



Global LPG Trends 2017-2025



Gas Shipping Americas Conference – 22-23 May 2018

**Gas Shipping
Americas**

Agenda

Intro

LPG Market Overview

LPG Market Outlook

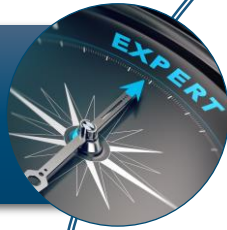
LPG Market Considerations

Final Thoughts

NGLS profile

*"Connecting high quality analytics
with commercial decision making"*

Commercial Advice



Consulting



Market Insights



Multiclient
Products



Retainer
Agreements



Training/Workshops



NGLS Expertise

LPG (Propane & Butane)

Ethane

Olefins and their feedstocks

Global petchem gases trade

Disclaimer

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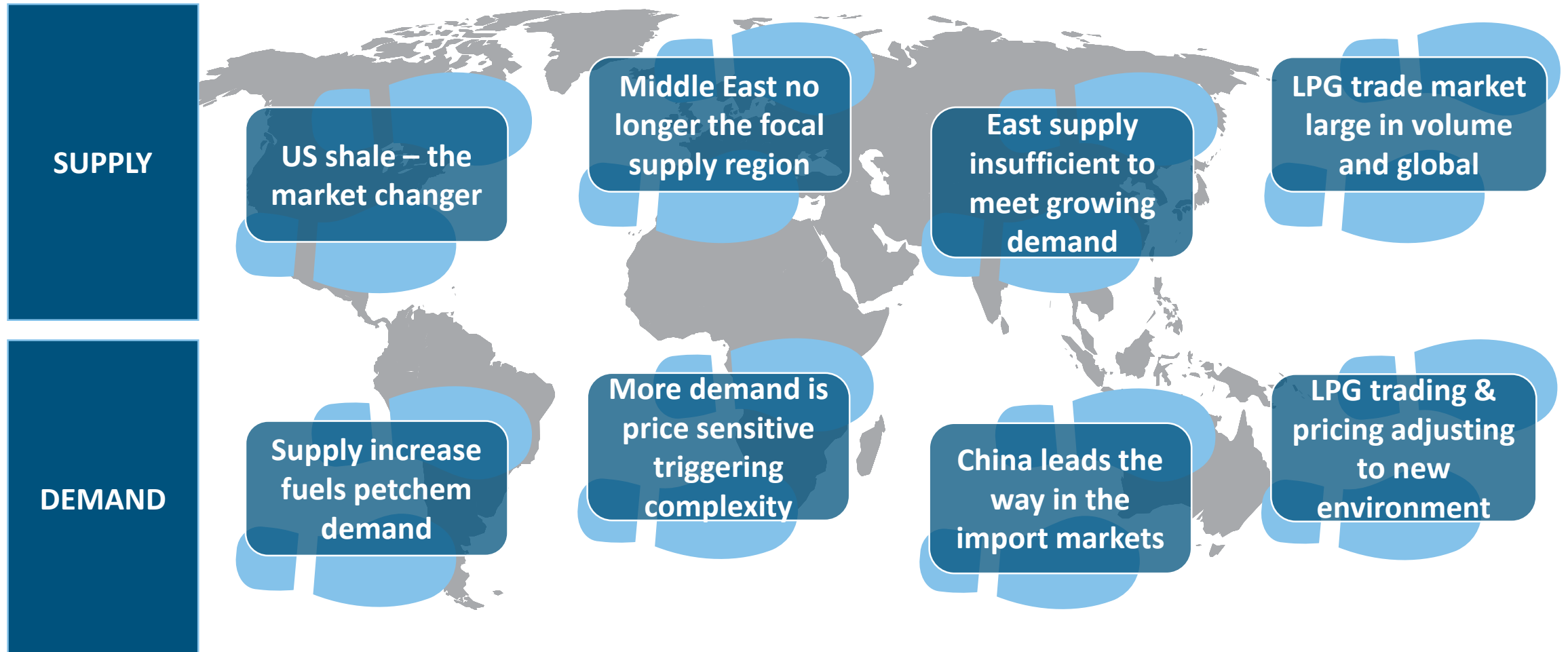
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Intro



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LPG market developments step by step



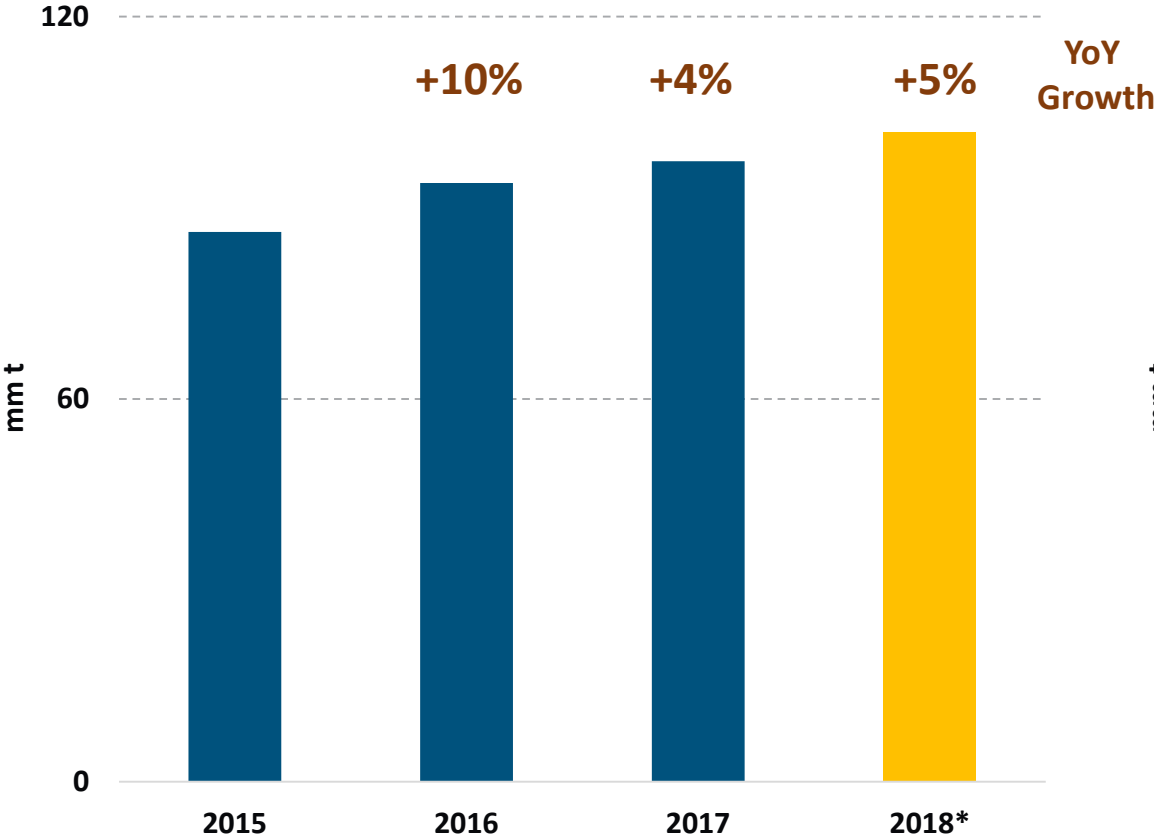
LPG Market Overview



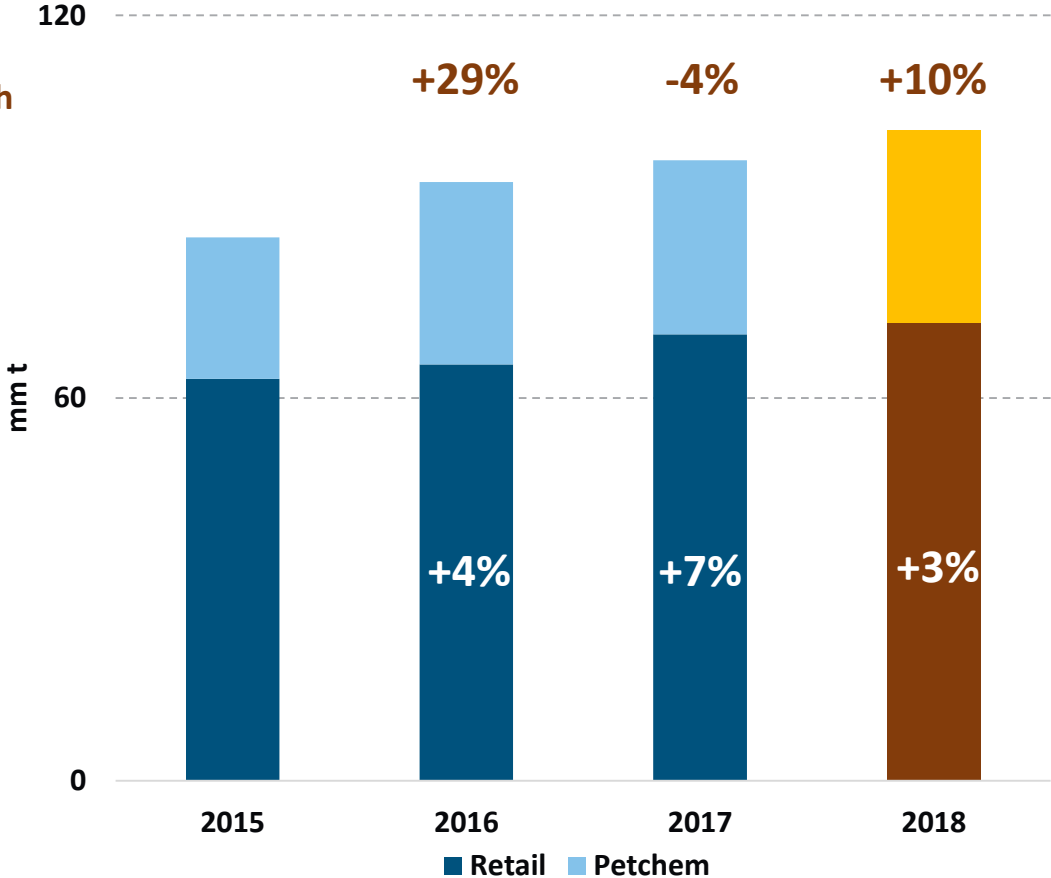
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Slow export growth/retail market decisive

Global LPG Export Growth



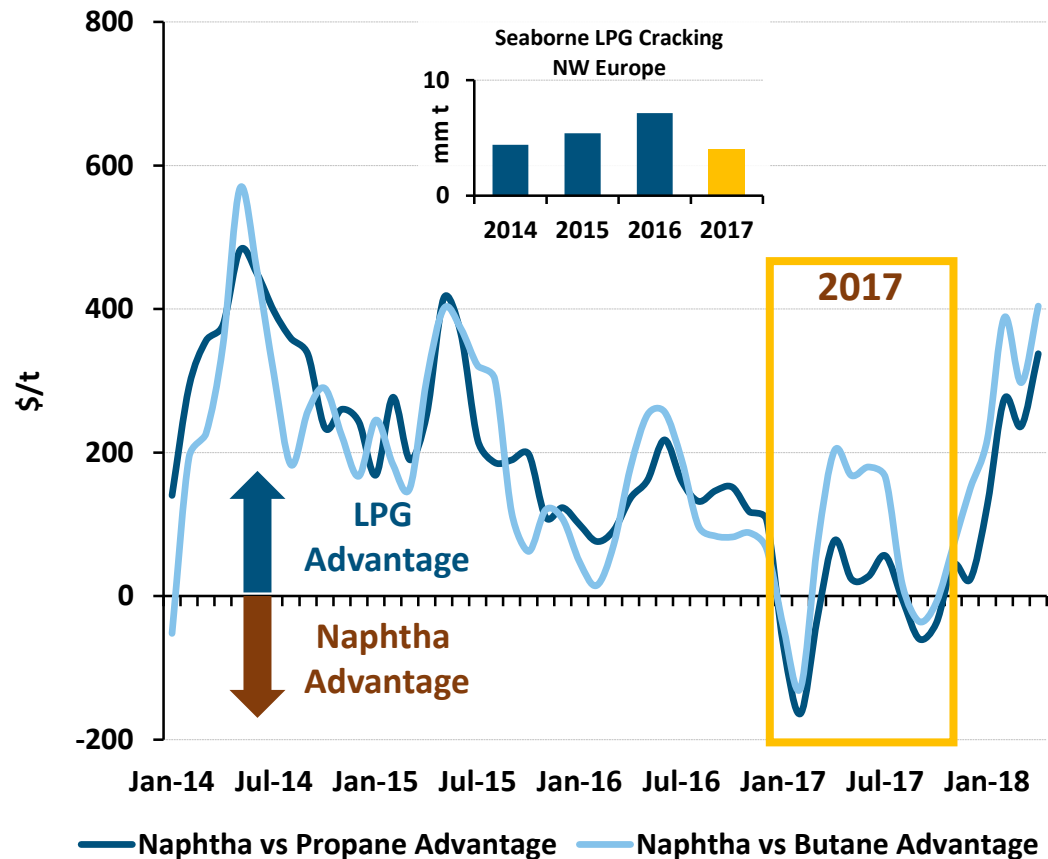
Global LPG Import Breakdown



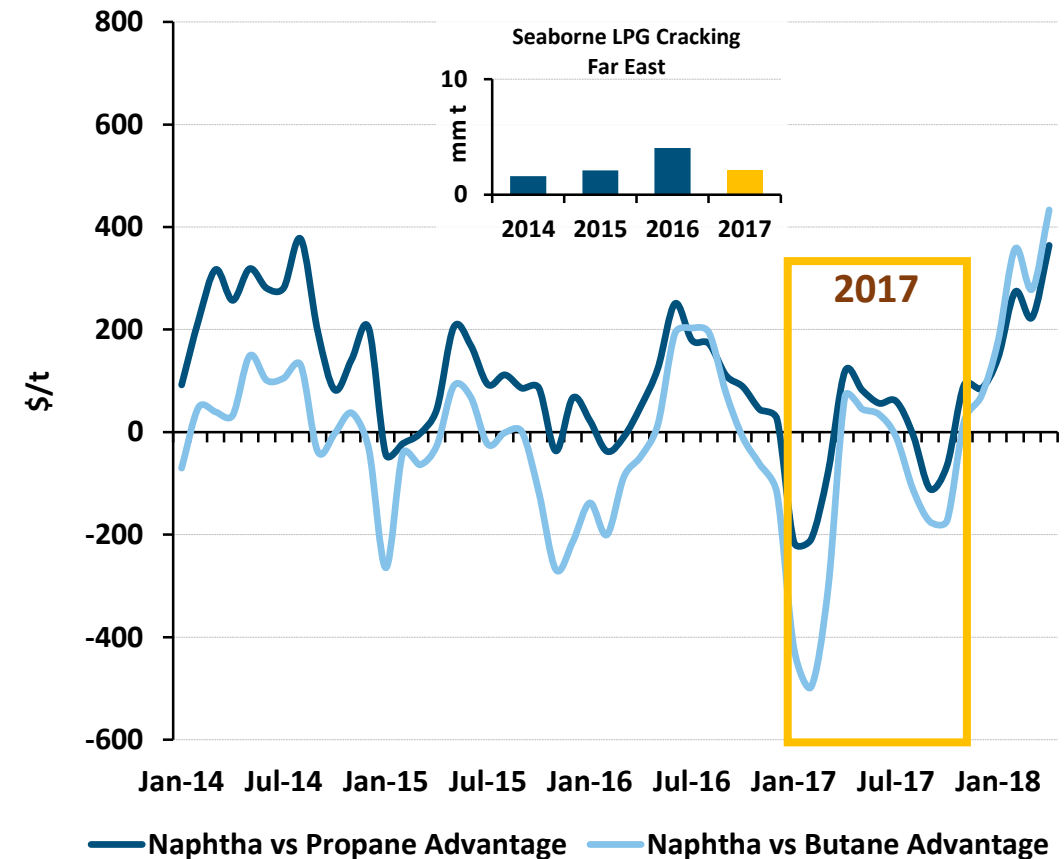
*Estimation

Sensitive petchem demand acts as a balancing mechanism

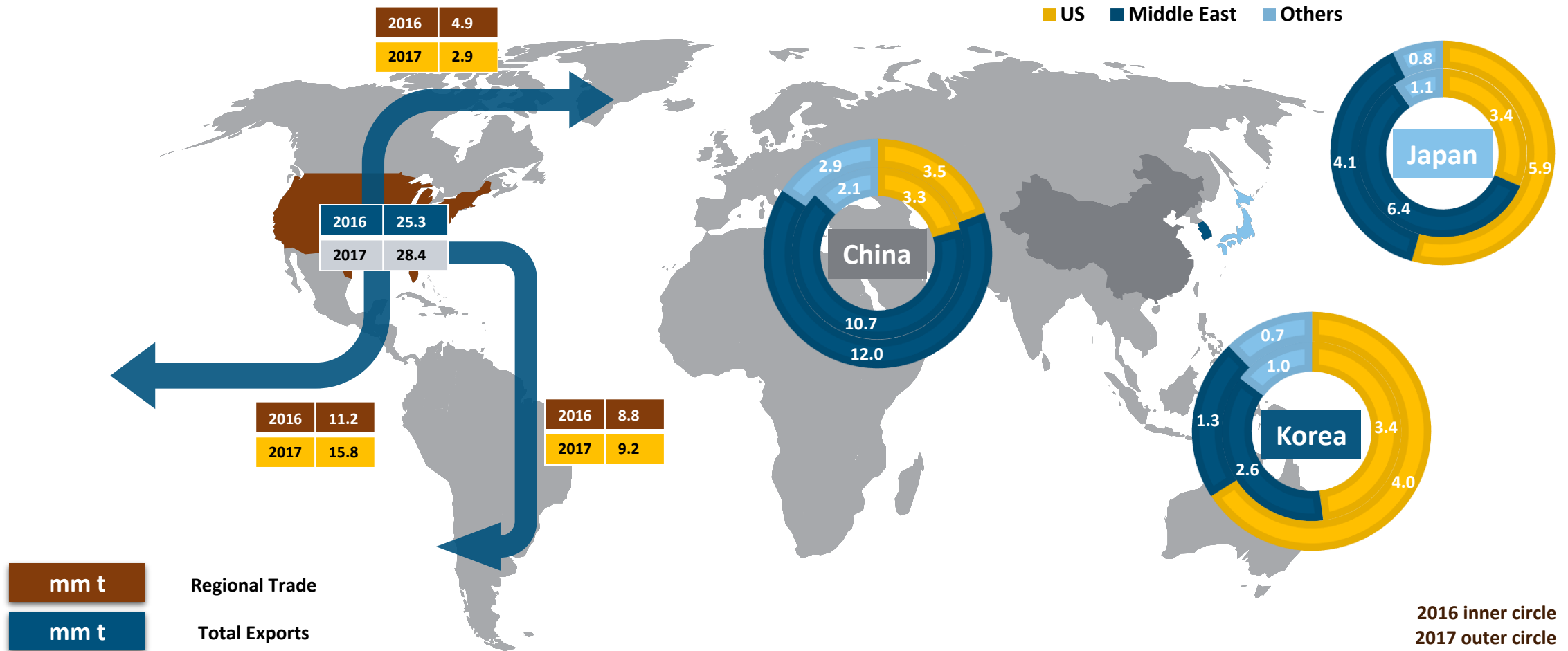
Cracker Incremental Cash Margins Advantage
N. Europe



Cracker Incremental Cash Margins Advantage
Far East

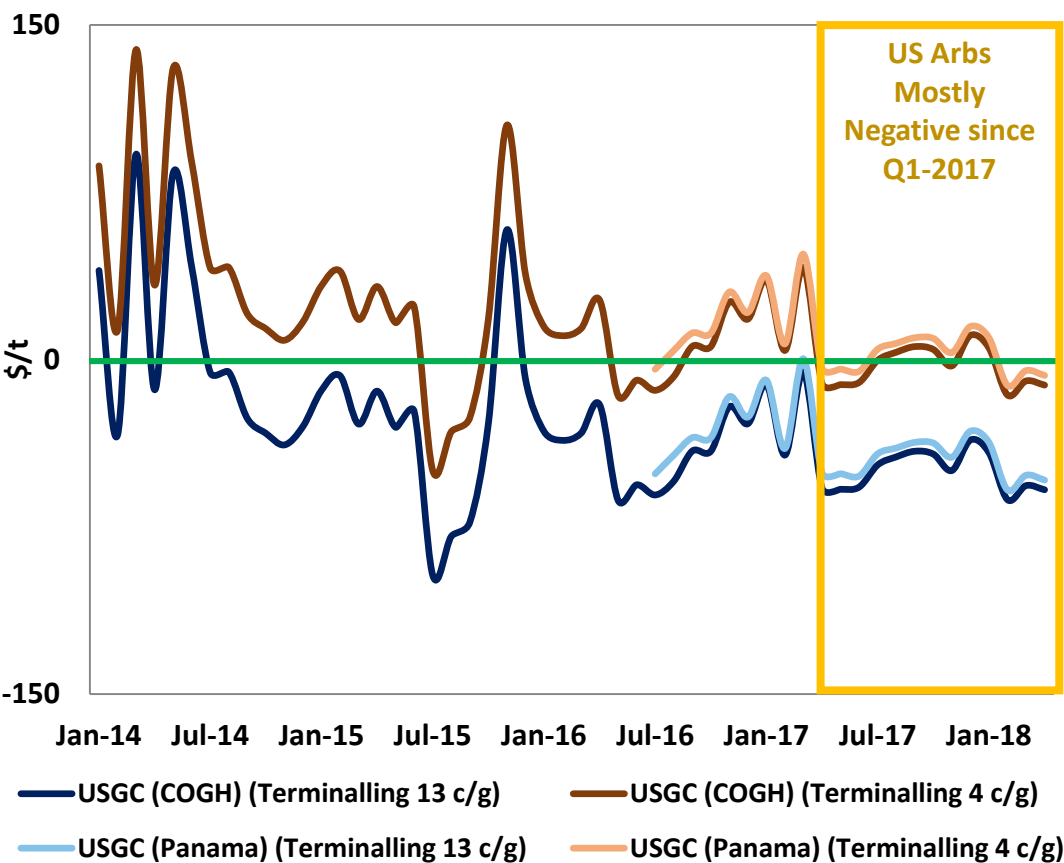


US exports head to the Far East displacing Middle Eastern volumes...

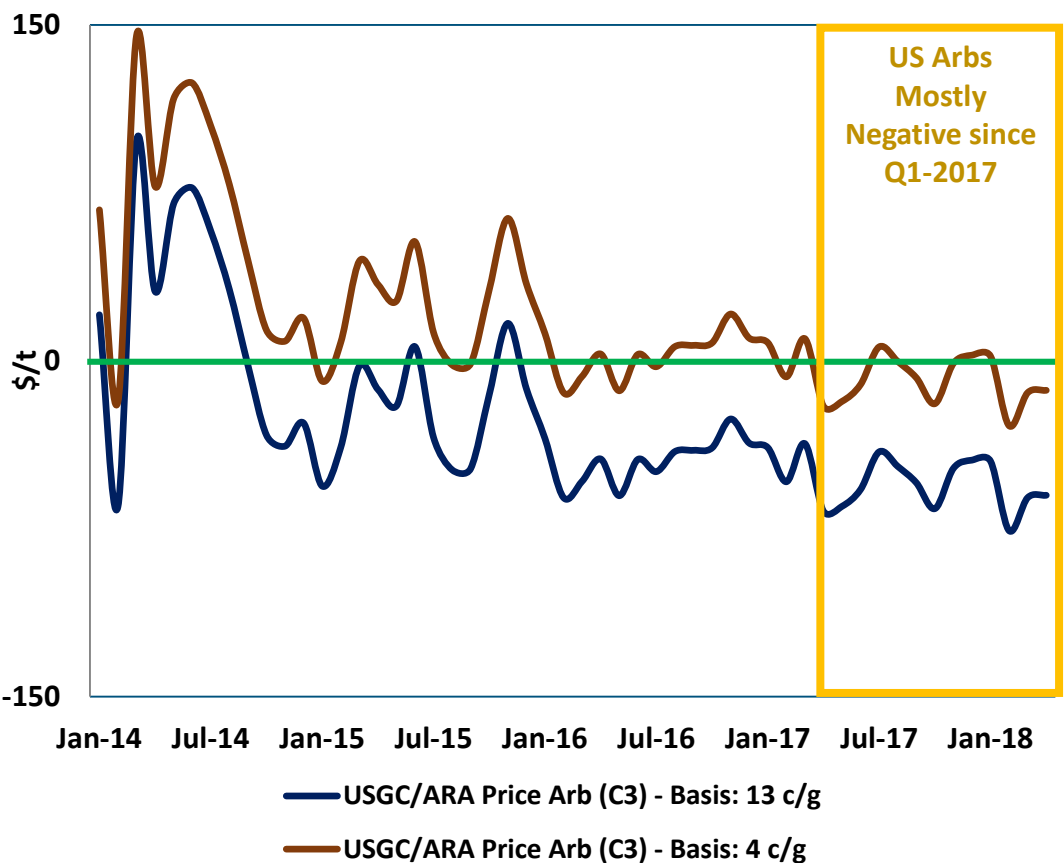


...although arbs have not been supportive

USGC to Far East Propane Arbs



USGC to N. Europe Propane Arbs

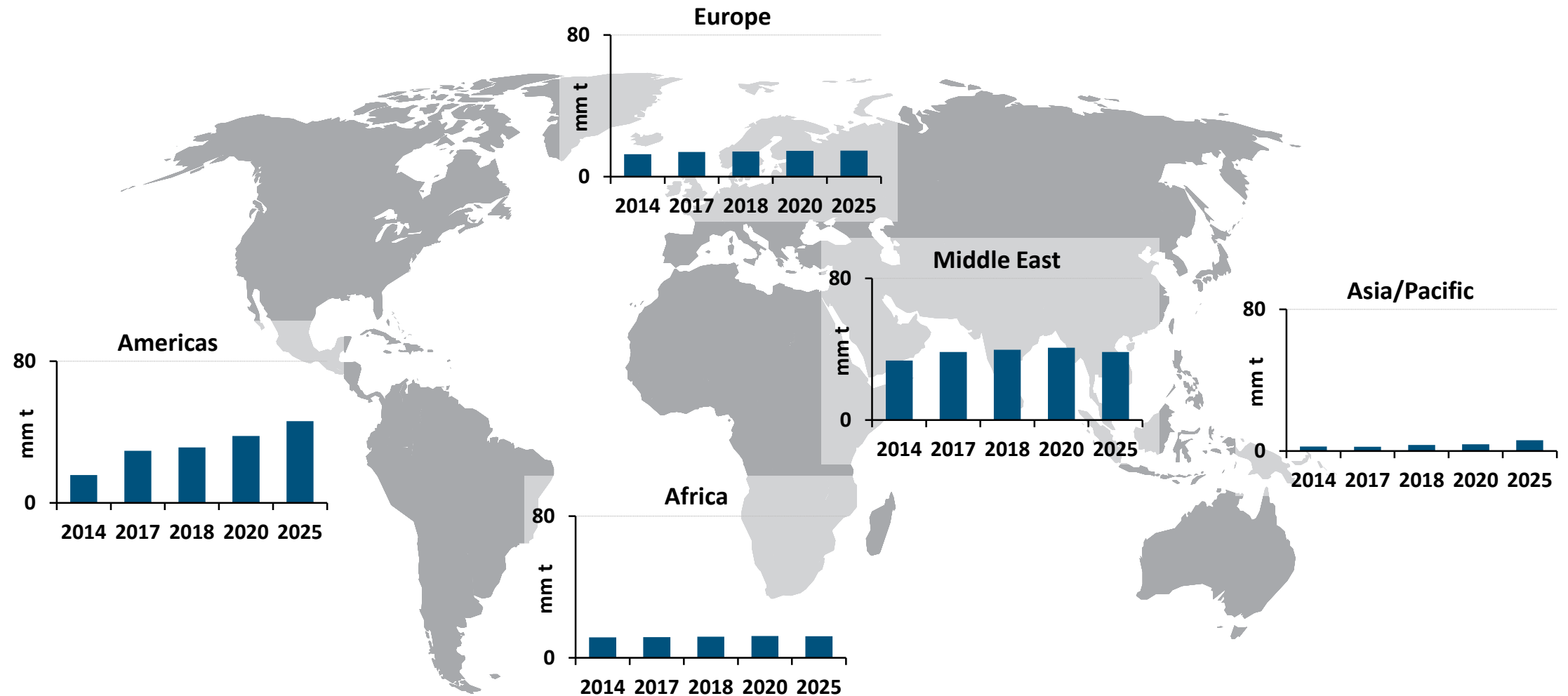


LPG Market Outlook



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Global exports - more of the same?



Key supply/export considerations

US domestic supply-demand dynamics will dictate the global trade growth

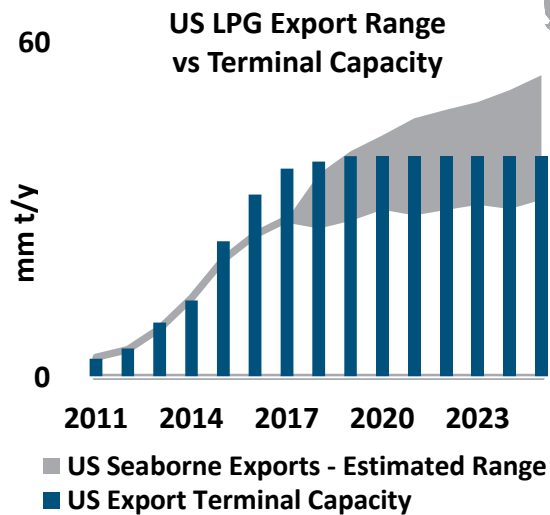
N. Europe exports connected with N. Sea field depletion/additions and Russian domestic demand

Middle East export level will depend on politics/investment and domestic petchem use

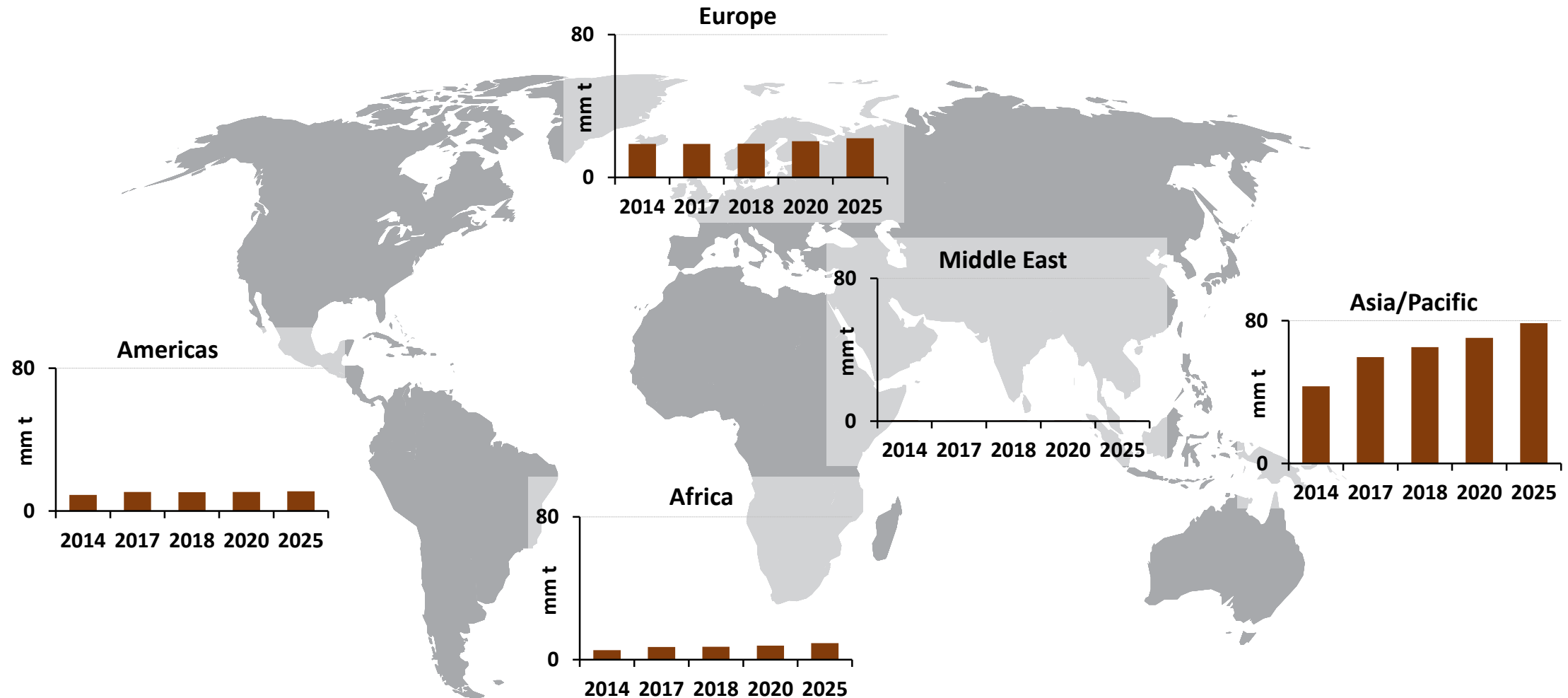
Increase of exports out of Australia will add another factor in the Asian outlet competition

Med product availability a function of political factors and field depletion

WAF production not expected to increase significantly and the question is domestic demand growth



Global imports – no surprises?



Key demand/import considerations

N. Europe demand a function of LPG vs ethane/naphtha econs, propylene demand and retail demand decline

Major Asian Countries for Import Growth

China's level of demand will depend on economics/investments for PDH/steam-cracking and for retail/gasoline blending

India is already undergoing a large retail growth and market penetration followed by terminal expansions. How far can this level of growth be sustained?

Indonesia has been growing its import demand rapidly since 2008 and will continue towards 2020+. What are the limits and the alternatives?

Latin American import demand connected with domestic LPG production and availability

Sub-Saharan African demand will heavily depend on infrastructure developments, investment in LPG operations and governmental support

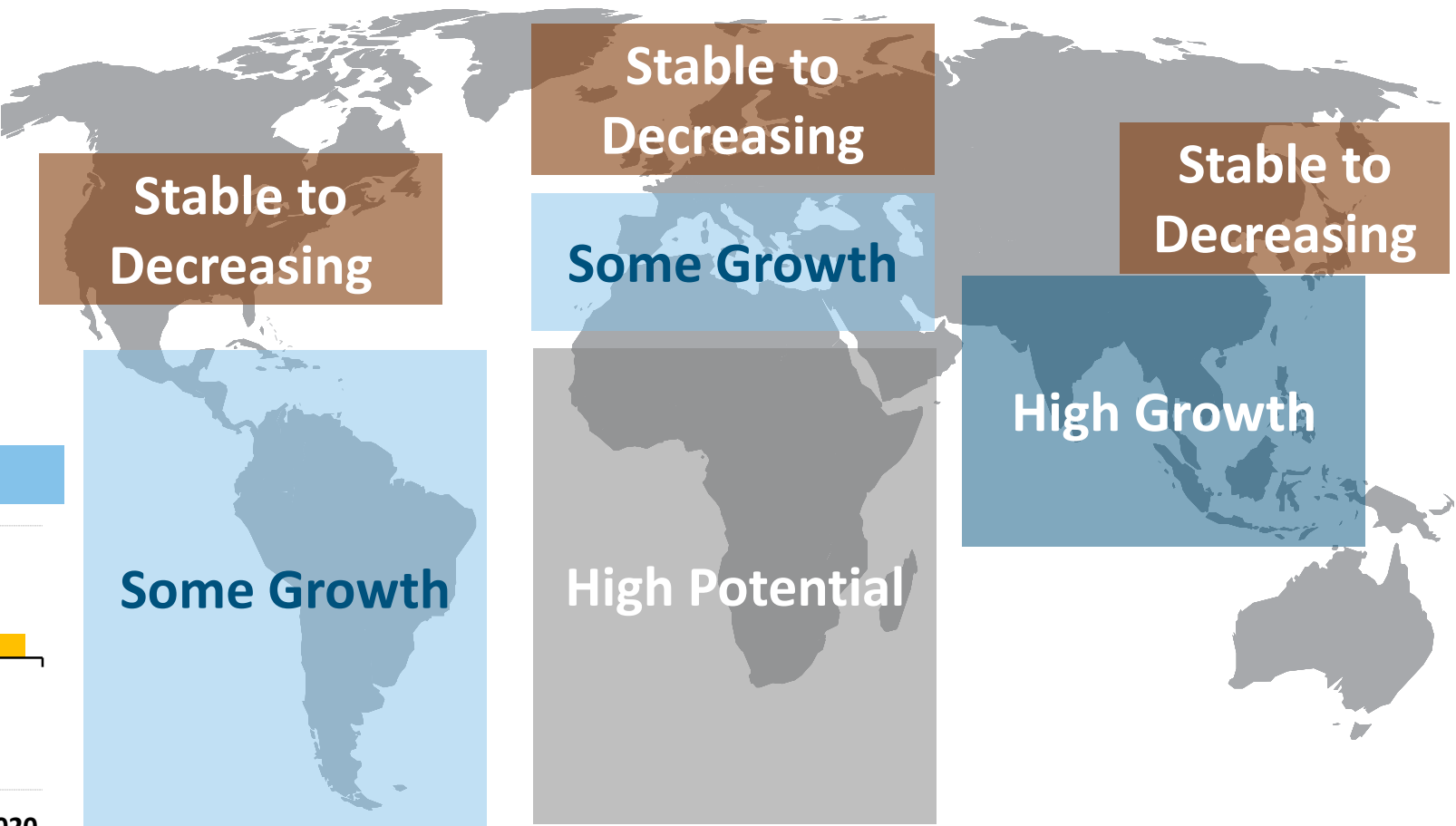
Retail growth in the forefront

General Factors

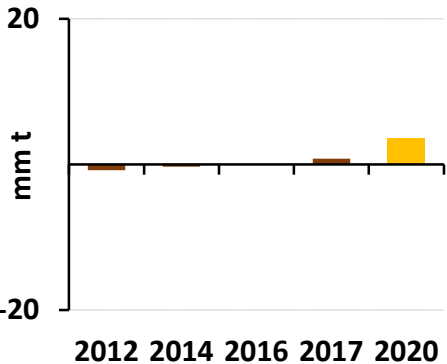
- Weather
- Population
- GDP/Inflation
- Price Elasticity
- Consumption per Capita

Market Factors

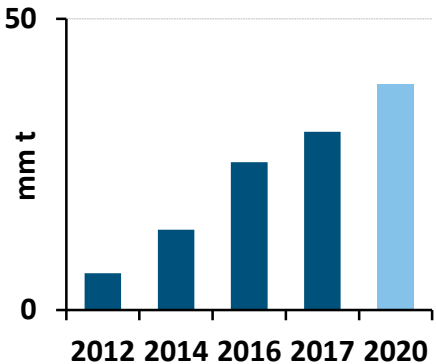
- Government intervention
- Competition with other products
- Anticipating Changes
- Infrastructure
- Funding Availability
- Marketing/Penetration



Retail Growth West



Retail Growth East

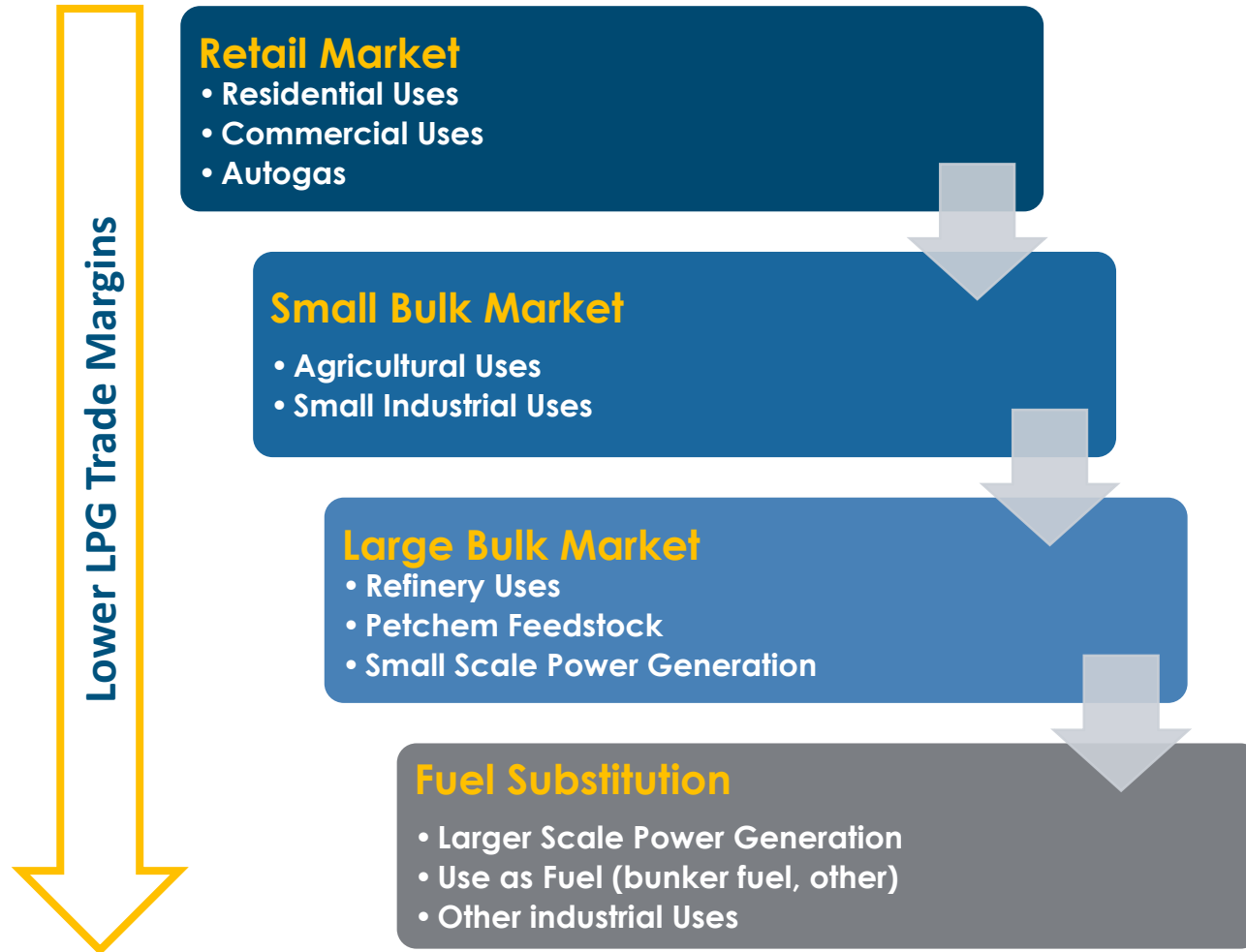


LPG Market Considerations

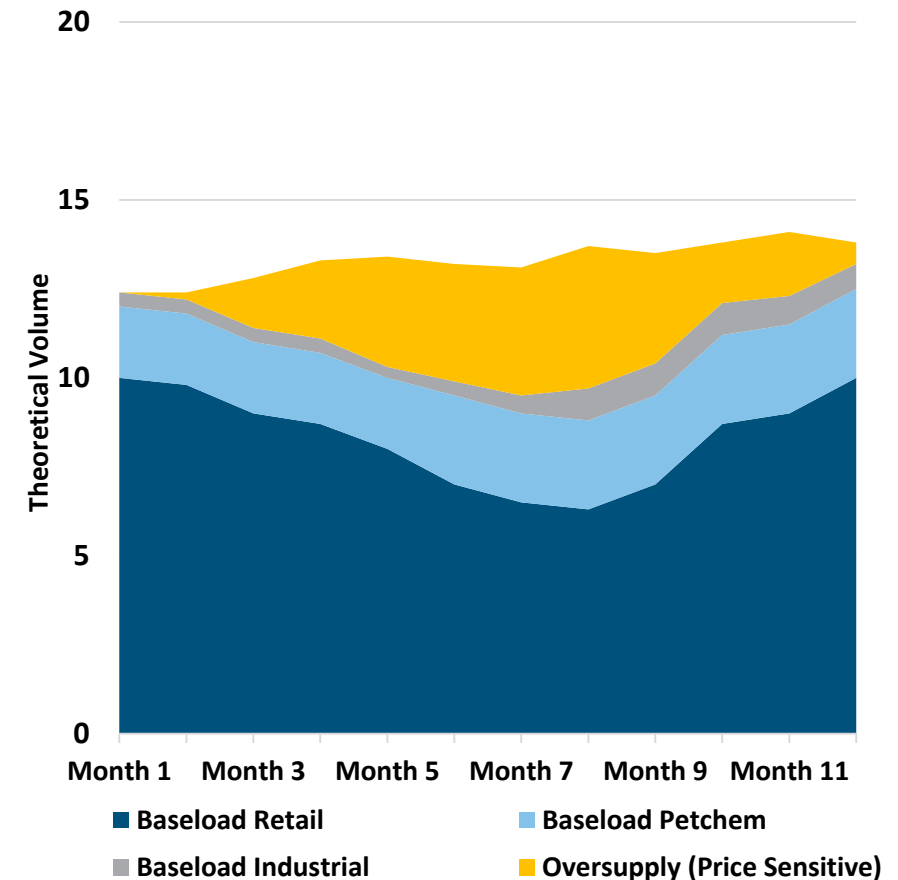


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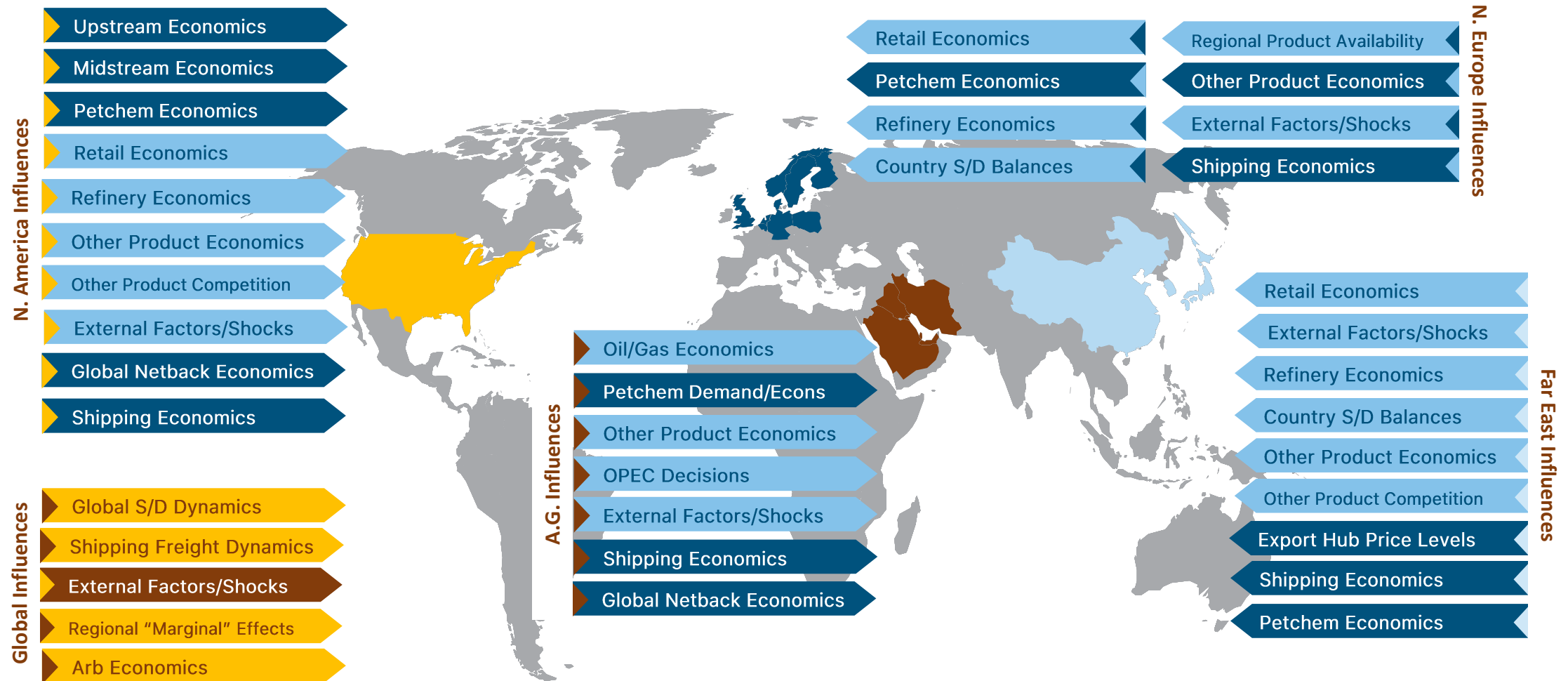
Pricing is the key to clear the LPG markets



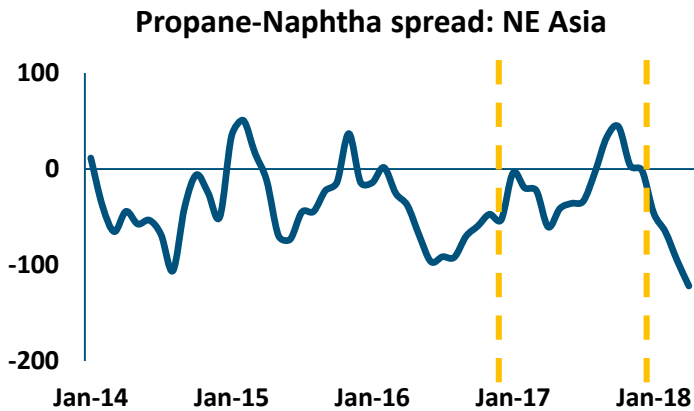
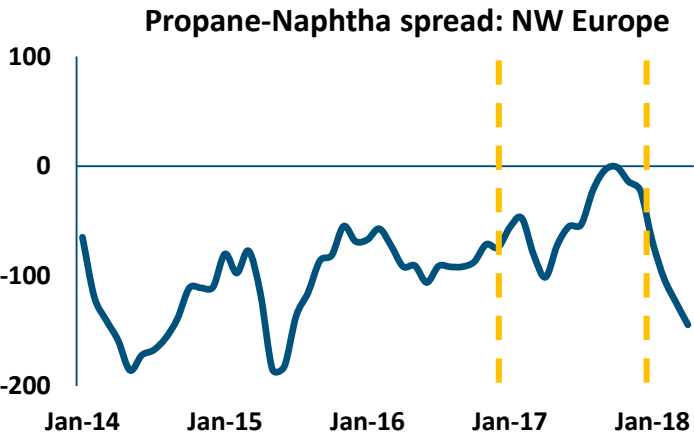
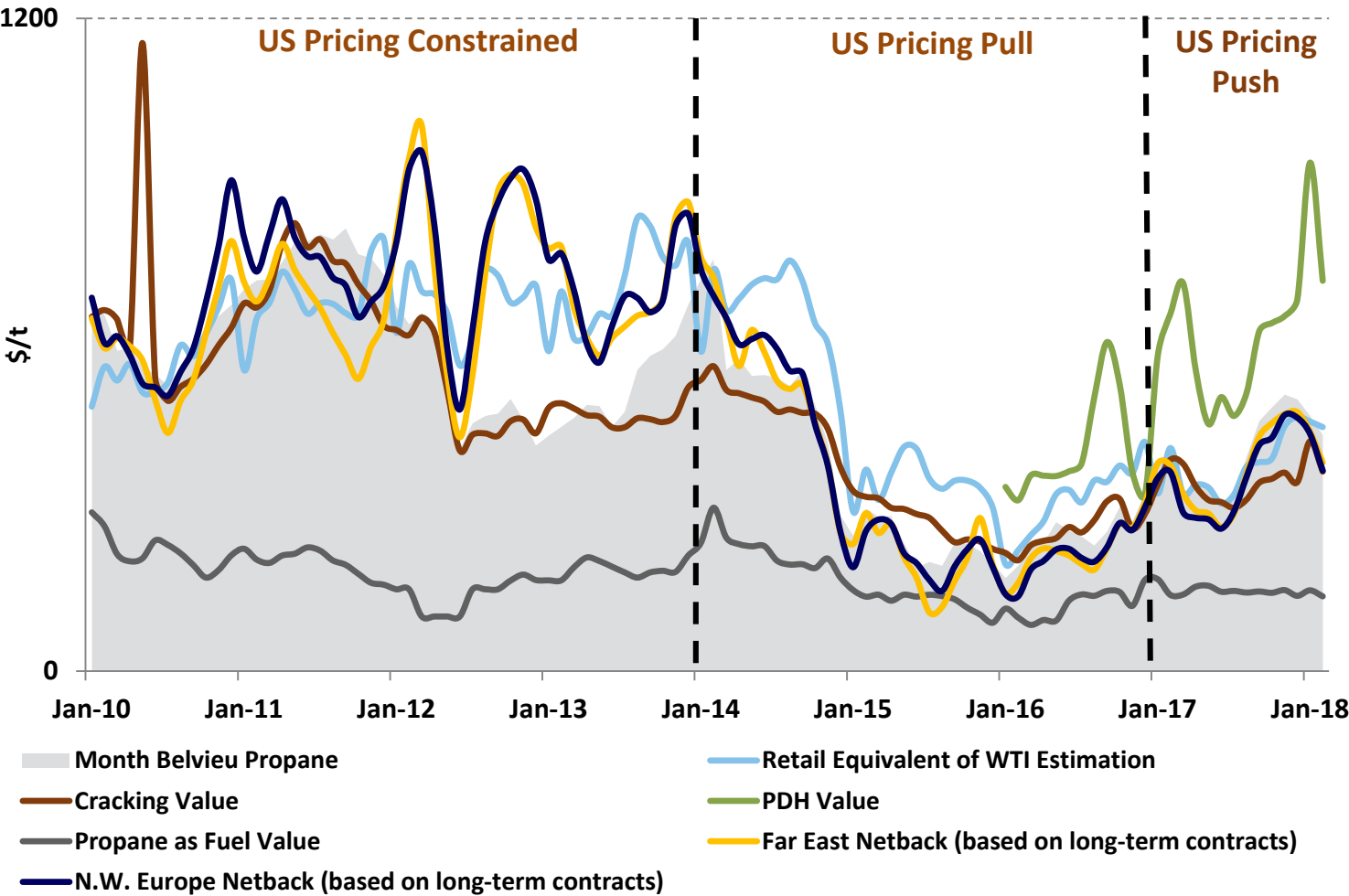
Marginal Outlet Schematic



LPG pricing/economics more complex



Have US prices become the global setter?



Basis: spot prices

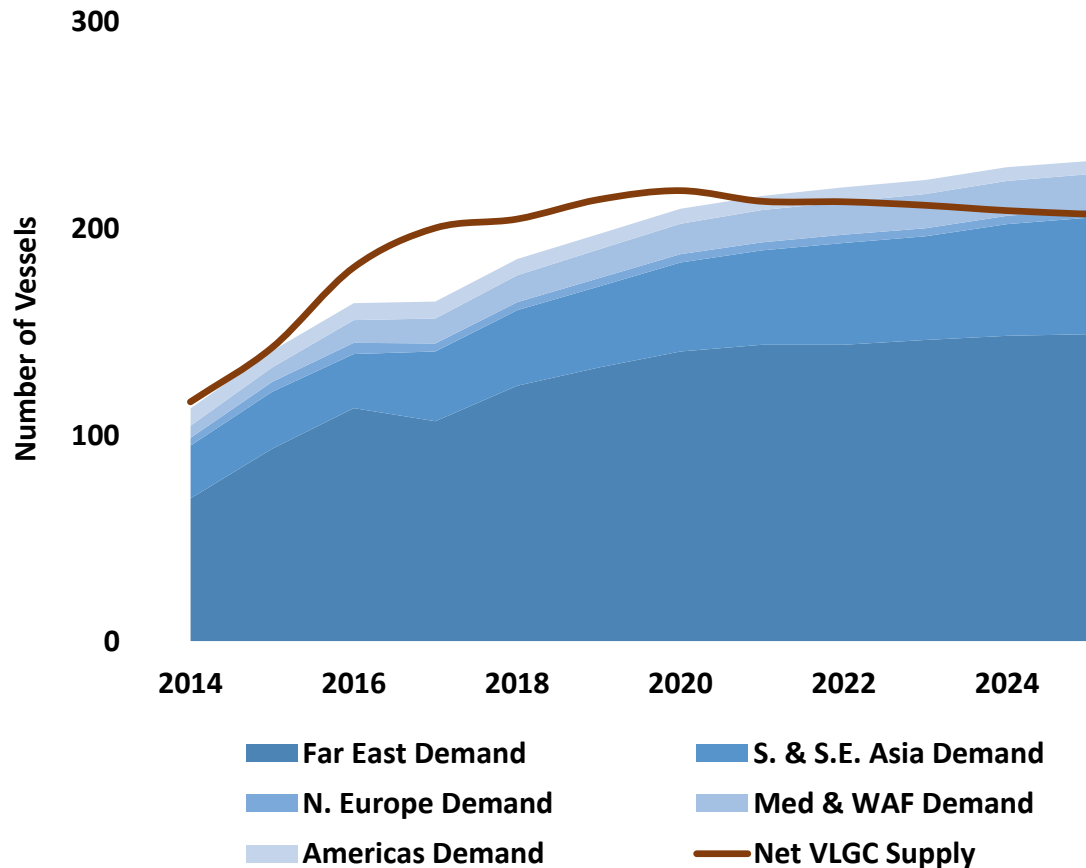
VLGC Market Outlook



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VLGC market looking upwards in the mid-term

VLGC Supply/Demand Balance
Base Case Scenario



Factors Affecting S/D Balance

- Utilization (Market, Panama Canal, etc)
- Lay ups/maintenance
- Slow steaming/other trip assumptions
- Port/route congestions
- N/B assumptions
- Competition with smaller segments
- Other

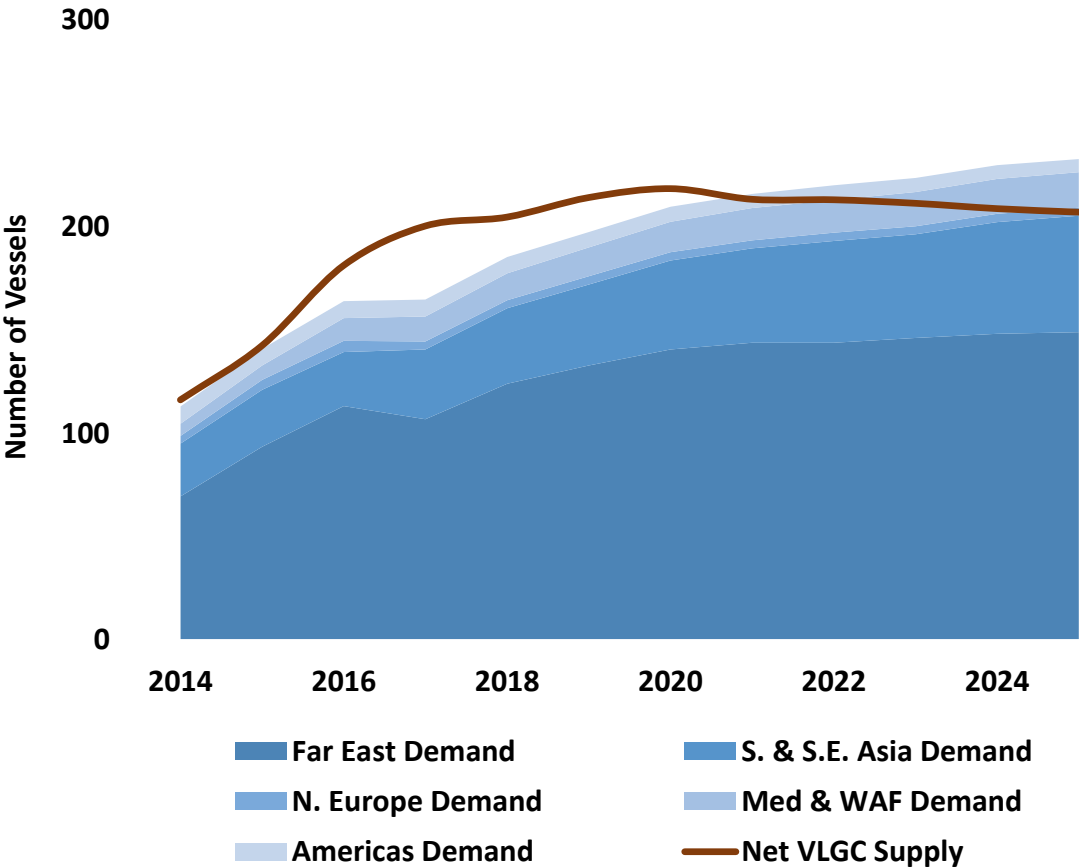
Supply

- Product s/d trade model
- Direction of trade changes
- Trade sensitivities
- Geopolitical assumptions
- Average product carried per trip

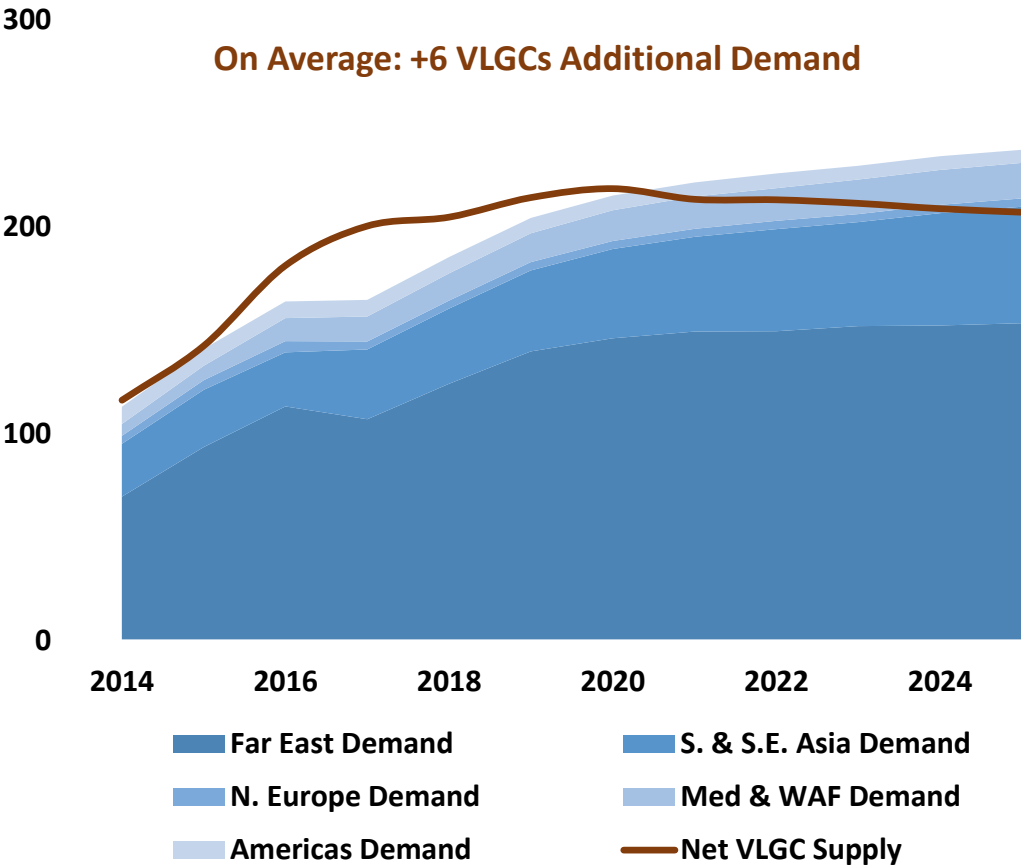
Demand

Key factors can change outlook substantially

VLGC Supply/Demand Balance
Base Case Scenario

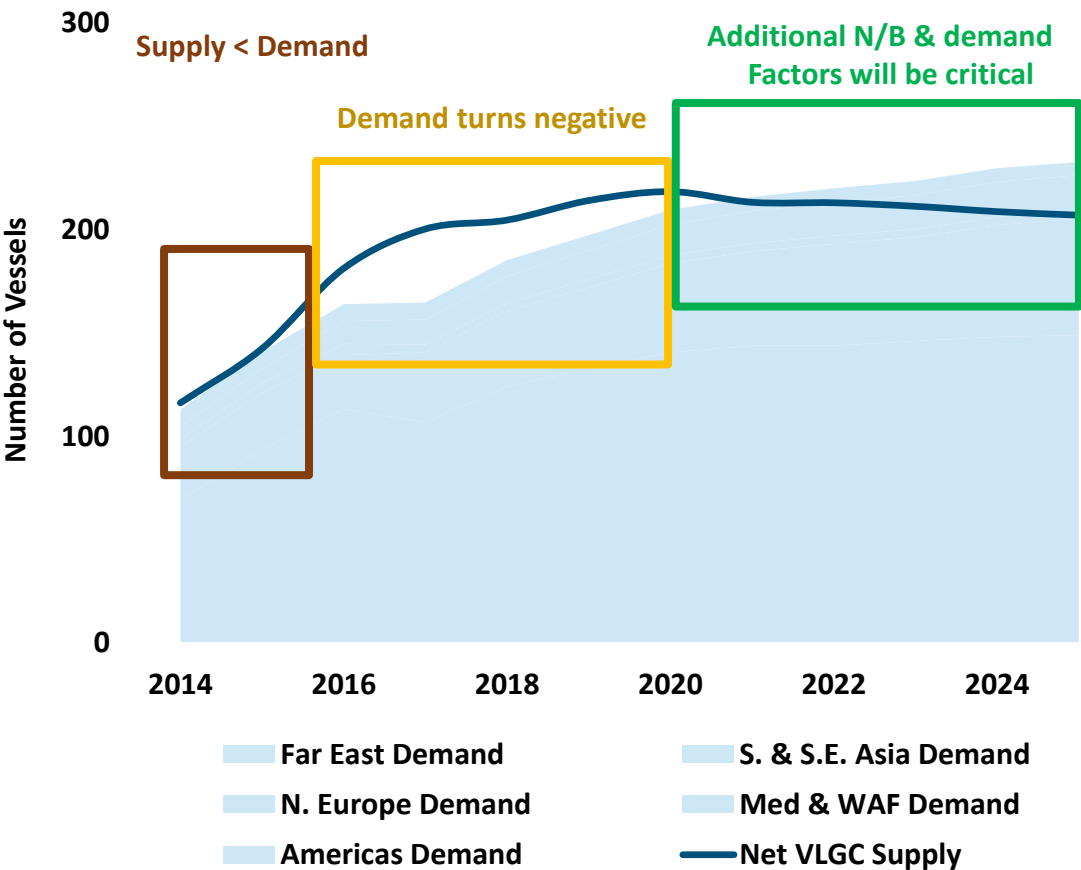


VLGC Supply/Demand Balance
Panama Utilization: -25% from Base Case

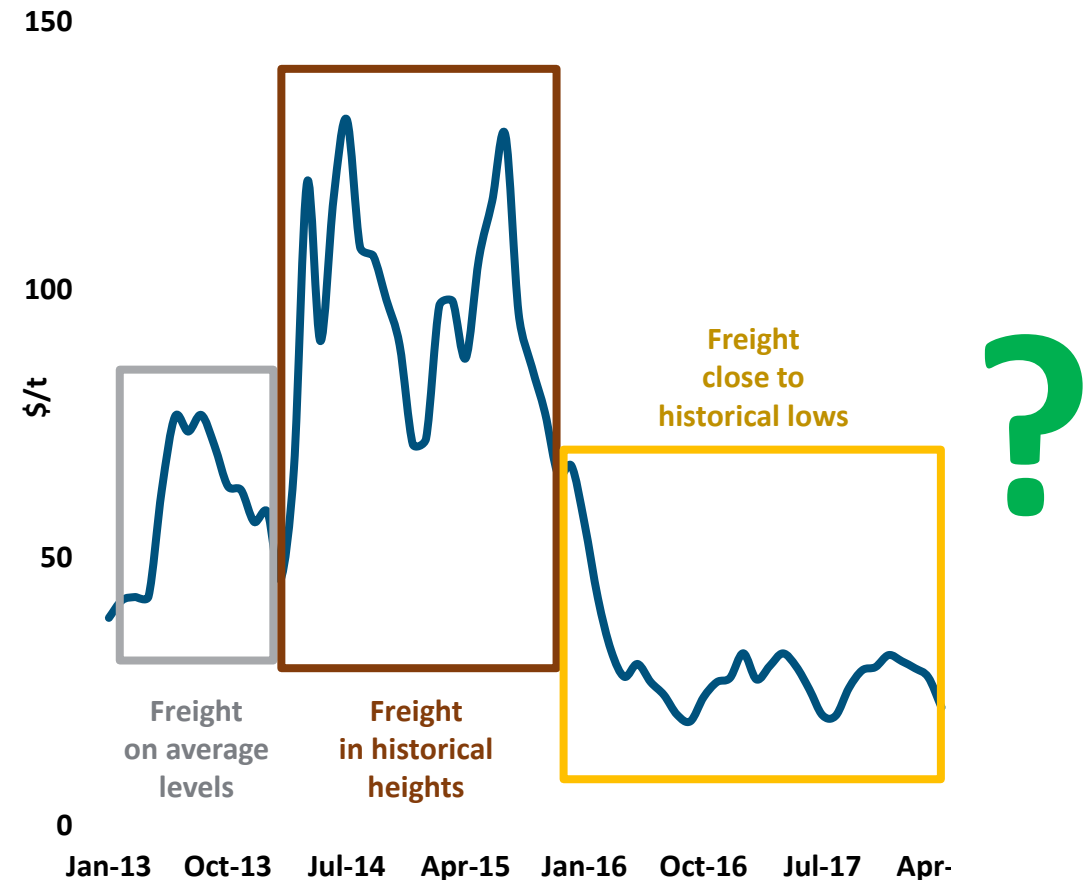


LPG freight rates highly sensitive

VLGC Supply/Demand Balance
Base Case Scenario



VLGC (AG – Japan) Spot Freight Development 2013-2018



Final thoughts



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The beginning of another cycle



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Upcoming Multi-client Studies:

June 18: ***Petchem Gas Seaborne Trade 2016-2025:***
“Impact of feed costs, developments and opportunities”
June 18: ***Propane & Butane Seaborne Trade 2016-2025***
“Where the next wave of LPG exports is heading to?”

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