Latsco Shipping Limited

# The VLGC Market

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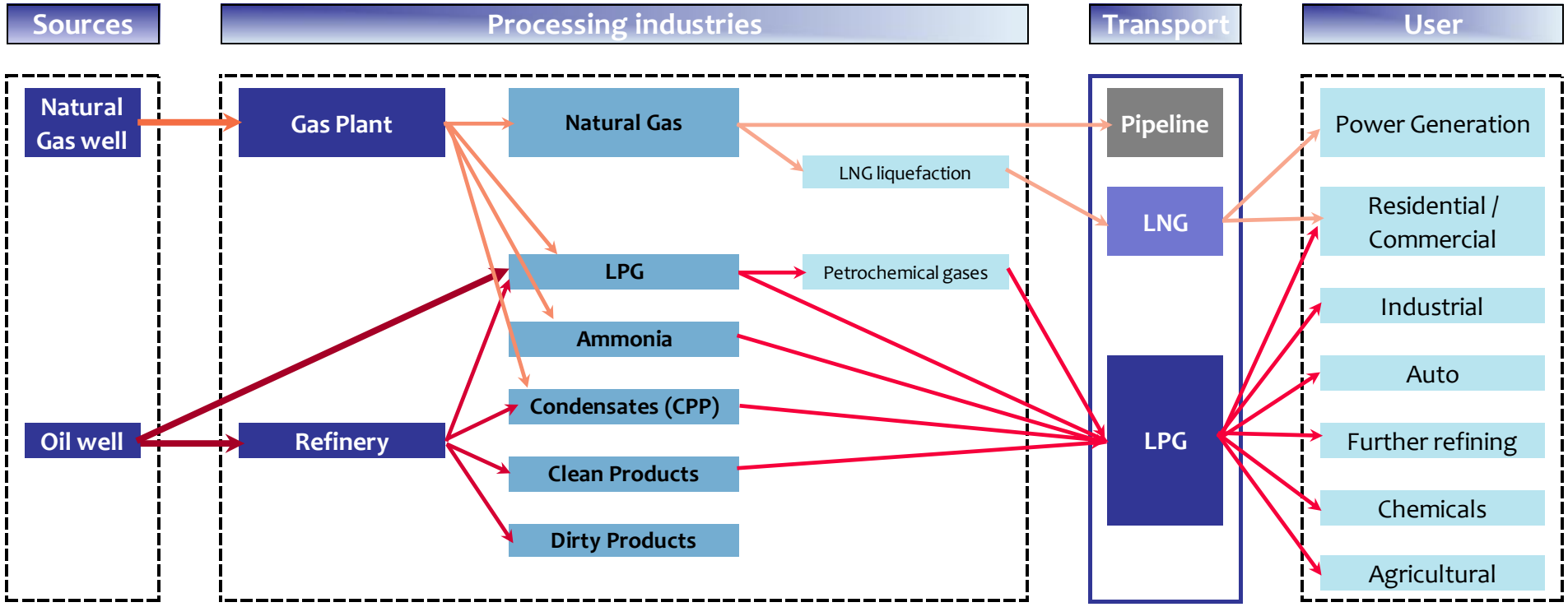
# 1

# LPG Shipping

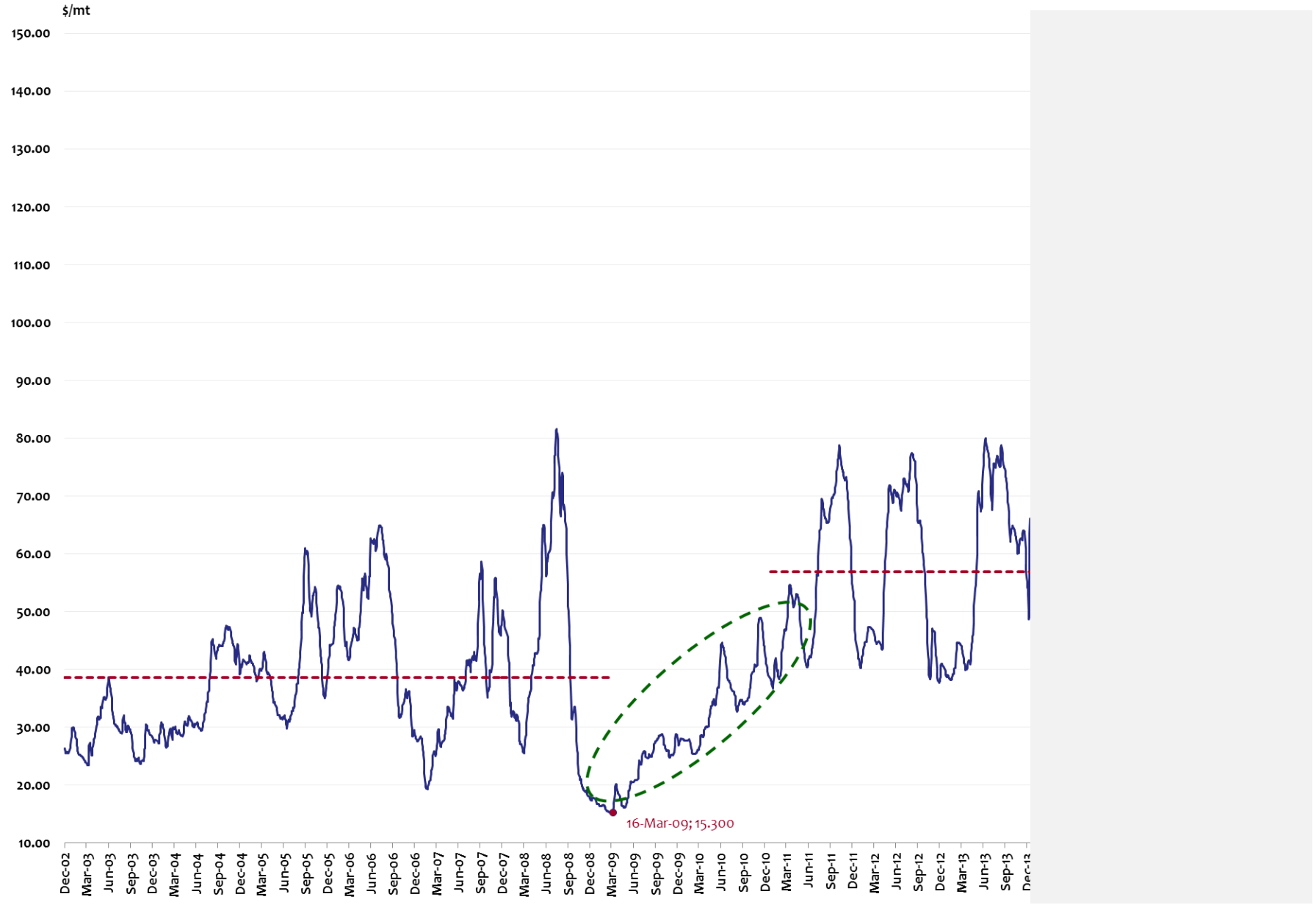
# Liquefied Petroleum Gas (LPG) is a global industry




- ✓ LPG consists of propane and butane, petroleum gases that originate either from crude oil and/or natural gas
- ✓ Despite being gaseous at ambient pressure and temperature, propane and butane both liquefy relatively easily under pressure, refrigeration or combination of the two
- ✓ LPG is a clean energy source compared to many other fossil fuels and it has numerous applications
- ✓ LPG is substitutable in many of its applications, and its pricing is influenced by its competition with other fuels or feedstocks

Source: Various

# The Baltic Liquefied Petroleum Index (BLPGI) through the years

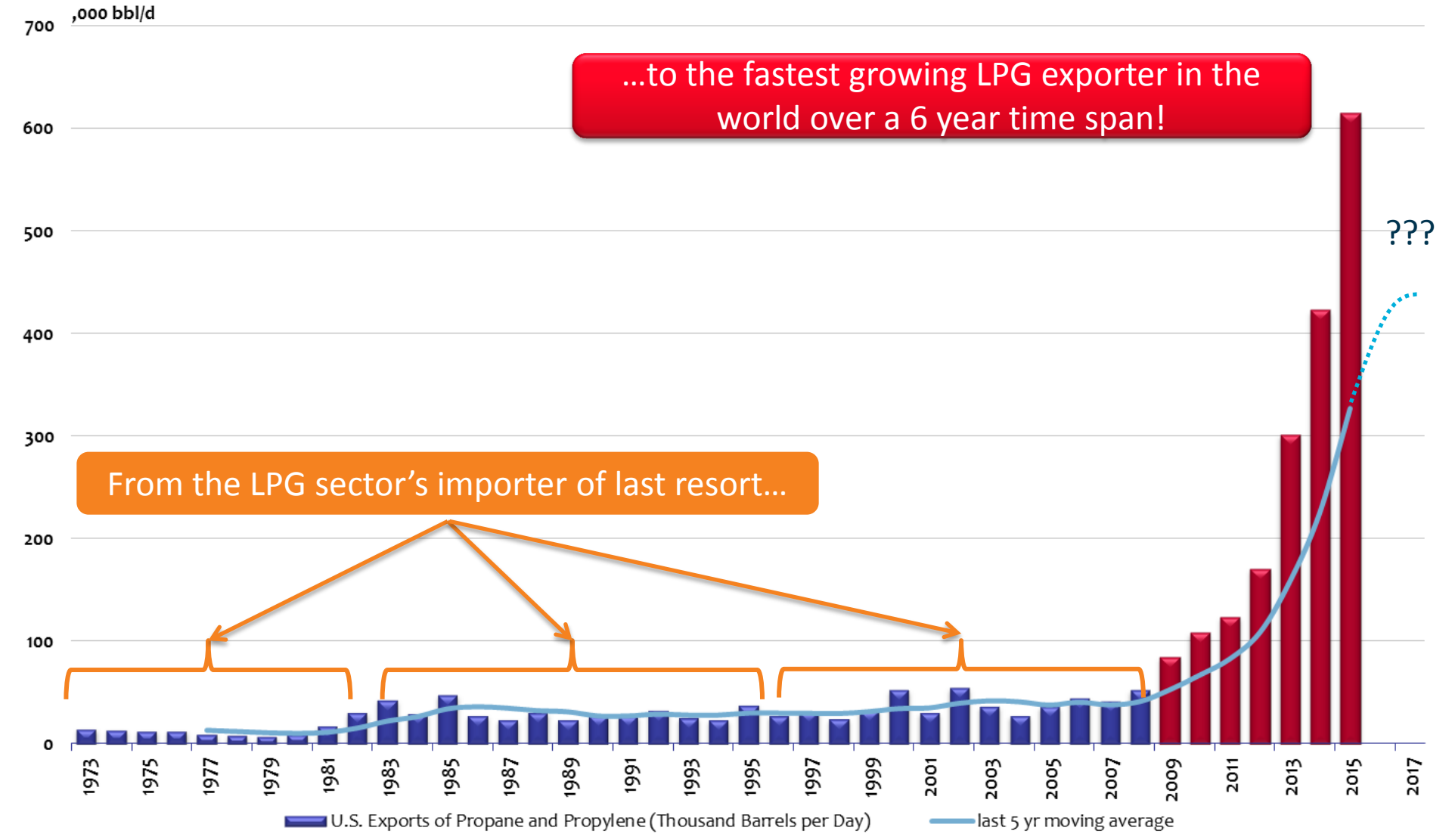



Source: The Baltic Exchange

Prepared by Dr. Mariniki PSIFIA, 2016

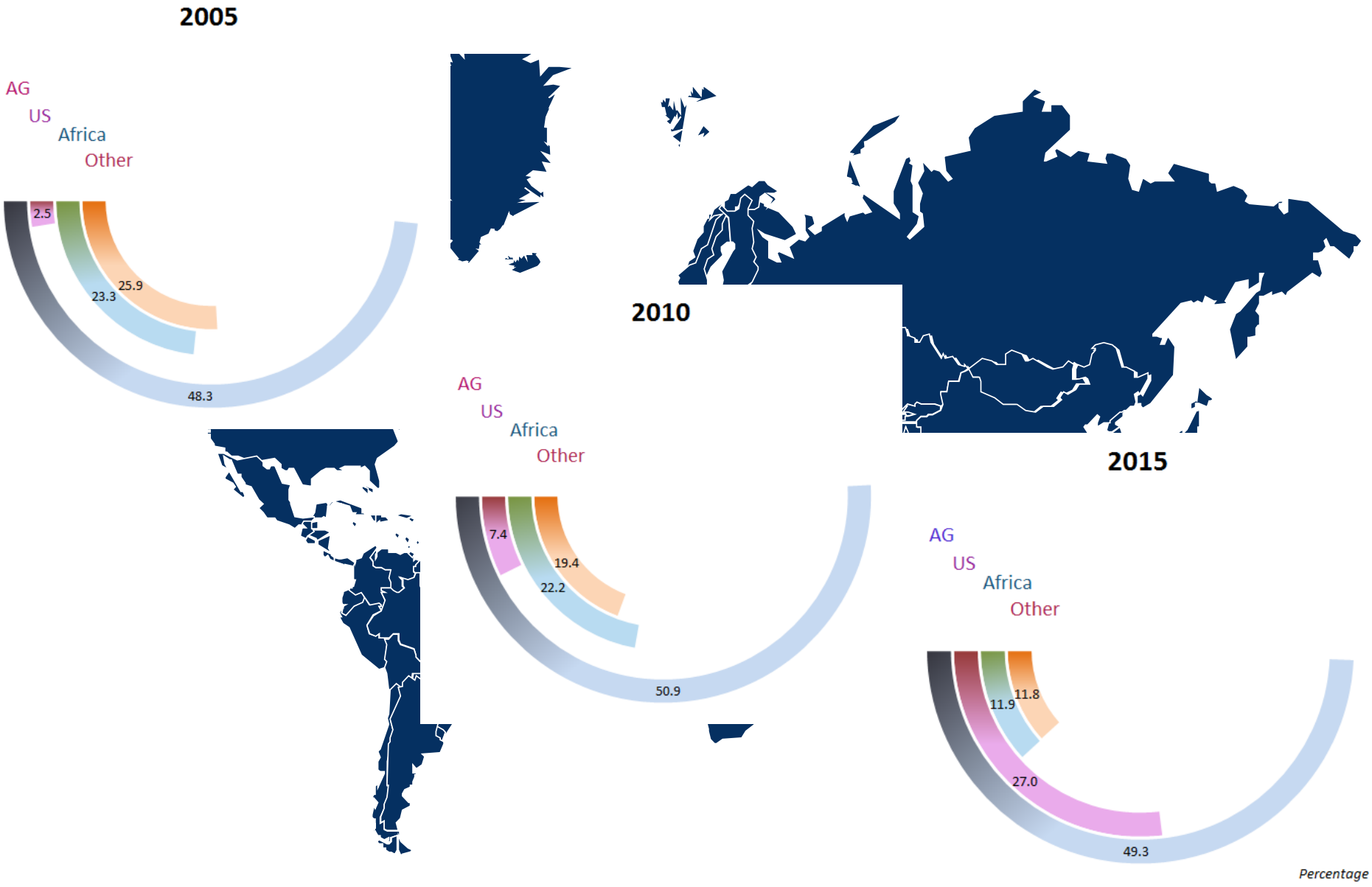
# The U.S. poised to become the top LPG exporter within a few years

U.S. Exports of Propane and Propylene are expected to hit unprecedented levels by 2017 due to additional export projects




Source: U.S. E.I.A, 2016

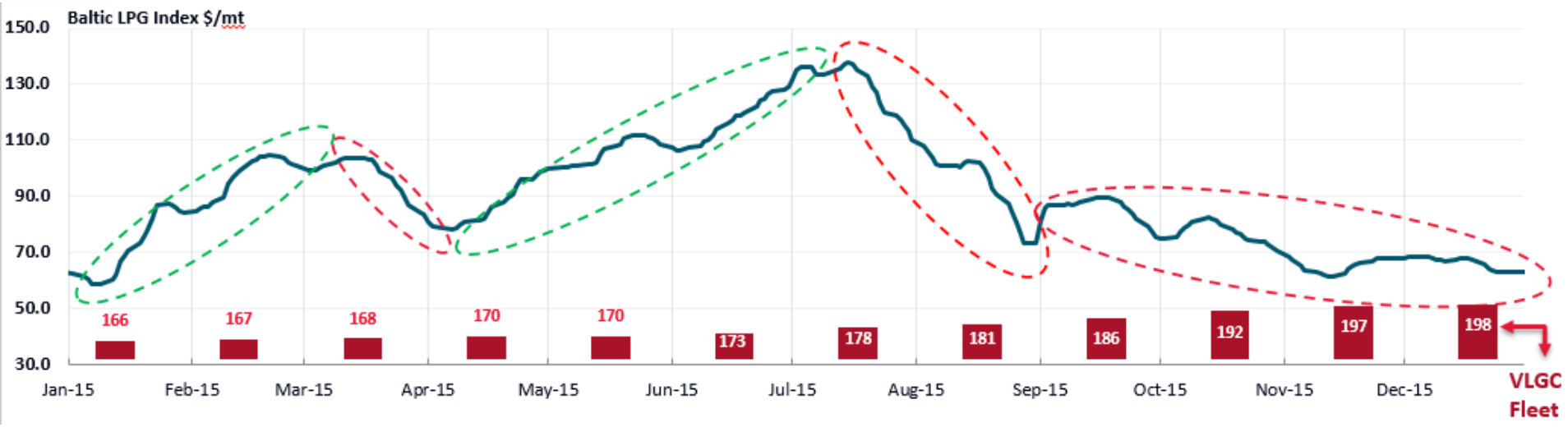
# The US confirmed its place as the world's leading exporter of LPG in 2015 with over 19.7 mio mt of exports – a 40.1% y/y growth

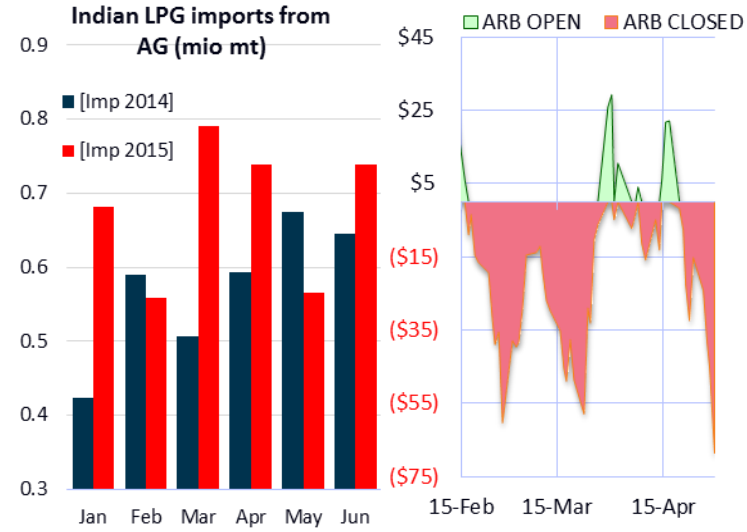



*Data Source: GTIS, IHS*

Prepared by Dr. Mariniki PSIFIA, 2016

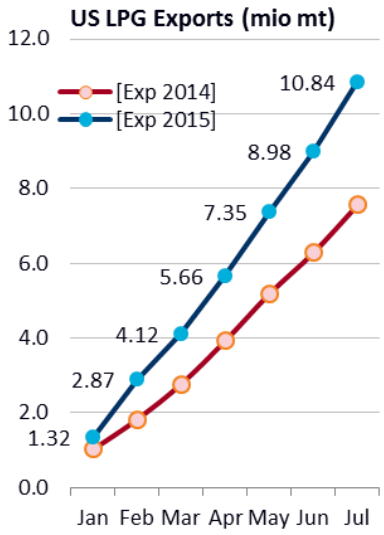
# 2015 – What happened last year



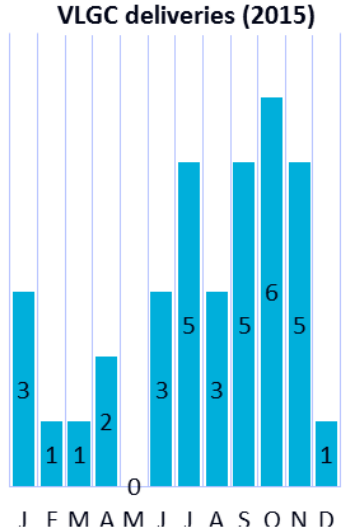







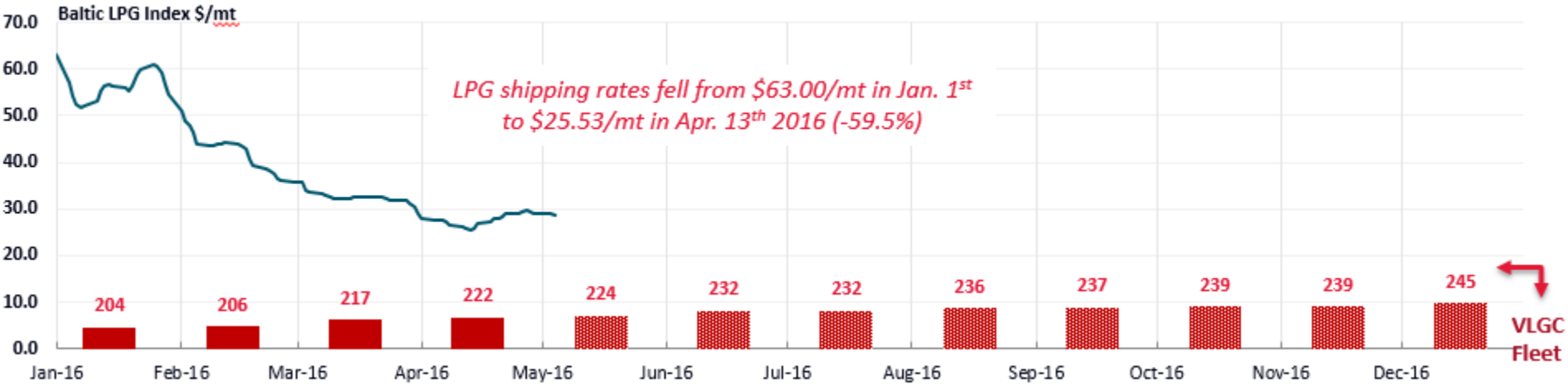


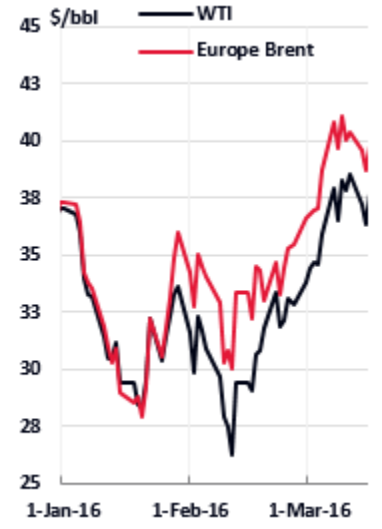


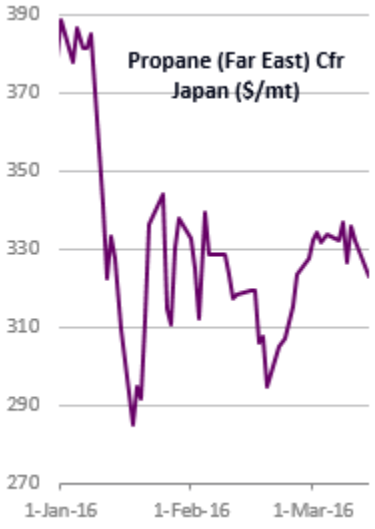


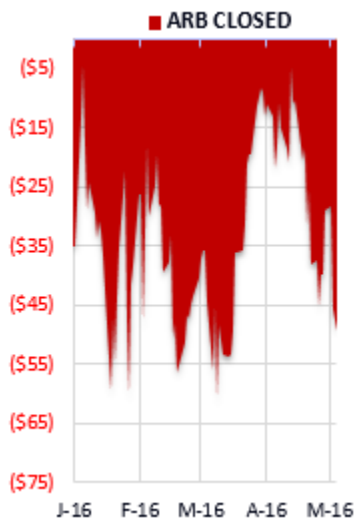

*Data Source: Clarksons SIN, Platts LPGaswire, Factsset, GTIS, IHS*

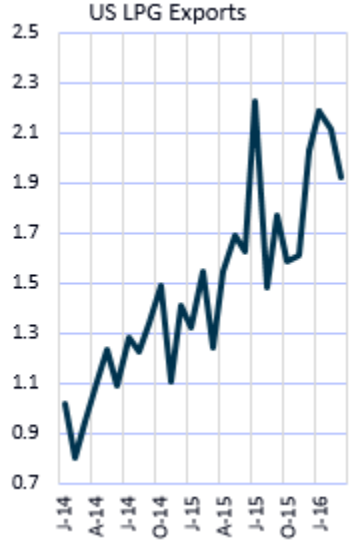
# 2016 – Where are we this year?

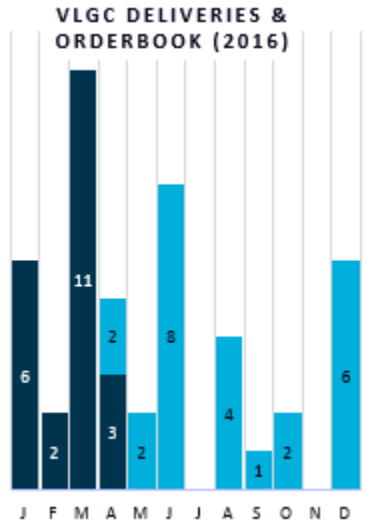


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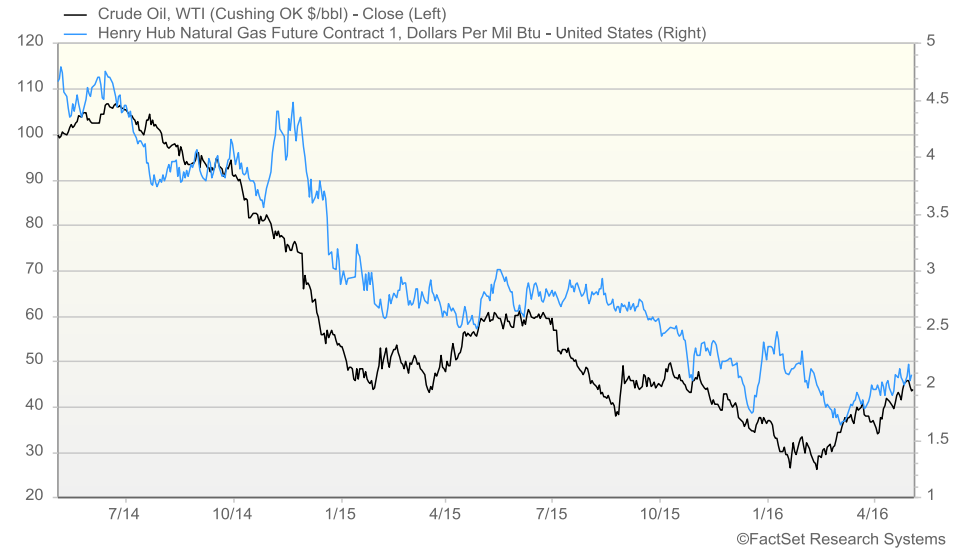
# Crude oil prices, Naphtha vs Propane

# Correlations between WTI, Henry Hub Natural Gas and Propane Mont Belvieu

## WTI vs Henry Hub Natural Gas

Correlation: 0.93

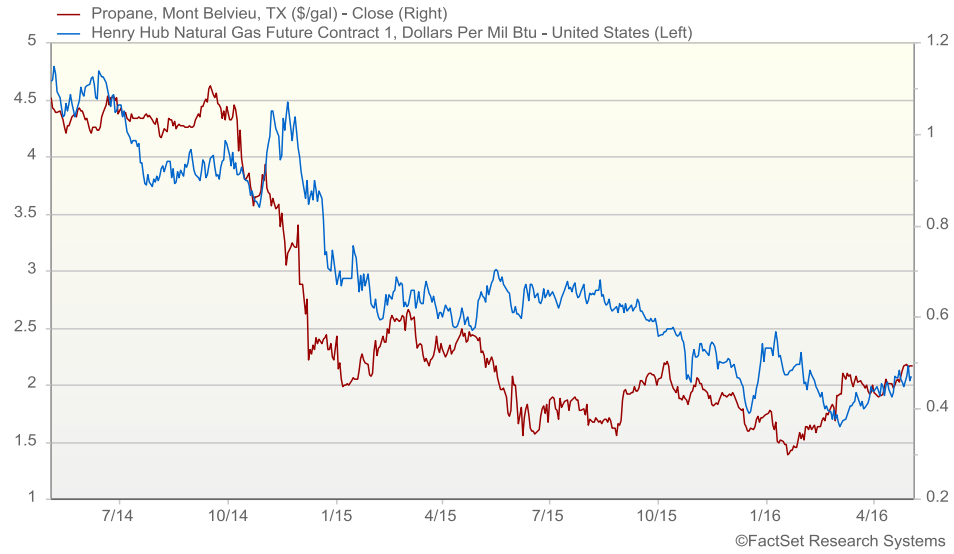



## Propane Mont Belvieu vs WTI

Correlation: 0.95


## Propane Mont Belvieu vs Henry Hub Natural Gas

Correlation: 0.88

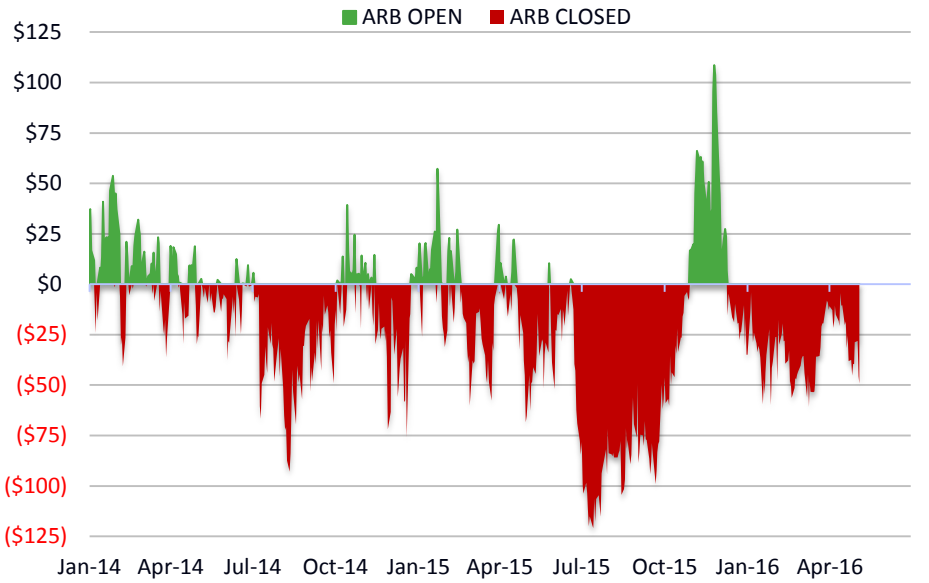



Propane prices
are highly correlated to
Crude oil prices
by **95%**

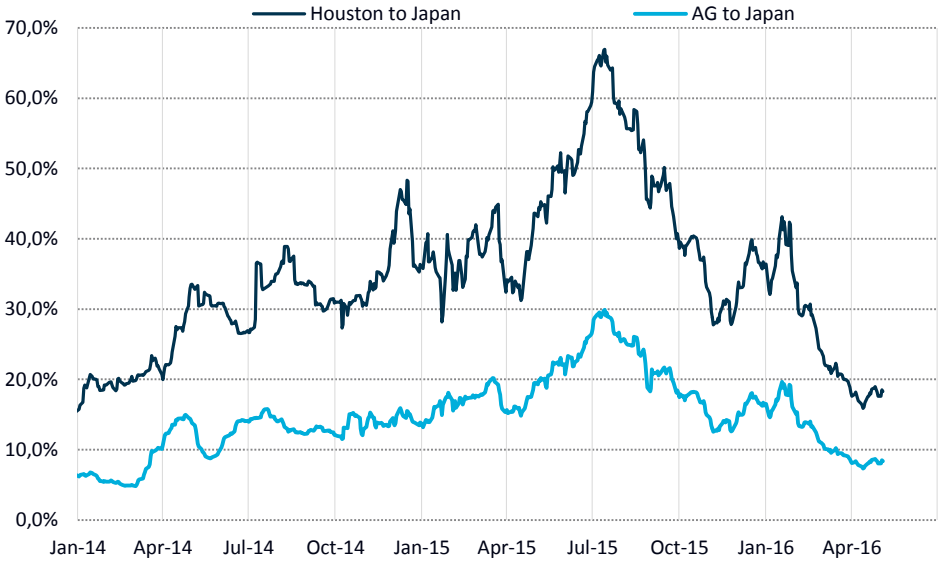
# The West – East Arb is firmly closed

## FOB Propane Houston vs Arab Gulf


## The West- East Arb

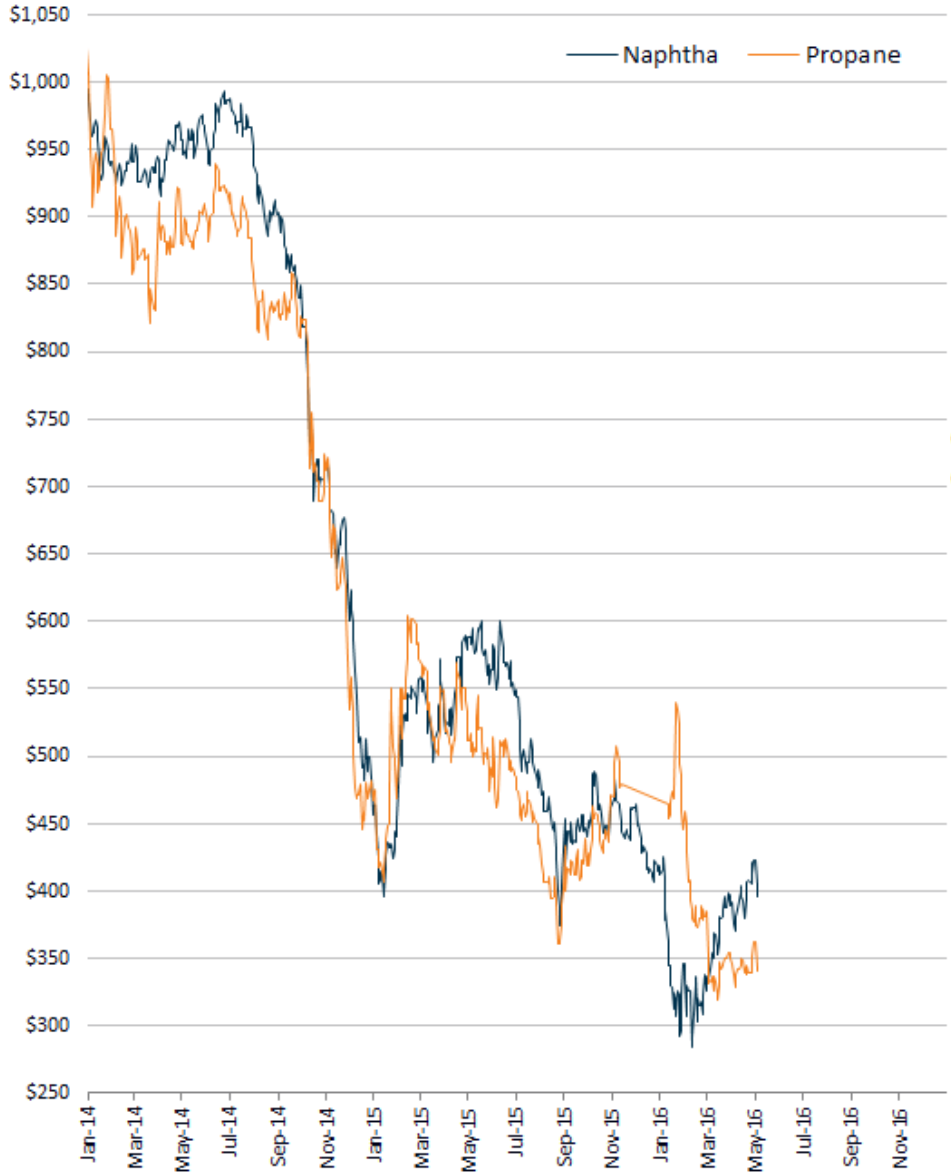


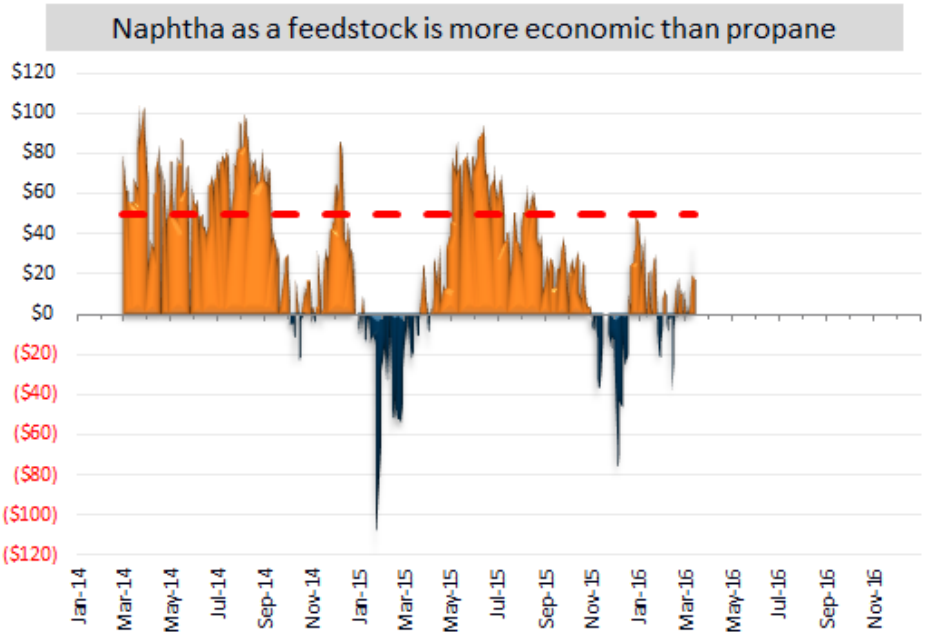

## Percentage of the Freight element to Japan CFR Price

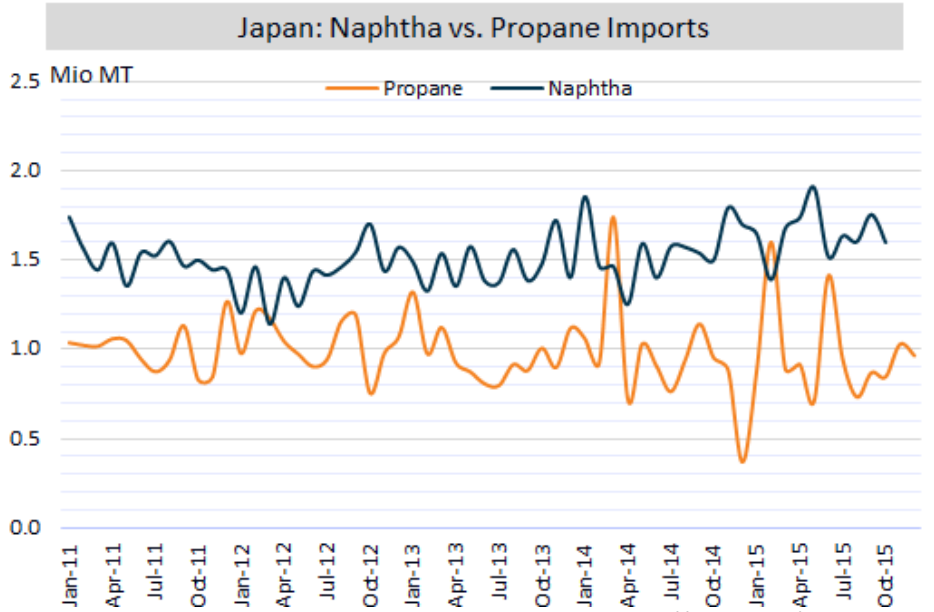



*Data Source: FactSet, Platts*

# Weaker crude prices and ample supply pulled down the LPG prices in Asia




*Data Source: FactSet, Platts, GTIS*

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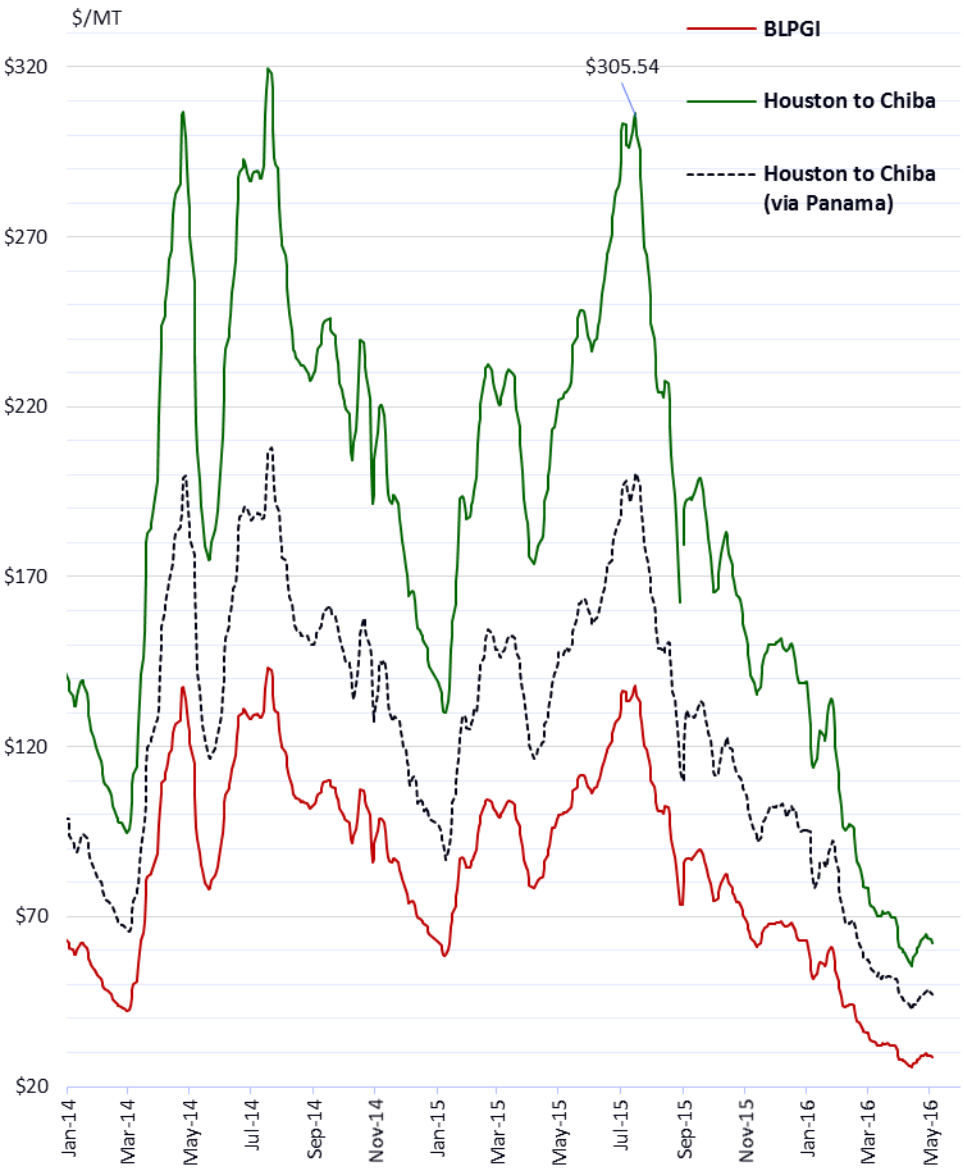
# The VLGC Freight Market

# Today, VLGC Net Time Charter rate are below $20,000/day (-79% y/y)

**Freight**: AG-Chiba / Houston - Chiba

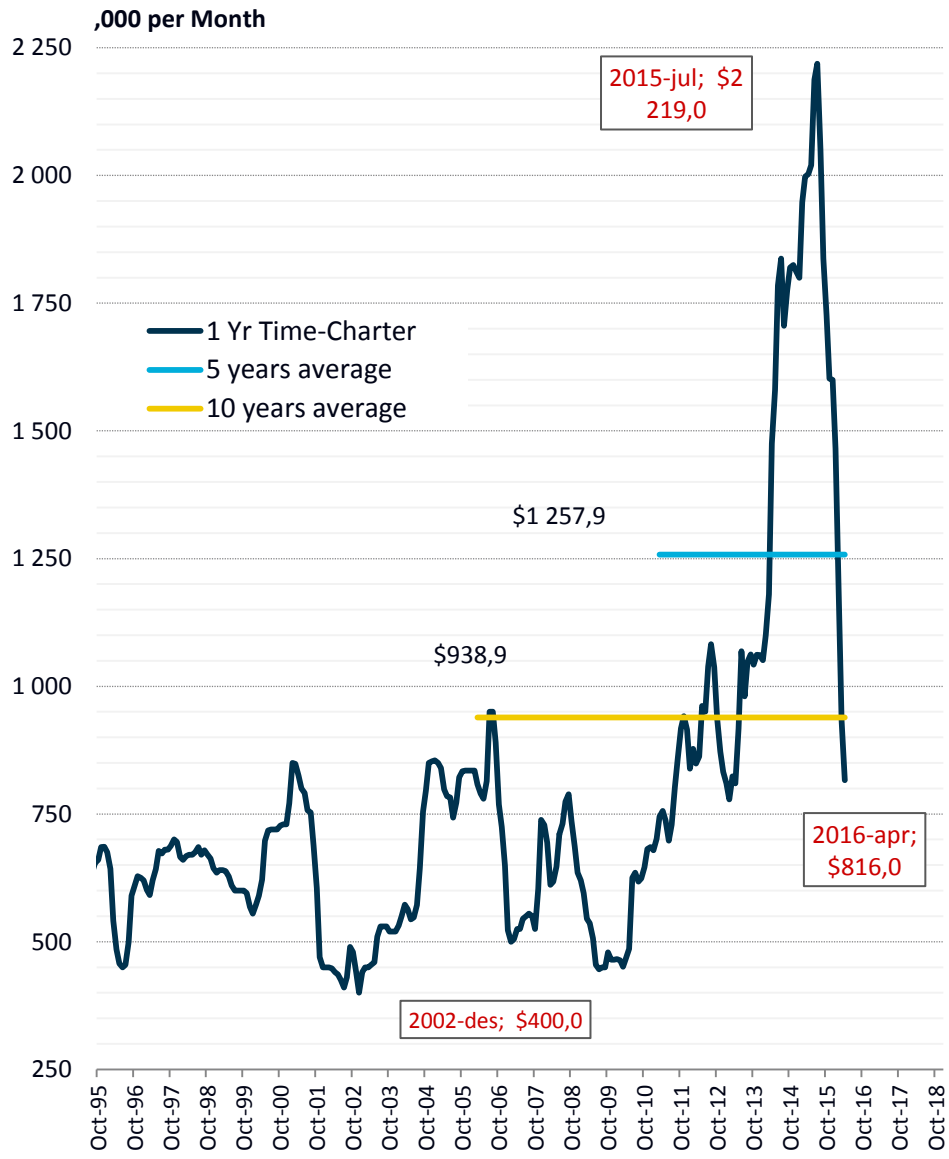



VLGC Net Timecharter Rates

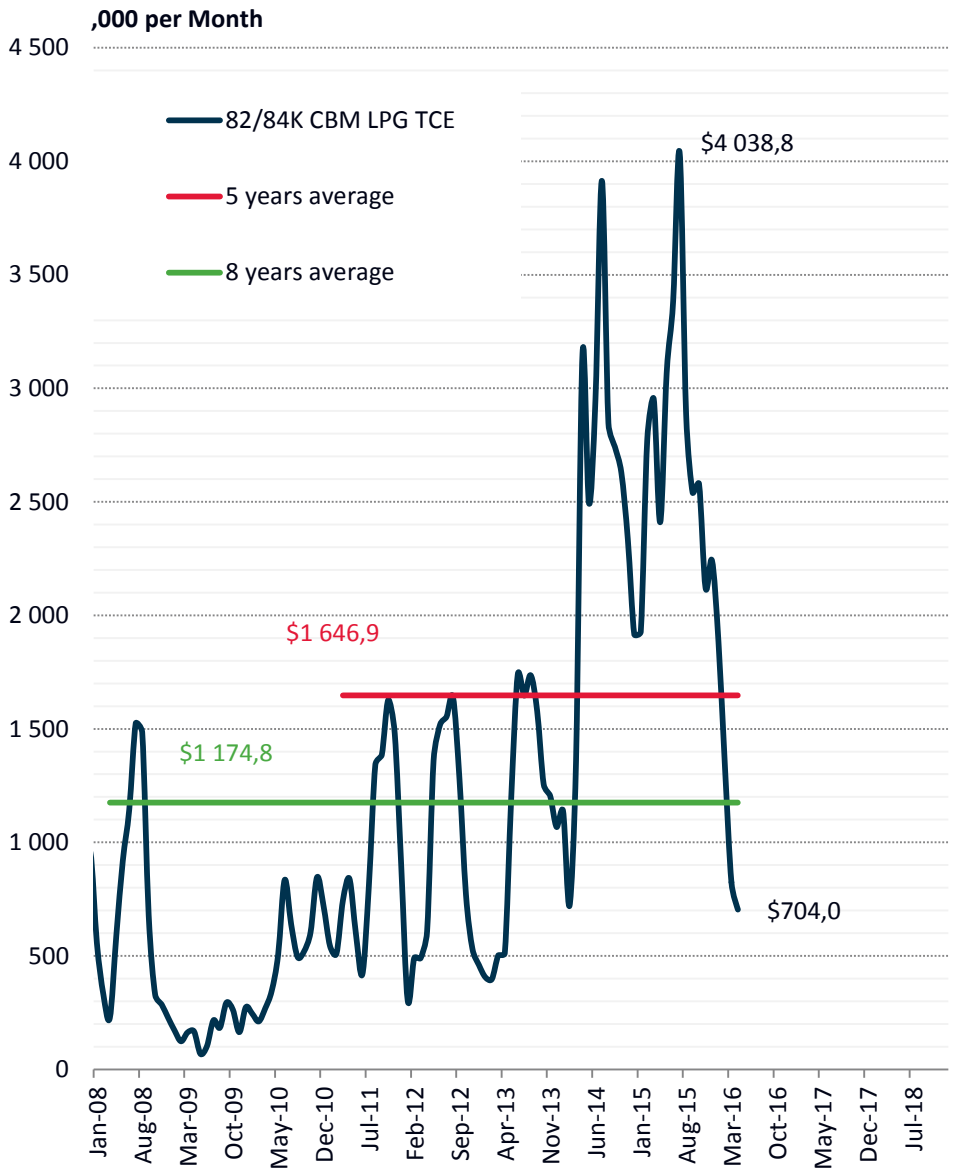

Source: The Baltic Exchange

# VLGC Timecharter Rates (TC) fell below long-term historical averages

1 Year VLGC TC Rates decreased by **63.2%** since Jul. 15




84,000 cbm LPG TC Equivalent decreased by **84%** since Jul15




Source: Clarksons SIN

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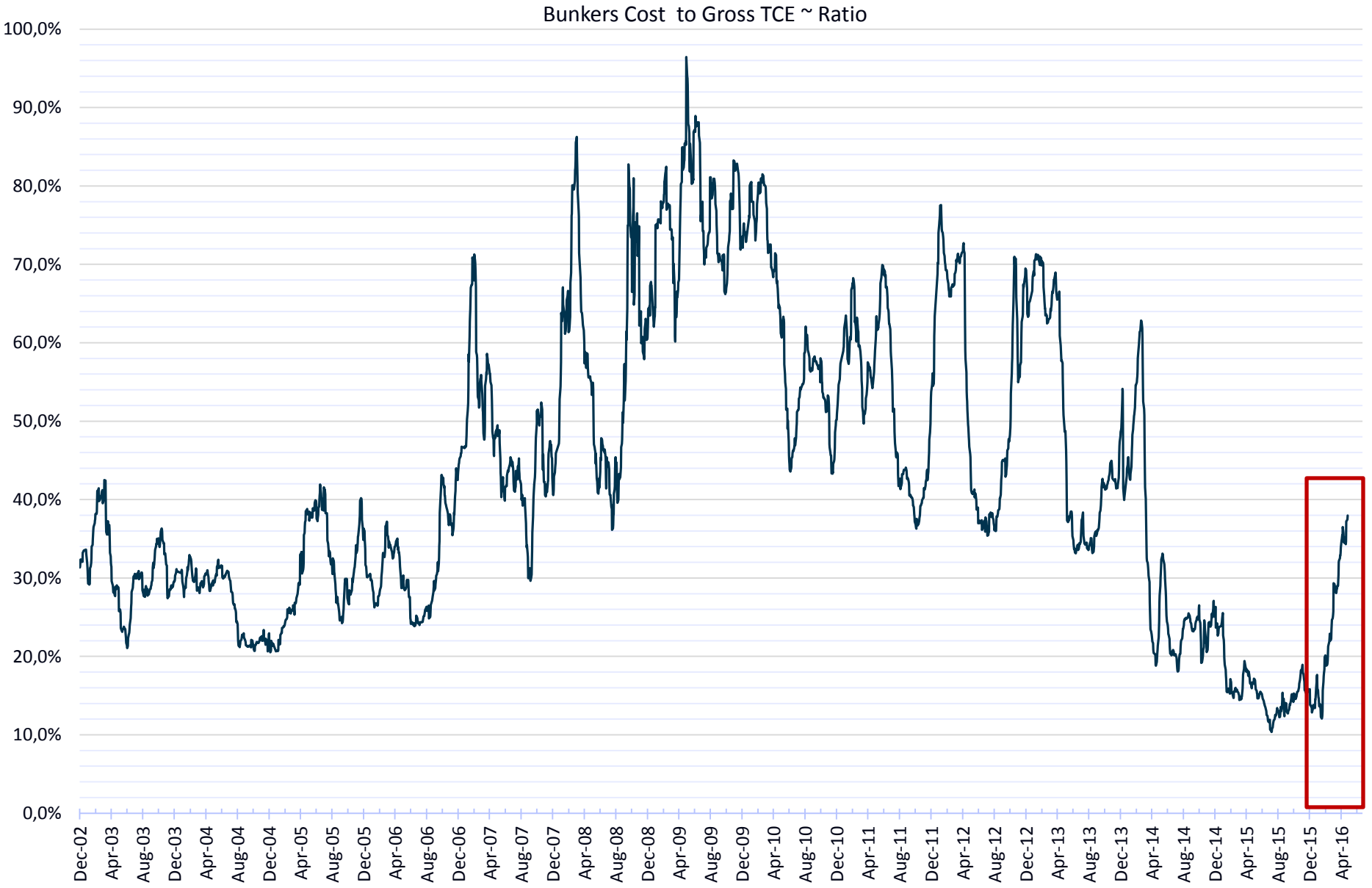
# Massive cost savings for the owners because of the dramatic decline in bunker costs in 2015….do not apply anymore



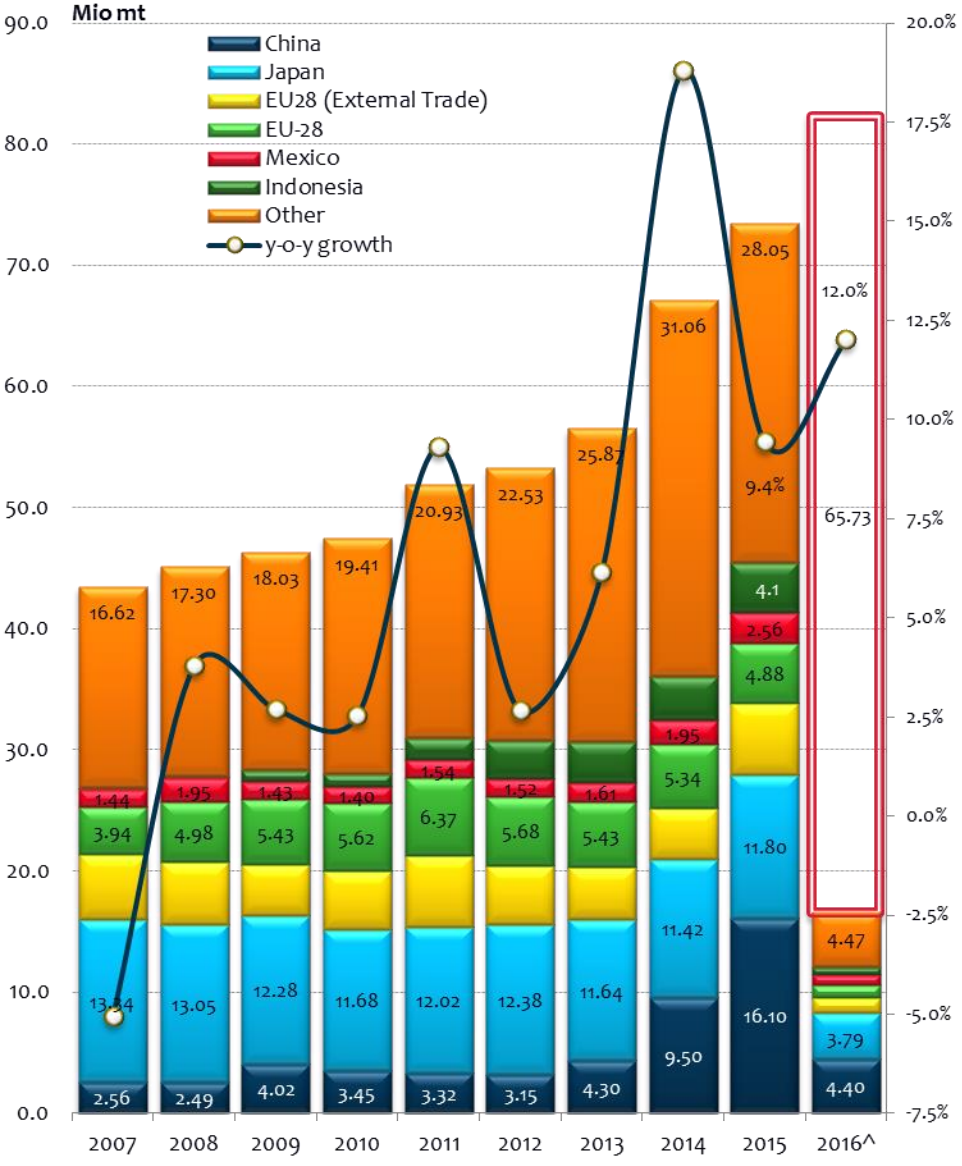
# 4

# The LPG Trade during 2015 and 1Q-2016

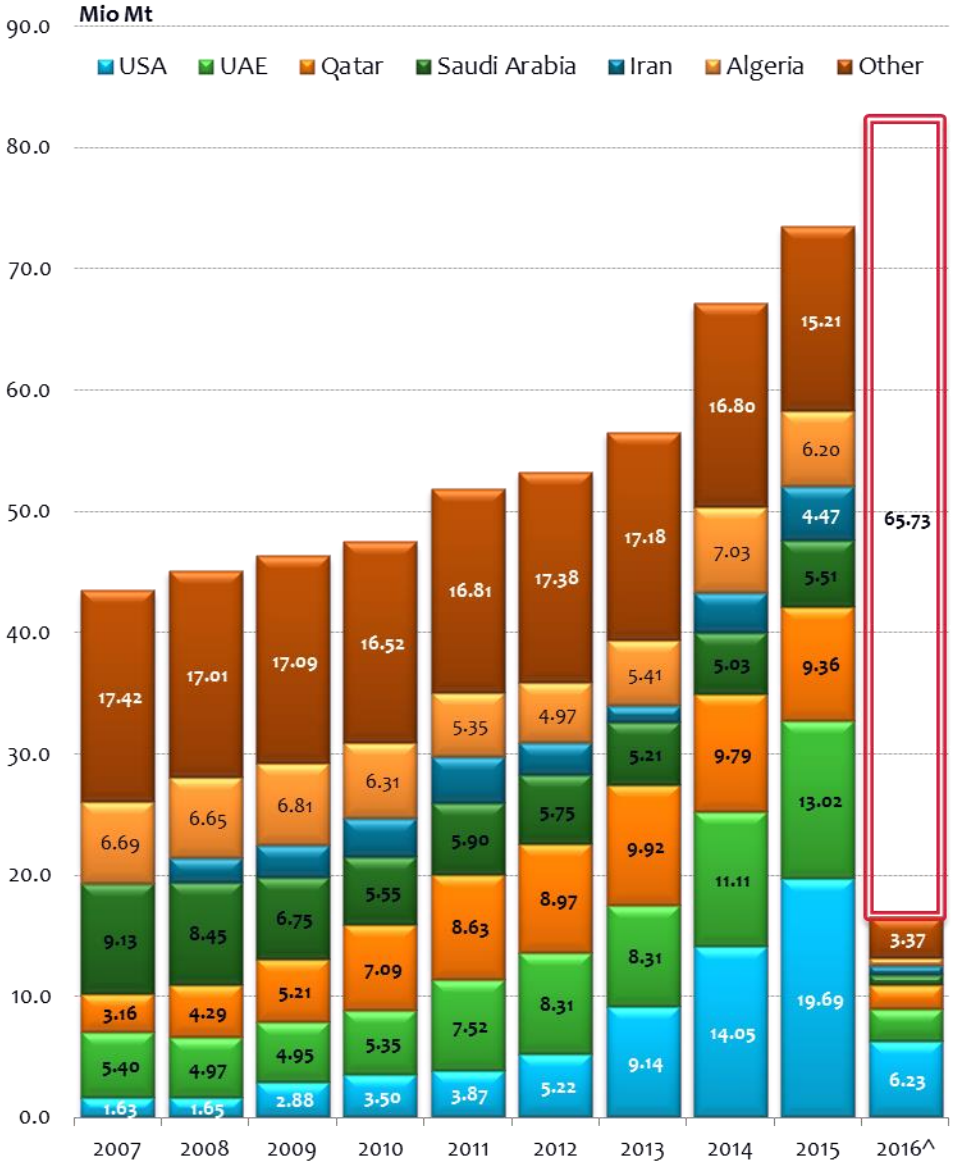
# World LPG Trade Development

*For 2016 LPG exports are expected to increase by 12% to 82 mio mt*

## Major LPG Importers

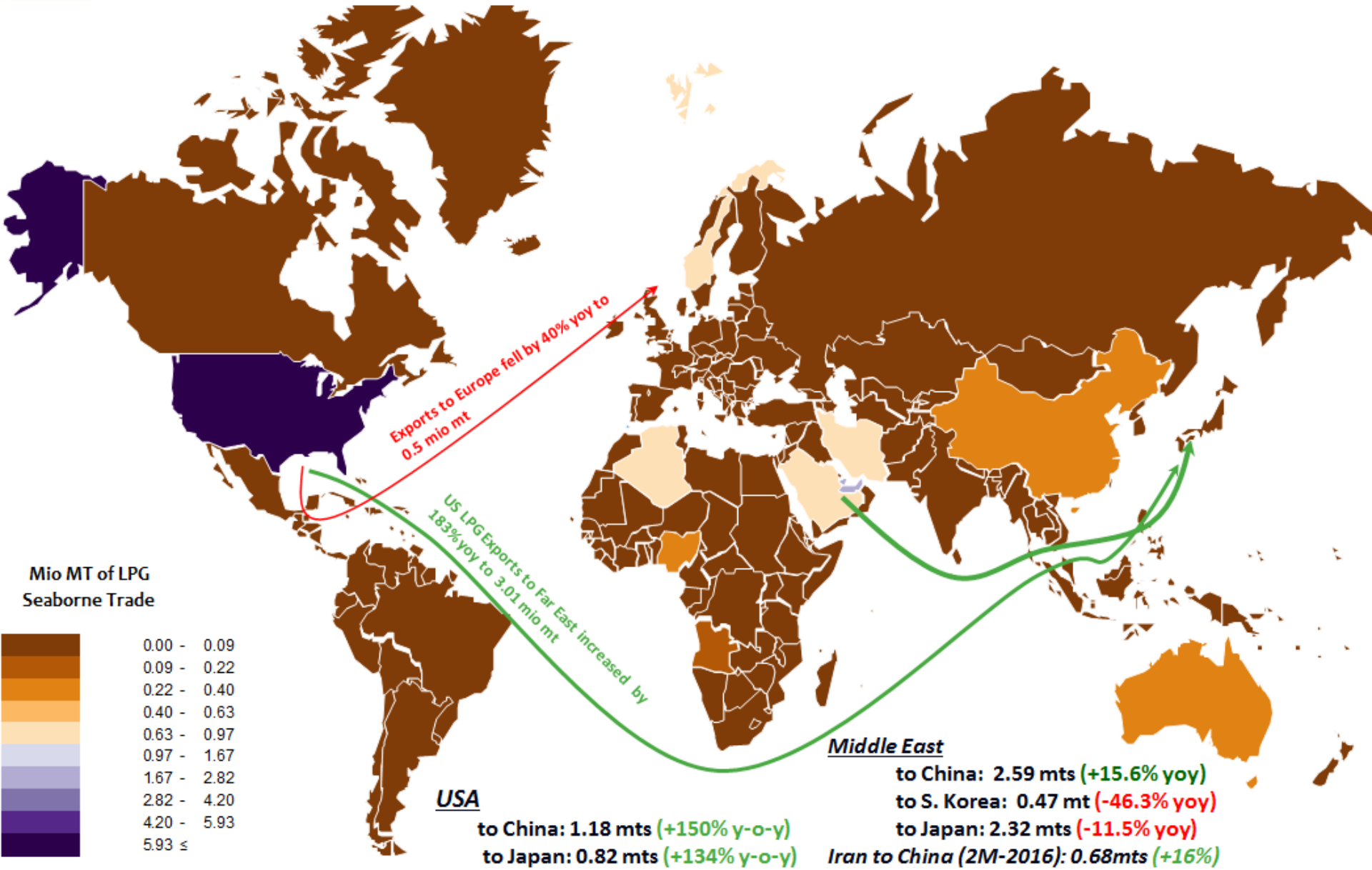



## Major LPG Exporters



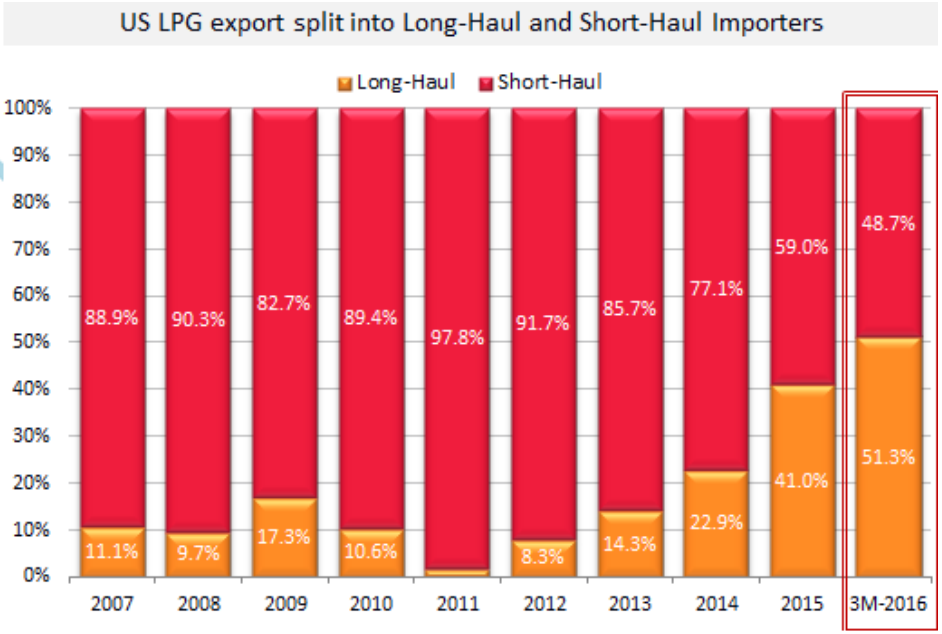

*Data Source: GTIS. ^forecasting as per various sources*

# In Q1-2016, propane and butane trade fell by 1.7% y-o-y to 16.53 mio mt*



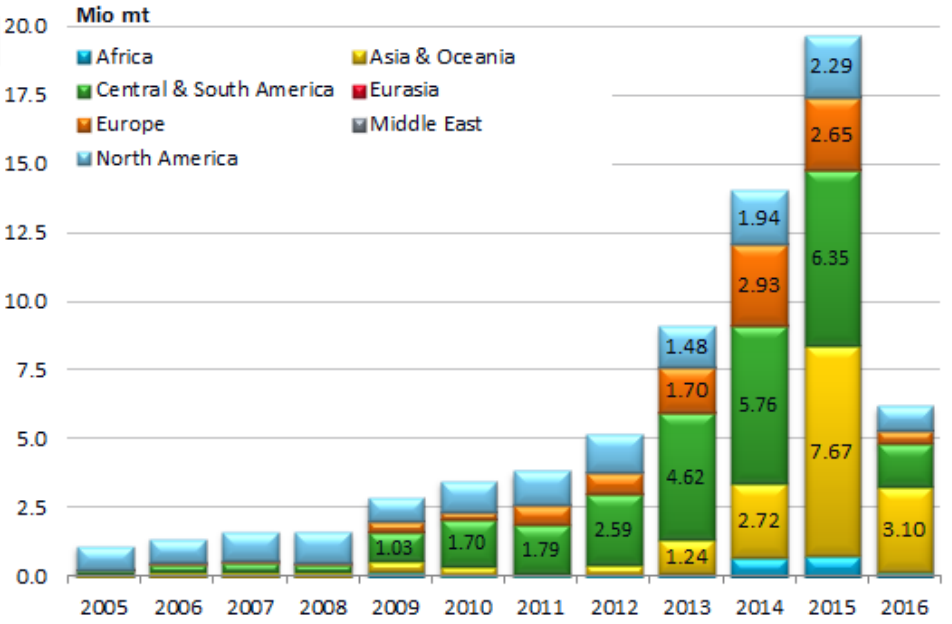

*Data Source: GTIS. * Preliminary data as per data collection on 4th May 2016*

# All of US 2015 LPG exports found homes with Asian countries (China, Japan, S. Korea) absorbing the main increment of those cargoes


US LPG Exports y/y comparison in mio mt

| | 2014 | 2015 | 3M-2015 | 3M-2016 | | y-o-y |
|---|---|---|---|---|---|---|
| Japan | 1.60 | 1.980 | 0.35 | 1.20 | ↑ | 242.4% |
| China | 0.50 | 3.571 | 0.47 | 1.19 | ↑ | 150.0% |
| Mexico | 1.94 | 2.518 | 0.53 | 0.88 | ↑ | 66.4% |
| Korea, South | 0.35 | 1.196 | 0.04 | 0.48 | ↑ | 1000.0% |
| Brazil | 1.46 | 1.449 | 0.18 | 0.30 | ↑ | 63.8% |
| Aruba | 0.57 | 0.716 | 0.11 | 0.29 | ↑ | 151.1% |
| Netherlands | 1.53 | 1.080 | 0.33 | 0.25 | ↓ | -25.4% |
| Other | 6.08 | 7.18 | 2.08 | 1.63 | ↓ | -21.5% |
| **Total** | **14.05** | **19.69** | **4.11** | **6.23** | ↑ | 51.3% |
| y/y Growth | | 40.1% | | | | |




*Data Source: GTIS - IHS, May 2016*

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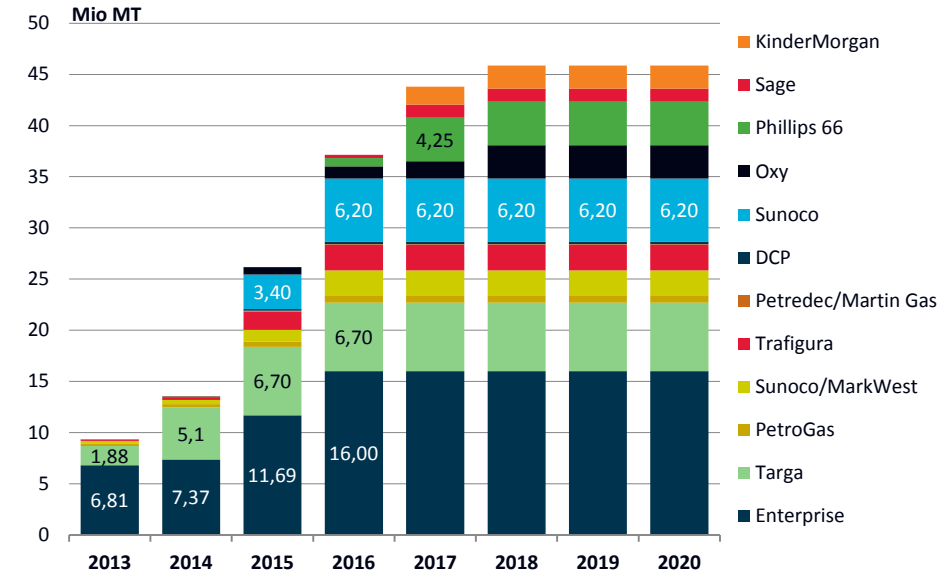
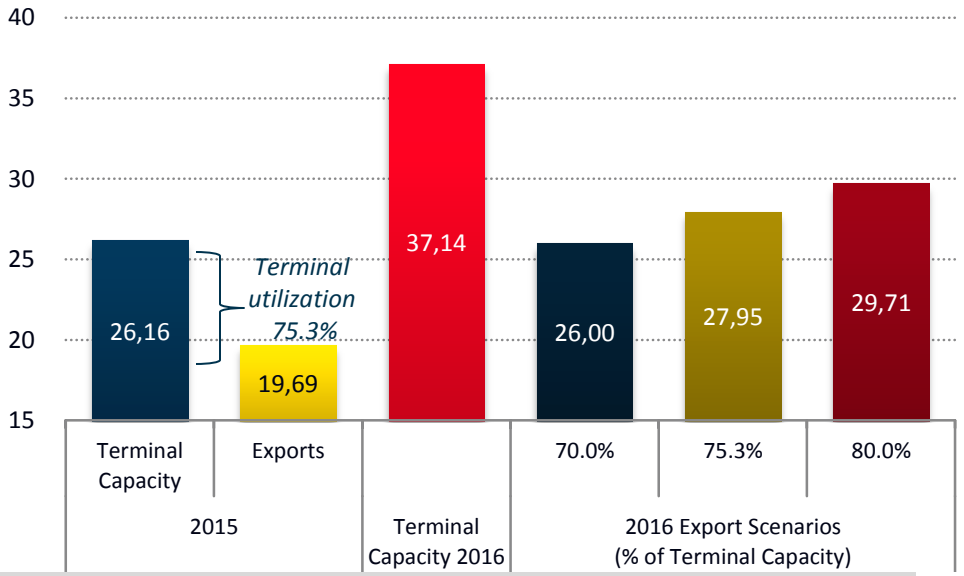
# US Terminal Export Capacity & VLGC liftings from Targa & Enterprise (2014 – Feb 2016)

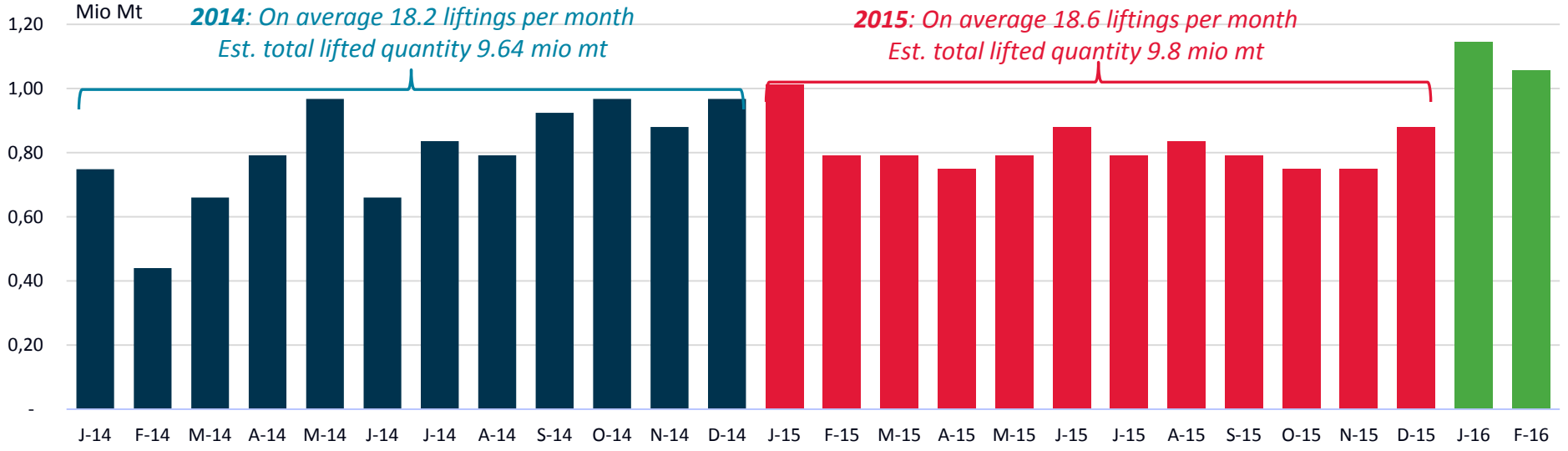
## Estimated North America LPG Export Volume Capacities




## US LPG Export Scenarios based on Terminal Capacity

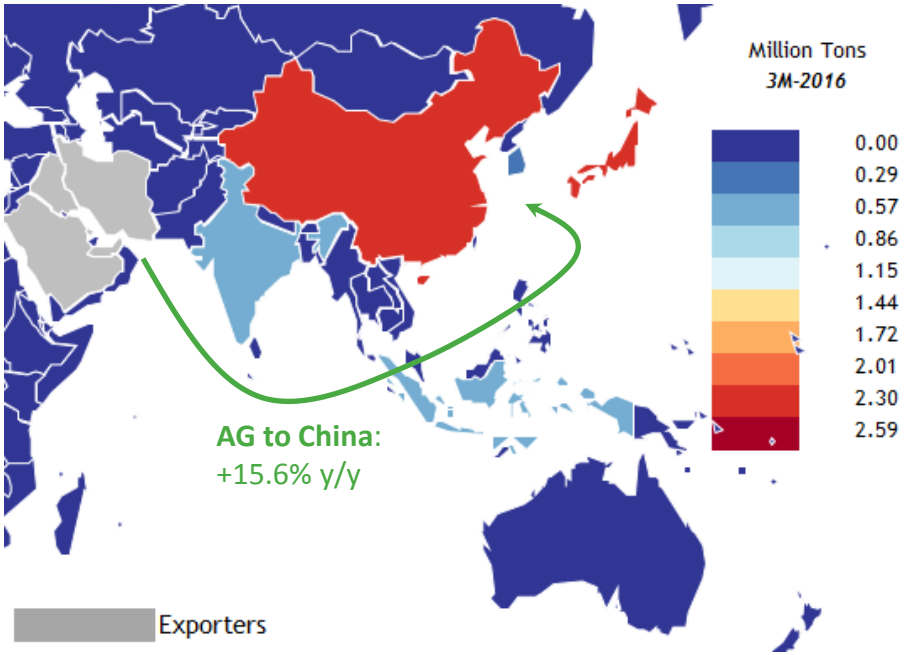



## VLGC Estimated Liftings from Targa and Enterprise, TX (mio mt)

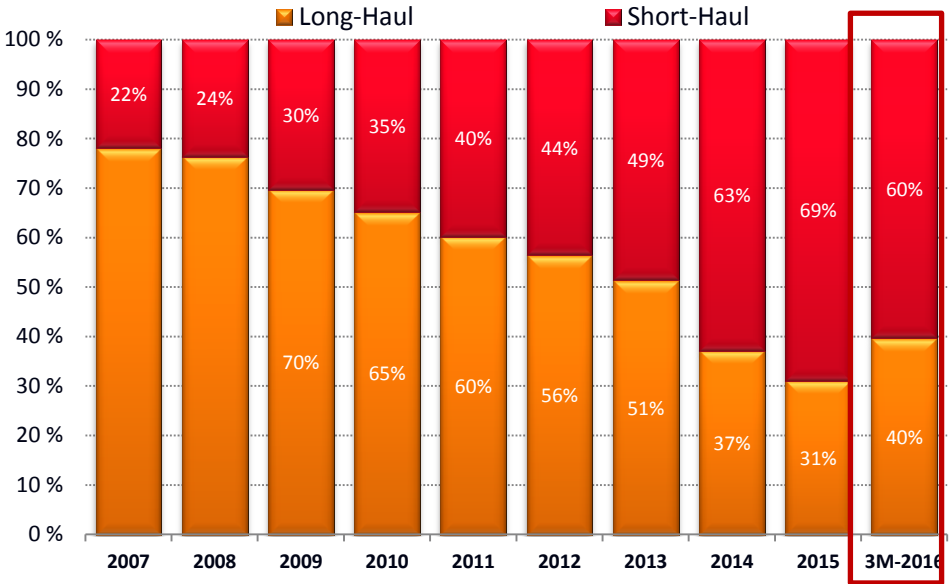



*Data Source: GTIS / IHS. Lifting data are from AIS*

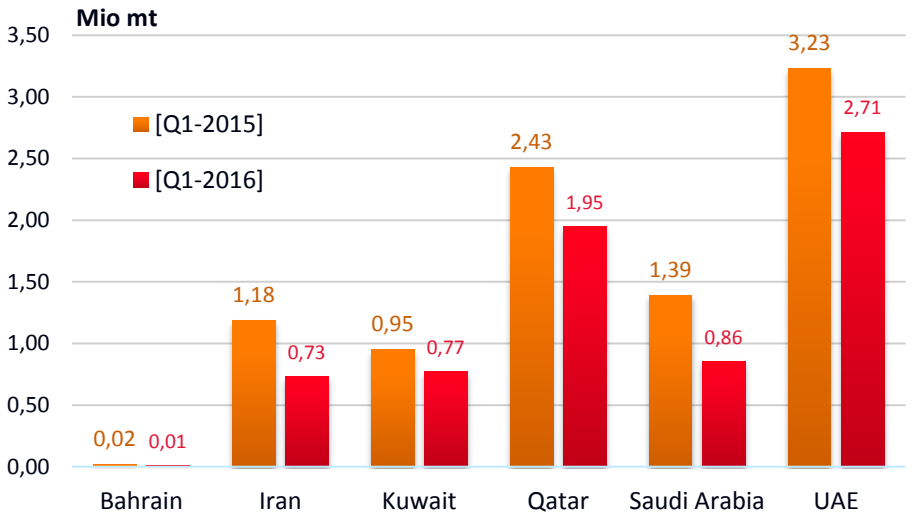
# Middle East LPG Exports during 2015 and 1Q-2016




## Split between Long-Haul and Short-Haul Importers




## Who has exported the most during Q1-2015 & Q1-2016




## Middle East LPG Exports y/y comparison in mio mt*

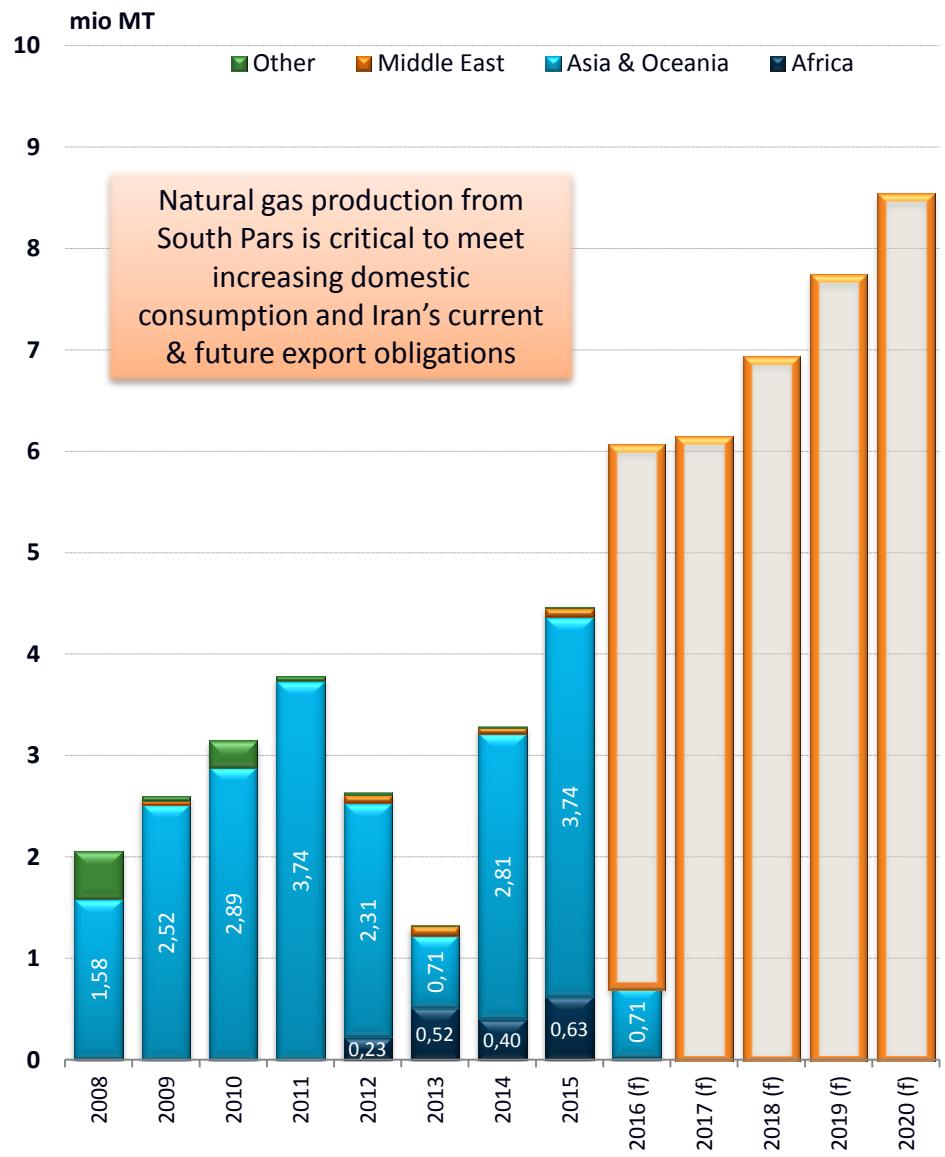
| | 2014 | 2015 | y-o-y | 3M-2015 | 3M-2016 | y-o-y |
|---|---|---|---|---|---|---|
| China | 7.79 | 10.91 | ↑ 39.9% | 2.24 | 2.59 | ↑ 15.6% |
| India | 7.51 | 8.28 | ↑ 10.3% | 2.03 | 0.77 | ↓ -62.0% |
| Japan | 8.20 | 7.99 | ↓ -2.6% | 2.62 | 2.32 | ↓ -11.5% |
| Indonesia | 3.23 | 3.84 | ↑ 18.8% | 0.84 | 0.63 | ↓ -25.1% |
| Korea, South | 3.77 | 3.08 | ↓ -18.2% | 0.88 | 0.47 | ↓ -46.3% |
| Thailand | 1.79 | 1.30 | ↓ -27.6% | 0.34 | 0.21 | ↓ -39.7% |
| Other | 0.917 | 1.04 | ↑ 13.7% | 0.25 | 0.05 | ↓ -81.7% |
| **Total*** | **33.21** | **36.44** | ↑ **9.7%** | **9.20** | **7.03** | ↓ **-23.6%** |

*Data Source: GTIS. * Preliminary data as per data collection on 4th May 2016*

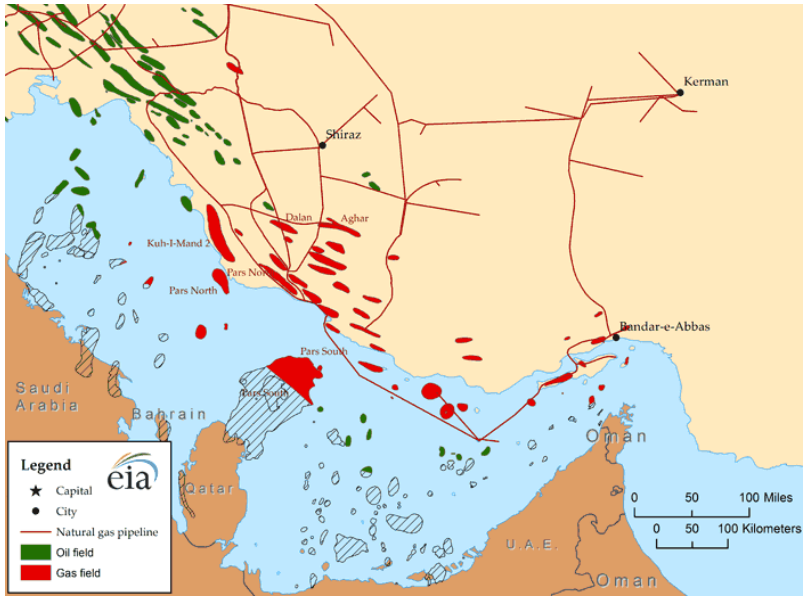
Prepared by Dr. Mariniki PSIFIA, 2016

# Iran LPG Exports following the removal of International Sanctions and South Pars 24-phase development plans

## Iran LPG Historical and Future Estimated Exports




## The South Pars fields

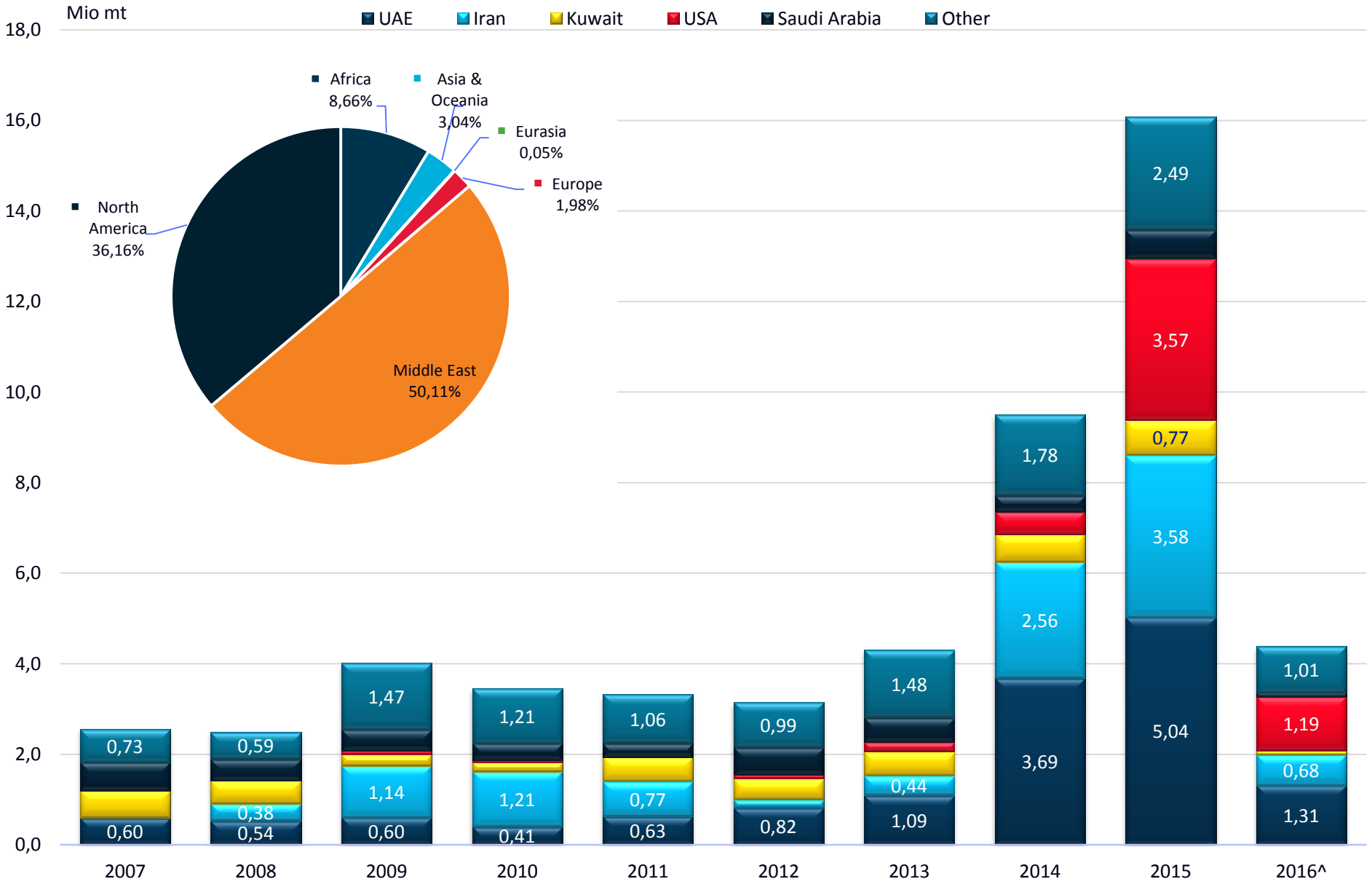



## The South Pars Development Plans

| Phases | Latest Status | Development Progress (Q1-2015) | Startup | Gas (bscf/d) | Condensate (kb/d) | LPG (mmtpa) | Ethane (mmtpa) |
|---|---|---|---|---|---|---|---|
| 1 | In Operation | | 2003 | 1.0 | 40.0 | | |
| 2 & 3 | In Operation | | 2002 | 2.0 | 80.0 | | |
| 4 & 5 | In Operation | | 2004 | 2.0 | 80.0 | 1.1 | 1.0 |
| 6 to 8 | In Operation | | 2008 | 3.7 | 158.0 | 1.6 | |
| 9 & 10 | In Operation | | 2010 | 2.0 | 80.0 | 1.1 | 1.0 |
| 11 | On Hold | | ? | 2.0 | 80.0 | | |
| 12 | In Operation | | 2014 | 3.0 | 120.0 | 1.1 | 1.0 |
| 13 | Under Development | 72% | 2020 | 2.0 | 80.0 | 1.1 | 1.0 |
| 14 | Under Development | 57% | 2020-2021 | 2.0 | 77.0 | 1.1 | 1.0 |
| 15 & 16 | Under Commissioning | 99% | 2015 | 2.0 | 80.0 | 1.1 | 1.0 |
| 17 & 18 | Under Commissioning | 93% | 2015-2016 | 2.0 | 80.0 | 1.1 | 1.0 |
| 19 | Under Development | 84% | 2016 | 2.0 | 77.0 | 1.1 | 1.0 |
| 20 & 21 | Under Development | 70% | 2017-2018 | 2.0 | 75.0 | 1.1 | 1.0 |
| 22 to 24 | Under Development | 74% | 2020 | 2.0 | 77.0 | 1.1 | 1.0 |
| ULTIMATE TARGET PRODUCTION | | | | 29.70 | 1,184.0 | 12.60 | 10.00 |
| 2015 OUTPUT | | | | 13.7 | 558.0 | 4.9 | 3.0 |

*Data Source: GTIS and Information from 10th LPG Trade Summit, Istanbul 2015, FGE. Prepared by Dr. Mariniki Psifia*

# During Q1-2016, China's seaborne LPG imports totalled 4.4 mio mt, up by 47.8% y-o-y

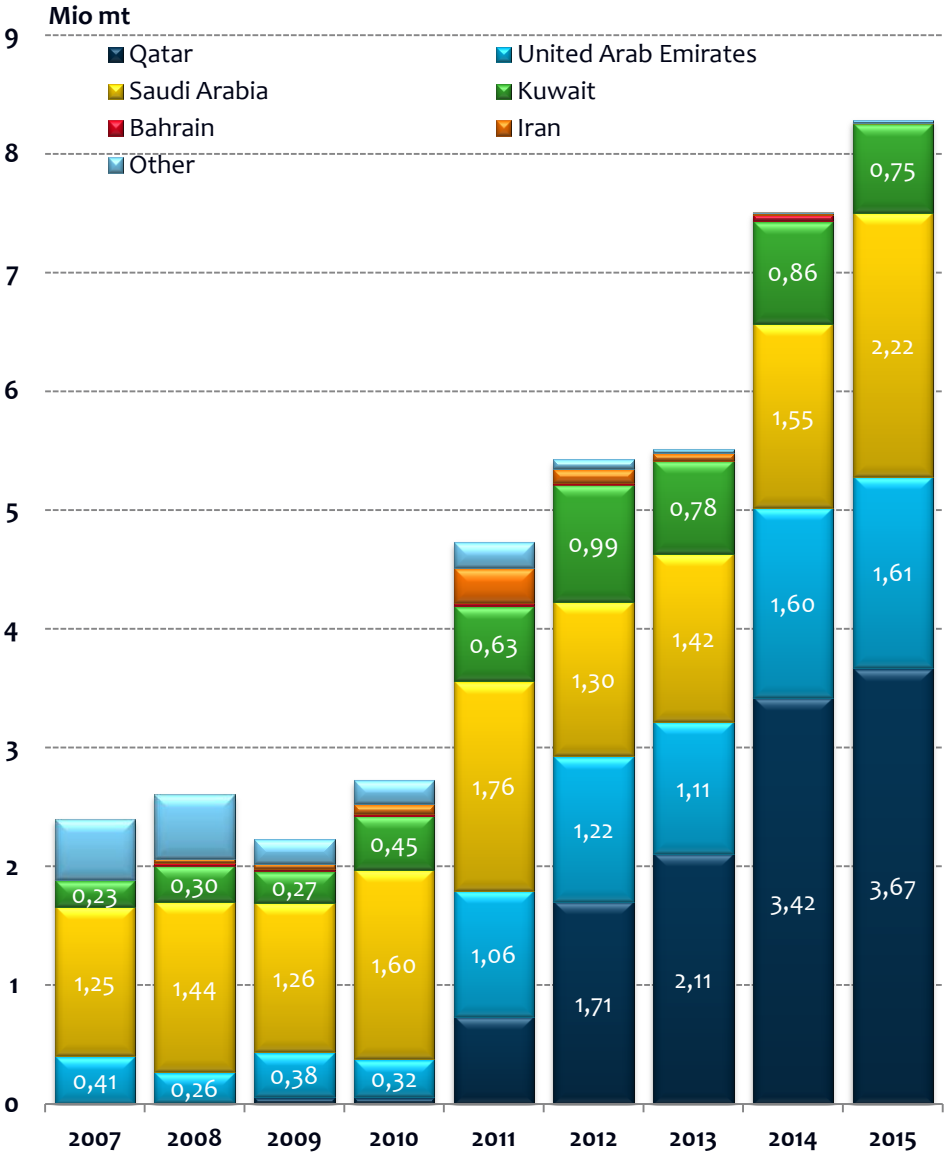



Data: GTIS / HIS. 2016^: 3M-2016

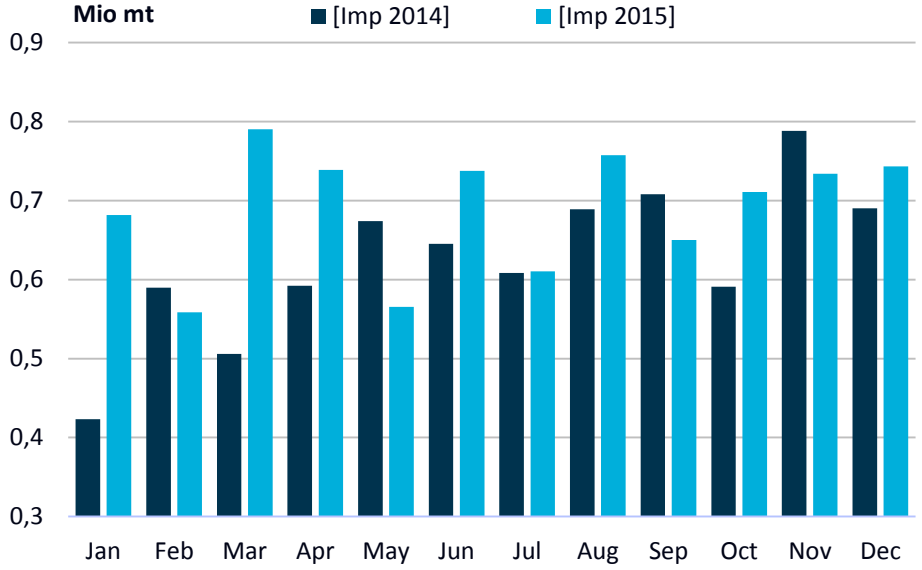
Prepared by Dr. Mariniki PSIFIA, 2016

# India LPG Imports keep increasing

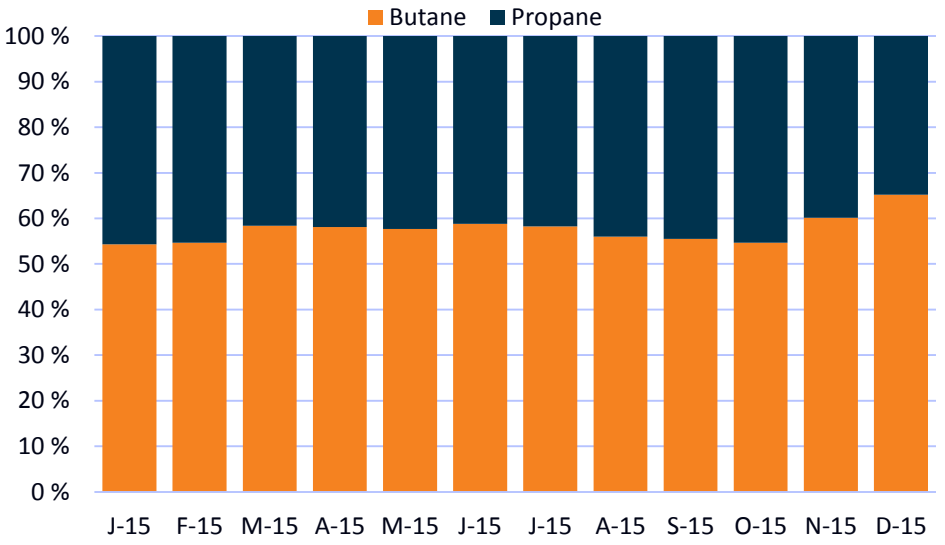
## Yearly Indian LPG Imports




## 2014-2015 Monthly Indian LPG Imports




## Propane and Butane split




*Data Source: GTIS/IHS*

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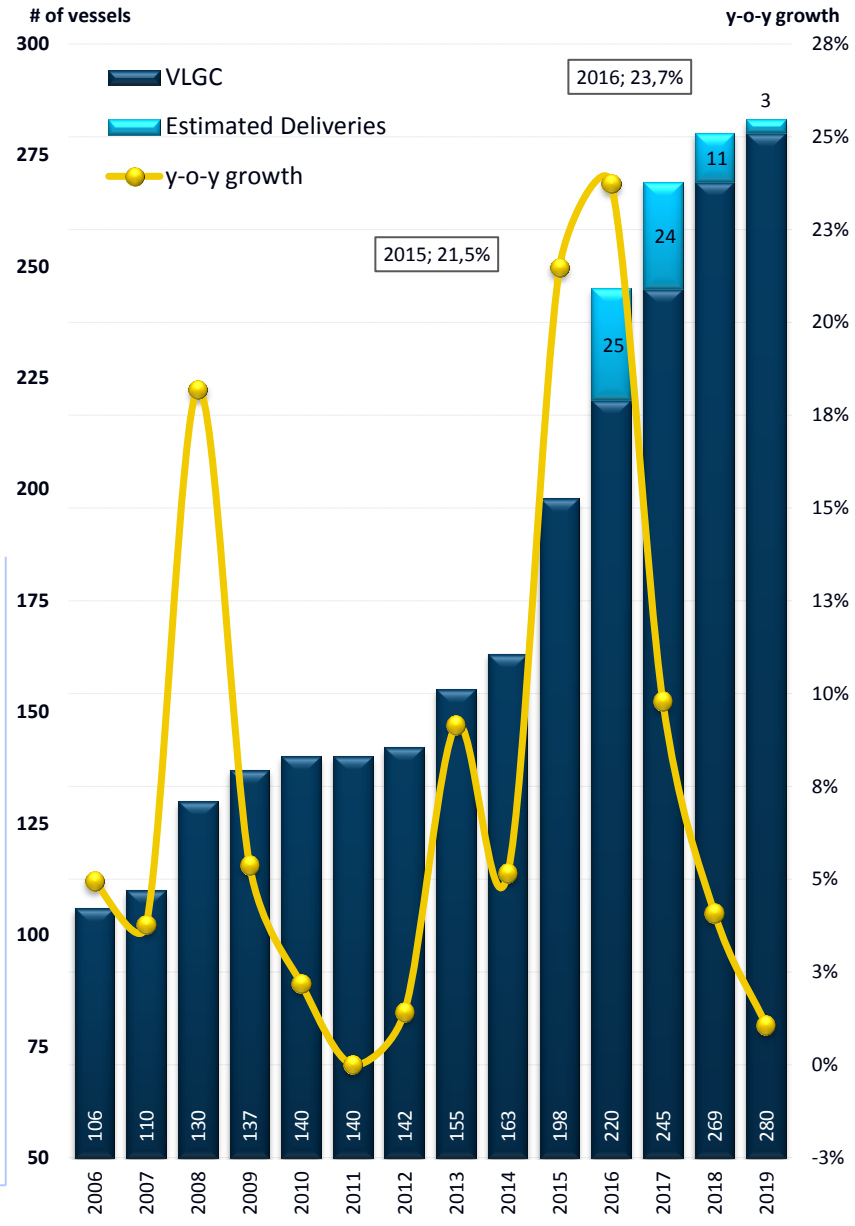
# The VLGC Fleet

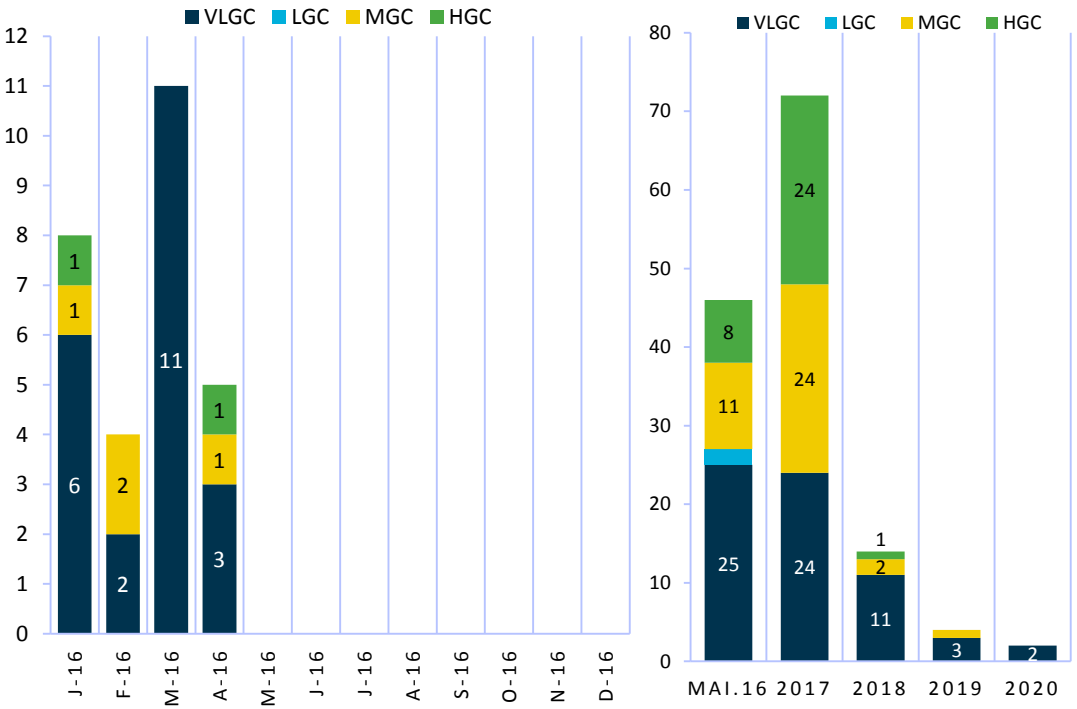
# LPG Fundamentals: Supply

- VLGC units currently number 220 ships of a total 17.38m cu.m,
- The y-o-y VLGC growth is today equal to 29.4% in number of vessels and it is expected to exceed the 34.17% by June 2016.
- The orderbook is quite heavy for the specific sector with 29.2% of the fleet in cu.m terms currently on order (65 vessels).
- Since the beginning of 2016, 22 VLGC of a total 1.84 mio cu.m were delivered and 3 new VLGC orders were placed to the shipyards

## VLGC Supply Growth* in number of vessels

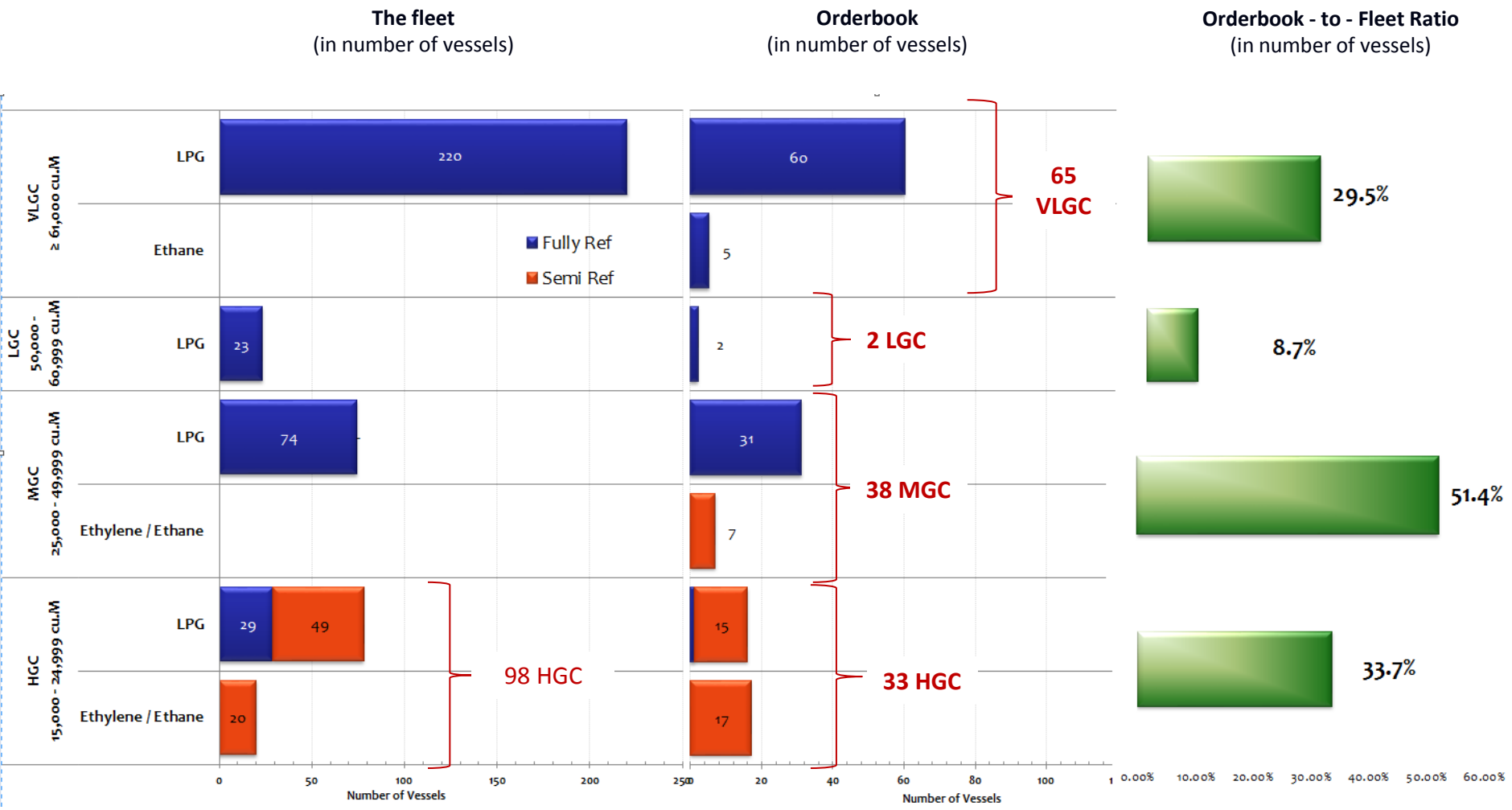



## Deliveries and Orderbook in number of vessels




**Source**: Clarksons. * Slippage and Cancellations are not included

# LPG Fleet – Size Ranges, Cargo Capability & Tank Type

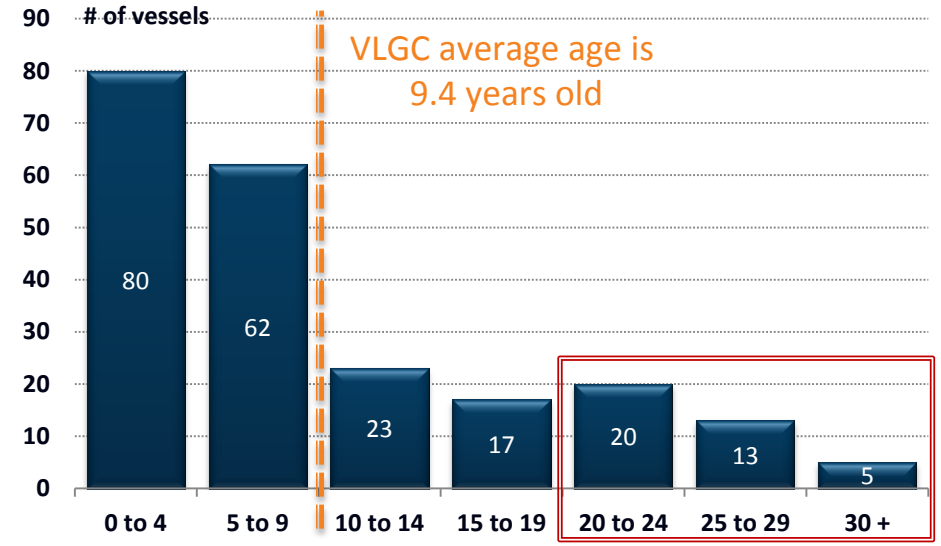



Data: Clarksons SIN

Prepared by Dr. Mariniki PSIFIA, 2016

# Currently the VLGC fleet stands at 220 vessels of 17.93 mio cu.M

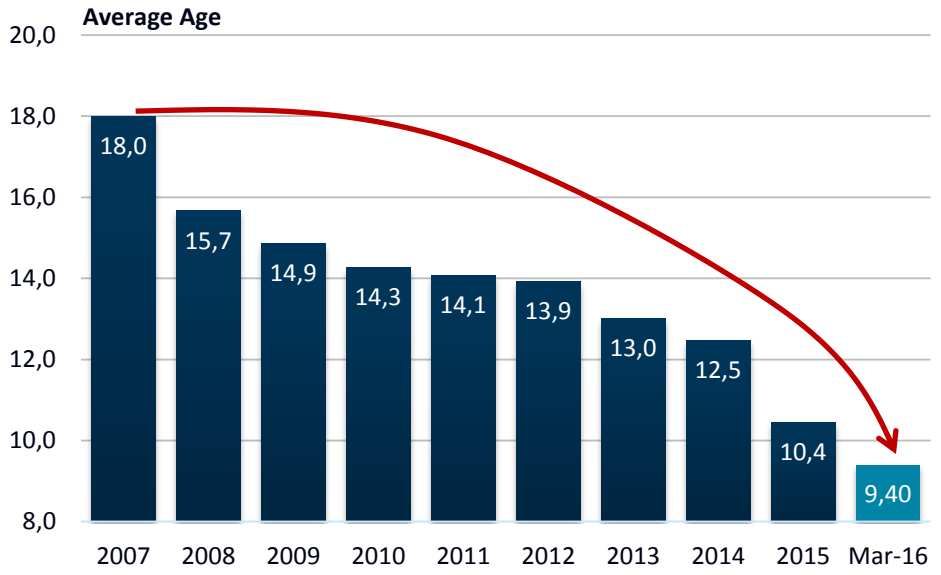
## 38 vessels are older than 20 years old



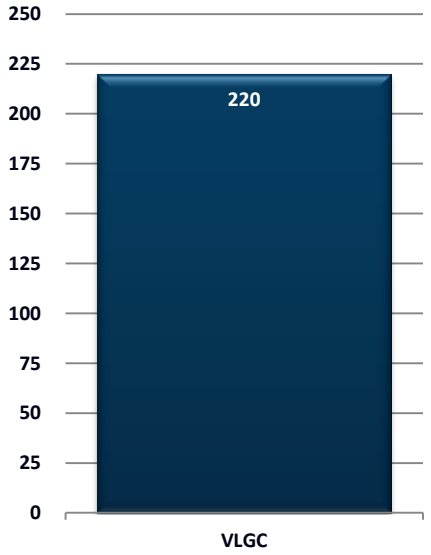

## VLGC Fleet Profile

| VLGC ≥ 61,000 cu.M. | in million cu.m. | in number of vessels |
|---|---|---|
| Fleet As of Start 2016 | 16.09 | 198 |
| Deliveries | 1.84 | 22 |
| Demolitions | - | - |
| **Fleet As of today** | **17.93** | **220** |
| **NET FLEET CHANGE** ↑ | **1.84** ↑ | **22** |
| **Orderbook [2016 - 2020]** | **5.24** | **65** |
| ***Orderbook to Fleet*** | **29.2%** | **29.5%** |

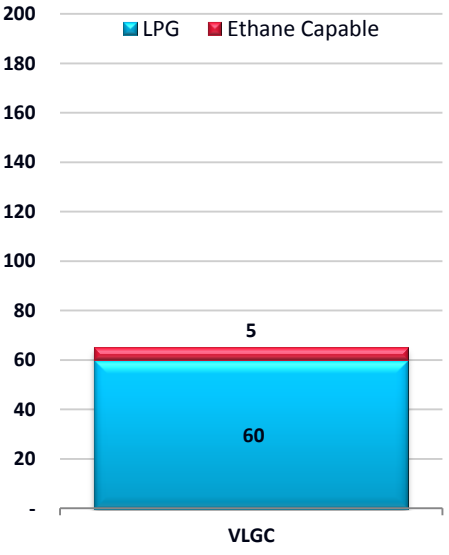
## In just 10 years, the average VLGC age fell by 47.7% to less than 9.4 years old




## The Fleet



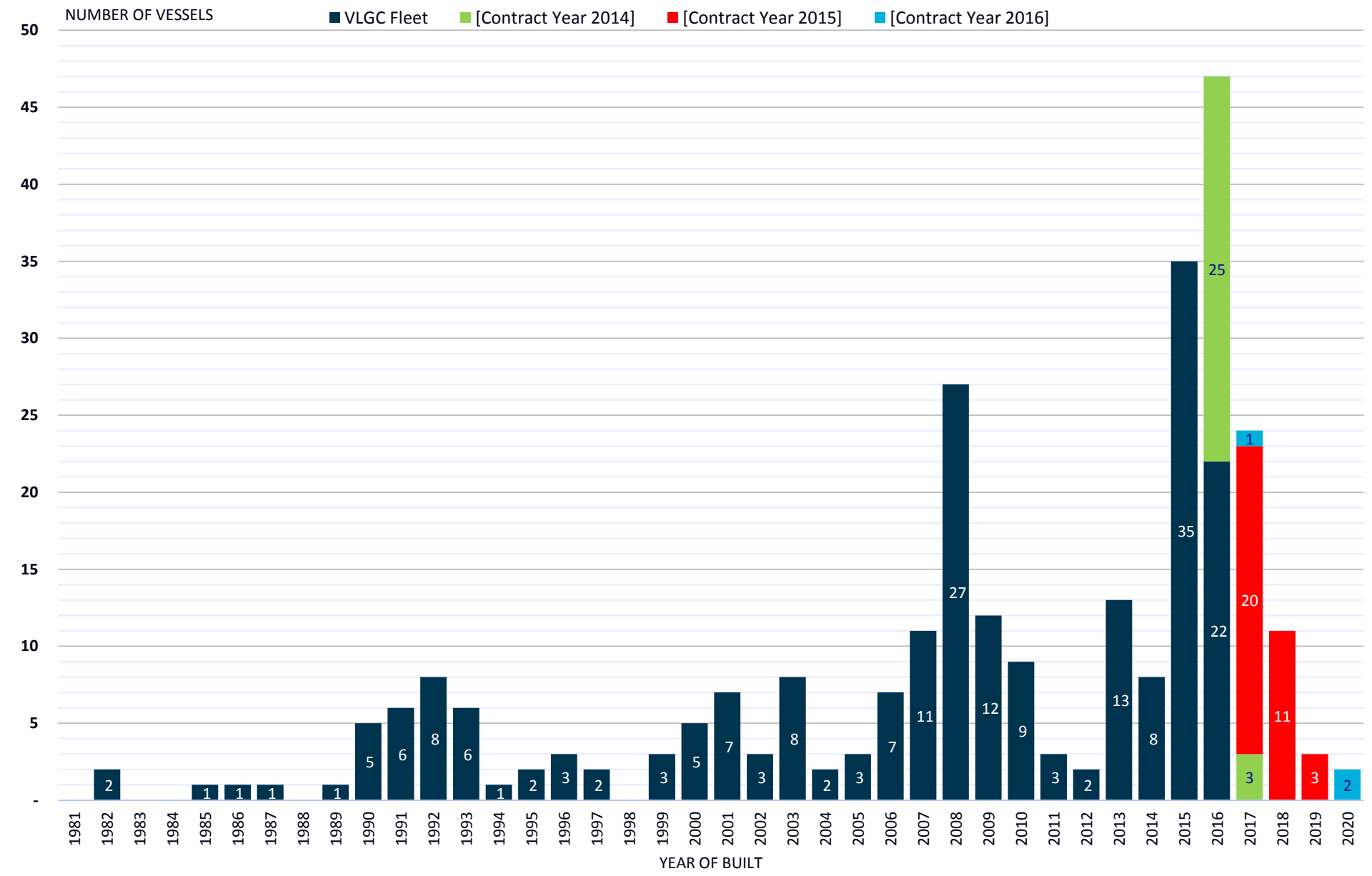

## The Orderbook




Data: Clarksons SIN

Prepared by Dr. Mariniki PSIFIA, 2016

# VLGC Fleet Per Year of Built & Orderbook



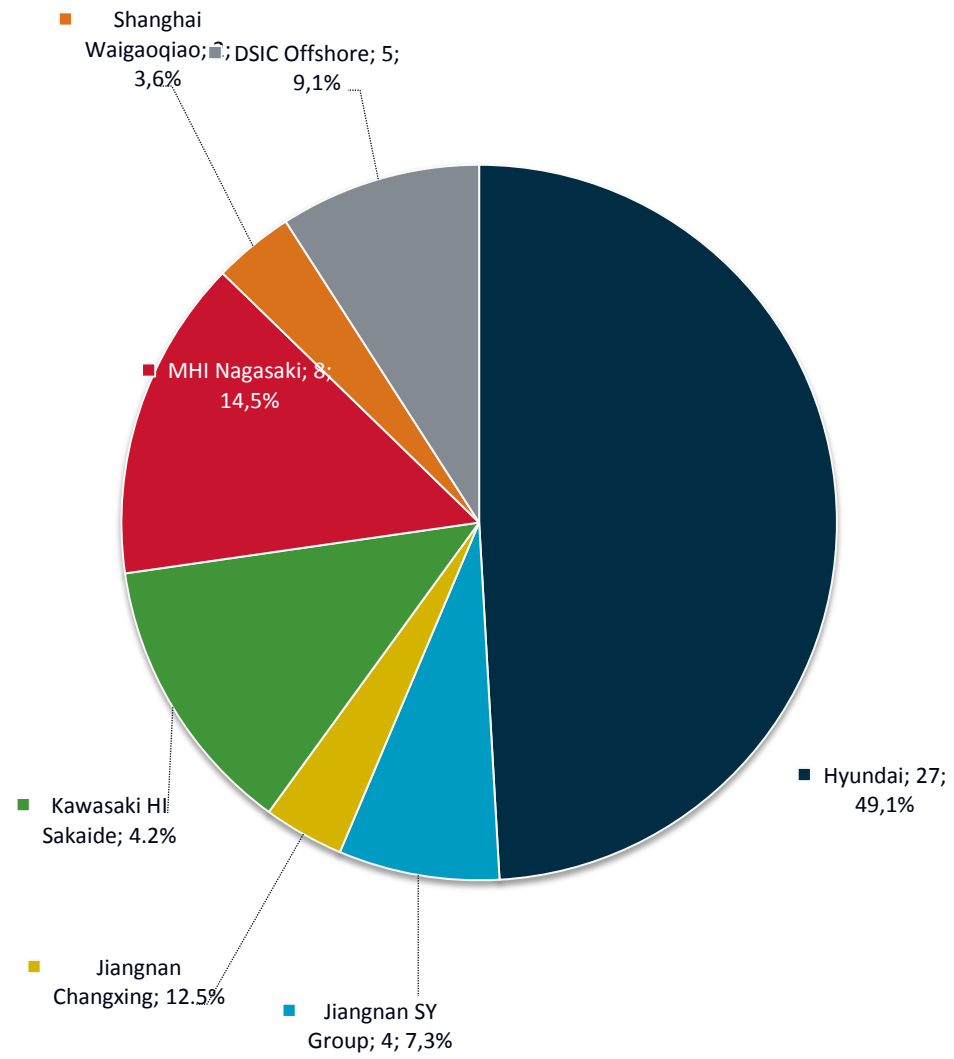

Source: Clarksons SIN

Prepared by Dr. Mariniki PSIFIA, 2016

# The VLGC Orderbook per Yard

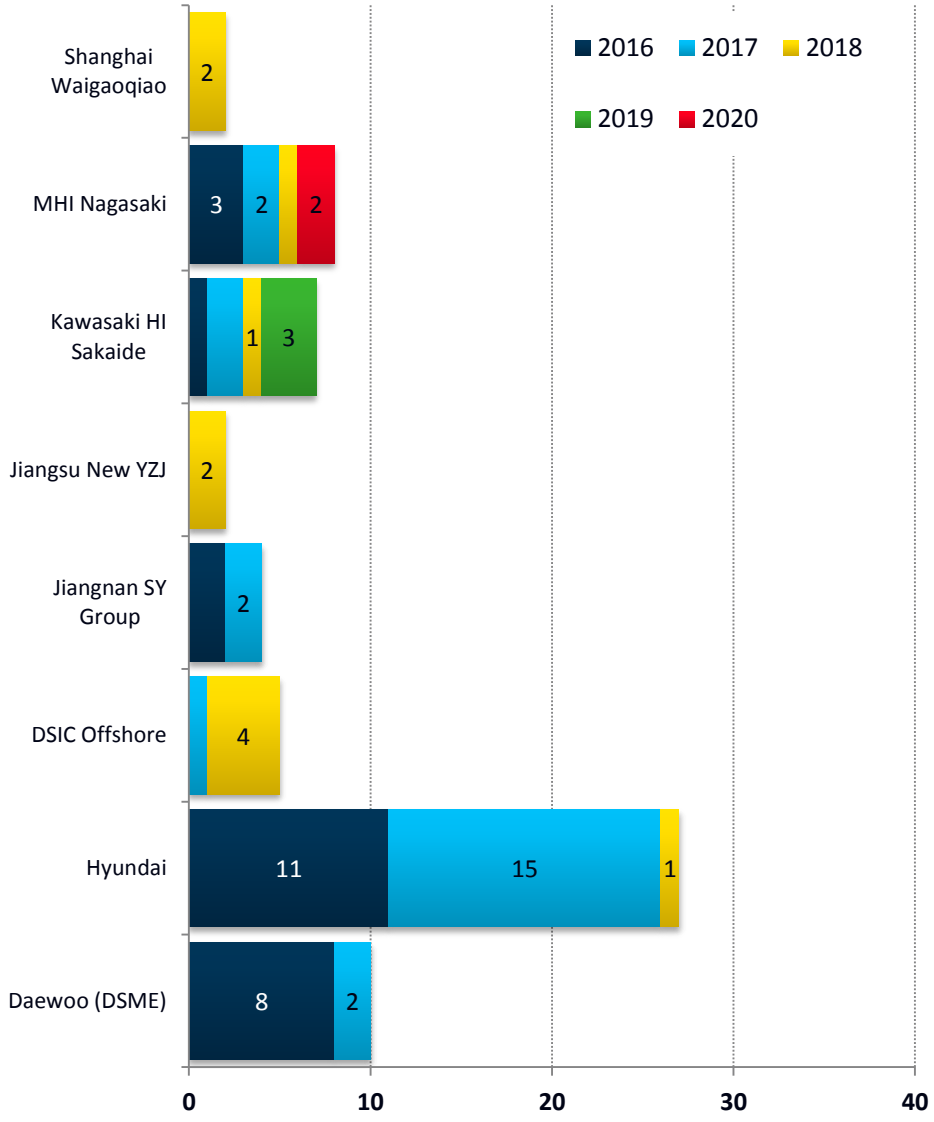
## The Orderbook per Yard

*(in number of vessels)*




## Scheduled Deliveries per Year

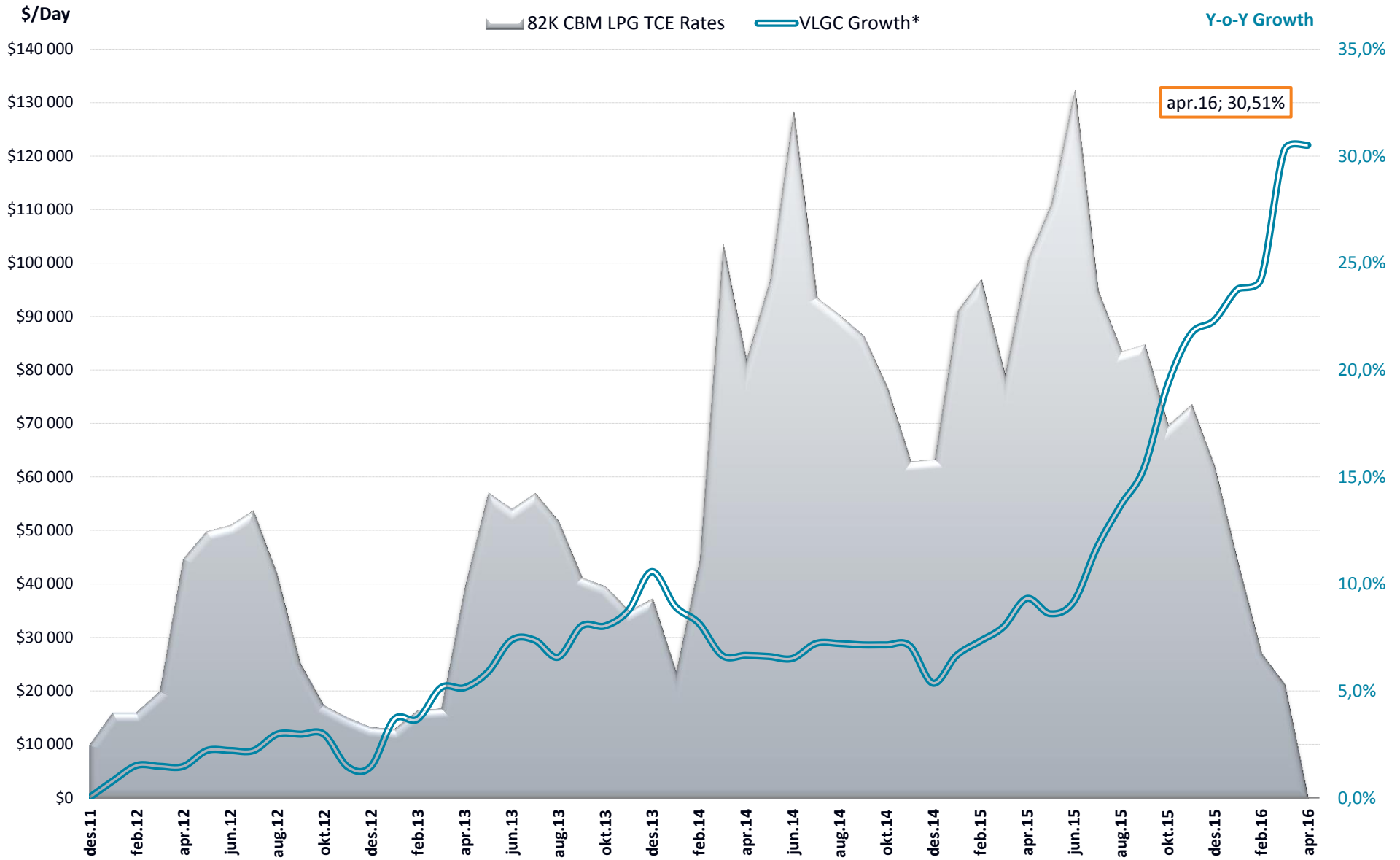
*(in number of vessels)*




Source: Clarksons SIN

Prepared by Dr. Mariniki PSIFIA, 2016

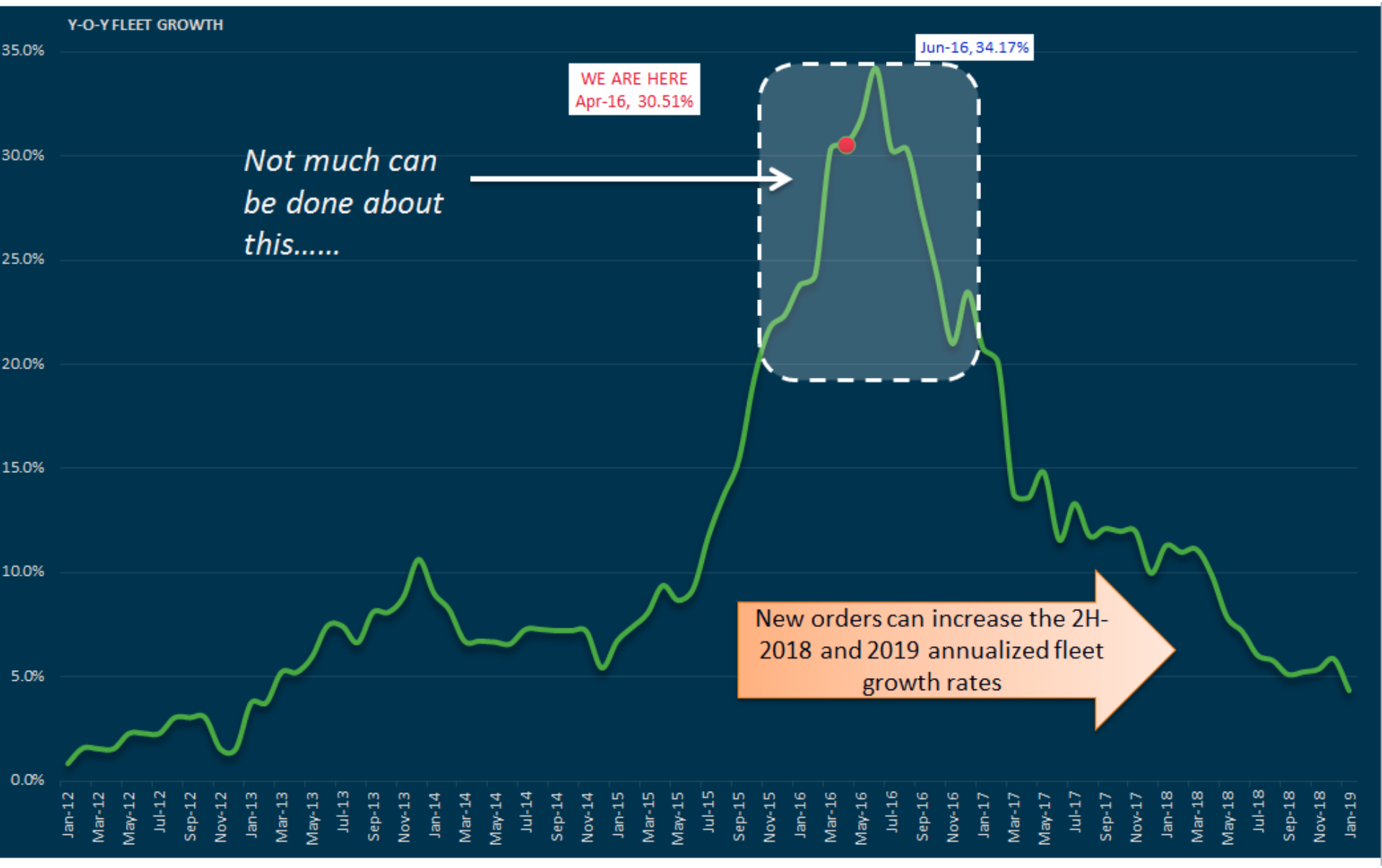
# VLGC y-o-y fleet growth and timecharter equivalent rates (TCE)




Historical Data: Clarksons SIN. * VLGC Growth in cu.m

Prepared by Dr. Mariniki PSIFIA, 2016

# As per current shipyard delivery schedule, it is estimated that the VLGC fleet y-o-y growth will peak in June 2016




Source: Historical Data Clarksons SIN

# Thank you!