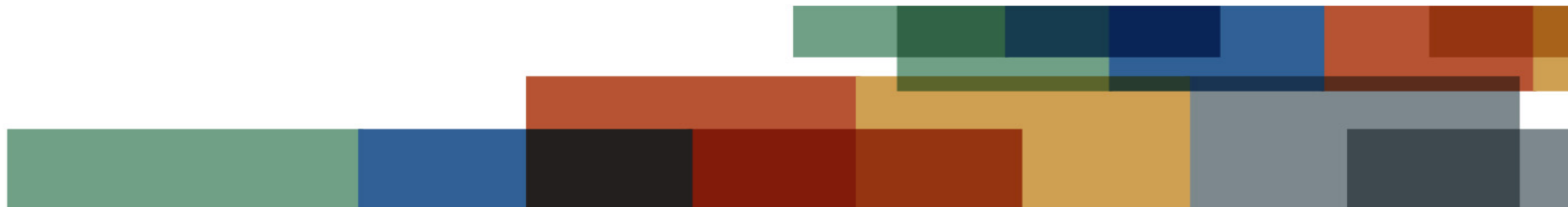


## Gas (& Oil) in WA

AIE Feb 2019



# Who we are

RISC is a truly independent  
a broad range of clients in  
make their business decisions.

We work in partnership with  
oil and gas industry, offering  
and gas projects around the world.

- We have many years of practical experience
- We provide insightful views on the industry
- We help our clients understand the oil and gas industry.



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In some instances, our perspectives may differ from some of our highly valued clients.

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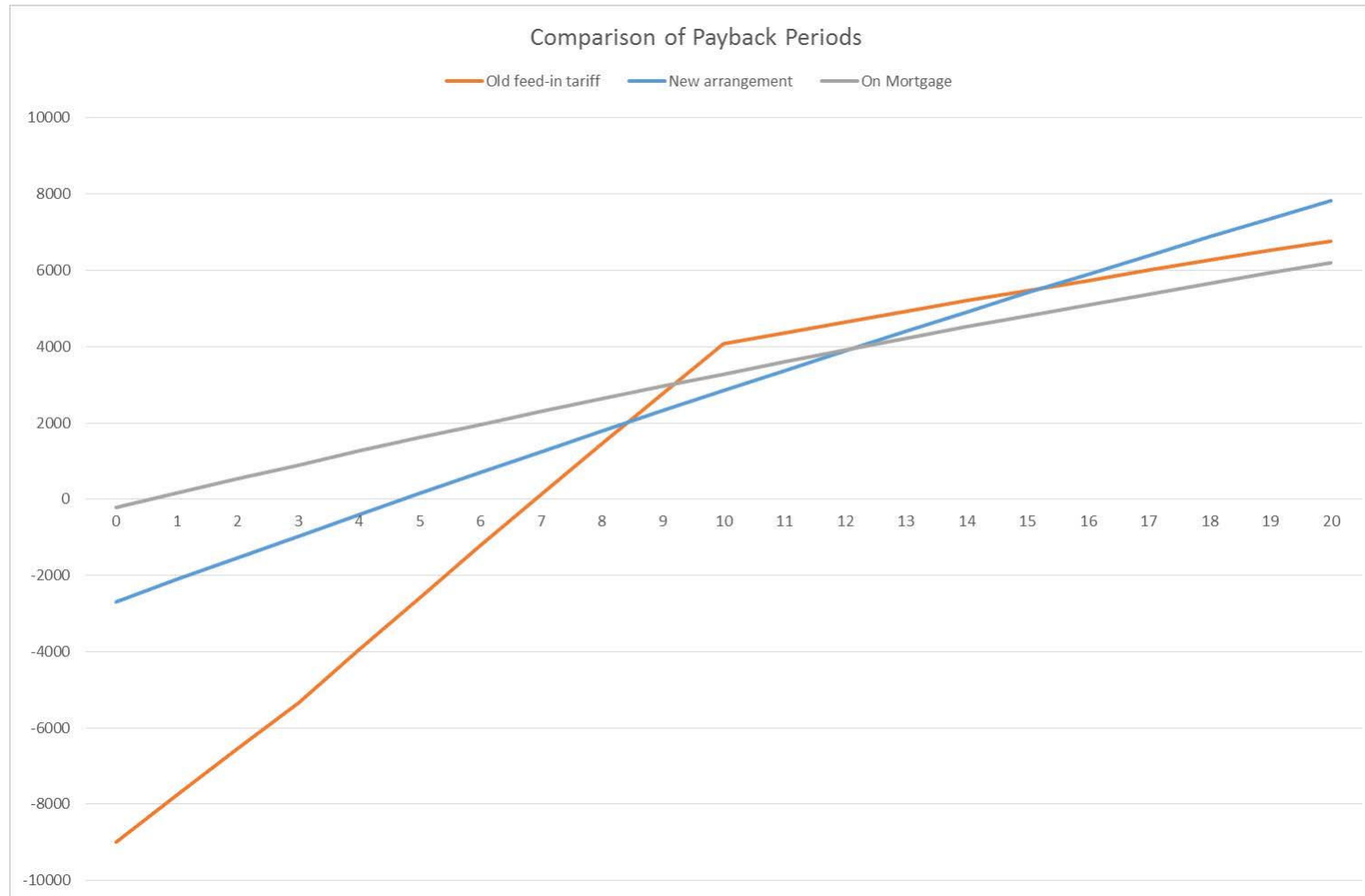
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Martin Wilkes M.Eng. C.Eng. C.Env. M.I.ChemE.

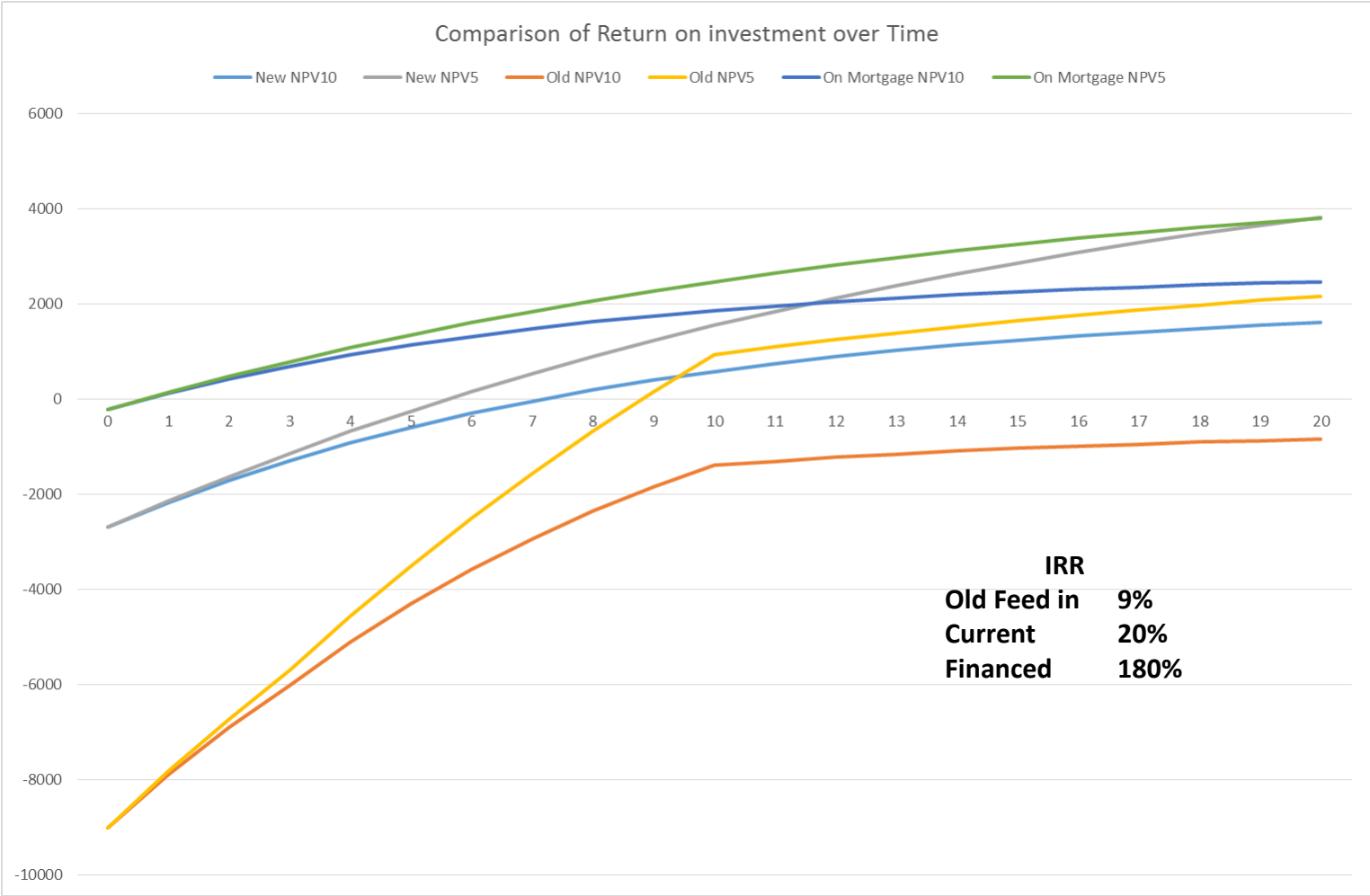


*decisions with confidence*

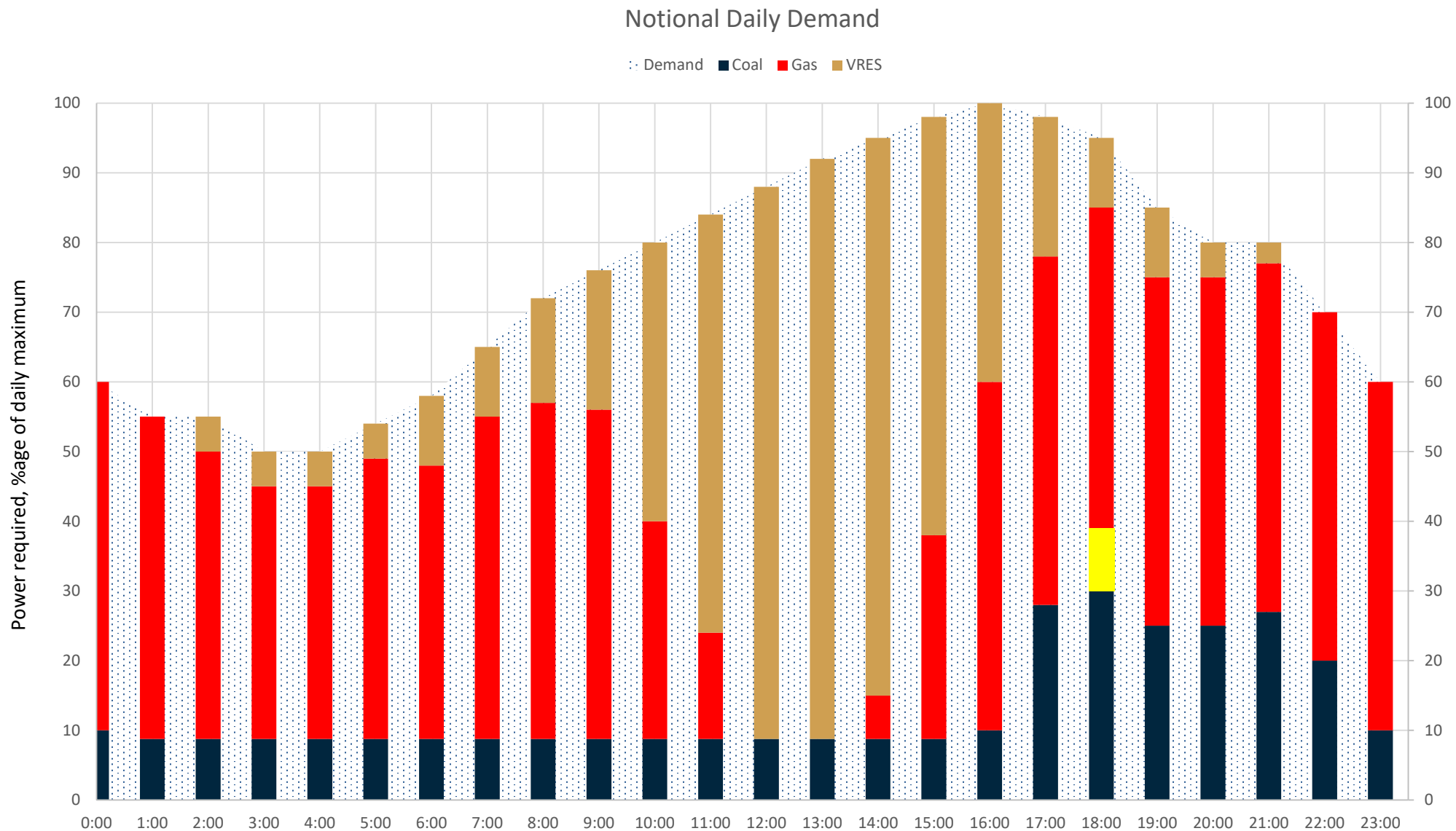
# As a home owner Solar Power is one of the best investments you can make in WA...



# Solar Panel example Rates of Return on investment



# But renewables are not the panacea for power generation





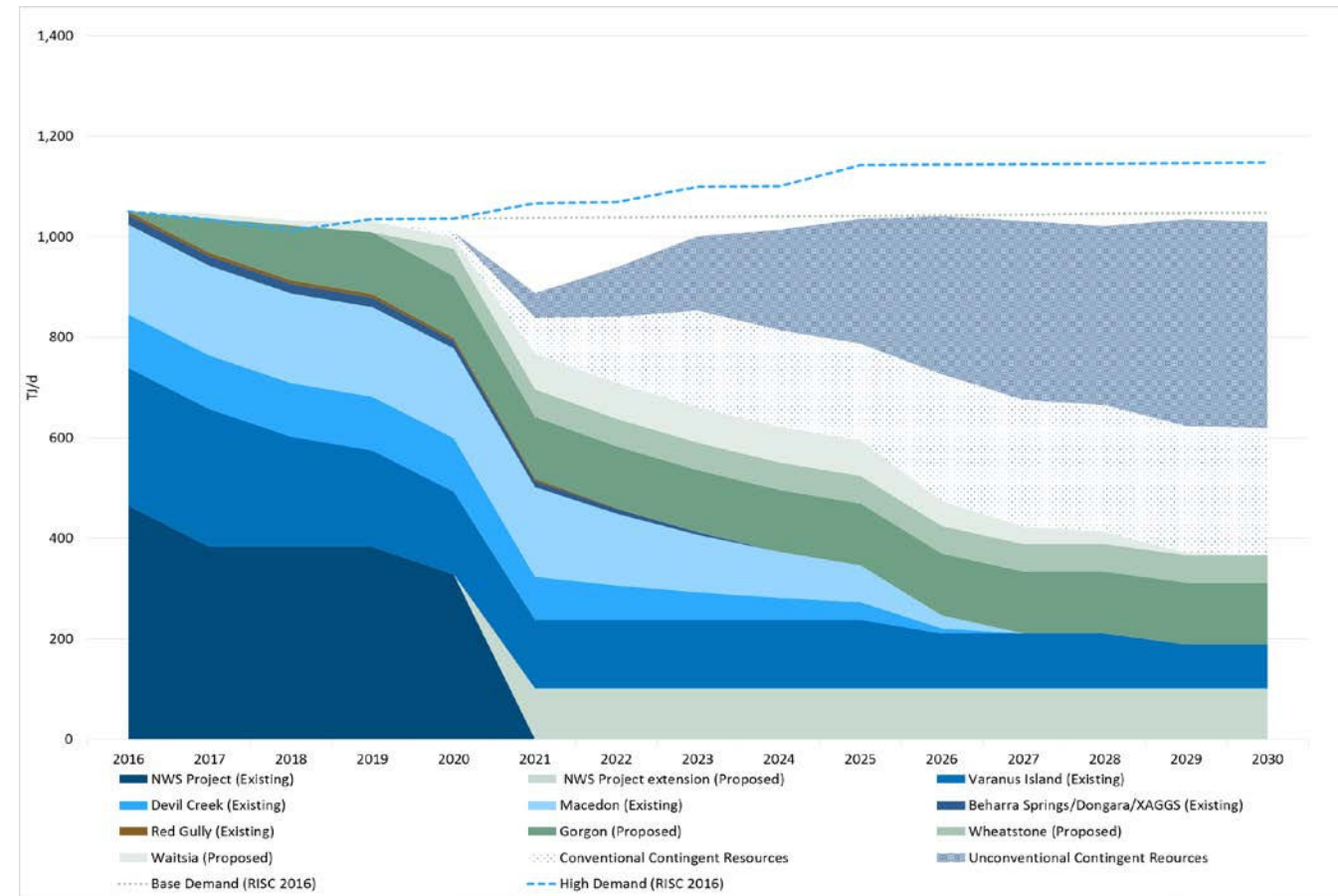
# 2016 Domgas Market Study Summary



- No driver for significant demand growth in the WA domestic market
  - Opportunity for new supplies due as NWS project declines
- A contractual supply gap post 2020
  - Plenty of gas to fill the gap
- Heavily influenced by LNG
- Prices anticipated in the range \$5-8/GJ

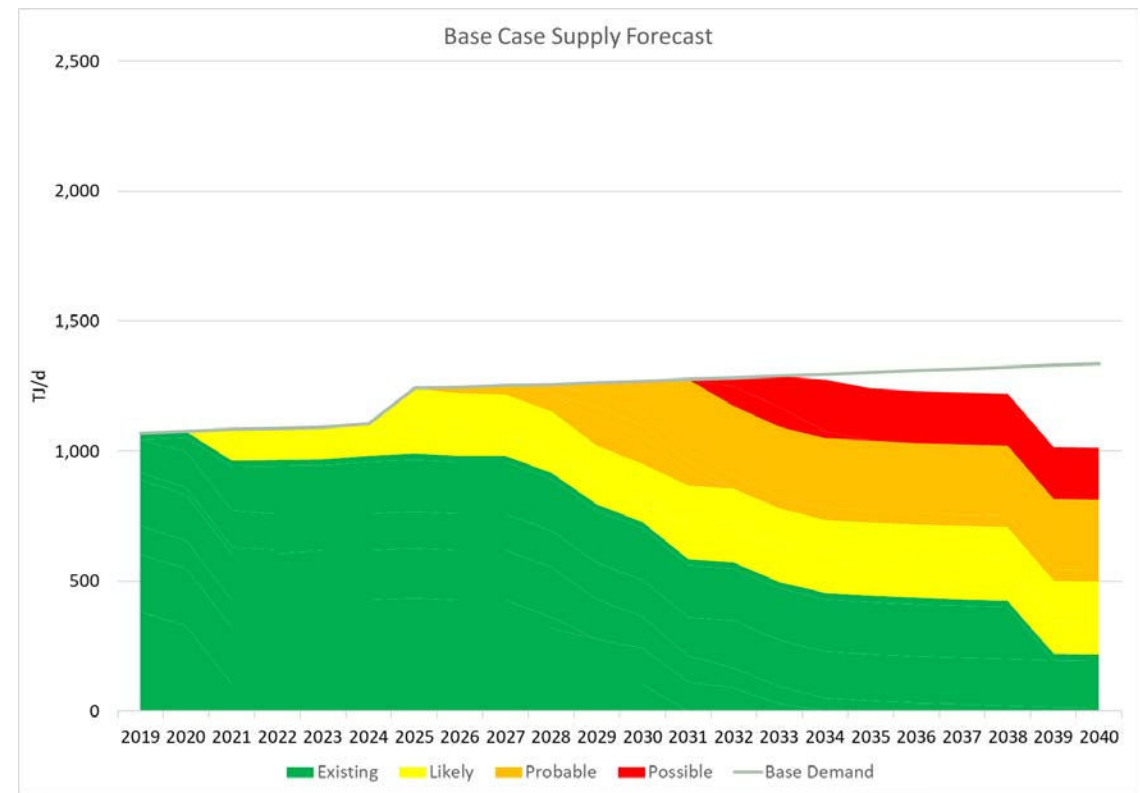
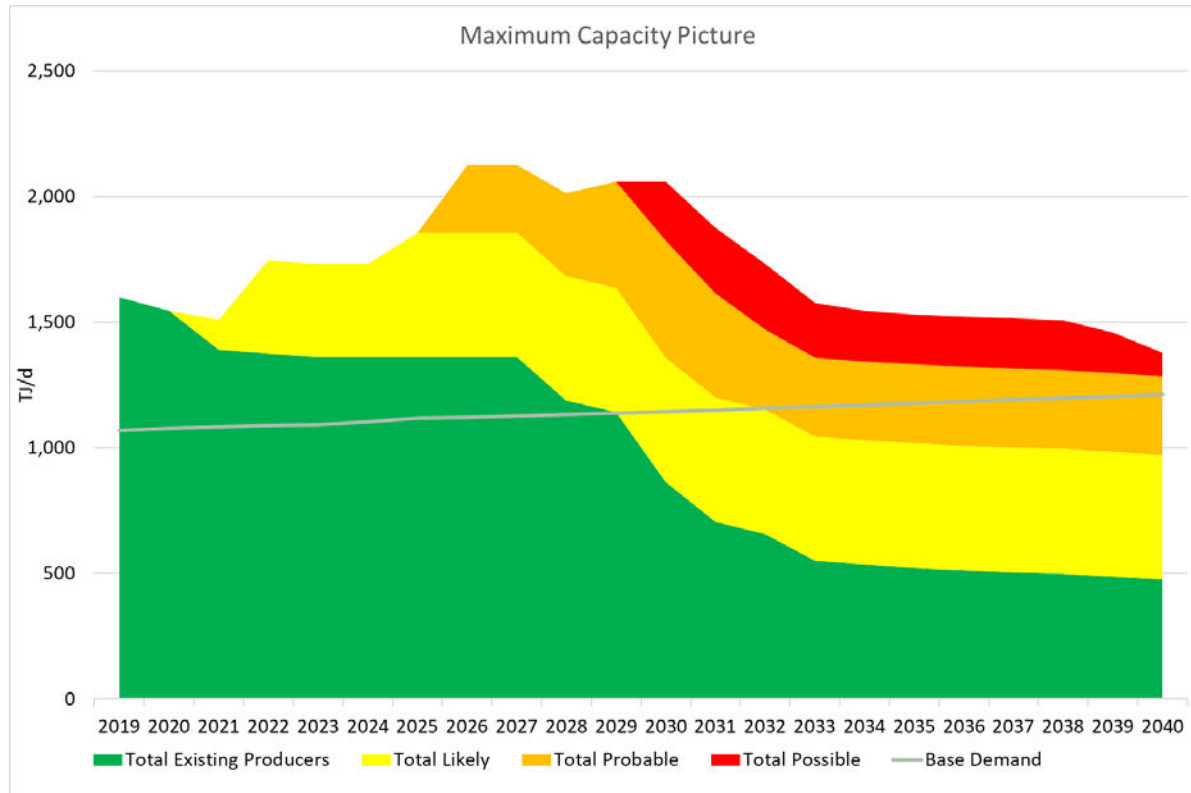
## Significant changes since 2016

- Woodside
  - Scarborough via expanded Pluto
  - Pluto domgas 10-25TJ/d plus LNG trucking
  - Browse to NWS KGP
  - WEL Pluto – NWS interconnect pipeline
  - GSA with Perdaman Group for 125TJ/day
- Chevron
  - Clio/Acme gas via Scarborough and interconnect to NWS KGP
  - Gorgon Phase 2 includes the 2nd domgas train
- Santos
  - Quadrant Energy acquisition ~40% of WA domgas market
- Beach take out Origin (Lattice) and Mitsui take out AWE
  - Waitsia 2 development delay
- Western Gas acquired the Equus from Hess
  - Initial domgas focus, but now LNG?



# Domgas is well supplied – existing suppliers and future projects

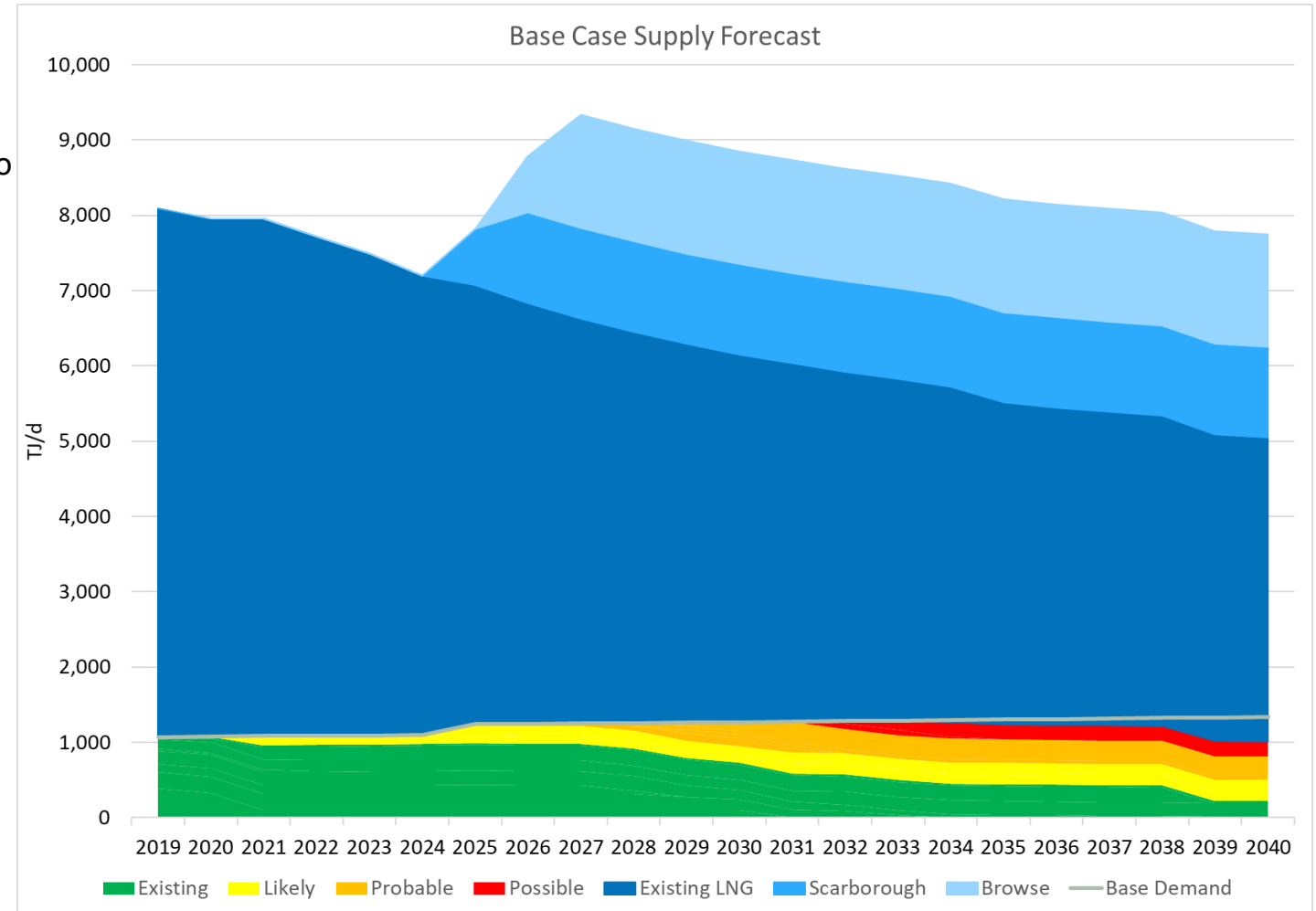
- If anticipated projects proceed there is excess supply capacity
  - Downward pressure on prices
  - New domgas demand stimulated



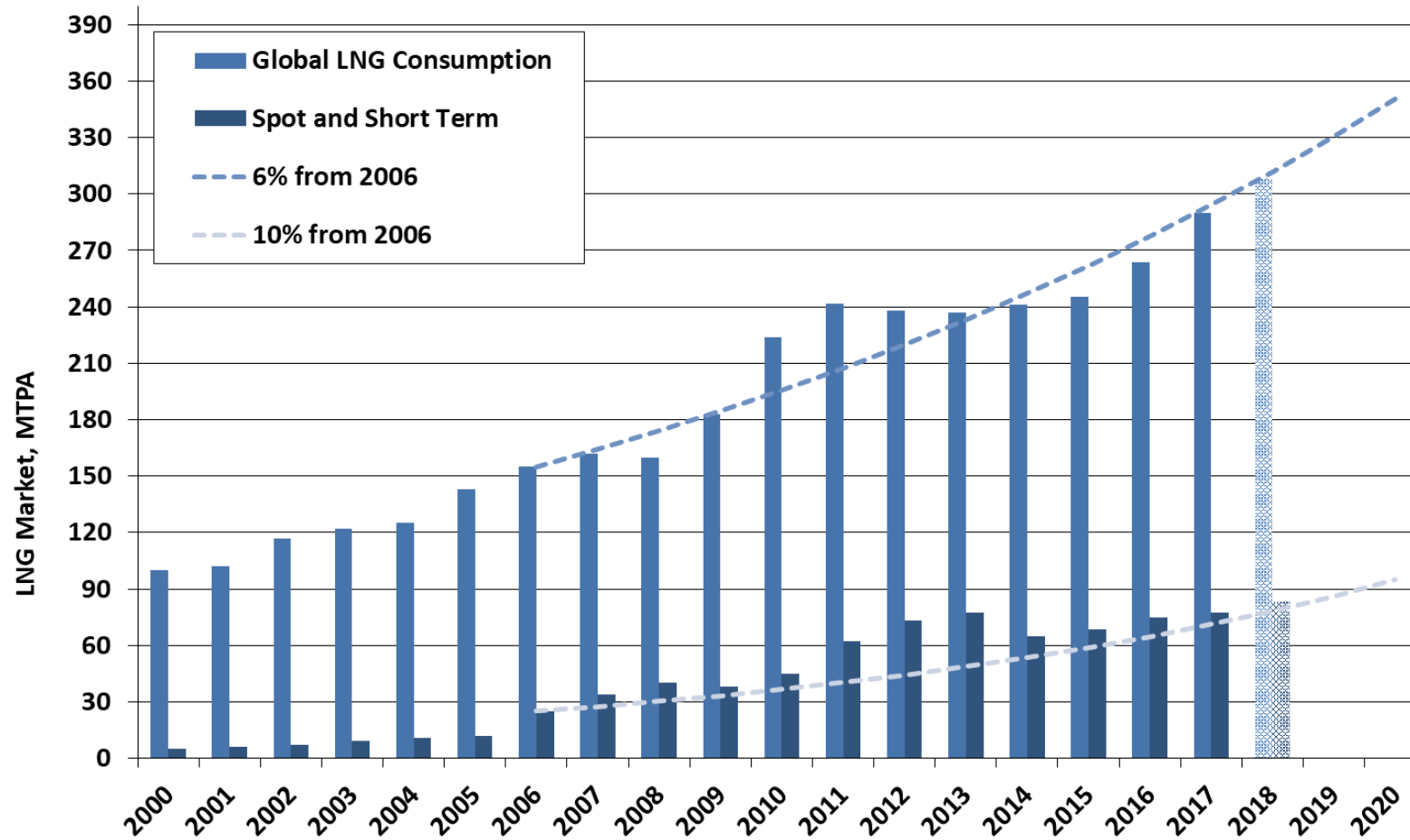


# Domgas market in Context

- WA Gas production is ~8 times the size of the Domgas market
- LNG Export projects have years of remaining reserves.
  - NWS is 30 years old, has another 20 to go.
  - Gorgon, Wheatstone, Scarborough, Browse likely to be producing beyond 2060
- Ullage in NWS LNG facilities in early 2020's

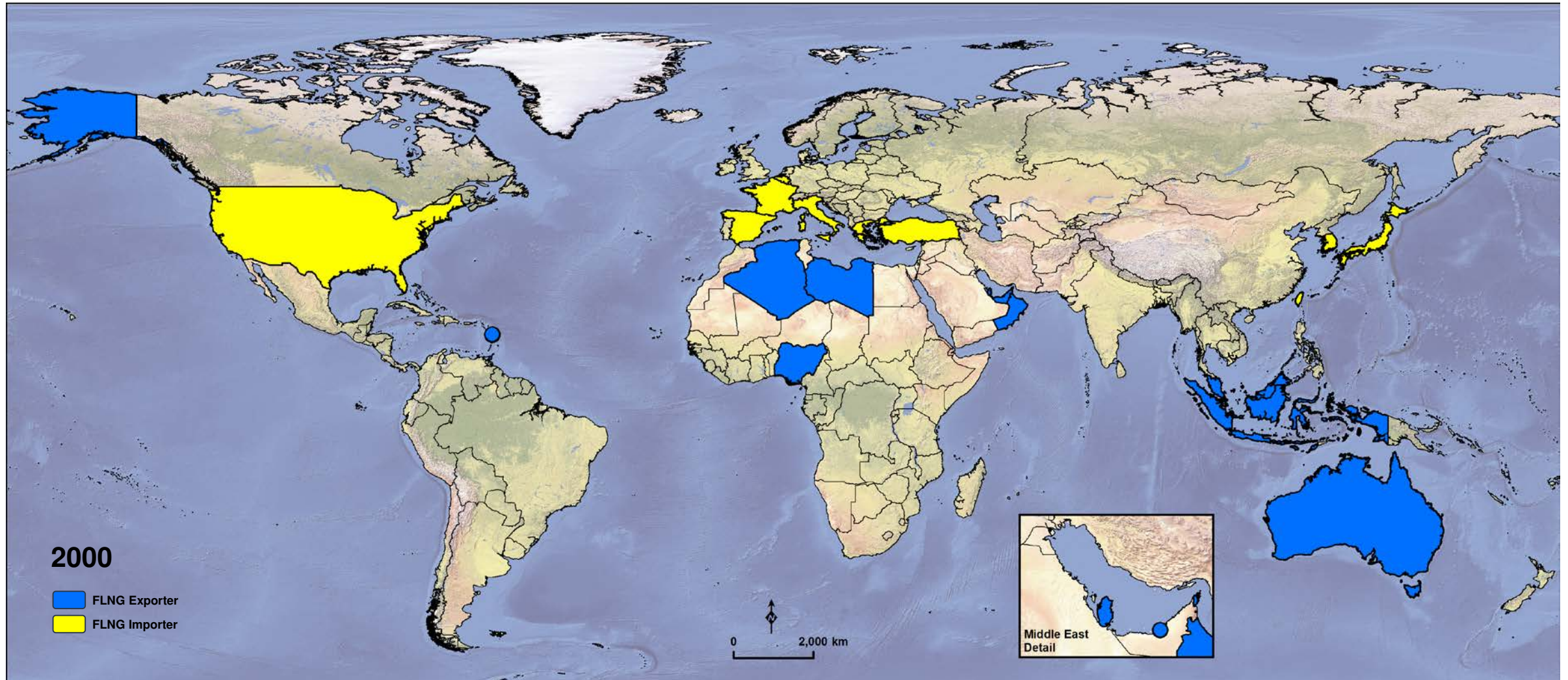


# The Global LNG Market has changed...is LNG a commodity?



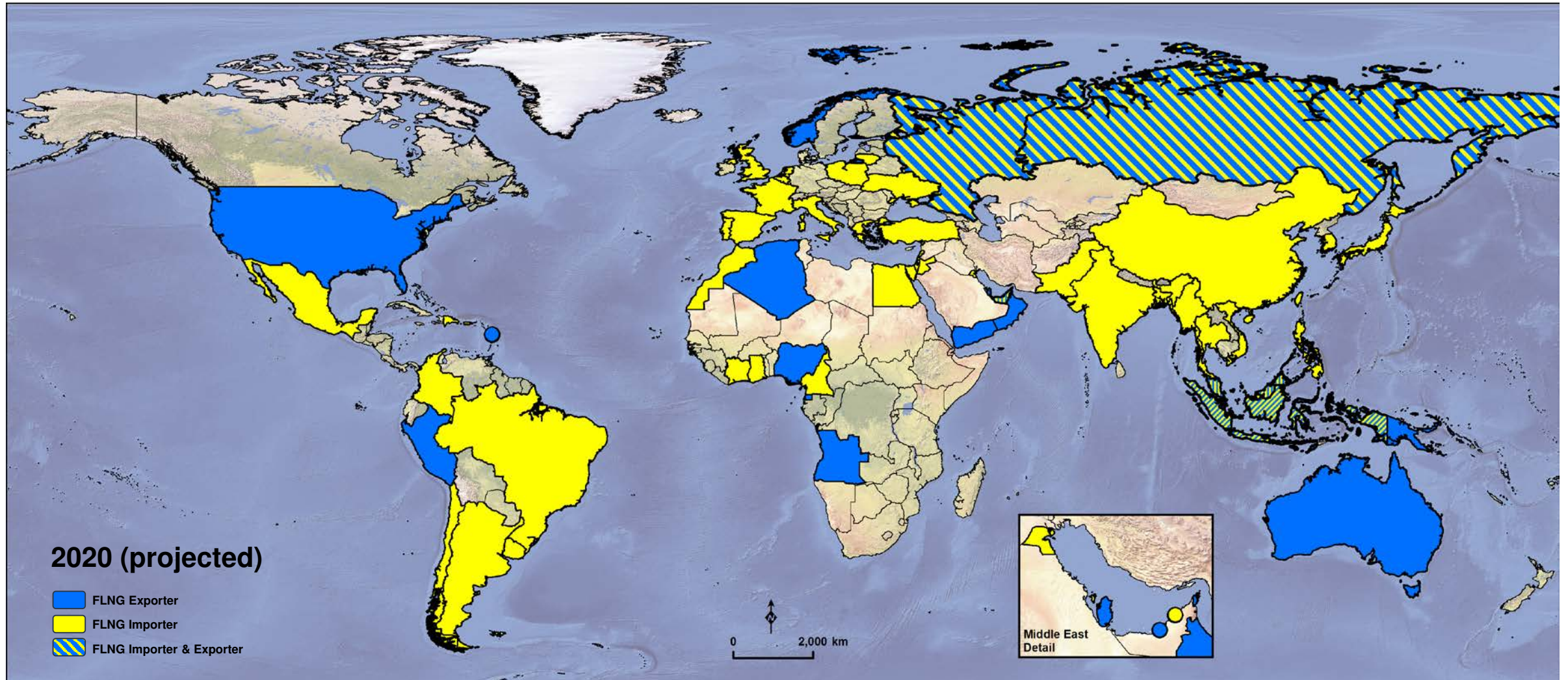
Sources: GIIGNL, BP and Shell

## Changes in export and import countries....





# Changes in export and import countries....





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