



AN INTRODUCTION TO  
**SHELL LNG**  
**FOR TRANSPORT**

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## DEFINITIONS AND CAUTIONARY NOTE

Reserves: Our use of the term “reserves” in this presentation means SEC proved oil and gas reserves. Resources: Our use of the term “resources” in this presentation includes quantities of oil and gas not yet classified as SEC proved oil and gas reserves. Resources are consistent with the Society of Petroleum Engineers 2P and 2C definitions. Organic: Our use of the term Organic includes SEC proved oil and gas reserves excluding changes resulting from acquisitions, divestments and year-average pricing impact. Resources plays: Our use of the term ‘resources plays’ refers to tight, shale and coal bed methane oil and gas acreage.

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This presentation contains forward-looking statements concerning the financial condition, results of operations and businesses of Royal Dutch Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Royal Dutch Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “anticipate”, “believe”, “could”, “estimate”, “expect”, “intend”, “may”, “plan”, “objectives”, “outlook”, “probably”,

“project”, “will”, “seek”, “target”, “risks”, “goals”, “should” and similar terms and phrases. There are a number of factors that could affect the future operations of Royal Dutch Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this presentation, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including potential litigation and regulatory measures as a result of climate changes; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; and (m) changes in trading conditions. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section. Readers should not place undue reliance on forward-looking statements. Additional factors that may affect future results are contained in Royal Dutch Shell’s 20-F for the year ended 31 December, 2014 (available at [www.shell.com/investor](http://www.shell.com/investor) and [www.sec.gov](http://www.sec.gov)). These factors also should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, [DATE]. Neither Royal Dutch Shell nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation. There can be no assurance that dividend payments will match or exceed those set out in this presentation in the future, or that they will be made at all.

We use certain terms in this presentation, such as discovery potential, that the United States Securities and Exchange Commission (SEC) guidelines strictly prohibit us from including in filings with the SEC. U.S. Investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website [www.sec.gov](http://www.sec.gov). You can also obtain this form from the SEC by calling 1-800-SEC-0330.

A photograph of an industrial facility, likely a natural gas processing plant. The scene is dominated by large, horizontal stainless steel pipes and cylindrical tanks. In the middle ground, three workers wearing red protective suits and yellow hard hats are standing on a metal platform, engaged in conversation. The background shows a clear blue sky with some white clouds. A semi-transparent white box is overlaid on the upper left portion of the image, containing the number '1' and the title 'NATURAL GAS OPPORTUNITY'.

**1**

# **NATURAL GAS OPPORTUNITY**

# PROJECTED ENERGY OUTLOOK BY 2050



**9 BILLION** people, **75%** living in cities  
**(2 BILLION** more than today)



**2 BILLION** vehicles  
**(800 MILLION** at the moment)



Many **MILLIONS** of people will rise out of energy poverty; with higher living standards energy use rises



Energy demand could **DOUBLE** from its level in 2000... while CO<sub>2</sub> emissions must be **HALF** today's to avoid serious climate change



Twice as efficient, using **HALF** the energy to produce each dollar of wealth

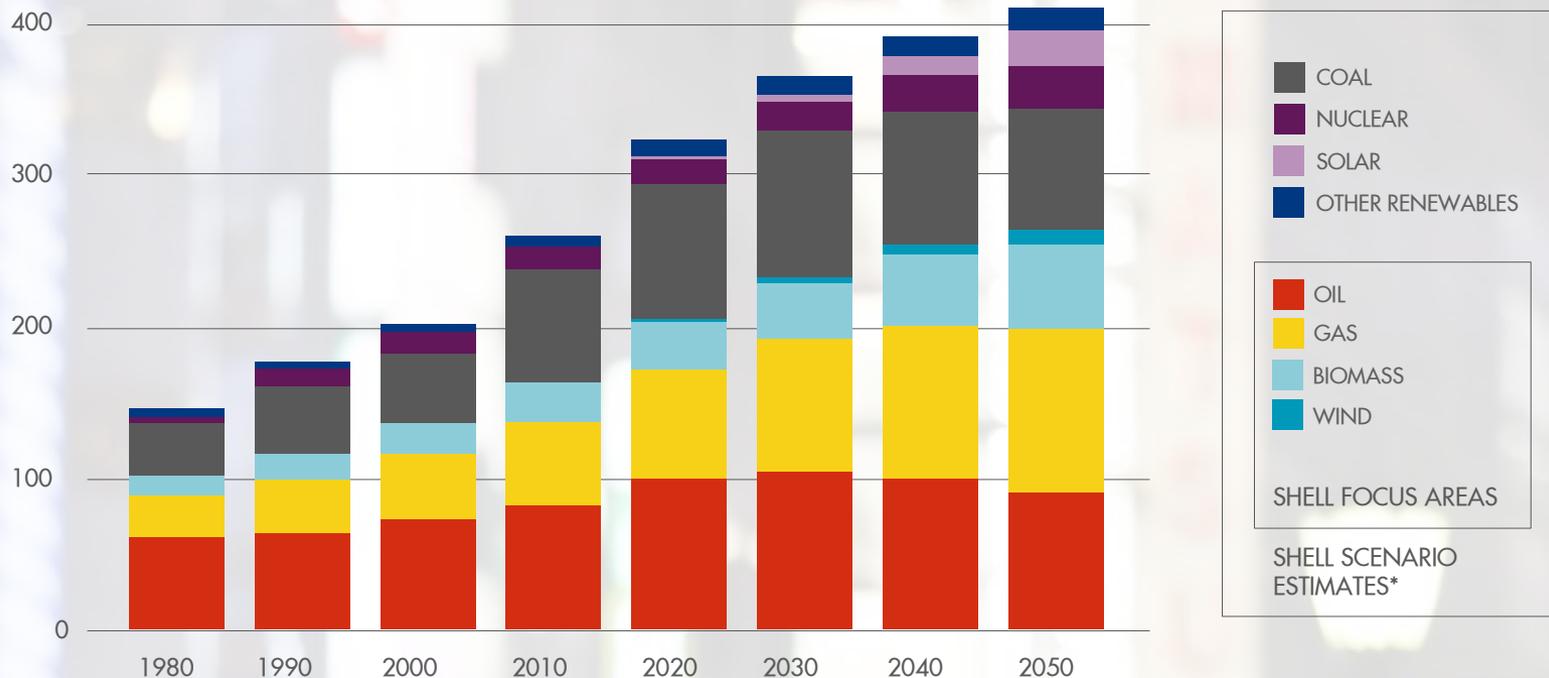


Renewables could supply up to **30%** of the world's energy

# GLOBAL ENERGY LANDSCAPE

## ROBUST LONGER TERM FUNDAMENTALS

Energy demand outlook in million boe/d



\* Projections are based on the Shell Scenario Estimates – a planning tool used by Shell to explore alternative views of the future by considering long-term trends in economics, energy supply and demand, geopolitical shifts and social change, as well as the motivating factors that drive change.

# THE CASE FOR GAS

## ABUNDANT

- Gas resources can supply >230 years of current global gas production
- LNG supplies could meet one-fifth of global gas needs by 2020

Source: IEA World Energy Outlook, WoodMackenzie, Shell Interpretation

## ACCEPTABLE

- Replacing coal with gas for electricity generation is the cheapest and fastest way to meet CO<sub>2</sub> reduction targets
- Gas fired power plants emit around 50% less CO<sub>2</sub> than coal fired plants.

## AFFORDABLE

Gas as a source for power generation is a lower cost alternative.

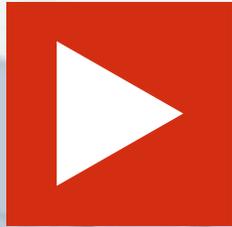


CCGT: Combined Cycle Gas Turbine  
Total Cost = Capital + Fuel + Operating  
Source: DECC (Mott MacDonald) June 2010  
This is a European example

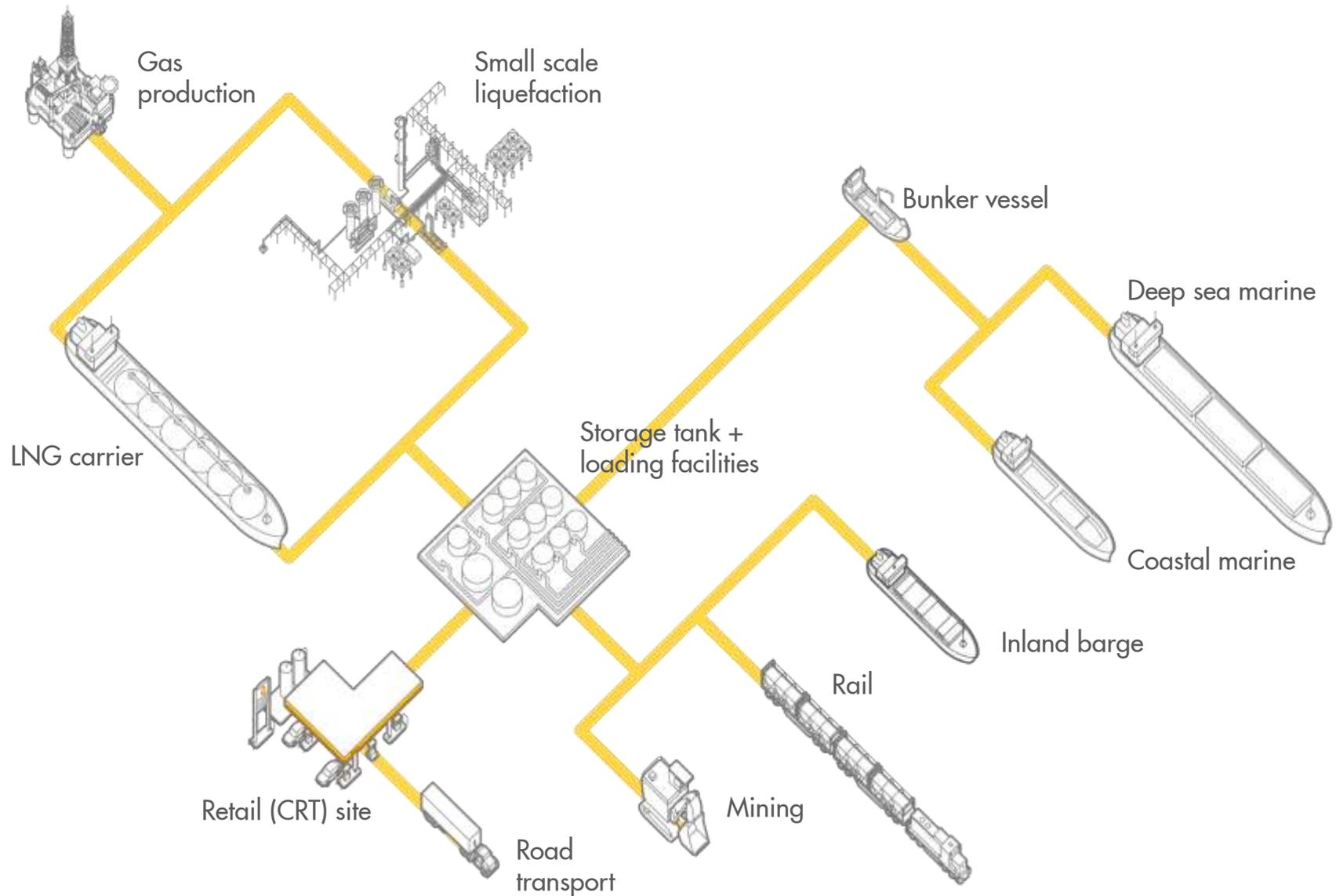
**2**

# **LNG AS A TRANSPORT FUEL**

# THE STORY



# INTEGRATED VALUE CHAIN



# NO SINGLE SOLUTION FOR OIL BASED TRANSPORT



**THERE IS NO  
"SILVER BULLET"**

**LNG IS ONE  
OPTION IN AN  
EVOLVING FUEL MIX**

**AVAILABLE  
ACCEPTABLE  
AFFORDABLE**

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# DRIVERS AND CHALLENGES



# LNG AS A TRANSPORT FUEL

## DRIVERS

### SUPPLY

Abundant global gas resources

## CHALLENGES

### INFRASTRUCTURE

Increasing infrastructure development in conjunction with demand



### ENVIRONMENT

Lower emissions NO<sub>x</sub>, SO<sub>x</sub> and particulate matter\*\*



### ENGINE TECHNOLOGY

Varied OEM solutions available

### COST COMPETITIVE

Lower cost alternative\*



### REGULATORY

Requires framework that facilitates infrastructure and market development

\* Versus Marine Gasoil

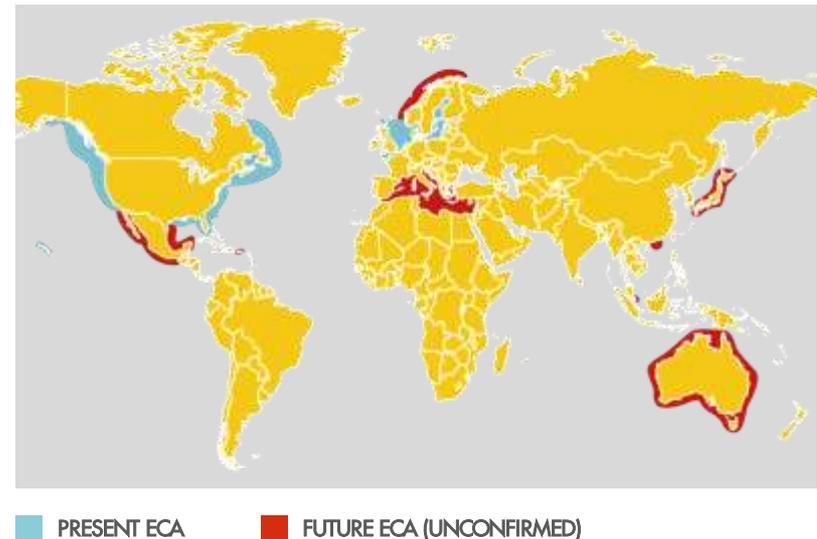
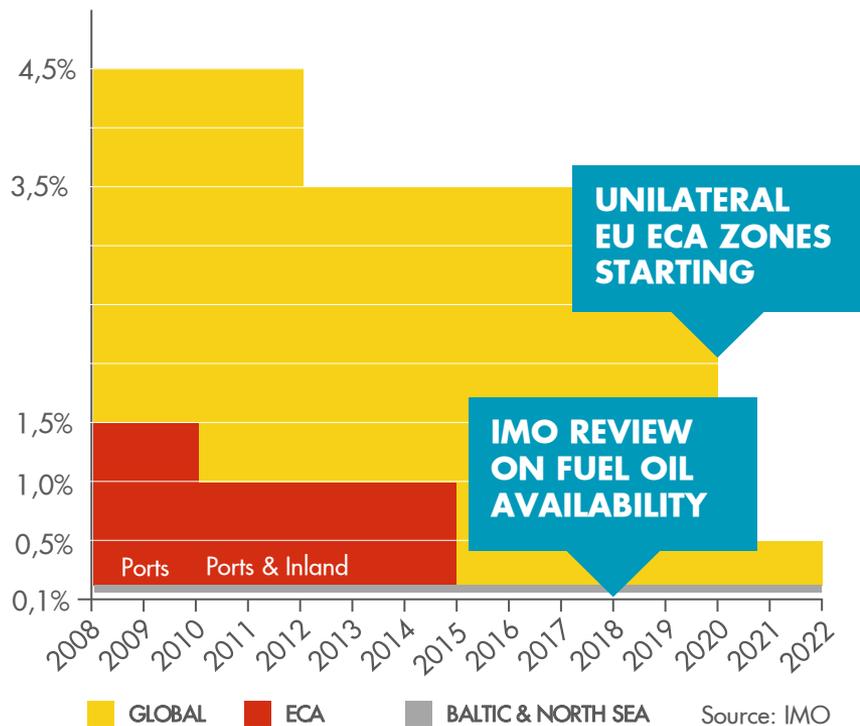
\*\* Versus heavy fuel oil

# REGULATORY REALITY

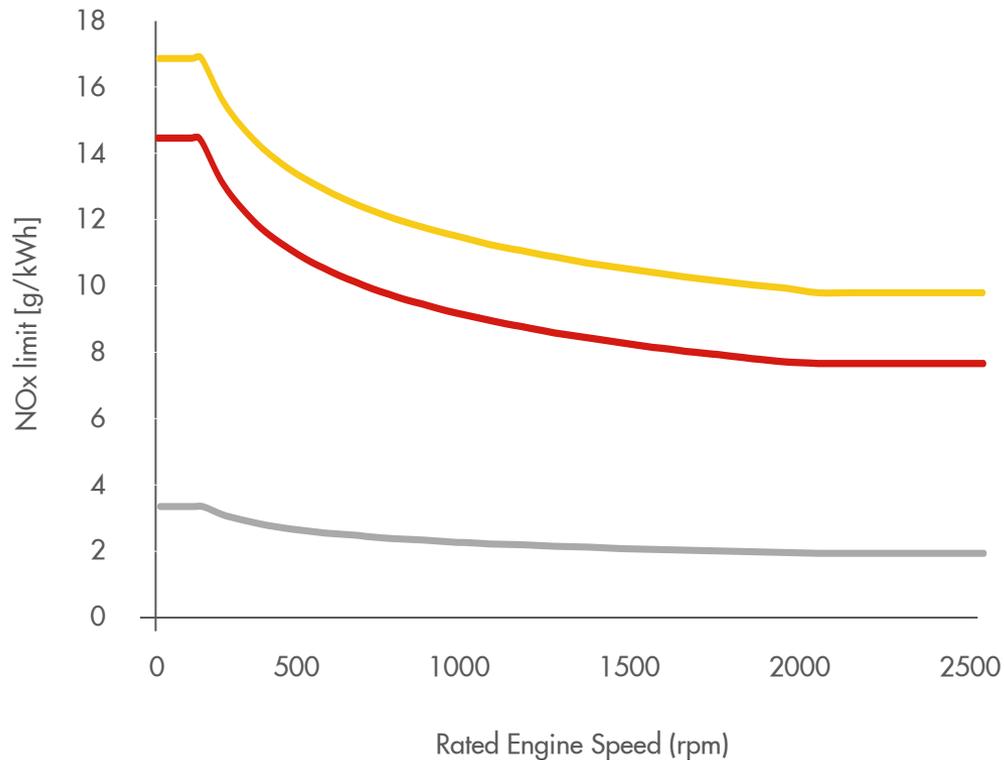
Shell LNG fuel can help reduce well-to-wake GHG emissions by up to 20%, compared to High Sulphur Fuel Oil.

- Virtually zero SOx emissions
- Virtually zero Particulate matter
- Reduced NOx depending on tier 1/2/3 engine

## REGULATION OF SO<sub>x</sub> EMISSIONS



# SECA BECOMES ECA: NOx EMISSION LIMITS



- Tier I (2000)
- Tier II (2001)
- Tier III (2016)

Source: IMO



## Current Global Nitrogen Oxides (NOx) Limitations

- Tier II: 20% reduction of Tier I limit for new ships built after 1 January 2011

SECA becomes Emission Control Area as of 1 January 2016

- SOx limit of 0.1% fuel sulphur (implemented 1 January 2015)
- NOx Tier III limit of 80% reduction of Tier 1 for ships built after 1 January 2016

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# **SHELL VALUE PROPOSITION**

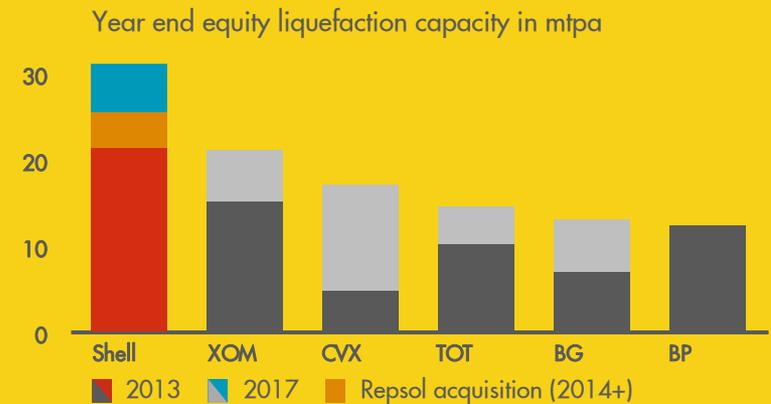


# LNG IS AT THE HEART OF OUR BUSINESS

## SHELL GLNG SUPPLY PORTFOLIO



## SHELL LNG LEADERSHIP



## NEW INNOVATIONS



Floating Liquefaction



Greenstream Barge

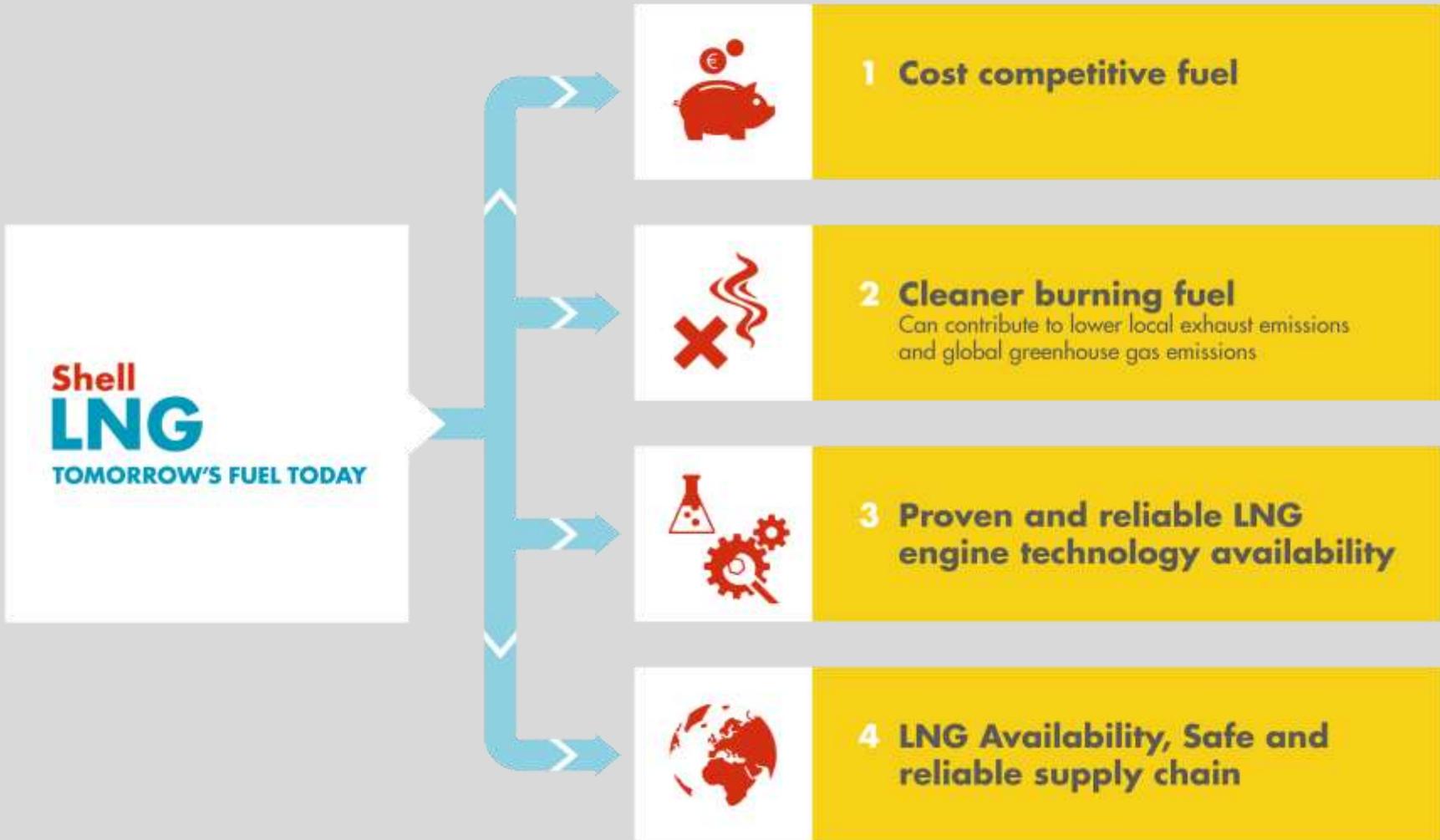


Harvey Gulf

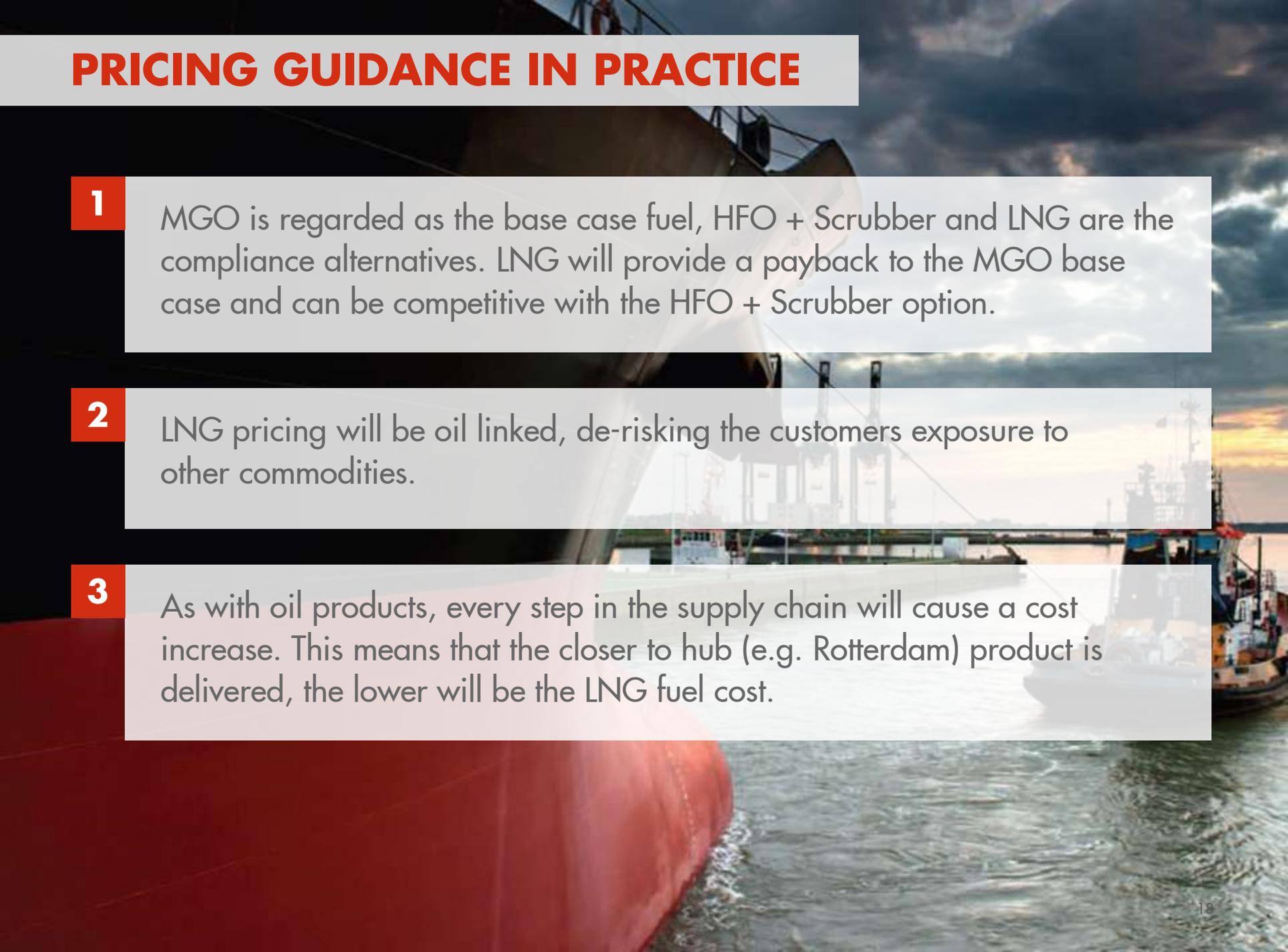


LNG bunker vessel

# LNG CAN OFFER A COMPELLING VALUE PROPOSITION



# PRICING GUIDANCE IN PRACTICE



1

MGO is regarded as the base case fuel, HFO + Scrubber and LNG are the compliance alternatives. LNG will provide a payback to the MGO base case and can be competitive with the HFO + Scrubber option.

2

LNG pricing will be oil linked, de-risking the customers exposure to other commodities.

3

As with oil products, every step in the supply chain will cause a cost increase. This means that the closer to hub (e.g. Rotterdam) product is delivered, the lower will be the LNG fuel cost.

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# **SHELL INITIATIVES**



# LEVERAGING GASNOR

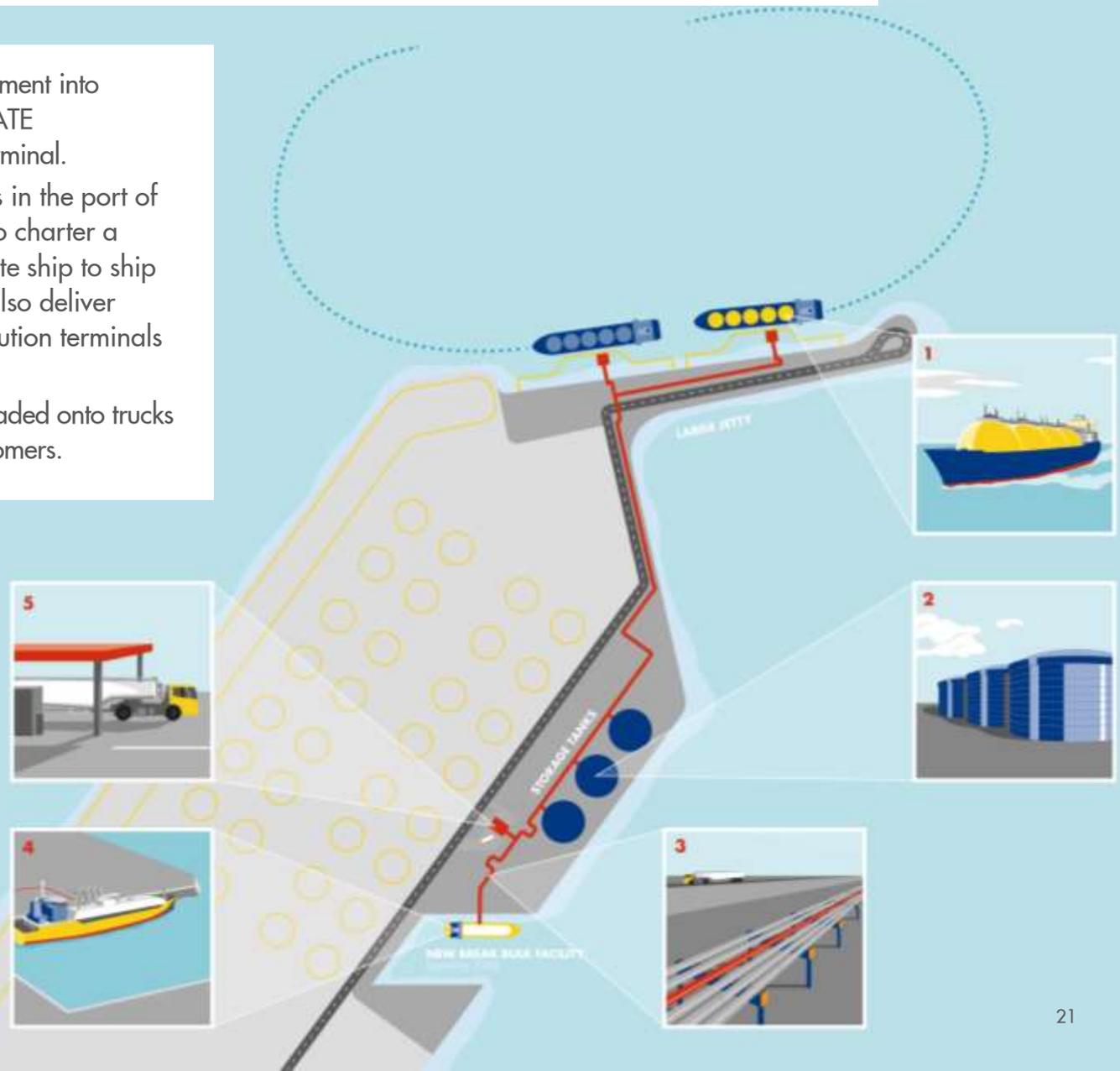


**GASNOR**  
www.gasnor.no

- Shell's 100% subsidiary, Gasnor, is a market leader in Norway, distributing 140,000 tons per year of LNG to Norway and Scandinavia
- 10 year of operational experience Serving Marine and Industrial customers by Road and Ship delivery
- Three production plants for LNG and distributes LNG by two ships and 22 tanker lorries
- Gasnor has performed > 70,000 LNG transfers

# GATE: LONG-TERM LNG FOR TRANSPORT

- Shell has announced investment into a break bulk jetty at the GATE (Gas Access To Europe) terminal.
- To serve marine customers in the port of Rotterdam, Shell intends to charter a LNG bunker vessel facilitate ship to ship transfer operations, and also deliver LNG to secondary distribution terminals outside the port area.
- In addition, LNG will be loaded onto trucks and delivered to road customers.



# CONSTRUCTION OF INNOVATIVE NEW LNG BUNKER VESSEL

Potential customers include container ships, coastal vessels, and ferries.

**FEATURES:** Cutting-edge shipping design and technology with a special loading arm for ship-to-ship transfers and sub-cooling unit to keep LNG at sub atmospheric pressure.

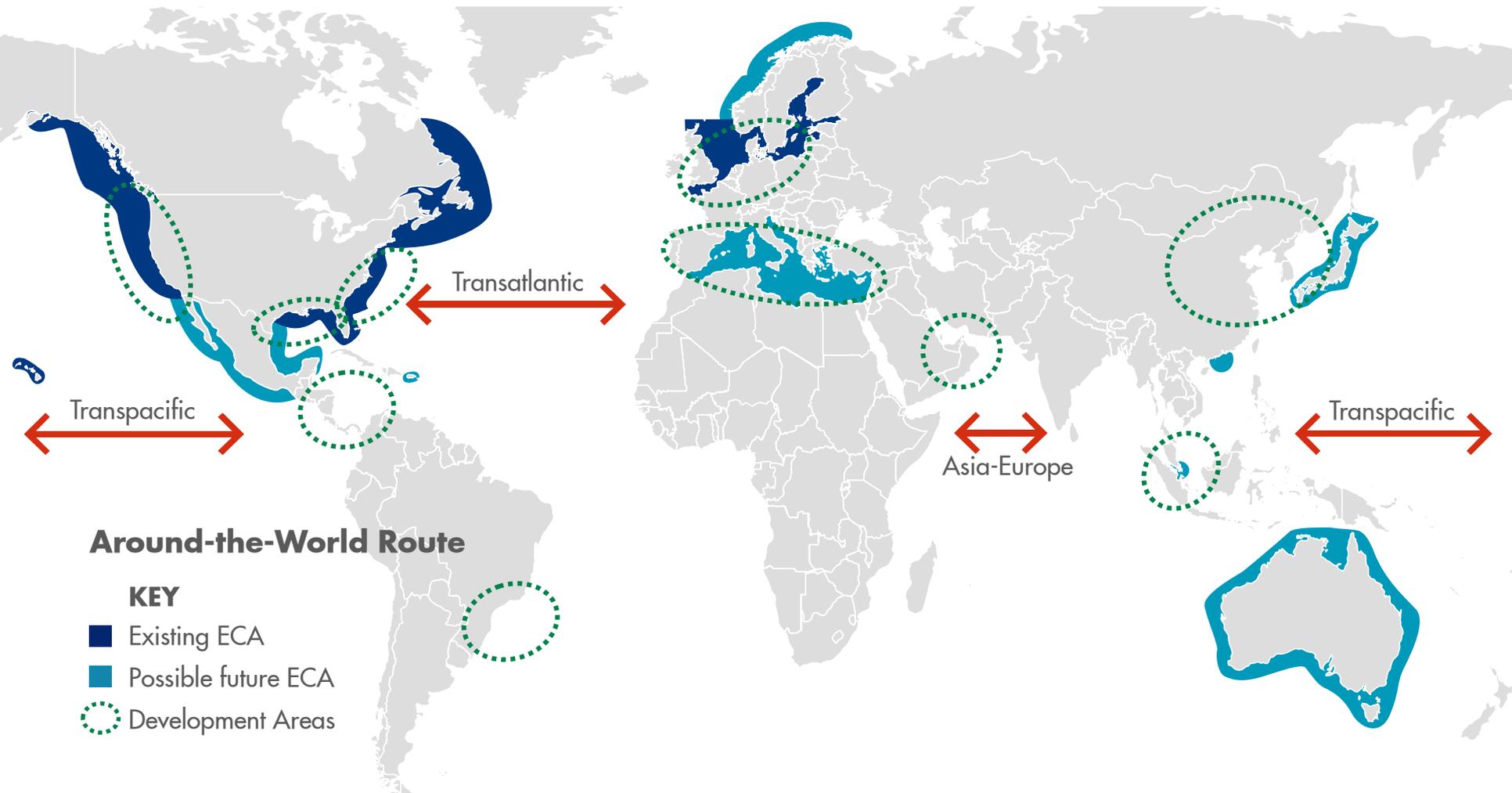
**CAPACITY:**  
6,500 cubic metres

**LENGTH:** ~120 metres



The new vessel will be built by STX Offshore & Shipbuilding. It will be based at the port of Rotterdam in the Netherlands, and will load from the new LNG break bulk terminal and jetty to be constructed by the Gas Access to Europe (Gate) terminal. It will also be sea-going and, therefore, able to bunker customers at other locations.

# DEVELOPING A GLOBAL MARINE BUNKER SUPPLY NETWORK



# SUMMARY

A large container ship is docked at a port at dusk. The ship's deck is illuminated with warm lights, and its cargo holds are filled with colorful shipping containers. A smaller tugboat is positioned in the foreground, also lit up. The background shows the complex structure of the port with cranes and walkways. The sky is a mix of orange and blue, suggesting sunset or sunrise.

- Collaborative relationships between ship owners, charterers, ports, and fuel suppliers
- Developing global infrastructure hubs on the back of supporting demand
- Ensuring harmonized industry standards

