1.2 MT in 2015 to 0.1 MT in 2016, but quadrupled for the French terminals, from 0.4 MT in 2015 to 1.2 MT last year.

In the meantime, other signs indicate an evolution towards a greater flexibility in the trade, and the commercial patterns are evolving as destination-free volumes increase and as new buyers and sellers join the market.

In contrast to a limited appetite for spot and short-term volumes in most mature markets, the Middle East expanded its spot and short-term imports to 17.4MT in 2016 compared with 6.4MT in 2015. Egypt experienced the largest increase, absorbing an additional 4.9MT, primarily from Qatar and Nigeria.

The share of “pure” spot trades - defined by GIIGNL as trades whereby cargoes are delivered within 3 months from the transaction date - is estimated for 2016 at approximately 18% of total LNG volumes, representing about 47 MT, up from a share of 15% (37 MT) in 2015. Main drivers of this growth are China, India and Egypt, accounting together for 30% (15MT) of the “pure” spot LNG volumes imported in 2016.



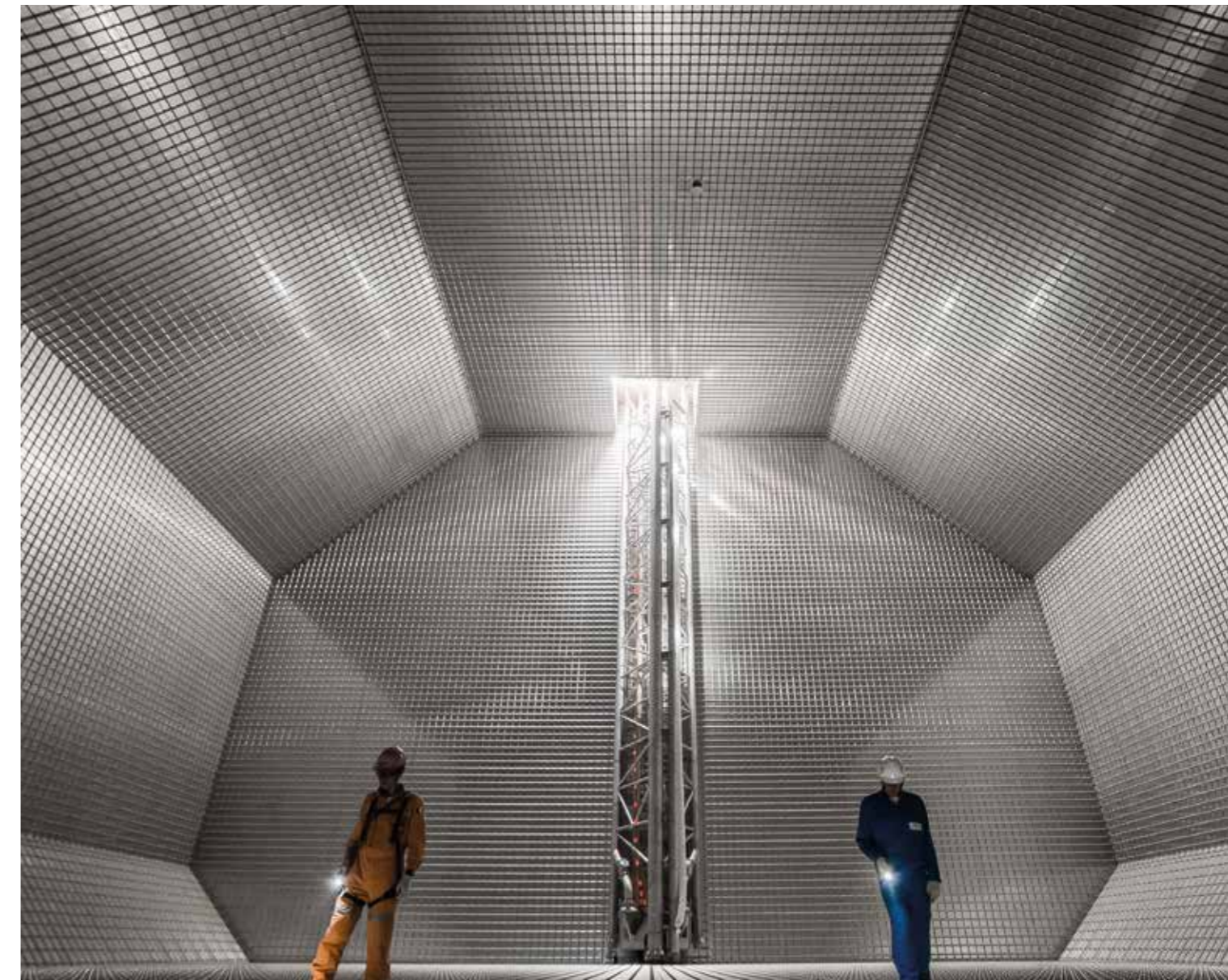
CONTRACTS CONCLUDED IN 2016

Origin	Export country/exporter	Buyer	Import country	ACQ (MTPA)	Duration (years)	Comments	Start	Delivery format	
LONG & MEDIUM TERM SALES (>4 YEARS)	Indonesia / Tangguh Expansion / BP	PLN	Indonesia	20 cargoes/year until 2019. Then 44 cargoes/year from 2020	17		2017	DES	
	Mozambique Area 4 Project	BP	BP Portfolio	>3.3	20+		2021-2022	FOB	
	Portfolio / BP	CPC	Taiwan	0.7	5	Option to extend for 4 years	2017	DES	
	Portfolio / BP	PTT	Thailand	1	20		2017	DES	
	Portfolio / Chevron	ENN	China	0.65	10		2018-2019	DES	
	Portfolio / Origin Energy Limited	ENN	China	0.28	5	Option to extend for 5 years	2018-2019	DES	
	Portfolio / Total	ENN	China	0.5	10		2018-2019	DES	
	Portfolio / Chevron	Pertamina	Multiple	0.2	6		2016	FOB	
	Portfolio / ENGIE	AES	Dominican Republic	0.7	12		2017	DES	
	Portfolio / JERA	Centrica	UK	0.5	5	This is a flexible sales arrangement	2019	DES	
	Portfolio / Ocean LNG Limited	CELSE - Centrais Eléctricas de Sergipe S.A.	Brazil	1.3	25	First SPA to be entered into by Ocean LNG	2020	DES	
	Portfolio / Petronas	Hokuriku Electric	Japan	up to 6 cargoes per annum	10		2018	DES	
	Portfolio / Petronas	Toho Gas	Japan	7 to 9 cargoes per annum	10		2017	DES	
	Portfolio / Total	Pertamina	Indonesia	0.4 to 1	15		2020	DES	
	Qatar / Qatargas II / Qatargas	Global Energy Infrastructure Ltd. (GEIL)	Pakistan	1.3	20	There are provisions allowing the volume to increase to 2.3MTPA	2018	DES	
	Qatar / Qatargas II T1 / Qatargas	Pakistan State Oil	Pakistan	3.75	15		2016	DES	
	Qatar / Qatargas III / Qatargas	RWE Supply & Trading	Multiple	1.1	7.5		2016	DES	
	Qatar / RasGas III / RasGas	EDF	France	2	4		2017	DES	
	USA / Calcasieu Pass LNG / Venture Global	Shell	Multiple	1	20		2019	FOB	
	USA / Cameron LNG Project / Diamond Gas	Toho Gas	Japan	3 cargoes per annum (approx. 0.2 MTPA)	19		2019	DES	
USA / Corpus Christi / Pertamina	Total	Multiple	0.4	15		2020	FOB		
SHORT TERM CONTRACTS (≤4 YEARS)	Angola / ALNG / Angola LNG	EDF Trading Ltd	Multiple	Multiple cargoes	2	This is a flexible sales arrangement	2016	DES	
	Portfolio / JERA	EDF Trading Ltd	Multiple	Multiple cargoes	2.5	This is a flexible sales arrangement	2018	DES	
	Portfolio / ENGIE	Beijing Gas Group	China	0.67	3 months		2016	DES	
	Portfolio / Koch Supply & Trading	LDT (Lietuvos Dujų Tiekimas)	Lithuania	0.13 (2 TWh)	1		2017	DES	
	Portfolio / BB Energy	EGAS	Egypt	2 cargoes			2017	DES	
	Portfolio / Glencore	EGAS	Egypt	25 cargoes			2017	DES	
	Portfolio / Gunvor	EGAS	Egypt	2 cargoes			2017	DES	
	Portfolio / Noble Energy	EGAS	Egypt	7 cargoes			2017	DES	
	Portfolio / Trafigura	EGAS	Egypt	18 cargoes			2017	DES	
	Portfolio / Vitol	EGAS	Egypt	7 cargoes			2017	DES	
	Portfolio / Pavilion	EMA	Singapore	1	3		2017	DES	
	Portfolio / Shell	EMA	Singapore	1	3		2017	DES	
	Portfolio / BP	Kuwait Petroleum Corporation	Kuwait	1	4		2016	DES	
	Portfolio / Noble Energy	Kuwait Petroleum Corporation	Kuwait	0.5	4		2017	DES	
	Portfolio / Shell	Kuwait Petroleum Corporation	Kuwait	1	4		2016	DES	
	Qatar / Qatargas II / Qatargas	Kuwait Petroleum Corporation	Kuwait	0.5	4		2016	DES	
	Qatar / Qatargas III / Qatargas	Centrica	UK	2	5		2019	DES	
	Qatar / Qatargas IV / Qatargas	Petronas	UK	1	5		2018	DES	
	HEADS OF AGREEMENT (HOAs)	Canada / Woodfibre LNG Project / Woodfibre	Guangzhou Gas Group	China	1	25		2020	FOB
		Portfolio / Chevron	Jovo Group	China	0.5	5		2018	DES
Portfolio / Petronas		Jovo Group	China	0.5	7		2016	DES	
Portfolio / Petronas		GS Energy	South Korea	0.4	5		2018	DES	
Portfolio / Petronas		PTT	Thailand	1.2	15		2017	DES	
Portfolio / Mitsui		Hokkaido Gas	Japan	2 to 3 cargoes per annum (0.13 to 0.2 MTPA)	10		2019	DES	
Portfolio / Total		Chugoku Electric	Japan	0.4	17		2019	DES	
Portfolio / Woodside		Pertamina	Indonesia	0.5 to 1	20		2019	DES	
USA / Cameron LNG Project / Diamond Gas		Tokyo Gas	Japan	0.2	19		2020	DES	
USA / Jordan Cove LNG T1		JERA	Japan	1.5	20		2020	FOB	
USA / Jordan Cove LNG T2	Itochu	Japan	1.5	20		2020	FOB		
MEMORANDUMS OF UNDERSTANDING (MOUs)	Portfolio / ENGIE	AES	Panama	0.4	10		2018	DES	
	Portfolio / Uniper	SCOC	Emirates of Sharjah	1.7	5	Option to extend for 5 years	2018	DES	
	USA / Monkey Island LNG	Jovo Group	China	2	20		2022	FOB	

LONG-TERM AND MEDIUM-TERM CONTRACTS IN FORCE

Export country	Loading point	Seller	Buyer	ACQ (MTPA)	Duration	Type of contract	Comments	
ATLANTIC BASIN								
ALGERIA	Skikda-Bethioua	Sonatrach	Botaş	3.02	1994/2019	DES		
			Cepsa Gas	0.77	2002/2022	DES		
			DEPA	0.35	2000/2021	FOB		
			Endesa	0.75	2002/2017	DES		
			Enel	0.029	1999/2022	DES	Delivery under the "GDF SUEZ/Enel" swap agreement	
			ENGIE	2.5	1972/2019	DES		
				3.7	1976/2019	DES		
				1.3	1992/2019	FOB		
				1.33	1997/2017	FOB		
				1.15	2002/2021	DES		
EGYPT	Damietta	SEGAS	BP	1	2005/2025	FOB	No deliveries in 2016	
			Union Fenosa gas	3.3	2005/2030	FOB	No deliveries in 2016	
			ELNG T1	ENGIE	3.6	2005/2025	FOB	
			Idku	ELNG T2	Shell	3.6	2006/2026	FOB
EQUATORIAL GUINEA	Punta Europa	EGLNG	Shell	3.3	2006/2023	FOB		
NIGERIA	Bonny Island	Nigeria LNG T1 & 2	Botaş	0.91	1999/2021	DES		
			Enel	2.43	1999/2022	DES		
			ENGIE	0.33	1999/2022	DES		
			Galp Energia	0.26	2000/2020	DES		
			Gas Natural Fenosa	1.17	1999/2021	DES		
			Galp Energia	0.73	2003/2023	DES		
			Gas Natural Fenosa	1.99	2002/2024	DES		
			Endesa	0.75	2006/2026	DES		
			ENI	1.15	2006/2026	DES		
			Galp Energia	1.42	2006/2026	DES		
			Iberdrola	0.38	2006/2026	DES		
			Shell	2.3	2006/2026	DES		
			Shell	1.13	2006/2026	DES		
			Total	0.23	2006/2026	DES		
			Nigeria LNG T6	Shell	3.1	2008/2027	DES	
Total	0.9	2008/2027	DES					
NORWAY	Hammerfest	Statoil	ENGIE	ENGIE	0.5	2007/depletion	FOB	
			Iberdrola	1.13	2006/2025	DES		
			Petronas	0.1	2012/depletion	FOB		
			Statoil	1.75	2007/2021	DES		
			Total	0.7	2007/depletion	FOB		
			Atlantic LNG T1	ENGIE	1.6	1999/2018	FOB	
			Gas Natural Fenosa	1.06	1999/2018	FOB		
			ENGIE	Ecoelectrica	0.6	2000/2020	DES	Related to ENGIE/ALNG T1 contract
			BP	0.85	2002/2021	FOB		
			ENGIE	0.35	2002/2023	FOB		
Gas Natural Fenosa	0.65	2002/2023	FOB					
TRINIDAD & TOBAGO	Point Fortin	Atlantic LNG T2 & 3	Naturgas Energia	0.74	2003/2023	FOB	GNF/Naturgas swap. GNF buys 0.74 MTPA on a FOB basis until 2023.	
				1.7	2004/2023	FOB		
			Shell	0.4	2004/2026	DES		
				2	2006/2023	FOB		
			BP	AES	0.75	2003/2023	DES	Related to BP/ALNG T2 & 3 contract
			BP	2.5	2006/2025	FOB		
			Atlantic LNG T4	Shell	1.5	2007/2027	FOB	
				2	2014/2026	FOB		

Export country	Loading point	Seller	Buyer	ACQ (MTPA)	Duration	Type of contract	Comments	
ATLANTIC BASIN								
USA	Sabine Pass	Cheniere	Cheniere Marketing	excess from Sabine Pass	2016+	FOB		
			Gas Natural Fenosa	3.5	2016/2036	FOB		
			Shell	5.5	2016/2036	FOB		
MIDDLE EAST								
OMAN	Qalhat	Oman LNG	KOGAS	4.06	2000/2024	FOB		
			Osaka Gas	0.66	2000/2024	FOB		
			Itochu Corp.	0.77	2006/2026	FOB		
			Mitsubishi Corp.	0.8	2006/2020	FOB		
			Osaka Gas	0.8	2009/2026	FOB		
		Qalhat LNG	Union Fenosa Gas	1.65	2006/2025	DES		
			Chugoku Electric, JERA, Kansai Electric, Osaka Gas, Toho Gas, Tohoku Electric, Tokyo Gas	2	1998/2021	DES		
			Gas Natural Fenosa	0.75	2005/2024	DES		
			Gas Natural Fenosa	0.75	2006/2025	FOB		
			JERA	4	1997/2021	DES		
QATAR	Ras Laffan	Qatargas I	JERA	1	2012/2021	DES		
			Shizuoka Gas	0.2	2016/2021	DES	Tripartite SPA (Qatar Liquefied Gas Co., Ltd. JERA Co., Inc. and Shizuoka Gas)	
			ExxonMobil	7.8	2009/2034	DES		
			Pakistan State Oil	3.75	2016/2031	DES	New LT contract	
			PGNiG	1.1	2015/2034	DES		
		Qatargas II T2	CNOOC	2	2011/2035	DES		
			ExxonMobil	0.6	2009/2033	DES		
			Total	1.85	2009/2034	DES		
			Total	1.5	2009/2034	DES		
			Total	1.15	2009/2034	DES		
QATAR	Ras Laffan	Qatargas III	Centrica	3	2014/2023	DES	Extension of the previous 4 years and half contract. Nominal quantity (ACQ) 2014/2018: 3 MTPA; 2019/2023: 2 MTPA	
			ConocoPhillips	7.8	2010/2035	DES		
			JERA	1	2013/2028	DES	Nominal quantity (ACQ) 2013/2017: 1 MTPA; 2018/2028: 0.7 MTPA	
			Kansai Electric	0.5	2013/2027	DES		
			PTT	1	2015/2029	DES		
		Qatargas IV	RWE Supply & Trading	1.1	2016/2023	DES	New MT contract	
			Tohoku Electric	0.06-0.09	2016/2030	DES		
			Marubeni	1	2011/2031	DES		
			Petrochina	3	2011/2036	DES		
			Petronas	1.14	2014/2023	DES	Extension of the previous 5 years contract. Nominal quantity (ACQ) 2014/2018: 1.14 MTPA; 2019/2023: 1.1 MTPA	
UNITED ARAB EMIRATES	Das Island	Adgas	Shell	3.6	2011/2036	DES		
			Uniper	1.5	2014/2018	DES		
			Endesa	0.74	2005/2025	DES		
			RasGas I	KOGAS	4.92	1999/2024	FOB	
			RasGas II T1	Petronet LNG	5	2004/2028	FOB	
			RasGas II T2	Edison	4.6	2009/2034	DES	
			RasGas II T3	CPC	3.08	2008/2032	FOB	
				EDF Trading	3.4	2007/2027	DES	Extended to 2027
				ENI	2.05	2007/2027	DES	Former Distrigas contract
			RasGas III T1	ExxonMobil	7.8	2009/2034	DES	
KOGAS	2.1	2007/2026		DES				
Petronet LNG	2.5	2009/2029		FOB				
RasGas III T2	CPC	1.5	2013/2032	DES				
	ExxonMobil	7.8	2010/2035	DES				
	KOGAS	2	2012/2032	DES				
	Petronet LNG	1	2016/2028	FOB				
YEMEN	Balhaf	Yemen LNG T1 & 2	JERA	4.3	1994/2019	DES		
			Yemen LNG T1	KOGAS	2	2008/2028	FOB	No deliveries in 2016
			Yemen LNG T2	ENGIE	2.55	2009/2029	FOB	No deliveries in 2016



Export country	Loading point	Seller	Buyer	ACQ (MTPA)	Duration	Type of contract	Comments
PACIFIC BASIN							
AUSTRALIA	Withnell Bay	Woodside, Shell, BHP, BP Australia, Chevron, Japan Australia LNG Pty Ltd (Mitsubishi & Mitsui)	Chugoku Electric	1.43	2009/2021	DES	
			GDLNG	3.3	2006/2030	FOB	
			JERA	0.5	2009/2016	DES	
			JERA	0.3	2009/2024	DES	
			JERA	0.6	2009/2029	DES	
			Kansai Electric	0.5-0.93	2009/2024	DES	
			Kansai Electric	0.2-0.44	2009/2024	DES	
			KOGAS	0.5	2003/2016	DES	Last cargo delivered in 2016
			Kyushu Electric	0.7	2009/2023	FOB	
			Kyushu Electric	0.5	2006/2021	DES	
			Osaka Gas	1	2004/2033	FOB	
			Shizuoka Gas	0.13	2004/2029	FOB	
			Toho Gas, Tokyo Gas	1.37	2004/2029	FOB	
			Toho Gas	0.76	2009/2019	DES	
			Tohoku Electric	1	2010/2019	DES	
			Tokyo Gas	0.5	2009/2024	DES	

Export country	Loading point	Seller	Buyer	ACO (MTPA)	Duration	Type of contract	Comments			
PACIFIC BASIN										
	Darwin	Conocophillips, ENI, Santos, Inpex, JERA, Tokyo Gas	JERA	2	2006/2022	FOB				
			Tokyo Gas	1	2006/2022	FOB				
	Pluto	Pluto LNG	Kansai Electric	1.75-2	2011/2025	FOB/DES				
			Tokyo Gas	1.5	2011/2025	FOB/DES				
			CNOOC	3.6	2014/2034	DES				
		QCLNG	Shell	up to 8.5	2014/2034	FOB				
			Tokyo Gas	1.2	2015/2035	DES				
AUSTRALIA	Curtis Island	GLNG	KOGAS	3.5	2015/2030	FOB				
			PETRONAS	3.5	2015/2035	DES				
	APLNG	Kansai Electric	1	2016/2035	FOB					
		Sinopec	4.3	2016/2036	FOB					
		JERA	1.44 + 0.06	2014/2039	FOB/DES					
Barrow Island	Gorgon LNG	JX Nippon Oil & Energy Corporation	0.3	2015/2030	DES					
		Kyushu Electric	0.3	2015/2029	DES					
		Osaka Gas	1.375 + 0.1875	2014/2039	FOB					
		Shell	3.5	2016/2036	FOB					
		Tokyo Gas	1.1 + 0.15	2014/2039	FOB					
BRUNEI	Lumut	Brunei LNG	JERA, Osaka Gas, Tokyo Gas	3.4	2013/2023	DES				
			KOGAS	1	1997/2018	DES				
			Petronas	0.9	2013/2023	DES				
			Shell	0.8	2013/2023	FOB				
			CPC	1.84	1998/2017	DES				
INDONESIA	Bontang	Bontang LNG	JERA, Kansai Electric, Kyushu Electric, Nippon Steel & Sumitomo Metal, Osaka Gas, Toho Gas	2	2011/2020	FOB/DES	Nominal quantity (ACO) 2011/2015: 3 MTPA; 2016/2020: 2 MTPA			
			KOGAS	1	1998/2017	FOB				
			PLN	1.5	2012/2022	FOB				
			Pertamina	0.4	2016/2021	FOB				
	Donggi-Senoro	PT Donggi-Senoro LNG	JERA	1	2015/2028	DES				
			KOGAS	0.7	2015/2028	FOB				
			Kyushu Electric	0.3	2015/2028	DES				
			CNOOC	2.6	2009/2033	FOB				
	Tangguh	Tangguh PSC Contractor Parties	Kansai Electric	1	2014/2035	DES				
			PLN	1.5	2015/2033	DES				
Posco			0.55	2005/2024	DES					
Sempra LNG			3.7	2008/2029	DES	1.7 MTPA divertible				
SK E&S			0.6	2006/2026	DES					
Tohoku Electric			0.12	2010/2024	DES					
Hiroshima Gas			0.1	2016/2026	FOB					
MALAYSIA	Bintulu	Malaysia LNG Satu	JERA, Tokyo Gas	7.4	1983/2003	1.8 MTPA FOB 5.6 MTPA DES	Extended to 2018			
			Saibu Gas	0.45	2014/2028	DES/FOB				
			Shikoku Electric	0.36	2010/2025	DES				
				CPC	2	1995/2020	DES	The contract has been extended in 2014 from 2015 to 2020		
				Gas Bureau, City of Sendai	0.15	1997/2018	DES			
				JERA	0.54	2011/2031	DES			
				JX Nippon Oil & Energy Corporation	0.38	2015/2025	DES			
				Malaysia LNG Dua	KOGAS	1-2	1995/2018	FOB		
					Shizuoka Gas	0.45	1996/2016	DES		
						0.33	2016/2025	DES	Extended with a new SPA	
Tohoku Electric					0.5	1996/2016	DES			
							0.37	2016/2026	DES	
						Tokyo Gas	0.9	2015/2025	DES	
	Malaysia LNG Tiga	CNOOC	3			2009/2029	DES			
		Japan Petroleum Exploration Co.	0.48			2002/2021	DES			
		KOGAS	2			2008/2028	DES			
		Osaka Gas, Toho Gas, Tokyo Gas	0.68			2004/2024	DES			
	Malaysia LNG	Toho Gas	0.52			2007/2027	DES			
		Tohoku Electric	0.5			2005/2025	DES			
		Osaka Gas	0.8			2009/2023	DES			
		CPC	1.2			2014/2033	DES			
PAPUA NEW GUINEA	Port Moresby	PNG LNG	JERA	1.8	2014/2034	DES/FOB				
			Osaka Gas	1.5	2014/2034	DES				
			Sinopec	2	2014/2034	DES				
PERU	Pamba Melchorita	Peru LNG	Shell	4.2	2014/2028	FOB				
RUSSIA	Prigorodnoye	Sakhalin Energy Investment	Gazprom Global LNG	1	2009/2028	DES				
			Hiroshima Gas	0.21	2008/2028	FOB				
			JERA	1.5	2009/2029	FOB				
				0.5	2011/2026	DES				

Export country	Loading point	Seller	Buyer	ACO (MTPA)	Duration	Type of contract	Comments
PACIFIC BASIN							
RUSSIA	Prigorodnoye	Sakhalin Energy Investment	KOGAS	1.5	2008/2028	FOB	
			Kyushu Electric	0.5	2009/2031	DES	
			Osaka Gas	0.2	2008/2031	FOB	
			Saibu Gas	0.065	2014/2027	DES	
			Shell	1	2009/2028	DES	
			Toho Gas	0.5	2009/2033	DES	
			Tohoku Electric	0.42	2010/2030	FOB	
			Tokyo Gas	1.1	2007/2031	FOB	
OTHER							
BP PORTFOLIO		BP	Huadian Corporation	up to 1	2016/2036		
BP PORTFOLIO		BP	JERA	0.5	2012/2028	DES	
BP PORTFOLIO		BP	Kansai Electric	up to 13 MTPA through 23 years	2015/2038	DES	Total quantity of LNG during contract duration: approx 13 MT
BP PORTFOLIO		BP	Kuwait Petroleum Corporation	0.5	2014/2020	DES	
ENI PORTFOLIO		Chubu Electric	EDP + Hidrocantabrico	0.36	2005/2016	DES	
ENI PORTFOLIO		ENI	Iberdrola	0.92	2002/2018	DES	
ENI PORTFOLIO		ENI	JERA/KOGAS	*	2013/2017	DES	*Total quantity of LNG during the contract duration: 28 cargoes (approx. 1.68 MTPA)
ENI PORTFOLIO		ENI	Uniper	0.65	2007/2022	DES	
GAS NATURAL FENOSA PORTFOLIO		ENI	BHP Billiton	0.64	2016/2036	FOB	
GAZPROM PORTFOLIO		Gas Natural Fenosa	EGAS	35 cargoes during 5 years	2015/2020		
IBERDROLA PORTFOLIO		Gazprom	BP	0.38	2012/2021		
IBERDROLA PORTFOLIO		Iberdrola	DONG	0.72	2011/2021	DES	
JERA PORTFOLIO		JERA	INPEX	*	2013/2018	DES	*Total quantity of LNG during contract duration: 17 cargoes
JERA PORTFOLIO		JERA	Shizuoka Gas	0.26	2014/2032	DES	
KYUSHU ELECTRIC PORTFOLIO		Kyushu Electric	Nippon Gas	0.05	2016/2031	DES	
OSAKA GAS PORTFOLIO		Osaka Gas	Hiroshima Gas	0.05-0.13	2016/2031	DES	
OSAKA GAS PORTFOLIO		Osaka Gas	Shizuoka Gas	0.3	2015/2034	DES	
SHELL PORTFOLIO		Shell	BBE	-0.8	2003/2023		
SHELL PORTFOLIO		Shell	CFE	-3.08	2011/2027		
SHELL PORTFOLIO		Shell	CNOOC	3.6	2014/2034	DES	
SHELL PORTFOLIO		Shell	CNOOC	5	2015/2035	DES	
SHELL PORTFOLIO		Shell	CNPC	2	2016/2036	DES	
SHELL PORTFOLIO		Shell	CPC	2	2016/2036	DES	
SHELL PORTFOLIO		Shell	ENGIE	0.4	2014/2034	DES	
SHELL PORTFOLIO		Shell	Gas Natural Fenosa	1.16	2006/2023	DES	
SHELL PORTFOLIO		Shell	GNL Chile	3	2009/2030	DES	
SHELL PORTFOLIO		Shell	GSPC	Up to 2.5	2015/2035	DES	
SHELL PORTFOLIO		Shell	JERA	*	2014/2034	DES	*Maximum 12 cargoes per year
SHELL PORTFOLIO		Shell	JERA	up to 0.4	2014/2035	DES	
SHELL PORTFOLIO		Shell	JX Nippon Oil & Energy Corporation	0.2	2012/2029	DES	
SHELL PORTFOLIO		Shell	KOGAS	1.3	2008/2016	DES	Last cargo delivered in 2016
SHELL PORTFOLIO		Shell	KOGAS	1-3.64	2013/2035	DES	
SHELL PORTFOLIO		Shell	Kuwait Petroleum Corporation	1.07	2014/2019	DES	
SHELL PORTFOLIO		Shell	Malta	0.3	2016/2026	DES	
SHELL PORTFOLIO		Shell	NEPCO	1.1	2015/2020	DES	
SHELL PORTFOLIO		Shell	Osaka Gas	-0.8	2012/2038	DES	
SHELL PORTFOLIO		Shell	Singapore LNG	3	2013/2033	DES	
STATOIL PORTFOLIO		Statoil	Litgas	0.26	2015/2025	DES	
TOKYO GAS PORTFOLIO		Tokyo Gas	Hokkaido Gas	0.3-0.4	2012/2023	DES	
TOKYO GAS PORTFOLIO		Tokyo Gas	Saibu Gas	0.3	2014/2029	DES	
TOTAL PORTFOLIO		Total	Cepsa Gas Comercializadora	0.75	2006/2022	DES	
TOTAL PORTFOLIO		Total	CNOOC	1	2010/2024	DES	
TOTAL PORTFOLIO		Total	KOGAS	Up to 2	2014/2031	DES	

LNG SHIPPING

2016 HIGHLIGHTS

The total LNG tanker fleet consisted of 478 vessels at the end of 2016.

It included 24 FSRUs and 30 vessels of less than 50,000 cubic meters. Total shipping capacity at the end of 2016 stood at 69.3 million cubic meters. Total operational capacity (vessels that are known to be in service) amounted to 64.7 million cubic meters. In 2016, the average spot charter rate for a 160,000 cubic meters LNG carrier stood at \$33,528/day, compared to an average \$36,038/day in 2015.

10 new orders were placed, including one FSRU and 3 bunkering vessels, compared with 33 new orders placed in 2015.

This is the lowest number of new orders since 2010. At the end of 2016, the orderbook comprised of 137 vessels, 121 of which were above 50,000 cubic meters. 64 vessels were scheduled for delivery in 2017.

LNG CARRIERS SCRAPPED IN 2016 / 2 ships were demolished during the year:

Built	Vessel Name	IMO Number	Capacity (m ³)	CCS*	Owner	Builder	Manager Name
1976	Mostefa Ben Boulaid	7359955	125 260	TZM	Hyproc	Ch.De La Ciotat	Hyproc
1978	Methania	7357452	131 235	GT	Distrigas	Boelwerf	Exmar

Clarksons Research, 2017.

* Cargo Containment System

LNG CARRIERS LAID-UP, IDLE OR OTHERWISE OUT OF SERVICE AT THE END OF 2016 / 34 vessels were laid-up, idle or otherwise out of service at the end of the year. In addition, 4 vessels were idle, awaiting conversion:

Built	Vessel Name	IMO Number	Capacity (m ³)	CCS*	Owner	Builder	Manager Name
1976	Gimi	7382732	126 277	KM	Golar LNG	Moss Rosenberg	Golar LNG
1977	Gandria (ex Höegh Gandria)	7361934	125 820	KM	Golar LNG	Howaldtswerke Werft	Golar LNG
1981	Fortune FSU (ex Tenaga Tiga)	7428471	130 000	GT	Dalian Inteh Group	France-Dunkerq.	Dalian Inteh Group
1981	Lucky FSU (ex Tenaga Dua)	7428469	130 000	GT	Dalian Inteh Group	France-Dunkerq.	Dalian Inteh Group

Clarksons Research, 2017.

* Cargo Containment System

LNG CARRIERS DELIVERED IN 2016 / 31 ships were delivered during the year, including one FSRU and 2 ships of less than 50,000 cubic meters. The average capacity of vessels delivered (excluding ships under 50,000 cubic meters) amounted to 171 140 cubic meters.

Built Date	Vessel Name	IMO Number	Type	Capacity (m ³)	CCS*	Owner	Builder	Manager Name
Jan-16	Clean Vision	9655456	LNG Carrier	162 000	TZM	Dynagas LNG	Hyundai HI	Dynagas LNG
Jan-16	JS Ineos Inspiration	9685451	LNG/Ethylene/LPG	27 566	Other	Evergas AS	Sinopacific Offshore	Thome Shipmngt.
Jan-16	LNG Lagos II	9692014	LNG Carrier	176 809	TZM	Bonny Gas Transport	Hyundai HI	Bonny Gas Transport
Jan-16	LNG Saturn	9696149	LNG Carrier	155 300	KM	MOL	MHI Nagasaki	MOL
Jan-16	Maran Gas Achilles	9682588	LNG Carrier	174 000	TZM	Maran Gas Maritime	Hyundai Samho HI	Maran Gas Maritime
Feb-16	Creole Spirit	9681687	LNG Carrier	173 400	GT	Teekay	Daewoo (DSME)	Teekay
Mar-16	Gaslog Greece	9687019	LNG Carrier	174 000	TZM	GasLog	Samsung HI	GasLog
Mar-16	Höegh Grace	9674907	FSRU	170 000	TZM	Höegh LNG	Hyundai HI	Höegh LNG
Mar-16	LNG Abuja II	9690169	LNG Carrier	174 900	TZM	Bonny Gas Transport	Samsung HI	Bonny Gas Transport
Mar-16	Woodside Chaney	9682576	LNG Carrier	174 000	TZM	Maran Gas Maritime	Hyundai Samho HI	Maran Gas Maritime
May-16	Kumul	9613161	LNG Carrier	172 000	GT	MOL	Hudong Zhonghua	MOL
May-16	Maran Gas Agamemnon	9682590	LNG Carrier	174 000	TZM	Maran Gas Maritime	Hyundai Samho HI	Maran Gas Maritime
Jun-16	Gaslog Glasgow	9687021	LNG Carrier	174 000	TZM	GasLog	Samsung HI	GasLog
Jun-16	LNG Abalambie	9690171	LNG Carrier	174 900	TZM	Bonny Gas Transport	Samsung HI	Bonny Gas Transport
Jun-16	LNG Fukurokuju	9666986	LNG Carrier	165 134	KM	MOL	Kawasaki HI Sakaide	MOL
Jul-16	Maran Gas Amphipolis	9701217	LNG Carrier	173 400	GT	Maran Gas Maritime	Daewoo (DSME)	Maran Gas Maritime
Jul-16	Oak Spirit	9681699	LNG Carrier	173 400	GT	Teekay	Daewoo (DSME)	Teekay
Aug-16	Maran Gas Pericles	9709489	LNG Carrier	174 000	TZM	Maran Gas Maritime	Hyundai Samho HI	Maran Gas Maritime
Sep-16	Gaslog Geneva	9707508	LNG Carrier	174 000	TZM	GasLog	Samsung HI	GasLog
Sep-16	La Mancha Knutsen	9721724	LNG Carrier	176 300	TZM	Knutsen OAS Shipping	Hyundai HI	Knutsen OAS Shipping
Sep-16	Seri Camellia	9714276	LNG Carrier	150 200	KM	MISC	Hyundai HI	MISC
Oct-16	CESI Gladstone	9672820	LNG Carrier	174 000	GT	China Shipping LNG	Hudong Zhonghua	China Shipping LNG
Oct-16	Gaslog Gibraltar	9707510	LNG Carrier	174 000	TZM	GasLog	Samsung HI	GasLog
Oct-16	LNG Mars	9645748	LNG Carrier	155 693	KM	Osaka Gas	MHI Nagasaki	Osaka Gas
Oct-16	Maria Energy	9659725	LNG Carrier	174 000	TZM	Tsakos Energy Navigation	Hyundai HI	Tsakos Energy Navigation
Nov-16	Christophe de Margerie	9737187	LNG Carrier	172 600	GT	Sovcomflot	Daewoo (DSME)	Sovcomflot
Nov-16	Maran Gas Hector	9682605	LNG Carrier	174 000	TZM	Maran Gas Maritime	Hyundai Samho HI	Maran Gas Maritime
Nov-16	Prachi	9723801	LNG Carrier	173 323	TZM	India LNG Transport	Hyundai HI	Shipping Corporation of India
Dec-16	JS Ineos Innovation	9744958	LNG/Ethylene/LPG	27 566	Other	Evergas AS	Sinopacific Dayang	Evergas AS
Dec-16	Rioja Knutsen	9721736	LNG Carrier	176 300	TZM	Knutsen OAS Shipping	Hyundai HI	Knutsen OAS Shipping
Dec-16	Woodside Reeswithers	9732369	LNG Carrier	173 400	GT	Maran Gas Maritime	Daewoo (DSME)	Maran Gas Maritime

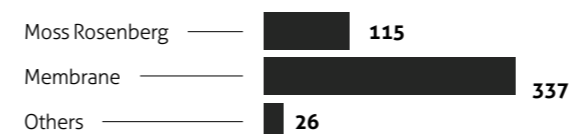
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* Cargo Containment System

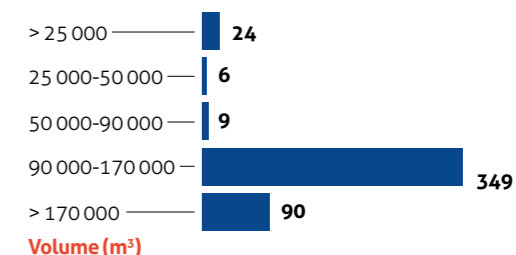
LNG FLEET STATISTICS

At the end of 2016, the fleet could be classified as follows:

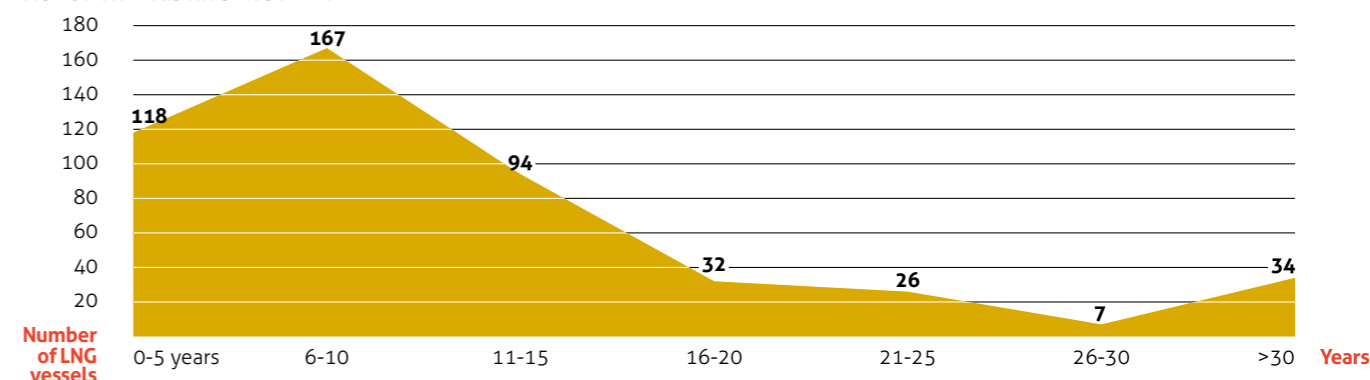
ACCORDING TO CONTAINMENT SYSTEM



ACCORDING TO CARGO CAPACITY



AGE OF THE EXISTING LNG FLEET



LNG CARRIER FLEET

Built	Vessel Name	Capacity (m ³)	CCS*	Owner	Builder	Manager Name
1972	Bebatik (ex Gadinia)	75 060	TZM	Brunei Shell Tankers	Ch. de l'Atlantique	STASCO (Shell)
1974	Seagas (ex Fjalir)	167	Other	Aga Gas AB	Fiskerstrand	Sirius Rederi
1975	Belanak (ex Gouldia)	75 000	TZM	Brunei Shell Tankers	Ch. De La Ciotat	STASCO (Shell)
1976	Gimi	126 277	KM	Golar LNG	Moss Rosenberg	Golar LNG
1976	West Energy (ex LNG Lagos)	122 000	GT	Sinokor Merchant	Ch. de l'Atlantique	Sinokor Shipmngt.
1977	East Energy (ex LNG Port Harcourt)	122 000	GT	Sinokor Merchant	Ch. de l'Atlantique	Sinokor Shipmngt.
1977	Gandria (ex Höegh Gandria)	125 820	KM	Golar LNG	Howaldtswerke Werft	Golar LNG
1977	Larbi Ben M'Hidi	129 767	GT	Hyproc	C.N.I.M.	Hyproc
1977	LNG Aquarius	126 300	KM	Hanochem Shipping	General Dynamics	MOL
1978	LNG Capricorn	126 300	KM	Nova Shipping & Logistics	General Dynamics	Nova Shipping & Logistics
1978	LNG Gemini	126 300	KM	General Dynamics	General Dynamics	Pronav Shipmngt.
1978	LNG Leo	126 400	KM	General Dynamics	General Dynamics	Pronav Shipmngt.
1979	Bachir Chihani	129 767	GT	Hyproc	C.N.I.M.	Hyproc
1979	LNG Libra	126 400	KM	Golden Concord Hldg.	General Dynamics	Thome Shipmngt.
1979	LNG Taurus	126 300	KM	Nova Shipping & Logistics	General Dynamics	Nova Shipping & Logistics
1979	LNG Virgo	126 400	KM	General Dynamics	General Dynamics	Pronav Shipmngt.
1979	Ocean Quest (ex Matthew)	126 540	TZM	Hong Kong LNG Ltd	Newport News SB	Höegh LNG
1980	Gaea (ex LNG Abuja)	126 530	KM	Avance Gas Holdings	General Dynamics	Avance Gas Holdings

Clarksons Research, 2017.

* Cargo Containment System



FSRU FLEET

The total FSRU fleet consisted of **24 units** at the end of 2016. Total FSRU cargo capacity at the end of 2016 stood at 3.6 million cubic meters. The orderbook comprised of 9 FSRUs. 6 of these vessels were scheduled for 2017 delivery.

FSRU FLEET AT THE END OF 2016

Built	Vessel Name	Capacity (m3)	IMO Number	CCS*	Owner	Builder	Manager Name
1977	Golar Freeze	125 000	7361922	KM	Golar LNG	Keppel Shipyard	Golar LNG
1977	Nusantara Regas Satu (FSRU Jawa Barat, ex Khannur)	125 000	7382744	KM	Golar LNG	Jurong Shipyard	Golar LNG
1981	Golar Spirit	129 000	7373327	KM	Golar LNG	Keppel Shipyard	Golar LNG
2003	FSRU Toscana (ex Golar Frost, FSRU Livorno)	137 000	9253284	KM	OLT Offshore	Drydocks World Dubai	ECOS
2004	Golar Winter	138 000	9256614	GT	Golar LNG	Keppel Shipyard	Golar LNG
2005	Excellence	138 120	9252539	GT	Excelerate Energy	Daewoo (DSME)	Exmar
2005	Excelsior	138 087	9239616	GT	Exmar	Daewoo (DSME)	Exmar
2006	Excelerate	138 074	9322255	GT	Exmar	Daewoo (DSME)	Exmar
2008	Explorer	151 008	9361079	GT	Exmar	Daewoo (DSME)	Exmar
2009	Express	150 900	9361445	GT	Exmar	Daewoo (DSME)	Exmar
2009	Exquisite	151 000	9381134	GT	Excelerate Energy	Daewoo (DSME)	Exmar
2009	Neptune (ex GDF Suez Neptune)	145 130	9385673	TZM	Höegh LNG	Samsung HI	Höegh LNG
2010	Exemplar	151 000	9444649	GT	Excelerate Energy	Daewoo (DSME)	Exmar
2010	Expedient	151 000	9389643	GT	Excelerate Energy	Daewoo (DSME)	Excelerate Energy
2010	GDF Suez Cape Ann	145 130	9390680	TZM	Höegh LNG	Samsung HI	Höegh LNG
2014	Experience	173 660	9638525	GT	Excelerate Energy	Daewoo (DSME)	Excelerate Energy
2014	Golar Eskimo	160 000	9624940	TZM	Golar LNG	Samsung HI	Golar LNG
2014	Golar Igloo	170 000	9633991	TZM	Golar LNG	Samsung HI	Golar LNG
2014	Höegh Gallant	170 000	9653678	TZM	Höegh LNG	Hyundai HI	Höegh LNG
2014	Independence	170 000	9629536	TZM	Höegh LNG	Hyundai HI	Höegh LNG
2014	PGN FSRU Lampung	170 000	9629524	TZM	Höegh LNG	Hyundai HI	Höegh LNG
2015	BW Singapore	170 000	9684495	TZM	BW Gas	Samsung HI	BW Gas
2015	Golar Tundra	170 000	9655808	TZM	Golar LNG	Samsung HI	Golar LNG
2016	Höegh Grace	170 000	9674907	TZM	Höegh LNG	Hyundai HI	Höegh LNG

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* Cargo Containment System

FSRU ORDERBOOK AT THE END OF 2016

Built	Vessel Name	Capacity (m3)	IMO Number	CCS*	Owner	Builder	Manager Name
2017	BW Integrity	170 000	9724946	TZM	BW Gas	Samsung HI	BW Gas
2017	GNL del Plata (ex Montevideo Uruguay FSRU)	263 000	9713105	GT	Mitsui O.S.K. Lines	Daewoo (DSME)	Mitsui O.S.K. Lines
2017	Kaliningrad	170 000	9778313	TZM	Gazprom	Hyundai HI	Gazprom
2017	N/B Hyundai HI 2552	170 000		TZM	Höegh LNG	Hyundai HI	Höegh LNG
2017	N/B Samsung HI 2189	170 000		TZM	Golar LNG	Samsung HI	Golar LNG
2017	N/B Zhoushan/Exmar	26 230		Other	Exmar Offshore	Zhoushan Wison	Exmar Offshore
2018	Penco-Lirquen (Octopus) FSRU	170 032		TZM	Höegh LNG	Hyundai HI	Höegh LNG
2019	N/B Daewoo (DSME) 2489	173 400		GT	BW Gas	Daewoo (DSME)	BW Gas
2020	N/B Daewoo (DSME) 2468	173 400		GT	Maran Gas Maritime	Daewoo (DSME)	Maran Gas Maritime

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* Cargo Containment System

QUANTITIES (IN 10⁶ T) RECEIVED IN 2016 BY THE IMPORTING COUNTRIES FROM THE EXPORTING COUNTRIES

	Algeria	Angola	Australia	Brunei	Egypt	Equatorial Guinea	Indonesia	Malaysia	Nigeria	Norway	Oman	Papua New Guinea	Peru	Qatar	Russia	Trinidad& Tobago	UAE	USA	Re-exports received	Re-exports loaded	Net imports
Japan	0.25	-	22.42	4.22	0.06	0.33	6.70	15.49	1.89	-	2.53	4.21	-	12.12	7.31	0.11	4.99	-	0.72	-	83.34
South Korea	0.12	0.07	5.14	1.38	-	0.14	4.63	3.93	0.57	0.06	4.11	0.14	0.13	11.85	1.92	-	-	-	0.20	-0.19	34.19
China	-	-	12.71	0.06	0.07	-	2.95	2.74	0.33	0.19	0.12	2.02	0.25	5.11	0.26	0.12	-	0.20	0.28	-	27.42
India	0.06	0.34	1.11	-	0.06	1.33	-	0.06	2.63	0.06	0.26	-	0.06	11.37	-	0.49	0.50	0.31	0.40	-0.06	18.99
Taiwan	0.06	-	0.27	0.31	-	0.06	2.00	2.65	0.49	0.06	0.12	1.30	-	6.37	1.20	0.05	0.06	-	0.07	-	15.07
Indonesia	-	-	-	-	-	-	3.23	-	-	-	-	-	-	-	-	-	-	-	-	-	3.23
Thailand	-	-	-	-	-	-	-	-	-	-	-	-	-	2.99	-	-	-	-	-	-	2.99
Pakistan	-	-	0.13	-	-	0.37	-	-	0.13	-	-	-	-	2.13	-	0.12	-	-	0.07	-	2.95
Singapore	-	0.07	1.34	-	0.10	0.12	-	0.06	-	-	-	-	-	0.66	-	-	0.06	-	-	-0.34	2.07
Malaysia	-	-	0.47	0.32	0.04	-	0.13	0.07	-	-	0.07	-	-	0.10	-	0.06	-	-	0.07	-	1.32
Asia	0.50	0.48	43.59	6.29	0.33	2.34	19.63	25.02	6.04	0.37	7.21	7.66	0.44	52.69	10.70	0.95	5.61	0.51	1.81	-0.60	191.57
Spain	2.14	0.07	-	-	-	-	-	-	3.59	0.57	-	-	1.32	1.99	-	0.56	-	0.05	-	-0.13	10.17
UK	0.15	-	-	-	-	-	-	-	0.14	0.19	-	-	-	7.26	-	0.06	-	-	0.07	-0.38	7.48
France	4.48	-	-	-	-	-	-	-	1.28	0.31	-	-	0.12	0.53	-	-	-	-	-	-1.17	5.55
Turkey	3.09	-	-	-	0.07	-	-	-	0.99	0.06	-	-	-	0.68	-	0.23	-	0.11	0.25	-	5.47
Italy	0.15	-	0.05	-	-	-	-	-	0.07	0.12	-	-	0.06	4.14	-	-	-	-	-	-	4.59
Portugal	0.18	-	-	-	-	-	-	-	0.84	0.06	-	-	-	0.34	-	-	-	0.07	-	-0.19	1.31
Lithuania	-	-	-	-	-	-	-	-	-	1.00	-	-	-	-	-	-	-	-	-	-	1.00
Poland	-	-	-	-	-	-	-	-	-	0.06	-	-	-	0.76	-	-	-	-	-	-	0.82
Belgium	0.005	-	-	-	-	-	-	-	-	-	-	-	-	1.78	-	-	-	-	0.01	-1.00	0.79
Greece	0.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53
Netherlands	-	-	-	-	-	-	-	-	0.06	0.50	-	-	-	0.38	-	0.11	-	-	-	-0.68	0.37
Sweden	-	-	-	-	-	-	-	-	-	0.14	-	-	-	-	-	-	-	-	0.10	-	0.24
Norway	-	-	-	-	-	-	-	-	-	0.11	-	-	-	-	-	-	-	-	0.05	-	0.16
Finland	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	0.01	-	0.02
Europe	10.72	0.07	0.05	-	0.07	-	-	-	6.97	3.13	-	-	1.50	17.86	-	0.96	-	0.23	0.49	-3.56	38.49
Egypt	-	-	0.28	-	-	0.06	-	0.07	0.96	0.20	-	-	-	4.78	-	0.35	-	-	0.81	-	7.50
Kuwait	-	0.07	0.27	-	-	0.13	0.06	-	0.32	0.07	0.71	-	-	1.61	-	0.12	-	0.12	-	-	3.49
UAE	-	-	0.27	-	0.06	0.13	0.07	-	0.75	0.06	0.13	-	-	0.94	-	0.06	0.25	0.06	0.34	-	3.10
Jordan	-	-	0.07	-	0.06	0.47	-	-	1.13	-	0.06	-	-	0.44	-	0.38	-	0.18	0.29	-	3.06
Israel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.28	-	-	-	-	0.28
Middle East	-	0.07	0.89	-	0.12	0.79	0.13	0.07	3.15	0.32	0.90	-	-	7.78	-	1.19	0.25	0.36	1.44	-	17.43
Mexico	0.07	-	0.28	-	-	0.06	0.19	-	0.56	-	-	-	2.07	-	-	0.35	-	0.45	0.07	-	4.10
Argentina	0.16	-	0.07	-	-	-	-	-	0.46	0.23	-	-	-	0.74	-	1.02	-	0.31	0.44	-	3.42
Chile	-	-	-	-	-	0.06	-	-	-	0.06	-	-	-	0.06	-	2.38	-	0.54	0.10	-	3.20
USA	-	-	-	-	-	-	-	-	-	0.07	-	-	-	-	-	1.64	-	-	-	-0.11	1.59
Brazil	-	0.14	-	-	-	0.06	-	-	0.59	0.13	-	-	-	0.50	-	0.07	-	0.18	0.03	-0.23	1.46
Puerto Rico	-	-	-	-	-	0.06	-	-	-	0.06	-	-	-	-	-	1.00	-	-	0.13	-	1.25
Dominican Rep.	-	-	-	-	-	-	-	-	-	0.06	-	-	-	-	-	0.69	-	0.05	-	-	0.80
Canada	-	-	-	-	-	-	-	-	-	0.06	-	-	-	-	-	0.17	-	-	-	-	0.23
Colombia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	-	-	-	-	0.06
Jamaica	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	0.01
Americas	0.22	0.14	0.35	-	-	0.24	0.19	-	1.62	0.66	-	-	2.07	1.30	-	7.37	-	1.54	0.77	-0.34	16.13
Total	11.44	0.76	44.88	6.29	0.51	3.37	19.95	25.08	17.78	4.49	8.12	7.66	4.01	79.62	10.70	10.46	5.86	2.64	4.50	-4.50	263.62

Exporting regions	
Variation 2016/2015	
Pacific Basin	+18.3 MT
Middle East	+0.4 MT
Atlantic Basin	-0.3 MT

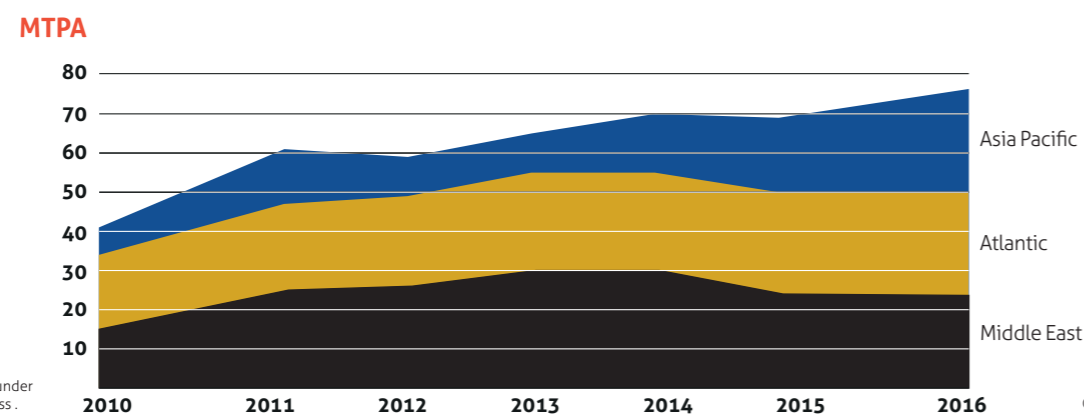
2015
245.2 MT
▼
2016
263.6 MT

Total: +18.4 MT

Importing regions	
Variation 2016/2015	
Asia	+14.5 MT
Middle East	+7.6 MT
Europe	+0.9 MT
Americas	-4.6 MT

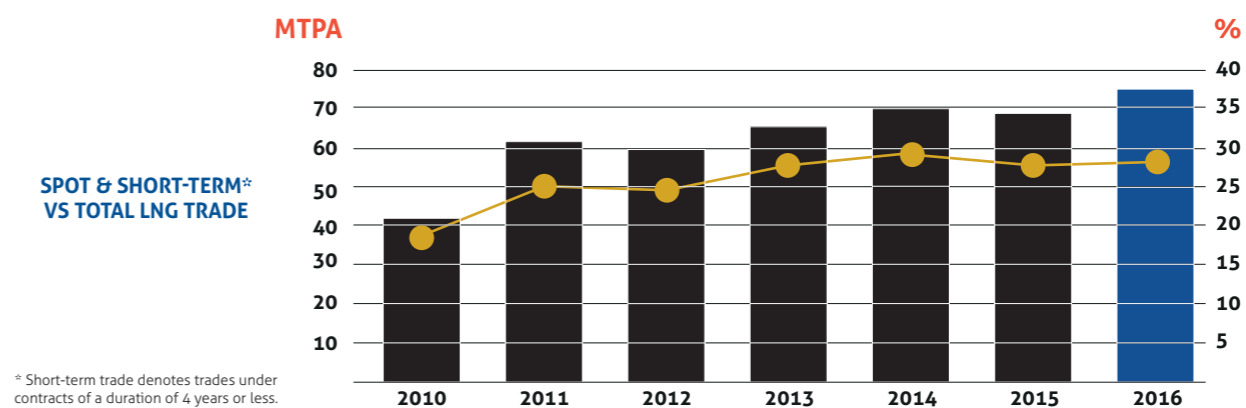
SPOT AND SHORT TERM QUANTITIES (10³ T) RECEIVED IN 2016 BY THE IMPORTING COUNTRIES FROM THE EXPORTING COUNTRIES

	Algeria	Angola	Australia	Brunei	Egypt	Equatorial Guinea	Indonesia	Malaysia	Nigeria	Norway	Oman	Qatar	Papua New Guinea	Peru	Russia	Trinidad & Tobago	UAE	USA	Re-exports received	Re-exports loaded	Net imports
Japan	249	-	3 496	315	63	261	1 655	866	1 560	-	260	2 907	898	-	1 401	114	299	-	716	-	15 060
India	62	342	970	-	64	1 010	-	61	2 500	-	195	3 101	-	59	-	486	501	247	403	-60	9 940
China	-	-	2 462	77	67	-	615	767	266	189	125	-	140	-	130	119	-	72	284	-	5 311
South Korea	124	70	1 538	61	-	66	1 614	129	386	59	-	590	140	59	64	-	-	-	195	-194	4 901
Taiwan	64	-	269	305	-	59	125	617	487	60	122	821	192	-	1 202	52	62	-	67	-	4 504
Thailand	-	-	-	-	-	-	-	-	-	-	65	847	-	-	-	-	-	-	-	-	912
Malaysia	-	-	63	-	35	-	132	-	-	-	65	95	-	-	-	60	-	-	69	-	519
Indonesia	-	-	-	-	-	-	510	-	-	-	-	-	-	-	-	-	-	-	-	-	510
Singapore	-	69	360	-	-	-	-	61	-	-	-	283	-	-	-	-	62	-	-	-343	492
Pakistan	-	-	69	-	-	-	-	-	-	-	-	92	-	-	-	119	-	-	72	-	353
Asia	499	480	9 227	758	228	1 395	4 651	2 501	5 198	308	832	8 737	1 371	118	2 797	950	923	319	1 807	-597	42 502
Egypt	-	-	280	-	-	62	-	68	956	195	-	4 781	-	-	-	346	-	-	815	-	7 503
Kuwait	-	68	270	-	-	132	62	-	317	66	710	1 611	-	-	-	124	-	124	-	-	3 485
UAE	-	-	269	-	61	125	66	-	746	59	128	944	-	-	-	59	248	56	336	-	3 097
Jordan	-	-	67	-	56	466	-	-	1 128	-	63	441	-	-	-	378	-	180	286	-	3 064
Israel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	278	-	-	-	-	278
Middle East	-	68	886	-	116	786	129	68	3 148	321	901	7 777	-	-	-	1 186	248	360	1 436	-	17 428
Mexico	67	-	278	-	-	63	-	-	564	-	-	-	-	2 069	-	347	-	452	67	-	3 907
Argentina	155	-	71	-	-	-	-	-	456	228	-	741	-	-	-	1 021	-	315	436	-	3 424
Brazil	-	138	-	-	-	58	-	-	587	132	-	495	-	-	-	73	-	178	30	-231	1 461
Chile	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	278	-	53	104	-	498
Puerto Rico	-	-	-	-	-	62	-	-	-	60	-	-	-	-	-	170	-	-	129	-	421
Canada	-	-	-	-	-	-	-	-	-	62	-	-	-	-	-	116	-	-	-	-	178
Dominican Rep.	-	-	-	-	-	-	-	-	-	57	-	-	-	-	-	59	-	54	-	-	171
USA	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	113	-	-	-	-113	68
Colombia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	-	-	-	-	56
Jamaica	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	11
Americas	222	138	349	-	-	183	-	-	1 618	608	-	1 299	-	2 069	-	2 232	-	1 052	766	-343	10 194
Spain	691	69	-	-	-	-	-	-	428	246	-	160	-	1 151	-	453	-	54	-	-128	3 124
UK	149	-	-	-	-	-	-	-	75	-	-	1 648	-	-	-	-	-	-	69	-385	1 556
Turkey	-	-	-	-	68	-	-	-	126	64	-	680	-	-	-	226	-	106	248	-	1 519
Italy	147	-	-	-	-	-	-	-	67	121	-	64	-	61	-	-	-	45	-	-	506
Portugal	33	-	-	-	-	-	-	-	-	62	-	340	-	-	-	-	-	71	-	-187	319
Norway	-	-	-	-	-	-	-	-	-	111	-	-	-	-	-	-	-	-	52	-	163
Poland	-	-	-	-	-	-	-	-	-	61	-	93	-	-	-	-	-	-	-	-	154
Sweden	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	100
Finland	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	13	-	18
Netherlands	-	-	-	-	-	-	-	-	63	63	-	377	-	-	-	-	-	-	-	-685	-182
France	-	-	-	-	-	-	-	-	58	-	-	63	-	118	-	-	-	-	-	-1 173	-935
Belgium	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-1 004	-988
Europe	1 025	69	-	-	68	-	-	-	817	733	-	3 426	-	1 330	-	679	-	276	493	-3 562	5 354
Total	1 746	755	10 461	758	412	2 364	4 780	2 569	10 781	1 970	1 733	21 239	1 371	3 517	2 797	5 047	1 171	2 007	4 503	-4 503	75 479



*Note: Short-term trade denotes trades under contracts of a duration of 4 years or less.

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* Short-term trade denotes trades under contracts of a duration of 4 years or less.

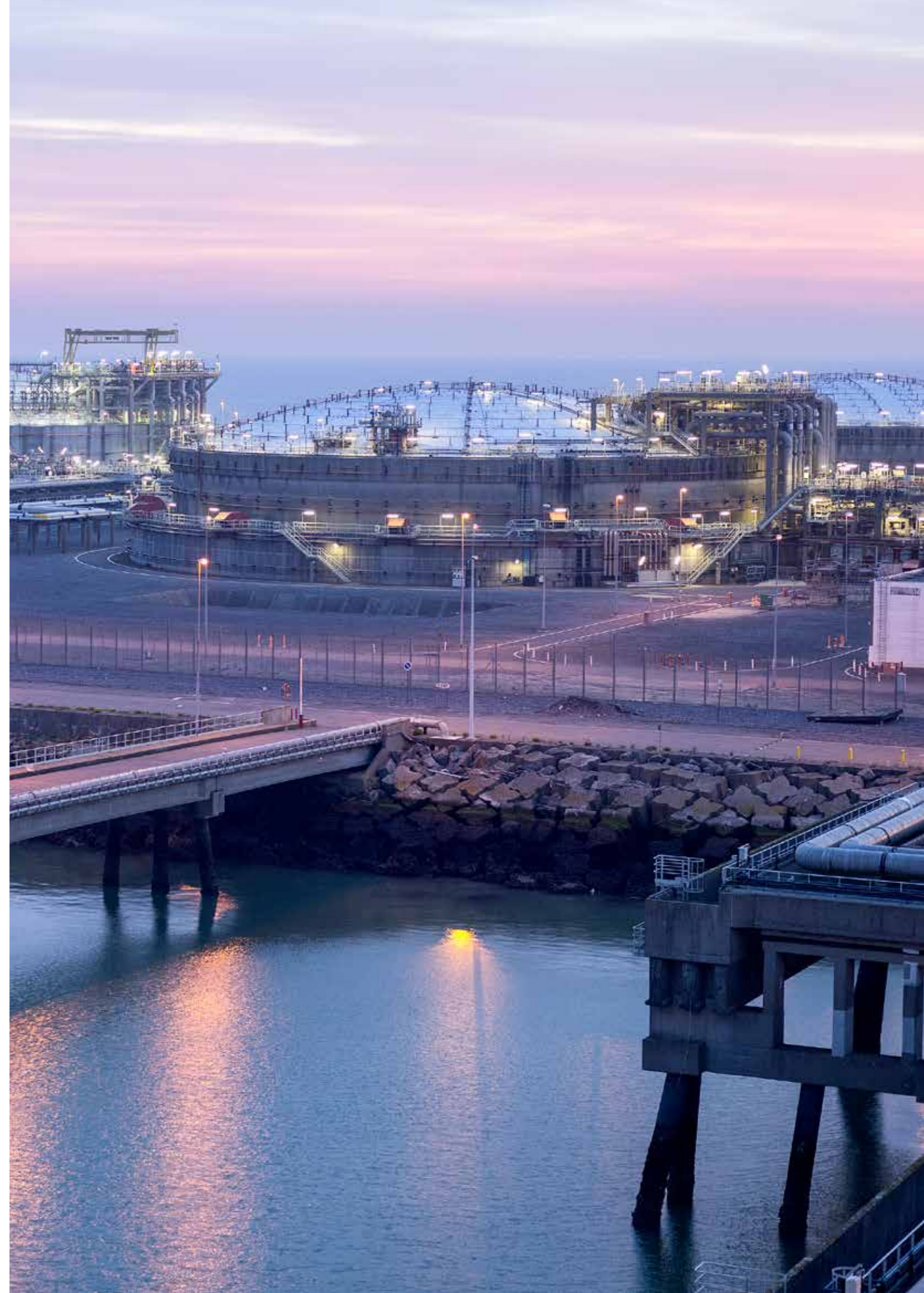
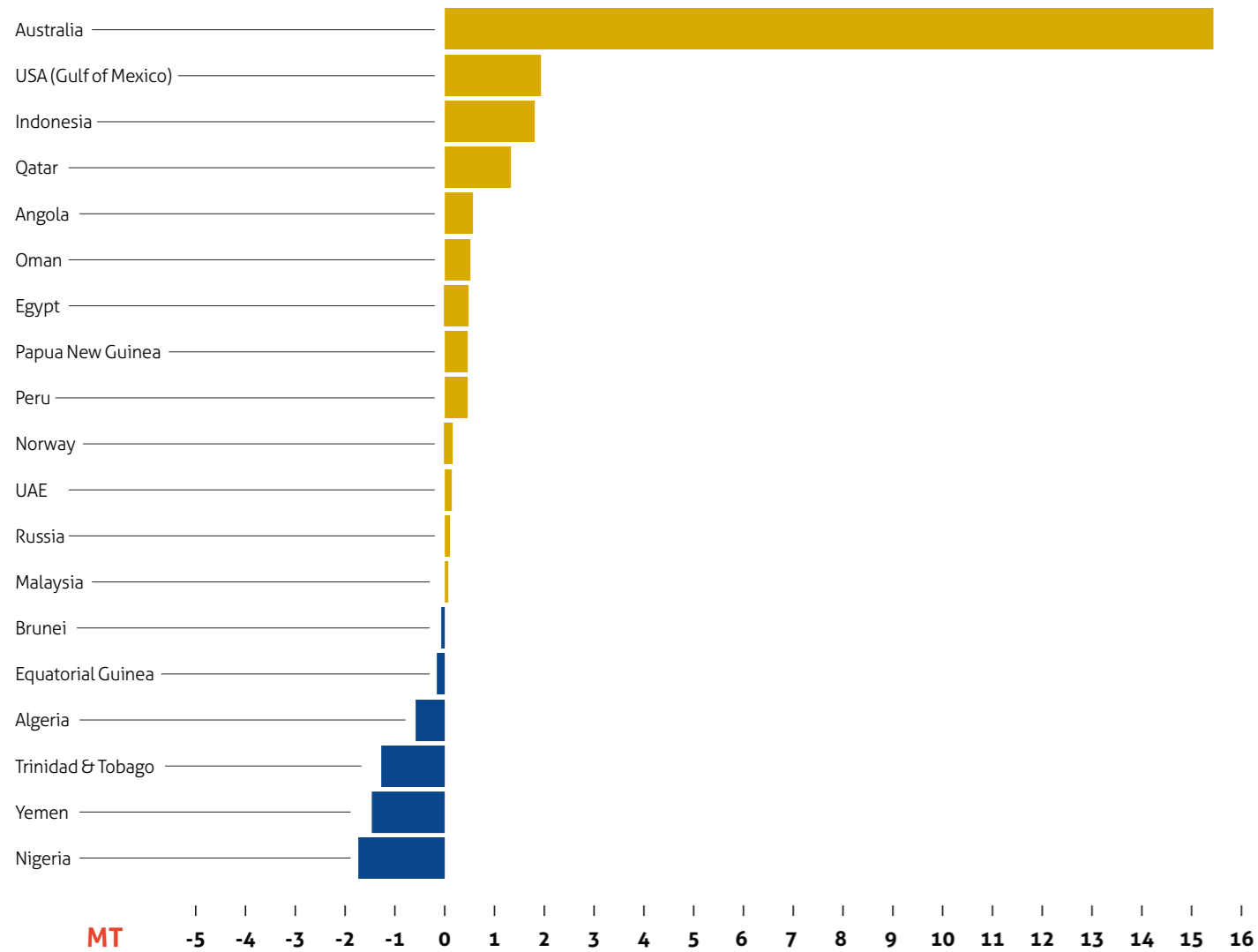
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SOURCE OF IMPORTS 2016

	10 ⁶ m ³ liquid	10 ⁶ T	10 ⁹ m ³ (n) gaseous	Share (%)	Var. 2016/2015 (%)
Algeria	25.26	11.44	14.47	4.3%	-5.7%
Angola	1.67	0.76	0.96	0.3%	N/A
Egypt	1.18	0.51	0.68	0.2%	N/A
Equatorial Guinea	7.68	3.37	4.44	1.3%	-7.6%
Nigeria	39.39	17.78	22.49	6.7%	-8.8%
Norway	10.02	4.49	5.75	1.7%	3.7%
Trinidad & Tobago	24.28	10.46	14.13	4.0%	-11.4%
USA (Gulf of Mexico)	6.27	2.64	3.68	1.0%	712.6%
Atlantic Basin	115.75	51.45	66.59	19.5%	-0.6%
Oman	17.72	8.12	10.06	3.1%	7.4%
Qatar	174.70	79.62	99.70	30.2%	1.6%
UAE	12.59	5.86	7.13	2.2%	2.8%
Middle East	205.01	93.60	116.89	35.5%	0.4%

	10 ⁶ m ³ liquid	10 ⁶ T	10 ⁹ m ³ (n) gaseous	Share (%)	Var. 2016/2015 (%)
Australia	94.11	44.88	53.19	17.0%	52.4%
Brunei	13.74	6.29	7.76	2.4%	-3.1%
Indonesia	42.85	19.95	24.54	7.6%	10.7%
Malaysia	51.85	25.08	29.51	9.5%	0.4%
Papua New Guinea	16.53	7.66	9.46	2.9%	6.7%
Peru	8.90	4.01	5.11	1.5%	12.5%
Russia	22.33	10.70	12.75	4.1%	1.2%
Pacific Basin	250.31	118.57	142.31	45%	18.3%
Total	571.07	263.62	325.79	100%	7.5%

SOURCE OF IMPORTS: 2016 VS 2015

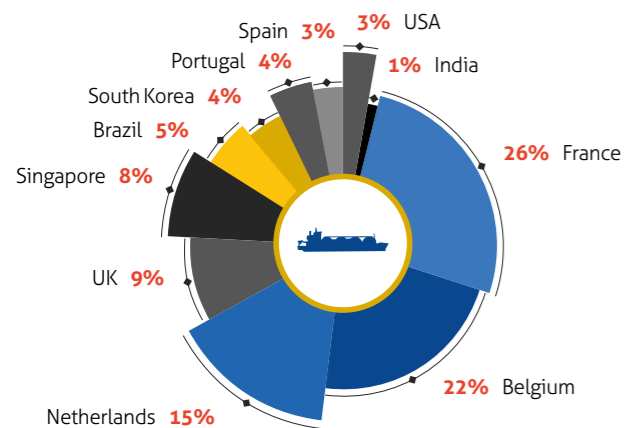


INTERNATIONAL RE-EXPORTS

Re-Exporting Country	Import country	Re-exported volumes (MT)	Total (MT)
Belgium	ARGENTINA	0.11	1.00
	CHINA	0.10	
	EGYPT	0.14	
	FINLAND	0.01	
	INDIA	0.14	
	JORDAN	0.06	
	NORWAY	0.05	
	PUERTO RICO	0.06	
	SWEDEN	0.07	
	TURKEY	0.06	
UAE	0.14		
UK	0.07		
France	ARGENTINA	0.04	1.17
	BELGIUM	0.01	
	CHILE	0.10	
	EGYPT	0.14	
	JAPAN	0.53	
	JORDAN	0.14	
	MALAYSIA	0.07	
	TAIWAN	0.07	
	TURKEY	0.06	
	USA	0.06	
Netherlands	ARGENTINA	0.04	0.69
	EGYPT	0.32	
	INDIA	0.07	
	JORDAN	0.09	
	PAKISTAN	0.01	
	SWEDEN	0.03	
Portugal	TURKEY	0.06	0.19
	UAE	0.07	
	EGYPT	0.07	
Spain	INDIA	0.12	0.13
	ARGENTINA	0.04	
	PAKISTAN	0.06	
United Kingdom	PUERTO RICO	0.02	0.38
	ARGENTINA	0.06	
	EGYPT	0.07	
Europe	PUERTO RICO	0.05	3.56
	SOUTH KOREA	0.07	
	UAE	0.13	
	USA	0.13	

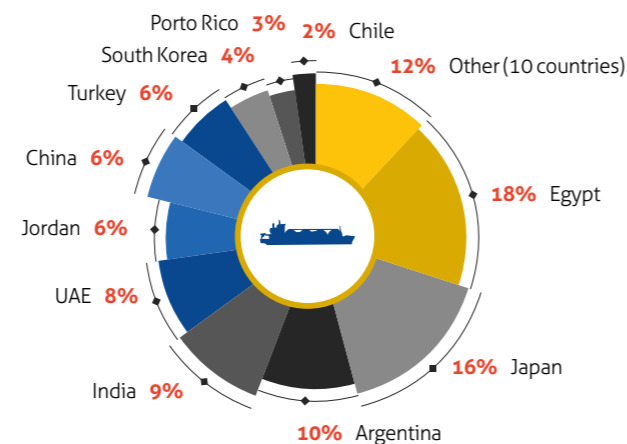


Re-Exporting Country	Import country	Re-exported volumes (MT)	Total (MT)
Brazil	ARGENTINA	0.10	0.23
	INDIA	0.07	
	MEXICO	0.07	
	TURKEY	0.06	
USA	ARGENTINA	0.01	0.11
	BRAZIL	0.03	
	INDIA	0.01	
	TURKEY	0.06	
Americas			0.34
India	SOUTH KOREA	0.06	0.06
	ARGENTINA	0.03	
	CHINA	0.12	
	EGYPT	0.07	
Singapore	JAPAN	0.06	0.34
	SOUTH KOREA	0.06	
	CHINA	0.07	
	JAPAN	0.13	
South Korea	CHINA	0.07	0.19
	JAPAN	0.13	
Asia			0.59
World			4.50



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RE-EXPORTS LOADED BY RELOADING COUNTRY IN 2016 (4.5 MT)



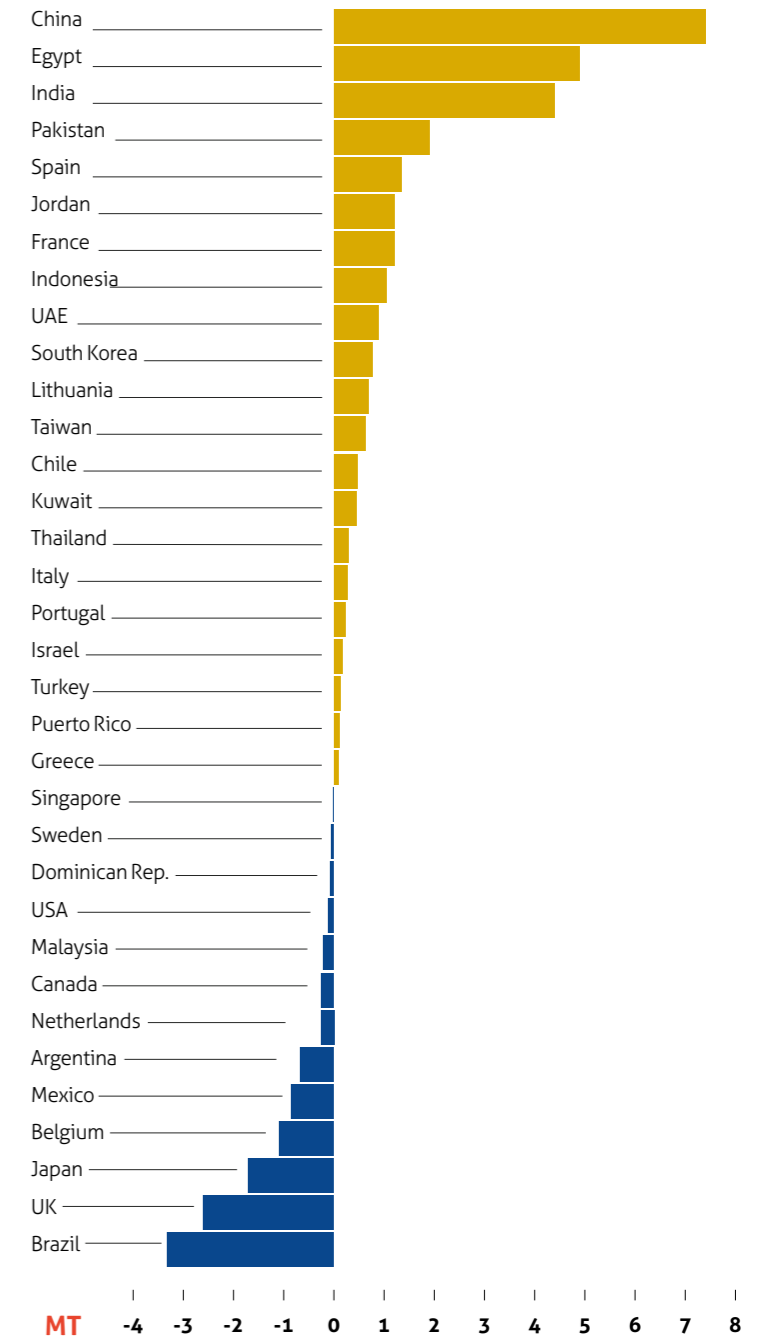
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RE-EXPORTS RECEIVED BY RECEIVING COUNTRY IN 2016 (4.5 MT)

LNG IMPORTS 2016 (NET OF RE-EXPORTS)

	10 ⁶ m ³ liquid	10 ⁶ T	10 ⁹ m ³ (n) gaseous	Share (%)	Var. 2016/2015 (%)
Egypt	16.59	7.50	9.48	2.8%	188.6%
Israel	0.65	0.28	0.38	0.1%	131.9%
Jordan	6.87	3.06	3.95	1.2%	65.6%
Kuwait	7.71	3.49	4.40	1.3%	14.7%
UAE	6.84	3.10	3.91	1.2%	40.1%
Middle East	38.66	17.43	22.12	6.6%	77.5%
China	59.90	27.42	34.06	10.4%	36.9%
India	42.03	18.99	24.02	7.2%	30.1%
Indonesia	7.21	3.23	4.13	1.2%	48.0%
Japan	172.49	83.34	98.08	31.6%	-2.0%
Malaysia	2.88	1.32	1.64	0.5%	-13.8%
Pakistan	6.54	2.95	3.74	1.1%	181.1%
Singapore	4.52	2.07	2.57	0.8%	-0.2%
South Korea	75.05	34.19	42.74	13.0%	2.3%
Taiwan	33.21	15.07	18.95	5.7%	4.3%
Thailand	6.60	2.99	3.76	1.1%	10.8%
Asia	410.43	191.57	233.68	72.7%	8.2%
Belgium	1.74	0.79	0.99	0.3%	-57.9%
Finland	0.04	0.02	0.02	0.01%	N/A
France	12.27	5.55	7.02	2.1%	27.6%
Greece	1.18	0.53	0.68	0.2%	18.7%
Italy	10.12	4.59	5.78	1.7%	6.2%
Lithuania	2.24	1.00	1.29	0.4%	214.0%
Netherlands	0.84	0.37	0.48	0.1%	-41.5%
Norway	0.36	0.16	0.21	0.1%	N/A
Poland	1.80	0.82	1.03	0.3%	N/A
Portugal	2.90	1.31	1.66	0.5%	19.8%
Spain	22.56	10.17	12.92	3.9%	15.3%
Sweden	0.52	0.24	0.30	0.1%	-18.9%
Turkey	12.14	5.47	6.96	2.1%	2.3%
UK	16.50	7.48	9.42	2.8%	-25.8%
Europe	85.23	38.49	48.75	14.6%	2.4%
Argentina	7.73	3.42	4.45	1.3%	-16.1%
Brazil	3.27	1.46	1.88	0.6%	-69.4%
Canada	0.54	0.23	0.31	0.1%	-51.8%
Chile	7.43	3.20	4.33	1.2%	16.9%
Colombia	0.13	0.06	0.07	0.02%	N/A
Dominican Rep.	1.86	0.80	1.08	0.3%	-8.0%
Jamaica	0.03	0.01	0.01	0.004%	N/A
Mexico	9.18	4.10	5.28	1.6%	-17.0%
Puerto Rico	2.88	1.25	1.67	0.5%	8.6%
USA	3.70	1.59	2.15	0.6%	-6.3%
Americas	36.74	16.13	21.24	6.1%	-22.2%
Total	571.07	263.62	325.79	100%	7.5%

LNG IMPORTS: 2016 vs 2015



MT -4 -3 -2 -1 0 1 2 3 4 5 6 7 8

LIQUEFACTION PLANTS AND REGASIFICATION TERMINALS



LIQUEFACTION PLANTS

In 2016, global liquefaction capacity increased by 36 MTPA to reach a total nameplate capacity of around 340 MTPA at year-end.

The year marked the start-up of LNG exports from the US Gulf of Mexico with the first cargoes shipped from Sabine Pass Train 1 and 2 (9 MTPA of combined capacity). New production was also driven by new Australian capacity: Gorgon Train 1 and Train 2 (10.4 MTPA), APLNG Train 1 and 2 (9 MTPA) and GLNG Train 2 (3.9 MTPA). In Malaysia, the 9th liquefaction train (3.6 MTPA) of the Bintulu plant was commissioned. This new supply was partly offset by production declines in Nigeria and Trinidad. Yemen LNG remained offline all year, while Angola and Egypt resumed exports in 2016.

Only two FIDs were taken during the year, one in Indonesia (Tangguh Train 3) and one in the United States (Elba Liquefaction).

This is the lowest volume of yearly project sanctions since 2008. At the end of the year, approximately **108 MTPA** of new liquefaction capacity were under construction, 58 MTPA of which were located in the United States and 27 MTPA in Australia.

In 2017, around **34 MTPA** of new liquefaction capacity are expected to come online, 18 MTPA of which are located in Australia.

Angola

In **Angola**, the Chevron-led liquefaction facility (5.2 MTPA) resumed exports in the first half of 2016 after a two-year shutdown. The plant was then shut for a scheduled maintenance during two months.

Australia

In Australia, Gorgon Train 1 and Train 2 (10.4 MTPA) and APLNG Train 1 and 2 (9 MTPA) started commercial operations in 2016. GLNG's Train 2 (3.9 MTPA) also exported first cargoes.

- Chevron's **Gorgon** (3 trains, 15.6 MTPA) started exports from its first two trains. Gorgon Train 1 was taken offline four times in 2016 due to various operational problems. Train 3 is expected to start in 2017.
- Led by ConocoPhillips, **Australia Pacific LNG** (2 trains, 9 MTPA) announced the first exports from Train 1 in the first quarter of 2016 and from Train 2 in the fourth quarter.
- After a start up in late 2015, 7.8 MTPA **GLNG** (a joint venture of Santos, Petronas, Total and Kogas) exported cargoes from Train 2 in 2016.

In 2016 Woodside shelved the **Browse** FLNG project following completion of the FEED.

In 2017 three new projects should start commercial deliveries during the year: **Wheatstone**, **Ichthys** and **Prelude FLNG**.

- **Wheatstone** (2 trains, 9 MTPA) is Chevron's other Australian project along with Gorgon. First LNG volumes of Train 1 are expected around mid-2017.
- Production from **Ichthys** Train 1 is scheduled for 2017. The project (2 trains, 8.9 MTPA) is developed by Inpex, Total and other Japanese partners.
- Shell's giant FLNG **Prelude** (3.6 MTPA) is under construction and could be online before the end of 2017.

Around 27 MTPA of liquefaction capacity were under construction in the country at the end of the year, 18 MTPA of which were scheduled to come on stream in 2017.

Cameroon

In 2016, Golar informed that the **GoFLNG** project (1.2 MTPA) was on schedule, while the **Golar Hilli** was under conversion work. First volumes are expected towards the end of 2017.

Canada

Petronas and its partners (JAPEX, IOC, Sinopec, Huadian, Petroleum Brunei) won a conditional environmental approval on the 12 MTPA **Pacific Northwest LNG** project, provided that a range of conditions aimed at reducing the project's environmental footprint is met. The involved companies have since started a full review of the project.

Pacific Oil and Gas' **Woodfibre LNG** project (2.1 MTPA) has selected an EPC contractor to provide FEED services and has taken provisional FID. The project developer plans to start the construction of the project in 2017 and commercial operations are targeted for 2020.

The **LNG Canada** project led by Shell, PetroChina, Kogas and Mitsubishi deferred its final investment decision. The project would initially consist of two 6.5 MTPA production trains with an option to expand the facility with two additional trains.

In 2016, three projects were shelved:

- The **Douglas Channel LNG** project (0.5 MTPA), led by a consortium which includes AltaGas, EDFT, Exmar and Idemitsu received a 25-year export licence from the NEB. However, partners have decided to put the project on hold due to the current marketing environment.
- AltaGas and Idemitsu also decided to postpone the **Triton LNG** project (2.3 MTPA).
- Repsol has shelved the conversion of the **Canaport LNG** import facility into an export terminal.

Egypt

In Egypt, the **Idku** plant restarted with the export of a few cargoes. Damietta plant did not export any cargoes during the year. After the huge 2015 gas discoveries in Zohr, Eni has made new significant discoveries in the Egyptian offshore.

Equatorial Guinea

In Equatorial Guinea, Ophir Energy and OneLNG, a joint venture between Golar LNG and Schlumberger, signed a shareholders agreement to establish a joint operating company to develop the **Fortuna FLNG** project. FID on the 2.2-2.5 MTPA project is expected in the first half of 2017. Developers are targeting 2020 as the start-up for commercial operations.

Indonesia

Shareholders of the **Tangguh** facility have taken FID for the addition of a third train (3.8 MTPA). Total plant capacity will increase to 11.4 MTPA. Production from this new train is expected in 2020. The **Abadi** project (7.5 MTPA) has been slowed down as the government decided that an onshore development should be preferred to the proposed FLNG solution partners Inpex and Shell supported.

Malaysia

At the existing Petronas' Bintulu plant, the 9th liquefaction train of 3.6 MTPA has been commissioned. Full commercial operations are planned for 2017. With the addition of this new train, the facility will have the capacity to produce approximately 30 MTPA.

Petronas is also developing two FLNG projects. The first one, the 1.2 MTPA **PFLNG Satu** achieved a major milestone in 2016 by entering into its commissioning phase with first gas produced from the Kanowit gas field, offshore Sarawak. Commercial operations are expected to start in 2017. The second one, the 1.5 MTPA **Rotan FLNG**, delayed start-up to 2020 from initially planned 2018.

Mozambique

In 2016, ENI signed an SPA with BP for all of the volumes produced from the future **Coral FLNG** (3.3 MTPA). The development plan has been approved by the Government of Mozambique and both ENI and ENH have approved the investment. Target FID for the project slipped from the end of 2016 and is expected to be reached in the first half of 2017.

Qatar

Rasgas (around 36 MTPA of production capacity) and Qatargas (around 41 MTPA of production capacity) announced their future merger.

Russia

The **Yamal LNG** project (16.5 MTPA) construction is ongoing. The first icebreaker LNG carrier *Christophe de Margerie* dedicated to the project tested its extreme conditions capabilities during sea trials in 2016. First volumes from Train 1 are expected towards the end of 2017.

USA

Due to lack of feedstock, **Kenai LNG** did not export any cargoes in 2016.

The first train of **Sabine Pass** came online in late February and reached substantial completion in May and the second in September. Both trains have a combined 9 MTPA liquefaction capacity. After loading a cargo at Sabine Pass, the Shell-chartered *Maran Gas Apollonia* passed through the expanded Panama Canal in July. This marked the transit of the first-ever LNG carrier through its expanded locks.

Five projects fully approved at the FERC were under construction at the end of 2016: Sabine Pass Train 3-5, Freeport Train 1-3, Cameron Train 1-3, Corpus Christi Train 1-2, Cove Point, and Elba Island. In the 4th quarter of 2016, Kinder Morgan began construction of the 2.5 MTPA **Elba Island** liquefaction facility. The project received environmental and construction approvals from the FERC during the year. Exports from the project are scheduled to begin in 2018.

Three projects (Sabine Pass Train 6, Corpus Christi Train 3 and Lake Charles) already obtained FERC approval but have not started construction yet. Three other projects were approved by the FERC in 2016: Magnolia, Cameron Train 4 & 5 and Golden Pass.

- **Magnolia LNG** (8 MTPA), which was approved by the FERC in April 2016, has now full permitting and regulatory approval.
- **Cameron LNG** (3 trains, 13.5 MTPA) received FERC authorization to proceed with an expansion of the existing export project (2 additional trains) in May 2016. The project also received authorization from the DOE to export an additional 9.97 MTPA from its proposed liquefaction project to countries that do not have a free-trade agreement with the U.S. Nevertheless project partners have delayed the final investment decision on the proposed expansion beyond the first half of 2017.
- In December 2016 the FERC gave approval to site, construct and operate the **Golden Pass** project (15.6 MTPA), led by Exxon Mobil's and Qatar Petroleum's affiliates.

Around 58 MTPA are already under construction in the United States and 57 MTPA have been fully approved by the FERC.

Among other proposed projects:

- Sempra LNG & Midstream entered into a project development agreement with a subsidiary of Woodside to further advance the development of the proposed **Port Arthur LNG** (2 Trains, 13.5 MTPA) liquefaction facility. The project developer filed applications with the FERC seeking authorization to site, construct and operate the proposed project.
- Total acquired around 23% of Tellurian Investments which is developing the **Driftwood LNG** terminal, in Calcasieu Parish, Louisiana. Driftwood LNG is in the engineering design and pre-filing phase of the project. The FERC approved Driftwood LNG's pre-filing request in June 6 2016.

In 2016, several projects were cancelled or delayed:

- Shell decided to delay the FID on its **Lake Charles** project (15 MTPA).
- The FERC denied the permission of building the **Jordan Cove LNG** project and said that it would not consider a re-hearing of the project. Nevertheless the project can rely on the support of its customers and has decided to refile its application with the FERC. The FERC approved the pre-filing request in February 2017.
- The FERC removed **CE FLNG** and **Downeast FLNG** projects from the pre-filing process.
- **Oregon LNG** (9 MTPA) project was abandoned.



Argentina

In Argentina, the nominal regasification capacity of the **GNL Escobar** terminal has been increased from 5.1 Bcm/y to 6.1 Bcm/y.

At the beginning of 2017, state-owned company Enarsa was reportedly considering to build a new import terminal in **Puerto Rosales** near Bahía Blanca, south of Buenos Aires.

Bahrain

Owned by Bahrain's National Oil and Gas Authority (30%), Teekay LNG Partners (30%), Gulf Investment Corp. (24%), and Samsung C&T (16%), the offshore **Barhain LNG** project was reported to have started construction at the beginning of 2017. The terminal, which will have a receiving capacity of 6 MTPA should be completed in 2019.

Bangladesh

In 2016, Excelerate Energy signed terminal use and implementation agreements with Petrobranga and completed the geotechnical and geophysical studies for the implementation of the **Moheshkhali** Floating LNG terminal. Expected to close financing in 2017, the FSRU would have 138,000 m³ of LNG storage capacity and a base regasification capacity of 500 mmcsf/d. It could start receiving LNG in early 2018.

Belgium

In **Zeebrugge**, a 2nd jetty for unloading and loading ships has been commissioned in the fourth quarter of 2016. Fluxys is looking into the construction of a second truck loading station at the terminal in 2017.

Brazil

In the state of Sergipe, Golar Power took FID on the **Porto de Sergipe** Project, a 1,516 MW CCGT power plant in Brazil located near Aracaju, the state capital. The project will supplement hydropower during

REGASIFICATION TERMINALS

In 2016, global regasification capacity reached 830 MTPA at year-end.

Four new countries joined the ranks of importers during the year: Colombia, Finland, Jamaica and Poland. **Eleven new terminals** were commissioned, adding a combined **32 MTPA** of new regasification capacity. Six new terminals are onshore facilities (in China, Finland, France, Japan, Poland and South Korea) and five of these terminals are based on floating solutions (in Colombia, Indonesia, Jamaica, Turkey and the United Arab Emirates). Several expansions were completed in existing LNG markets: in Argentina (**Escobar**), China (**Dalian** and **Rudong**), India (**Dahej**) and South Korea (**Samcheok**). At the end of the year, 6 new offshore terminals and 13 new onshore terminals were reported to be under construction, 5 of which in China.

seven expansion projects were also underway (2 in China, 1 in Greece, 1 in India, 1 in Singapore, 1 in Taiwan and 1 in Thailand).

Total regasification capacity under construction at year end reached **86 MTPA**, of which 70% or **60 MTPA** located in Asia. In addition, several FSRU projects have been proposed in new markets including Bangladesh, Croatia, El Salvador, Ghana, Ivory Coast, Myanmar, Philippines, Puerto Rico, South Africa or Sri Lanka.

dry seasons and help to meet growing demand for electricity in the region. In connection with the Sergipe FID, Golar Power has entered into a 25-year agreement to charter *Golar Nanook*, a new-build FSRU to be delivered in November 2017.

Chile

In July 2016, **GNL Mejillones** received approval from the authorities to expand the terminal's capacity by more than 80% to 350 MMcf/d in 2018, thanks to additional regasification facilities. Moreover, GNL Mejillones received approval for transshipments in its double headed jetty and started a pilot project to use solar energy in the regasification process.

In **Quintero**, the Environmental Impact Study (EIA) for Phase 2 Expansion was approved in May 2016. The expansion project includes terminal capacity expansion from 3.75 to 5 MTPA, replacement of one existing 14,000 m³ tank by a 160,000 m³ tank and the addition of ship reloading capacity, including small scale ships. FID for this 2nd expansion project was expected in the first quarter of 2017.

In 2016, Enagás raised its ownership in the Quintero terminal by purchasing the shares of Endesa and Gas Natural Fenosa, increasing its share to 60.4%.

South of Quintero, the 4 MTPA **Penco Lirquen** project – previously Octopus LNG, a joint venture of Cheniere Energy and Biobiogenera – received environmental approval. However the permit was withdrawn at the beginning of 2017. Cheniere signed a 20 year contract to supply LNG to the adjacent 640 MW El Campesino power project.

China

In China, 6 MTPA of new capacity were added in 2016, mainly through terminal expansions. Two expansions were completed in **Dalian** and **Rudong**. In Dalian, Petrochina doubled the capacity to 6 MTPA and added a fourth 160,000 m³

storage tank. In Rudong, a fourth storage tank of 200,000 m³ was built, bringing the receiving capacity to 6.5 MTPA.

One new terminal started operations in **Beihai** (Guangxi Province, on the Southern coast). Developed by Sinopec, the 3 MTPA facility includes four 160,000 m³ tanks. It is Sinopec's second terminal after **Shandong Qingdao**. In addition, CNOOC completed two additional terminals in Guangdong province - a 2 MTPA terminal at **Yuedong** and a 4 MTPA terminal at **Shenzen** – but their commissioning has been delayed until 2017.

Three other terminals were under construction at the end of 2016:

- In **Tianjin**, the 3 MTPA terminal developed by Sinopec expected to start-up in 2017.
- In **Jiangsu**, the 0.6 MTPA Qidong terminal developed by independent company Guanghui Energy also expected to be operational in 2017.
- In **Zhejiang**, the 3 MTPA Zhoushan LNG receiving and bunkering terminal developed by independent company ENN and expected to be commissioned in mid-2018.

Colombia

In November, Colombia received its first commissioning cargo at the FSRU *Høegh Grace* at the port of **Cartagena**.

The FSRU is owned by Höegh LNG and chartered to Colombia's Sociedad Portuaria El Cayao (SPEC) for 20 years. *Høegh Grace* will supply gas to Grupo Térmico, a consortium of thermal generators on Colombia's Caribbean coast. The vessel will enable Colombia to import up to 3.75 MTPA of LNG.

Dominican Republic

In December 2016, AES Andres completed the works for making the **Punta Caucedo** terminal bi-directional by adding a reloading capacity to load vessels larger than 10,000 m³.

Egypt

At the end of 2016, Egypt cancelled its plans to install a 3rd FSRU.

The existing FSRUs **Ain-Sokhna Höegh** and **Ain-Sokhna BW** are currently chartered until 2021.

Finland

In Finland, Skangas LNG commissioned the 0.1 MTPA **Pori LNG** terminal in July 2016. With a storage capacity of 30,000 m³, the terminal started commercial operations in September 2016.

France

In Dunkirk, commissioning was completed in 2016 and commercial operations started on 1st January 2017. **Dunkerque LNG** also took a Final Investment Decision to build a fast reloading facility with a loading rate of 8,800 m³/h. Start-up date of the fast reloading service is planned around the end of 2018. Feed for the construction of a truck loading facility has been realized.

In **Montoir**, works are ongoing in order to upgrade LNG transshipment services (direct transfer of LNG between two vessels via the two existing berths) for completion end of 2017.

In **Fos Tonkin**, FID has been taken for adapting the facility to be operated at very low flow rates.

The truck loading capacity has been increased by 50% at Montoir beginning of 2016 and doubled at FosTonkin in July 2016, and further expansions are under study.

Since January 2016, Elengy has been proposing a pooling service for intra-monthly capacity between its three LNG terminals.

Ghana

In Ghana, several competing import projects have been proposed. In March 2016 **Quantum Tema LNG** signed an EPC contract to develop an FSRU-based import facility at Tema. In December, Qantum signed a 20 year contract with Höegh LNG for the provision of an FSRU, which could start importing around mid-2018.

Rival project **WAGL** (West Africa Gas Limited) has also agreed to charter an FSRU from Golar LNG (*Golar Tundra*) under a five year contract.

Gibraltar

In August 2016, Shell signed a contract to develop a small-scale terminal designed to supply a power plant under construction. Imports were expected to start-up in the second half of 2017.

India

In India, Petronet's **Dahej**'s capacity was recently expanded from 10 MTPA to 15 MTPA. Another expansion project is underway (Phase III B, +2.5 MTPA) which will bring the terminal's capacity to 17.5 MTPA.

Three terminals were under construction at the end of the year.

On the West coast, GSPC LNG Limited is setting up a terminal in **Mundra** (state of Gujarat) with a capacity of 5 MTPA expandable to up to 10 MTPA. The facilities at Mundra LNG Terminal include LNG carrier berthing and unloading facilities for ships varying from 70,000 m³ to 265,000 m³, and 2 LNG storage tanks of 160,000m³ each. At the end of 2016, Mundra was nearing completion and pre-commissioning.

On the East coast, two terminals were also under construction at the end of 2016:

In **Ennore**, Indian Oil is developing a 5 MTPA onshore terminal which could commence operations in 2019. In **Kakinada**, Krishna Godavari LNG Terminal (a subsidiary of US-based VGS) is deploying a 3.6 MTPA floating solution using an FRU coupled with an FSU.

Indonesia

In 2016, the **Arun** regasification terminal was being expanded to add a truck loading facility. In Bali, JSK Group and PT Pelindo III commissioned a small-scale floating import solution at the port of **Benoa**, using an FRU and an FSU in order to supply the island with LNG shipped from Bontang via a small-scale vessel of 23,000 m³. A dozen other projects have been proposed in Indonesia, most of them developed by state-owned company Pertamina.

Italy

In **Panigaglia**, one tank was decommissioned in 2016, for maintenance. Metallurgical tests will be performed in order to evaluate the residual life of the tank.

Ivory Coast

In October 2016, The CI-GNL (Ivory Coast LNG) consortium led by Total has been awarded the rights to build and operate a regasification terminal with a capacity of 3 MTPA. The project involves the construction of a floating terminal in **Vridi**, Abidjan area. The Final Investment Decision is scheduled for mid-2017. The regasification terminal project is expected to become operational by mid-2018.

Jamaica

In **Montego Bay**, US firm New Fortress Energy chartered the *Golar Arctic* LNG tanker for two years. The vessel is used as an FSU to store and deliver LNG via small-scale vessels. The first cargo was delivered to Jamaica in October 2016 and commercial operations are reported to have started in November.

Japan

In Japan, the 1.7 MTPA **Hitachi LNG** terminal developed by Tokyo Gas started commercial operations in March 2016. The terminal has a 230,000 m³ LNG storage capacity LNG and a 50,000 m³ LPG storage capacity. This new regasification terminal is connected to the Ibaraki-Tochigi trunk line which was also newly built. With this new pipeline, the Hitachi LNG Terminal and Tokyo Gas' three other terminals located along the coast of Tokyo Bay - **Sodegaura**, **Ohgishima** and **Negishi** LNG terminals are now interconnected.

One new terminal was under construction at the end of 2016: **Soma LNG** (1.5 MTPA), developed by Japex in the Fukushima region.

At the **Chita Midorihamma Works** terminal, Toho Gas completed construction of a third underground LNG storage tank of 220,000 m³.

At the **Hibiki** terminal, Saibu Gas started new services such as gas test of newly-built ships and cool-down of LNG ships.

At the **Sodeshi** LNG terminal, Shizuoka Gas completed a reloading facility in April 2016.

Kuwait

In March 2016, Hyundai Engineering and Construction was awarded a contract to build a permanent onshore terminal with Kogas in the region of **Al-Zour**. The terminal could have a capacity of 11.3 MTPA and it is expected to start-up in 2020 or 2021.

Lithuania

At the **Klaipeda** LNG terminal, LITGAS is planning to provide retail services such as LNG bunkering and truck loading. At the time of this writing, the terminal was planning to start truck loading operations in August 2017.

Malaysia

In addition to the Melaka offshore terminal, a new onshore terminal (**Pengerang LNG**, with a capacity of 3.5 MTPA) is under construction, as part of a larger refinery and petrochemical complex currently developed in the South of the country.

Malta

In Malta, the **FSU Armada LNG Mediterrana** (converted from the 125,000 m³ *Wakabu Maru* LNG carrier) arrived in October 2016 and received a commissioning cargo in January 2017. Designed to supply gas to power plants in Delimara, the terminal is reported to have a 0.4 MTPA regasification capacity.

Pakistan

In addition to the existing **Engro LNG** terminal, 3 new FSRUs are expected to be deployed over the next two years:

In June 2016 the government approved the construction of a second import terminal at **Port Qasim**. In August 2016, BW signed a contract to provide a newbuild FSRU to Pakistan Gas Port Limited under a 15-year charter. The terminal is expected to be online by mid-2017.

At the beginning of 2017, Excelerate Energy signed a contract with a consortium of Shell, Engro and fertilizer company Fatima in order to install its second FSRU at Port Qasim. The terminal is expected to be online in 2018.

Also at Port Qasim, a fourth FSRU-based project is under development by private company Global Energy Infrastructure Limited (GELL). The company signed a 1.3 MTPA SPA with Qatargas in June 2016 and it chartered an FSRU from Höegh LNG under a 20 year contract in December 2016. Start-up is expected in 2018.

Panama

AES awarded a contract to BAM International and Iconsa in order to build an LNG jetty in Costa Norte, at the Caribbean entrance of the Panama Canal. At the end of 2016, construction was reported to begin in the first quarter of 2017, with expected completion in 2018. The **Costa Norte LNG** terminal will accommodate vessels ranging between 30,000 m³ and 180,000 m³.

Philippines

EWC announced to be nearing completion of a one-tank onshore import terminal to supply a new CCGT in **Pagbilao**. However, the project has been delayed several times and its progress is unclear. A 4 MTPA FSRU project has also been proposed by Shell in **Batangas**.

Poland

The construction and commissioning of the **Świnoujście** LNG Receiving terminal was completed in May 2016. Commercial operations commenced in June 2016, with the first commercial cargo received from Qatar under the 1 MTPA long-term contract between Qatargas and PGNiG.

Puerto Rico

Excelerate Energy and the Puerto Rico Electric Power Authority (PREPA) deferred construction of the offshore **Aguirre Gasport**, in part due to remaining environmental obstacles. The FSRU would deliver regasified LNG into the Central Aguirre Power Complex, through a subsea gas pipeline.

Russia

Gazprom is planning to build a floating terminal in order to supply the Russian enclave of **Kaliningrad** with LNG. The company ordered a 170,000 m³ FSRU which should be delivered in 2017.

Singapore

In **Singapore**, the terminal is being further expanded with the addition of a fourth storage tank of 260,000 m³, the increase of the regasification capacity to around 11 MTPA and the addition of nitrogen blending facilities to reduce calorific value of regasified LNG. The nitrogen blending facility should be available in 2017 and completion of the fourth tank is expected in early 2018.

During 2016, SLNG completed the construction of a pilot truck loading facility and the terminal has been able to offer truck / ISO-container loading services at the terminal since January 2017. SLNG also completed FEED for making modifications to one of the large jetties so as to enable loading of small ships with cargo carrying capacity in the range of 2,000 m³ to 10,000 m³.

South Korea

In South Korea, the capacity of the **Samcheok** terminal was increased to around 11 MTPA. The 3 MTPA **Boryeong** terminal jointly developed by GS Energy and SK E&S received its first cargo in November 2016 and was reported to start commercial operations at the beginning of 2017.

Taiwan

Three new tanks and regasification facilities are under construction in the **Taichung** terminal. They will be completed at the end of 2018.

A third receiving terminal is under construction in northern Taiwan and is expected to commence operations in 2022.

Thailand

The **Map-Ta-Phut** terminal is being expanded from 5 MTPA to 10 MTPA. The works include construction of two additional 160,000 m³ tanks and of a second large-scale jetty with target completion in 2017. PTT LNG is conducting a feasibility study of providing LNG bunkering as well as cooldown services from the terminal after the completion of terminal expansion.

PTT also got approval to build and operate a second terminal which will have a regasification capacity of approximately 5 to 7.5 MTPA. The 2nd terminal will be built in **Rayong** province and it is expected to be completed by 2022.

Turkey

In December 2016, the Höegh-owned, Engie-chartered FSRU *Neptune* (145,000 m³) took position near Aliaga, about 500 km south west of Istanbul, on the Aegean sea. Developed by Turkish construction companies Kolin and Kalyon and named **ETKILNG**, the floating terminal includes a jetty and an onshore gas pipeline. It will supply up to 3.6 MTPA of LNG, complementing the existing **Aliaga** and **Marmara Ereğlisi** onshore terminals.

United Arab Emirates

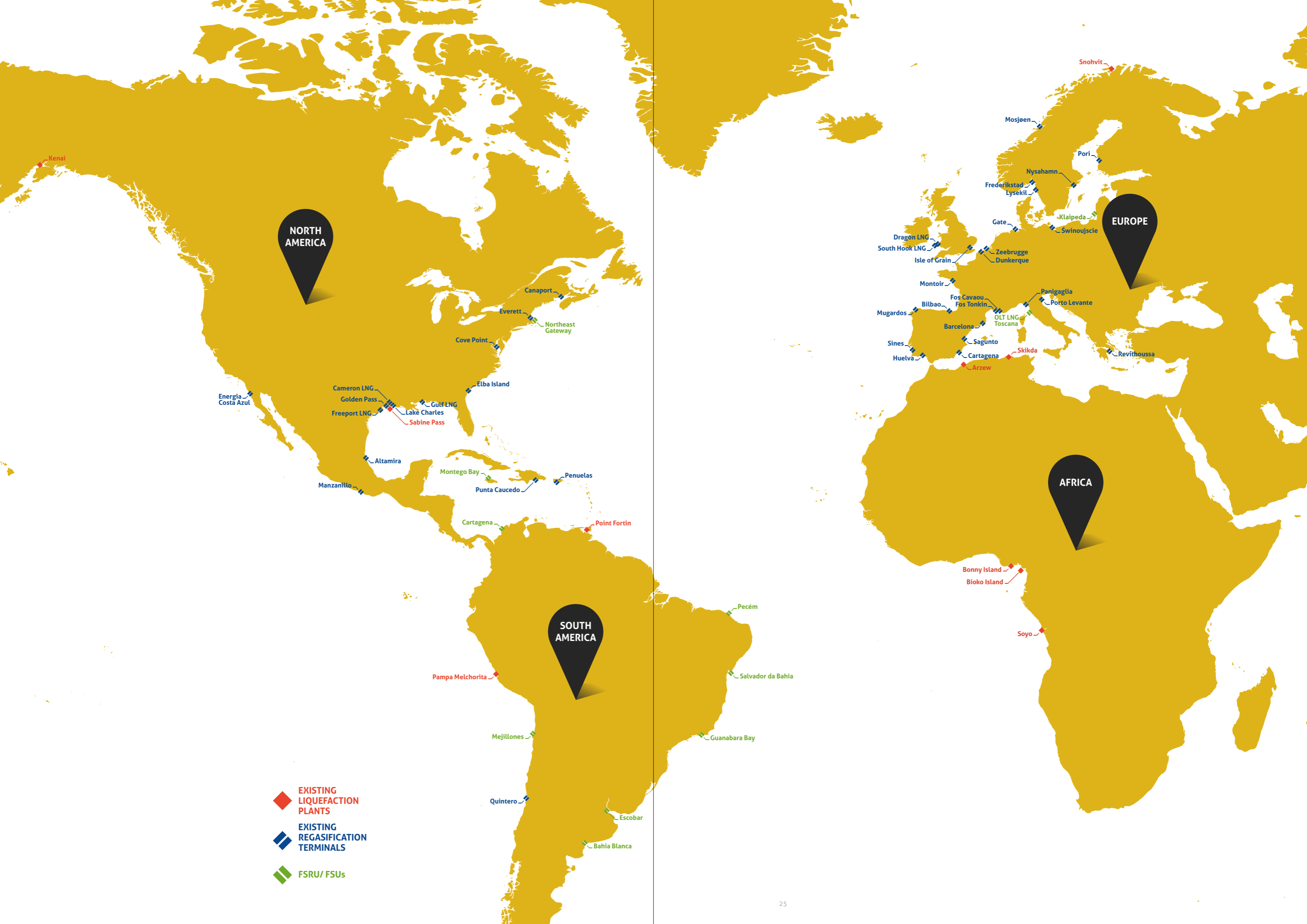
In Dubai, Excelerate Energy's FSRU *Explorer* is currently under long-term charter to Dubai Supply Authority (DUSUP) at the **Jebel Ali** LNG import terminal. In September 2016, Excelerate and DUSUP performed the first gas-up operation at Jebel Ali.

In Abu Dhabi, *Excelerate* Energy's FSRU *Excelerate* arrived at the port of **Ruwais** in August. It will receive LNG in order to power Fujairah, a city state on the East Coast of the United Arab Emirates. Chartered to Abu Dhabi Gas Industries (GASCO), a joint venture between national oil company ADNOC, Shell and Total, the vessel has a baseload sendout of 5.1 Bcm/y and a peak send-out capacity of 7 Bcm/y. Plans to build an onshore terminal in **Fujairah** are reported to be suspended.

Uruguay

In Uruguay, Gas Sayago - a joint venture between state oil company Ancap and state power company UTE - signed a 20-year charter with MOL to hire a 263,000 m³ FSRU currently under construction. The **GNL del Plata** terminal, which will be located off Montevideo could start operating around mid or late 2018.





NORTH AMERICA

EUROPE

AFRICA

SOUTH AMERICA

- ◆ EXISTING LIQUEFACTION PLANTS
- ▬▬ EXISTING REGASIFICATION TERMINALS
- ▬▬ FSRU/ FSUs



LIQUEFACTION PLANTS AT THE END OF 2016

Country	Site	Liquefaction		Storage		Owner(s)	Operator	LT Buyer(s)	Start-up date
		Number of trains	Nominal capacity in MTPA	Number of tanks	Total capacity in liq ^m				
ATLANTIC BASIN									
ALGERIA	Arzew-Bethioua GL 1Z	6	7.9	3	300 000	Sonatrach	Sonatrach	Botas, Cepsa Gas, DEPA, Endesa, ENGIE, ENI, Iberdrola	1978
	Arzew-Bethioua GL 2Z	6	8.2	3	300 000				1981
	Arzew-Bethioua GL 3Z	1	4.7	2	320 000				2014
	Skikda GL1K megatrail	1	4.5	1	150 000				2013
ANGOLA	Soyo	1	5.2	1	360 000	Angola LNG (Chevron 36.4%, Sonangol 22.8%, BP 13.6%, ENI 13.6%, TOTAL 13.6%)	Angola LNG	Angola LNG Marketing	2013
EGYPT	Damietta (stopped)	1	5	2	300 000	Union Fenosa Gas (80%), EGPC (10%), EGAS (10%)	SEGAS SERVICES	BP, Union Fenosa Gas	2005
	Idku T1	1	3.6	2	280 000	Shell (35.5%), Petronas (35.5%), EGPC (12%), EGAS (12%), ENGIE (5%)	EGPC, EGAS, Shell, ENGIE, Petronas	ENGIE	2005
	Idku T2	1	3.6			Shell (38%), Petronas (38%), EGAS (12%), EGPC (12%)	Shell	2005	
EQUATORIAL GUINEA	Bioko Island	1	3.7	2	272 000	Marathon (60%), Sonagas (25%), Mitsui (8.5%), Marubeni (6.5%)	EG LNG	Shell	2007
NIGERIA	Bonny Island (NLNG T1&2)	2	6.6	4	336 800	Nigeria LNG (NNPC 49%), Shell (25.6%), Total (15%), ENI (10.4%)	Shell	Botas, Enel, ENGIE, Galp Energia, Gas Natural Fenosa	T1: 1999 T2: 2000
	Bonny Island (NLNG T3)	1	3					Galp Energia, Gas Natural Fenosa	2002
	Bonny Island (NLNG T4 & 5)	2	8.2					Endesa, ENI, Galp Energia, Iberdrola, Shell, Total	2006
	Bonny Island (NLNG T6)	1	4.1					Shell, Total	2008
	Hammerfest	1	4.2					2	250 000
TRINIDAD & TOBAGO	Atlantic LNG T1	1	3.3	1	102 000	BP (34%), Shell (46%), CIC (10%), NGC Trinidad (10%)	Atlantic LNG	ENGIE, Gas Natural Fenosa	1999
	Atlantic LNG T2 & 3	2	6.8	2	262 000	BP (42.5%), Shell (57.5%)	Atlantic LNG	BP, ENGIE, Gas Natural Fenosa, Naturgas Energia, Shell	2002-2003
	Atlantic LNG T4	1	5.2	1	160 000	BP (37.8%), Shell (51.1%), NGC Trinidad (11.1%)	BP, Shell	2006	
USA	Sabine Pass T1 & 2	2	9	5	800 000	Sabine Pass Liquefaction (100%)	Cheniere	Cheniere Marketing, Gas Natural Fenosa, Shell	2016
ATLANTIC BASIN TOTAL		96.8		4 192 800					



Country	Site	Liquefaction		Storage		Owner(s)	Operator	LT Buyer(s)	Start-up date					
		Number of trains	Nominal capacity in MTPA	Number of tanks	Total capacity in liq ^m									
MIDDLE EAST														
OMAN	Qalhat	2	7.1	2	240 000	Government of Oman (51%), Shell (30%), Total (5.5%), Korea LNG (5%), Mitsubishi (2.8%), Mitsui (2.8%), Partex (2%), Itochu (0.9%)	Oman LNG	KOGAS, Osaka Gas	2000					
		1	3.7			Government of Oman (65.6%), Shell (11%), Union Fenosa Gas (7.4%), Mitsubishi (4%), Itochu (3.3%), Osaka Gas (3%), TOTAL (2%), Korea LNG (1.8%), Mitsui (1%), Partex (0.7%)			Itochu Corp., Mitsubishi, Osaka Gas, Union Fenosa Gas	2005				
QATAR	Ras Laffan (Qatargas I - T1 & 2)	2	6.4	4	340 000	Qatar Petroleum (65%), ExxonMobil (10%), Total (10%), Marubeni (7.5%), Mitsui (7.5%)	Qatargas I	Chugoku Electric, Gas Natural Fenosa, JERA, Kansai Electric, Osaka Gas, Shizuoka Gas, Toho Gas, Tohoku Electric, Tokyo Gas	T1: 1996 T2: 1997 T3: 1998					
	Ras Laffan (Qatargas I - T3)	1	3.1											
	Ras Laffan (Qatargas II - T1)	1	7.8						Qatargas II	ExxonMobil, Pakistan State Oil, PGNIG	2009			
	Ras Laffan (Qatargas II - T2)	1	7.8								Qatar Petroleum (65%), ExxonMobil (18.3%), Total (16.7%)	CNOOC, ExxonMobil, Total	2009	
	Ras Laffan (Qatargas III - T1)	1	7.8						8	1 160 000	Qatar Petroleum (68.5%), ConocoPhillips (30%), Mitsui (1.5%)	Qatargas III	Centrica, ConocoPhillips, JERA, Kansai Electric, PTT, RWE Supply & Trading, Tohoku Electric	2010
	Ras Laffan (Qatargas IV - T1)	1	7.8											Qatar Petroleum (70%), ExxonMobil (30%)
	Ras Laffan (Rasgas I - T1 & 2)	2	6.6						6	840 000	Qatar Petroleum (70%), ExxonMobil (30%)	RasGas I	Endesa, KOGAS	Train 1: 1999 Train 2: 2000
	Ras Laffan (Rasgas II - T1)	1	4.7											Petronet
Ras Laffan (Rasgas II - T2)	1	4.7	RasGas II	Edison	2005									
Ras Laffan (RasGas II - T3)	1	4.7	RasGas III	CPC, EDF, ENI	2007									
Ras Laffan (Rasgas III - T1)	1	7.8			Qatar Petroleum (70%), ExxonMobil (30%)	ExxonMobil, KOGAS, Petronet	2009							
Ras Laffan (Rasgas III - T2)	1	7.8	CPC, ExxonMobil, KOGAS, Petronet	2010										
UNITED ARAB EMIRATES	Das Island	3	5.8	3	240 000	ADNOC (70%), Mitsui (15%), BP (10%), Total (5%)	Adgas	JERA	1977					
YEMEN (STOPPED)	Balhaf - T1 & 2	2	7.2	2	280 000	Yemen LNG (Total 39.6%, Hunt Oil Co. 17.2%, SK Corp. 9.6%, KOGAS 6%, Yemen Gas Co. 16.7%, Hyundai 5.9%, GASSP 5%)	Yemen LNG	ENGIE, KOGAS, Total	T1: 2009 T2: 2010					
MIDDLE EAST TOTAL		100.8		3 100 000										

Country	Site	Liquefaction		Storage		Owner(s)	Operator	LT Buyer(s)	Start-up date
		Number of trains	Nominal capacity in MTPA	Number of tanks	Total capacity in liq m ³				
PACIFIC BASIN									
	Withnell Bay - T1-5	5	16.7	4	260 000	Woodside, Shell, BHP BP Australia, Chevron (17% each), Mitsubishi, Mitsui (8% each)	Woodside	Chugoku Electric, GD LNG, JERA, Kansai Electric, KOGAS, Kyushu Electric, Osaka Gas, Shell, Shizuoka Gas, Toho Gas, Tohoku Electric, Tokyo Gas	T1 & 2: 1989 T3: 1992 T4: 2004 T5: 2008
	Darwin	1	3.7	1	188 000	ConocoPhillips (57%), ENI, Santos, Inpex (11% each), JERA (6%), Tokyo Gas (3%)	ConocoPhillips	JERA, Tokyo Gas	2006
	Pluto	1	4.9	2	240 000	Woodside (90%), The Kansai Electric (5%), Tokyo Gas (5%)	Woodside	Kansai Electric, Tokyo Gas	2012
AUSTRALIA	Curtis Island - T1	1	4.3	1	140 000	Shell (50%), CNOOC (50%)	Shell	CNOOC, Shell	2015
	Curtis Island - T2	1	4.3	1	140 000	Shell (97.5%), Tokyo Gas (2.5%)	Shell	Shell, Tokyo Gas	2015
	GLNG - T1	1	3.9	2	280 000	Santos (30%), Petronas (27.5%), Total (27.5%), KOGAS (15%)	Santos	KOGAS, Petronas	2015
	GLNG - T2	1	3.9	2	280 000	Santos (30%), Petronas (27.5%), Total (27.5%), KOGAS (15%)	Santos	KOGAS, Petronas	2016
	APLNG - T1	1	4.5	2	320 000	ConocoPhillips (37.5%), Origin Energy (37.5%), Sinopec Group (25%)	Australia Pacific LNG	Sinopec	2016
	APLNG - T2	1	4.5	2	320 000	ConocoPhillips (37.5%), Origin Energy (37.5%), Sinopec Group (25%)	Australia Pacific LNG	Kansai Electric, Sinopec	2016
	Gorgon - T1 & 2	2	10.4	2	240 000	Chevron (47.3%), ExxonMobil (25%), Shell (25%), Osaka Gas (1.3%), Tokyo Gas (1%), Chubu Electric (0.4%)	Chevron	BP, Chevron, GS Caltex, JERA, JX Nippon Oil & Energy, Kyushu Electric, Osaka Gas, Petrochina, Petronet, Shell, SK E&S, Tokyo Gas	2016
	BRUNEI	Lumut	5	7.2	3	195 000	Brunei gvt (50%), Shell (25%), Mitsubishi (25%)	Brunei LNG Sdn Bhd	JERA, KOGAS, Osaka Gas, Petronas, Shell, Tokyo Gas
	Bontang - Badak E	1	11.5	6	630 000	Pertamina	Pertamina (55%), VICO (BP, ENI, JILCO (15%), Total (10%))	CPC, JERA, Kansai Electric, KOGAS, Kyushu Electric, Nippon Steel, Osaka Gas, PLN, Toho Gas	1990
	Bontang - Badak F	1							1994
	Bontang - Badak G	1							1998
	Bontang - Badak H	1							1998
INDONESIA	Donggi-Senoro	1	2	1	170 000	Mitsubishi (45%), Pertamina (29%), KOGAS (15%), Medco (11%)		JERA, KOGAS, Kyushu Electric	2015
	Tangguh	2	7.6	2	340 000	Tangguh LNG (BP 40.26%, CNOOC 13.9%, JX Nippon 13.5%, Mitsubishi 9.9%, INPEX 7.8%, LNG Japan 7.4%, KG Berau 5%, Mitsui 2.3%)	Tangguh LNG	CNOOC, Kansai Electric, PLN, Posco, Sempra LNG, SK E&S, Tohoku Electric	2009
MALAYSIA	Bintulu MLNG 1 (Satu)	3	8.4	6	390 000	Petronas (90%), Mitsubishi (5%), Sarawak state gvt (5%)	Petronas	Hiroshima Gas, JERA, Saibu Gas, Shikoku Electric, Tokyo Gas	1983
	Bintulu MLNG 2 (Dua)	3	9.6					CPC, JERA, JX Nippon, KOGAS, Sendai City Gas, Shizuoka Gas, Tohoku Electric, Tokyo Gas	1995
	Bintulu MLNG 3 (Tiga)	2	7.7					CNOOC, JAPEX, KOGAS, Osaka Gas, Toho Gas, Tohoku Electric, Tokyo Gas	2003
	Bintulu MLNG T9	1	3.6					Hokkaido Electric, Hokuriku Electric	2016
PAPUA NEW GUINEA	PNG LNG	2	6.9	2	320 000	Exxon Mobil (33.2%), Oil Search (29%), Indep Public Business Corp (16.6%), Santos (13.5%), JX Nippon (3.7%), MRDC (2.8%), Marubeni (1%), Petromin PNG (0.2%)	PNG LNG	CPC, JERA, Osaka Gas, Sinopec	2014
PERU	Peru LNG	1	4.5	2	260 000	Hunt Oil (50%), Shell (20%), SK Energy (20%), Marubeni (10%)	Hunt Oil	Shell	2010
RUSSIA	Sakhalin 2 - T1 & 2	2	10.8	2	200 000	Sakhalin Energy Invest Co. (Gazprom 50%, Shell 27.5%, Mitsui 12.5%, Mitsubishi 10%)	Sakhalin Energy Invest Co. (Gazprom 50%, Shell 27.5%, Mitsui 12.5%, Mitsubishi 10%)	Gazprom, Hiroshima Gas, JERA, KOGAS, Kyushu Electric, Osaka Gas, Saibu Gas, Shell, Toho Gas, Tohoku Electric, Tokyo Gas	2009
USA	Kenai	1	1.5	3	108 000	ConocoPhillips	ConocoPhillips		1969
PACIFIC BASIN TOTAL			142.3		4 421 000				
TOTAL		96	340		11 713 800				



REGASIFICATION TERMINALS AT THE END OF 2016

Country	Site	Storage		Send-out		Owner	Operator	Third Party Access	Services offered	Start-up date of the terminal
		Number of tanks	Total capacity in liq m ³	Number of vaporizers	Nominal capacity in Bcm/y					
AMERICAS										
ARGENTINA	Bahia Blanca Gas Port (OFFSHORE) - Excelsate Exemplar	1	151 000	6	6.1	YPF	YPF	No		2008
	GNL Escobar (OFFSHORE) - Excelsate Expedient	1	151 000	6	6.1	UTE Escobar (50% Enarsa, 50% YPF)	YPF	No		2011
BRAZIL	Bahia (OFFSHORE) - Golar Winter	1	137 000		5.2	Owner: Golar / Charterer: Petrobras	Petrobras	No		2013
	Guanabara Bay (OFFSHORE) - Excelsate Experience	1	173 400		8.1	Owner: Excelsate Energy / Charterer: Petrobras	Excelsate Energy	No	Reloading	2009
CANADA	Pecem (OFFSHORE) - Golar Spirit	1	129 000	2	2.5	Owner: Golar / Charterer: Petrobras	Petrobras	No	Reloading	2009
	Canaport LNG	3	480 000	8	10	Repsol (75%), Irving Oil (25%)	Repsol Canada Ltd	Yes (but no RTPA)	Reloading	2009
CHILE	Mejillones	1	175 000	3	2	Codelco (37%), ENIGIE (63%)	GNLM	Yes	Truck loading (from 2017 onwards)	2010
	Quintero	3	334 000	3	5.5	Terminal de Valparaiso S.A [Enagas (51%) / Oman Oil Company (49%)] (40%), ENAP (20%), Enagas Chile SpA (40%)	GNL Quintero S.A.	Yes	Truck loading	2009
COLOMBIA	Cartagena (OFFSHORE) - Höegh Grace	4	170 000	4	4	Owner: Höegh LNG / Charterer: Sociedad Portuaria El Cayao (SPEC)	Höegh LNG	No	Reloading, transshipment	2016
DOMINICAN REP.	Punta Caucedo	1	160 000	3	2.3	AES	AES	No	Truck loading	2003
JAMAICA	Montego Bay (OFFSHORE) - FSU Golar Arctic	1	140 600		0.5	Owner: Golar / Charterer: New Fortress Energy	Golar			2016
MEXICO	Altamira	2	300 000	5	7.8	Terminal de LNG de Altamira (Vopak 60%, Enagas 40%)	Terminal de LNG de Altamira (Vopak 60%, Enagas 40%)	Yes		2006
	Energia Costa Azul	2	320 000	6	10.3	IEnova (Sempra)	Sempra	Yes	Reloading	2008
PUERTO RICO	Manzanillo	2	300 000		5.2	Samsung (37.5%), Kogas (25%), Mitsui (37.5%)	Kogas			2012
	Penuelas	1	160 000	2	2.1	Gas Natural Fenosa (47.5%), ENIGIE (35%), Mitsui (15%), GE (2.5%)	Eco Electrica			2000
	Cameron LNG	3	480 000	10	15.5	Sempra (50.2%), ENIGIE (16.6%), Mitsubishi (16.6%), Mitsui (16.6%)	Cameron LNG LLC	Yes	Reloading	2009
USA	Cove Point	5	380 000	10	10.7	Dominion Cove Point LNG	Dominion Cove Point LNG	Shell, BP, Statoil, Peakers 1/4 each		1978, restarted 2003
	Cove Point Expansion	2	320 000	15	8	Dominion Cove Point LNG	Dominion Cove Point LNG	Statoil		2008
	Elba Island	5	535 000	11	16.3	Southern LNG (Kinder Morgan)	Southern LNG	Yes		1978, restarted 2001, expanded 2006, expanded 2010
	Everett	2	155 000	4	6.9	ENIGIE	ENIGIE	Yes	Truck loading	1971
	Freeport LNG	2	320 000	7	18	Freeport LNG Development, LP	Freeport LNG Development, LP	Yes	Reloading, Storage	2008
	Golden Pass	5	775 000	8	21.4	QP (70%), Exxon (17.6%), Conoco Phillips (12.4%)	Golden Pass LNG	No		2010
	Gulf LNG Energy	2	320 000		12	Kinder Morgan (50%), GE (40%), AES (10%)	Gulf LNG Energy	No		2011
Lake Charles	4	425 000	14	24.3	Trunkline LNG	Trunkline LNG	Yes		1982, Infrastructure enhancement project completed March 2010	
Northeast Gateway (OFFSHORE)	1	151 000	6	4.1	Excelsate Energy	Excelsate Energy			2008	
Sabine Pass	5	800 000	24	41.4	Sabine Pass LNG	Cheniere	Yes	Reloading	2008	
AMERICAS TOTAL			7 942 000		256.4					

Country	Site	Storage		Send-out		Owner	Operator	Third Party Access	Services offered	Start-up date of the terminal
		Number of tanks	Total capacity in liq m ³	Number of vaporizers	Nominal capacity in Bcm/y					
ASIA										
CHINA	Beihai, Guangxi	3	480 000		4	Sinopec	Sinopec			2016
	Dalian	4	640 000	3	7.8	Petrochina (75%), other companies	Petrochina	Yes	Reloading	2011
	Guangdong Dapeng, Shenzhen	4	640 000	7	9.2	CNOOC (33%), BP (30%), other companies	GDLNG	No	Truck loading	2006
	Dongguan, Guangdong province	2	160 000		1.4	Jovo Group				2013
	Fujian	4	640 000		6.9	Fujian LNG (CNOOC 60%, Fujian Inv. & Dev.Co. 40%)	CNOOC	No		2008
	Hainan	3	480 000		4.1	CNOOC (65%), other companies	CNOOC	No	Reloading	2014
	Shandong Qingdao	4	480 000		4.2	Sinopec	Sinopec	No		2014
	Rudong, Jiangsu	4	680 000	3	8.5	Petrochina (55%), other companies	Petrochina	Yes		2011
	Shanghai, Mengtougou	3	120 000		0.2	Shanghai Gas Group	Shanghai Gas Group	No		2008
	Shanghai LNG	3	495 000		4.1	Shanghai LNG (CNOOC 45%, Shenergy Group Ltd 55%)	CNOOC	No		2009
Tangshan (Caofeidian)	3	480 000		4.8	Petrochina (51%), Beijing Enterprises (29%), Hebei Natural Gas (20%)	Petrochina	Yes		2013	
Tianjin (OFFSHORE) - GDF SUEZ Cape Ann	4	145 130	3	3	Owner: Höegh LNG (50%), MOL (48.5%), Tokyo LNG Tanker Co. Ltd. (1.5%) / Charterer: ENIGIE - relet to CNOOC for 3.5 years (until 19 Jan 2017)	Höegh LNG	No	Truck loading	2013	
Zhejiang, Ningbo	3	480 000		4.1	CNOOC (51%), other companies	CNOOC	No		2012	
Zhuhai (Gaolan)	3	480 000		4.8	CNOOC (25%), other companies	CNOOC		Reloading	2013	
Dabhol	2	320 000	6	2.4	Ratnagiri Gas & Power Ltd (GAIL, NTPC)	Gail	No		2013	
INDIA	Dahej	6	932 000	19	18.8	Petronet LNG	Petronet LNG	Negotiated TPA	Truck loading	2004, expansion in July 2009 and 2016
	Hazira	2	320 000	5	6.7	Hazira LNG Private Ltd (Shell 74%, Total 26%)	Hazira LNG Private Ltd	No		2005
INDONESIA	Kochi	2	368 000	6	6.3	Petronet LNG	Petronet LNG	Negotiated TPA	Reloading, Truck loading	2013
	Arun Regas	2	220 000	1	2.1	PT Perta Arun Gas	PT Perta Arun Gas	Yes		2015
INDONESIA	Benoa (FRU+FSU)				0.4	JSK Group (50%), PT Pelindo III (50%)	PT Pelindo Energi Logistik (PEL)			2016
	Lampung LNG (OFFSHORE) - PGN FSRU Lampung	4	170 000	3	2.4	Owner: Höegh LNG / Charterer: PGN LNG	Höegh LNG	No		2014
	Nusantara Regas Satu (OFFSHORE) - Jawa Barat	6	125 016	6	4.1	Owner: Golar LNG / Charterer: Nusantara Regas	PT Nusantara Regas (JV Pertamina & PGN)	No		2012
	Chita	7	640 000	11	14.8	Chita LNG	Chita LNG	Yes	Truck loading	1983
JAPAN	Chita Kyodo	4	300 000	14	9.9	Toho Gas / Chubu Electric	Toho Gas	Negotiated TPA	Truck loading	1978
	Chita-Midorihamama Works	3	620 000	8	10.5	Toho Gas	Toho Gas	Negotiated TPA	Truck loading	2001
	Futtsu	10	1 110 000	13	26	TEPCO Fuel & Power	TEPCO Fuel & Power	Yes	Truck loading	1985
	Hachinohe	2	280 000	5	1.4	JX Nippon Oil & Energy	JX Nippon LNG Service	Yes	Truck loading	2015
	Hatsukaichi	2	170 000	4	1.2	Hiroshima Gas	Hiroshima Gas	No	Truck loading	1996
	Hibiki	2	360 000	5	2.9	Hibiki LNG (Saibu Gas 90%, Kyushu Electric 10%)	Hibiki LNG	Negotiated TPA	Truck loading, Cool-down, Gas test services	2014
	Higashi-Ohgishima	9	540 000	9	18	TEPCO Fuel & Power	TEPCO Fuel & Power	Yes	Truck loading	1984
	Himeji	8	740 000	7	8	Osaka Gas	Osaka Gas	Yes	Truck loading	1984
	Himeji LNG	7	520 000	8	11	Kansai Electric	Kansai Electric	Yes	Truck loading	1979
	Hitachi LNG	1	230 000	3	2.3	Tokyo Gas	Tokyo Gas	Negotiated TPA	Reloading, Truck loading	2016
JAPAN	Ishikari LNG	2	380 000	4	3.7	Hokkaido Gas	Hokkaido Gas	Negotiated TPA	Reloading, Truck loading	2012
	Joetsu	3	540 000	8	3.2	Chubu Electric	Chubu Electric		Truck loading	2011
	Kagoshima	2	86 000	3	0.3	Nippon Gas	Nippon Gas	No		1996
	Kawagoe	6	840 000	7	6.7	Chubu Electric	Chubu Electric	Yes	Truck loading	1997
	Mizushima	2	320 000	6	5.8	Mizushima LNG	Mizushima LNG	Yes	Truck loading	2006
	Nagasaki	1	35 000	3	0.2	Saibu Gas	Saibu Gas	Yes	Truck loading	2003
	Naoetsu	2	360 000	4	2	INPEX Corporation	INPEX Corporation	No		2013
	Negishi	14	1 180 000	14	15.1	Tokyo Gas / TEPCO Fuel & Power	Tokyo Gas / TEPCO Fuel & Power	Negotiated TPA	Reloading, Truck loading	1969
	Niigata	8	720 000	14	11.6	Nihonkai LNG	Nihonkai LNG	Yes		1984
	Ohgishima	4	850 000	12	13.4	Tokyo Gas	Tokyo Gas	Negotiated TPA		1998
	Oita	5	460 000	7	7.3	Oita LNG	Oita LNG	Yes		1990
	Sakai	3	420 000	6	8.7	Kansai Electric	Kansai Electric	Yes	Truck loading	2006
	Sakaide	1	180 000	3	1.6	Sakaide LNG	Sakaide LNG	Yes	Truck loading	2010
	Senboku I	2	278 000	5	2.9	Osaka Gas	Osaka Gas	Yes	Truck loading	1972
Senboku II	18	1 585 000	15	15.7	Osaka Gas	Osaka Gas	Yes	Truck loading	1977	

Country	Site	Storage		Send-out		Owner	Operator	Third Party Access	Services offered	Start-up date of the terminal
		Number of tanks	Total capacity in liq m ³	Number of vaporizers	Nominal capacity in Bcm/y					
JAPAN	Shin-Minato	1	80 000	3	0.4	Gas Bureau, City of Sendai	Gas Bureau, City of Sendai	No		1997
	Shin-Sendai	2	320 000	3	1.1	Tohoku Electric	Tohoku Electric	No		2015
	Sodegaura	35	2 660 000	36	40.4	Tokyo Gas / TEPCO Fuel & Power	Tokyo Gas / TEPCO Fuel & Power	Negotiated TPA	Reloading, Truck loading	1973
	Sodeshi	3	337 200	8	3.9	Shimizu LNG (Shizuoka Gas 65%, Tonen General Sekiyu 35%)	Shimizu LNG	No	Reloading, Truck loading	1996
	Tobata	8	480 000	9	10.3	Kita Kyushu LNG	Kita Kyushu LNG	Yes		1977
	Yanai	6	480 000	5	3.1	The Chugoku Electric	The Chugoku Electric	Yes	Truck loading	1990
	Yokkaichi LNG Centre	4	320 000	8	8.7	Chubu Electric	Chubu Electric	Yes		1987
	Yokkaichi Works	2	160 000	6	2.9	Toho Gas	Toho Gas	Negotiated TPA	Truck loading	1991
MALAYSIA	Melaka (OFFSHORE) - FSUs Tenaga Empat and Tenaga Satu		260 000	3	5.2	Petronas	Petronas Gas	No		2013
PAKISTAN	Port Qasim (OFFSHORE) - Excelsior Exquisite		150 900		5.2	Owner: Excelsior Energy / Charterer: Engro Corp.	Excelsior Energy	No		2015
SINGAPORE	Jurong	3	540 000	5	7.8	SLNG	SLNG	Yes but sale of regasified LNG limited to licensed LNG importers	Cool-down Services, Reloading, Storage, Truck loading (pilot facility)	2013
SOUTH KOREA	Boryeong	4	400 000		4.1	GS Energy (50%), SK E&S (50%)				2016
	Gwangyang	4	530 000	2	2.3	Posco	Posco	No	Reloading	2005
	Incheon	20	2 880 000	43	56.8	KOGAS	KOGAS	No		1996
	Pyeong-Taek	23	3 360 000	39	51.9	KOGAS	KOGAS	No		1986
	Samcheok	9	1 800 000	8	14.8	KOGAS	KOGAS	No		2014
	Tong-Yeong	17	2 620 000	20	33.9	KOGAS	KOGAS	No		2002
		Taichung	3	480 000	8	3.9	CPC	CPC	No	
TAIWAN	Yung-An	6	690 000	18	9.8	CPC	CPC	No		1990
THAILAND	Map Ta Phut	2	320 000	4	7.3	PTT	PTT LNG	No		2011
ASIA TOTAL			41 467 246		588.2					
MIDDLE EAST										
UNITED ARAB EMIRATES	Jebel Ali (OFFSHORE) - Excelsior Explorer		150 900		8.2	Owner: Excelsior Energy / Charterer: Dubai Supply Authority	Excelsior Energy	No		2010
	Ruwais (OFFSHORE) - Excelsior "Excelsior"		138 000		5.2	Owner: Excelsior Energy / Charterer: Abu Dhabi Gas Industries (GASCO); ADNOC, Shell and Total	Excelsior Energy	No		2016
EGYPT	Ain-Sokhna (OFFSHORE) - BW Singapore		170 000	4	7.8	Owner: BW / Charterer: Egas	BW	No		2015
	Ain-Sokhna (OFFSHORE) - Höegh Gallant	4	170 000	4	5.2	Owner: Höegh LNG / Charterer: Egas	Höegh LNG	No		2015
ISRAEL	Hadera Gateway (OFFSHORE)		138 000	6	4.8	INGL	Excelsior Energy	No		2013
JORDAN	Aqaba LNG (OFFSHORE) - Golar Eskimo		160 000		5.2	Owner: Golar / Charterer: Jordan Ministry of Energy and Mineral Resources (MEMR)	Golar	No		2015
KUWAIT	Mina Al Ahmadi (OFFSHORE) - Golar Igloo		170 000		7.9	Owner: Golar / Charterer: KPC	Golar	No		2014
MIDDLE EAST TOTAL			1 096 900		44.3					
EUROPE										
BELGIUM	Zeebrugge	4	380 000	12	9	Fluxys LNG	Fluxys LNG	Yes	Bunkering, Reloading, Transshipment, Truck loading	1987
FINLAND	Pori	1	30 000		0.1	Skargas	Skargas	Yes	Bunkering, Truck loading	2016
FRANCE	Dunkerque LNG	3	570 000	10	13	Edf (65.01%), Fluxys (25%), Total (9.99%)	Gaz-Opale	Yes	Reloading (4000 m ³ /h)	2016
	Fos Cavaou	3	330 000	4	8.3	Fosmax LNG (Elengy 72.5%, Total 27.5%)	Elengy	Yes	Bunkering, Cool-down services, Reloading, Transshipment, Truck loading through Fos Tonkin	2009 (commercial operation from April 2010)

Country	Site	Storage		Send-out		Owner	Operator	Third Party Access	Services offered	Start-up date of the terminal
		Number of tanks	Total capacity in liq m ³	Number of vaporizers	Nominal capacity in Bcm/y					
FRANCE	Fos Tonkin	3	80 000	6	3	Elengy	Elengy	Yes	Bunkering, Cool-down services, Reloading, Truck loading	1972
	Montoir-de-Bretagne	3	360 000	11	10	Elengy	Elengy	Yes	Bunkering, Cool-down services, Reloading, Transshipment, Truck loading	1980
GREECE	Revithoussa	2	130 000	6	5	DESFA S.A.	DESFA S.A.	Yes		2000
ITALY	OLT LNG Toscana (OFFSHORE) - FSRU Toscana	4	137 500	3	3.8	OLT (Uniper 48.24%, IREN Group 49.07%, Golar 2.69%)	OLT Offshore LNG Toscana	Regulated TPA		2013
	Panigaglia	1	50 000	4	3.3	GNL Italia S.p.A.	GNL Italia S.p.A.	Yes		1971
	Rovigo (OFFSHORE)	2	250 000	5	8	Qatar Petroleum (22%), Edison (7.3%), ExxonMobil (70.7%)	Adriatic LNG (Qatar Petroleum, Edison, Exxon)	Yes (20%)		2009
LITHUANIA	Klaipeda (OFFSHORE) - Independence	4	170 000	4	4	Owner: Höegh LNG / Charterer: Klaipėdos Nafta	Höegh LNG	Yes	Re-loading, Bunkering and truck loading facilities being developed	2014
NETHERLANDS	Rotterdam	3	540 000	8	12	Gasunie (50%), Vopak (50%)	Gate Terminal	Yes	Bunkering, Cool-down services, Reloading, Transshipment, Truck loading	2011
NORWAY	Fredrikstad	9	6 400		0.1	Skargas	Skargas	Yes	Bunkering, Truck loading	2011
POLAND	Świnoujście	2	320 000		5	Polskie LNG	Polskie LNG	Yes	Truck loading	2016
PORTUGAL	Sines	3	390 000	7	7.6	Ren Atlântico	Ren Atlântico	Yes	Reloading, Truck loading	2004
SPAIN	Barcelona	6	760 000	13	17.1	Enagas	Enagas	Regulated TPA	Bunkering, Reloading, Transshipment, Truck loading	1969
	Bilbao	3	450 000	4	8.8	Enagas (50%), EVE (50%)	Bahia de Bizkaia Gas, SL (BBG)	Regulated TPA	Bunkering, Reloading, Truck loading	2003
	Cartagena	5	587 000	9	11.8	Enagas	Enagas	Regulated TPA	Bunkering, Reloading, Transshipment, Truck loading	1989
	El Musel	2	300 000	4	7.1	Enagas	Enagas	Regulated TPA	Reloading, Truck loading	Construction completed in 2013 but mothballed
	Huelva	5	619 500	9	11.8	Enagas	Enagas	Regulated TPA	Reloading, Truck loading	1988
	Mugardos	2	300 000	3	3.6	Tojeiro Group (51%), Xunta Galicia (24%), First State Investment (15%), Sonatrach (10%)	Reganosa	Regulated TPA	Bunkering, Reloading, Truck loading	2007
	Sagunto	4	600 000	5	8.8	Infraestructuras de Gas [Enagas and Oman Oil Company S.A.O.C.] (50%), Iniciativas de Gas [Enagas and Osaka Gas] (50%)	Saggas	Regulated TPA	Reloading, Truck loading	2006
SWEDEN	Lysekil	1	30 000		0.3	Skargas	Skargas		Bunkering, Truck Loading	2014
	Nysahamn LNG	1	20 000		0.3	AGA Gas	AGA Gas		Bunkering, Truck Loading	2011
	Aliaga/Izmir	2	280 000	5	6	Egegaz	Egegaz	No	Truck loading	2006
TURKEY	Aliaga - Etki Liman LNG (OFFSHORE) - Neptune	4	145 130	3	5	Owner: Höegh LNG (50%), MOL (48.5%), Tokyo LNG Tanker Co. Ltd. (1.5%) / Charterer: ENGIE - relet to Kolin/Kalyon for 3+ years	Höegh LNG	No		2016
	Marmara Ereğlisi	3	255 000	7	6.2	Botas	Botas	No	Truck loading	1994
	Dragon	2	320 000	6	7.6	Shell (50%), Petronas (30%), 4Gas (20%)	Dragon LNG	Yes (but no RTPA)		2009
UNITED KINGDOM	Isle of Grain	8	1 000 000	14	19.5	National Grid	Grain LNG	Yes (but no RTPA)	Cool-down services, Reloading, Transshipment, Truck loading	2005
	South Hook LNG	5	775 000	15	21	Qatar Petroleum International (67.5%), Exxon Mobil (24.15%), Total (8.35%)	South Hook LNG Terminal Company Ltd	Yes		2009
	Teesside GasPort (OFFSHORE)		138 000		4.2	Excelsior Energy	Excelsior Energy			2007
EUROPE TOTAL			10 323 530		231.2					
WORLD TOTAL			60 829 676		1 120.1					

LNG CHARACTERISTICS

The average composition is chosen as being representative among compositions reported by the different receiving terminals:

Origin	Nitrogen N2 %	Methane C1 %	Ethane C2 %	Propane C3 %	C4+ %	TOTAL	LNG Density ⁽¹⁾ kg/m ³	Gas Density ⁽²⁾ kg/m ³ (n)	Expansion ratio m ³ (n)/ m ³ liq	Gas GCV ⁽²⁾ MJ/m ³ (n)	Wobbe Index ⁽²⁾ MJ/ m ³ (n)
Australia - NWS	0.04	87.33	8.33	3.33	0.97	100	467.35	0.83	562.46	45.32	56.53
Australia - Darwin	0.10	87.64	9.97	1.96	0.33	100	461.05	0.81	567.73	44.39	56.01
Algeria - Skikda	0.63	91.40	7.35	0.57	0.05	100	446.65	0.78	575.95	42.30	54.62
Algeria - Bethioua	0.64	89.55	8.20	1.30	0.31	100	454.50	0.80	571.70	43.22	55.12
Algeria - Arzew	0.71	88.93	8.42	1.59	0.37	100	457.10	0.80	570.37	43.48	55.23
Brunei	0.04	90.12	5.34	3.02	1.48	100	461.63	0.82	564.48	44.68	56.18
Egypt - Idku	0.02	95.31	3.58	0.74	0.34	100	437.38	0.76	578.47	41.76	54.61
Egypt - Damietta	0.02	97.25	2.49	0.12	0.12	100	429.35	0.74	582.24	40.87	54.12
Equatorial Guinea	0.00	93.41	6.52	0.07	0	100	439.64	0.76	578.85	41.95	54.73
Indonesia - Arun	0.08	91.86	5.66	1.60	0.79	100	450.96	0.79	571.49	43.29	55.42
Indonesia - Badak	0.01	90.14	5.46	2.98	1.40	100	461.07	0.82	564.89	44.63	56.17
Indonesia - Tangguh	0.13	96.91	2.37	0.44	0.15	100	431.22	0.74	581.47	41.00	54.14
Libya	0.59	82.57	12.62	3.56	0.65	100	478.72	0.86	558.08	46.24	56.77
Malaysia	0.14	91.69	4.64	2.60	0.93	100	454.19	0.80	569.15	43.67	55.59
Nigeria	0.03	91.70	5.52	2.17	0.58	100	451.66	0.79	571.14	43.41	55.50
Norway	0.46	92.03	5.75	1.31	0.45	100	448.39	0.78	573.75	42.69	54.91
Oman	0.20	90.68	5.75	2.12	1.24	100	457.27	0.81	567.76	43.99	55.73
Peru	0.57	89.07	10.26	0.10	0.01	100	451.80	0.79	574.30	42.90	55.00
Qatar	0.27	90.91	6.43	1.66	0.74	100	453.46	0.79	570.68	43.43	55.40
Russia - Sakhalin	0.07	92.53	4.47	1.97	0.95	100	450.67	0.79	571.05	43.30	55.43
Trinidad	0.01	96.78	2.78	0.37	0.06	100	431.03	0.74	581.77	41.05	54.23
USA - Alaska	0.17	99.71	0.09	0.03	0.01	100	421.39	0.72	585.75	39.91	53.51
Yemen	0.02	93.17	5.93	0.77	0.12	100	442.42	0.77	576.90	42.29	54.91

(1) Calculated according to ISO 6578 [T = -160°C]

(2) Calculated according to ISO 6976 [0°C / 0°C, 1.01325 bar]

Conversion table	Tonnes LNG	m ³ LNG (liquid) ⁽¹⁾	m ³ gas (n) ⁽²⁾	ft ³ gas (n) ⁽²⁾	ft ³ gas standard (scf) ⁽³⁾	MMBtu
Tonnes LNG		2.21	1.27 x 10 ³	44.96	47.53	51.02
m ³ LNG (liquid) ⁽¹⁾	0.45		571	20.17	21.31	23.12
m ³ gas (n) ⁽²⁾	7.85 x 10 ⁻⁴	1.75 x 10 ⁻³		3.53 x 10 ⁻²	3.73 x 10 ⁻²	37.33
ft ³ gas (n) ⁽²⁾	2.22 x 10 ⁻⁸	4.96 x 10 ⁻⁵	2.83 x 10 ⁻²		1.05	1.15 x 10 ⁻³
ft ³ gas standard (scf) ⁽³⁾	2.10 x 10 ⁻⁸	4.69 x 10 ⁻⁵	2.68 x 10 ⁻²	9.48 x 10 ⁻¹		1.09 x 10 ⁻³
MMBtu	1.96 x 10 ⁻²	4.33 x 10 ⁻²	24.69	872.2	920.1	

(1) Calculated according to ISO 6578 [T = -160°C]

(2) Calculated according to ISO 6976 [0°C / 0°C, 1.01325 bar]

(3) Standard conditions [15°C / 15°C, 1.01325 bar]

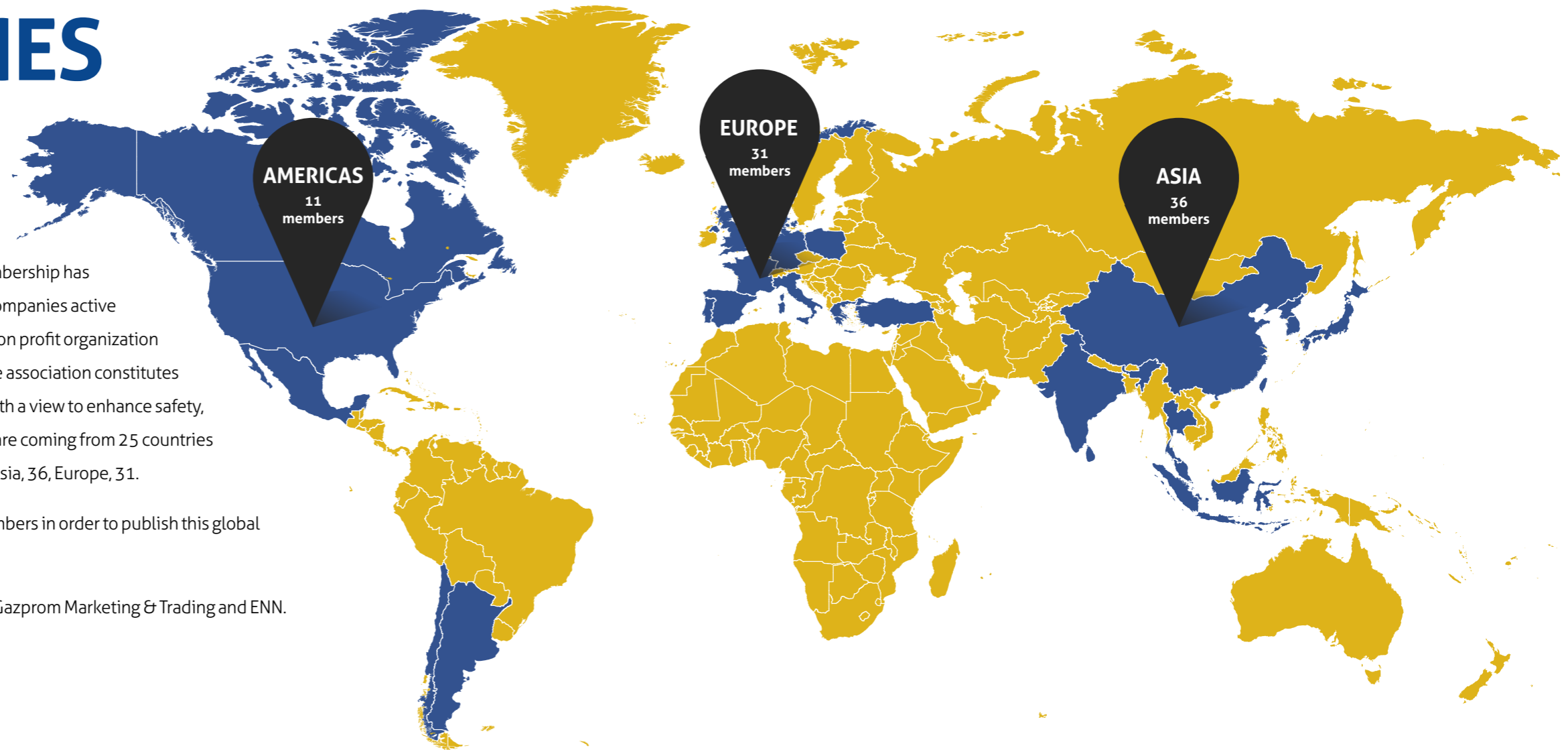
78 MEMBER COMPANIES IN 25 COUNTRIES

GIIGNL (Groupe International des Importateurs de Gaz Naturel Liquéfié) is the worldwide association of LNG importers.

Founded in 1971, at the outset of the LNG industry, its membership has grown to 78 companies worldwide, comprising nearly all companies active in LNG imports or in the operation of LNG terminals. It is a non profit organization and its resources only come from the membership fees. The association constitutes a forum for exchange of experience among its members, with a view to enhance safety, reliability and efficiency of LNG imports. GIIGNL members are coming from 25 countries located in the main three regions: Americas, 11 members, Asia, 36, Europe, 31.

Every year, GIIGNL conducts a wide survey amongst its members in order to publish this global statistical report, The LNG Industry.

3 companies joined the group in 2016: Excelerate Energy, Gazprom Marketing & Trading and ENN.



AMERICAS

- Cheniere Energy, Inc.
- Dominion Cove Point LNG
- Engie Gas and LNG, LLC
- Excelerate Energy L.P.
- GNL Quintero S.A.
- Freeport LNG Development, L.P.
- Repsol Energy Canada
- Sempra LNG & Midstream
- Shell North America LNG L.P
- Southern LNG Company, LLC
- YPF S.A.



EUROPE

- BP Global LNG
- Botas
- Centrica LNG Company
- DEPA
- Dong Energy
- Dunkerque LNG
- Edison S.p.A.
- Elengy S.A.
- EDF Trading Limited
- EDP Energias de Portugal, S.A.
- Enagas
- Enel Trade
- Engie
- Eni S.p.A.
- Fluxys LNG S.A.
- Gas Natural Fenosa

- Gate Terminal B.V.
- Gazprom Marketing & Trading Limited
- GNL Italia
- Höegh LNG
- Iberdrola Generacion S.A.U.
- National Grid Grain LNG, Ltd.
- N.V. Nederlandse Gasunie
- Polskie LNG S.A.
- Ren Atlântico, S.A.
- Shell Western LNG B.V.
- Sonatrach Gas Marketing UK Limited
- South Hook LNG Terminal Company, Ltd.
- Statoil ASA
- Total S.A.
- Uniper Global Commodities SE
- Vopak LNG Holding B.V.



ASIA

- Chubu Electric Power Company, Inc.
- CNOOC Gas & Power Group
- CPC Corporation, Taiwan
- ENN LNG Trading Company Limited
- Gail India Limited
- GSPC LNG Limited
- Guangdong Dapeng LNG Company, Ltd.
- Hazira LNG
- Hiroshima Gas Company, Ltd.
- Hokkaido Gas Company, Ltd.
- Inpex
- Itochu Corporation
- JX Nippon Oil & Energy Corp
- Korea Gas Corporation
- Kyushu Electric Power Company, Inc.
- LNG Japan Corporation

- Marubeni Corporation
- Mitsubishi Corporation
- Mitsui & Company, Ltd.
- Nippon Gas Company, Ltd.
- Osaka Gas Company, Ltd.
- Petronet LNG Limited
- PT Pertamina (Persero)
- PTT Public Company, Ltd.
- Saibu Gas Company, Ltd.
- Shikoku Electric Power Company
- Shizuoka Gas Company, Ltd.
- Singapore LNG Corporation
- SK E&S Company, Ltd.
- Sumitomo Corporation
- The Chugoku Electric Power Company, Inc.
- The Kansai Electric Power Company, Inc.
- The Tokyo Electric Power Company, Inc.

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