

# LPG Demand Drivers for the Next Decade

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Panelists:

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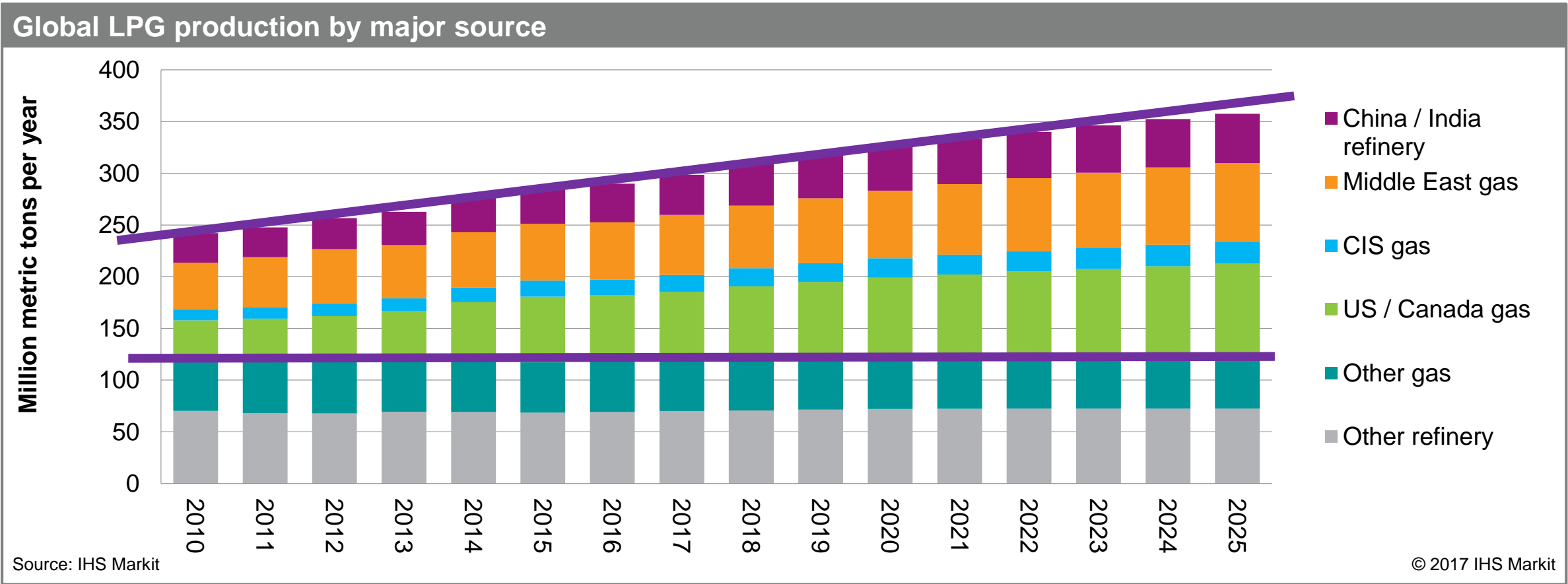


## LPG Demand Drivers for the Next Decade

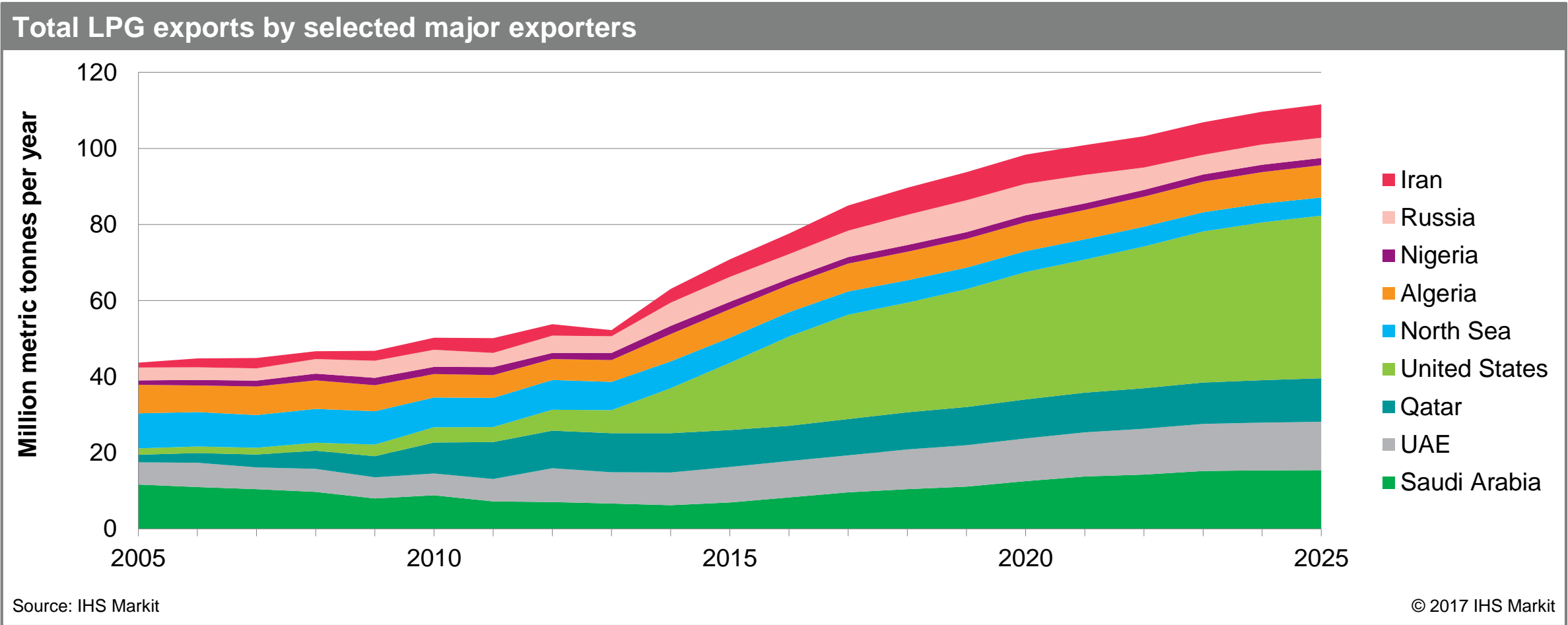
*With US Shale Gas being a key disruptor of the decade, increased supply of LPG has been made available to the global markets, increasing product competitiveness. This is encouraging newer applications of the product, both on the wholesale and retail chain - from petrochemicals to usage as a marine bunker fuel.*

*This panel discusses new demand drivers.*

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# Increased supply of LPG has been made available to the global markets, increasing product competitiveness...



## This is encouraging newer applications of the product, both on the wholesale and retail chain

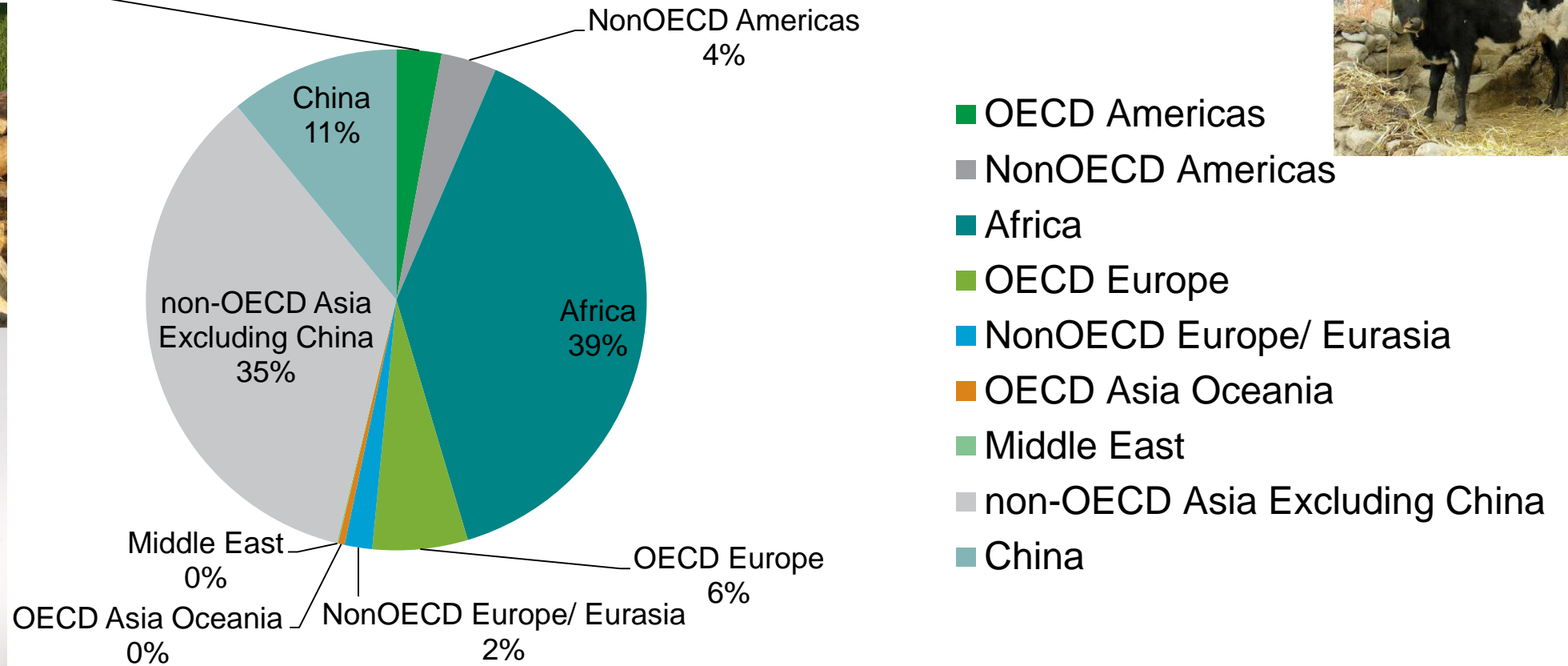
- **Traditional end use growth in emerging markets**
- Examples of res/com:
  - Bangladesh
  - Myanmar
  - Cambodia
- Example of olefins feedstock
  - China
- Drivers:
  - Increased LPG availability
  - Downward pressure on LPG prices
  - Economic prosperity of consumers
  - Primitive fuels to displace
- **Emergence of relatively new end use markets**
- Examples:
  - Power generation fuel
    - Driver: Power demand at a non-ideal scale for LNG
  - Bunker fuel
    - Driver: IMO regulations / slow rate of expensive scrubber adoption
  - Dehydrogenation feedstock
    - Driver: Trend toward light feeds to olefins crackers has created a shortage of propylene / butylenes that is efficiently met by dehydrogenation technologies

# The greatest potential to replace biomass\* with LPG is in Africa and Asia

**Residential & commercial use of biofuels and waste in 2016;  
~757 million tons oil equivalent**



OECD Americas  
3%

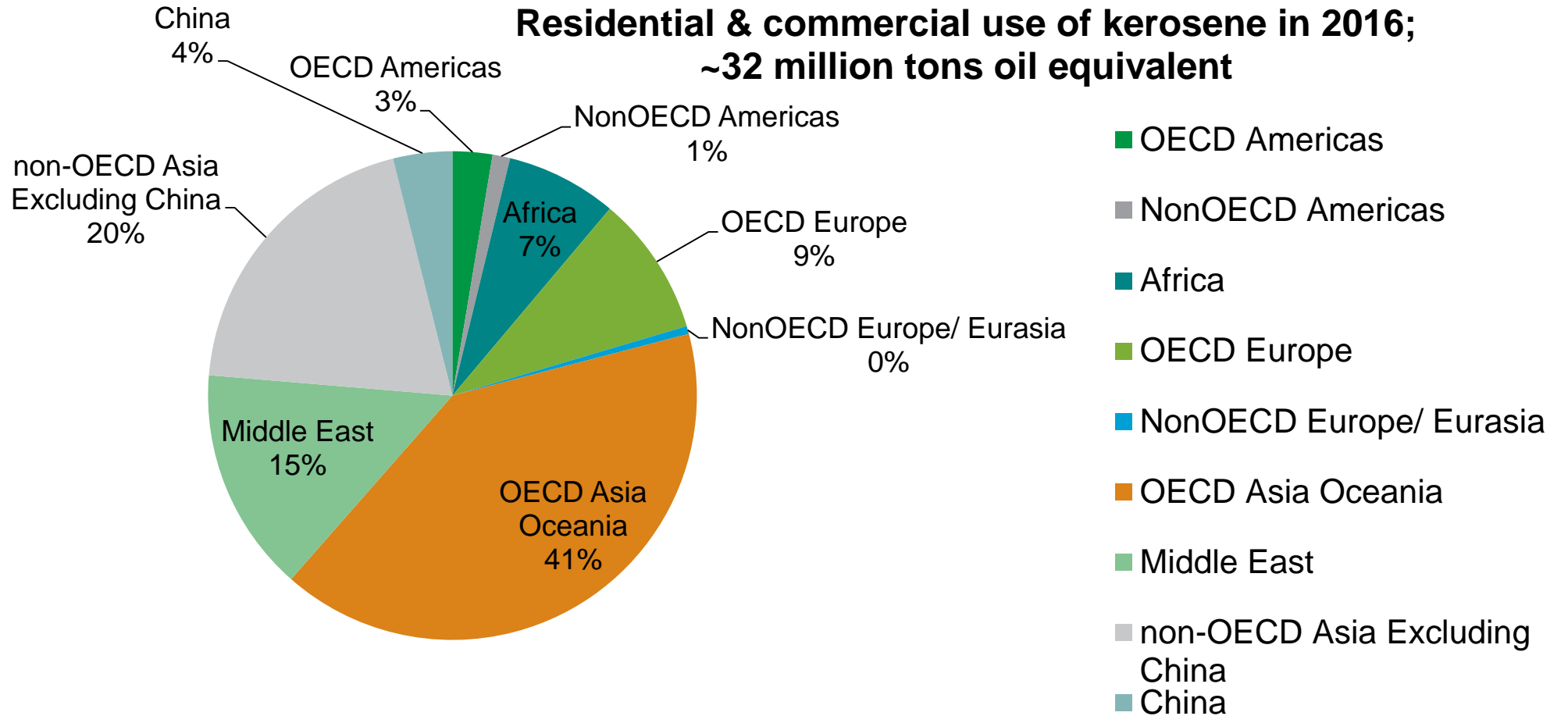


- OECD Americas
- NonOECD Americas
- Africa
- OECD Europe
- NonOECD Europe/ Eurasia
- OECD Asia Oceania
- Middle East
- non-OECD Asia Excluding China
- China

\*Includes charcoal

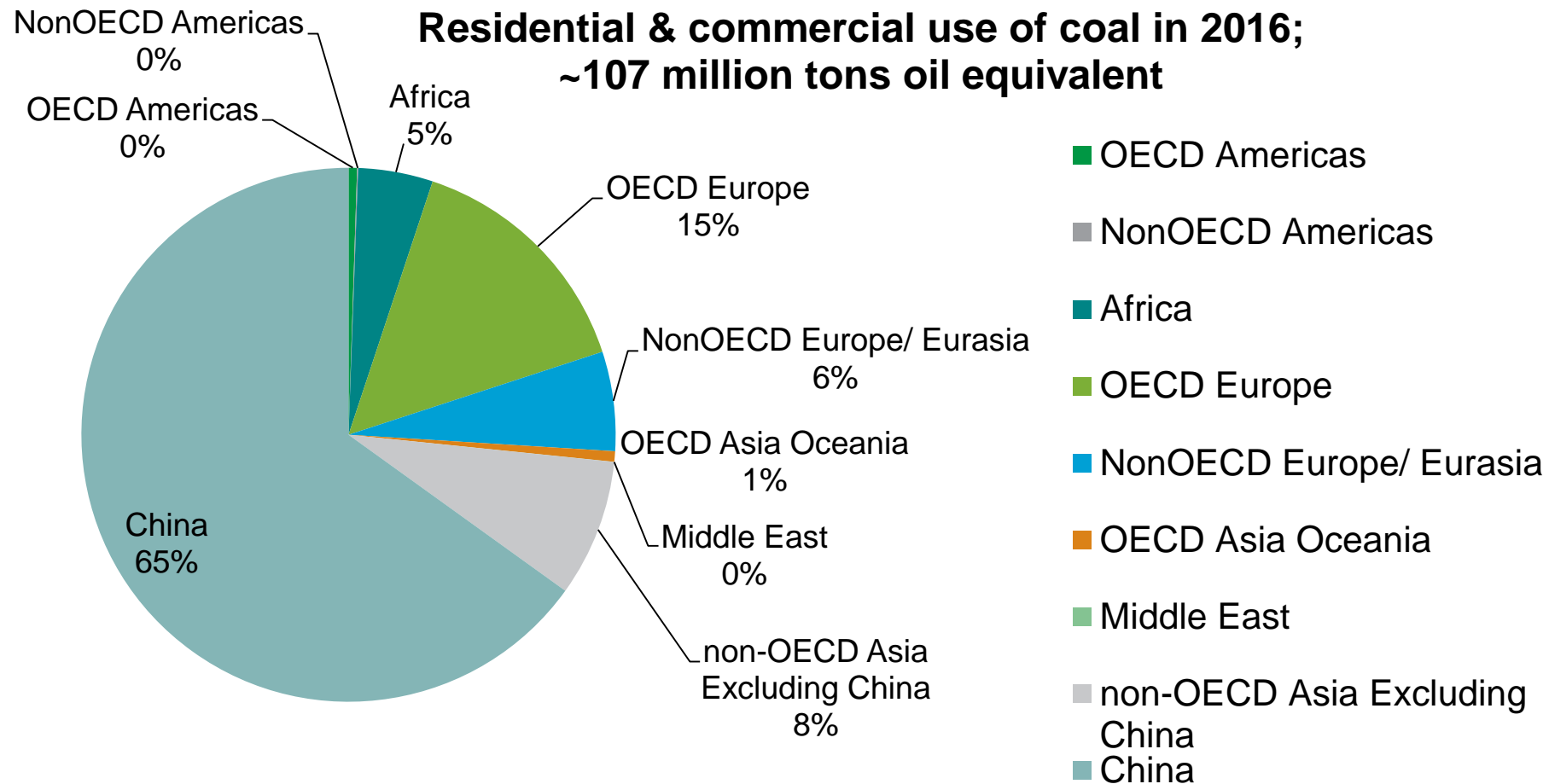
Source: IEA

# The greatest potential to replace kerosene\* with LPG is in Asia and the Middle East





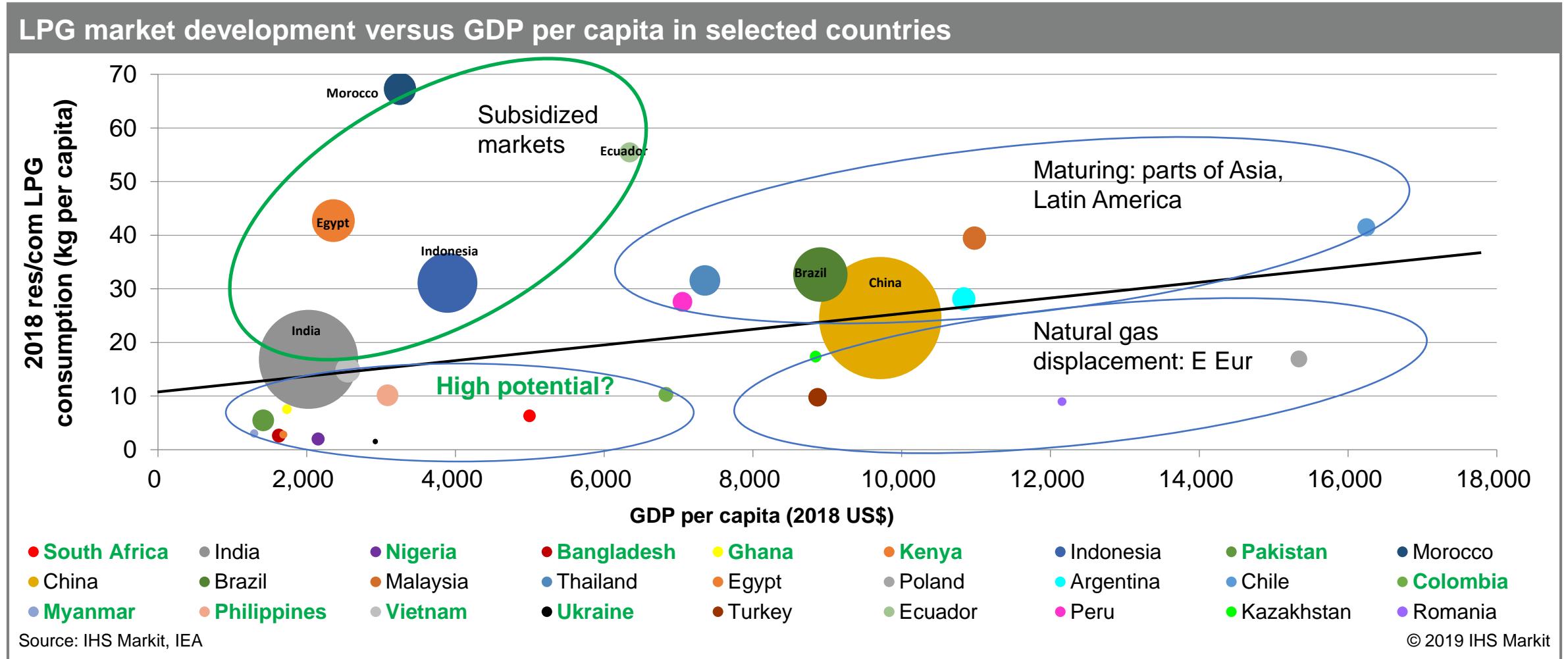
# The greatest potential to replace res / com coal\* with LPG is in China



About a third of res/com coal is used in commercial applications



# Where will the next wave of res/com LPG demand arise?



# Thank You!

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# LPG Demand Drivers for the Next Decade

## Potential Questions for Panelists – p.1

- In what other countries are you seeing significant demand increases?
  - What are the major drivers?
  - Will these countries be sufficient to offset slowing or stagnation in China, India, US, Indonesia?
- How do you see the prospects for power generation and bunker fuel?
  - In what other end use markets are you seeing big growth?
  - What are the major drivers?
- What are some important “mega-trends” / issues that might be addressed with LPG demand / product solutions?
  - Example: Emergence of “crude oil to chemicals” to address potential shortage of feedstocks
  - Example: Crude oil demand peaking around 2030
  - Example: Climate change
  - Example: Slowing global economy
  - Example: Tariffs / trade wars
  - Example: Plastic waste
  - Example: Use of renewables

## LPG Demand Drivers for the Next Decade

### Potential Questions for Panelists – p.2

- Is infrastructure going to be a major impediment to demand growth?
  - Countries – especially India and in Eastern Europe (like Ukraine)
  - Types – such as pipelines or marine terminals or storage
- Infrastructure in India and Indonesia is largely being expanded to address the res/com market
  - Do you see other end uses benefitting / growing because of the increased access / availability?
  - What about other countries?
- Colombia recently approved the use of autogas
  - Any other new autogas countries?
  - How is autogas doing in the areas you serve?
- What are the biggest threats to new demand growth?
- How sensitive do you think the various elements of new demand are to pricing?
  - Will chemicals outbid res/com demand in Africa and other developing countries?

## LPG Demand Drivers for the Next Decade

### Potential Questions for Panelists – p.3

- We see lots of end use applications from WLPGA exhibitors and others. Any applications that you see with particularly good growth prospects?
  - Examples: Mowers, outboard motors, pool heaters, patio heaters, patio grills, golf carts, generators, ag equipment...
- A recession would impact both supply and demand – speculate on how it might impact development of new demand markets.