

# US propane market update: *The inventory situation has improved – in the “comfort zone”?*

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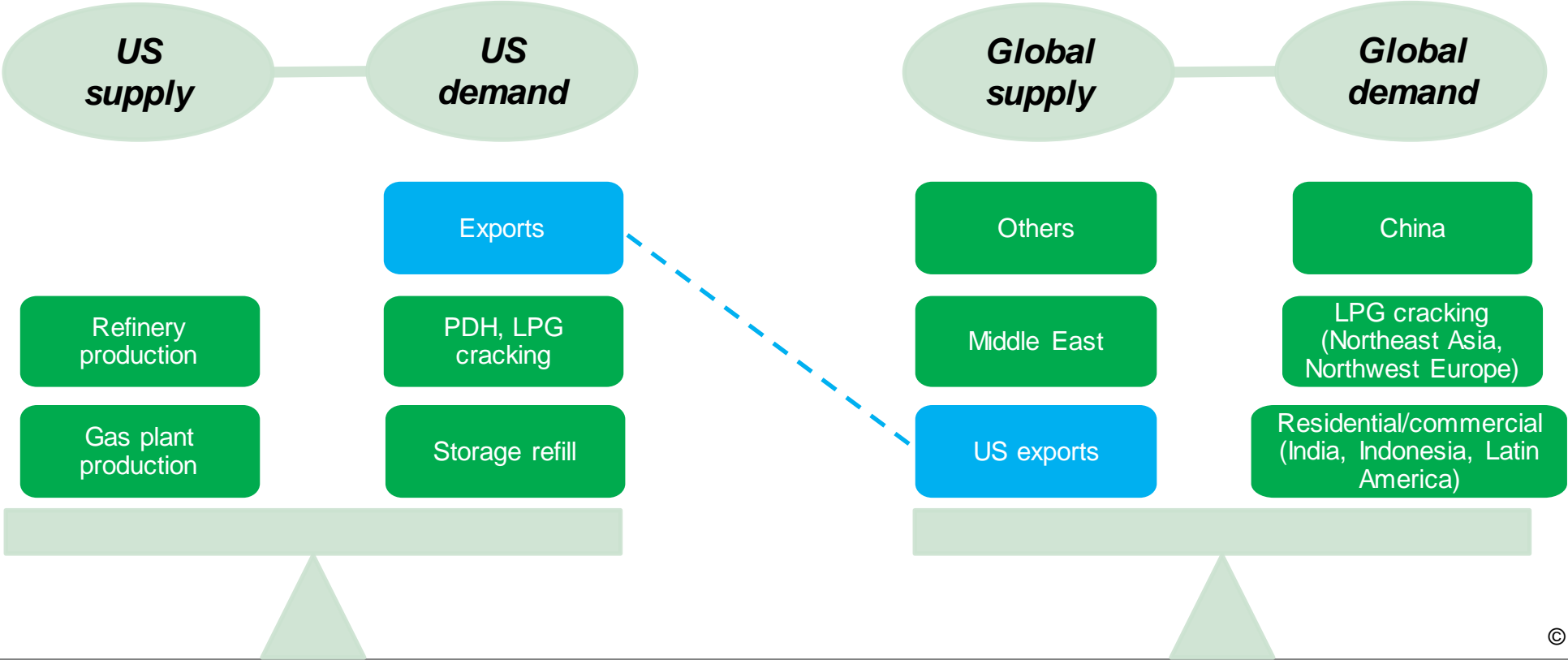
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# Agenda

- **Factors that impact and influence global and US propane supply, demand, trade, and pricing**
- **The current situation and outlook for global propane supply and demand for 2022**
- **US propane exports increasing, taking market share, and no near-term capacity limitations**
- **Asia demand driver is Mainland China and consumption trends and expectations**
- **The US propane market inventory situation has improved but market tightness will remain for 2022**
- **US propane market upside price risks remain impacted by a few factors in 2022**

# The US role in the global propane market has become very important over the past several years and driven by supply availability and pricing

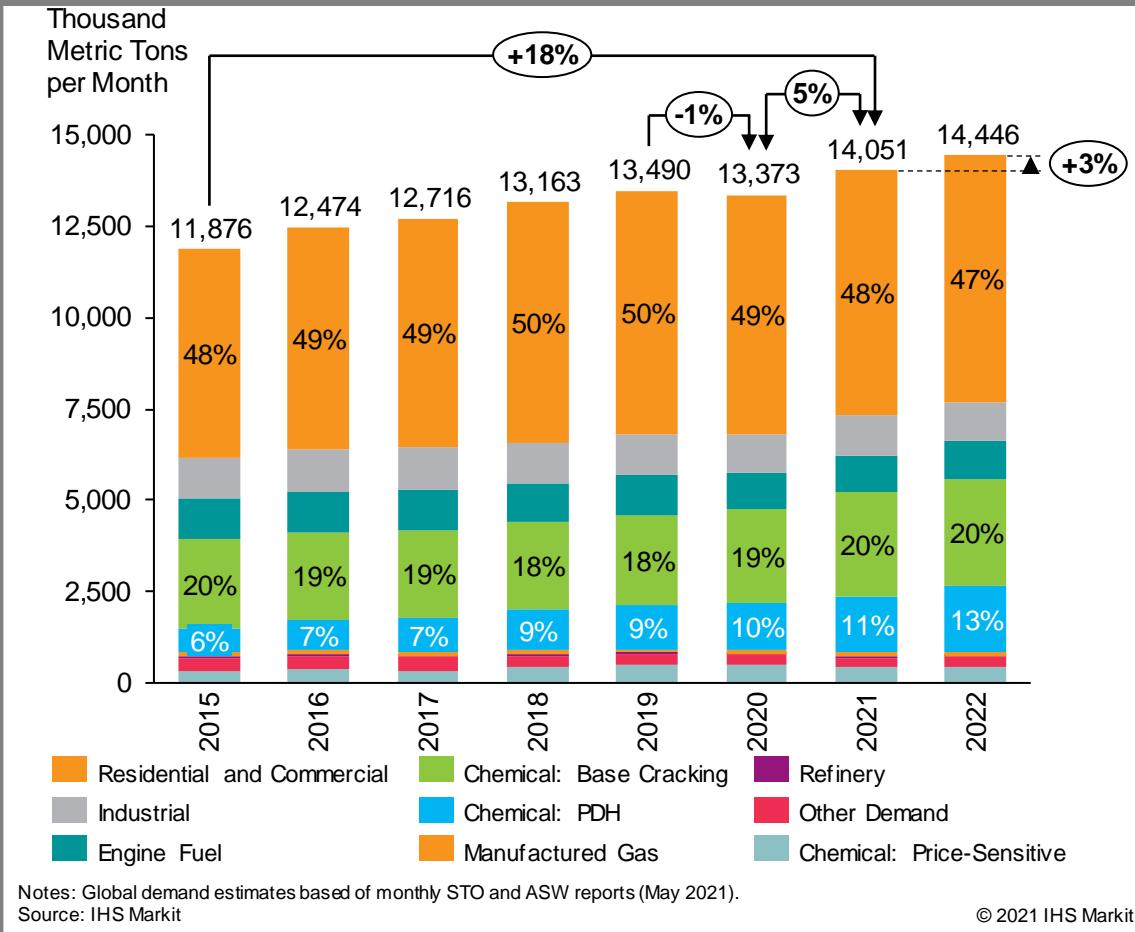
## Key US and global LPG (propane and butane) and demand drivers



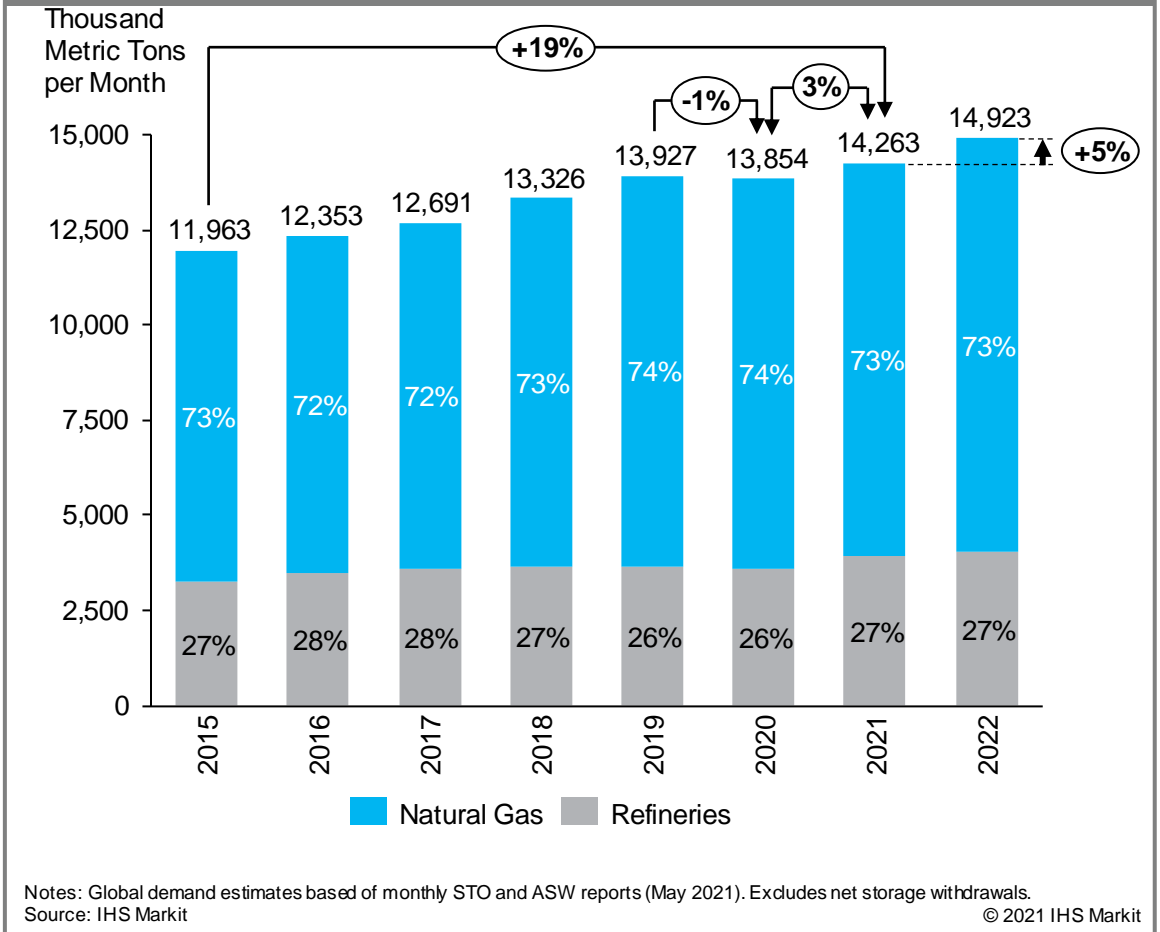
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# Residential and commercial a key global demand sink; base chemical cracking and PDH expected drive demand growth globally

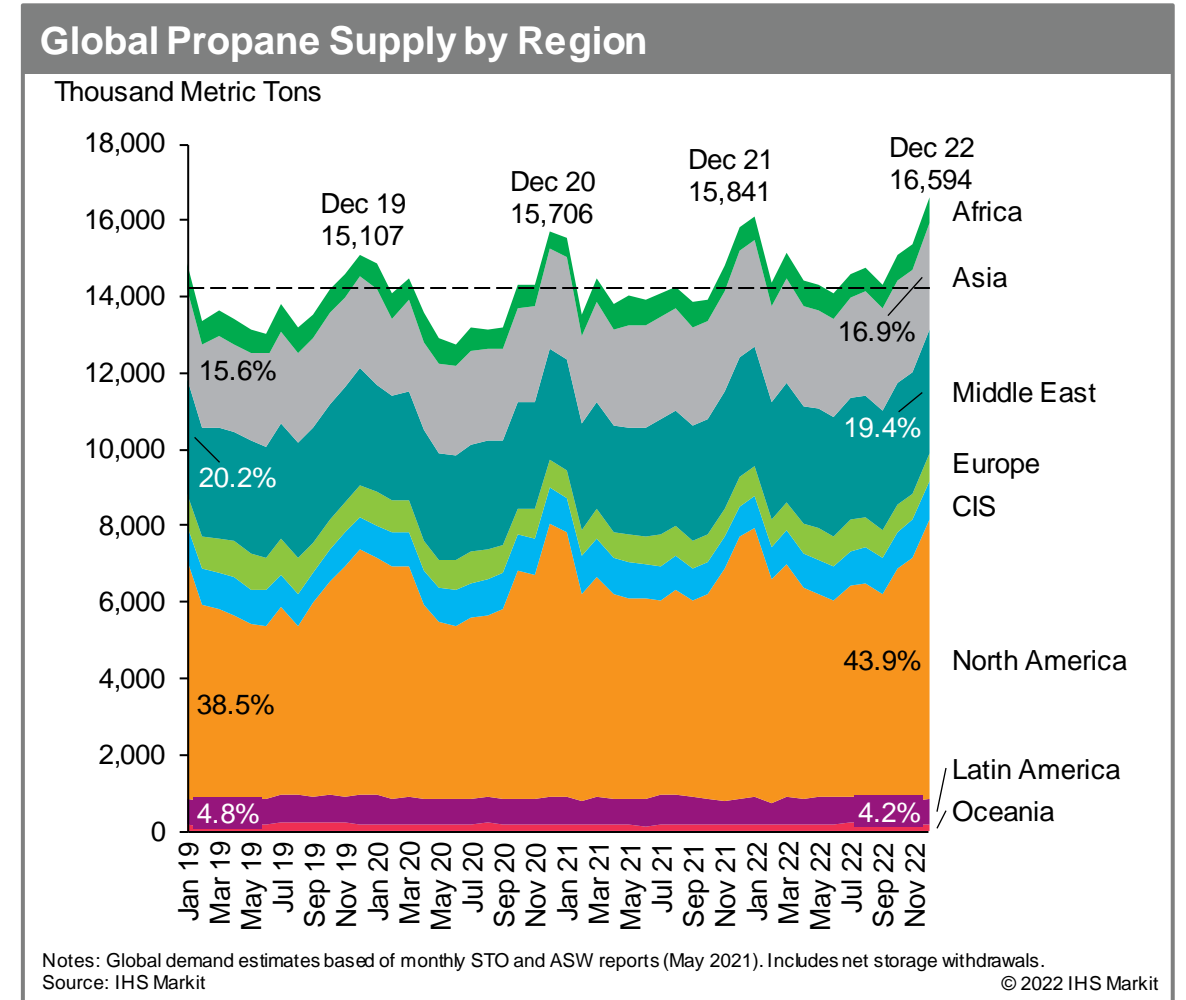
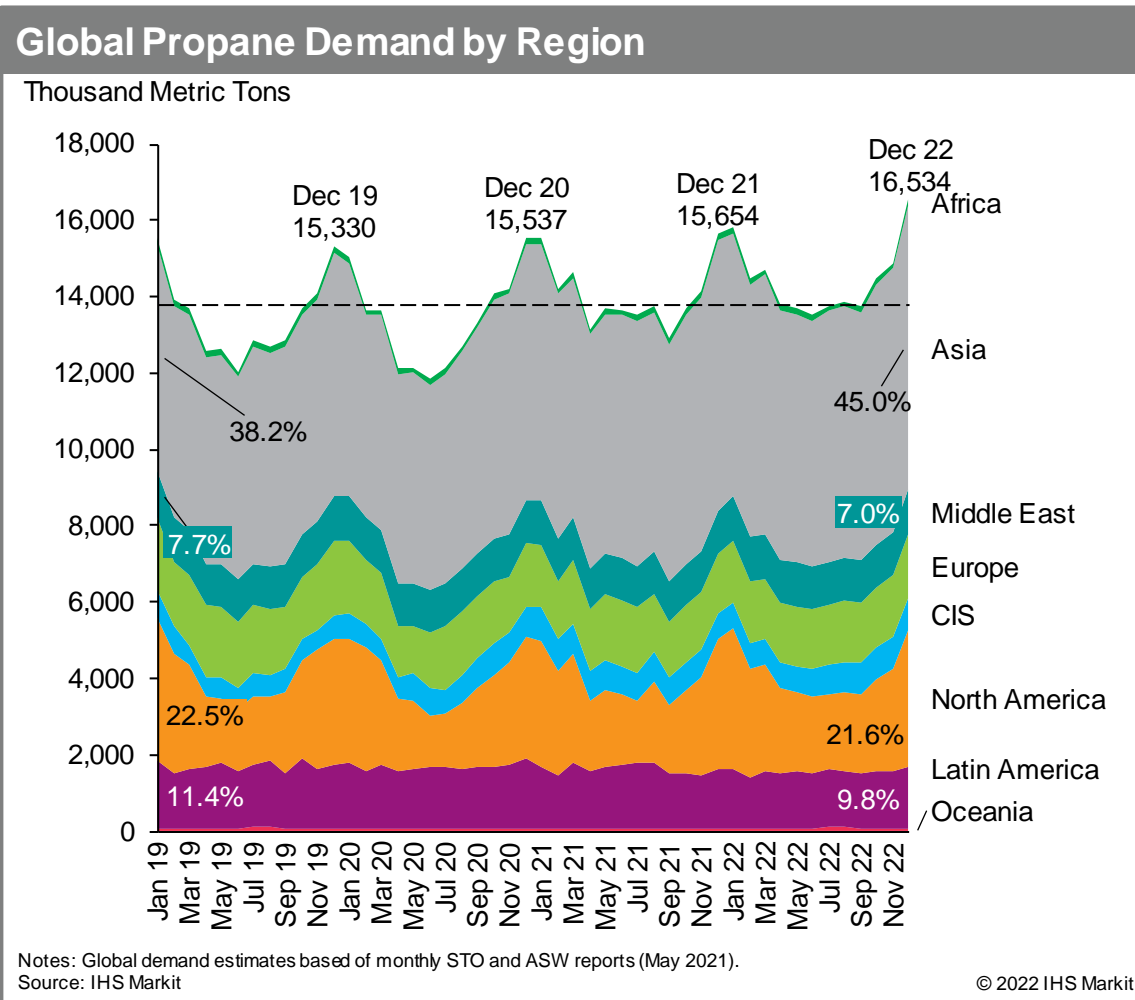
## Global Propane Demand by Sink



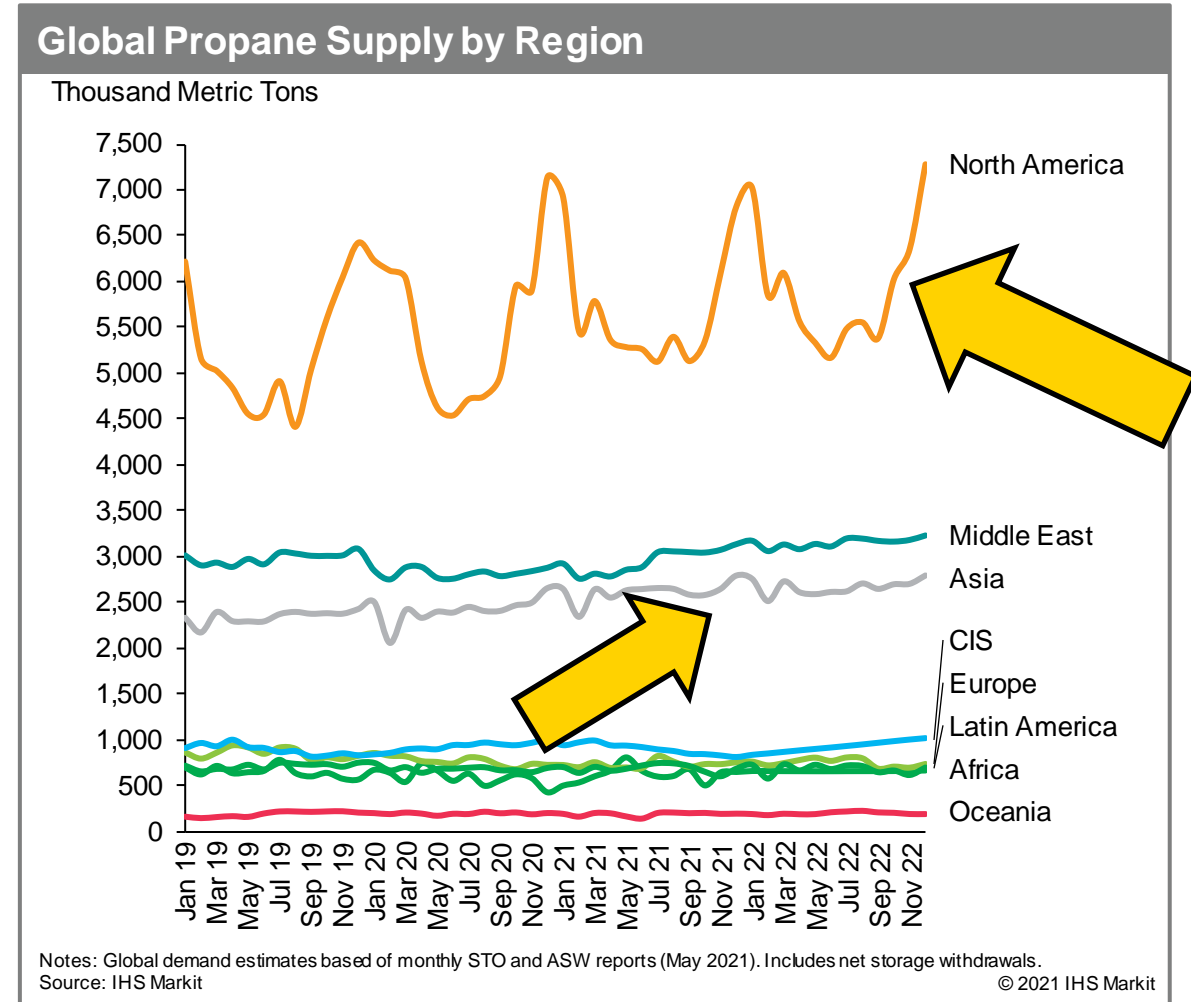
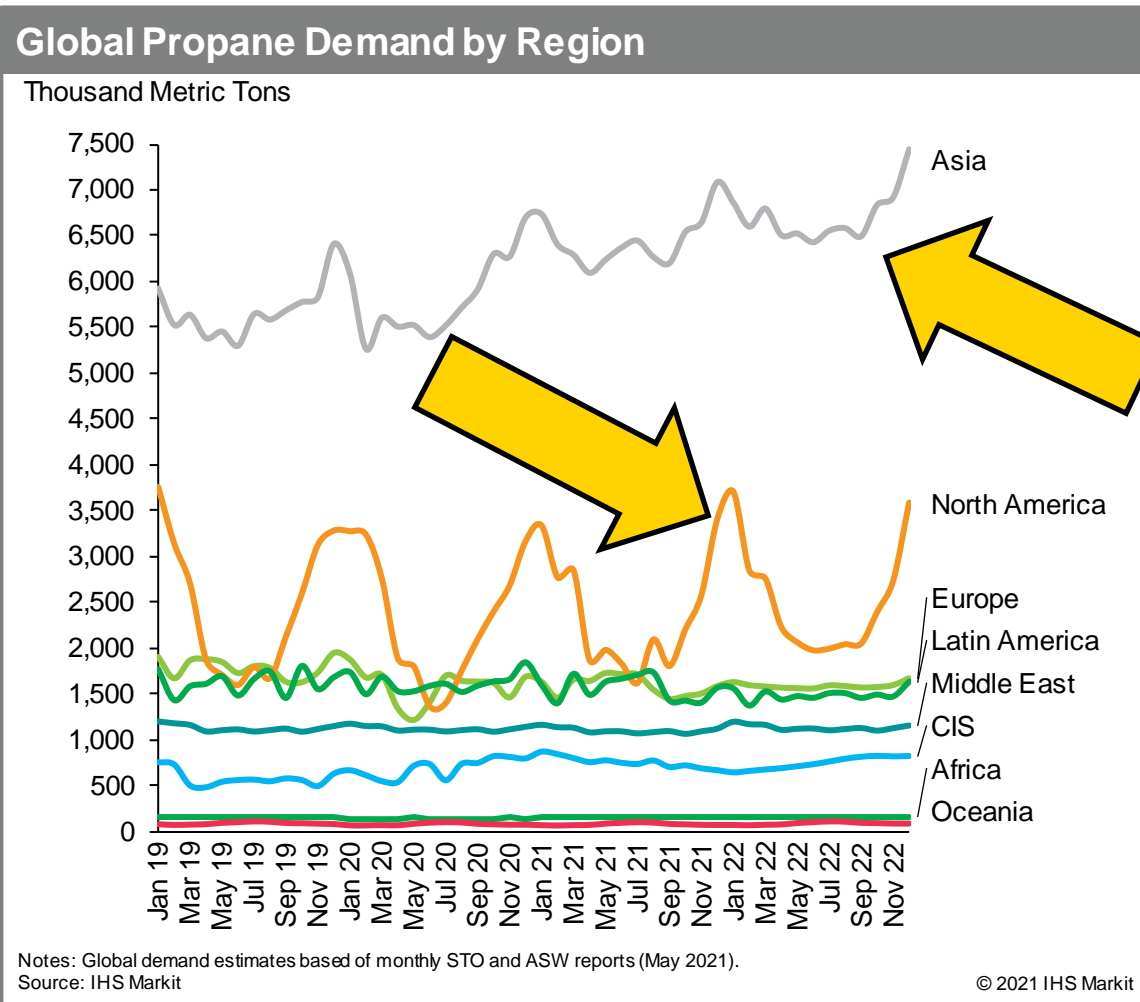
## Global Propane Production by Source



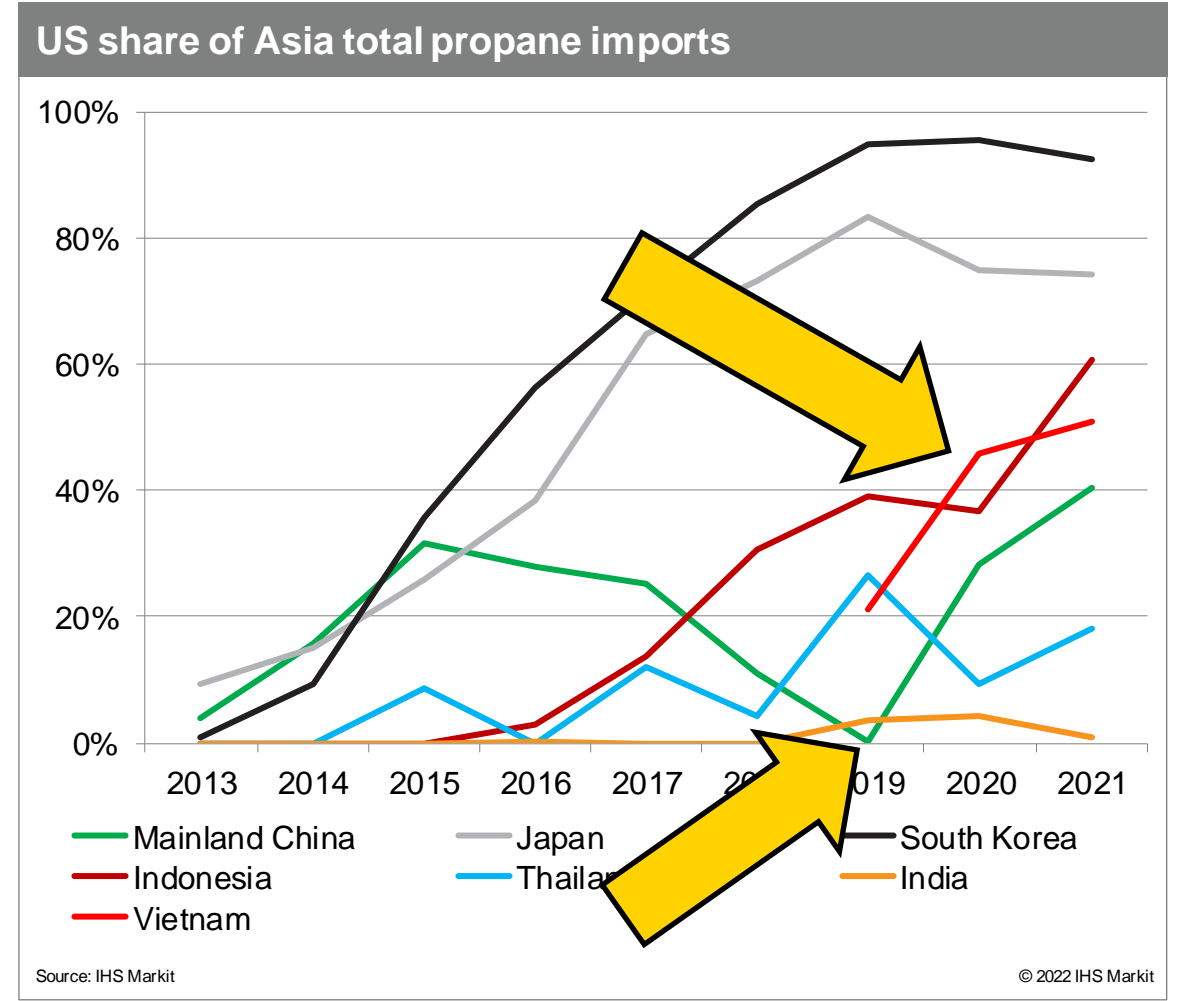
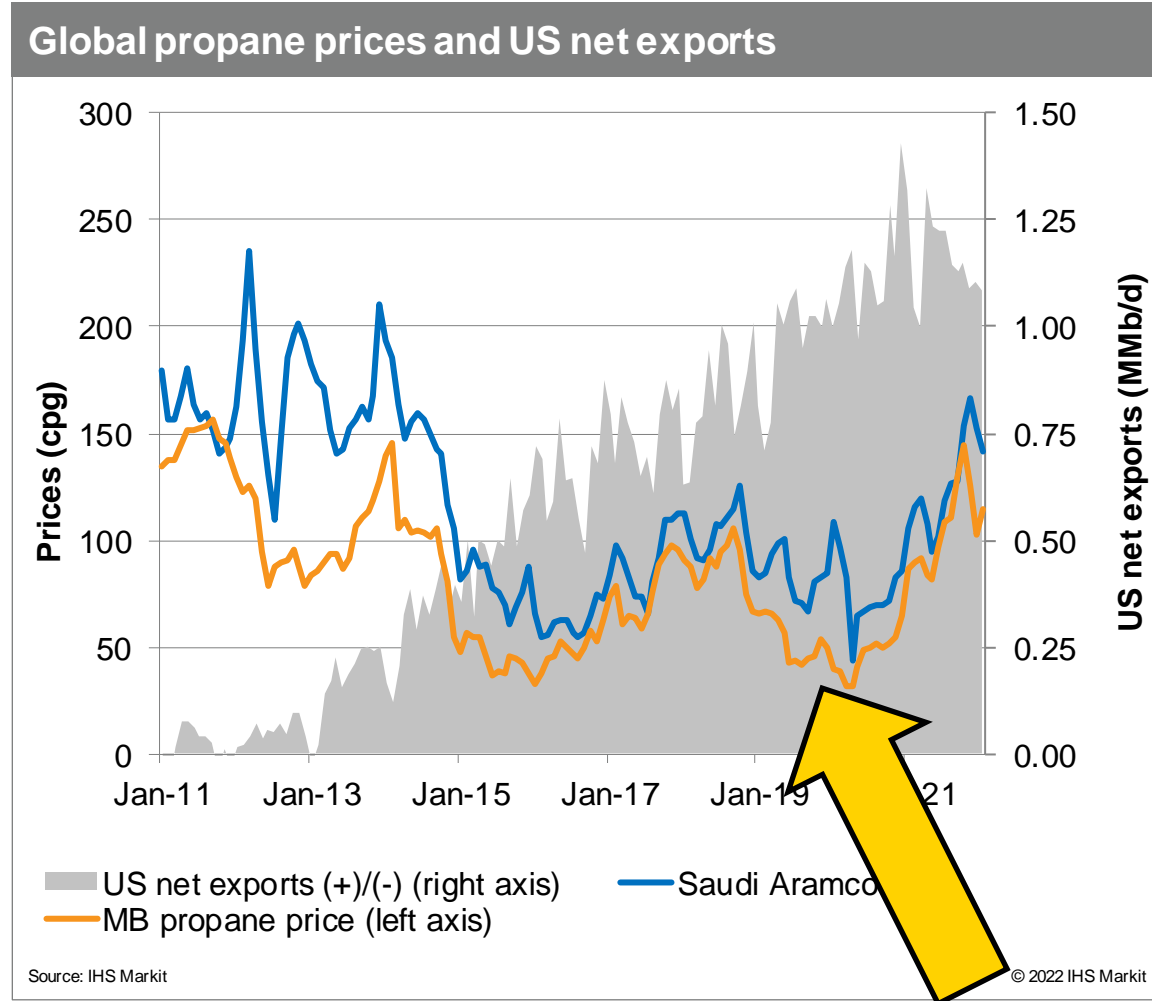
# Global propane demand increased in November and moderately increased in December as cooler temperatures returned



# Propane demand was impacted by seasonal demand changes; inventory draws (and builds) help balance ratable supplies and seasonal demand

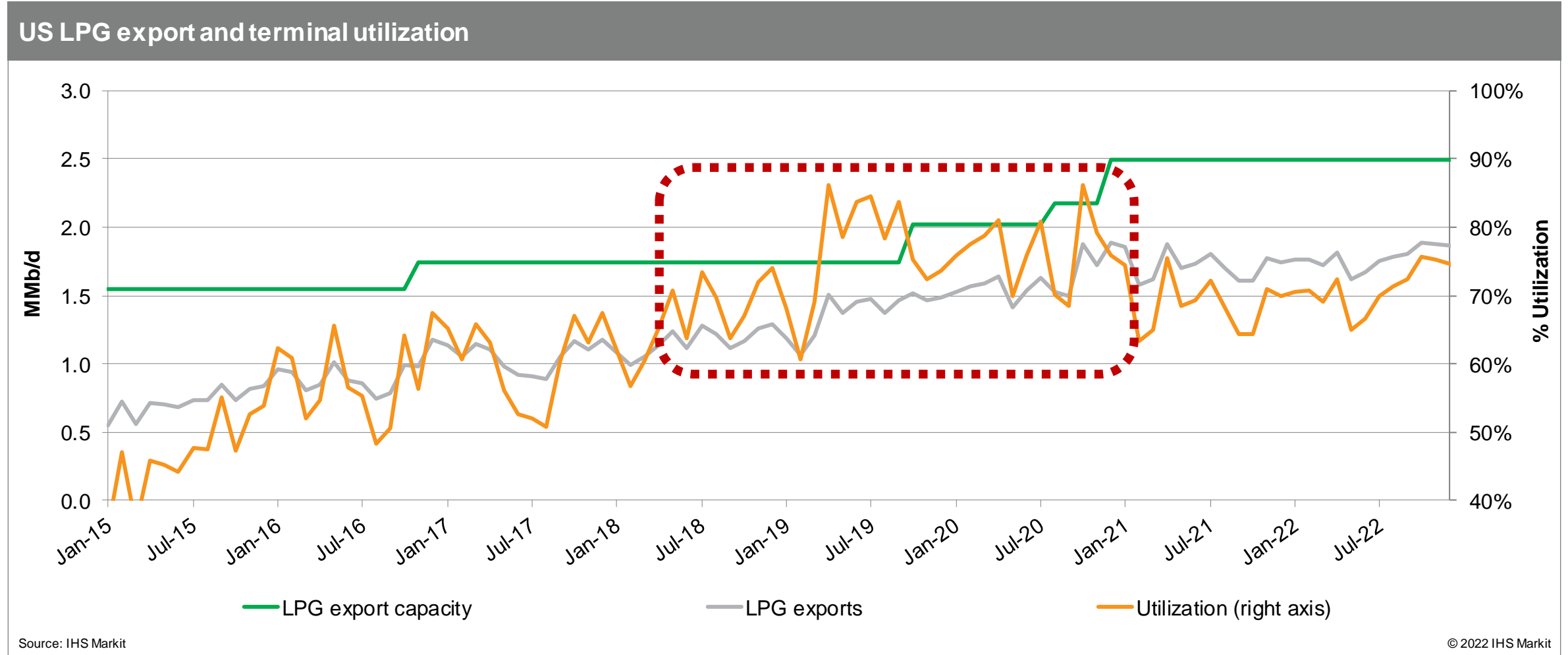


# US exports have increased market share in “legacy” markets and “new” markets based on available supplies, capacity to export, and pricing





# US LPG (propane and butane) exports are expected to average almost 1.8 Mb/d in 2022 with overall US export terminal utilization staying below 80%

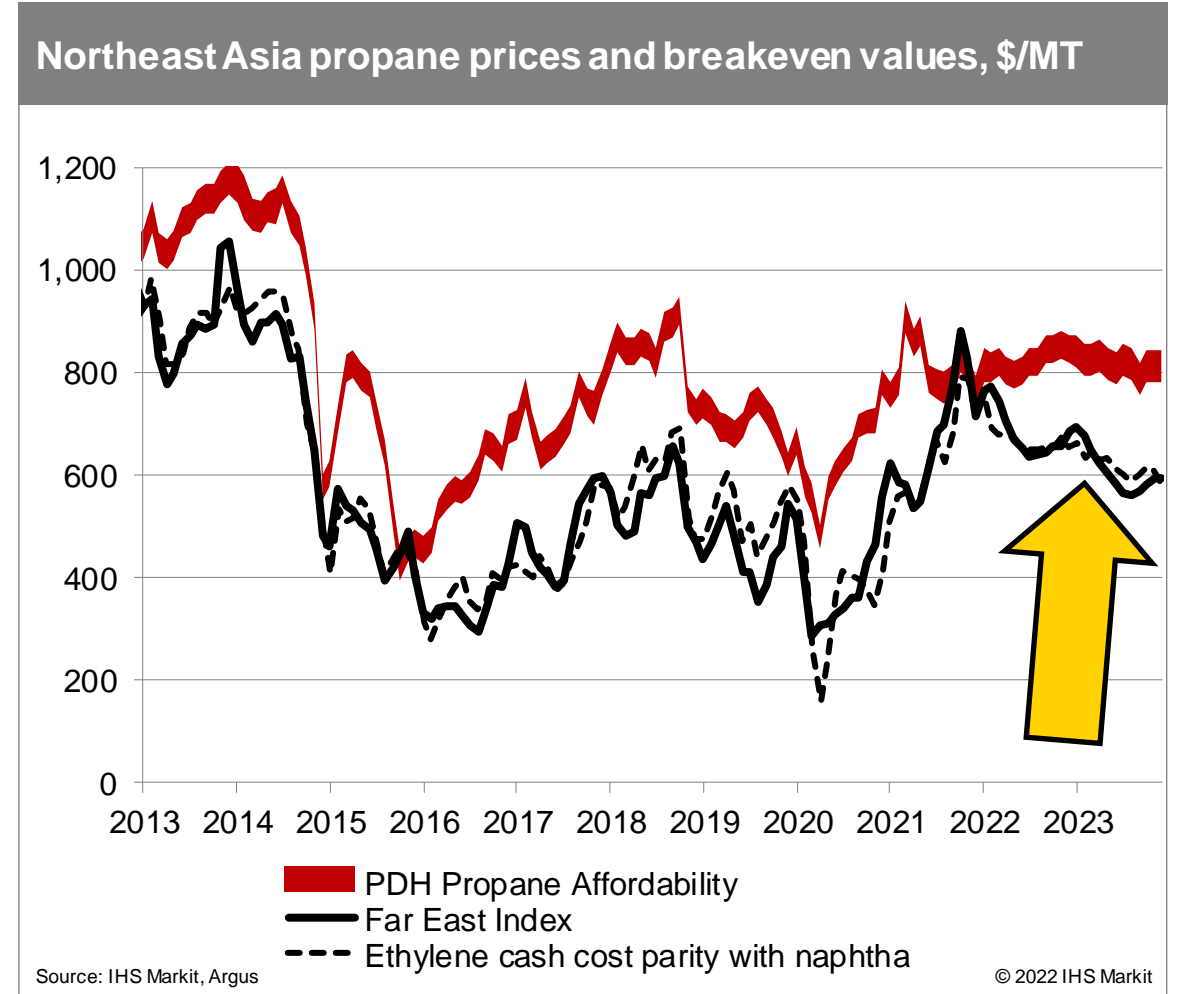
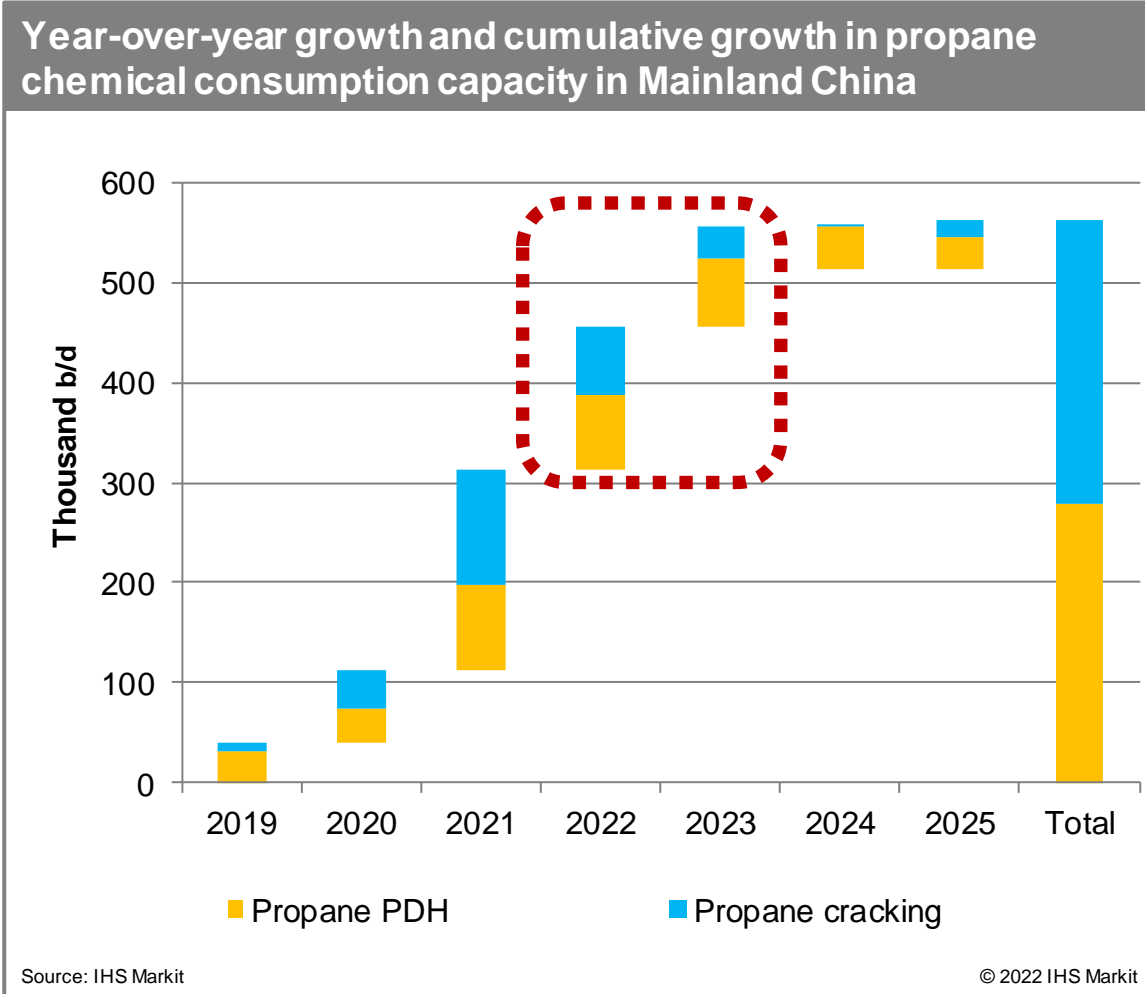


Source: IHS Markit

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Note: Individual terminal utilization is based on IHS Markit Waterborne LPG exports, and terminal capacity as indicated in infrastructure section. Some companies indicate their effective operating capacity to be lower than nameplate capacity due to propane-butane export capability and other factors.

# Asia incremental demand underpinned by Mainland China must be supported by US incremental supply and Asian buyers are willing to “pay up”

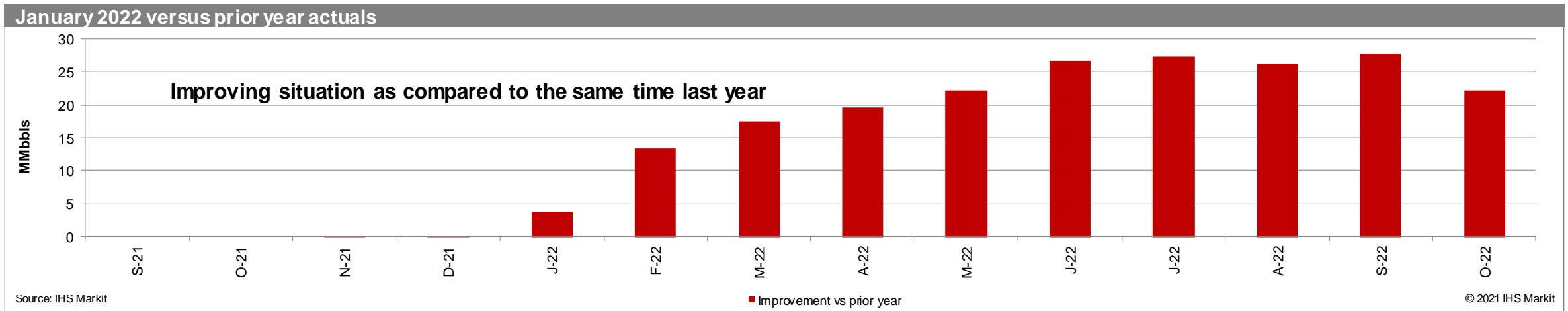
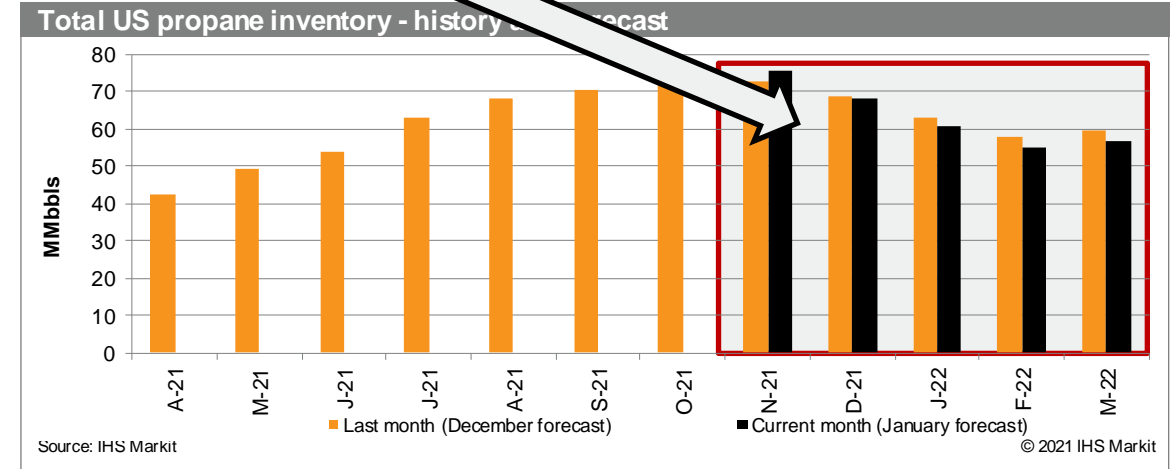
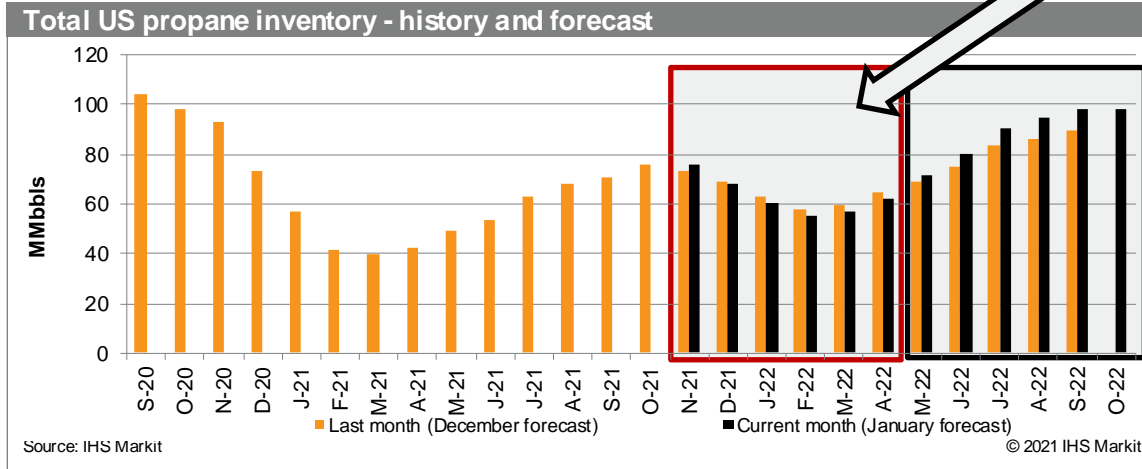


## The US propane market situation has improved over the past month, but weather events and anomalies can and will be extremely disruptive

- The later than expected start of the current US heating season, slightly lower supplies, and shifting international demand in the form of US exports have improved the inventory situation for both the upcoming US heating season period and the balance of the forecast period through October 2022 (mainly for the period after the current heating season).
- Incremental propane demand for both existing and new propane dehydrogenation (PDH) plants in Mainland China have been delayed for the fourth quarter and early into 2022 to latter half of 2022, the primary supplier for these incremental requirements is US waterborne propane exports.
- Mainland China incremental demand for propane has shifted to later in 2022 and if not for this demand shift total demand driven by exports would have outpaced supplies leading to an even tighter US and global propane market for the US winter heating season.

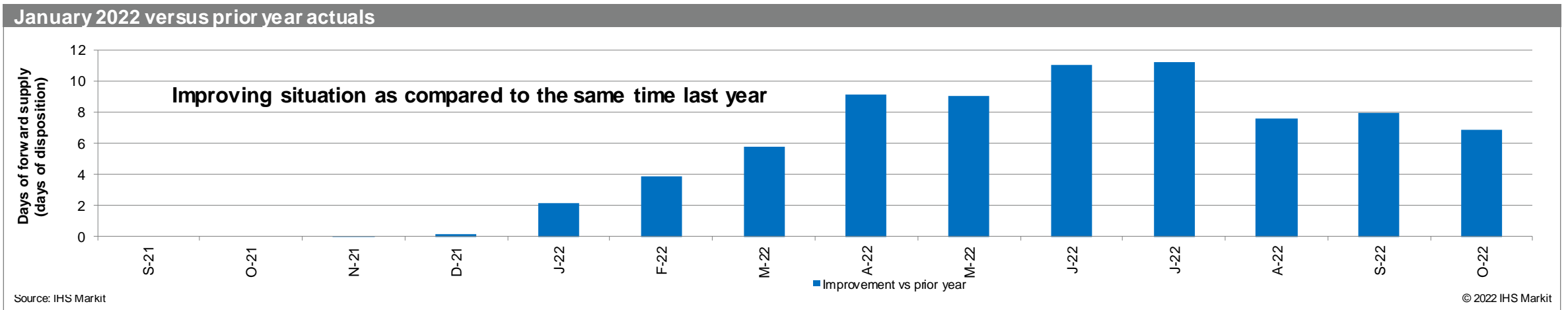
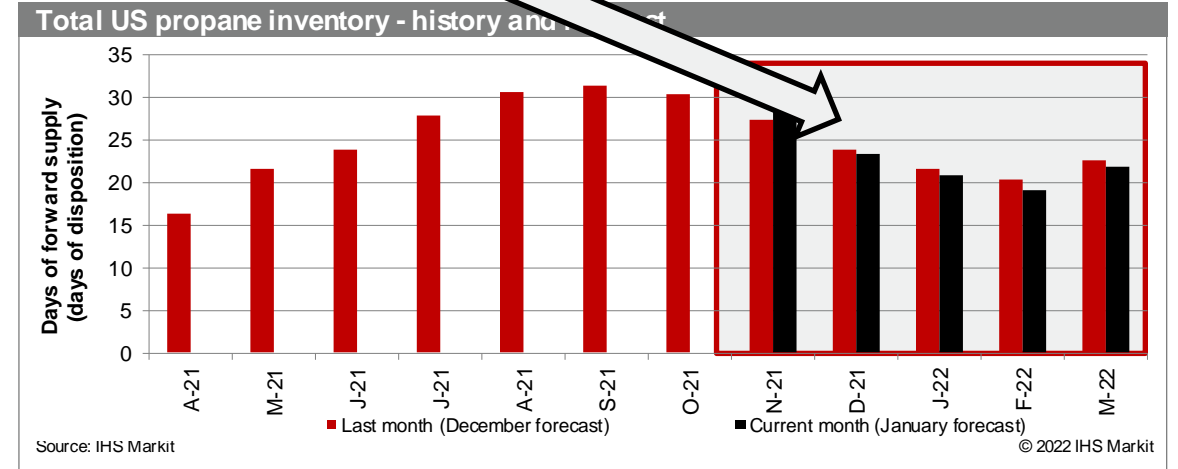
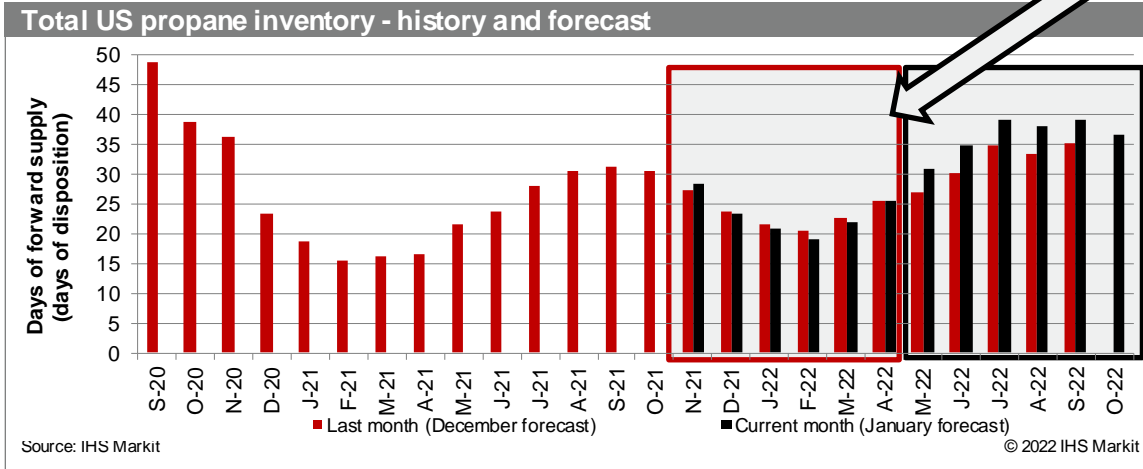
# The forward inventory situation is improving – but not until late 2022 and the next US winter heating season (unit of measure - MMBbbls)

Current heating season



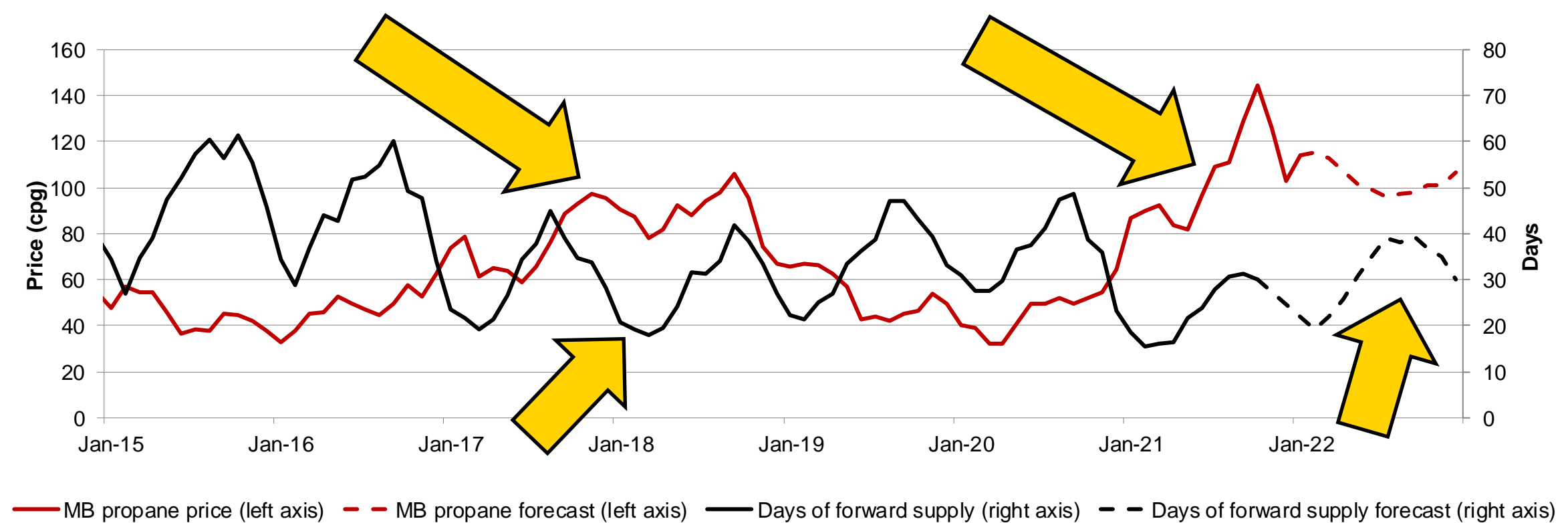
# The forward inventory situation is improving – but not until late 2022 and the next US winter heating season (unit of measure - days of forward supply / days of disposition)

Current heating season



# A indication of the US propane market's equilibrium price in the very short term is days of forward supply; market tightness remains through 2022

Mont Belvieu propane price and days of forward supply - history and forecast



Source: IHS Markit

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## Summary and conclusions

- The global propane market remains relatively tight in 2022
- Most of the global propane incremental demand will call on US exports to close the balances
- Global demand growth for 2022 is driven by chemical production increases and residential and commercial demand increases with higher growth rates expected in the chemical segment
- Asian buyers have been optimizing purchases based on US propane availability and pricing and the US share of the global propane market has increased
- The major Asian demand sink for 2022 is the Mainland China chemical segment and this segment is expected to expand by almost 150,000 b/d or approximately 190 million gallons per month (and further expansions in 2023 of approximately 100,000 b/d or 126 million gallons per month)
- Risks remain in relation to US demand and production and pricing in the guise of unplanned events and weather anomalies and market factors impacting the global crude oil market pricing
  - Downside price pressure is the current view for the latter half of 2022 based on US propane market fundamentals... but the US propane market remains tight
  - External propane market factors including a tight crude oil market and an expanding economy could place upward pressure on propane pricing
  - US supply and logistics systems will be extremely important to deliver supplies to meet demand

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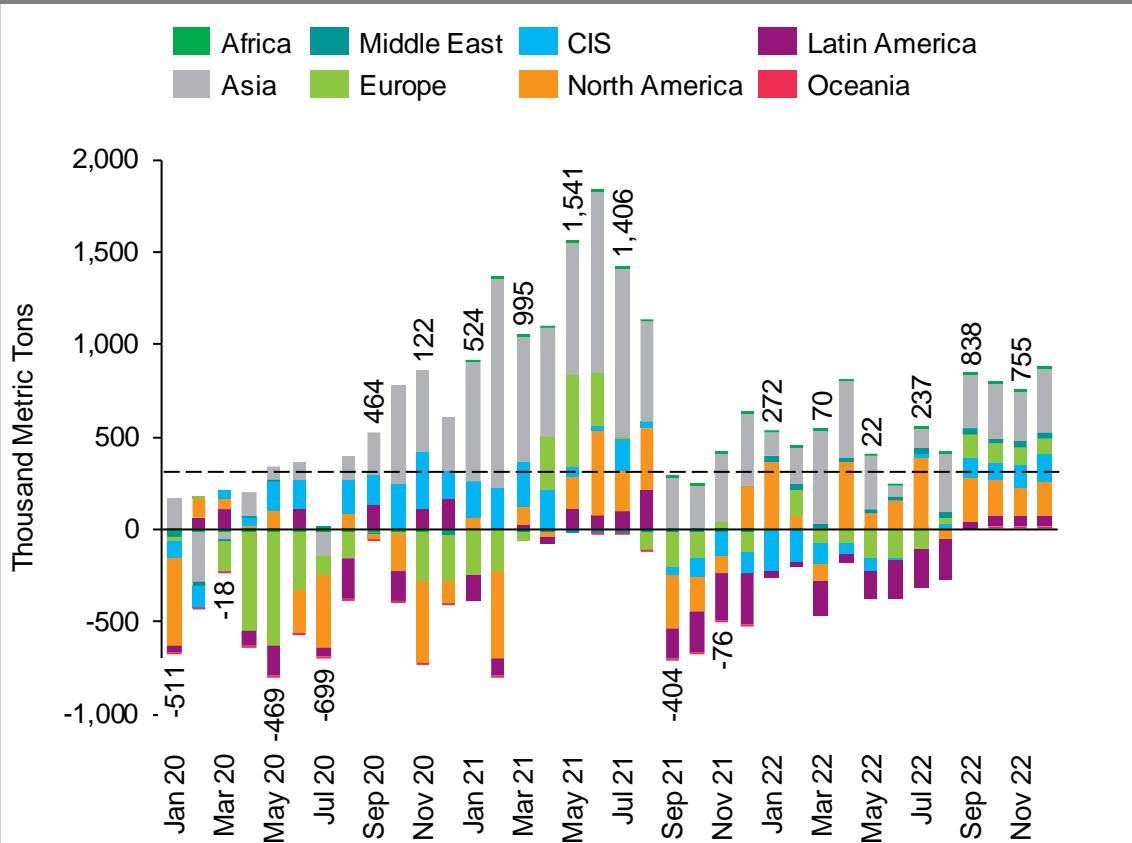


# Appendix

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# Propane demand is expected to grow in most key markets through 2021; expectation that demand growth will outpace supply growth

## Year-over-Year Propane Demand Growth by Region

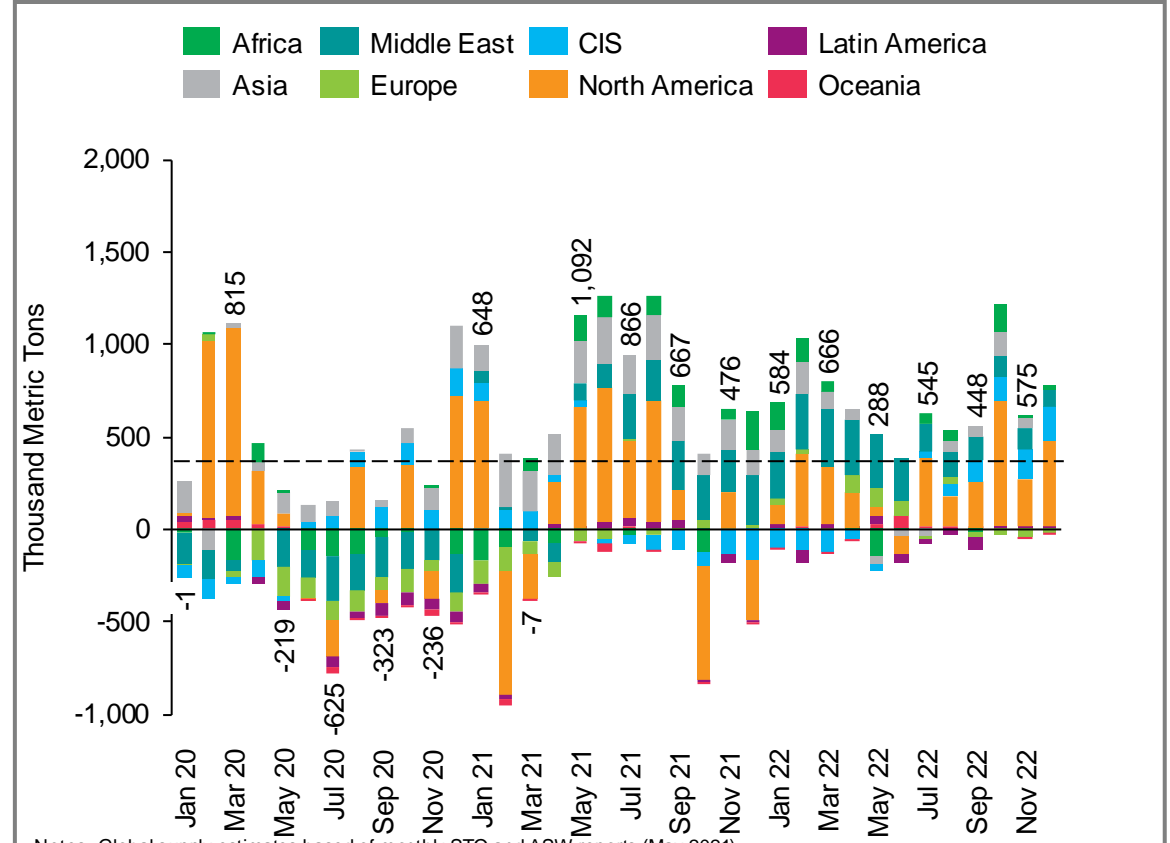


Notes: Global demand estimates based of monthly STO and annual ASW reports (May 2021).  
Year-over-year calculation based on current year monthly figure minus previous year monthly figure.

Source: IHS Markit

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## Year-over-Year Propane Supply Growth by Region



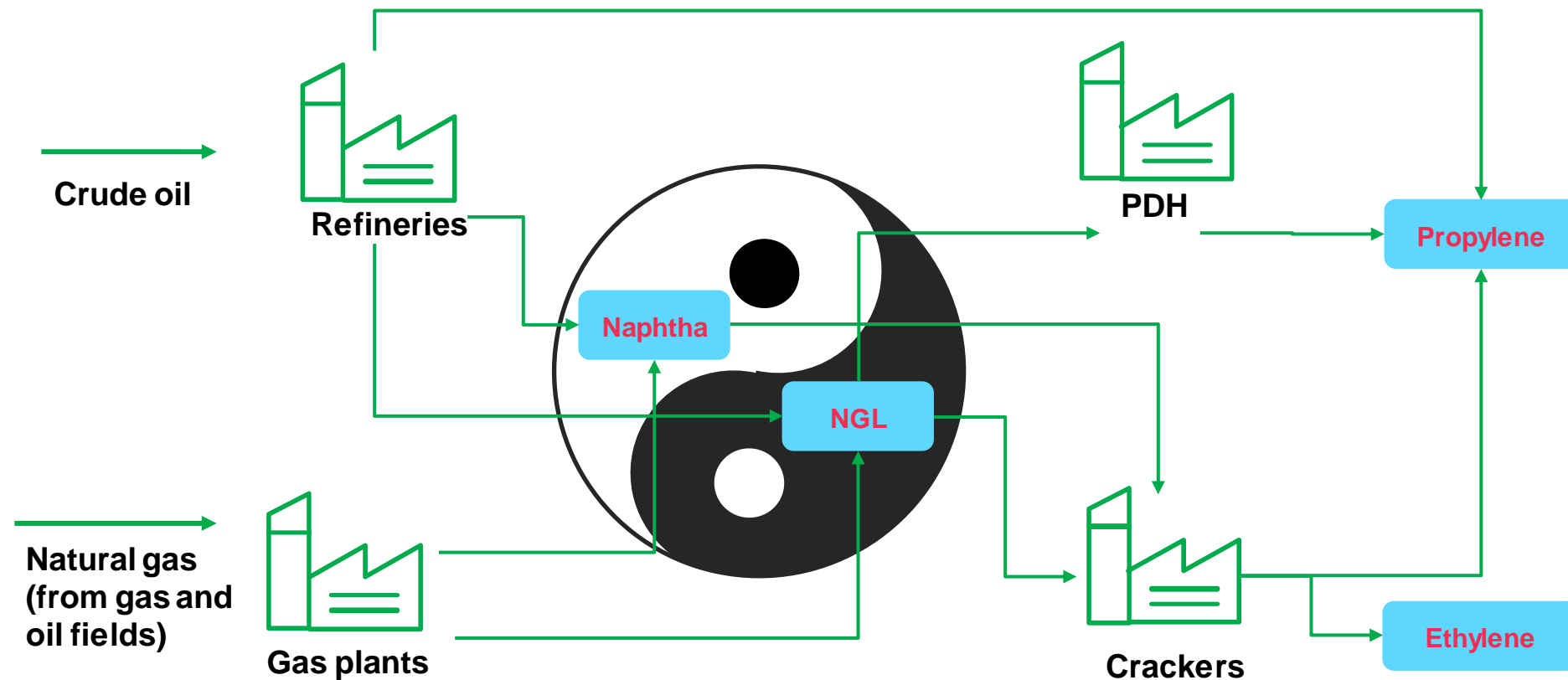
Notes: Global supply estimates based of monthly STO and ASW reports (May 2021).  
Year-over-year calculation based on current year monthly figure minus previous year monthly figure.  
Includes net storage withdrawals.

Source: IHS Markit

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# Naphtha and NGL are at the nexus of energy and chemical industries and specifically connects crude oil prices to US and global propane prices

## Naphtha and NGL connect oil and gas to chemicals



Note: PDH = propane dehydrogenation.  
Source: IHS Markit

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