

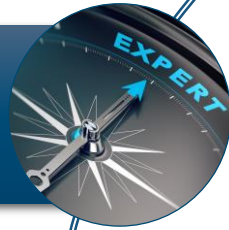


# LPG market intro & *the role of the modern commodity analyst*

# NGLS introduction

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

Commercial Advice



Consulting



Market Insights



Multiclient  
Products



Retainer  
Agreements



Training/Workshops



## NGLS Expertise

LPG

Ethane

Olefins and their feedstocks

Global petchem gases trade

# Presentation to Cass Business School

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# Agenda

**LPG Market Fundamentals**

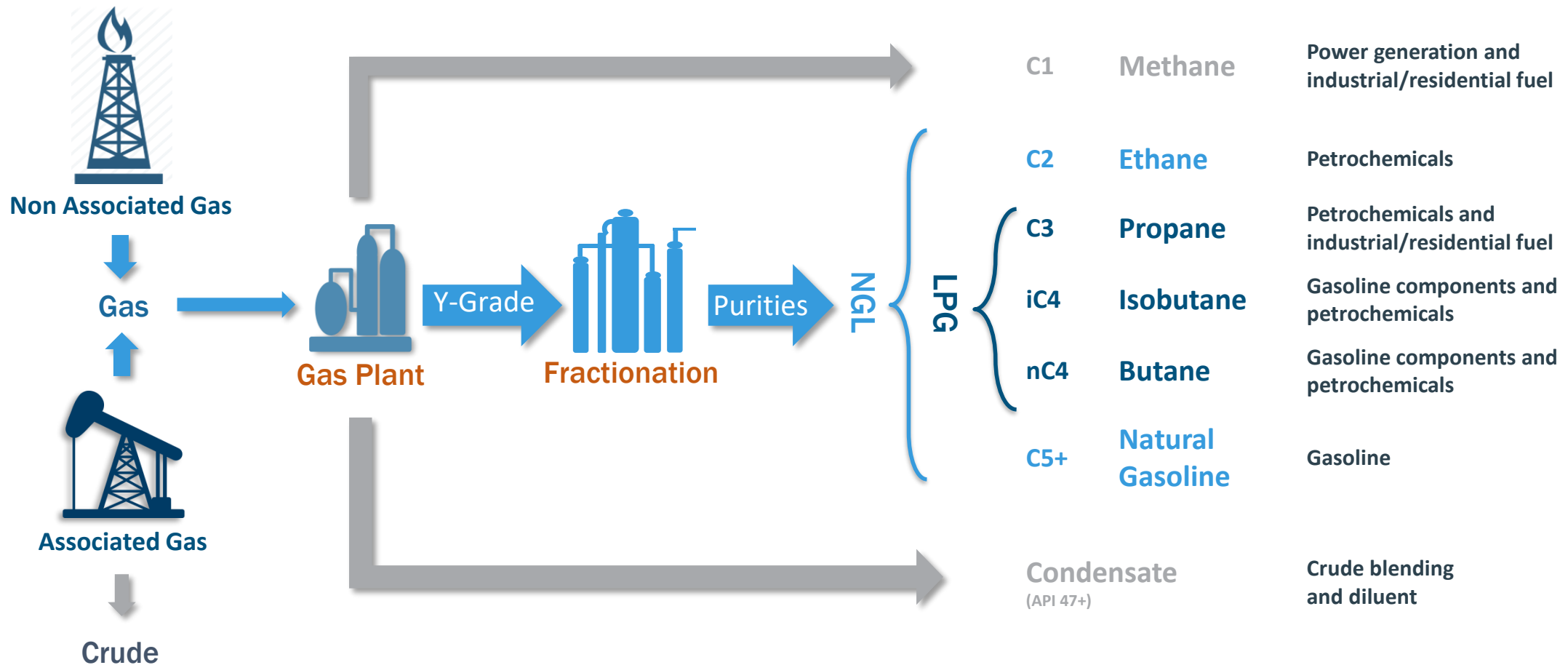
**A Closer Look into the Market**

**Gas Liquid Shipping Intro**

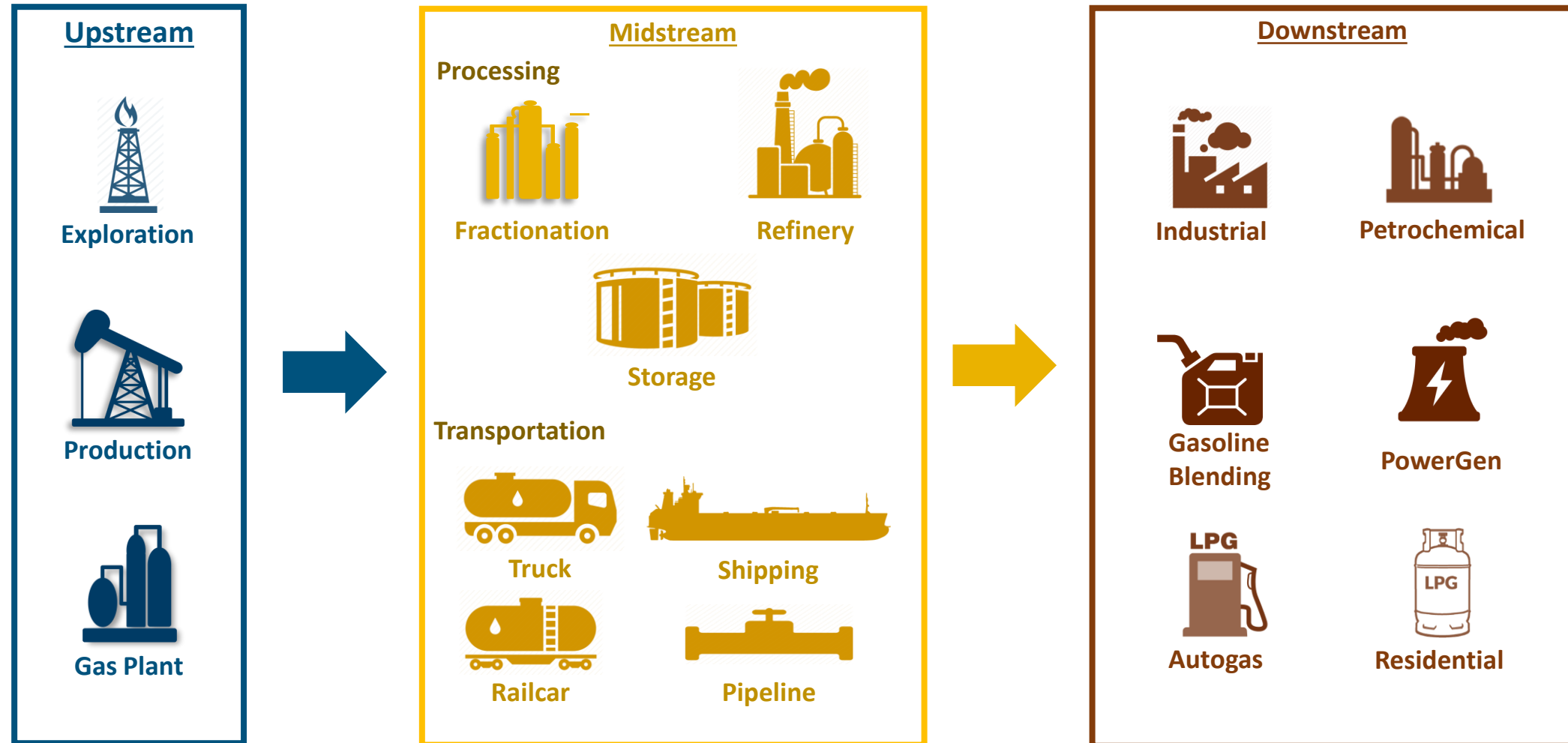
**The Role of the Modern Commodity Analyst**

# LPG Market Fundamentals

# Natural Gas Liquids product chain

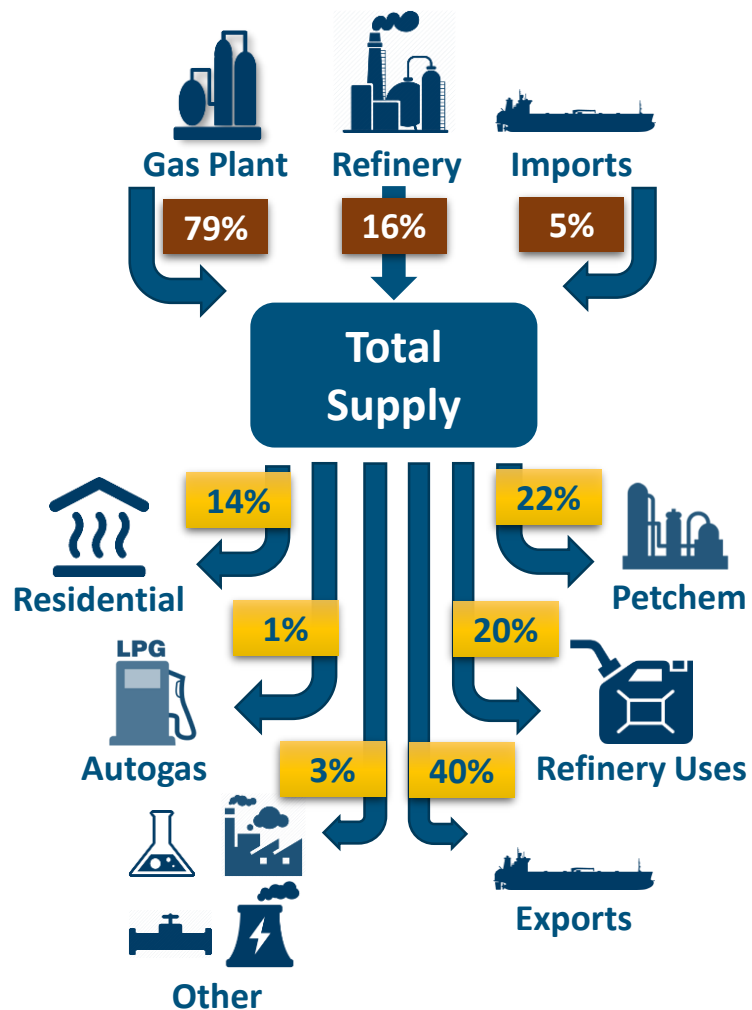


# NGL Upstream–Midstream–Downstream

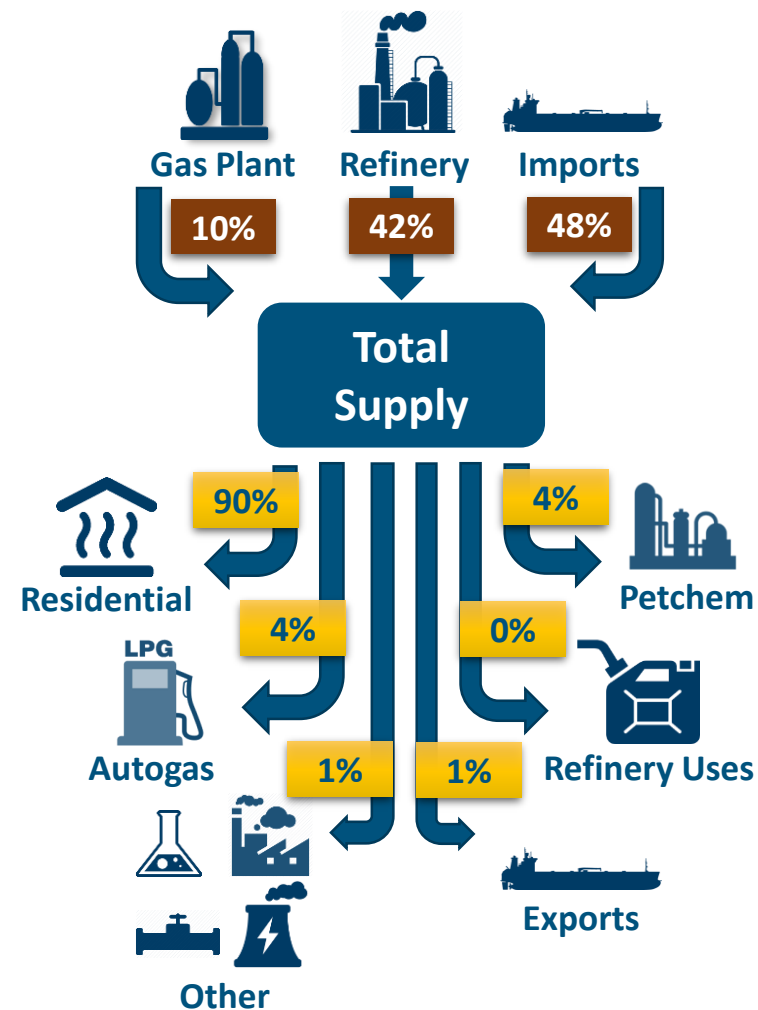


# Downstream fundamentals

USA LPG Downstream Break-down 2016



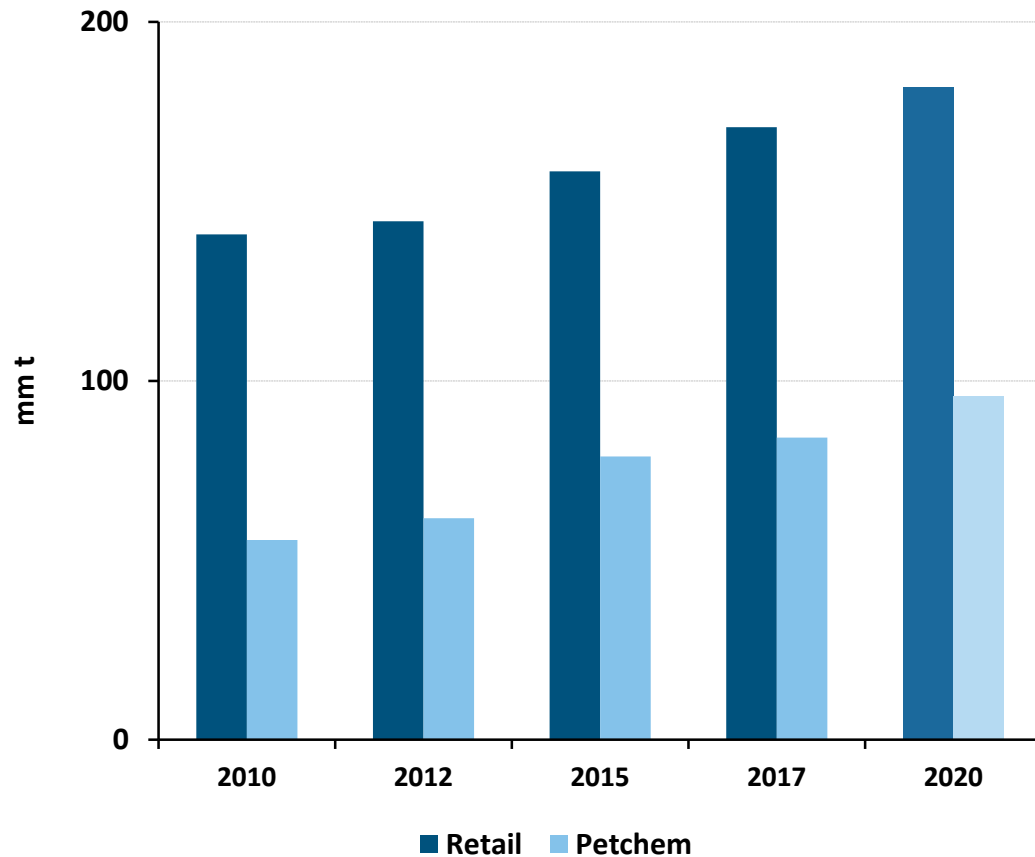
India LPG Downstream Break-down 2016



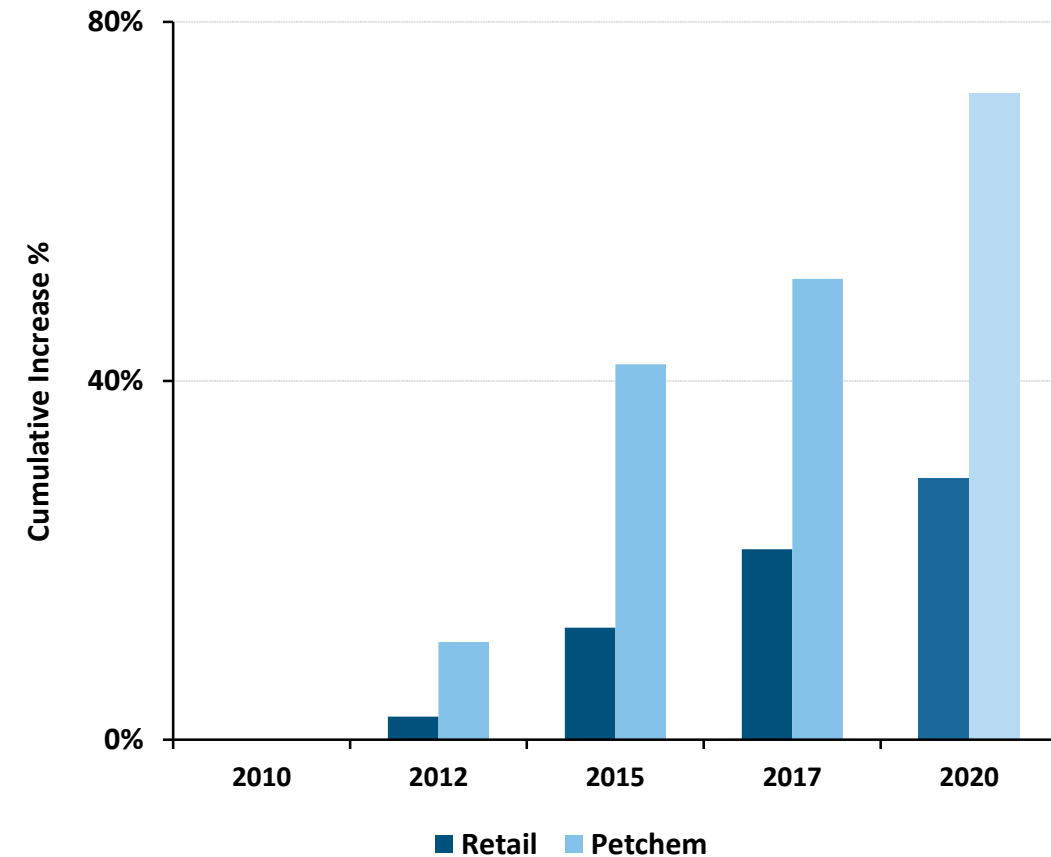


# Petchem demand becomes important

Retail vs Petchem Demand 2010-2020

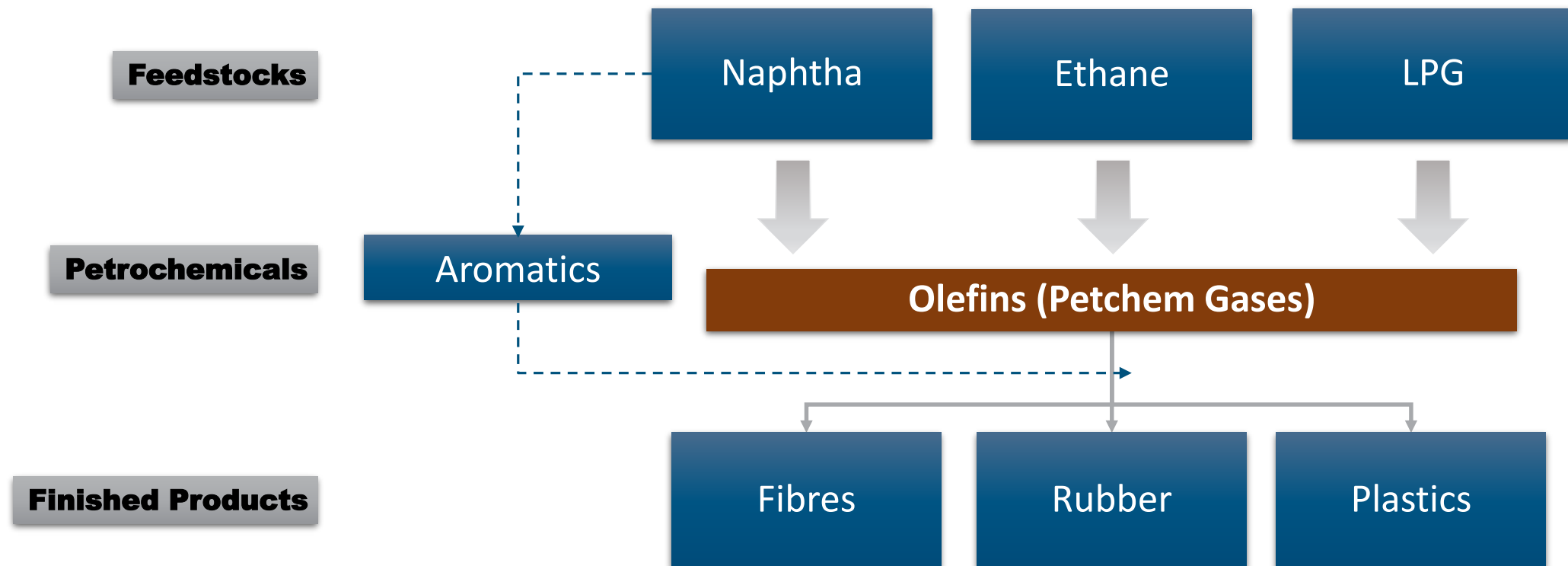


Cumulative Increase (%) 2010-2020



# What are petrochemicals?

- The main applications within the large bulk sector include the use of LPG components as feedstocks.
- LPG and ethane, are used to produce ethylene and propylene, which are the building blocks for various petrochemicals & polymers.



# What do you make from petchems?

## The Basics

### Olefins

### Major Derivatives

### Major final Products

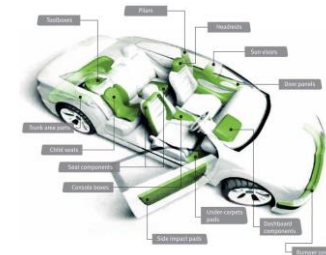
Ethylene

LDPE  
LLDPE  
HDPE  
Ethylene Oxide



Propylene

Polypropylene  
Propylene Oxide  
Acrylonitrile



Butadiene

PBR  
SBR  
SB Latex



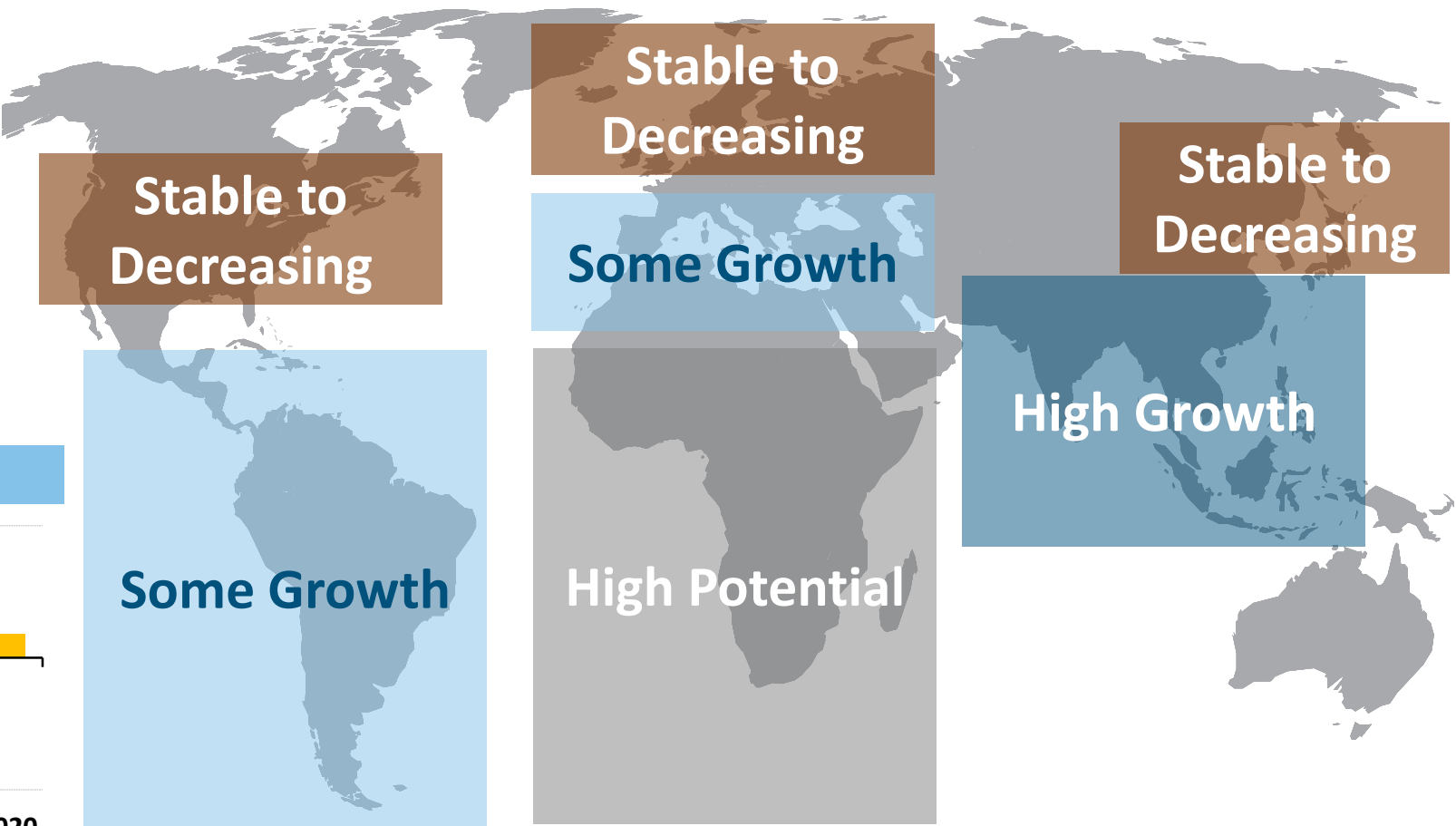
# Nevertheless, retail still more important

## General Factors

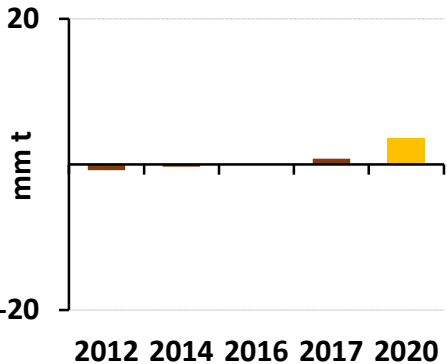
- Weather
- Population
- GDP/Inflation
- Price Elasticity
- Consumption per Capita

## Market Factors

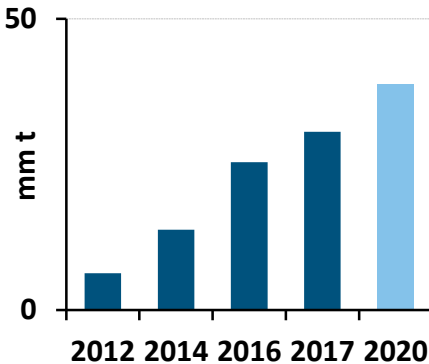
- Government intervention
- Competition with other products
- Anticipating Changes
- Infrastructure
- Funding Availability
- Marketing/Penetration



Retail Growth West



Retail Growth East



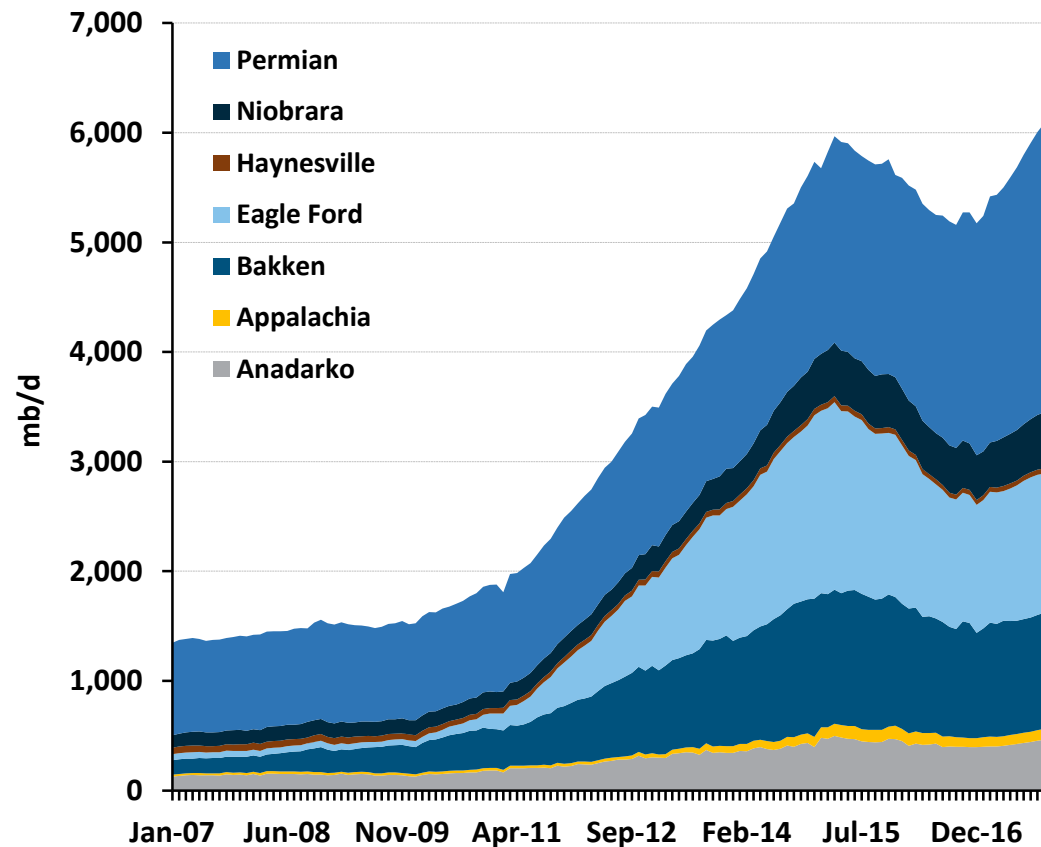
# A Closer Look into the Market

# LPG market is changing rapidly

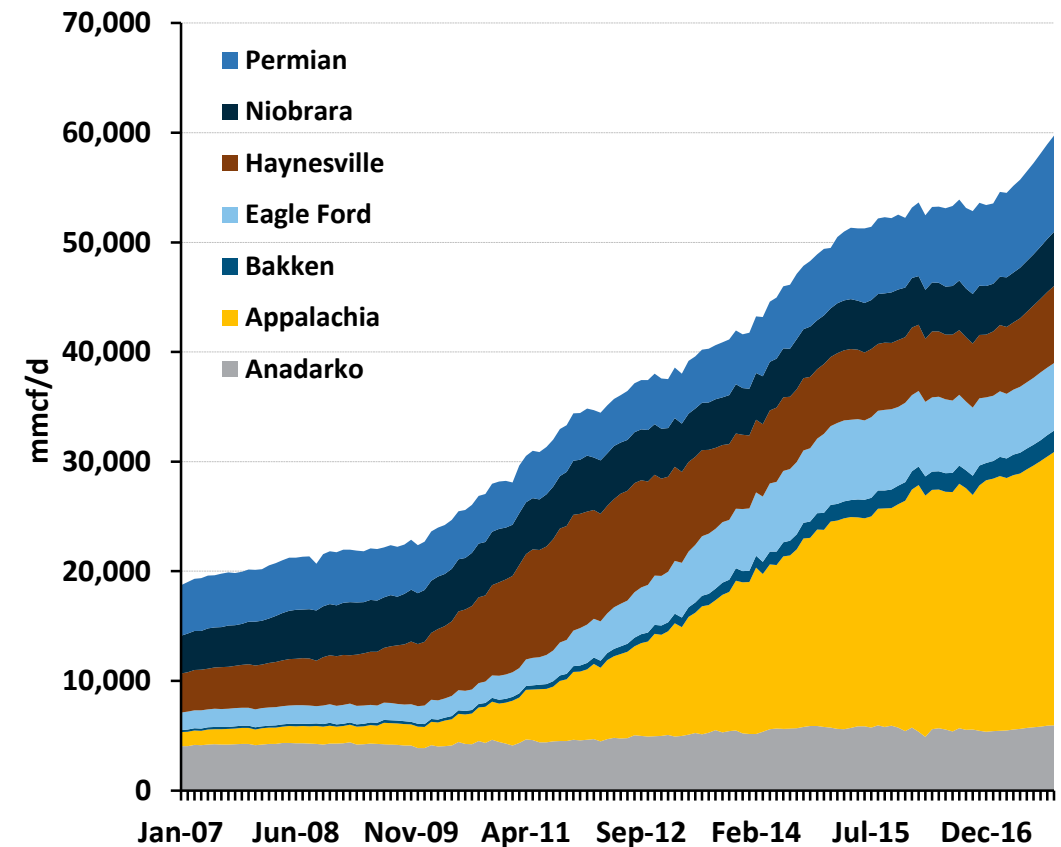
2010	2015	2020
Global Supply ≈ 290 mm t	Global Supply ≈ 365 mm t	Global Supply ≈ 430 mm t
Retail ≈ 70%	Retail ≈ 62%	Retail ≈ 60%
Petchem ≈ 20%	Petchem ≈ 29%	Petchem ≈ 32%
Refinery ≈ 9%	Refinery ≈ 8%	Refinery ≈ 8%
Power Gen Spiking ≈ 1%	Power Gen Spiking ≈ 1-2%	Power Gen Spiking ≈ 1-2%

# Shale gas was the market changer...

## Major Tight Oil US Production



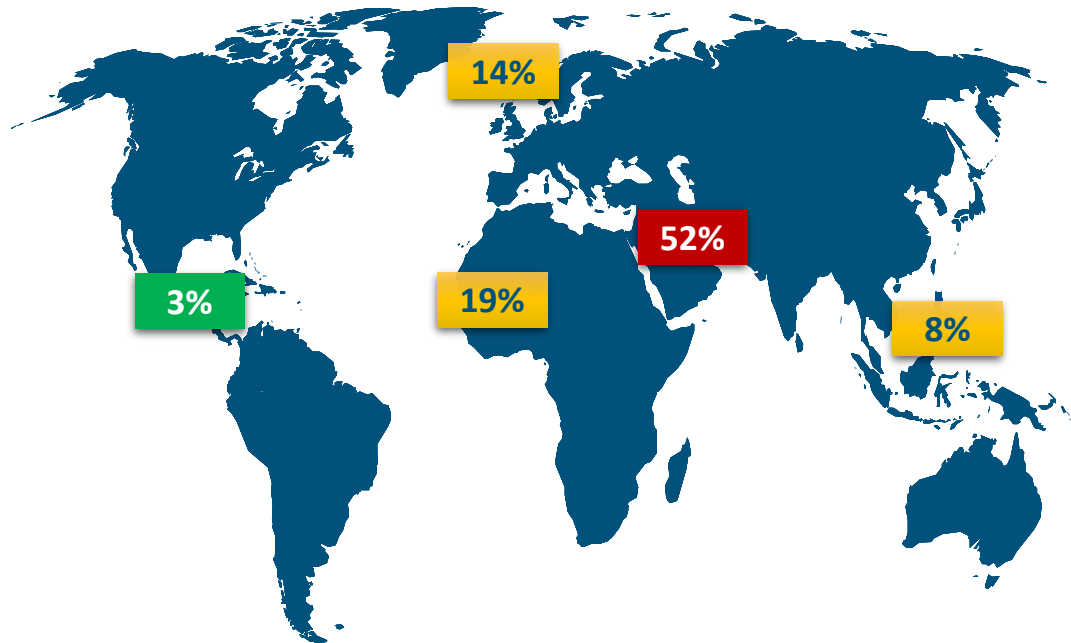
## Major Shale Gas US Production



Source: eia

# ... and altered the LPG trading patterns

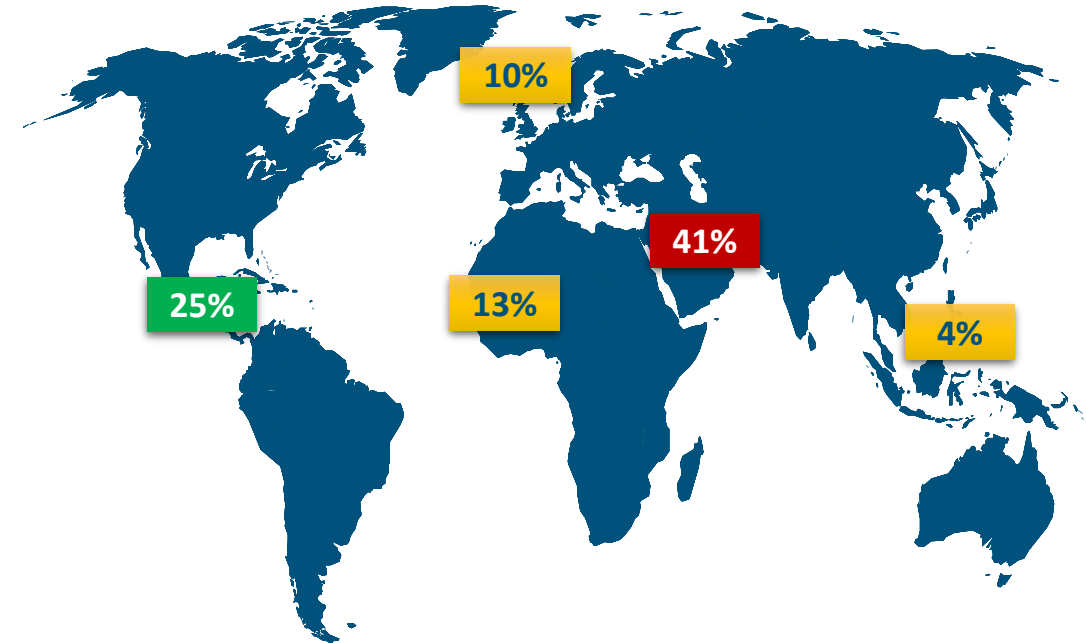
Global LPG Trade 2005



Total LPG Seaborne Trade 2005  
≈ 50 mm t

+70%

Global LPG Trade 2015

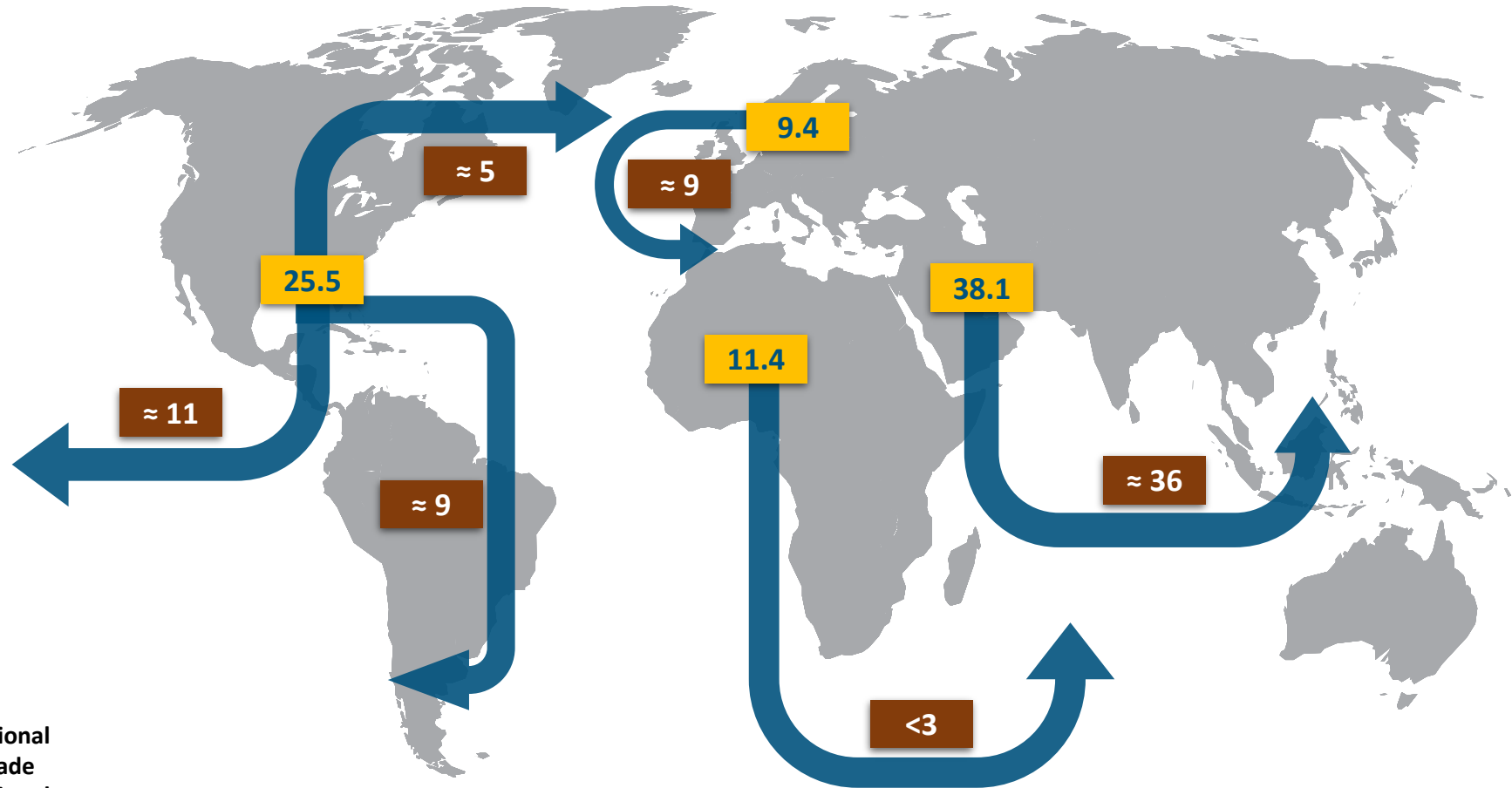


Total LPG Seaborne Trade 2015  
≈ 85 mm t

% per major region  
based on total annual  
volume approximation



# The LPG seaborne trading market in 2016

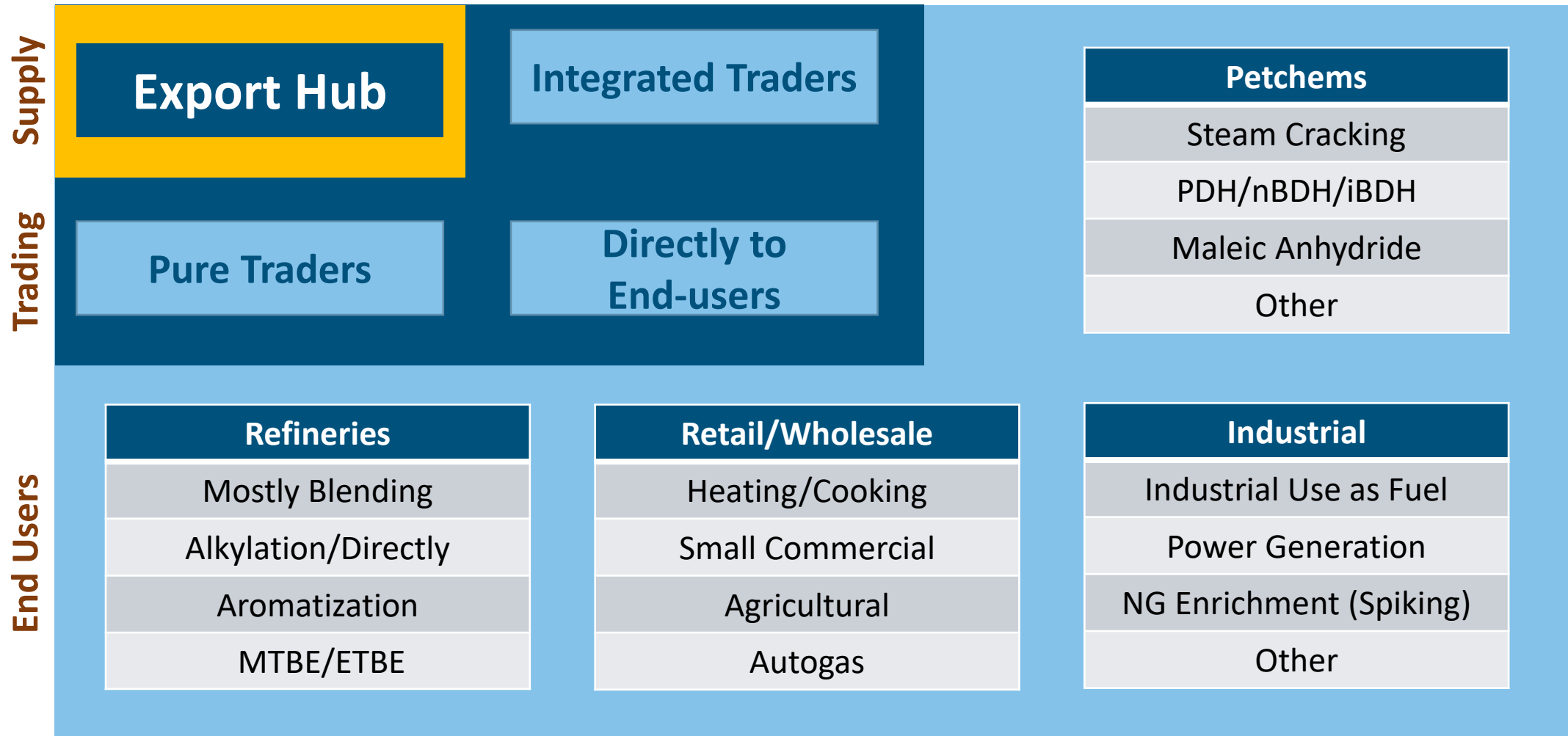


mm t

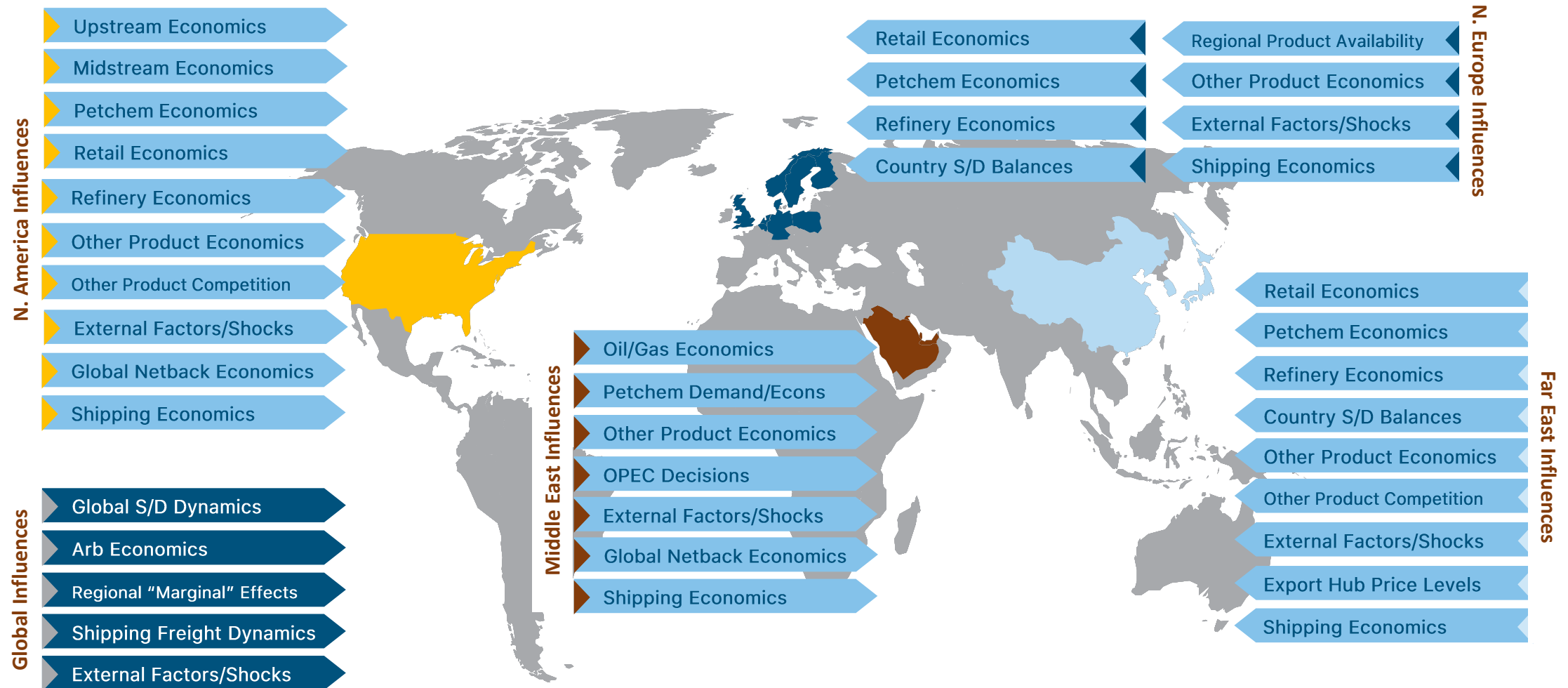
mm t

**Regional  
Trade  
Regional  
Exports**

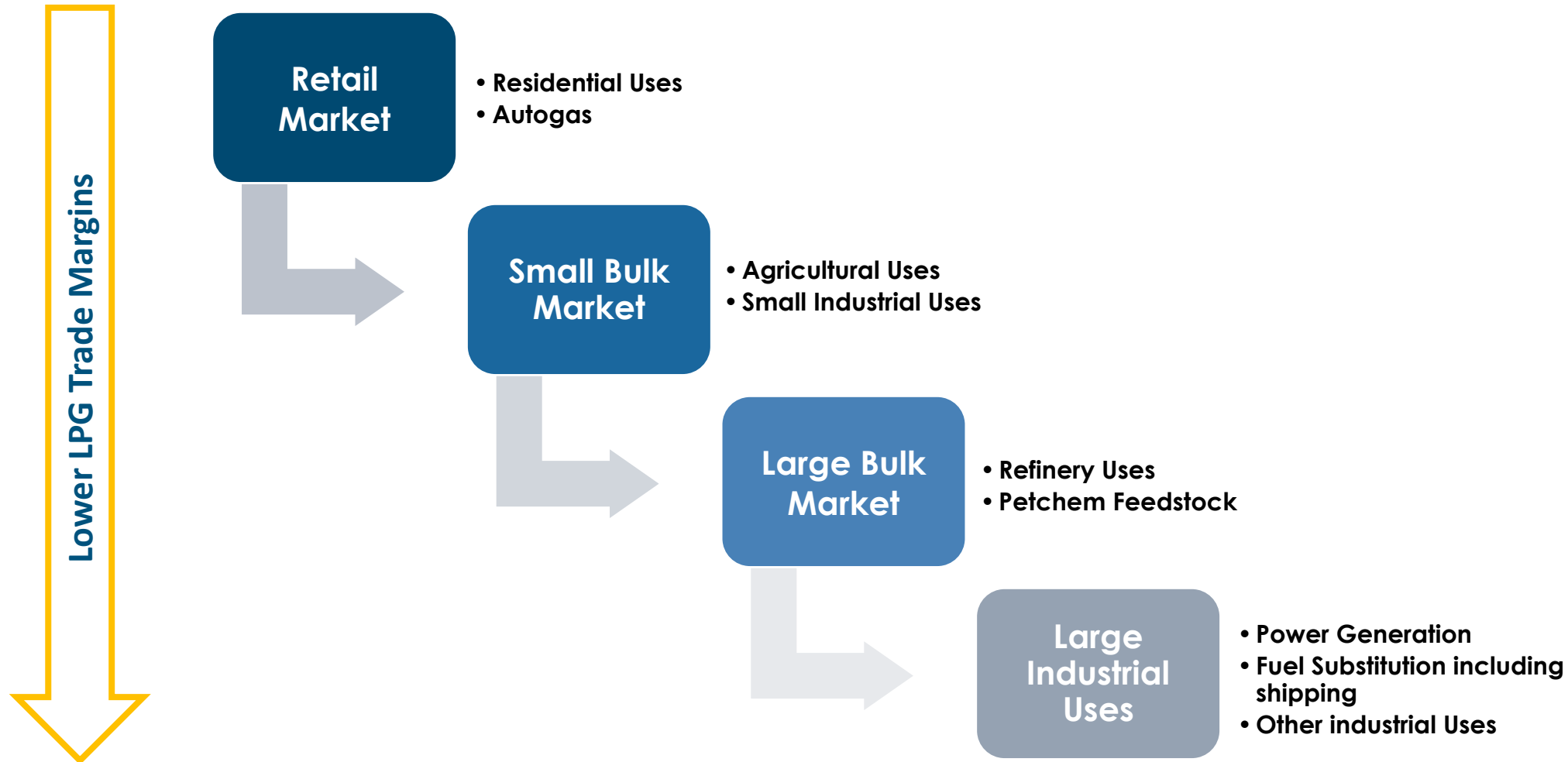
# Major uses of globally traded LPG



# Pricing has become quite complicated



# But LPG market is always priced to clear



# Gas Liquid Shipping Intro



Cass Business School Presentation – London

# Overview of gas shipping basics

Product	Temp. (°C)	Density (t/cbm)	Fully Ref	Semi-Ref* <sup>1</sup>	Pressurized	Ethylene* <sup>2</sup>	Membrane* <sup>3</sup>	Notes
LNG Methane	-162	0.46						* <sup>1</sup> Semi-Ref without ethylene capability
C <sub>2</sub> Ethane	-89	0.542						
C <sub>3</sub> Propane	-43	0.582						
C <sub>4</sub> Butane	-1	0.6						* <sup>2</sup> Semi-Ref with ethylene capability and in some occasions LNG capability
iC <sub>4</sub> Isobutane	-12	0.594						
C <sub>3</sub> C <sub>4</sub> Mix LPG	-4	0.598						
Ethylene	-104	0.575						* <sup>3</sup> GTT's Mark III membrane tanks – i.e. Reliance LEGs
Propylene	-47	0.613						
VCM	-14	0.972						
Butadiene	-4.5	0.653						
Butylenes	-6	0.625						
NH <sub>3</sub> Ammonia	-33	0.683						

# Major LPG freight indices

Main LPG Index	Route	Publishing time	Index Frequency	Panel Members (as of 2017)
<b>BLPG</b> <b>Baltic LPG</b> <b>(Baltic Exchange)</b>	44,000mt Middle East Gulf to East	1600 (London)	Monday to Friday	<i>Braemar ACM Shipbroking</i> <i>Clarksons Platou</i> <i>Fearnleys</i> <i>EA Gibson Shipbrokers</i> <i>Hesnes Gas</i> <i>Steem1960 Steensland</i> <i>Shipbrokers</i> <i>Poten &amp; Partners</i>

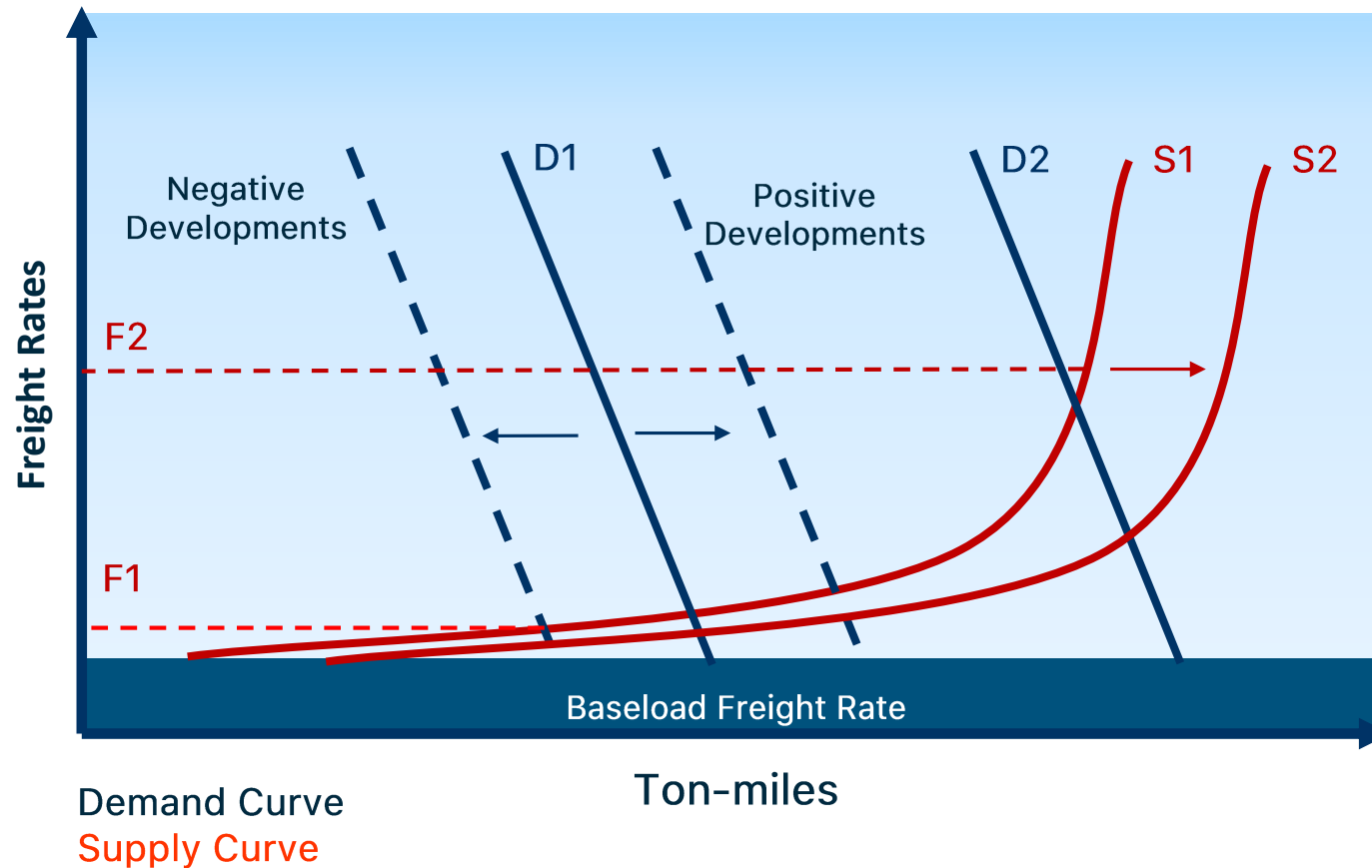
## • Smaller Segments

- The freight rates in the smaller segments are assessed weekly by the major shipbrokers in the LPG market.
- TCE rates are based on actual fixtures or in the absence of actual fixtures on market level discussions and bids.
- TCE rates are assessed for all the LPG shipping segments as published by the shipbrokers weekly. The major segments that brokers are reporting TCE rates are introduced below.

Gas Shipping Segments	Size ( cbm from)	Size (cbm to)
VLGC	60,000	86,000
LGC	40,000	60,000
MGC	22,000	40,000
VLEC	85,000	85,000
Large Semi-Ref	12,000	37,500
Small Semi-Ref	0	12,000
Large Pressurised	6,000	13,000
Small Pressurised	0	6,000



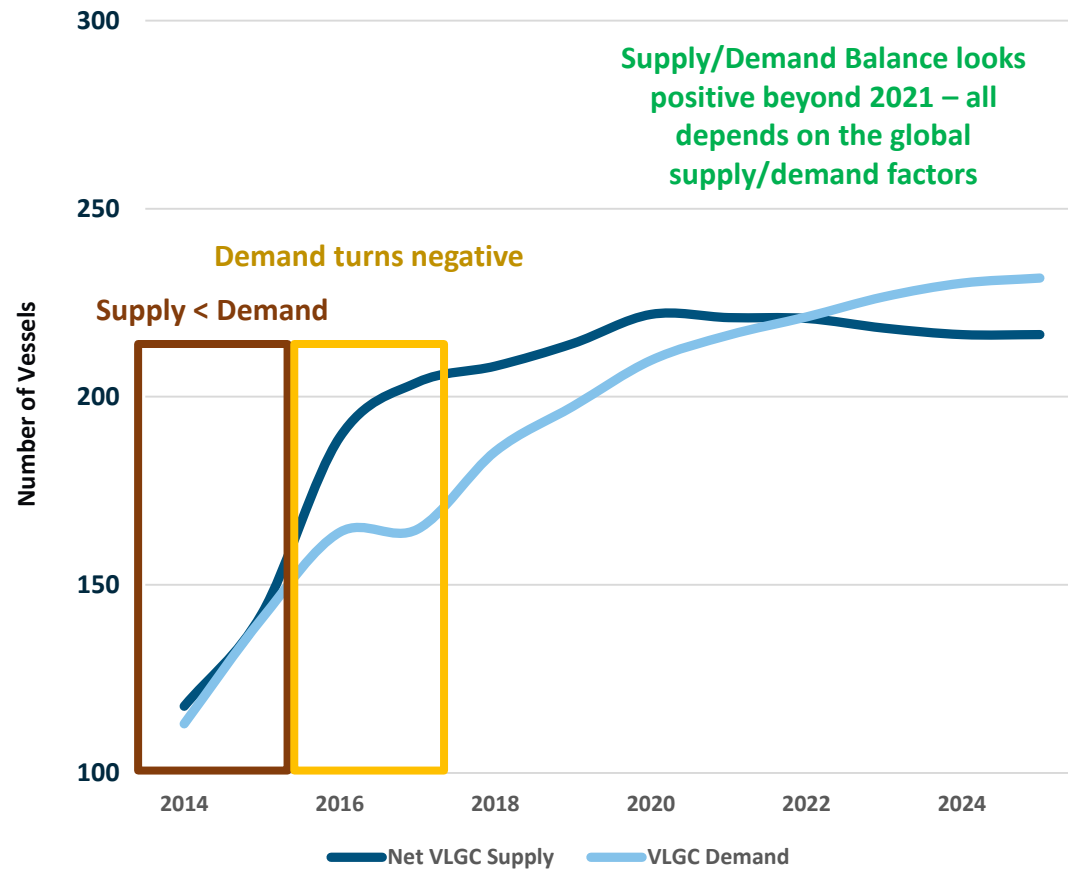
# Freight economics – a familiar diagram..



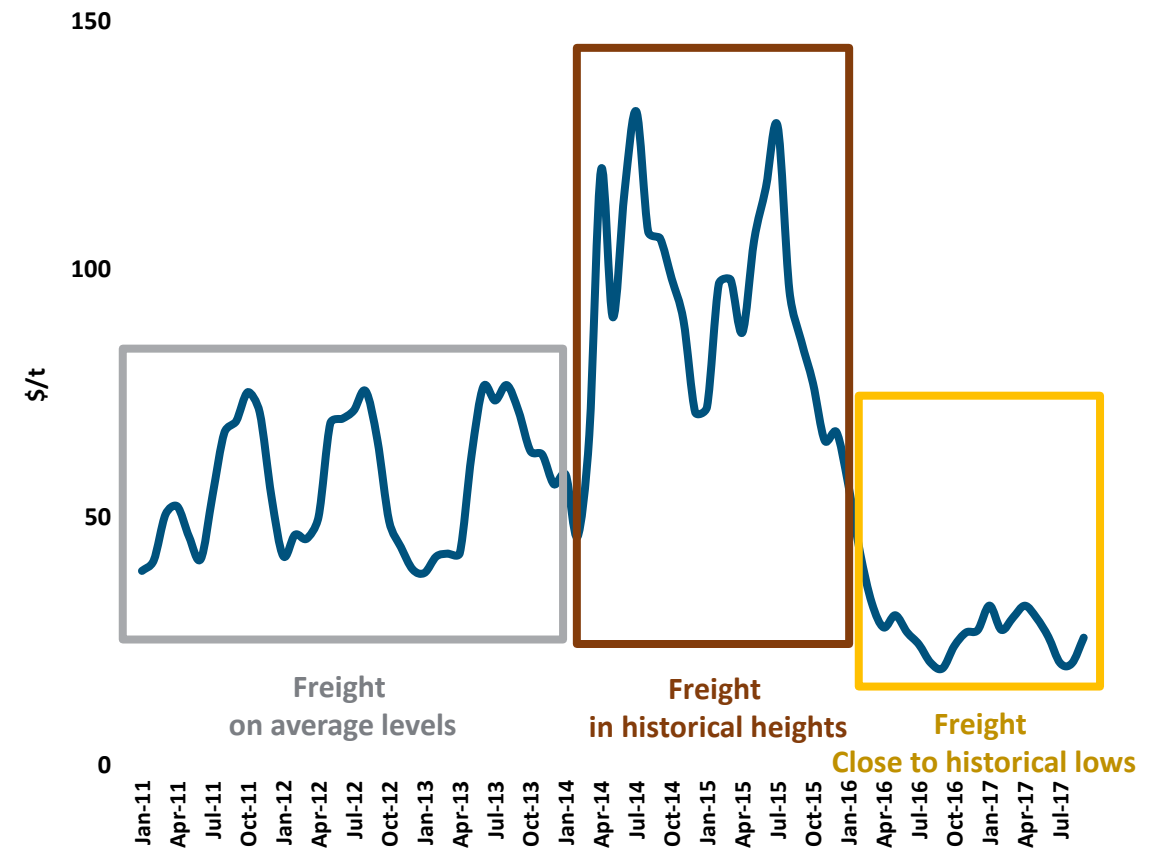


# ..that actually works in the real world

VLGC S/D Balance



Baltic LPG (BLPG) VLGC Freight Rate



# The Role of the Modern Commodity Analyst

# Basic characteristics of modern analyst



Doing the basics is not enough

Required to constantly be ahead of the curve

Continuous education within and beyond his specialization

Be connected with the markets and the commercial world

## ABOUT US / CONTACT US



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