

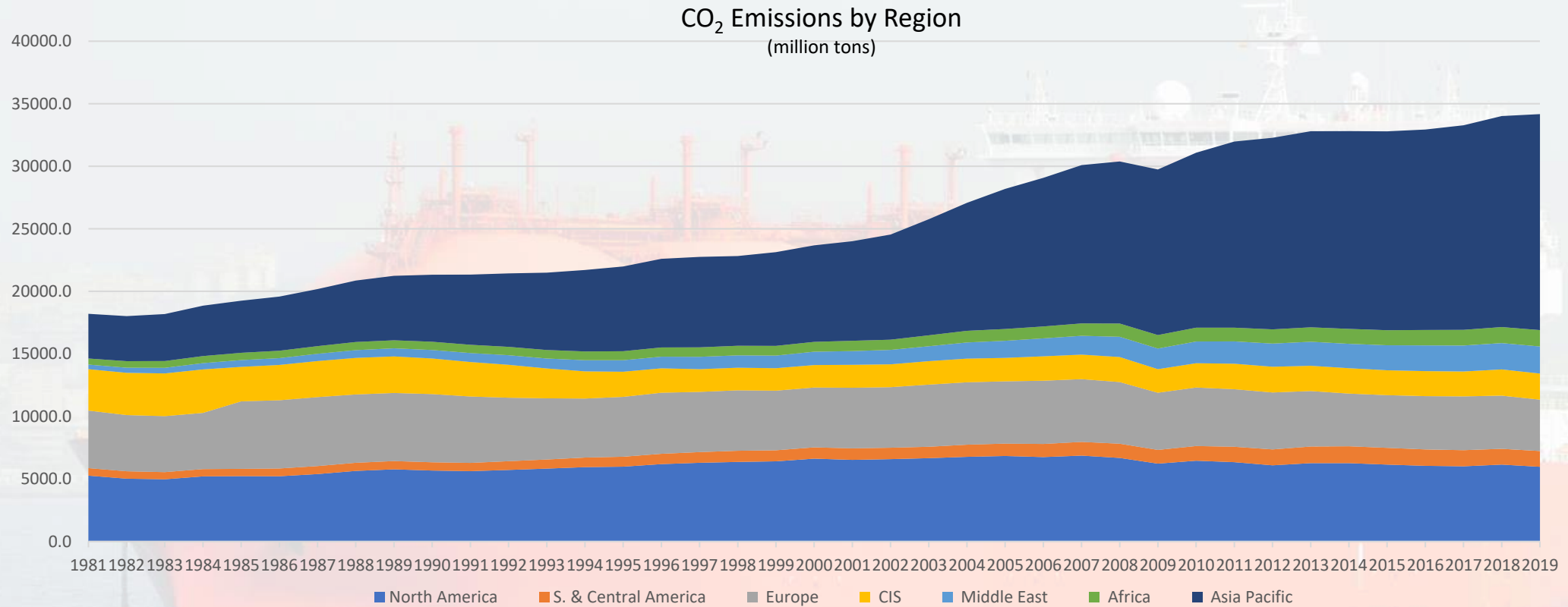
# Creating Favorable Investment Climates and Economic Conditions for Natural Gas in the Indo-Pacific

The Role of Government Officials

Andreas D. Thanos

15 September 2020

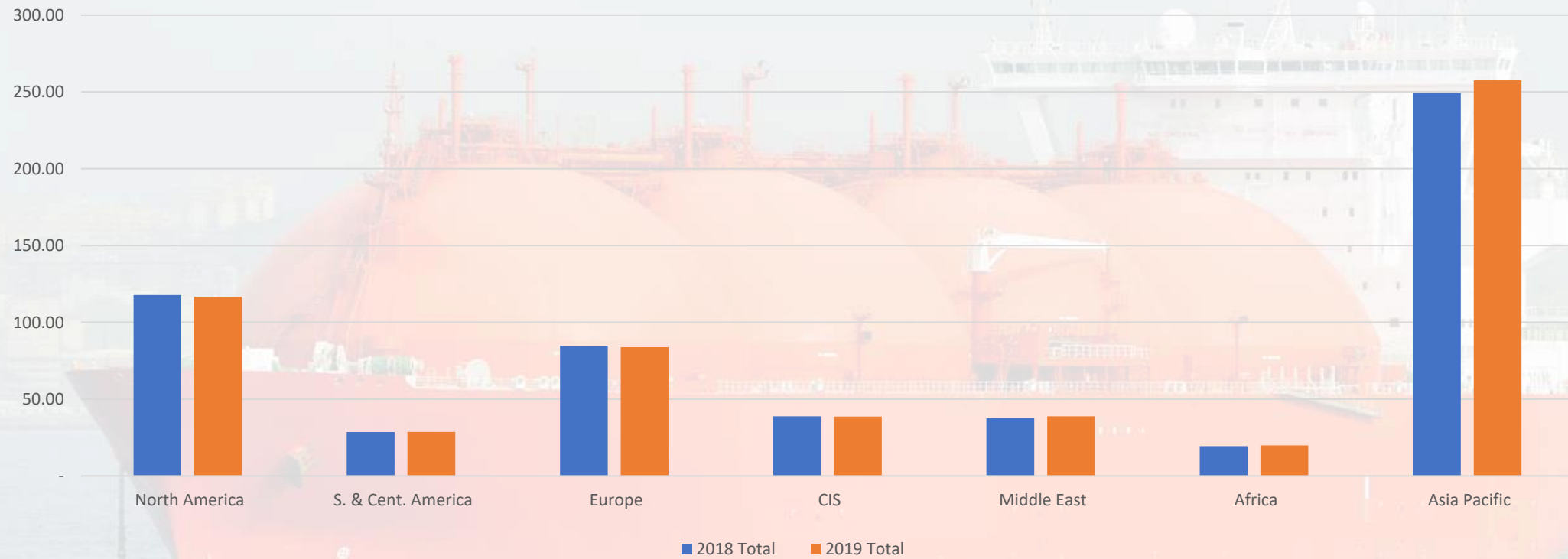
# Why?



Source: BP Statistical review 2020

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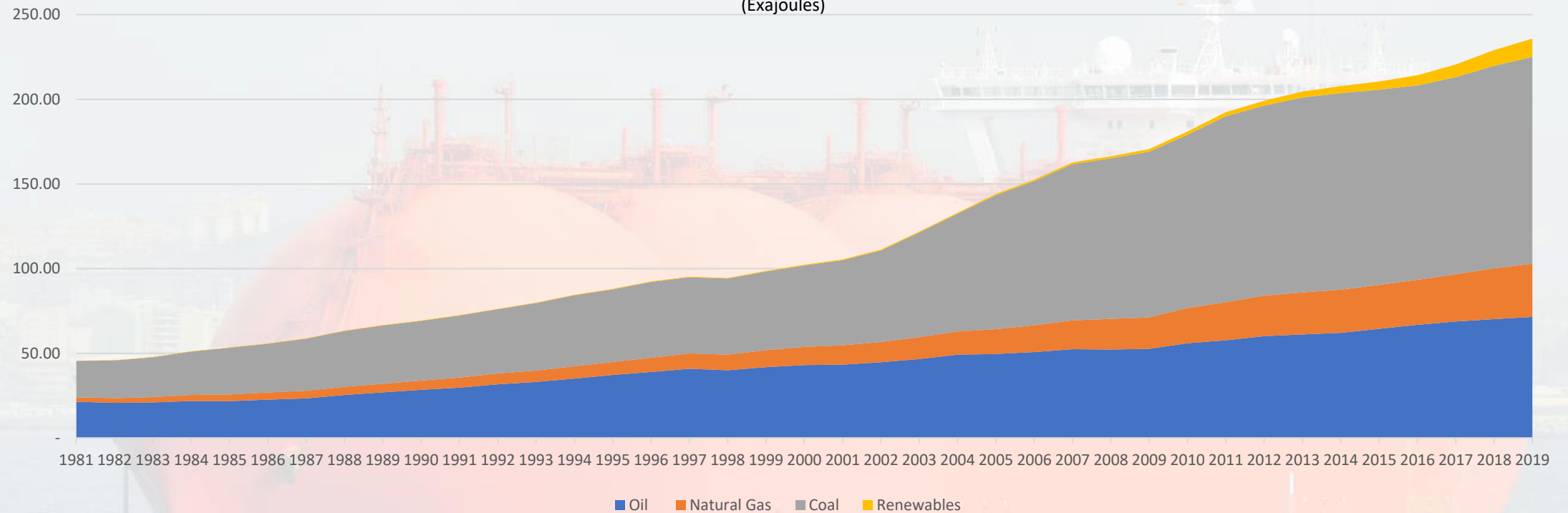
Primary Energy Consumption  
(Exajoules)



Source: BP Statistical review 2020

# Why?

Energy Consumption -- Asia Pacific  
(Exajoules)



Source: BP Statistical review 2020

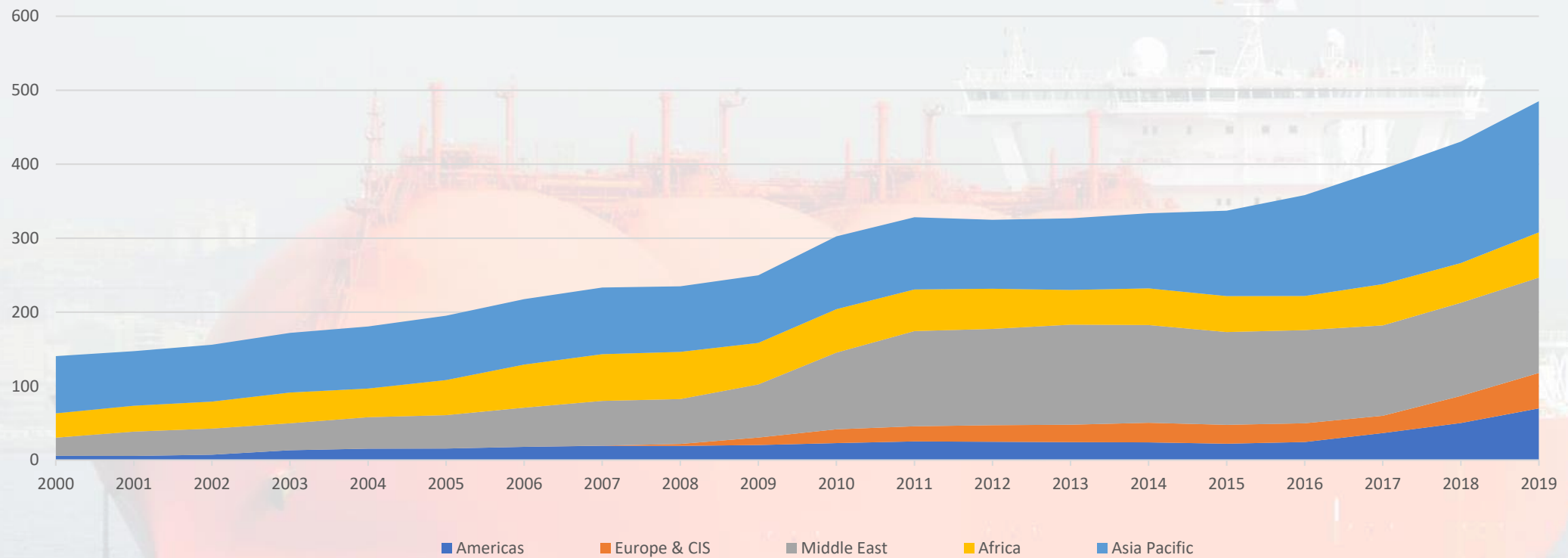
# Why LNG?

- Abundant
- Competitively Priced
- Environmental Benefits
- Easily “Transportable”

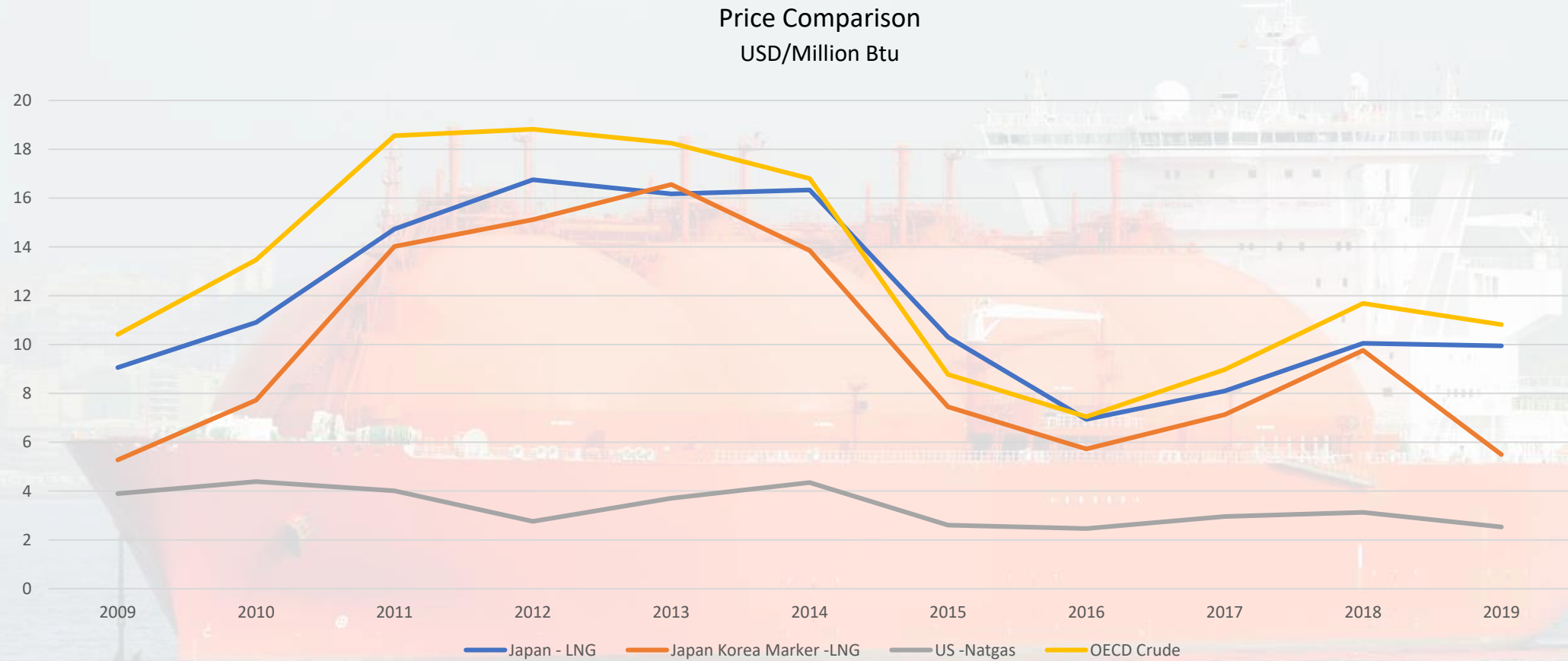


# Abundant

LNG Exports by Region (Bm<sup>3</sup>)



# Price *Can* be Independent of Cartels



# Combustion of Natural Gas is a Cleaner Process

## CO<sub>2</sub> Emissions by Fuel

Carbon Dioxide (CO <sub>2</sub> ) Factors:	Lb CO <sub>2</sub>	Kg CO <sub>2</sub>	Lb CO <sub>2</sub>	Kg CO <sub>2</sub>
	Volume or Mass	Volume or Mass	Million Btu	Per Million Btu
<b>For homes and businesses</b>				
Propane	12.70 gallon	5.76 gallon	139.05	63.07
Butane	14.80 gallon	6.71 gallon	143.20	64.95
Butane/Propane Mix	13.70 gallon	6.21 gallon	141.12	64.01
Home Heating and Diesel Fuel (Distillate)	22.40 gallon	10.16 gallon	161.30	73.16
Kerosene	21.50 gallon	9.75 gallon	159.40	72.30
Coal (All types)	4,631.50 short ton thousand	2,100.82 short ton thousand	210.20	95.35
Natural Gas	117.10 cubic feet	53.12 cubic feet	117.00	53.07
Gasoline	19.60 gallon	8.89 gallon	157.20	71.30
Residual Heating Fuel (Businesses only)	26.00 gallon	11.79 gallon	173.70	78.79



# Environmental Benefits #2

- LNG/Natural Gas is the only fuel that can be relied on to generate electricity when intermittent renewable sources are not available.
  - Speed of ramping up
  - Lower emissions



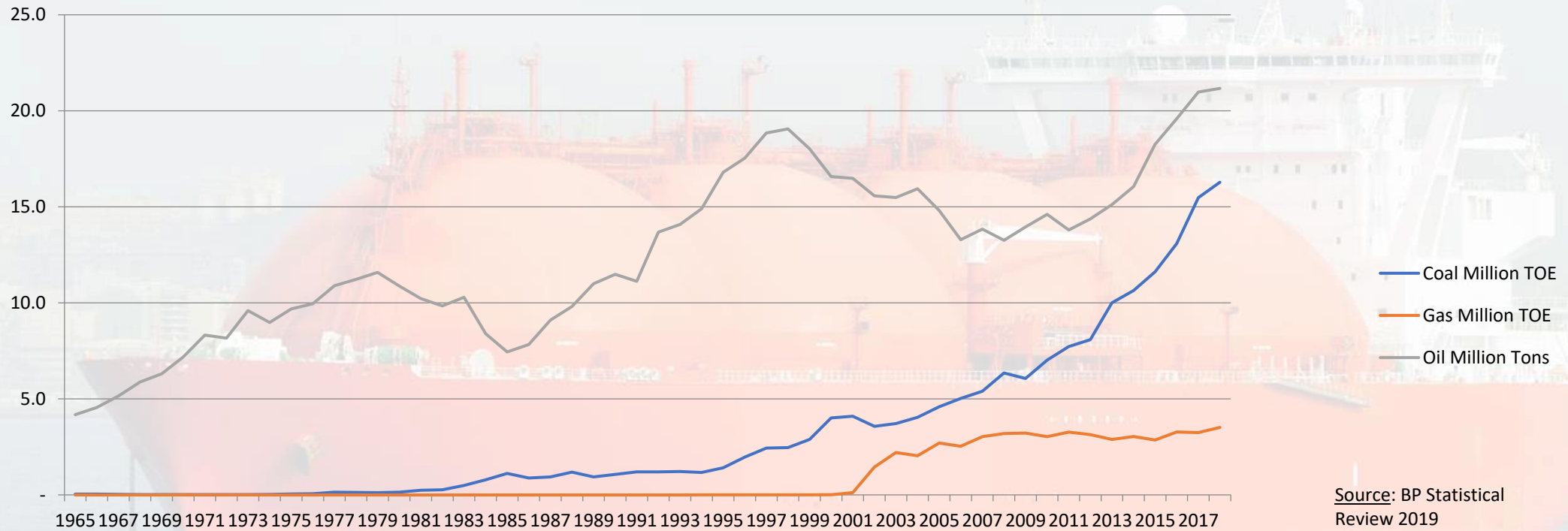
# Importance of LNG

- An essential element of a country's energy mix. Examples
  - Philippines
  - India



# Philippines

Philippines' Energy Consumption (1965-2018)  
select fuels

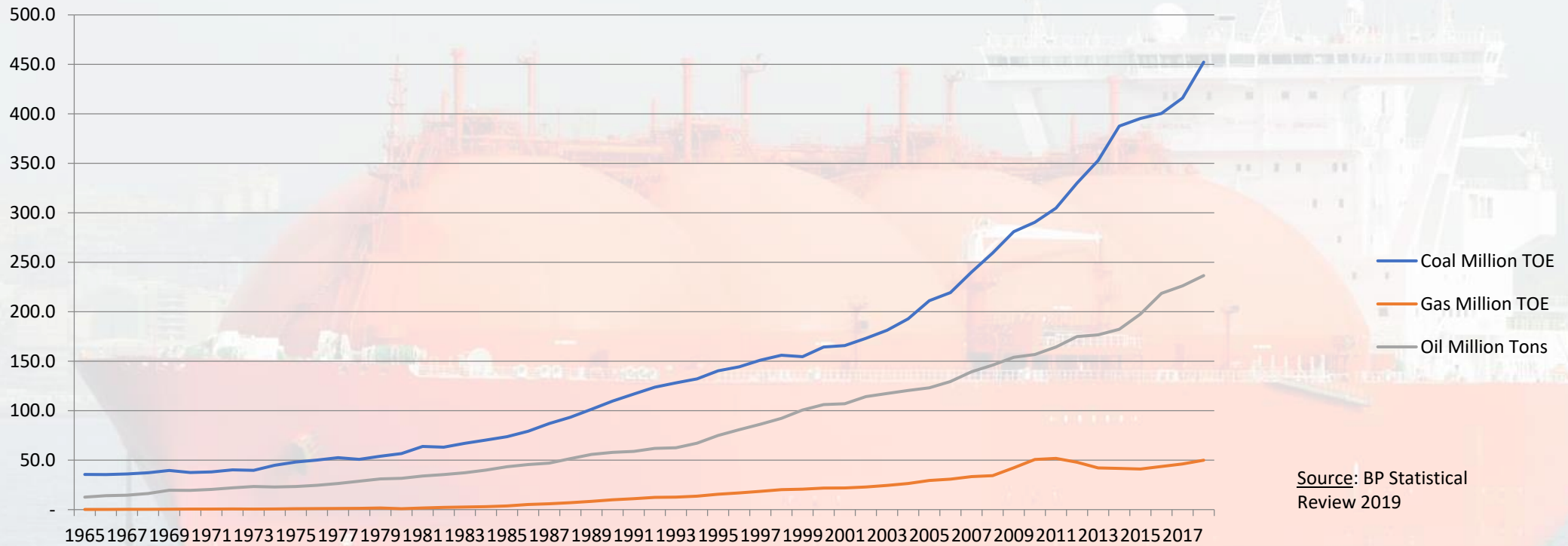


Source: BP Statistical Review 2019

# India

## India's Energy Consumption (1965-2018)

select fuels



# Why LNG?

- Lower CO<sub>2</sub> emissions
- Can be transported like oil; vessels/non-pipes alternative
- Not subject to cartel-based price fixing
- Abundant
- After initial infrastructure development, expansion to address growth is easier
- Power generation
- Commercial & Industrial (processes, fertilizer, heating, cooling)
- Residential (heating, cooking, hot water)
- Transportation (marine and land-based)

# LNG Production to Market

Gas Production, Liquefaction & Storage



LNG Carrier



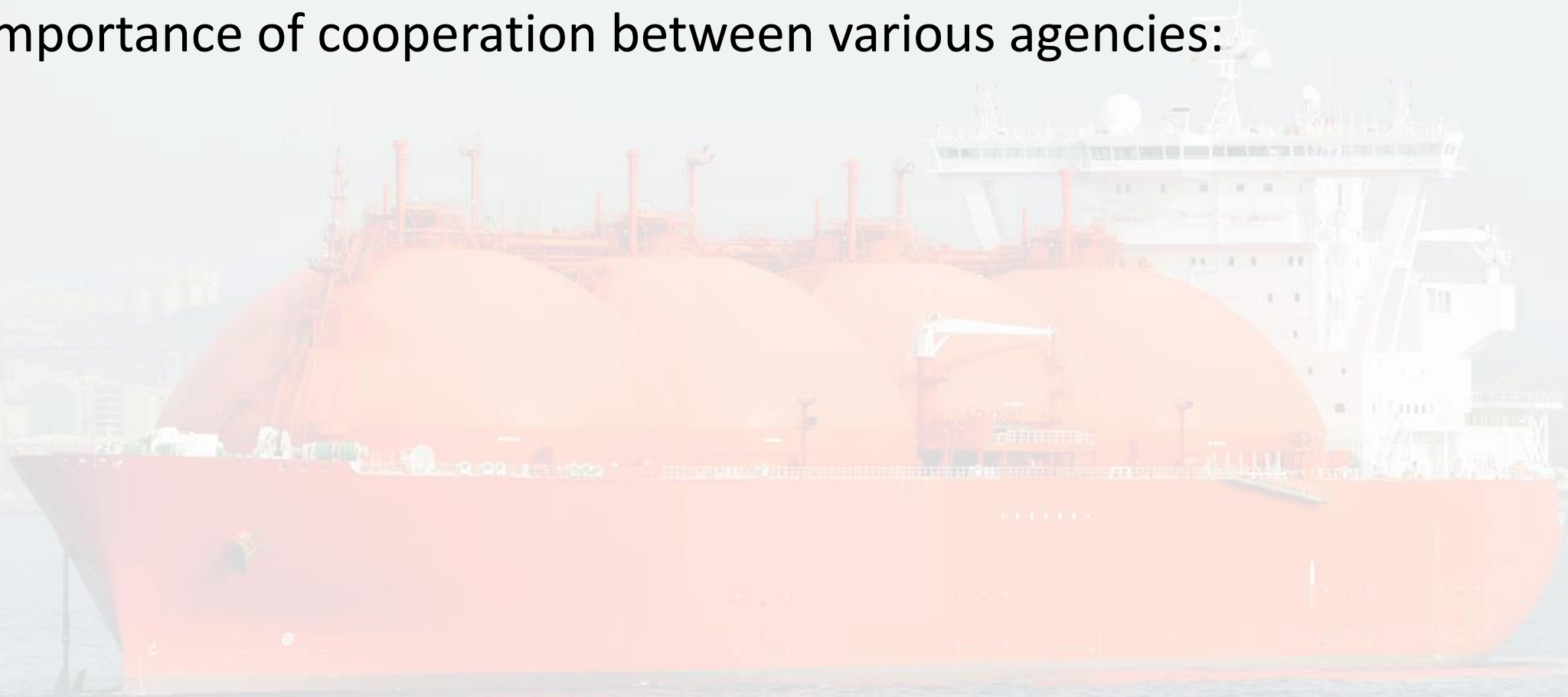
Import Terminal – Regasification



Gas Pipelines – Power Plants – End Users

# Cooperation Between Government Agencies

- Importance of cooperation between various agencies:



# Cooperation Between Government Agencies

(lessons to learn from/reference)

- In the U.S. there are 3 primary entities that are involved in the LNG process: US DOE, FERC and PHMSA
  - US DOE authorizes exports/imports
  - FERC: Environmental, Economic, Energy Policy
  - PHMSA: Safety
- Involvement in the LNG market was established when the U.S. was an LNG importer
- Cooperation continues and the agencies continue in their efforts to streamline the process.

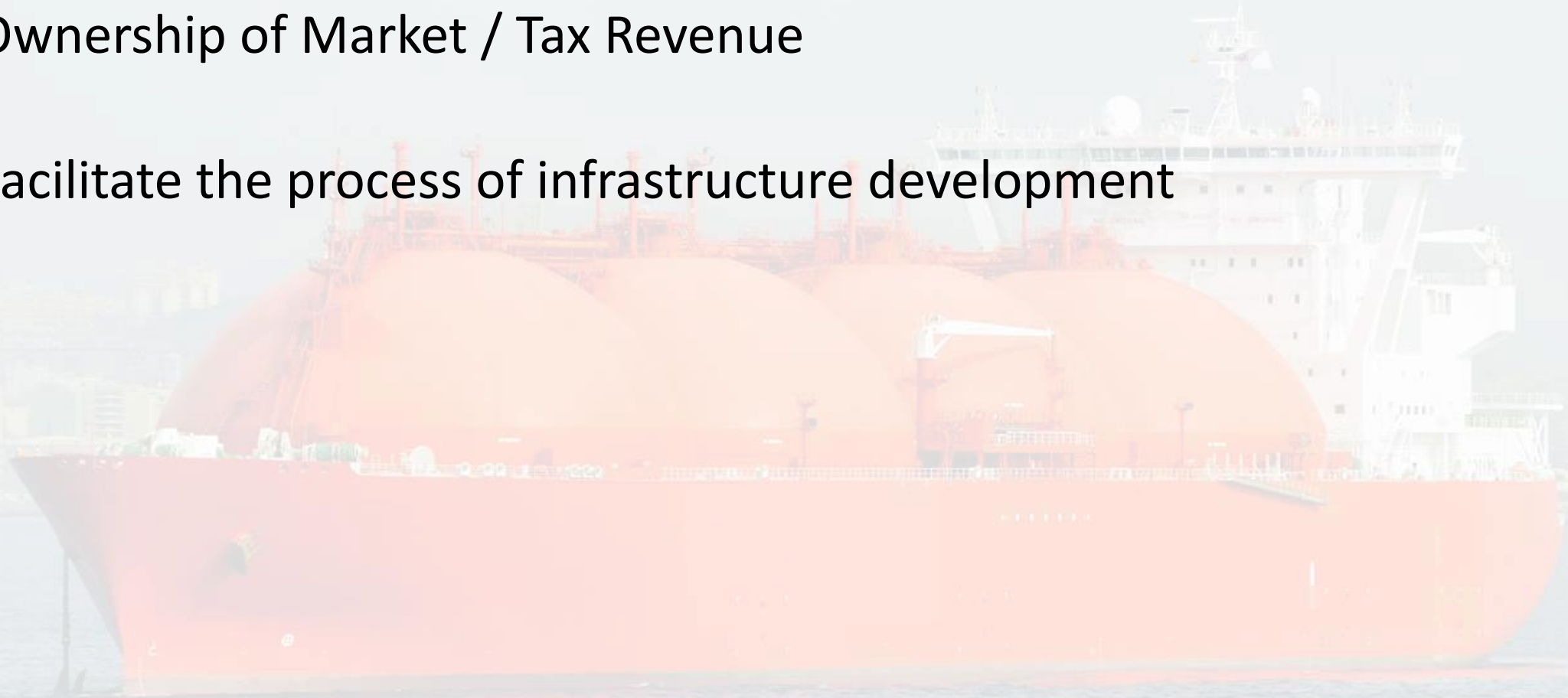


# Impediments to Development of Market

- Domestic Laws
- Project Financing
- Development of Infrastructure
- Alliances between countries (defense, political or trade)
- Cabotage

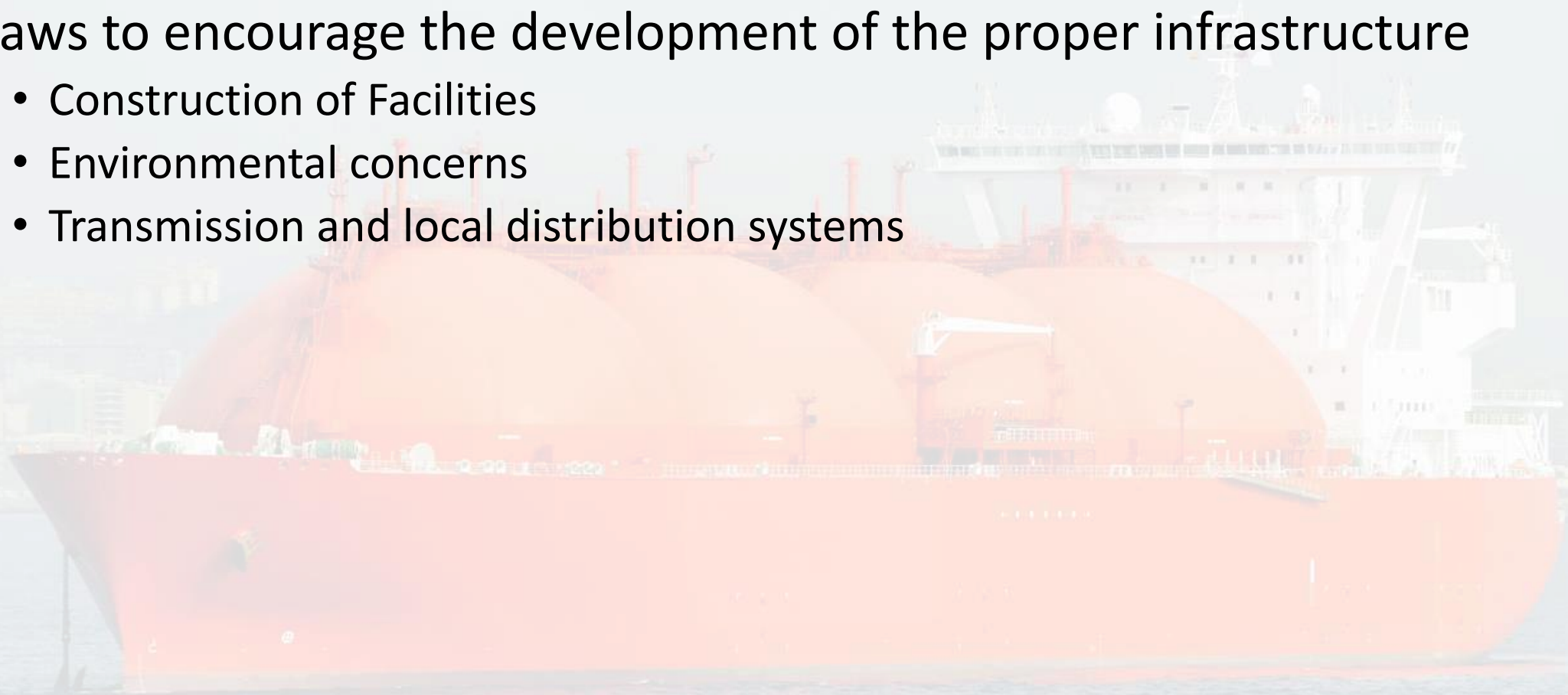
# Domestic Laws

- Ownership of Market / Tax Revenue
- Facilitate the process of infrastructure development



# Domestic Laws

- Laws to encourage the development of the proper infrastructure
  - Construction of Facilities
  - Environmental concerns
  - Transmission and local distribution systems



# Project Financing

- Allowing the development of a privately owned, yet regulated, market will encourage investment
- Investment will lead to competition
- Competition will lead to more efficient pricing
- Efficient pricing will lead to additional investment

# Development of Infrastructure

- Location of Import Terminal
  - Access to one customer
  - Access to a region
- Allow for the inevitable possibility of expanding both import as well as regasification capacity
- Facilitate the initial development and future expansion of transmission and distribution systems

# Alliances Between Countries

- Political and Other Alliances
- Trade Disputes
- Domestic Needs of Producing Nations (Australia)



# Cabotage Laws

- “Coastal Trading” laws restrict the movements of certain vessels along ports within the same country.
- In the United States coastal trading is regulated by the 1920 Jones Act which exclusively reserves marine transportation between two points in the U.S. to vessels built, owned and flagged in the United State that are also manned by U.S. citizens.

# Government Actions

1. Decide to remove dirtier fuels from energy mix
2. Decide to encourage the development of a privately held energy market
3. Establish strategy to review and authorize LNG/Natural Gas infrastructure development
4. Ensure appropriate cooperation among government agencies to ensure the development of an LNG import infrastructure and market
5. Remove any unnecessary barriers/impediments (tariffs/cabotage)
6. Ensure a proper regulatory regime that minimizes regulatory costs while it ensures least cost, efficient and environmentally beneficial delivery of natural gas



# Recommendation

- The United States as a whole and individual states within the Union possess over 100 years of experience in the development and regulation of natural gas infrastructure and markets.
- The U.S. through trial and error, success and failure has reached a point of being both a significant producer and consumer of natural gas
- Government agencies like FERC & PHMSA at the Federal level, and state regulatory agencies can provide invaluable advice on matters relating to policy, infrastructure development and rate-making, among others

# Thank you

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