



Chemicals & LPG market update •

Steady growth path continues globally

Royal Vopak – Analyst Day 2017

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12 December 2017



Forward-looking statement

This presentation contains 'forward-looking statements', based on currently available plans and forecasts. By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future, and Vopak cannot guarantee the accuracy and completeness of forward-looking statements.

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Vopak's well-balanced global portfolio

Oil products	Chemical products	Industrial terminals	Vegoils & biofuels	Gas products
0-5 years	0-5 years	5-20 years	0-3 years	10-20 years
40-45%	20-25%	20-25%	5-7.5%	3-5%

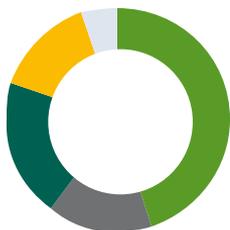
Typical contract duration per product / terminal category

Share of 2016 EBITDA*

Netherlands



EUR 287 million



EMEA



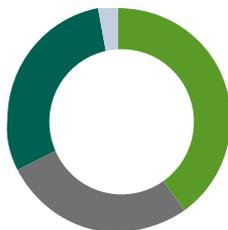
EUR 121 million



Asia



EUR 297 million



Americas



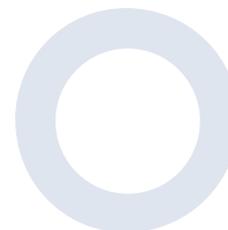
EUR 121 million



LNG



EUR 28 million



- Oil products
- Chemical products
- Industrial terminals
- Vegoils & biofuels
- Gas products

*Excluding exceptional items; including net result of joint ventures

Growth in all three end markets

Looking forward, five mega trends will impact the end markets that Vopak serves via its four strategic terminal types

Trends



Urbanization



Disruptive technologies



Changing demographics



Geopolitical developments & Trade



Sustainability & Climate

End Markets



Energy



Manufacturing



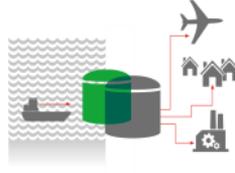
Food & Agriculture

Strategic Terminal Types

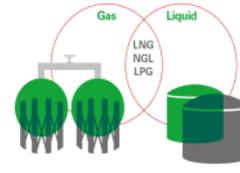
Hub Terminals



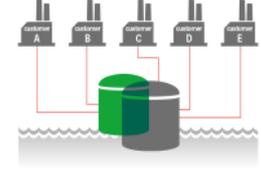
Distribution Terminals



Gas Terminals



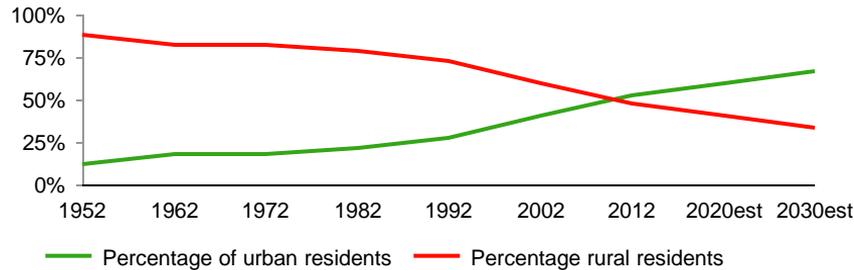
Industrial Terminals



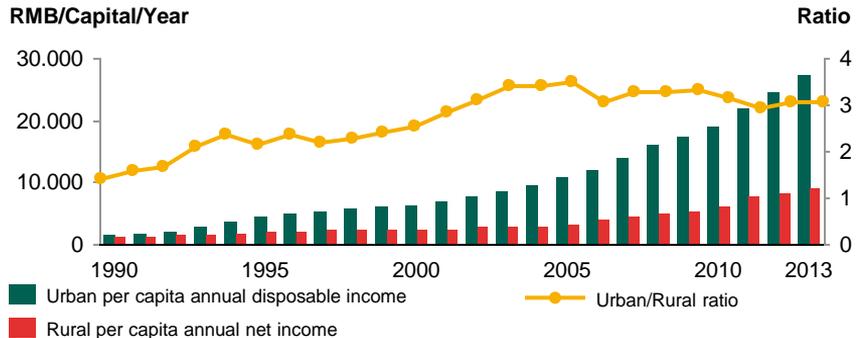
Urbanization example of China

From the five megatrends, urbanization has the biggest influence on the Manufacturing sector

China Urbanization rate will grow from 54% today to 67% in 2030



Urbans spend three times as much as rural residents



Urbanization in China is going fast

Number of years to realize a 50% urbanization rate:

- **China: 35 years**
- US: 60 years
- UK: 100 years

In 2025 China is expected to have:

- **1bn people living in cities** (350 mln more than today)
- 221 cities with >1mln inhabitants
- 23 cities with >5mln inhabitants
- 8 mega cities with >10mln inhabitants

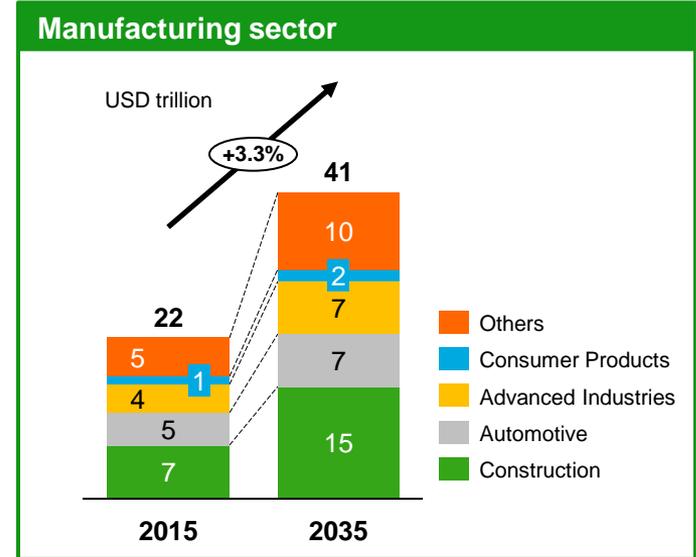
China will construct 50.000 skyscrapers in the next 20 years. This equals 10 times New York City

Manufacturing sector will double in the next 20 years

Construction is the largest segment of the USD 22 trillion manufacturing sector

Segment	Growth 2015-2035	Key sub-segments
 Construction	 3.9%	<ul style="list-style-type: none"> Real estate Industry Utilities
 Automotive	 2.2%	<ul style="list-style-type: none"> Motor Vehicles Space & Aerospace Shipbuilding
 Advanced Industries	 3.6%	<ul style="list-style-type: none"> Industrial technologies Semi-conductors & components Power equipment
 Consumer products	 3.5%	<ul style="list-style-type: none"> Furniture Domestic appliances Jewelry, toys, musicals, other

Segment	Growth 2015-2035	Key sub-segments
 Textiles	 3.7%	<ul style="list-style-type: none"> Synthetic Natural Cellulosic
 Packaging	 4.1%	<ul style="list-style-type: none"> Paper & Board Plastics Packaging
 Electronics	 1.6%	<ul style="list-style-type: none"> Consumer electronics Computers
 Others	 3.1%	<ul style="list-style-type: none"> Pharmaceuticals Defense



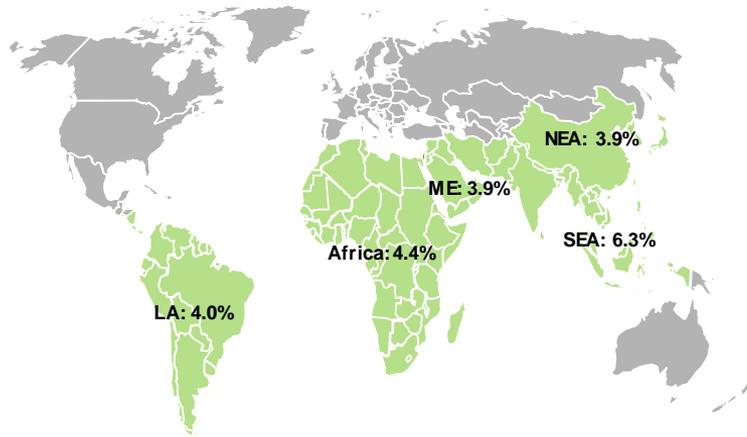
- Construction segment grows well above global GDP
- Packaging segment and Synthetic Fibers grow well above GDP at 4.5-5%
- Automotive segment has growth rates below global GDP, but remains second largest segment

Asia dominates growth of manufacturing

Largest increase in chemical demand is expected in Asia driven by the need for plastics

Regions

Above GDP growth is foreseen in emerging regions, whereby Southeast Asia is growing fastest at growth rate of 6.3% per annum over the next 20 years



Africa has second largest GDP growth, absolute growth is small due to limited size of its Manufacturing industry

Materials

Plastics and Synthetic Fibers are amongst the highest growing materials worldwide



Paper bag



Glass bottle



Copper pipe



Cotton shirts



Plastic bag



PET bottle



PVC pipes

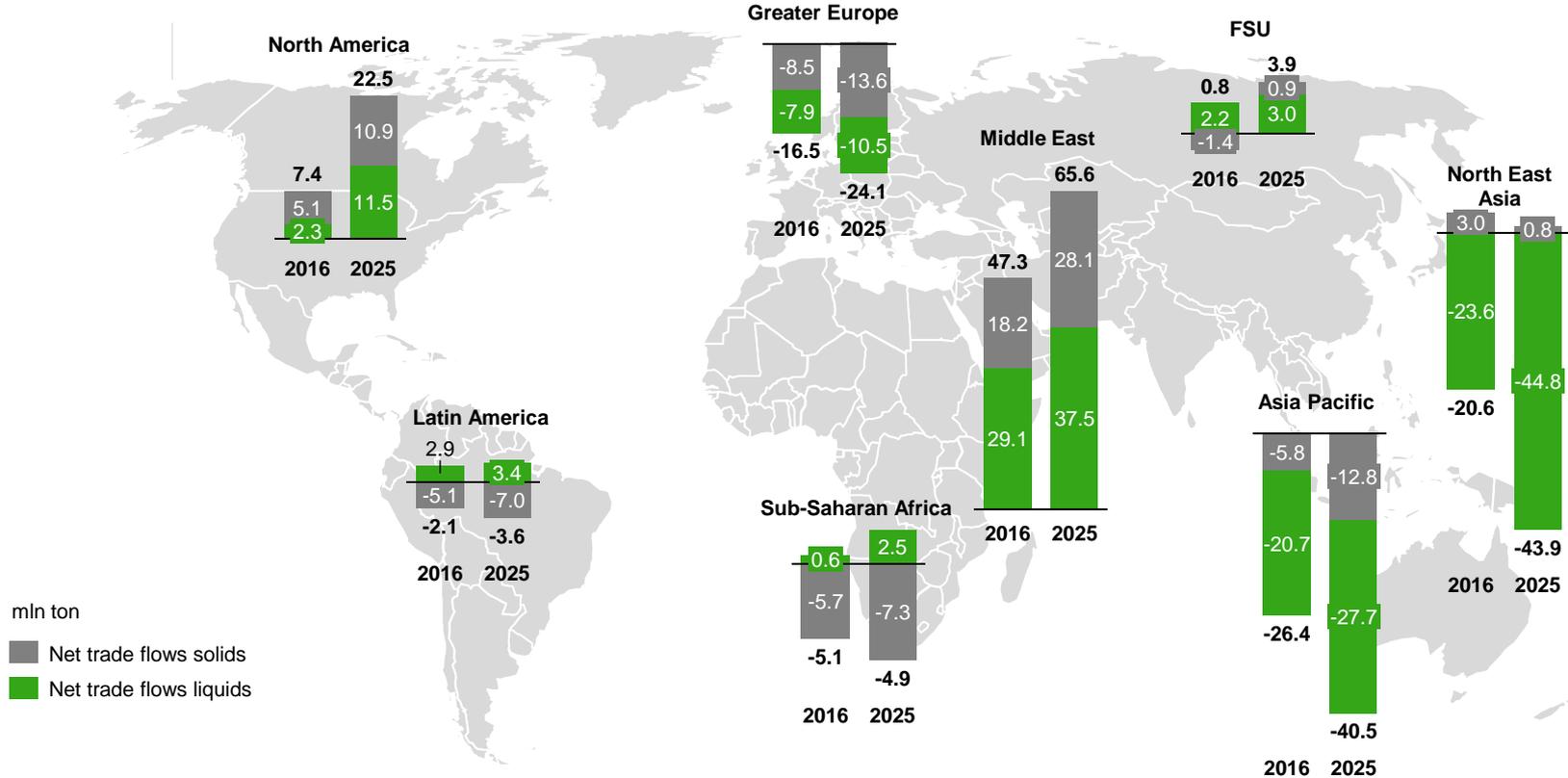


Polyester shirts

Plastics are substituting other materials like paper, glass, metal and wood, whereas Synthetic Fibers are replacing wool, cotton, etc.

Increasing chemical trade flows

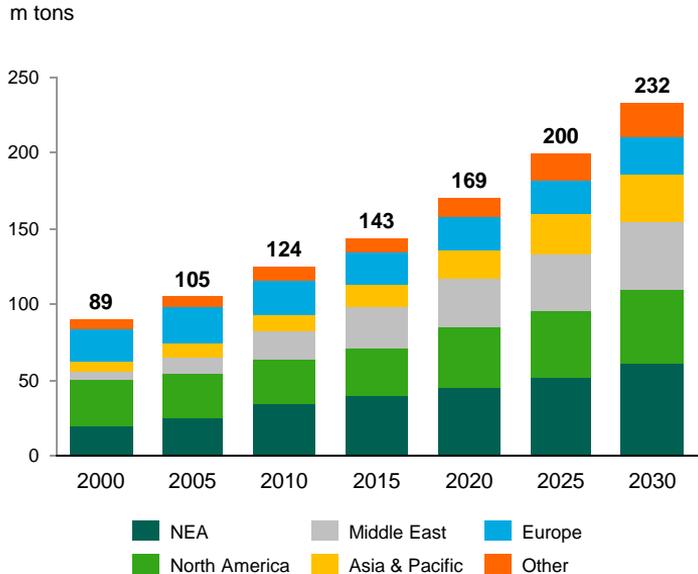
Regional imbalances of chemicals will continue to increase



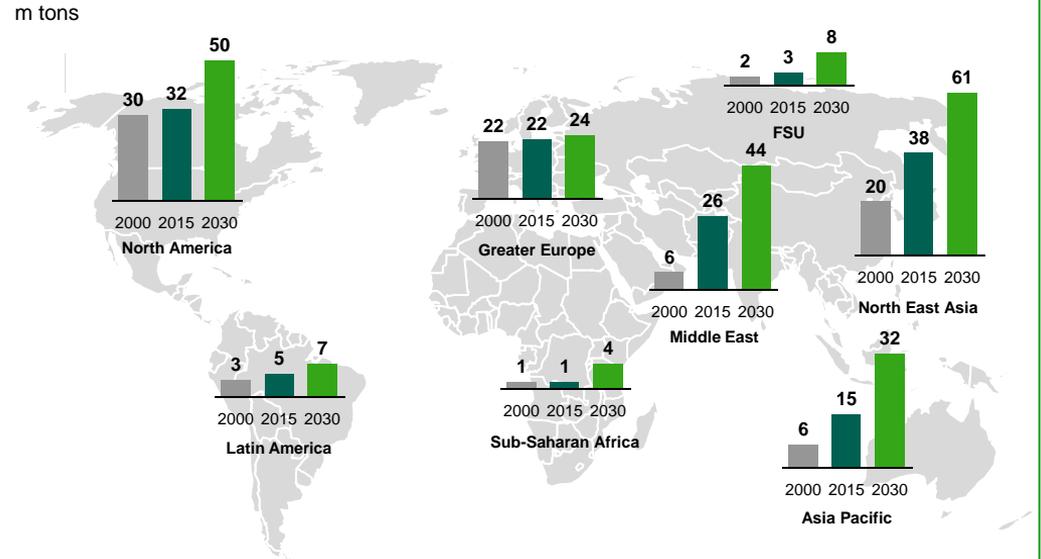
Ethylene production increase

The world needs another 50 crackers in the next two decades if global Ethylene demand is to be met

Global Ethylene consumption by region



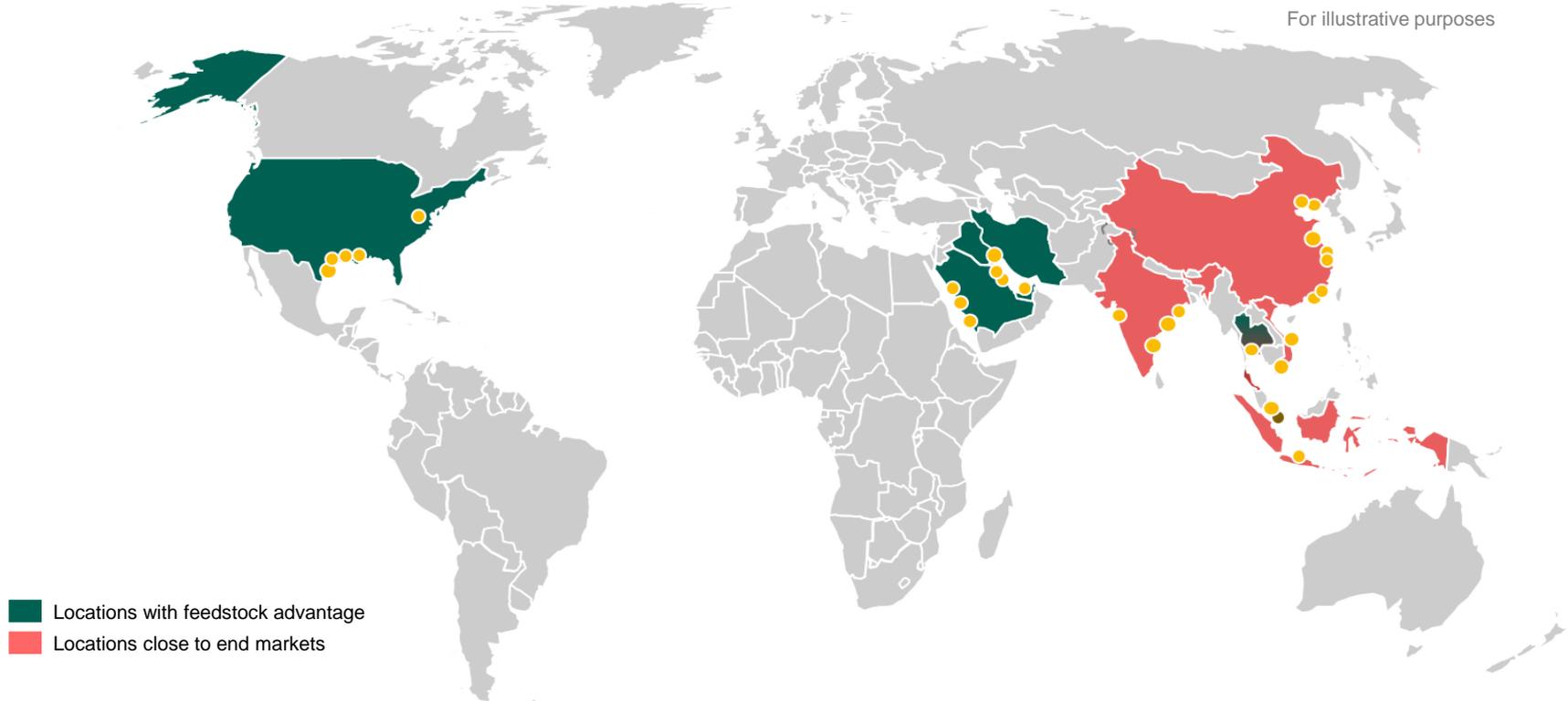
Global Ethylene production capacity



Developments of industrial complexes

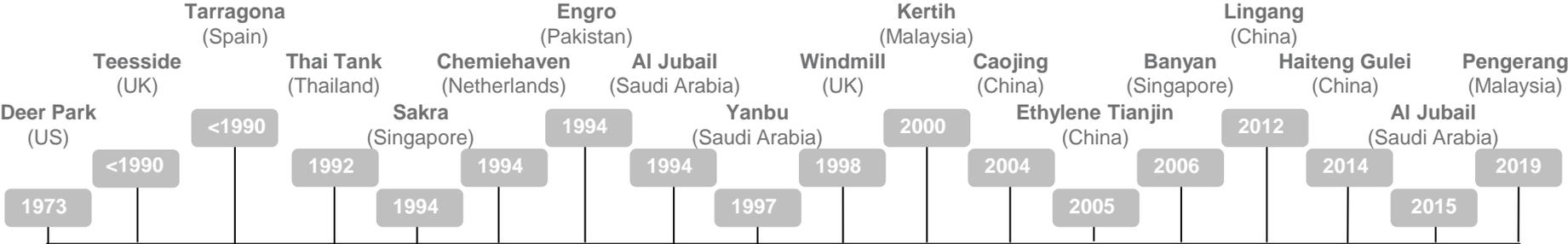
New complexes are expected to arise in feedstock advantaged regions (US & ME) or close to growing end markets (Asia)

For illustrative purposes



Leading independent operator of Industrial Terminals

Vopak has more than 40 years of experience in industrial terminalling



Number of Industrial Terminals

15-20



Experience

>40 yrs



Serves all chemical majors and NOC/NCC



Long term agreements



Number of major JV partners

8



Factors of successful development of industrial terminals



- Lead of the development: A major chemicals producer or a regulator?
- As markets opened, more cooperation has been seen by IOCs that bring in technical knowhow
- Governments/port operators attracted investors, offering a coordinated approach to support services at lower unit costs
- Site integration amongst different parties has been encouraged (e.g. in Saudi Arabia, Singapore, Thailand, Malaysia and China)
- With a need for more complexes in future, independent industrial terminal operators with good reputation will be preferred
- However main competition will arise from producers deciding whether to build their own terminal infrastructure or to outsource

Key messages

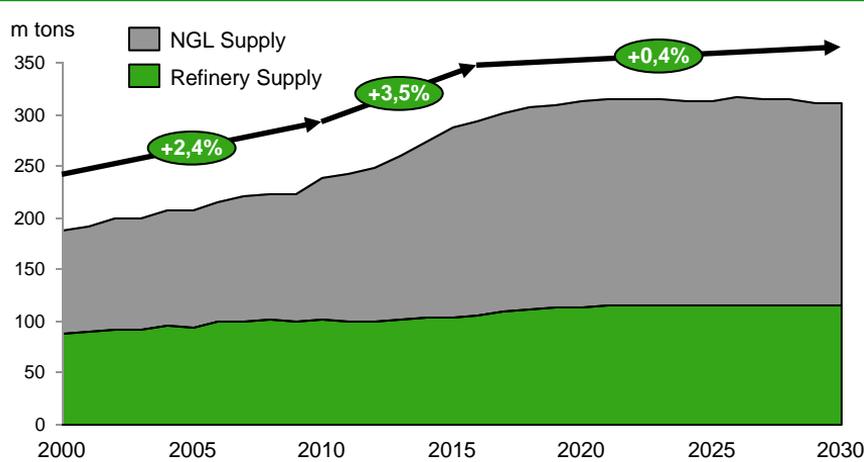
Steady growth path continues globally

- Chemical demand in the manufacturing sector will double in the next 20 years driven by five megatrends of which urbanization will have the biggest impact
- Asia will dominate the growth in chemical demand driven by the need for plastics
- Opportunities for industrial complexes are expected to arise in feedstock advantaged regions (US & ME) or close to growing end markets (Asia)
- Vopak is well positioned to benefit from its industrial terminal offering and its chemical hub and distribution chemical network

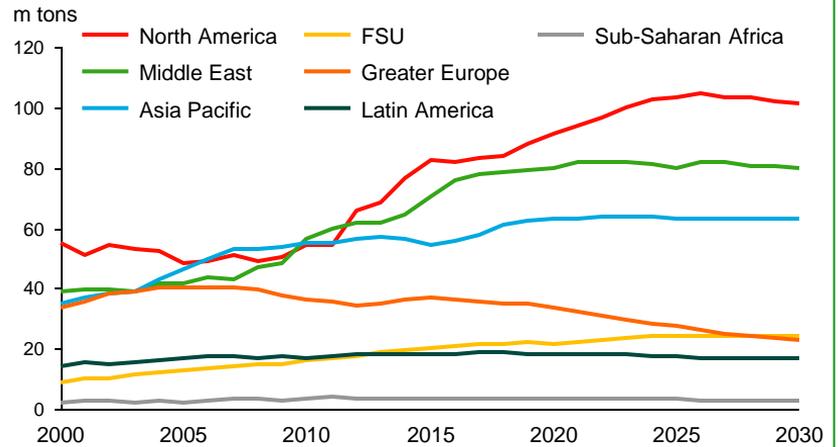
Global LPG supply will modestly increase

US and ME remain global suppliers

Supply increase from the past years will stabilize



North American shale gas developments will boost LPG supply whereas European supply is declining



- LPG supply growth is expected to stabilize after 2022 resulting in lower supply growth*
- Strong increase in NGL supply from 2010 due to shale gas developments in the US
- LPG supply will decline in many countries as a result of depleting gas fields (i.e. Norway and Algeria)

* Forecast is based on future investments. refinery investments after 2022 have not been taken into account therefore supply may be more positive after 2022

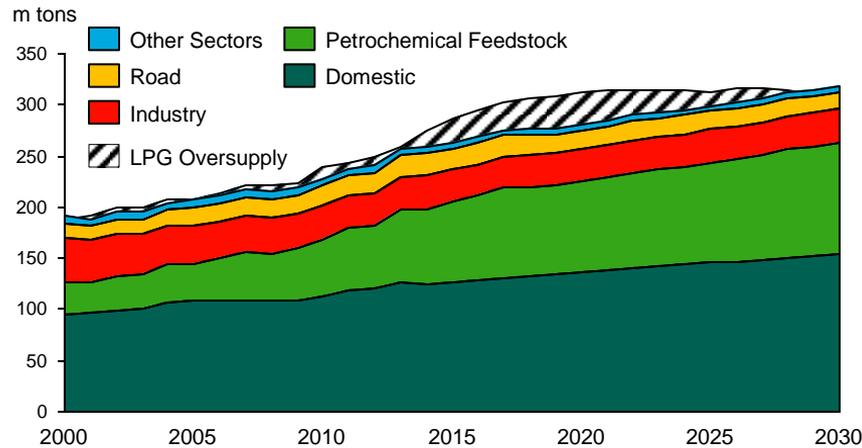
Source: WoodMackenzie

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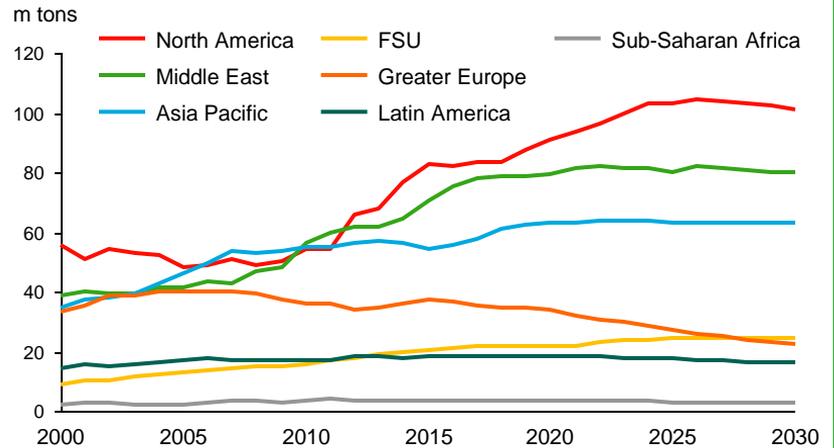
Growth in petrochemical demand for LPG

Half of global LPG demand will be in Asia in 2030, Petchem shows strongest growth

Domestic demand will remain a stable LPG driver, but petrochemical demand will grow significantly



Asia Pacific, including China, will see biggest demand growth in the next 15 years

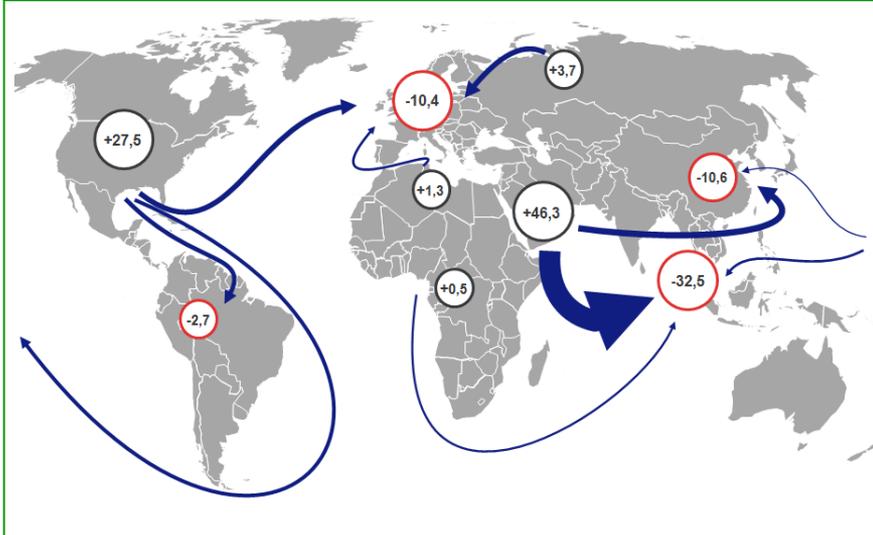


- LPG supply growth due to US shale has not found new demand yet leading to oversupply of LPG
- Demand in Asia is driven by domestic demand (India, China and Indonesia) and petrochemical demand (China)
- Although global supply growth is stabilizing, global imbalances are increasing due to stabilized demand growth in North America and Middle East, and strong increase in Asian demand

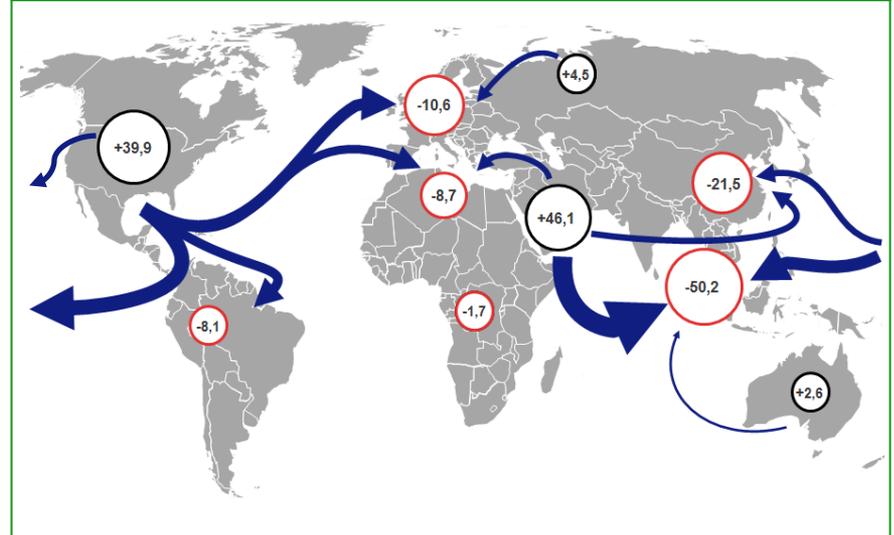
Increasing need for LPG infrastructure

Growing imbalances will result in increasing trade flows

2015: global LPG trade 84 mln tons



2030: Global LPG trade 110 mln tons



- The strong increase in global LPG trade will result in the need for more infrastructure in demand regions, as well as supply regions

LPG market requiring additional infrastructure

Different value drivers for LPG infrastructure exist

Export

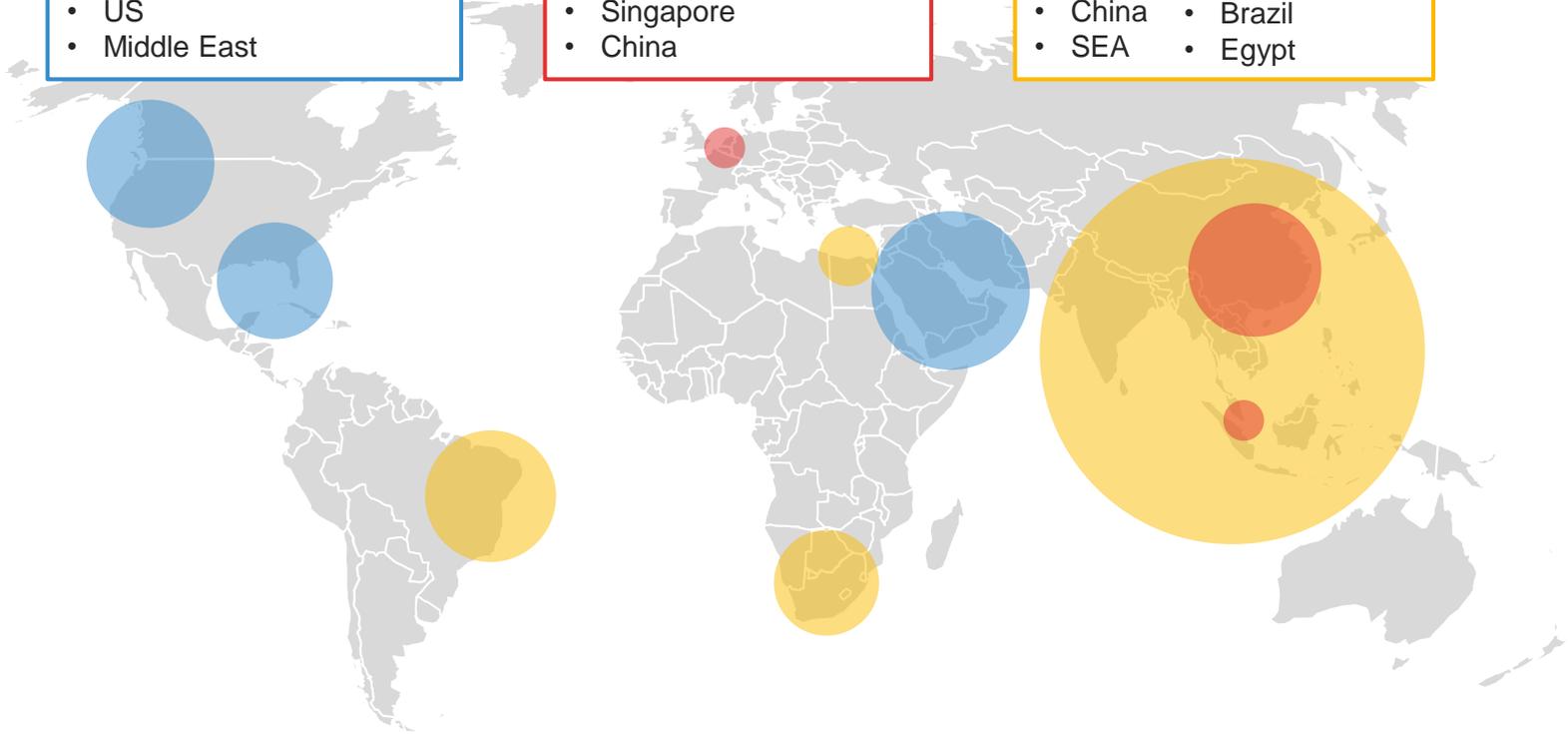
- Canada
- US
- Middle East

Petrochemical feedstock

- ARA
- Singapore
- China

Domestic LPG

- India
- South Africa
- China
- Brazil
- SEA
- Egypt



Key messages

Increasing global trade from growing LPG imbalances

- LPG oversupply makes it an attractive feedstock for petrochemicals and replacement of traditional fuels for household consumption
- Growing LPG imbalances will result in increasing global trade and require infrastructure supporting exports, facilitating petrochemical feedstock and to service the domestic LPG consumption



Questions & Answers ●

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