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White Paper Report

# LNG

## Building a tradeable market for freight

Version 1: 2022

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DIGITAL VERSION 2022



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We want to help build a world-class infrastructure to support companies involved in the movement of LNG by sea and help them manage their freight risk by providing transparency to the physical movement of LNG in gas carriers.



# Introduction

## LNG freight assessments are part of the Baltic's suite of regulated benchmarks which include dry bulk, tanker, gas, container, air freight and investor indices.

Our data is published in compliance with the EU Benchmark Regulations (BMR) and IOSCO principles for Financial Benchmarks while the UK's financial regulator the Financial Conduct Authority (FCA) provides oversight of our data production processes.



**Nadia Mirza - New Markets, Baltic Exchange**

*Over a 20-year career, the Baltic Exchange's lead on New Markets has worked in container and dry bulk shipping in London, Singapore and Hong Kong, in both physical and derivative markets. Nadia also worked in Rome for the UN World Food Programme's Shipping Department.*

The Baltic Exchange has been approved and authorised by the FCA, by way of the EU Benchmark Regulations, since March 2020. Our indices are audited annually by PwC and have consistently received the highest rating possible.

We want to help build a world-class infrastructure to support companies involved in the movement of LNG by sea and help them manage their freight risk by providing transparency to the physical movement of LNG in gas carriers.

Benchmarking commercial activities against a trusted index is the foundation for development of flexible risk management and making informed commercial decisions. The transportation of LNG is evolving from vessels entering into long-term contracts on delivery from the shipbuilding yard, to being traded on a spot basis. The number of transactions each year is increasing, but the distribution of transactions is not evenly spread throughout the year and a reliable assessment of what a charterer is willing to pay, and what an owner is willing to accept, is key to establishing confidence in growing the spot market.

The Baltic Exchange has been here before: we have changed the way the dry bulk, dirty and clean tanker risk by providing credible benchmarks. We now produce over 200 benchmarks across dry bulk, wet, gas, container and air freight markets, with 83 relevant contracts tradeable across four different clearing exchanges. Trading FFAs is an activity which hundreds of shipping market participants undertake. They use FFAs to manage their exposure to the volatile freight markets or gain exposure to a segment in which they may not have invested in the underlying asset, i.e. the ships.

We achieve this by working with brokers, owners, charterers and traders to build consensus around a set of assessments. We have worked behind the scenes to bring competing parties together, encouraged clearing houses to look at freight as an asset class and educated the market on how derivatives could work as a risk management tool.

The use of index-linked floating contracts in the gas markets for shipowners, charterers and traders is relatively new. An index-linked contract secures the vessel to carry the cargo but allows decisions about the financial risks to be managed separately. The ability to benchmark a long-term gas freight contract, against a robust and trustworthy index, which comes under the umbrella of a UK regulated entity, provides market participants with confidence that their trades are underpinned by audited, verifiable and completely independent data.

Our vision is to support the development of a mature market for seaborne LNG freight. This paper explains our capabilities.

- How we construct our indices and ensure accurate assessments
- Roles of the Baltic Exchange and our panellists
- Key takeaways of the Baltic LNGg Index
- Our governance and oversight framework
- How to create an index-linked contract
- How Forward Freight Agreements can mitigate the effects of rate volatility

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*Our vision is to support the development of a mature market for seaborne LNG freight.*

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# Key terminology

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## Panellist

An independent shipbroker responsible for providing spot LNG rates

## Benchmark Administrator

Oversees the Baltic panellist data and processes.



## Baltic Exchange Information Services Ltd (BEISL)

A wholly owned subsidiary of the Baltic Exchange Ltd and an authorised benchmark administrator.

## International Organisation of Securities Commissions (IOSCO)

An association of organisations that regulate the world's securities and futures markets. Members are typically primary securities and/or futures regulators in a national jurisdiction or the main financial regulator from each country.



## Forward Freight Agreement (FFA)

Cash-settled forward contract, widely traded in bulk shipping markets and settled bilaterally or via a clearing house. It does not commit either side to buy or sell physical container capacity and allows for a flexible cost-efficient way to fix and exit prices.

## Principles for Financial Benchmarks

A key document published by IOSCO which addresses conflicts of interest in benchmark setting processes, as well as other matters related to benchmarks.



## Guide to Market Benchmarks

Built on the Baltic Exchange's 30 years of experience in the field of benchmarking, it reflects recent developments in the markets and ensures compliance with Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016, on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds and amending Directives 2008/48/EC and 2014/17/EU and Regulation (EU) No 596/2014 (the EU BMR).

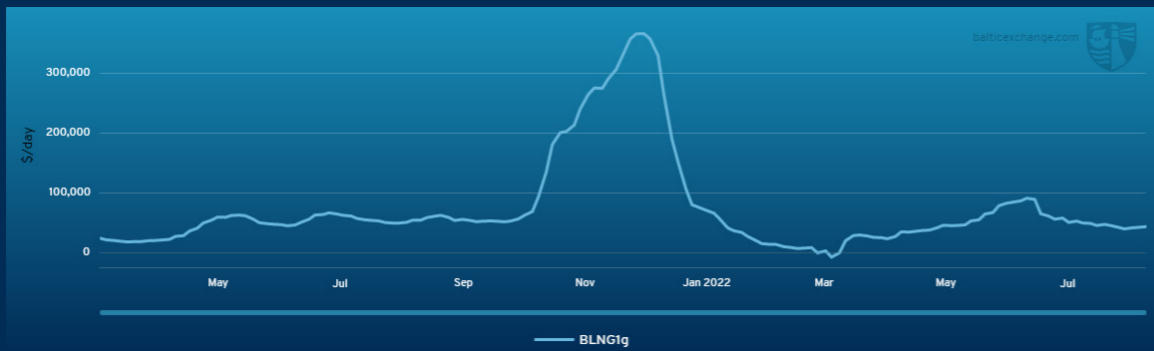
## EU Benchmark Regulation

This aims to ensure benchmarks are robust and reliable, and to minimise conflicts of interest in benchmark-setting processes. UK BMR is the on-shored EU regulation (EU BMR), which builds on the IOSCO Principles for Financial Benchmarks and adopting them at a national and European Union level. They are intended to prohibit the use by a supervised entity in the EU of unauthorised benchmarks, including benchmarks prepared by unregistered non-EU administrators from non-equivalent jurisdictions.

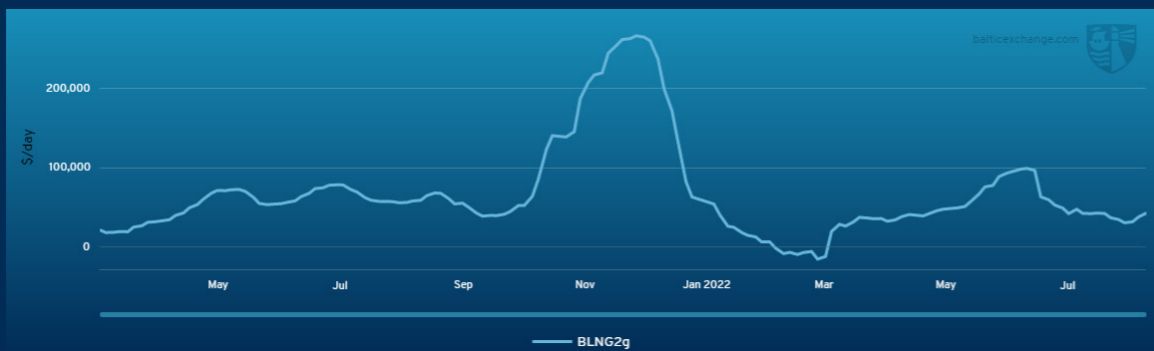




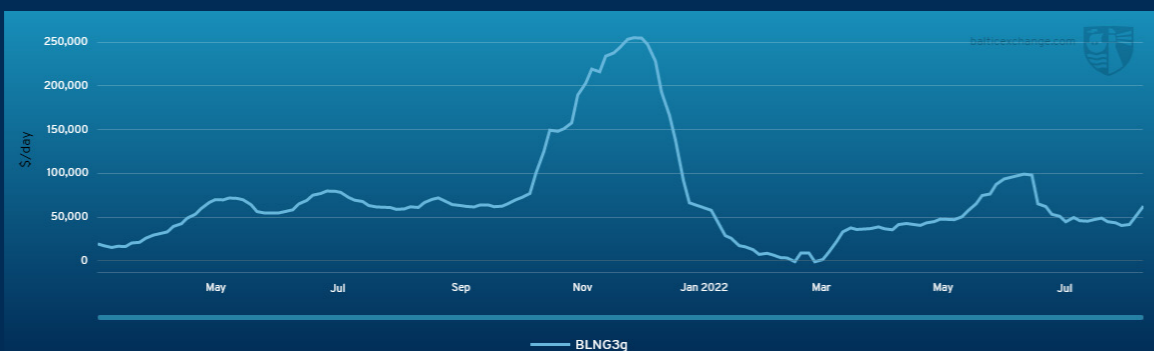
### BLNG1g - Australia to Japan RV



### BLNG2g - US Gulf to Continent RV



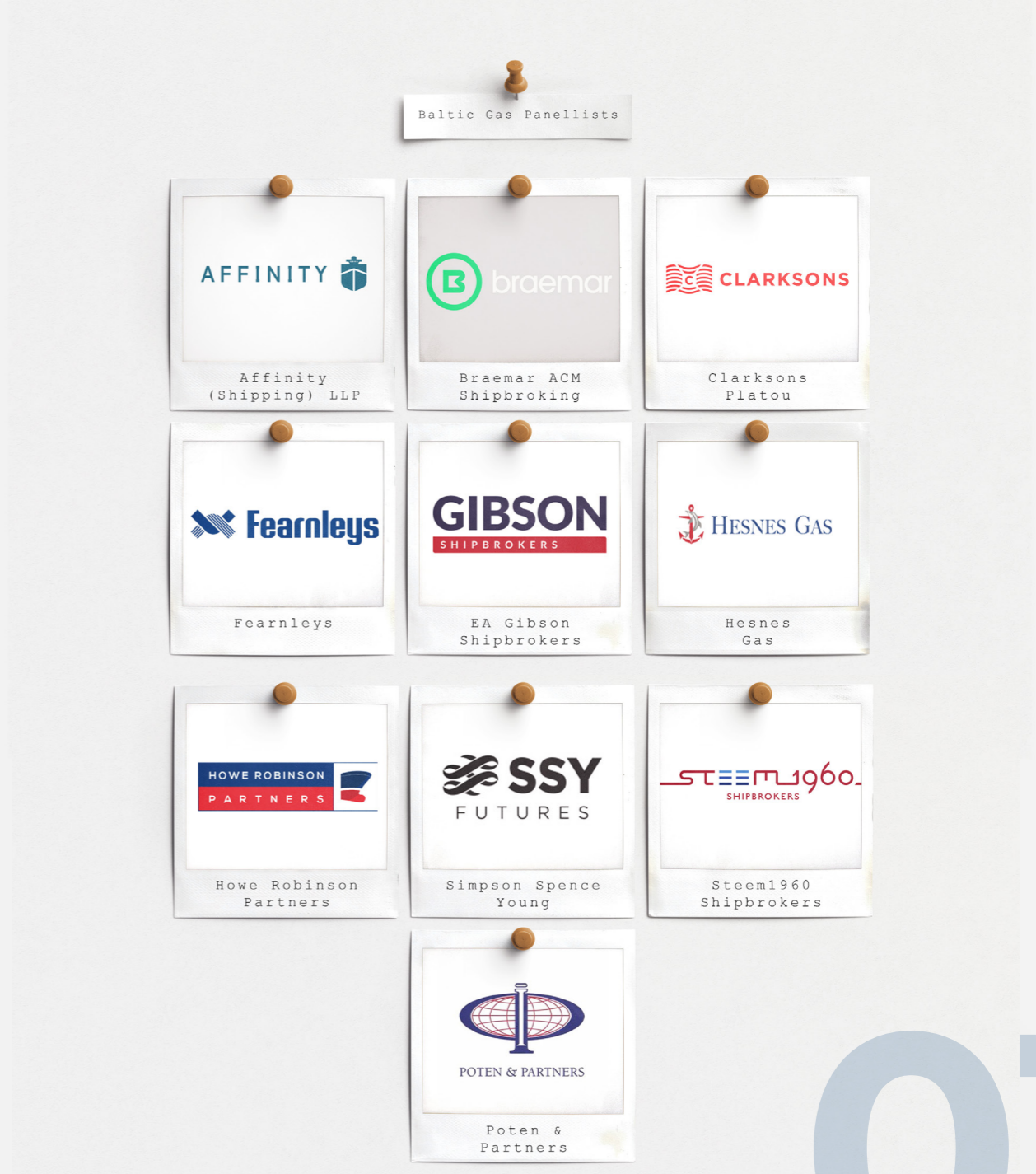
### BLNG3g - US Gulf to Japan RV



# Our Gas panellists

Shipbrokers from leading gas chartering centres including London, Oslo and provide spot assessments to the Baltic Exchange for either, or both, LNG and LPG.

Panellists are audited annually by the Baltic, looking at the panellists' operations, number of staff, deals done in a year as well as their commercial cover and quality of market assessments.





# Role of the Baltic Exchange

**Any market benchmark overseen by the Baltic Exchange which is used to settle financial transactions is produced in accordance with strict rules which ensure its accuracy, integrity, continuity and reliability.**

*As an Administrator, the Baltic Exchange is responsible for maintaining the governance framework which includes core decision making functions related to the creation, management and distribution of our gas indices.*

*The purpose is to ensure that our freight market information is produced in line with stated methodologies, policies and procedures. It also reviews the panellists' internal controls for the identification, disclosure, prevention and management of conflicts of interest and to mitigate general risks associated with our information and its determination process.*

**Baltic Exchange Information Services Ltd (BEISL) is a wholly owned subsidiary of the Baltic Exchange Ltd and is an authorised benchmark administrator.**



## Benchmark Administrator

BEISL undertakes adequate steps to identify, prevent and manage conflicts of interest and to safeguard confidence in the integrity of our benchmark and benchmark related activities. BEISL has established a permanent oversight function that ensures supervision of all aspects of the provision of our benchmarks and oversees the implementation and effectiveness of our governance arrangements.

As market leaders, we provide a comprehensive benchmark administration service to include:

- Robust benchmark determination process to include monitoring checks, controls over the accuracy and validity of input data, and application of our benchmark methodology
- Control framework that is proportionate to the provision of benchmarks and nature of the benchmark input data including the management of operational risk, adequate and effective business continuity, and disaster recovery plans
- Accountability framework to include adequate record keeping, audit reports ensuring our compliance to our benchmark methodology and the EU BMR, a complaint handling mechanism for receiving, investigating and retaining records concerning complaints
- Governance and Oversight framework to manage and challenge all aspects of the administration process, conflicts of interest, and whistleblowing policy



**Today the Baltic Exchange manages a diverse range of benchmarks for the abut not limited to, dry bulk, tanker, gas spot freight rates, asset values, vessel operational costs and ship recycling prices."**

## About the Baltic Exchange

The Baltic Exchange has been administering freight market benchmarks since 1985 when we launched the Baltic Freight Index (today the Baltic Dry Index) for the dry bulk market. Today the Baltic Exchange manages a diverse range of benchmarks for the global shipping markets including, but not limited to, dry

bulk, tanker, gas spot freight rates, asset values, vessel operational costs and ship recycling prices. The Baltic Exchange's bulk shipping market assessments are widely used as the settlement mechanism for both forward and physical contracts. Spot bulk freight market assessments are based on independent shipbroker assessments

supplied to the Baltic Exchange.

In 2016 the Baltic Exchange was acquired by Singapore Exchange (SGX).

The Baltic Exchange is headquartered in London with regional offices in Singapore, Shanghai, Athens, Stamford and Houston.





# Baltic Exchange LNG Assessments

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## An overview

- LNG (marine fuel) round voyage indices launched 2019
- LNGg (LNG fuel) round voyage indices launched 2021
- \$/day assessments

## LNG

Over the past 30 years the number of countries exporting LNG has more than doubled, leading to increased diversification of supply sources. Over the past five years the USA has risen as an LNG exporter, with further expansions to Australian and Russian liquefaction capacity.

The three LNG routes assessed by the Baltic Exchange reflect the importance of Australian and US seaborne exports to Asia and Europe.

## What makes the index a true reflection of the market?

Pricing LNG freight is challenging, and the Baltic Exchange BLNGg indices were designed with physical contracting in mind and to reflect market practices.

## Price published is “next done in the market”

For all three of the Baltic LNG routes, the price assessment is for a voyage taking place between 25-40 days from the date of the index publication. This means that while factors such as recent fixtures, vessel availability, cargo availability are all taken into account, the index is continuously looking forward to what level the next fixture is likely to be done at.

## Hire & Lumpsum rates

Freight contracts are negotiated on the basis of a \$/per day hire for the laden leg and a lumpsum amount (sometimes referred to as a ballast bonus) basis delivery at the load port for a single trip to the discharge port. This lumpsum is to compensate the owners for the repositioning of the vessel back to the loading area. The lumpsum provided by the panellists reflects the current market at the time of assessment e.g. if the market is firm, the lumpsum might represent in excess of the 100% of fuel and time required to reposition the vessel, whereas at other times it might only represent 50% of the fuel costs.

Our panellists provide both Hire and Lumpsum rates, reflecting the way contracts are negotiated and can be evidenced in actual fixtures. From these two numbers the Baltic calculates and publishes a Round Voyage rate. This requirement to provide both numbers provides the Baltic with

a clearer picture of the importance of some of the constituent factors of a negotiation between the owners and charterers and enables us to validate prices.

## Panellist submissions

Panellists are required to submit a price on publication day; failure to do so can lead to their suspension from the panel. No panellist price submission is discarded. However, in extraordinary circumstances, a Baltic assessor can exclude a panellist's assessment if they fail to provide a valid argument for the price they submitted. In the calculation of the index an average of all submissions is used.

## Panellists subject to monthly quality assessment

Panellists undergo regular monitoring and audits by the Baltic. They are subject to both operational and commercial reviews. Operationally, we review their timings, the comments they provide with their inputs. We request that they have sufficient capacity for continuity of reporting, and we review the quality of their assessment using scientific data analysis. In addition, we review their commercial activity on an annual basis to ensure they have sufficient market insights. Whilst the audits are generally planned on an annual basis, the operational performance is monitored daily and monthly, and the Baltic Freight team engages with the panellists regularly.

## Round Voyage Calculation

The published 'Round Voyage Daily Hire Rate' is calculated as the gross income less the cost of re-positioning the vessel from the discharge port back to the load port, divided by the total time taken.

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Pricing LNG freight is challenging, and the Baltic Exchange BLNGg indices were designed with physical contracting in mind and to reflect market practices.

## Baltic LNG vessel (LNGC160) specification

91,500mt dwt  
Tri Fuel Diesel Electric propulsion  
160,000cbm capacity  
Laden: 17 knots on 210cbm LNG  
Ballast: 16 knots on 190cbm LNG  
0.1% boil off  
Idle port consumption: 42cbm LNG per day  
Working port consumption: 85cbm LNG per day  
Max age: 20 years

When burning IFO the speed and consumption is:  
Laden: 17 knots on 100mt marine fuel  
Ballast: 17 knots on 95mt marine fuel  
Idle port consumption: 20mt marine fuel per day  
Working port consumption: 40mt marine fuel per day

The Baltic conducts regular analysis and market consultations to ensure that our vessel specification is representative of those vessels performing physical spot voyages on our prescribed routes.

## Baltic LNG Freight Indices

Published Tuesdays and Fridays at 1100 (London).

### BLNG1g LNG Australia to Japan RV

Delivery Gladstone, loading 25-40 days from Index date, for a derived round voyage via Tokyo of 22 days duration, with redelivery Gladstone, based on daily hire and lumpsum assessments with 125% total commission.  
Basis the Baltic LNG carrier delivered cold ready to load

### BLNG2g LNG US Gulf to Continent RV

Delivery Sabine, loading 25-40 days from Index date, for a derived round voyage via Isle of Grain of 28 days duration, with redelivery Sabine, based on daily hire and lumpsum assessments with 125% total commission.  
Basis the Baltic LNG carrier delivered cold ready to load

### BLNG3g LNG US Gulf to Japan RV

Delivery Sabine, loading 30-45 days from Index date, for a derived round voyage via Tokyo of 53 days duration (routing via Panama Canal), with redelivery Sabine, based on daily hire and lumpsum assessments with 125% total commission.  
Basis the Baltic LNG carrier delivered cold ready to load

## LNG fuel price

Delivered ex ship at discharge port. Brokers report to the Baltic fuel prices for each route based on the price agreed in a fixture, or negotiations taking place. These are used by the Baltic to calculate the round voyage and are published at the same time as the freight indices.

BFLNG1: Price of LNG delivered ex ship Japan 30-45 days forward  
BFLNG2: Price of LNG delivered ex ship UK 30-45 days forward  
BFLNG3: Price of LNG delivered ex ship Japan 60-75 days forward





# Baltic Exchange Forward Assessment for LNG

**Baltic Forward Curves for BLNG1g, BLNG2g and BLNG3g are an estimated mid-price based on assessments submitted by leading FFA brokers at 1700 (London).**

These forward assessments enable market participants to see how the forward curve evolves, delivering greater insight when making trading decisions.

Chartering managers reference the forward curves when negotiating physical vessels since they are reflection of market sentiment.

Open FFA positions are marked against the Baltic daily settlement price for their respective product and expiry and the clearing exchange and clearing member calculates a daily mark to market calculation which is used for margining open FFA positions.



# LNG-powered vessels

**Up until April 2022 the Baltic Exchange provided two index groups: BLNG (using VLSFO as the repositioning fuel) and BLNGg (using LNG as the repositioning fuel).**

*Today, after extensive market consultation, we only list BLNGg assessments which are based on carriers burning LNG as their fuel.*

Since the introduction of the 2020 Global Sulphur Cap by the International Maritime Organization (IMO), the majority of LNG carriers have switched to LNG boil-off gas rather than burn low-sulphur fuel oil, marine gas oil or install emissions abatement technology. The boil-off process allows the naturally evaporating LNG cargo to be sent to the engine room and burned by the main boilers as fuel.

- 17 knots on 210cbm LNG/day laden
- 16 knots on 190cbm LNG/day ballast
- 0.1% boil off
- Idle port consumption 42cbm LNG/day idle
- Working port consumption 85cbm LNG/day working

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## Changing LNG patterns

**Over the past 20 years there has been a shift in the LNG trade, with even bigger changes underway due to the ongoing Russian situation.**

Over the past 20 years there has been a shift in the LNG trade, with even bigger changes underway due to the ongoing Russian situation. What was once a market based almost exclusively on the long term, is now split between spot, short and long-term contracts as the market looks for more flexibility. According to the International Group of LNG Importers, the share of spot and short-term LNG trade increased from 5% in 2000 to 40% in 2020. Long-term contracts still represent the greatest share of contracts signed, but their duration has been reduced over time. The average length of contracts is cyclical, meaning longer term contracts are signed for new projects to guarantee project economics, while expiring contracts are replaced by shorter ones.


Over the past 10 years the shale gas revolution turned the USA into a net exporter of natural gas. Other supply shifts include Australia usurping Qatar as the largest exporter of LNG. Exporters are not constrained by pipeline infrastructure or long-term contracts of affreightment by sea but have access to an LNG carrier fleet which is around 550 vessels in size and growing.

The size and type of LNG vessels are also changing at a fast pace, with larger 174,000cbm vessels now entering the fleet along with more efficient engine configurations such as the M-Type Electronically Controlled Gas Injection (MEGI) and the X-DF two stroke designs. Although the Baltic standard 160,000cbm TFDE vessels are presently more numerous, tending to be the workhorse of the fleet, the larger and more efficient engines are becoming popular with charterers for their own contract programs. As yet, the TFDE vessels continue to dominate spot fixtures. As the Baltic indices represent the LNG spot market, the consensus for now is to keep the standard index vessel as the 160,000cbm TFDE.

From a shipping perspective, an ability to charter a vessel on a spot basis and to mitigate that risk with a mechanism such as a Forward Freight Agreement is important.

The growing LNG shipping fleet has introduced a new dynamic and competition within LNG transportation, shifting from the dominating long-term fixtures to a good deal of short-term and single trip time charters, enabling the Baltic Exchange to provide robust spot assessments. For medium and long-term period charters, index-linked floating rate contracts are also a possibility. An index-linked deal allows two parties to agree to settle at the end of each month against one of the BLNGg routes and can be for multi-year charters. This has already been seen in the LNG market with examples of seven-year charters having previously been agreed.





**Captures volatility**  
Floating rate freight structures emulate the spot market and capture volatility not seen if contracts are based on flat price



**Creates opportunities**  
Create opportunities for dynamic market risk management where flexibility of execution and change of direction is far greater



**Partial risk**  
Enable partial risk exposure, as opposed to IN or OUT exposure experienced in flat rate contracts



**Counterparty risk**  
Mitigates counterparty risk by largely removing replacement cost of a contract.



**Portfolio risk**  
Creates LONG/SHORT balance in a portfolio to minimise portfolio risk exposure



**Basis risk**  
Reduces basis risk for subsequent FFA trades as physical and paper trades will be based on the same index

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## Floating rates

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# Forward Freight Agreements

**An LNG Forward Freight Agreement (FFA) is a cash-settled forward contract, traded and settled bilaterally.**

It does not commit either side to buy or sell physical shipping capacity and allows for a flexible cost-efficient way to fix and exit prices.

The parties agree on a price in a USD/day or USD/ton on an agreed route during a specified period. At the end of the contract period the parties settle the difference in cash between the predetermined contract price and the actual spot market price as determined by the Baltic Exchange.

FFAs allow market participants to hedge their physical exposure in the paper market up to two years forward, coming with the advantage

of flexibility and a more liquid marketplace. FFAs are brokered by shipbrokers and settled over the counter. LNG freight futures which settle against the Baltic Exchange's assessments are available to trade on the New York Mercantile Exchange (NYMEX).

The dry bulk shipping market has successfully built a liquid market for FFAs. In 2021 the volume of FFAs bought and sold were the equivalent of over 6.25bn tonnes, or twice the size of the underlying physical market.







# Why choose Baltic Indices?



## Regulated

The Baltic Exchange has been approved and authorised by the FCA, by way of EU Benchmark Regulations, since March 2020. Our indices are audited annually by PwC and have consistently received the highest rating possible.



## Index-link physical contracts

Pricing LNG freight is challenging and the Baltic Exchange BLNGg indices are designed with physical contracting in mind and to reflect market practices.



## Reliable & consistent

The Baltic Exchange has been benchmarking shipping markets since 1985.



## Transparent

Our methodology is transparent and based on IOSCO principles for Financial Benchmarks.



## Supporting the LNG market

The Baltic Exchange is committed to building world-class information infrastructure to support companies involved in the movement of LNG by sea and help them manage their freight risk.





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