

LNG Fuelling

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Total signs record LNG supply deal with CMA CGM

French energy firm Total has signed a strategic agreement with shipping line CMA CGM to provide LNG for its newest container ships.

The contract will see Total supply around 300,000 tons of LNG over a ten-year period starting from 2020. The unprecedented volume marks a milestone in the history of LNG bunkering as CMA CGM plans for long-term reliance on the fuel.

"LNG is the fuel of the future for shipping... With this groundbreaking decision by the CMA CGM Group, the entire maritime industry will benefit from the new supply chains that will be created. CMA CGM is pursuing its expansion through a combination of growth, profitability and environmental responsibility," Rodolphe Saadé, CEO of CMA CGM, said.

Signal to the maritime world

The fuel will be used for nine newbuild container ships currently on order by CMA CGM's, they identical 22,000-TEU-capacity ships will be the largest container vessels ever built.



Total will supply LNG for CMA CGM's new containerships

"CMA CGM's decision to adopt LNG propulsion for its new build container ships sends a strong signal to the maritime world... The wider use of LNG as a fuel is an important component of Total's LNG strategy, and we are delighted to support CMA CGM as it implements this ambitious project," Patrick Pouyanné, CEO of Total, said.

Boost for LNG supply chains

Alongside raising the profile of LNG as a fuel for transport the scale of the new deal is also expected to drive significant investment in new infrastructure as Total is forced to overcome challenges in supplying the fuel.

"This agreement highlights our involvement in developing dedicated supply chains for this new fuel. We are once again demonstrating our ability to provide customized energy solutions to our customers," Pouyanné added.

The agreement has already received approval from the French Prime Minister Édouard Philippe who has backed moves to place LNG at the centre of the country's maritime policy.

"By combining the expertise of two French companies, each one leader in its field, we are consolidating France's prominent role for a more sustainable transportation and in favor of the energy transition," Saadé said. ■



Patrick Pouyanné CEO of Total

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Jumbo orders LNG-fuelled heavy-lift vessel

Shipbuilder China Merchants Industry Holdings has signed a Letter of Intent (LoI) with cargo firm Jumbo to construct an LNG-powered heavy-lift vessel.

The deal marks one of the largest heavy-lift vessels yet ordered that will run on the fuel and was hailed as a 'milestone' in the global offshore energy market. The vessel is scheduled to be delivered in the first quarter of 2020.

"Despite the current offshore climate, we are committing to this industry long term. Signing this Letter of Intent alongside CMIH, with their partnering mentality, is a key milestone for Jumbo's offshore division to further step-up, scale-up and diversify into the global offshore energy market," Michael Kahn, Managing Director of Jumbo said.

Ulstein and Huisman design

The DP2 Heavy-Lift Crane Vessel (HLCV) has been designed by

Jumbo together with Ulstein Design and Solutions and the hull will be outfitted with X-BOW technology, enabling significantly more consistent transit speed and offshore workability in severe weather conditions.

The vessel is designed for handling of ultra-large cargoes and will be used for installation of wind turbine foundations, moorings systems and subsea structures, foundations and (flex-lay) tie-backs in deeper waters as well as installation and decommissioning of fixed oil and gas facilities in shallow waters.

The vessels cranes will be designed and constructed by Huisman Equipment will be capable of exceeding Jumbo's current lifting capacities and operable in tandem with onboard moon pool and flex-lay system.



Jumbo heavy-lift vessel

World's largest X-BOW vessel

Measuring 185 metres in length and 36 metres in width the HLCV will be the world's largest X-BOW vessel and will be equipped with two offshore mast cranes with lifting capacities of 2,200 and

400 tonnes respectively.

Headquartered in Schiedam in the Netherlands, Jumbo is owned by the Kahn family and operates a heavy-lift fleet with capacities from 650 to 3,000 tonnes that includes offshore construction vessels and offshore transportation vessels. ■

Teekay orders LNG-fuelled tankers

Marine transportation and fuel storage specialist Teekay Offshore has declared options with Samsung Heavy Industries for the construction of two LNG-fuelled tankers.

The two Suezmax-sized, DP2 shuttle tankers are expected to cost approximately US\$265 million and will be based on the Shuttle Spirit design. They will both be delivered in 2020 and will join Teekay fleet in the North Sea.

"This is another important milestone for Teekay Offshore's shuttle tanker franchise since it

further strengthens our position as the leading provider of CoA shuttle tanker services in the North Sea," Ingvild Sæther, CEO of Teekay Offshore Group, said.

North Sea portfolio expansion

The contract follows an agreement earlier this year with Sam-

sung Heavy Industries for two similarly specced tankers also destined for the North Sea.

"What makes me particularly proud is that these newbuildings, as well as the two shuttle tankers ordered in July 2017 to service Statoil's needs in the North Sea, will set new standards for both fuel consumption and CO2 emissions," Sæther added.

Supporting North Sea CoA portfolio

The two new vessels will support Teekay's Offshore's Contract of Affreightment (CoA) portfolio in the North Sea while the newbuilds ordered in July will operate under the Partnership's existing Master

Agreement with Statoil.

"Our customers require a reliable, long-term solution for securing offtake services from over 15 oil fields in the North Sea and therefore, these state-of-the-art newbuildings demonstrate our ongoing commitment to our customers," Sæther commented.

Headquartered in Bermuda, Teekay Offshore Partners provides marine transportation, storage, long-distance towing and offshore installation as well as oil production-related activities in offshore oil regions of the North Sea, Brazil and the East Coast of Canada. The firm has consolidated assets of approximately US\$5.6 billion, including 63 offshore assets. ■



Render of Teekay Shuttle Spirit tanker

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Skangas signs Isle of Grain deal

Scandinavian fuel supplier Skangas has signed an agreement with the UK's National Grid for provision of LNG via the Isle of Grain import terminal.

The deal marks the first agreement between a small-scale LNG supplier and a UK import terminal and is part of National Grid's strategy to develop the LNG hub on the island. Grain LNG currently operates the terminal primarily as a large-scale import facility but now plans to develop an LNG breakbulk marine facility on the island for small vessels to reload and bunker LNG.

"Skangas appreciates the opportunity to source LNG from the Grain LNG terminal... This will improve supply to the small scale markets thus allowing to source LNG on more flexible and competitive terms. In the end, it will be reflected in improved offerings to our own LNG customers," Dan Hramoff, Director of Business Development and Projects at Skangas, said.

Extension for breakbulk marine LNG carriers planned

To better cater for small-scale LNG bunkering the terminal operator Grain LNG, a subsidiary to grid operator National Grid, plans an extension to existing jetties to cater for breakbulk marine LNG carriers up to 20,000 cubic metres, designed to meet the needs of Skangas' fleet of LNG carriers.

"We believe the best way to



LNG storage tank on the Isle of Grain

encourage growth in the market is to offer competitive alternatives which ensure security of supply for small scale market participants... Grain LNG is excited to be at the forefront of developing this market in partnership with progressive companies such as Skangas," Nicola Duffin, Senior Commercial Manager at Grain LNG, said.

Europe's largest LNG terminal

Grain LNG operates the existing 1 million cubic-meter-capacity terminal on the island of Grain on the easternmost point of the Hoo Peninsula in the district of Medway in Kent. The facility is the largest such terminal in Europe and eighth largest in the world by

tank capacity, with a site that spans over 600 acres and is equipped with two cryogenic lines and two QMax capable jetties.

"By making LNG more readily available to the small-scale market from a variety of sources, the increased competition will create a more dynamic market, resulting in better, more cost-effective LNG supply for the market at large," a spokesperson for Skangas said.

Skangas is a joint venture between Finnish natural energy gas expert Gasum (51%) and Norwegian electricity group Lyse Energi (49%). The firm is one of the largest LNG suppliers in the Nordic region and provides fuel for shipping, industrial and heavy-duty road transport needs. ■

NEWS NUDGES

Chart commissions Finnish LNG fuelling station

Cryogenic storage specialist Chart Industries has commissioned its fourth natural gas fuelling station in Finland, near to Helsinki Vantaa airport.

The station is owned and operated by Gasum and joins similar facilities already established in Helsinki Vuosaari, Turku and Jyväskylä. It will supply LNG and LCNG gas for road vehicles and is now open to the general public.

"Chart shares the view that natural gas will play an increased role in the transport sector. Strict emissions targets and concerns about carbon dioxide (CO2) footprint, mean that LNG/LBG is fast becoming accepted as the future fuel for heavy haulage vehicles. It's very exciting to see the commitment of major truck OEMs, through the availability of modern LNG powered vehicles, and progressive companies, like Gasum, investing in the fuelling infrastructure to keep demand and supply in tandem," Pavel Mátl, Business Director at Chart, said. ■



Isle of Grain LNG terminal



LNG VALUE CHAIN SOLUTIONS

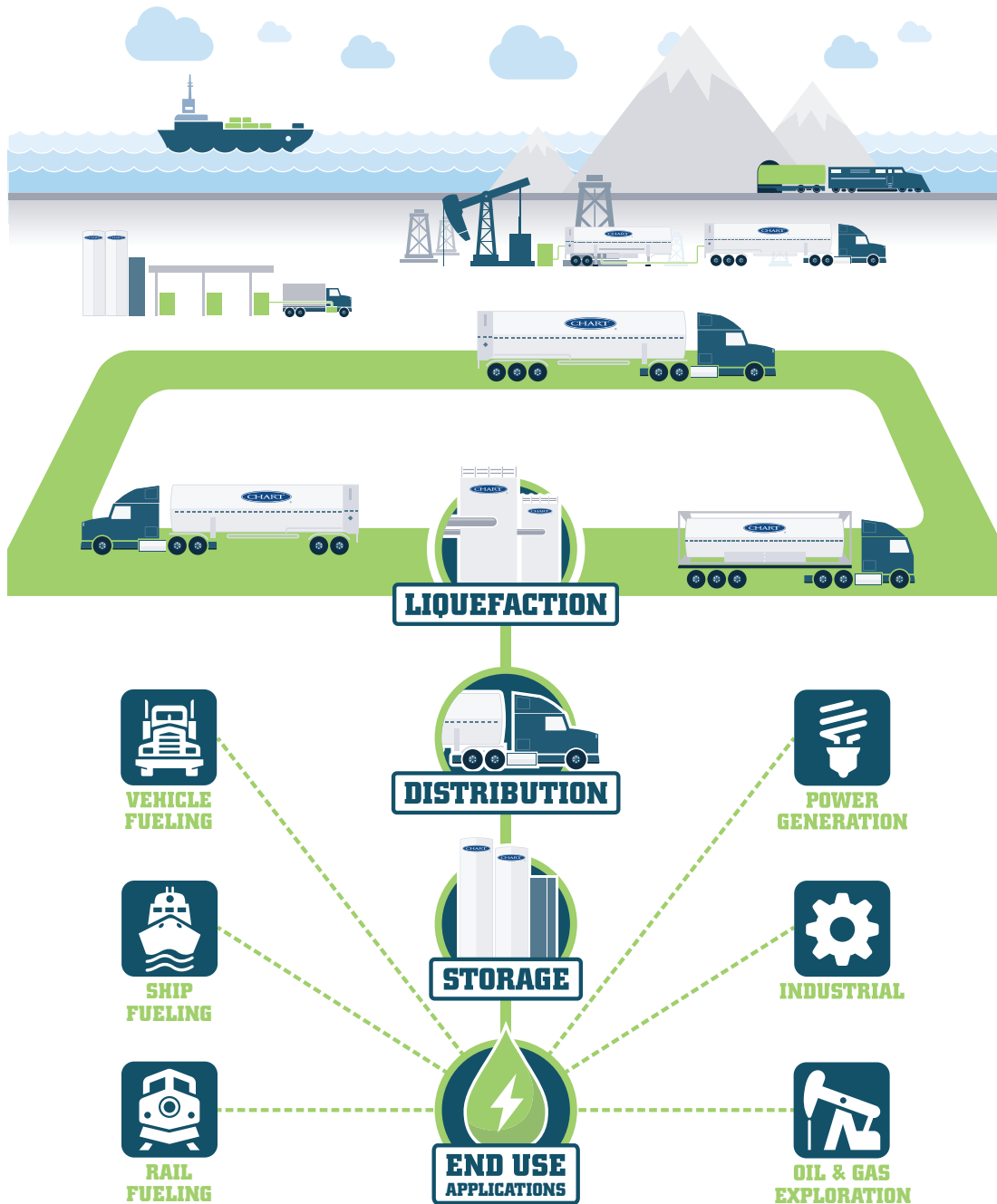


Chart is pioneering the adoption of LNG as a clean-burning, safe and economical fuel alternative for energy, transportation and industry.

www.ChartLNG.com

LIQAL, TSG sign LNG fuelling partnership

Fuelling specialists LIQAL and Technical Services Group (TSG) have signed a partnership for the resale and servicing of LNG fuelling systems for road transport.

The deal will see Netherlands-based LIQAL combine its expertise in LNG technology with TSG's business as exclusive distributor for Tokheim dispensers and systems.

"Via this partnership we can, aside from our current technology and services for the more traditional fuels, give substance to the growing and promising market for LNG with the innovative and high quality systems of LIQAL," Mario Boere, Managing Director of TSG Netherlands, said.

LIQAL has already deployed its proprietary fuelling system and LNG fuel dispenser with several international LNG station operators but the scale of the new deal is expected to accelerate uptake. LIQAL's dispenser includes a patented heated and purged nozzle docking bay that complies to

international standards including MID regulation.

Brand alignment

TSG was formerly known as Tokheim Solutions, one of the world's largest providers of fuel retailing solutions. Following the sale of its Dispensers Business Unit (DBU) and Systems and Electronics Business Unit (SEBU) to the Dover Group, the remaining TSG now acts as the exclusive distributor for Tokheim dispensers and systems.

TSG directly owns 28 Sales and Service Divisions across Europe and Africa.

"We are very happy with this partnership. TSG has a leading position in the fuel market and an excellent covering network of service specialists that offer 24/7 availability. Also their quality and

safety objectives correspond to our brand and what we stand for. This partnership enables us to provide the users of our technology in different countries with quality aftercare," said Jorg Raven, CEO of LIQAL.

Truck suppliers drive LNG demand

The new partners will offer solutions for both current LNG station operators as well as traditional service station owners and cite the role that leading truck suppliers Volvo, Scania and Iveco have had in helping to drive adoption of the fuel.

Due to the benefits on both an ecological and an economical



LIQAL LNG dispenser

level, the adoption of the transport fuel LNG has increased rapidly. Both parties combine their experience and know-how in order to increase their reach and technology offering, and to be able to offer customers optimal all-in solutions," a spokesperson for LIQAL said. ■

GTT partners with Wärtsilä for LNG development

Cryogenic membrane containment developer GTT and technology group Wärtsilä have finalized a cooperation agreement to explore potential business opportunities in relation to LNG for the marine sector.

The two firms finalized the cooperation agreement at the Marintec conference and exhibition in Shanghai, China and aim to begin development of new systems imminently. The wide-ranging agreement will cover LNG storage, fuel gas supply systems, and associated services for both shipyards and vessel owners.

"This cooperation between both companies clearly makes great sense. The industry at large has to find means to speed-up the

deployment of LNG-as-a-fuel solutions," Philippe Berterottière, CEO of GTT said.

Focus on medium to large-size sector

The firms expect to focus on medium to large-size segments initially and believe there is significant opportunity for improvement "where space optimisation" is key.

"Shipyards will benefit from this collaboration in that they are

offered a ready-made solution, meeting new market requirements," a spokesperson for Wärtsilä said.

The partners aim to develop mechanical and process system interfacing between LNG fuel storage tanks and engines via a single unified system philosophy, resulting in "reduced project risk and procurement cost".

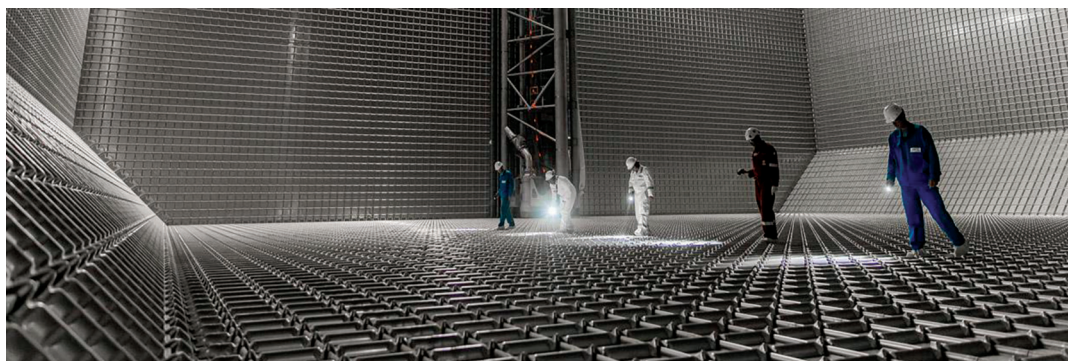
"We are delighted to be partnering with GTT, a company which

is known for its high quality products. This cooperation agreement is part of Wärtsilä Gas Solution's strategy of 'forming the future of gas', aimed at making a solid contribution to increased sustainability and greater operational efficiency for gas-fuelled vessels," Timo Koponen, Vice President at Wärtsilä Marine Solutions, said.

Smart marine systems to reduce support costs

Alongside LNG storage solutions, the partners will also provide ship owners and operators with solutions to facilitate the exchange of onboard system data, thereby reducing onboard support costs.

"By collaborating in the delivery of jointly agreed projects, the two companies will be able to propose solutions that optimise on board LNG fuel gas storage and operations," a spokesperson for Wärtsilä said. ■



GTT Mark III tank

KVH launches LNG bunkering training programme

Maritime services firm KVH Videotel has launched an LNG bunkering training course designed to teach crew and port staff best practice to conduct bunkering processes safely.

The new programme is based on guidelines from the Society for Gas as a Marine Fuel (SGMF) and has been developed in response to increased demand for the fuel from shipping operators.

The SGMF guidelines have been developed as a result of cross-

industry participation by some of the largest LNG hubs and technology developers. SGMF currently comprises over a 100 members worldwide.

Interactive video learning

The interactive system is based around software and video learning broken into five key modules that focus on the core elements of the bunkering procedure and the main safety risks.

"This training course is invaluable to all crew and port or terminal staff involved with LNG bunkering... Using interactive computer-based training, the five modules take the user through the hazards associated with LNG. The 45-minute programme is packed with photographs, video clips, animations, and interactive exercises to keep the user engaged," Mark Woodhead, KVH senior vice president, said.

The full course covers: composition and usage of LNG and potential bunkering methods, hazards and consequences for the individual and ship, relevant procedures for fighting LNG fires and emer-



The training aims to deliver LNG bunkering best practice

gency procedures for shipping companies and port authorities.

e-Learning solutions act as "key enabler"

KVH Videotel provides maritime training programmes in use on more than 12,000 vessels worldwide. The firm recently introduced a maritime training solution called Videotel Performance Manager, which combines a software platform, customized content and web-based data analytics.

"Our commercial maritime customers face significant challenges

training and certifying the qualifications of their vessels' crews and... advances in communications technology will be a key enabler in the delivery of the e-Learning and distance learning services and cloud-based training management systems," Martin Kits van Heyningen, CEO of KVH, said.

The firm is a subsidiary of KVH Industries, based in Middletown, Rhode Island, which manufactures high-speed Internet, television and voice services via satellite to mobile users at sea, on land, and in the air. ■

NEWS NUDGES

BMI: short shipping to dominate LNG demand

Analysis by research consultancy BMI suggests that short shipping routes are set to provide the largest boost to global LNG infrastructure.

Smaller vessels and cruise ships on short routes are forecast to dominate demand for the fuel globally driving a focus on investment for refuelling facilities and infrastructure.

Wood Mackenzie forecasts LNG fuel price pressure

LNG fuel prices in Europe may be forced upwards this season as a result of the recent Forties shut-in and the Baumgarten explosion, according to analyst firm Wood Mackenzie.

"The European gas market seems to be going through a perfect storm. The Forties outage will take out more than 1.2 billion cubic feet per day of gas production.. The explosion at Baumgarten has currently halted Russian imports to Italy... if supply does not resume soon and the cold weather continues, prices will remain strong through the winter. We might well see some competition between Europe and Asia to attract LNG this winter." Massimo Di-Odoardo, Principal Analyst at Wood Mackenzie, commented. ■



KVH Videotel course

WORLD LNG-FUELLED CONFIRMED NEWBUILDS

Year	Type of Vessel	Owner	Class
2017	Car/passenger ferry	Society of Quebec ferries	LR
2017	Car/passenger ferry	Society of Quebec ferries	LR
2017	Tug	Drydocks World	
2017	PSV	Siem Offshore	DNV GL
2017	Gas carrier	Evergas	BV
2017	PSV	Siem Offshore	DNV GL
2017*	Ro-Ro	TOTE Shipholdings	ABS
2017	Car/passenger ferry	BC Ferries	LR
2017	Gas carrier	Ocean Yield	DNV GL
2017	Gas carrier	Ocean Yield	DNV GL
2017	Gas carrier	Ocean Yield	DNV GL
2017	Gas carrier	Navigator Gas	ABS
2017	Dredger	DEME	BV
2017	Dredger	DEME	BV
2017*	Container ship	Wessels Reederei	BV
2017	Hopper Barge	Bremenports	DNV GL
2017	HSLC	Fred. Olsen	DNV GL
2017	PSV	Harvey Gulf Int.	ABS
2017	PSV	Harvey Gulf Int.	ABS
2017	Cable layer	DEME Tideway	DNV GL
2017	Gas carrier	Evergas	BV
2017	Gas carrier	Evergas	BV
2017	Tug	Østensjø Rederi	
2017	Tug	Østensjø Rederi	
2017	Tug	Østensjø Rederi	
2017*	Car/passenger ferry	BC ferries	ABS
2017	RoPax	Rederi AB Gotland	DNV GL
2017	Car/passenger ferry	Caronte & Tourist	RINA
2017	Oil/chemical tanker	Groupe Desgagnés	BV
2017	Oil/chemical tanker	Groupe Desgagnés	BV
2017	Oil/chemical tanker	Groupe Desgagnés	BV
2017	Oil/chemical tanker	Groupe Desgagnés	BV
2017	Car/passenger ferry	BC Ferries	LR
2017	Oil/chemical tanker	Terntank	BV
2017	Container ship	Crowley Maritime Corp.	DNV GL
2017	Container ship	Crowley Maritime Corp.	DNV GL
2017	RoPax	Tallink	BV
2017	Container ship	Brodosplit	DNV GL
2018	Container ship	Brodosplit	DNV GL
2018	Bulk ship	ESL Shipping	DNV GL
2018	Bulk ship	ESL Shipping	DNV GL
2018	Tug	Keppel Smit Towage	ABS
2018	Tug	Maju Maritime	ABS
2018*	Car/passenger ferry	BC ferries	ABS
2018	PSV	Harvey Gulf Int.	ABS
2018	Container ship	Brodosplit	DNV GL
2018	Container ship	Brodosplit	DNV GL
2018	Car/passenger ferry	Royal Doeksen	LR
2018	Car/passenger ferry	Royal Doeksen	LR
2018	Car/passenger ferry	CHFS	LR
2018	Car/passenger ferry	CHFS	LR
2018*	Ro-Ro	TOTE Shipholdings	ABS
2018	RoPax	Rederi AB Gotland	DNV GL
2018	General cargo ship	Nordnorsk Shipping	DNV GL
2018	Container ship	Containerships	ABS

Year	Type of Vessel	Owner	Class
2018	Container ship	Containerships	ABS
2018	Container ship	GNS Shipping	ABS
2018	Container ship	GNS Shipping	ABS
2018	Container ship	GNS Shipping	ABS
2018	Container ship	GNS Shipping	ABS
2018	Heavy lift vessel	Heerema Offshore	LR
2018	Oil/chemical tanker	Furetank Rederi	BV
2018	Oil/chemical tanker	Furetank Rederi	BV
2018	Oil/chemical tanker	Furetank Rederi	BV
2018	Dredger	DEME	BV
2018	Bulk ship	POSCO	KR
2018	Dredger	van der Kamp	DNV GL
2018	Car/passenger ferry	Torghatten	
2018	Car/passenger ferry	Torghatten	
2018	Car/passenger ferry	Torghatten	
2018	Car/passenger ferry	Torghatten	
2019	Car/passenger ferry	Torghatten	
2019	Cruise ship	Carnival Corporation	RINA
2019	Cruise ship	Carnival Corporation	RINA
2019	Oil/chemical tanker	Älvtank	BV
2019	Oil/chemical tanker	Älvtank	BV
2019	Oil/chemical tanker	Thun Tankers	BV
2019	RoPax	Baleària	BV
2019	Car carrier	Siem Car Carriers	
2019	Car carrier	Siem Car Carriers	
2019	Emergency response ship	German Transport Ministry	
2019	Emergency response ship	German Transport Ministry	
2019	RoPax	Brittany Ferries	
2019	RoPax	Baleària	
2019	RoPax	Baleària	
2019	Oil/chemical tanker	Rosneft	
2020	Oil/chemical tanker	Rosneft	
2020	Oil/chemical tanker	Rosneft	
2020	Oil/chemical tanker	Rosneft	
2020	Research ship	German Transport Ministry	
2020	RoPax	Viking Line	
2020	Cruise ship	Carnival Corporation	RINA
2020	Cruise ship	Carnival Corporation	
2021	Cruise ship	Carnival Corporation	
2021	Cruise ship	Carnival Corporation	
2022	Cruise ship	Carnival Corporation	RINA
2022	Cruise ship	MSC Cruises	
2022	Cruise ship	RCCL	
2024	Cruise ship	MSC Cruises	
2024	Cruise ship	RCCL	

Excluding LNG carriers and inland waterway vessels. For more information please visit www.dnvgl.com

Data last updated : 15 February 2017

* = conversion projects

LNG-FUELLED SHIPS IN OPERATION WORLDWIDE

Year	Type of Vessel	Owner	Class
2000	Car/passenger ferry	Fjord1	DNV GL
2003	PSV	Simon Møkster	DNV GL
2003	PSV	Eidesvik	DNV GL
2006	Car/passenger ferry	Fjord1	DNV GL
2007	Car/passenger ferry	Fjord1	DNV GL
2007	Car/passenger ferry	Fjord1	DNV GL
2007	Car/passenger ferry	Fjord1	DNV GL
2007	Car/passenger ferry	Fjord1	DNV GL
2008	PSV	Eidesvik Shipping	DNV GL
2009	PSV	Eidesvik Shipping	DNV GL
2009	Car/passenger ferry	Tide Sjø	DNV GL
2009	Car/passenger ferry	Tide Sjø	DNV GL
2009	Car/passenger ferry	Tide Sjø	DNV GL
2009	Patrol vessel	Remøy Management	DNV GL
2009	Car/passenger ferry	Fjord1	DNV GL
2010	Patrol vessel	Remøy Management	DNV GL
2010	Car/passenger ferry	Fjord1	DNV GL
2010	Patrol vessel	Remøy Management	DNV GL
2010	Car/passenger ferry	Fjord1	DNV GL
2010	Car/passenger ferry	Fjord1	DNV GL
2010	Car/passenger ferry	Fosen Namsos Sjø	DNV GL
2011	PSV	DOF	DNV GL
2011*	Oil/chemical tanker	Tarbit Shipping	DNV GL
2011	Car/passenger ferry	Fjord1	DNV GL
2011	PSV	Solstad Rederi	DNV GL
2012*	Car/passenger ferry	Fjord1	DNV GL
2012	PSV	Eidesvik	DNV GL
2012	PSV	Olympic Shipping	DNV GL
2012	PSV	Island Offshore	DNV GL
2012	General Cargo	Nordnorsk Shipping	DNV GL
2012	PSV	Eidesvik Shipping	DNV GL
2012	PSV	Island Offshore	DNV GL
2012	Car/passenger ferry	Torghatten Nord	DNV GL
2012	Car/passenger ferry	Torghatten Nord	DNV GL
2012	Car/passenger ferry	Torghatten Nord	DNV GL
2013	PSV	REM	DNV GL
2013	RoPax	Viking Line	LR
2013	Car/passenger ferry	Torghatten Nord	DNV GL
2013	Tug	Incheon Port Authority	KR
2013	General Cargo	Eidsvaag	DNV GL
2013	RoPax	Fjordline	DNV GL
2013	High speed RoPax	Buquebus	DNV GL
2013	Tug	CNOOC	CCS
2013	Tug	CNOOC	CCS
2013	Car/passenger ferry	Norled	DNV GL
2014	Car/passenger ferry	Norled	DNV GL
2014	Tug	Buksér & Berging	DNV GL
2014	RoPax	Fjordline	DNV GL
2014	Patrol vessel	Finish Border Guard	DNV GL
2014	Tug	Buksér & Berging	DNV GL
2014	Gas carrier	Anthony Veder	BV
2014	Gas carrier	Anthony Veder	BV
2014	PSV	Remøy Shipping	DNV GL
2014	General Cargo	Egil Ulvan Rederi	DNV GL
2014	General Cargo	Egil Ulvan Rederi	DNV GL
2014	PSV	Siem Offshore	DNV GL
2015	PSV	Harvey Gulf Int.	ABS
2015	Ro-Ro	Norlines	DNV GL
2015	Car/passenger ferry	Samsøe municipality	DNV GL
2015	PSV	Simon Møkster Shipping	DNV GL
2015	PSV	Siem Offshore	DNV GL
2015	Ro-Ro	Norlines	DNV GL
2015*	Oil/chemical tanker	Bergen Tankers	LR
2015	Car/passenger ferry	Society of Quebec ferries	LR

For more information please visit www.dnvgl.com

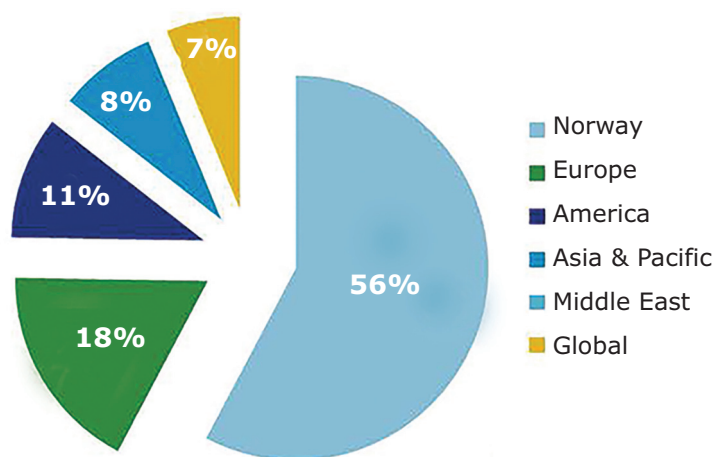
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* = conversion projects

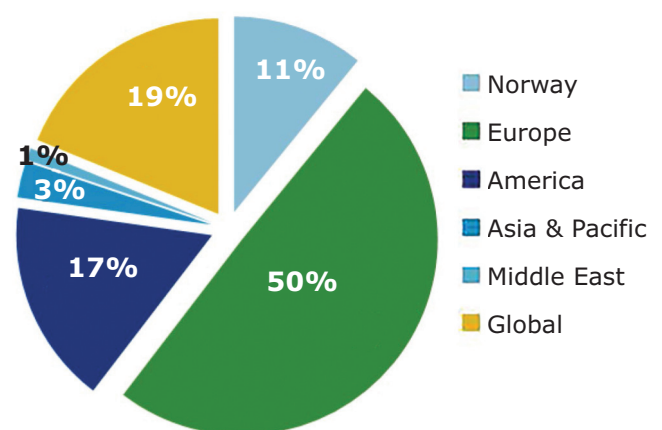
Year	Type of Vessel	Owner	Class
2015	Gas carrier	Evergas	BV
2015	Gas carrier	Evergas	BV
2015	Tug	CNOOC	CCS
2015*	Car/passenger ferry	AG Ems	DNV GL
2015	Tug	NYK	NK
2015	Gas carrier	Chemgas Shipping	BV
2015	Gas carrier	Evergas	BV
2015	PSV	Harvey Gulf Int.	ABS
2015	Container ship	TOTE Shipholdings	ABS
2015	Car/passenger ferry	AG EMS	DNV GL
2015	Bulk ship	Erik Thun	LR
2016	Container ship	TOTE Shipholdings	ABS
2016	Gas carrier	Evergas	BV
2016	PSV	Harvey Gulf Int.	ABS
2016	Bulk ship	Erik Thun	LR
2016	Oil/chemical tanker	Terntank	BV
2016	Gas carrier	Navigator Gas	ABS
2016*	Oil/chemical tanker	Furetank Rederi	BV
2016	Icebreaker	Arctica Shipping	LR
2016	Car/passenger ferry	Boreal Transport Nord	DNV GL
2016	Car/passenger ferry	Boreal Transport Nord	DNV GL
2016	Tug	CNOOC	CCS
2016	Gas carrier	Chemgas Shipping	BV
2016	Car carrier	UECC	LR
2016	Oil/chemical tanker	Terntank	BV
2016	Oil/chemical tanker	Terntank	BV
2016	Car/passenger ferry	BC Ferries	LR
2016	Gas carrier	Evergas	BV
2016	PSV	Siem Offshore	DNV GL
2016	Car/passenger ferry	Seaspan Ferries Corp.	BV
2016	Gas carrier	Navigator Gas	ABS
2016	Ro-Ro	Searoad Holdings	DNV GL
2016	Car carrier	UECC	LR
2017	Gas carrier	Navigator Gas	ABS
2017	Car/passenger ferry	Seaspan Ferries Corp.	BV
2017*	RoPax	Baleària	BV

AREA OF OPERATION OF LNG-FUELLED SHIPS

Operating area
ships in operation



Operating area
confirmed orderbook



Updated 15 February 2017
Excluding LNG carriers and inland waterway vessels

WORLD SMALL SCALE LNG FLEET*

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
1974	Seagas	187	LNG	Sweden	Yes	AGA
1988	Kayoh Maru	1,517	LNG	Japan	Yes	Daiichi
1993	Aman Bintulu / Lucia Ambition	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1996	Surya Aki	19,475	LNG	Indonesia - Japan	Yes	MCGC
1997	Aman Sendai	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1998	Aman Hakata	18,800	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
2000	Tripura (ex Surya Satsuma)	23,096	LNG	Indonesia - Japan	Yes	MCGC
2003	Pioneer Knutsen	1,100	LNG	Norway	Yes	Knutsen
2003	Shinju Maru No.1	2,540	LNG	Japan	Yes	Shinwa
2005	North Pioneer	2,500	LNG	Japan	Yes	Japan Liquid Gas
2007	Sun Arrows	19,531	LNG	Malaysia - Russia - Japan	Yes	Mitsui
2008	Kakurei Maru	2,536	LNG	Japan	Yes	Hogaki Zosen
2008	Shinju Maru No.2	2,540	LNG	Japan	Yes	Shinwa
2009	Coral Methane	7,551	LNG/LPG/Ethylene	Northwest Europe/Baltics	Yes, sometimes	Anthony Veder
2010	Norgas Creation	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2010	Norgas Innovation	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
2011	Norgas Bahrain Vision	12,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Norgas Conception	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Norgas Invention	10,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2011	Norgas Unikum	12,000	LNG/LPG/Ethylene	Worldwide	No	Norgas Carriers
2012	Coral Energy	15,600	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2013	Coral Anthelia	6,500	LNG/Ethylene			Anthony Veder
2013	JX Energy TBN	2,500	LNG	Japan	Yes	JX Energy
2013	Kakuyu Maru	2,500	LNG	Japan	Yes	Tsurumi Sunmarine
2014	LNG-Oil combi**	2,000	LNG	Germany	Yes	Veka
2014	Short Sea LNG Tanker **	4,000	LNG	Germany	Yes	Veka
2015	10 small carriers TBN**	5,000	LNG			Bimantara Group
2015	Jahre TBN**	6,200	LNG	Norway	Yes	Donsotank/Jahre Marine
2015	JS Ineos Ingenuity	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Insight	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Intrepid	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
2015	LNG bunker barge 1†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG bunker barge 2†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG bunker barge 3†	2,250	LNG	China	Yes	Anhui Huaqiang Natural Gas
2015	LNG Inland bunker**	800	LNG	Germany	Yes	Veka
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
2015	Norgas TBN**	17,000	LNG/LPG/Ethylene	Worldwide		Norgas Carriers
2015	PetroChina TBN	30,000	LNG	China		PetroChina
2015	TBN	14,000	LNG	China	Yes	Zhejiang Huaxiang
2015	TBN 1	27,500	LNG	China?		Danyang?
2015	TBN 2	27,500	LNG	China?		Danyang?
2015	TBN 3	27,500	LNG	China?		Danyang?
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
2016	Dalian TBN	28,000	LNG	China	Yes	Dalian Inteh Group
2016	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
2016	JS Ineos Indepence	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Innvation	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Inspiration	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	LNG Prime	2,250	LNG	Northwest Europe	Yes	Veka Deen LNG
2016	Navigator Aurora	35,000	Ethane/Ethylene	Markus Hood - Stenungsund	Ethane, for Borealis	Navigator
2016	Gaschem Beluga	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services
2016	Gaschem Orca	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services

For more information please visit <http://small-lng.com>

*Includes multi-gas, ethylene and LNG bunker ships with 40,000 cubic metres LNG cargo capacity or less

TBN = To Be Nominated indicates ships are still at construction/planning stage

** = project shelved † = Data to be verified Data last updated = 16th November 2017

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2016	Ocean Yield TBN**	36,000	Ethane/Ethylene	US - Teeside	Ethane, for Sabic	Gaschem Services
2017	Cardissa	6,500	LNG	Northwest Europe	Yes	Shell
2017	Yuan He 1	30,000	LNG	China	Yes	CSR
2017	ENGIE Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
2017	CME TBN†	2,200	LNG	US Coast	Yes	CME
2017	Coral EnergICE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	Anthony Veder
2017	JS Ineos Invention	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	JS Ineos Intuition	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	Navigator Eclipse	35,000	Ethane/Ethylene	US	Ethane	Navigator
2017	Navigator Nova	35,000	Ethane/Ethylene	US	Ethane	Navigator
2017	Navigator Prominence	35,000	Ethane/Ethylene	US	Ethane	Navigator
2018	Shell Bunker Barge TBN 2	6,500	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 3	6,500	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 4	3,000	LNG	Northwest Europe	Yes	Shell
2018	Bernhard Schulte TBN	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	CME TBN†	2,200	LNG	US Coast	Yes	CME
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2018	Evergas TBN	32,000	Ethane/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2019	KLine TBN	7,500	LNG	Korea	Yes	Korea Line
2019	KLine TBN	7,500	LNG	Korea	Yes	Korea Line
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2019	Stolt TBN	7,500	LNG	Mediterranean	Yes	Stolt-Nielsen Gas
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas
2020	Shell Bunker Barge	4,000	LNG	US Coast	Yes	Q-LNG Transport / Harvey Gulf
2021	Stolt TBN (option)	7,500	LNG		Yes	Stolt-Nielsen Gas

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