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# Country traded ammonia logistics and storage, present and future

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illuminating the markets

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# Agenda

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- **Some background on Argus data and forecasts**
- Ammonia market today and future
- Market projection
- Can we meet the challenge?



# Background on Argus Media

## Market coverage

Crude oil >

Oil products

LPG/NGL

Natural gas/LNG

Chemicals

Power

Coal

Bioenergy

Emissions

Transportation


Agriculture

Fertilizers

Metals


Argus crude services cover global and local markets, offering exclusive prices and insight. Our product range includes daily prices, fundamental data, logistical updates, events and consulting services.

Find out more




Energy transition


How we help




Key prices



Reports and analysis



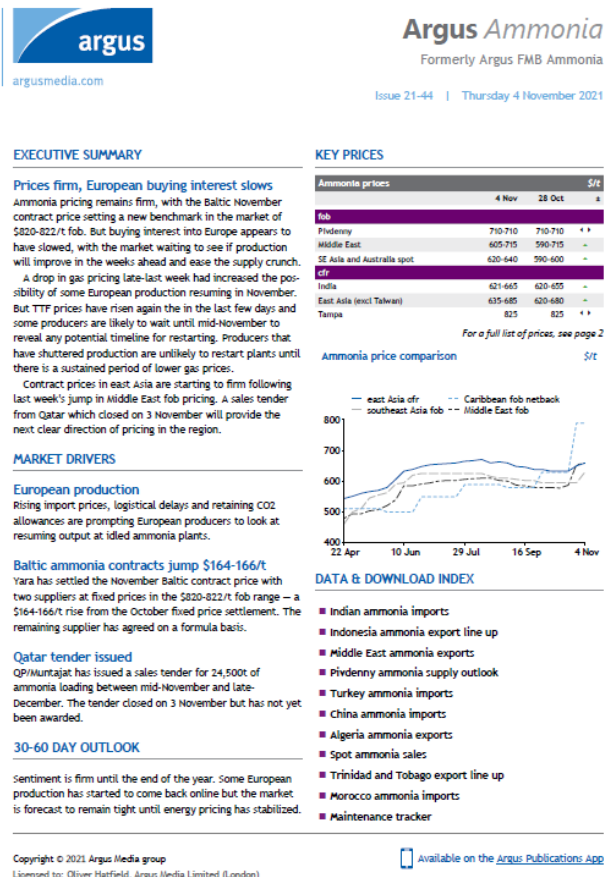
Consulting



Conferences and events

# Existing ammonia services

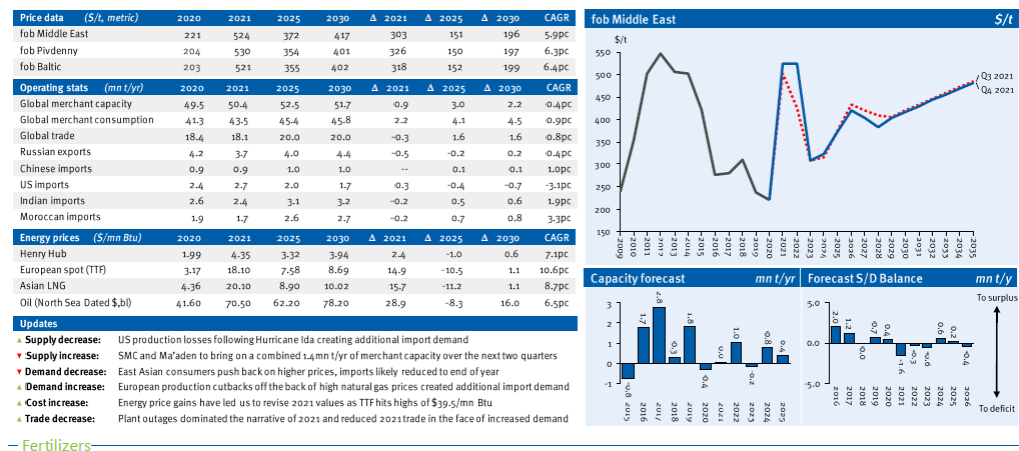
## Pricing the market



## Analysis and forecasts

### ANALYTICS DASHBOARD: Q4 2021

Energy headwinds raise near-term values, but new capacity and normalisation of fundamentals to ease prices in 2022



## Consultancy

- In multiple formats, but most relevant to this forum: independent economic feasibility support
  - Appeal to sponsors and lenders

# And... Argus Green Ammonia Strategy Report

## Key benefits



**Understand** the key market and non-market influences driving the development of ammonia as a fuel.



**Discover** which sectors are the most promising for the use of ammonia for fuel, and why.



**Develop** your understanding of the economics of blue and green ammonia production, and how they will evolve in the future.



**Assess** the existing ammonia market, its buyers, suppliers and infrastructure.



**Quantify** the potential size of the future 'ammonia for fuel' market using robust underlying data developed by Argus' unique multi-commodity, multi-disciplined team.

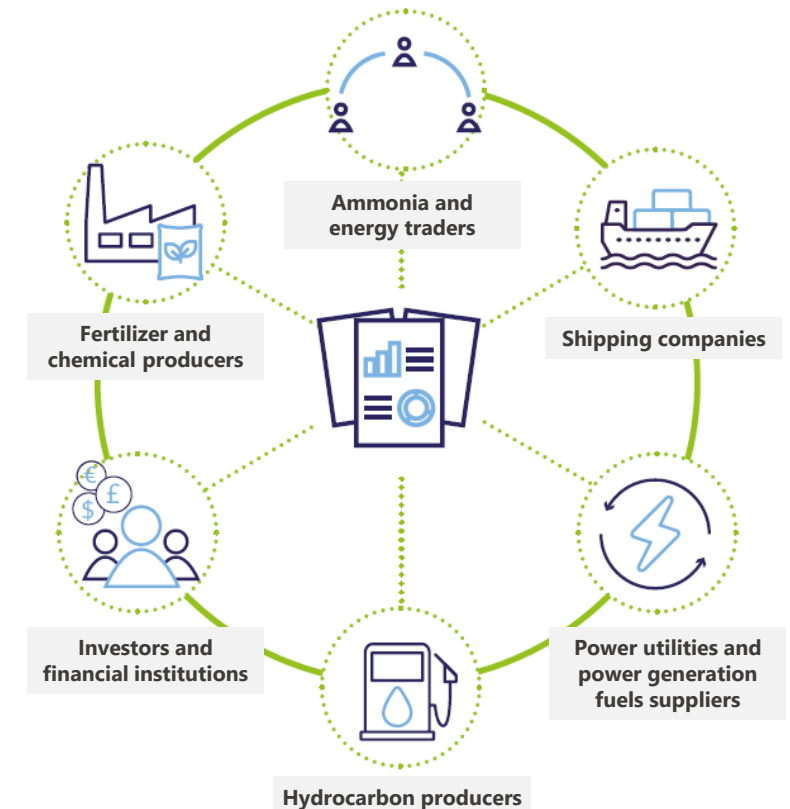


**Enhance** your strategy to capitalize on this fast-developing market.

## Key questions addressed

- Which sectors and end-uses is green ammonia best suited to?
- How quickly will these markets develop and on what scale?
- Will these markets develop without intervention, or will regulation be required?
- What will green and blue ammonia cost to produce and how will these costs change?
- Which countries are best positioned to produce green ammonia and which country and end-use markets are they likely to serve?
- What does the existing ammonia market look like, and how capable is it of adapting to this new end-use?

## Who should use this report?



# Agenda

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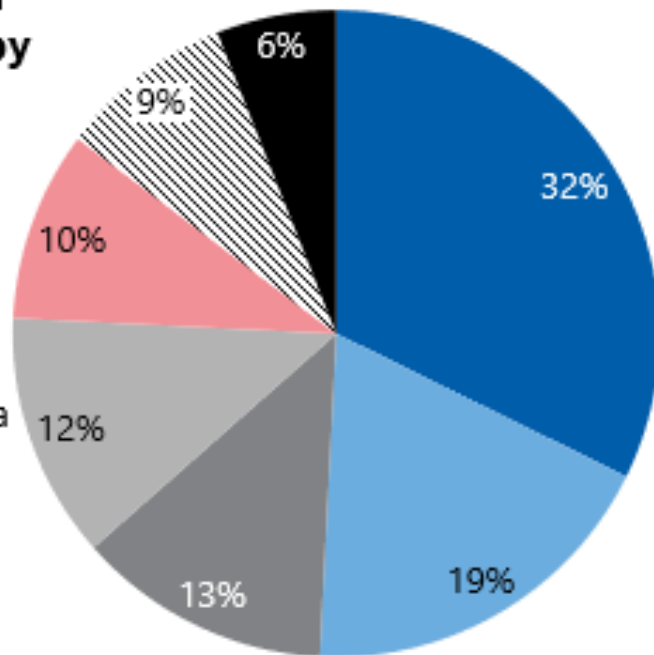
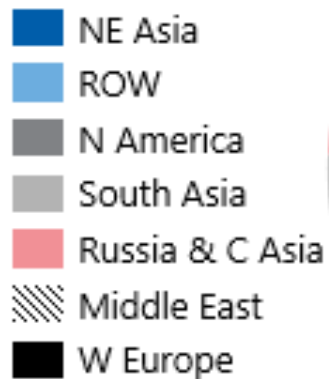
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# Gross ammonia market fundamentals

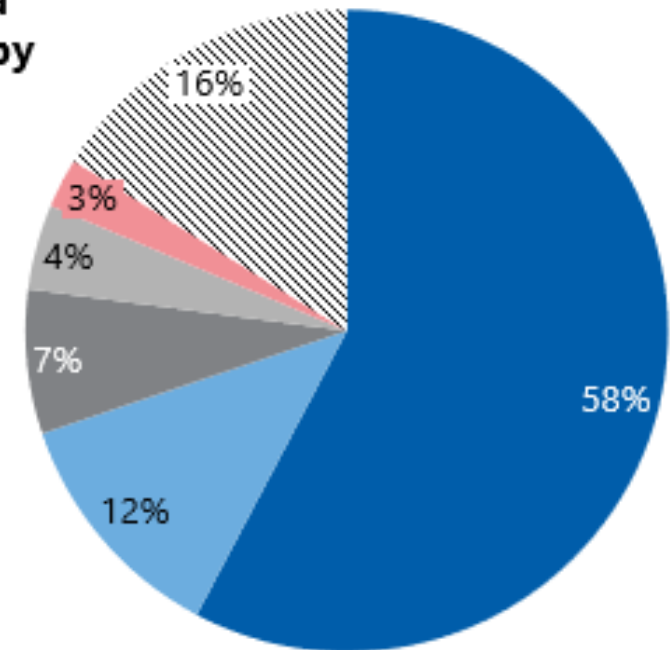
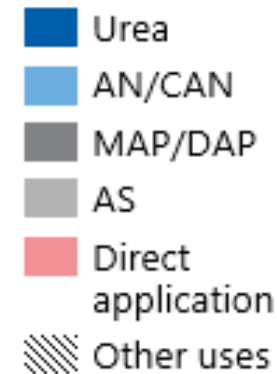
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Global ammonia production amounted to 178 mn t in 2020.  
Around 80pc for fertilizer use and 20pc for non-fertilizer use.

**2020 ammonia  
consumption by  
region**



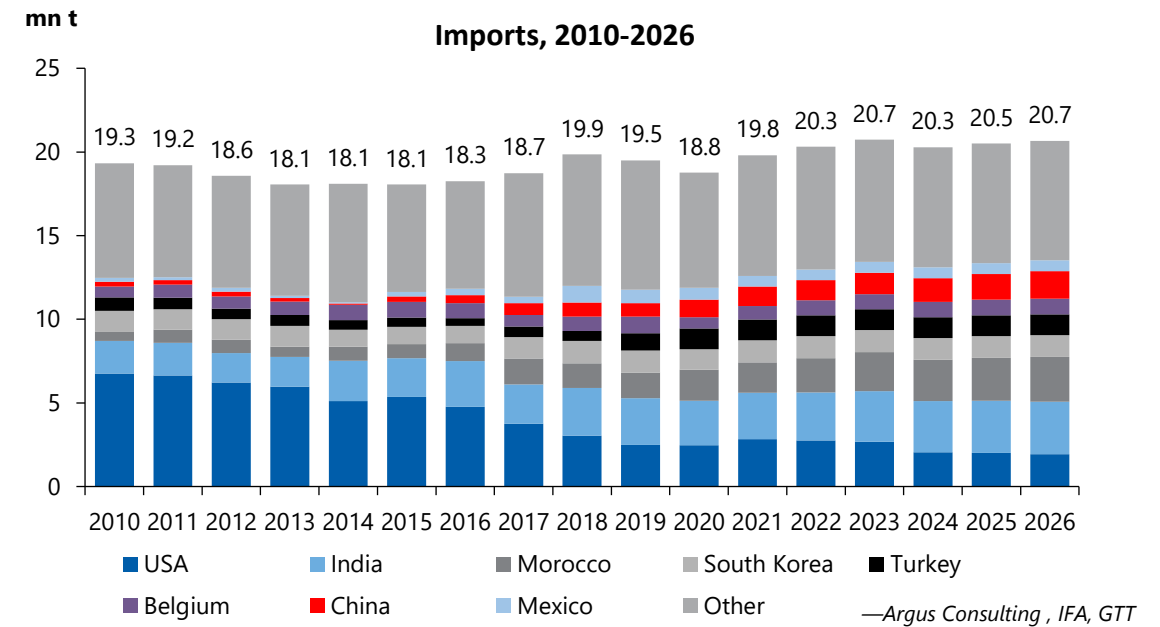
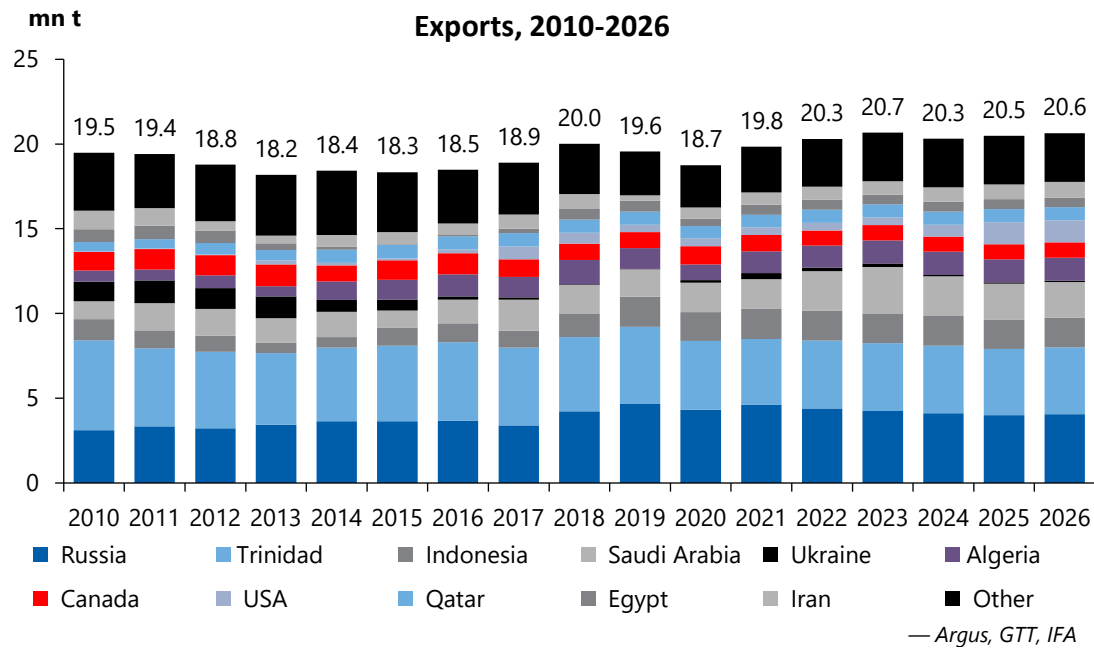
**2020 ammonia  
consumption by  
end use**





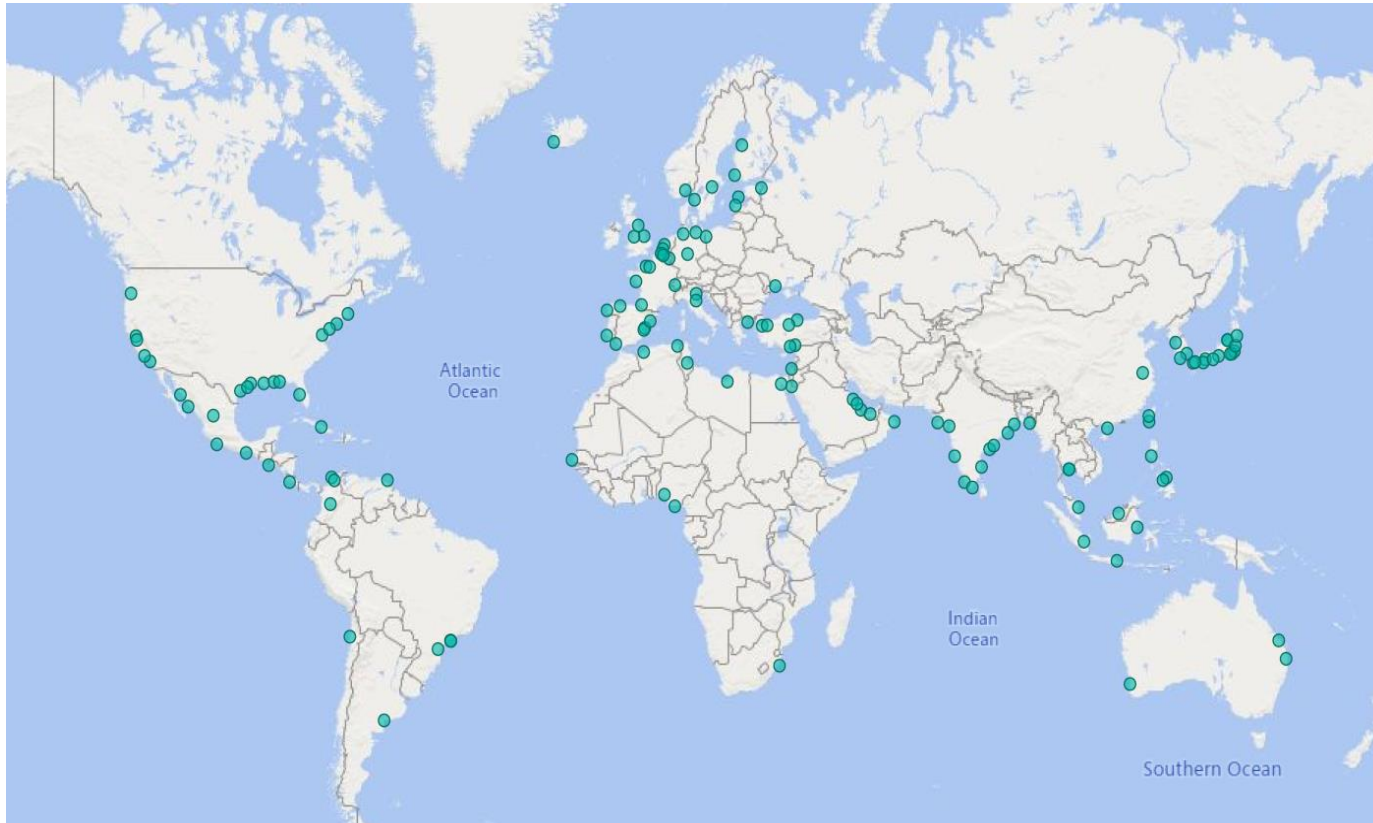
# Country traded volumes: exports and imports

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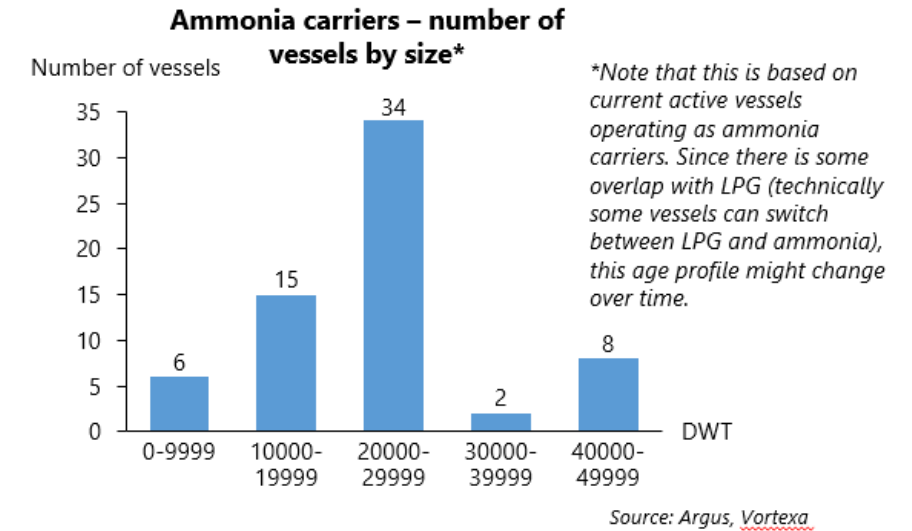
# Ammonia logistics

## Global ammonia terminals locations



Source: Argus Media

## Global ammonia shipping fleet



# Agenda

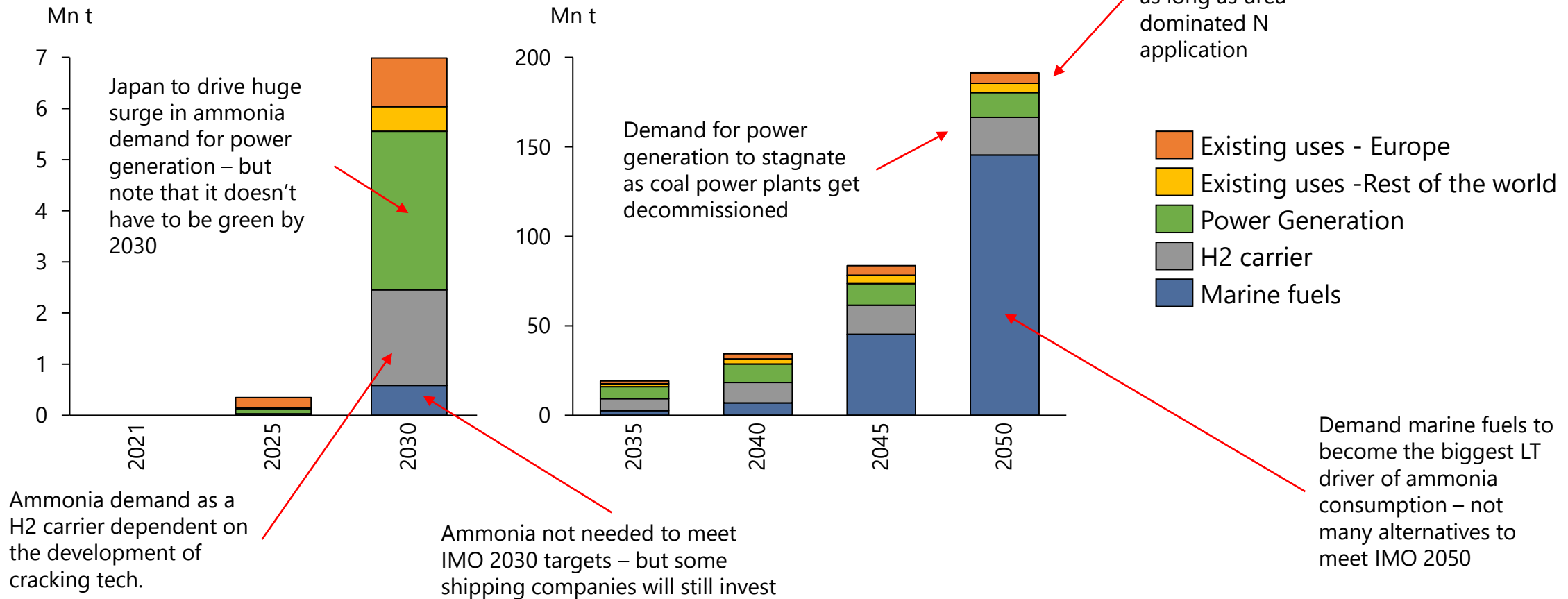
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# Green ammonia demand forecast – our base case

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**Green Ammonia demand forecast – base case, short vs. long-term trend**



# Disproportionate increase in merchant market size

- Our base case indicates that the country to country traded ammonia market would grow from 18-20 mt to approaching 200mt+ by 2050
  - Upside case pushes this up to ~300mt
- This would require a massive scaling up in merchant ammonia storage and infrastructure, 10-15x



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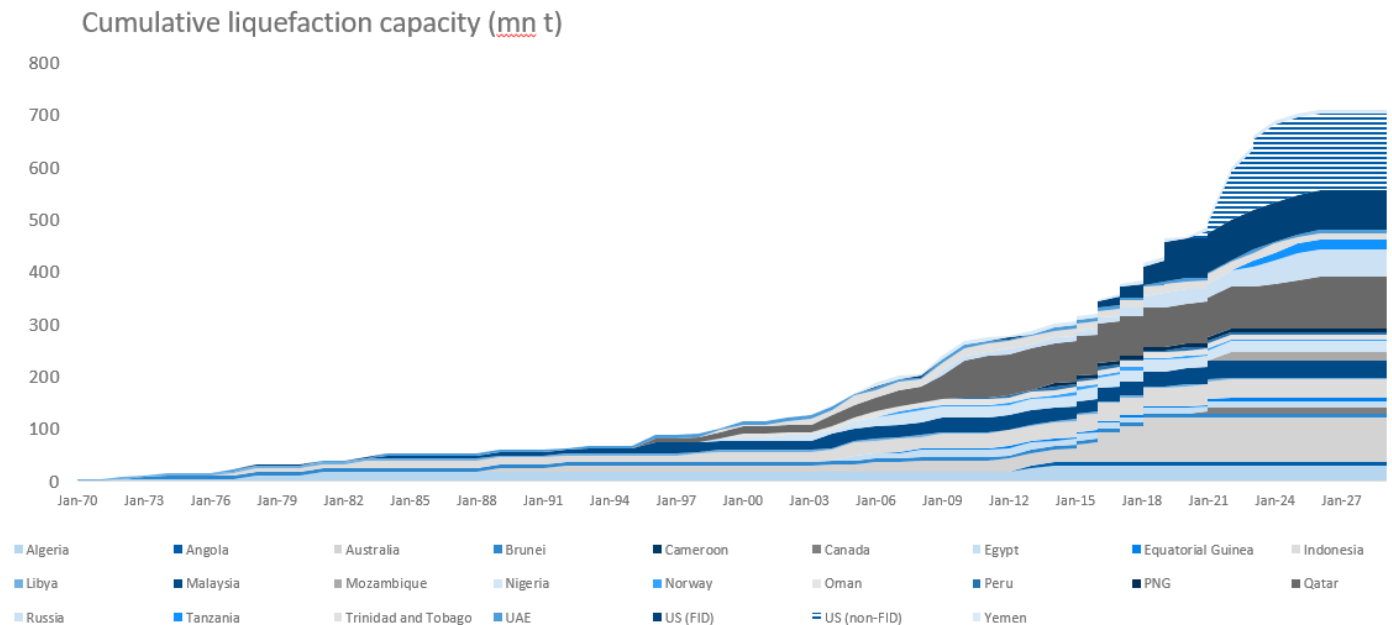
# Ammonia storage and logistics are unlikely to wag the dog

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- There would appear to be no additional technical risk/safety barriers beyond those that are already present
- There are significant cost implications
  - But in future the cost of storage/transportation should be smaller % of delivered LCOA, since new green NH<sub>3</sub> production capex is 2-3x > grey
- If the overall business case makes sense, storage and logistics costs and considerations are unlikely to be a significant hurdle

LNG sector provides an interesting recent case study

## Three waves of new liquefaction capacity



Source: [Argus Direct – Data and Downloads](#)

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# Thank you for your attention!

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