

INTERACTIVE WORLD LNG DASHBOARD

Version 4.1

USER GUIDE



Produced by PE Maps

Sponsored by

ExxonMobil

WELCOME

Welcome to the **PE Maps Interactive LNG Dashboard** User Guide. Choose a topic from the right to find answers, get step-by-step instructions, and make the most from the dashboard.

Our new data dashboard is an information management tool that visually tracks, analyses and displays key performance indicators (KPI), metrics and key data points for the LNG sector. Included in the dashboard is our world renowned Interactive World LNG map which is updated on the fly so that the information is always up-to-date. The map features LNG regasification terminals, LNG liquefaction plants, gasfields and gas pipelines globally.

Dynamic graphs and tables link to the map and other live databases to provide a full status view of the LNG industry.

The **PE Maps Interactive LNG Dashboard** has been created utilising technology from the Global Energy Infrastructure platform incorporating ESRI ArcMap software which allows users to zoom from global overview to country-level detail, access project data, including status and ownership.

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DASHBOARD INTERFACE

The dashboard is microsite of maps and data for the global LNG industry in a series of tabs only available on the internet. The dashboard opens by default on the Map of LNG Infrastructure page. Other tabs include Shipping, Useful information and About ExxonMobil. To change page click on the tab at top of the screen. Each page contains multiple maps or graphics, to view simply scroll up and down the page. Below is the general interface of the dashboard.

The screenshot shows the 'World LNG Dashboard | V4.1' interface. At the top, there is a navigation bar with tabs: Introduction, **LNG Dashboard**, LNG Shipping, Useful Information, and About ExxonMobil LNG. The ExxonMobil logo is in the top right corner.

The main content area is titled 'Interactive World LNG Dashboard' and features a large world map on the left with colored star markers indicating LNG infrastructure locations. On the right, there are several data panels:

- Global LNG regasification terminals:** 328 (In view)
- Global LNG liquefaction plants:** 186 (In view)
- Total number of global LNG projects:** 516 (All projects)
- LNG liquefaction plants by region and status:** A horizontal bar chart showing counts for Operating, Planned, Proposed, and Under Construction across Africa, Asia Pacific, Central & South America, Europe, Middle East, and North America.
- LNG regasification terminals by region and status:** A horizontal bar chart showing counts for Operating, Planned, Proposed, and Under Construction across the same regions.

Callouts point to various interface elements:

- Shipping Tab (see page 9-10):** Points to the 'LNG Shipping' tab.
- Useful information Tab (see page 11):** Points to the 'Useful Information' tab.
- About ExxonMobil Tab (see page 11):** Points to the 'About ExxonMobil LNG' tab.
- Map and data tab (see page 4):** Points to the 'LNG Dashboard' tab.
- Introduction tab:** Points to the 'Introduction' tab.
- Map usage (see page 4-7):** Points to the world map.
- Reset dashboard:** Points to the 'Reset dashboard | Click here' button at the bottom left.
- Dashboard Statistics (see page 6):** Points to the summary statistics and charts on the right side.

MAP CONTROLS - USING THE MAP

The elements of the map have detailed attribute data associated with them. Three types of mapping element are available in this application. **Point** elements (LNG projects), **Line** elements (gas pipelines) and **Polygon** elements (Condensate, Gas and Oil/Gas fields). Each of these elements can be interacted with and selected using the mouse pointer. When selected a Pop-up box will open with the attribute data.

Polygon elements (gasfields)

Line elements (gas pipelines)

Point elements (LNG facilities)

Search places names

Legend

Basemap gallery

Maximise minimise window

Zoom control

Scale bar

Selection tool

Pop-up box
Includes all attribute information

Centre window
Zoom to function

Highlight selection

Gorgon LNG

Showing 1

Type	Export
Status	Operating
Description	Gorgon is a 15.6m t/y LNG liquefaction plant utilising 3 LNG trains operated by Chevron. The plant opened in 2016. The project is located at Barrow Island, Western Australia
Operator	Chevron
Start date	2016
Project capacity (m t/y)	15.60
Locality	Onshore

Want to know more about this project?

Global ENERGY INFRASTRUCTURE

CLICK HERE

MAP CONTROLS - WIDGETS



Zoom control

To zoom in and out of the map you can click the plus (+) button to zoom in or click the minus (-) button to zoom out of the map

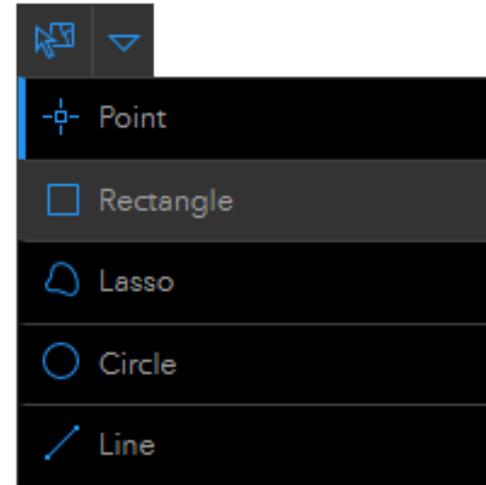
Alternatively if you have an mouse with a wheel you can roll the mouse wheel forward to zoom in or roll the mouse wheel backwards to zoom out



Selection tools

Use any of the tools to make a selection of LNG data. Draw around desired area and the projects will be selected and highlighted.

The map will zoom automatically to selected area

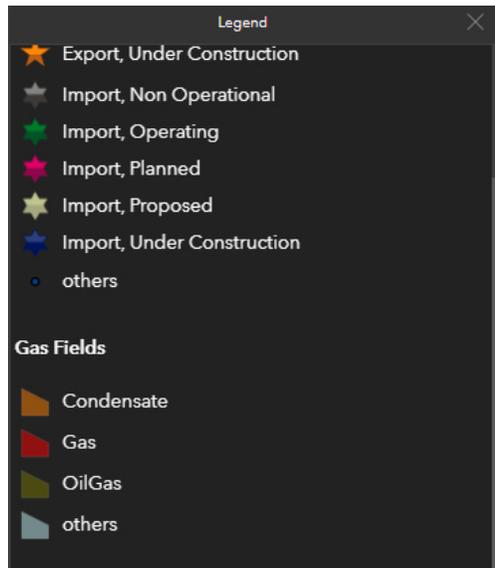


MAP CONTROLS - WIDGETS



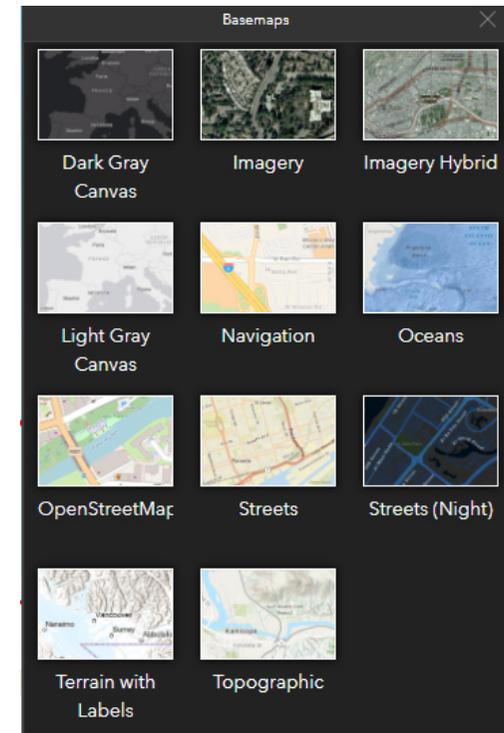
Legend

The Legend widget displays labels and symbols for layers in the map. The Legend is set to automatically update when the visibility of a layer or sub-layer changes. When no operational layers are rendered in the map, the Legend widget is blank.



Basemap gallery

The Basemap Gallery widget presents a gallery of basemaps and allows you to select one from the gallery as your application's basemap.



Search

Find an address or place

MAP DATA

The map incorporates information from our live databases. This information is accessible by clicking on a LNG star or gas pipeline. The selected feature will be highlighted and a pop-up box will open with the associated data for that feature. Data from this map can not be downloaded.

LNG data

Showing 1

Gorgon LNG

Type Export

Status Operating

Description Gorgon is a 15.6m t/y LNG liquefaction plant utilising 3 LNG trains operated by Chevron. The plant opened in 2016. The project is located at Barrow Island, Western Australia

Operator Chevron

Start date 2016

Project capacity 15.60 (m t/y)

Locality Onshore

Want to know more about this project?

Global ENERGY INFRASTRUCTURE

CLICK HERE

Multiple records for the same feature. Use arrows forward and back to view additional records

LNG data included: Project name, Status (operating, under construction, planned, proposed or non operational), Start-up year, Type (export or import), Operator, Project capacity (m t/y), Location (onshore or offshore)

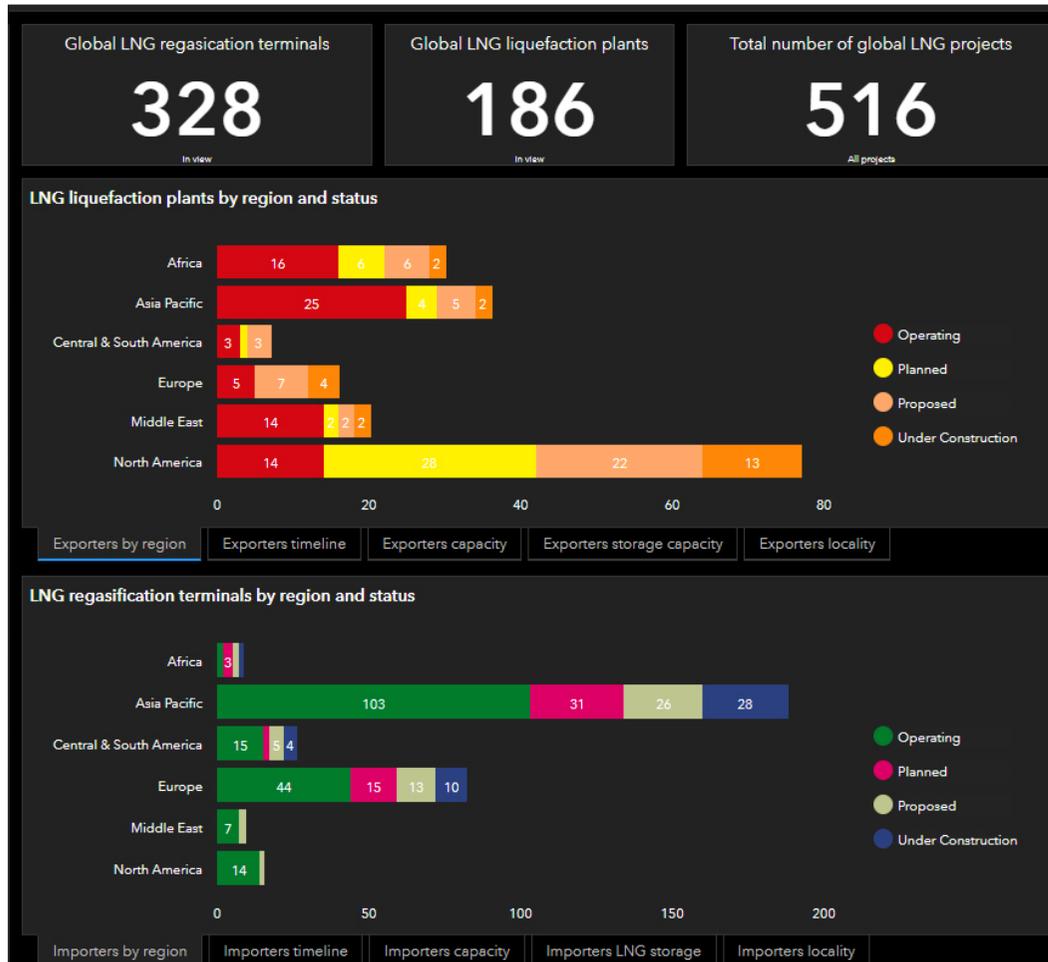
Gasfields and Pipelines



Gasfield and pipelines are labelled as users zoom closer

STATISTICS

PE Maps has incorporated valuable industry LNG and natural gas statistics. The graphs and tables in the dashboard are driven by the live information in our databases. As information is updated in the mapping features this dynamically updates the graphs and tables. All the LNG statistics are dynamically linked our own data.



Counters

- Global LNG regasification terminals in view
- Global LNG liquefaction plants in view
- Total number of global LNG projects

Liquefaction data

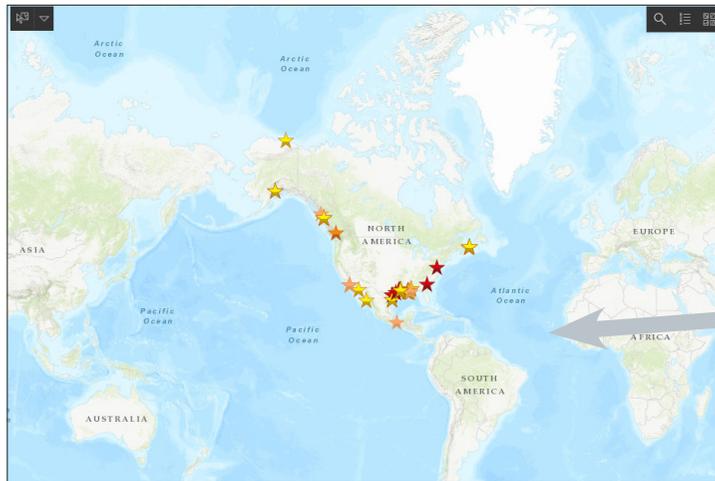
- LNG liquefaction plants by region and status
- LNG liquefaction plants by start year
- LNG liquefaction plant capacity by region (million t/y)
- LNG storage capacity by region (thousand cm)
- LNG liquefaction plants by locality

Regasification data

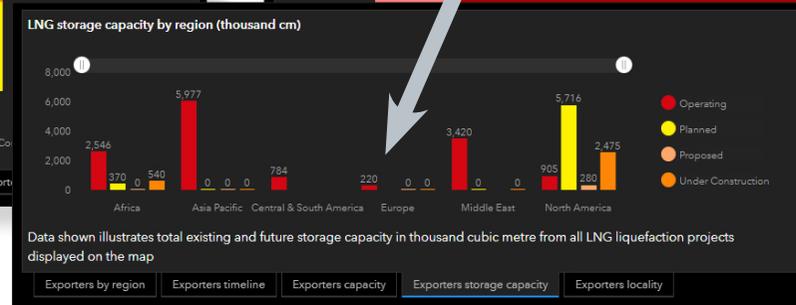
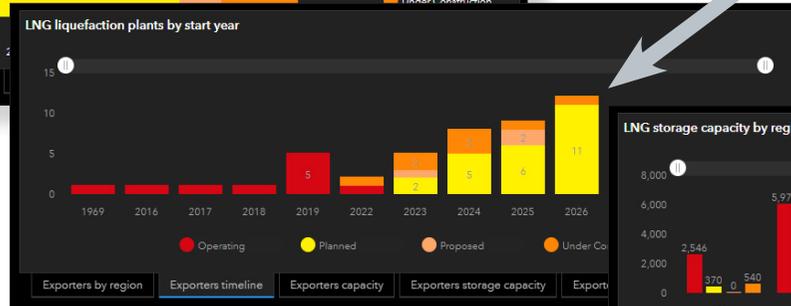
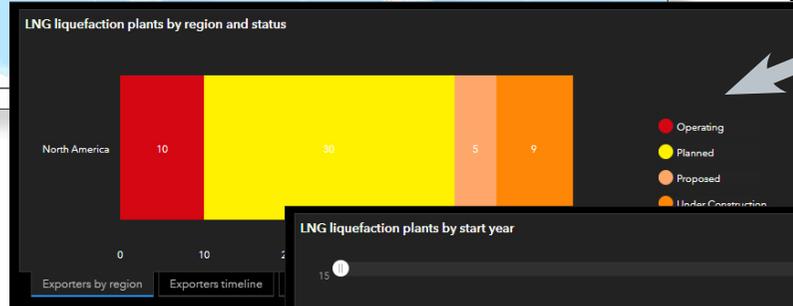
- LNG regasification terminals by region and status
- LNG regasification terminals by start year
- LNG regasification terminals capacity by region (million t/y)
- LNG regasification terminals by region (thousand cm)
- LNG regasification terminals by locality

STATISTICS

Dynamically linked graphics mean that if you select a group of information it will change the data on the map and related graphs. Single or multiple selections can be made.



Example: Select North America in the LNG liquefaction plant capacity by region and it will dynamically change the map and other graphs



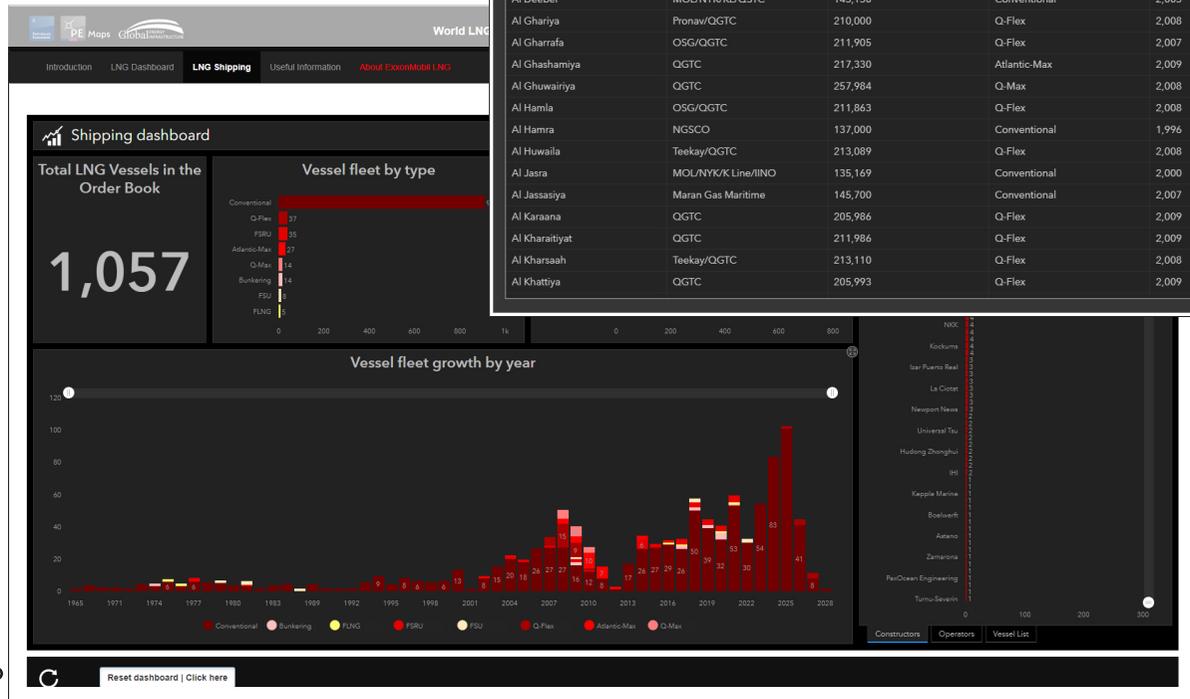
SHIPPING

PE Maps has worked with EA Gibson Shipbrokers to provide a full LNG vessel listing. This includes those vessels that are operational, on conversion, on order or sold for scrap or demolition. In addition to the full vessel listing, we have incorporated a series of graphics that are dynamically linked to those listings. So, as vessel status changes as will the graphics. Shipping plays a vital role in the movement of liquefied natural gas and we have provided some other graphics on the types of LNG vessel and how much LNG has be shipped in 2022.

Full fleet list

Name	Operator	Capacity	Vessel type	Year	Status	Constructor	Comments
Aamira	QGTC	260,912	Q-Max	2,010	Operational	Samsung	Qatargas IV T7
Abadi	Brunei Shell Tankers	136,912	Conventional	2,002	Operational	Mitsubishi Nagasaki	Moss
Adam LNG	Oman Shipping	162,000	Conventional	2,014	Operational	Hyundai Ulsan	(formerly Adam)
Al Aamriya	J5/QGTC	206,958	Q-Flex	2,008	Operational	Daewoo	RasGas III T6
Al Areesh	Teekay/QGTC	151,700	Conventional	2,007	Operational	Daewoo	RasGas II T5 Membrane
Al Bahiya	QGTC	205,981	Q-Flex	2,010	Operational	Daewoo	Qatargas IV T7
Al Bidda	MOL/NYK/K Line/IINO	135,279	Conventional	1,999	Operational	Kawasaki	Qatargas I, Moss
Al Daayen	Teekay/QGTC	151,891	Conventional	2,007	Operational	Daewoo	RasGas II T5 Membrane
Al Dafna	QGTC	261,988	Q-Max	2,009	Operational	Samsung	Membrane
Al Deebeel	MOL/NYK/KL/QSTC	145,130	Conventional	2,005	Operational	Samsung	Membrane
Al Gharifa	Pronav/QGTC	210,000	Q-Flex	2,008	Operational	Daewoo	Qatargas II T4
Al Gharrafa	OSG/QGTC	211,905	Q-Flex	2,007	Operational	Hyundai Ulsan	Qatargas II T4
Al Ghashamiya	QGTC	217,330	Atlantic-Max	2,009	Operational	Samsung	Qatargas III T6
Al Ghuwairiya	QGTC	257,984	Q-Max	2,008	Operational	Daewoo	Qatargas II T5
Al Hamla	OSG/QGTC	211,863	Q-Flex	2,008	Operational	Samsung	Qatargas II T4
Al Hamra	NGSCO	137,000	Conventional	1,996	Operational	Kvaerner Masa	Moss
Al Huwaila	Teekay/QGTC	213,089	Q-Flex	2,008	Operational	Samsung	RasGas III T6
Al Jasra	MOL/NYK/K Line/IINO	135,169	Conventional	2,000	Operational	Mitsubishi Nagasaki	Qatargas I, Moss
Al Jassasiya	Maran Gas Maritime	145,700	Conventional	2,007	Operational	Daewoo	RasGas II T5 Membrane
Al Karaana	QGTC	205,986	Q-Flex	2,009	Operational	Daewoo	Qatargas IV T7
Al Kharaitiyat	QGTC	211,986	Q-Flex	2,009	Operational	Hyundai Ulsan	Qatargas III T6
Al Kharsaah	Teekay/QGTC	213,110	Q-Flex	2,008	Operational	Samsung	RasGas III T6
Al Khattiya	QGTC	205,993	Q-Flex	2,009	Operational	Daewoo	Qatargas IV T7

Dynamically linked graphics mean that if you select a group of information it will change the data on the related graphs.



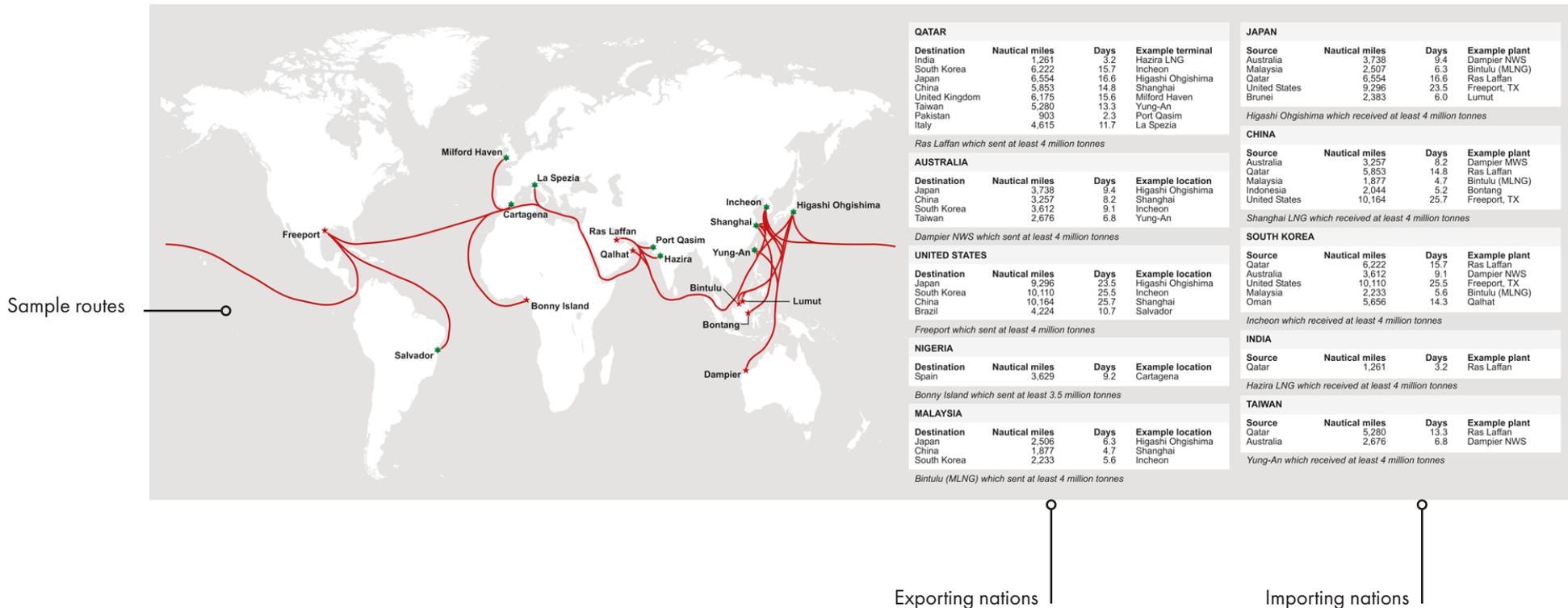
LNG vessel data

- Total LNG vessels in Order Book
- Vessel fleet by tyoe
- Vessel fleet by status
- Vessel fleet growth by year
- Vessel fleet by constructir
- Vessel fleet by operator
- Vessel list (as selected)

SHIPPING - DISTANCES

Shipping distances map includes a sample of shipping routes. This section we have taken the five largest LNG exporters and five largest LNG importers and created some sample trade flows based upon the 2022 International gas trade data supplied by GIIGNL.

Data shown is an illustrative indication of trade routes. Days based on vessel max speed of 16.5 knots. Destinations based upon 2022 International gas trade by LNG tanker. Distance are one way distances and time calculated using Dataloy Distance Table. Shipping routes go via the most direct passage at a constant speed. Routes may include the Suez and Panama canals. Additional time may occur whilst transiting the canals.



OTHER TABS

Two further tabs with further information have been provided

Definitions, disclaimer, sources, acknowledgements, contact details and links to the Gulf Energy Information websites and social media pages

Tab dedicated to the work by ExxonMobil in the LNG sector.

World LNG Dashboard | V4.1

About PE Maps
VISUALISING THE ENERGY INDUSTRY
 Since 1960, the PE Maps team of cartographers have been mapping the evolution of the energy industry, one pipeline at a time.

Acknowledgements
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World Oil
 Petrochemical Processing, Gas Processing, LNG, Pipelines

World LNG Dashboard | V4.1

About ExxonMobil LNG

ExxonMobil – a global LNG leader
 ExxonMobil LNG is a part of Exxon Mobil Corporation, one of the world's largest publicly traded energy providers and chemical manufacturers. ExxonMobil develops and applies next-generation technologies to help safely and responsibly meet the world's growing needs for energy and high-quality chemical products.

A timeline of success
 Alongside our four decades of experience, we also have an interest in over 74 MTA of liquefaction capacity.

For more information visit:
 ExxonMobilLNG.com
 @XOM_NatGas
 ExxonMobil LNG
 LNG Newsletter subscription
 Contact us

Gross MTA

Region	Sub-Region
Americas	USA
	Mexico
	France
Europe	UK
	Belgium
Asia	Japan
	China
India	India
	Taiwan
Korea	Korea
	Taiwan
Brazil	Brazil
	Bangladesh

TECHNICAL

Supported browsers

The **PE Maps** dashboard supports most website browsers on multiple operating systems. The following are supported by the application:

- Chrome
- Firefox
- Safari 3 and later
- Edge
- Internet Explorer 11
- iOS Safari
- Chrome for Android

If you are experiencing technical issues with any part of the application or have general inquiries please contact a member of the

PE Maps / GEI team

(see contacts page 13)



ArcGIS Enterprise - Portal for ArcGIS has been used in the development of our applications.

CONTACTS

If you are experiencing technical difficulties or have questions about the mapping application, please contact us for assistance.

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