

LNG Shipping – Energy Across the Oceans

April 20, 2017

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AGENDA

LNG Shipping Market Overview

Legal Implications of Changing LNG
Trading Patterns

Summary of Expected Impacts on
Shippers, Projects and Financing

Q&A

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LNG Shipping Market Overview

Prepared for Haynes and Boone LNG Shipping Seminar

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Poten & Partners

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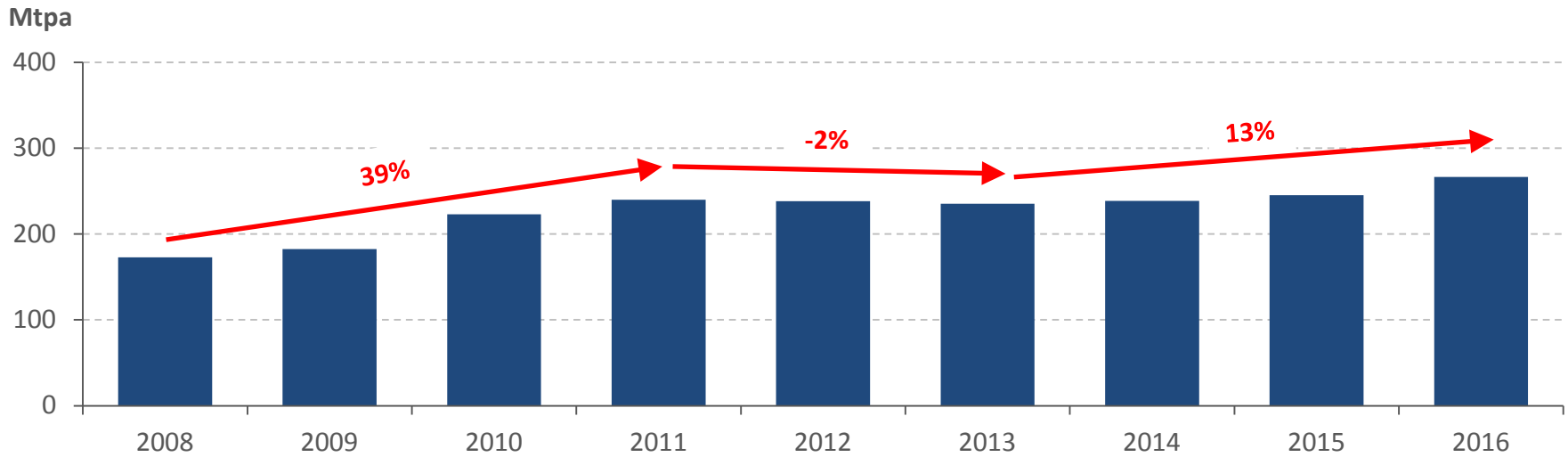
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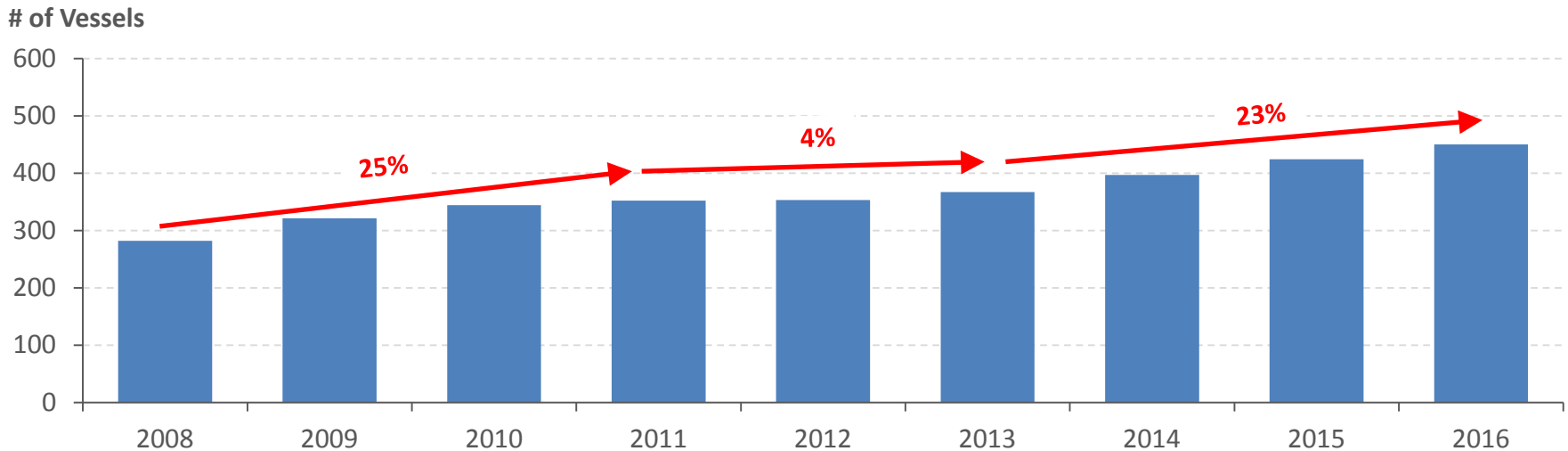
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The LNG Fleet Growth has Outpaced LNG Trade Growth Since 2011

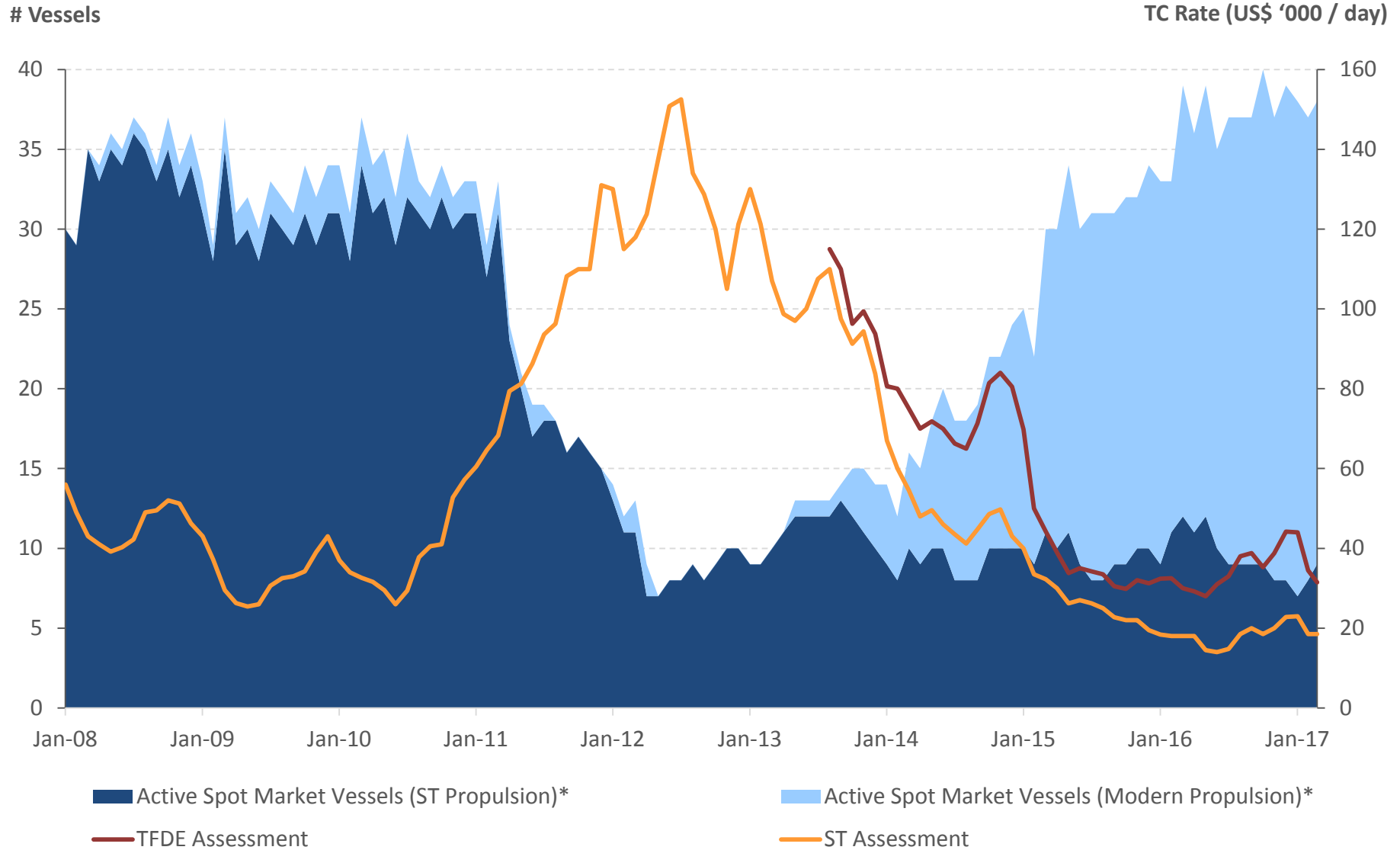
Global LNG Trade



Global LNG Shipping Fleet Size



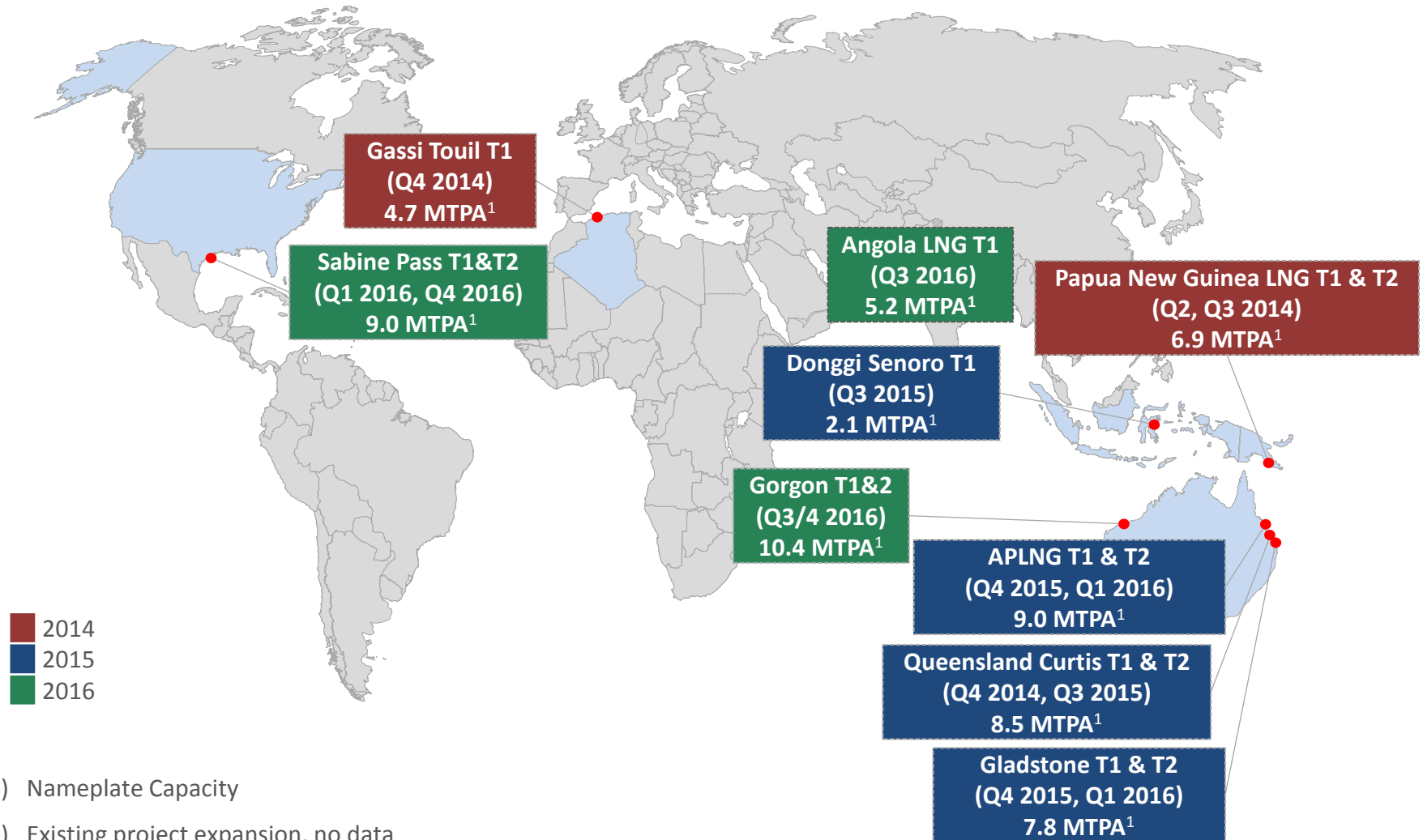
Vessels Competing In The Spot Market Have Grown, And Rates Have Separated



*Active spot market participants refer to vessels either trading or available for charter on a spot basis (<180 days)

Over 60 MTPA of Additional Liquefaction Capacity was Introduced 2013-2016

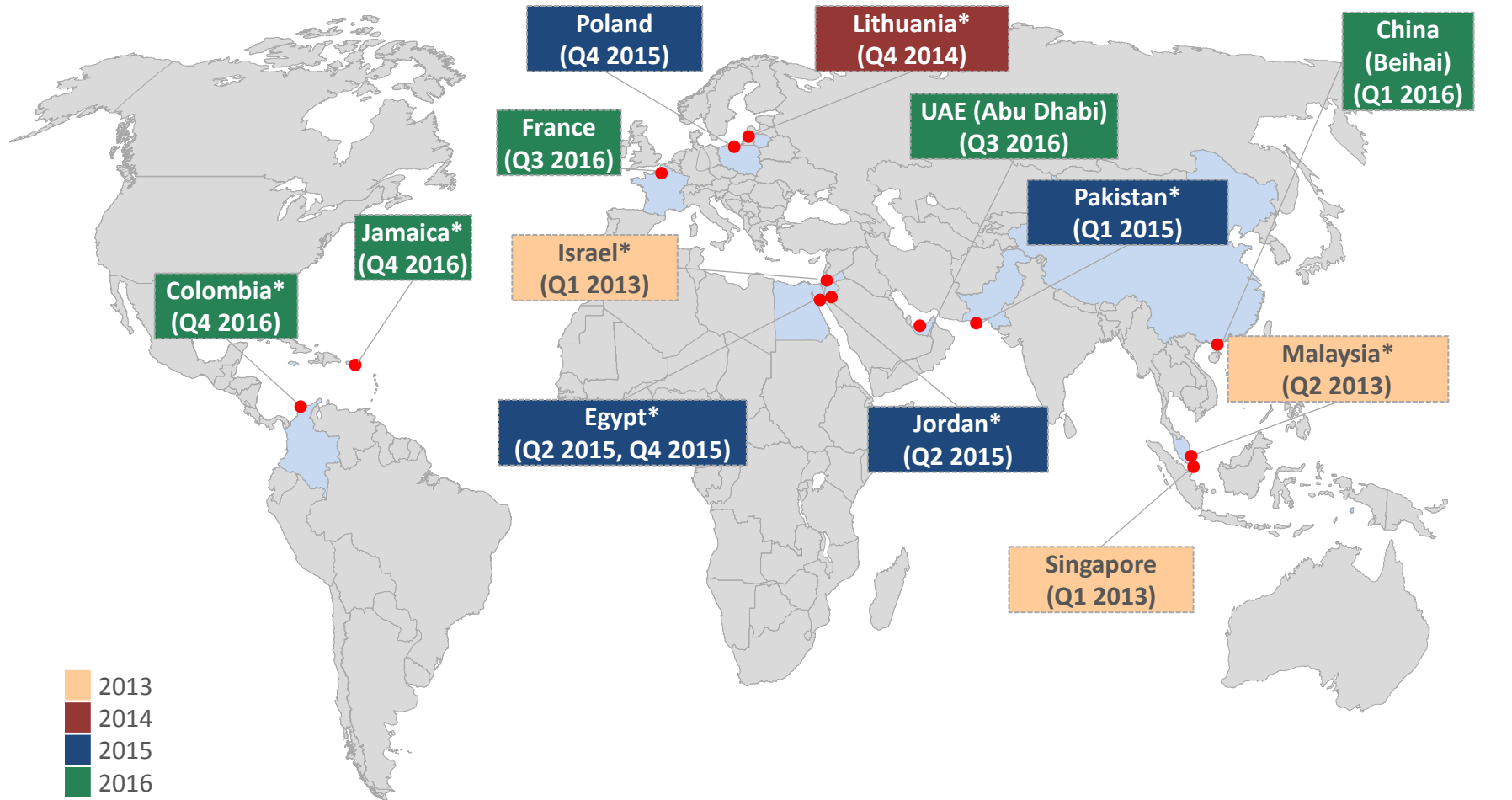
Liquefaction Capacity Growth by Project



New Demand Centres Imported Over 22 Million Tonnes in 2016

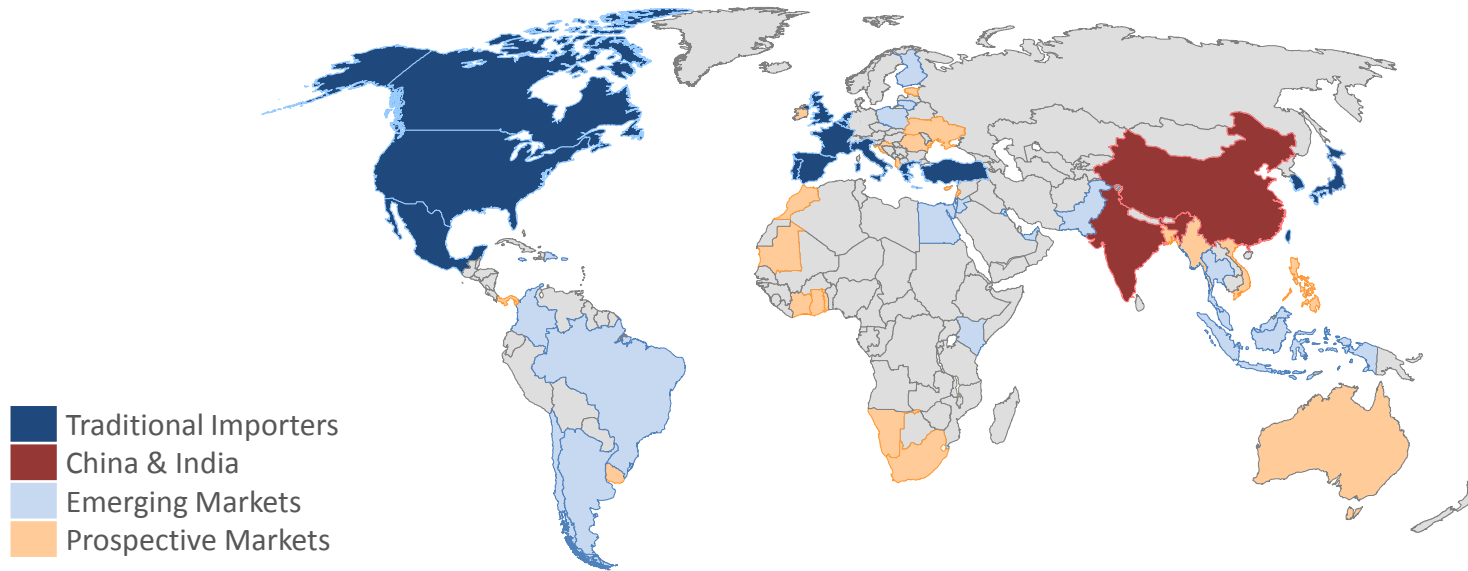
New LNG Demand Growth by Project

Several new markets for LNG which emerged over the past four years have shown significant import growth as LNG prices remain low



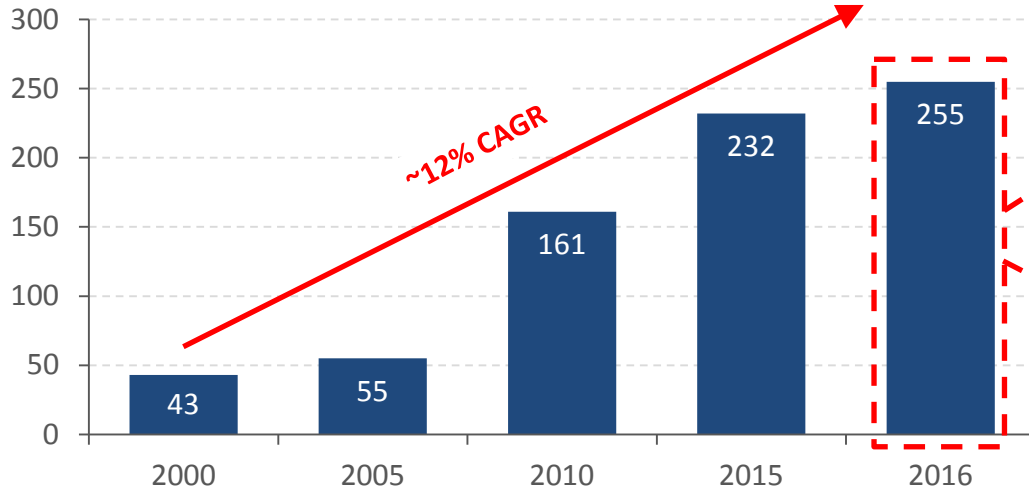
* Floating storage and/or regasification solution

The LNG Global Trade Has Grown Increasingly Complex

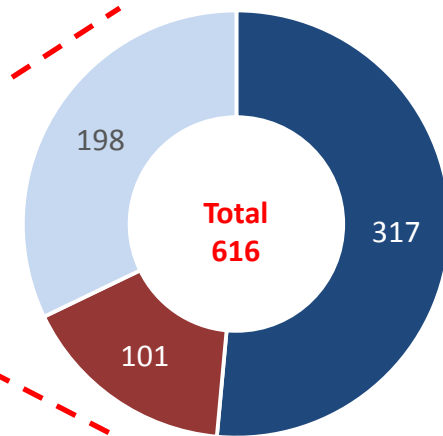


of Country-to-Country Trade Routes

of Trade Routes



of Port-to-Port Trade Routes



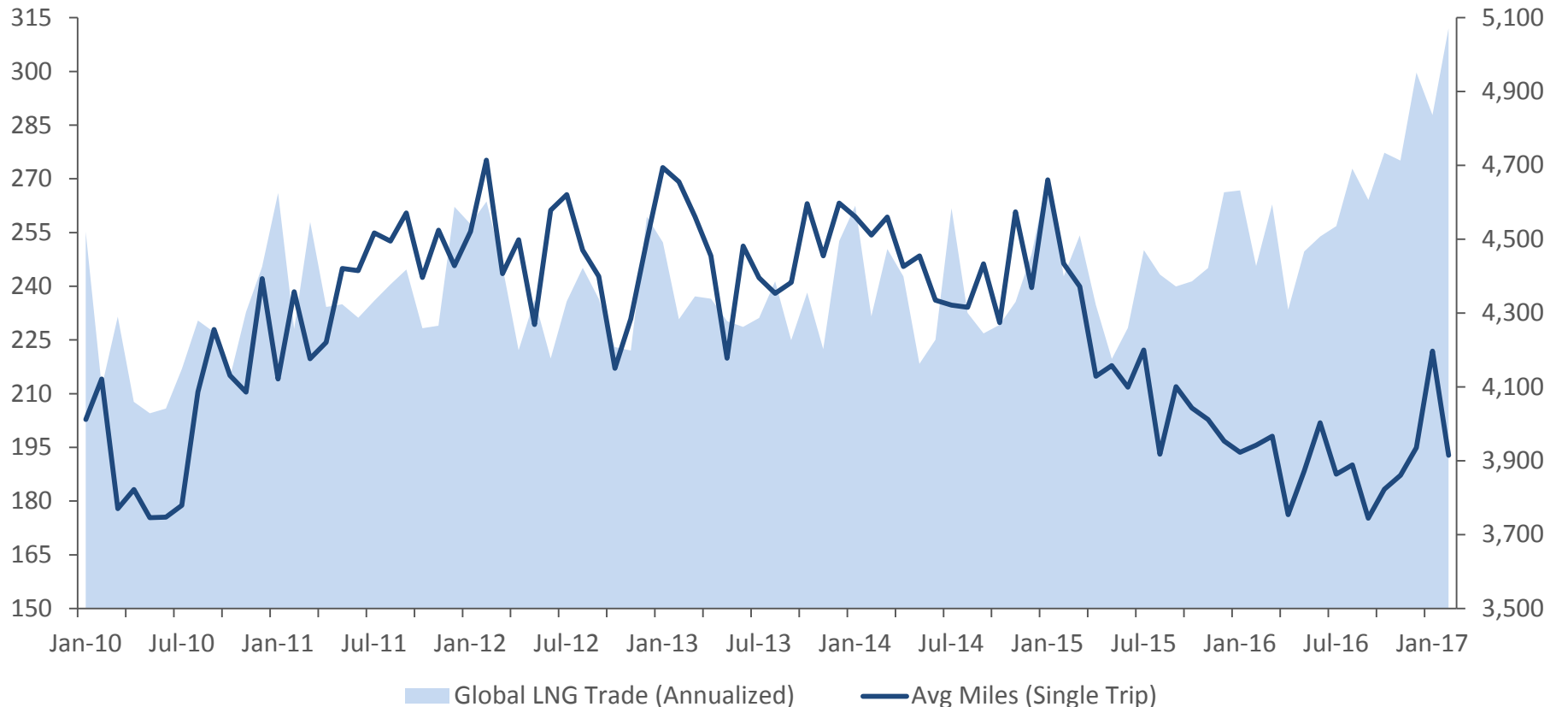
Vessel Demand Drivers

Vessel demand is determined by the amount of LNG traded globally, the average distance travelled per voyage, and the idle time between cargo liftings

Tons Traded Versus Average Miles

Million Tons Traded (annualized)

Average Miles



Idle Time Between Cargo Liftings Has Material Impact on Vessel Supply-Demand

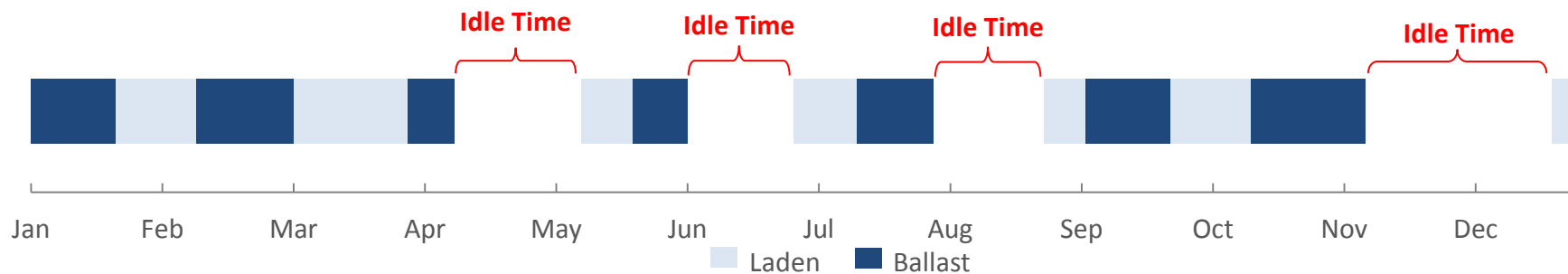
An example of a vessel delivering approximately 770,000 tons of LNG in 2016

- Equal to approximately 1.3 vessels for every ton of LNG delivered

Indicative Vessel Trade Flows (2016)

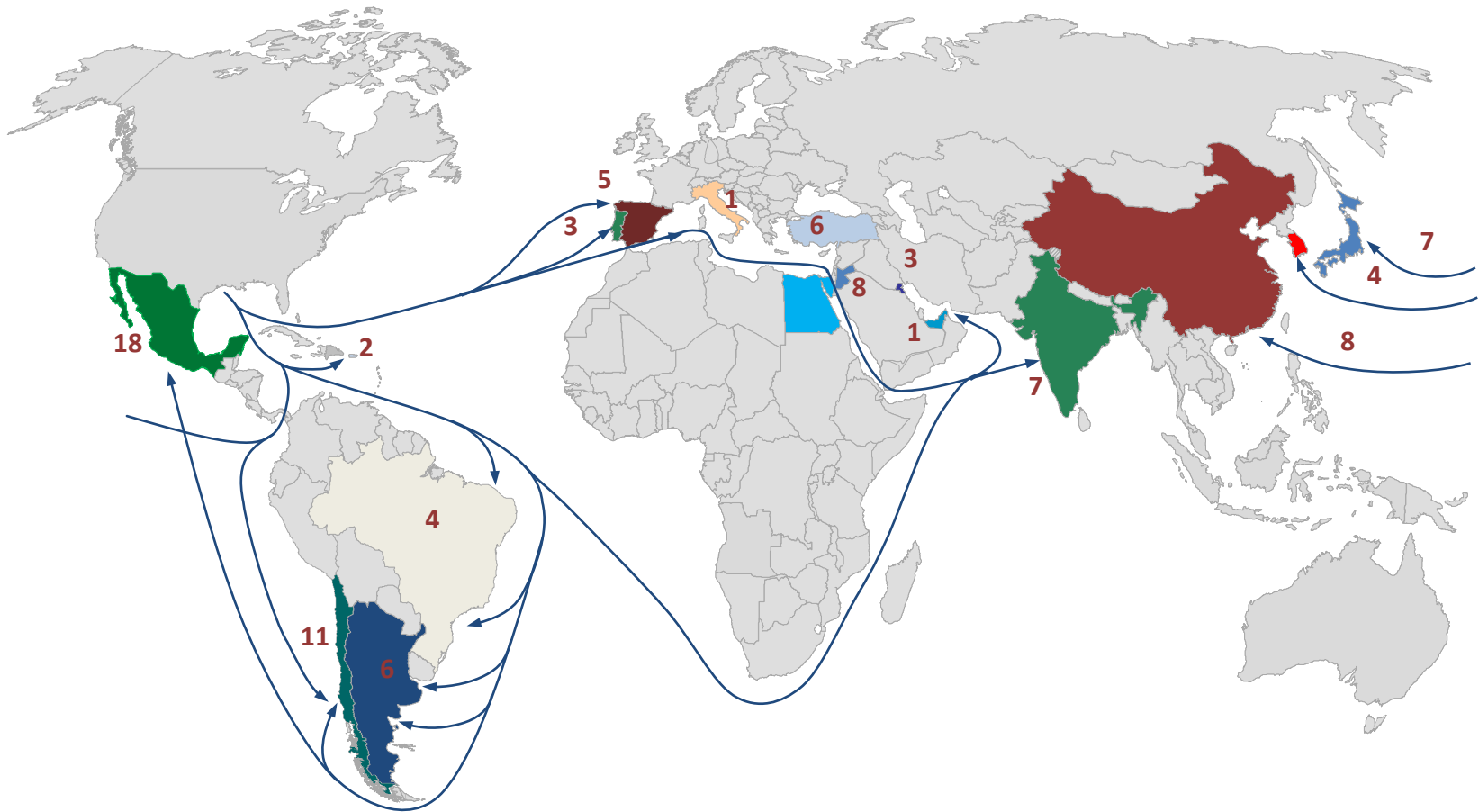


Vessel Utilization (2016)



Recent Sabine Pass Shipping Behaviour: Exports Feb 2016 – Mid-March 2017

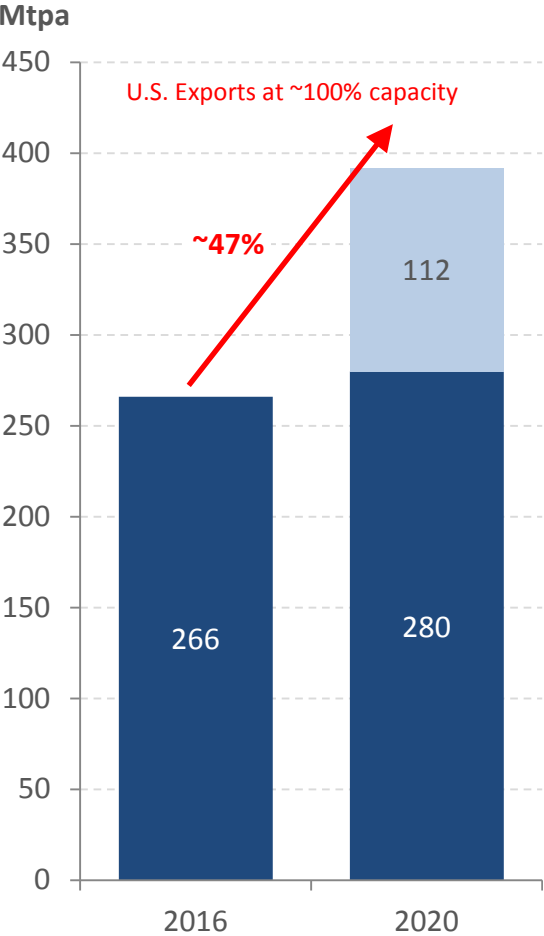
Recent trading patterns (as of March 2017) from Sabine Pass exports indicate 1.70 vessels (160,000 m³) are required on average for each million tonne of LNG exported



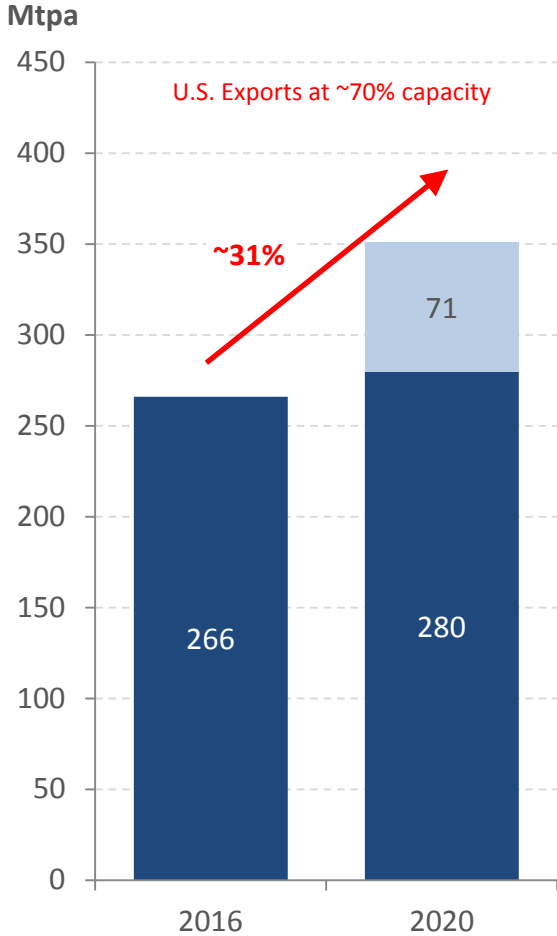
The number of cargoes imported into each country is highlighted

Fleet Growth is Less than Capacity and/or Global Trade Growth

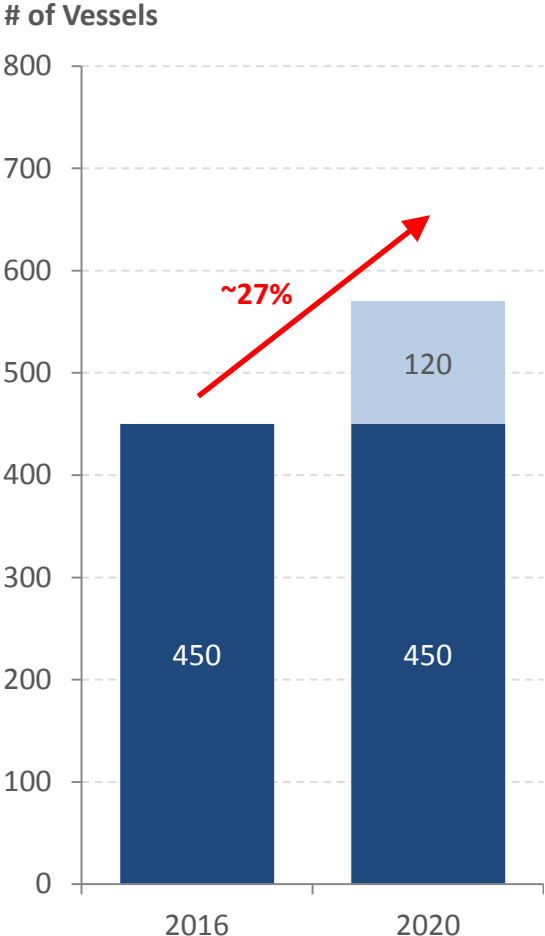
LNG Export Forecast – High Case



LNG Export Forecast – Base Case



LNG Fleet Growth Forecast



■ New Projects ■ Existing LNG Projects

■ New Projects ■ Existing LNG Projects

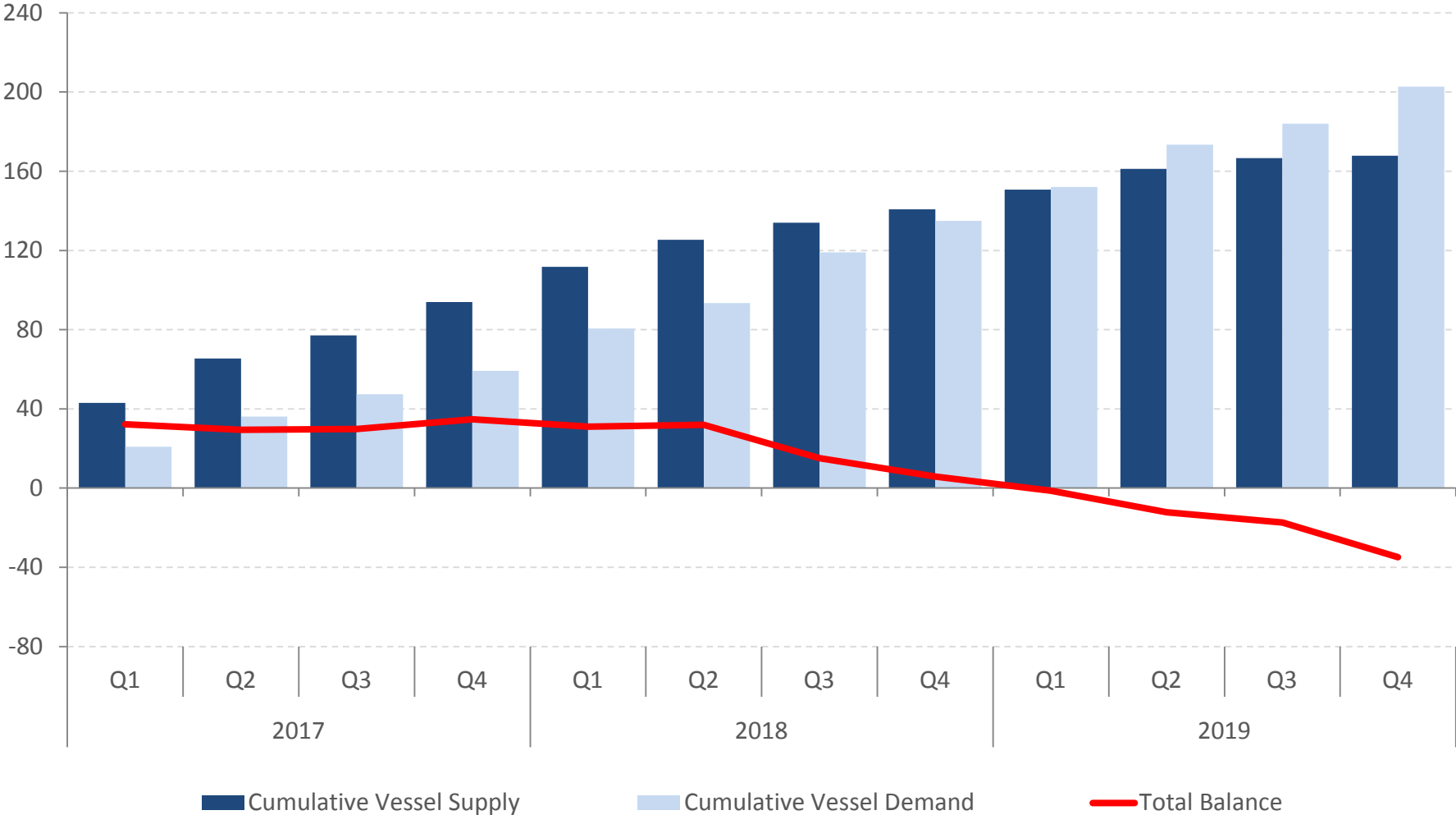
■ 2020 Fleet Size ■ 2016 Fleet Size

*Difference in production of Existing LNG Projects includes ramp up of existing production less the loss of existing production

LNG Shipping Long-Term Supply-Demand, Incremental Balances by Quarter

Cumulative Incremental Shipping Balance per Quarter

of Vessels, normalized to 160,000m³



Legal Implications of Changing LNG Trading Patterns

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Legal Implications of Changing LNG Trade Patterns

- Changing global trade patterns have significant implications for the contracting process for the sale and maritime transportation of LNG (and the associated financing of these activities)
- The development of spot trading markets in LNG, and the reduced importance of long-term supply and purchase relationships, require a new approach to contracting priorities

Legal Implications of Changing LNG Trade Patterns

- New and improved LNG technologies (e.g. FLNG and FSRU) also generate the need for new contracts and approaches to legal risk management



Legal Implications of Changing LNG Trade Patterns

- Large-scale long-term projects involving established LNG suppliers (e.g. Qatar) and purchasers (e.g. Japan and Korea) remain hugely important in global energy terms
- Increasing demand for LNG supply, primarily from from developing nations seeking cleaner energy solutions (e.g. China), coupled with a broader range of sources of supply (e.g. US shale), have generated a range of completely new LNG sellers and buyers
- LNG is no longer used simply for power production in large developed economies; its use in other sectors (e.g. marine propulsion) is certain to increase

Legal Implications of Changing LNG Trade Patterns

- In consequence of these commercial developments, “secondary” markets, in which LNG is traded as an energy commodity, have rapidly developed to meet changing patterns of global supply and demand
- The development of spot trading markets in LNG, and the reduced importance of long-term supply and purchase relationships, require a new approach to contracting priorities



Legal Implications of Changing LNG Trade Patterns

- For LNG buyers, many existing large-scale projects, including those under construction expected to come on line in next few years, are almost fully contracted with long-term LNG purchase contracts
- For U.S. export facilities coming on line in the U.S. in response to the shale revolution, almost all capacity was sold under long-term FOB SPAs or under tolling agreements, to support project financing
- Newer SPAs in the U.S. tend to be tolling arrangements (with no long-term offtake obligation by the Buyer)

Legal Implications of Changing LNG Trade Patterns

- U.S. patterns are consistent with exporting gas from a liquid market
- The shift is pronounced in relation to buying intentions that relate to short and medium term needs, rather than the long-term – this will effect project capacity utilization expectations
- Buyers will need to be aware of the impact of these changes on project financing – buyer-friendly terms are great for buyers only if the project can be built
- These changes also impact who arranges and bears the risk for the transportation of the LNG

Legal Implications of Changing LNG Trade Patterns

- All these changes are resulting in a fundamental shift in the nature and scope of many LNG transportation contracts (with implications for construction and financing of vessels)



Legal Implications of Changing LNG Trade Patterns

- The “traditional” LNG transportation contract was a long-term (10 – 20 year) time charter concluded between an established shipowner and a major utility company engaged in large scale power production
- Such contracts provided income streams against which newbuilding vessels could be constructed and financed; project risks were typically technical (e.g. containment system issues) rather than commercial or credit risks

Legal Implications of Changing LNG Trade Patterns

- The development of secondary global LNG markets, coupled with improvements in liquefaction, regasification, containment and tanker construction technologies, have demanded and facilitated changes in transportation
- The trend is towards shorter term transportation contracts involving a larger range of volumes of LNG transported and a significant number of market participants – although technical and regulatory barriers to entry continue to restrict the number of transportation providers (i.e. shipowners) willing and able to compete for LNG transportation demand

Legal Implications of Changing LNG Trade Patterns

- These changes have altered LNG transportation contracting practices, which typically were in the form of (i) time charter, (ii) voyage charter, and (iii) COA
- The market change from long term to shorter term time charters and voyaging contracting leads to greater counterparty and country risk with more market participants
- This creates new risks from the perspective of the shipper seeking security of transportation as well as the shipowner seeking security of payment

Legal Implications of Changing LNG Trade Patterns

- Such risks can be managed in contract terms, some of which are now much more likely to be put to the test than a few years ago:
 - Tax clauses
 - Piracy clauses
 - Sanction clauses
 - Performance and/or payment guarantees

Legal Implications of Changing LNG Trade Patterns

- The on-going development of FSRU and FLNG industries has resulted in specialized contracts for this type of vessel, with their own bespoke set of terms. A few important examples:
 - Tax clauses including initial setup
 - “Stabilization” clauses and “local content”
 - Remuneration clauses providing for various rates and Opex escalation
 - Performance and/or payment guarantees
 - Termination payment

Legal Implications of Changing LNG Trade Patterns

- As trade patterns develop, further changes to the contracting practice will occur in the future. Contract forms need to continue to evolve in light of changing market conditions and massive global political uncertainties e.g. North Korea, Iran and Saudi Arabia
- For reasons of risk mitigation, there is a need for clarity of contract terms, reliable governing law and robust jurisdiction
- We would expect further involvement of the law in managing risks and lawyers acting as critical advisers

Legal Implications of Changing LNG Trade Patterns



Summary of Expected Impact on Shippers, Projects and Financing

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Impact on Shippers

- Pressure on shippers
- New players/partners/counterparties
- Impact of spot market for supply
- Confronting a world of distributed power

Impact on Projects

- New locations and project sizes
- Horizontal development
- Marine element unpredictable
- Development of new delivery systems

Impact on Financing

- Changing Capital Needs
 - Smaller tranches
 - Shorter term
 - Greater flexibility

- Horizontal Project Development

A Few Concluding Thoughts and Questions

- Will abundant supply continue?
- Will “virtual shipping” emerge?
- Will FLNG/FSRU sourcing/value change?
- Will there be an increased emphasis on redundancy?

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