

Dandenong LNG

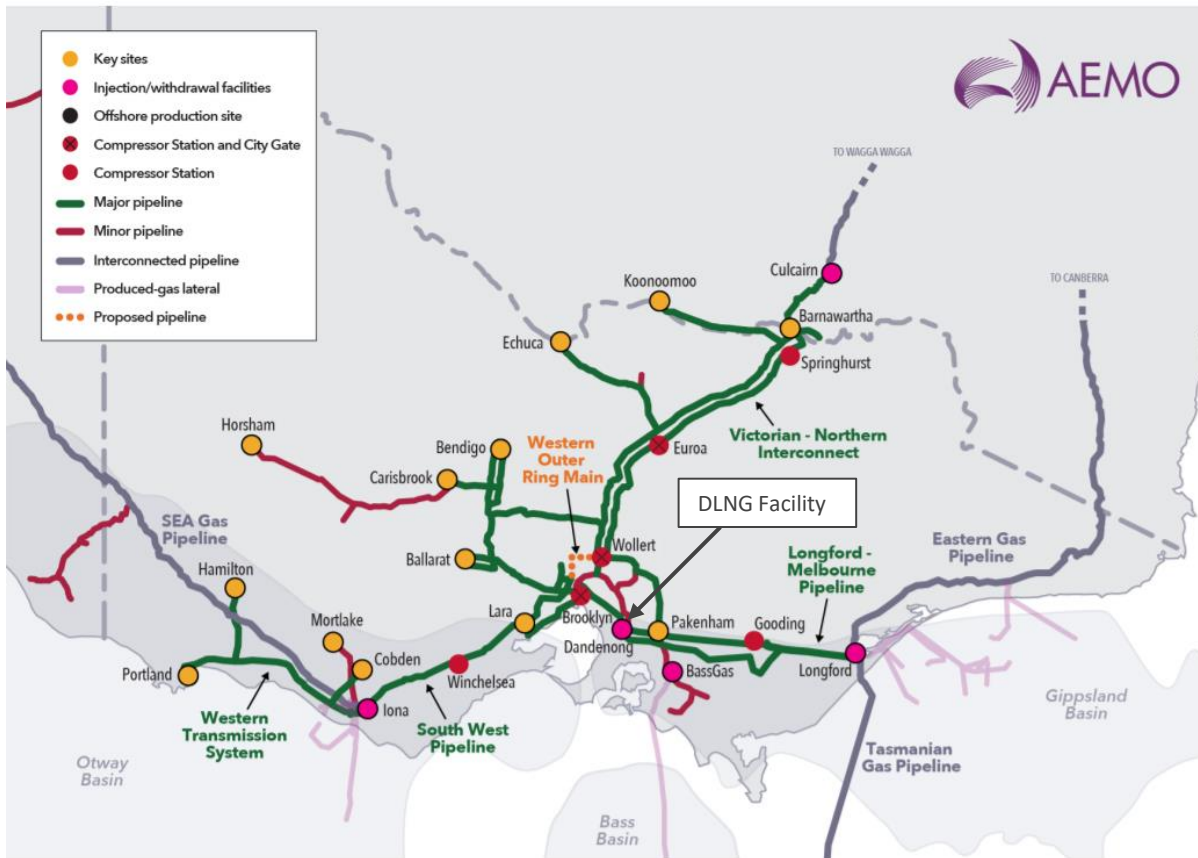
4 May 2022



Agenda

1. Dandenong LNG intro
2. Dandenong LNG FAQ
3. Comparing DLNG responses to other options
4. 2021 vs 2022 vs 2023 modelling
5. Next steps

Importance of DLNG



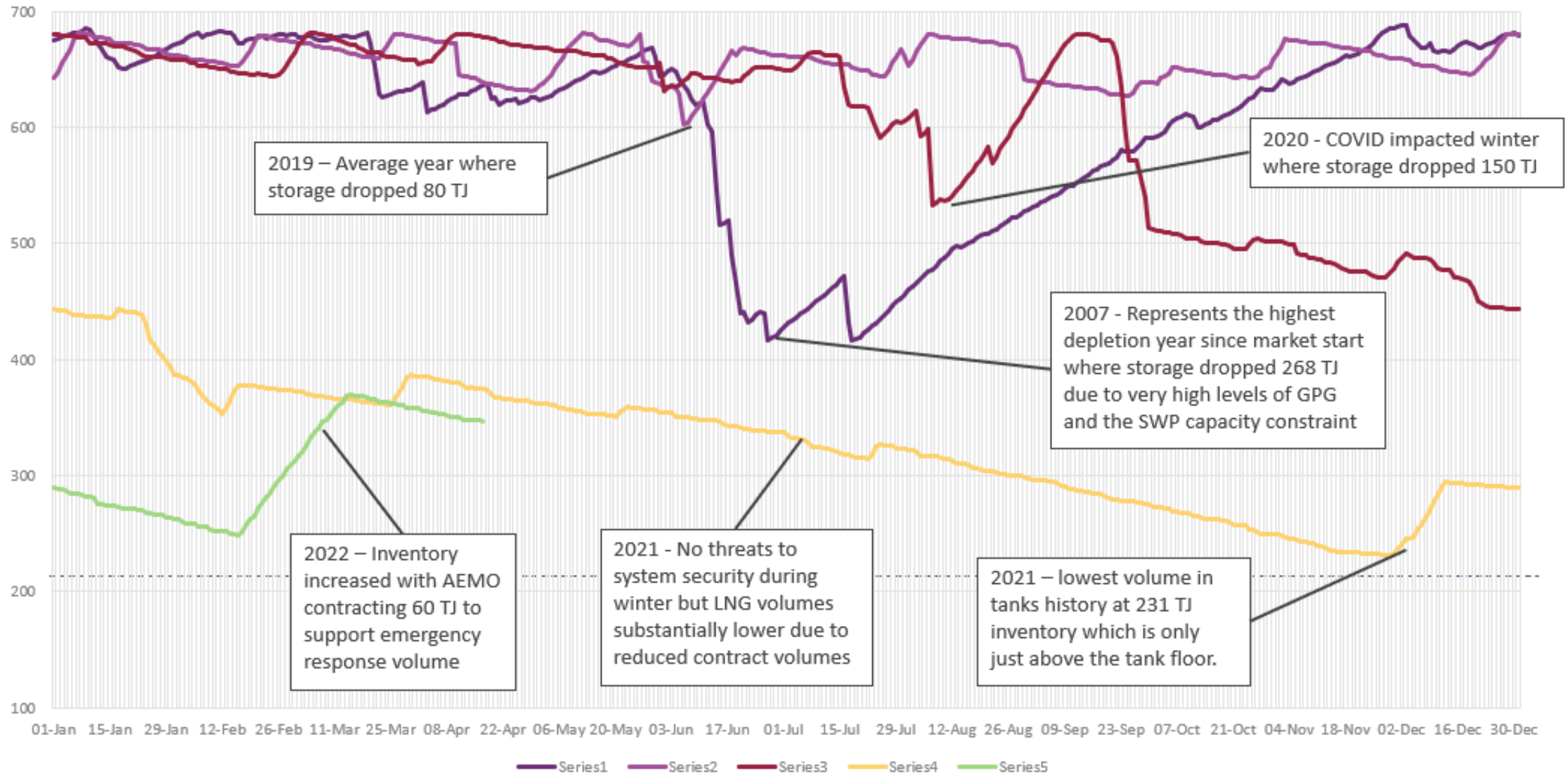
Not just another gas storage facility

Located at the highest flow point into Melbourne

The only facility that can respond when hourly demand exceeds the capacity of the DTS

Critical response role following a DTS asset failure or supply facility trip, or during an “Emergency”

DLNG inventory trends

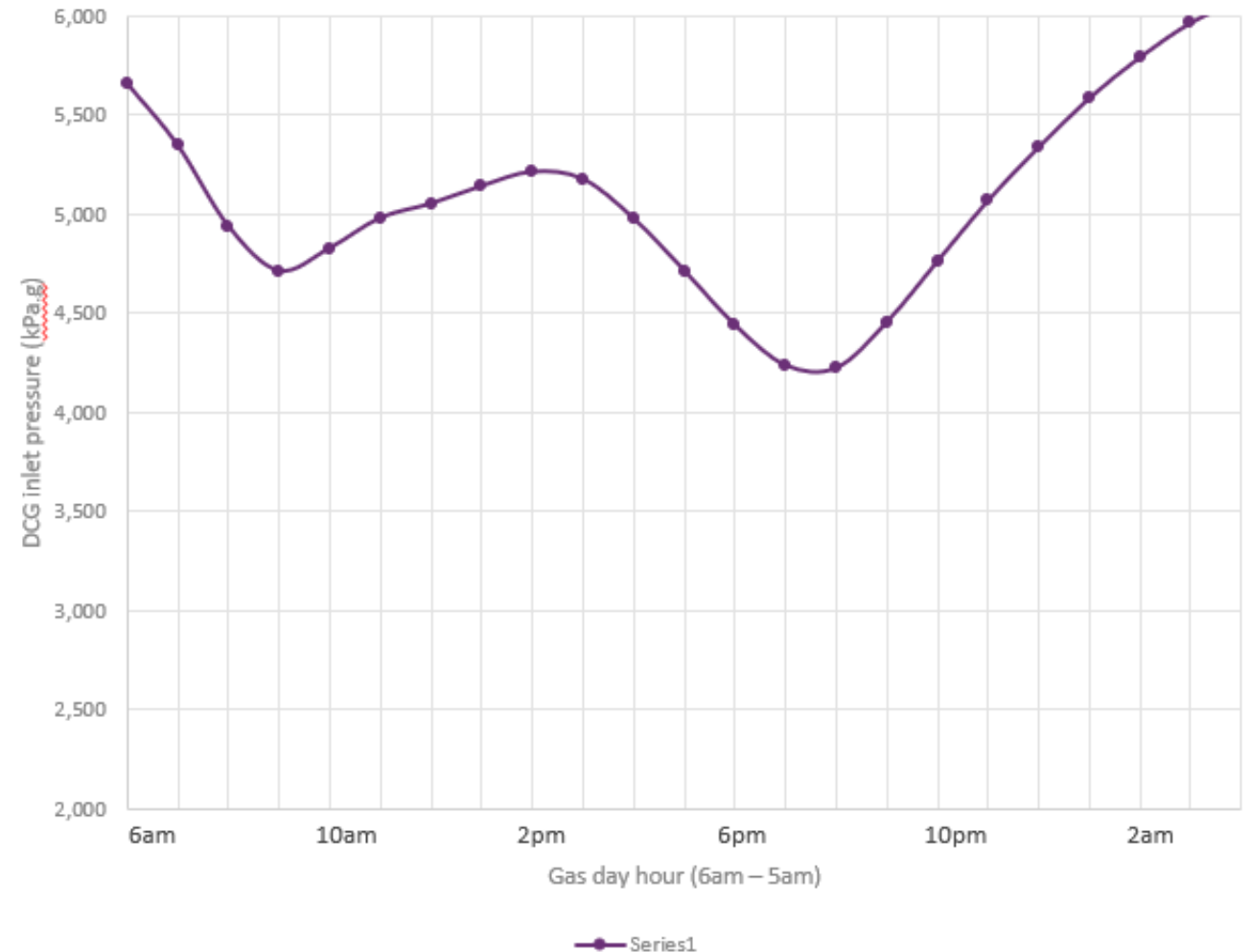


Industry FAQs

- With so many diverse supply sources, does DLNG really need to be used, aren't all supplies treated the same?
- Isn't injecting gas from Iona the same? Aren't they both storage?
- When LNG is used it's only a small quantity, on a daily basis that should be easy to cover by other means like demand response, shouldn't it?

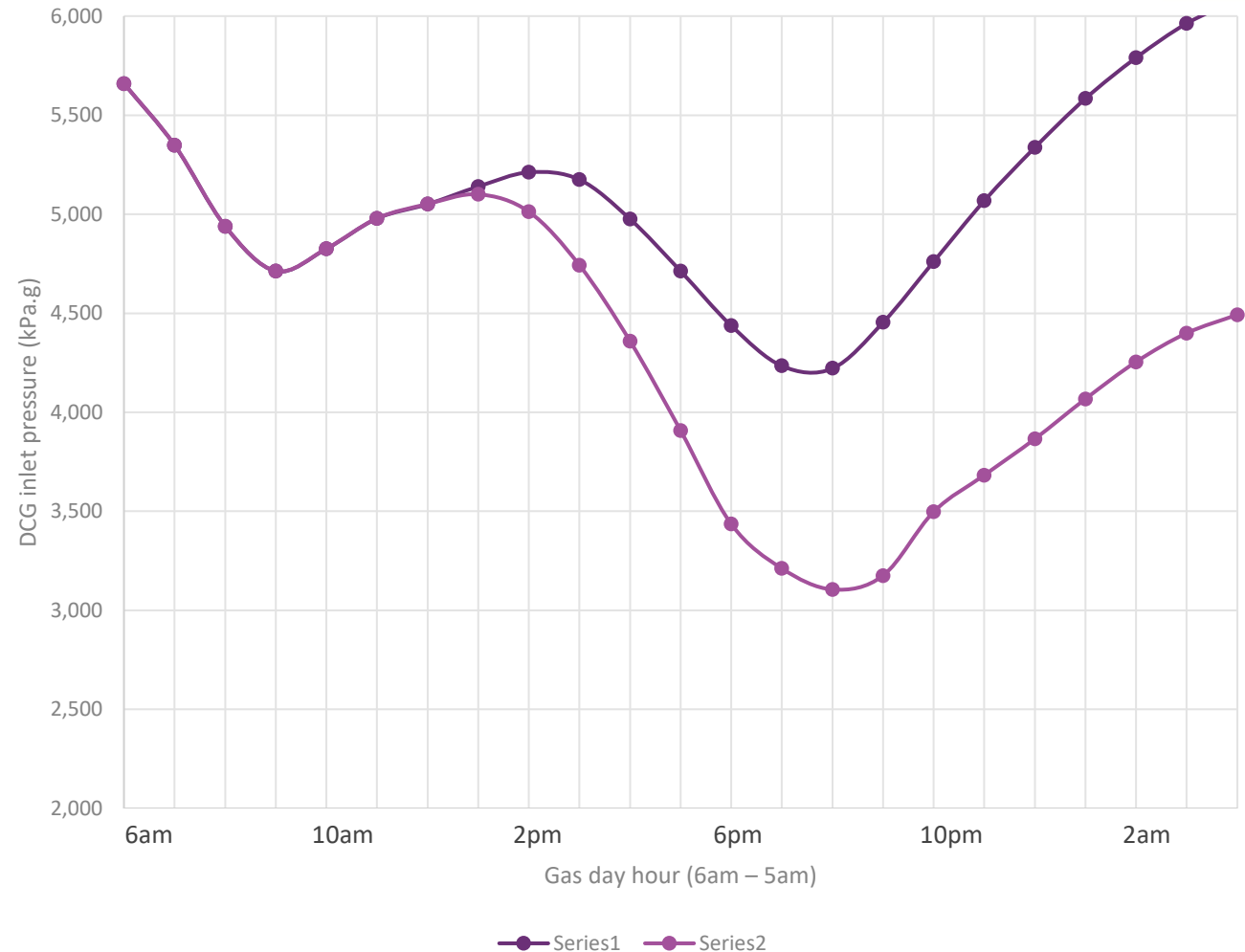
Comparison of responses available – scenario

- ~1,030 TJ system demand day with 70 TJ of GPG
- Not an abnormally cold/high demand day, 12 days occurred with similar conditions/demands during June and July 2021
- No issues, Dandenong CG pressure maintained well above required



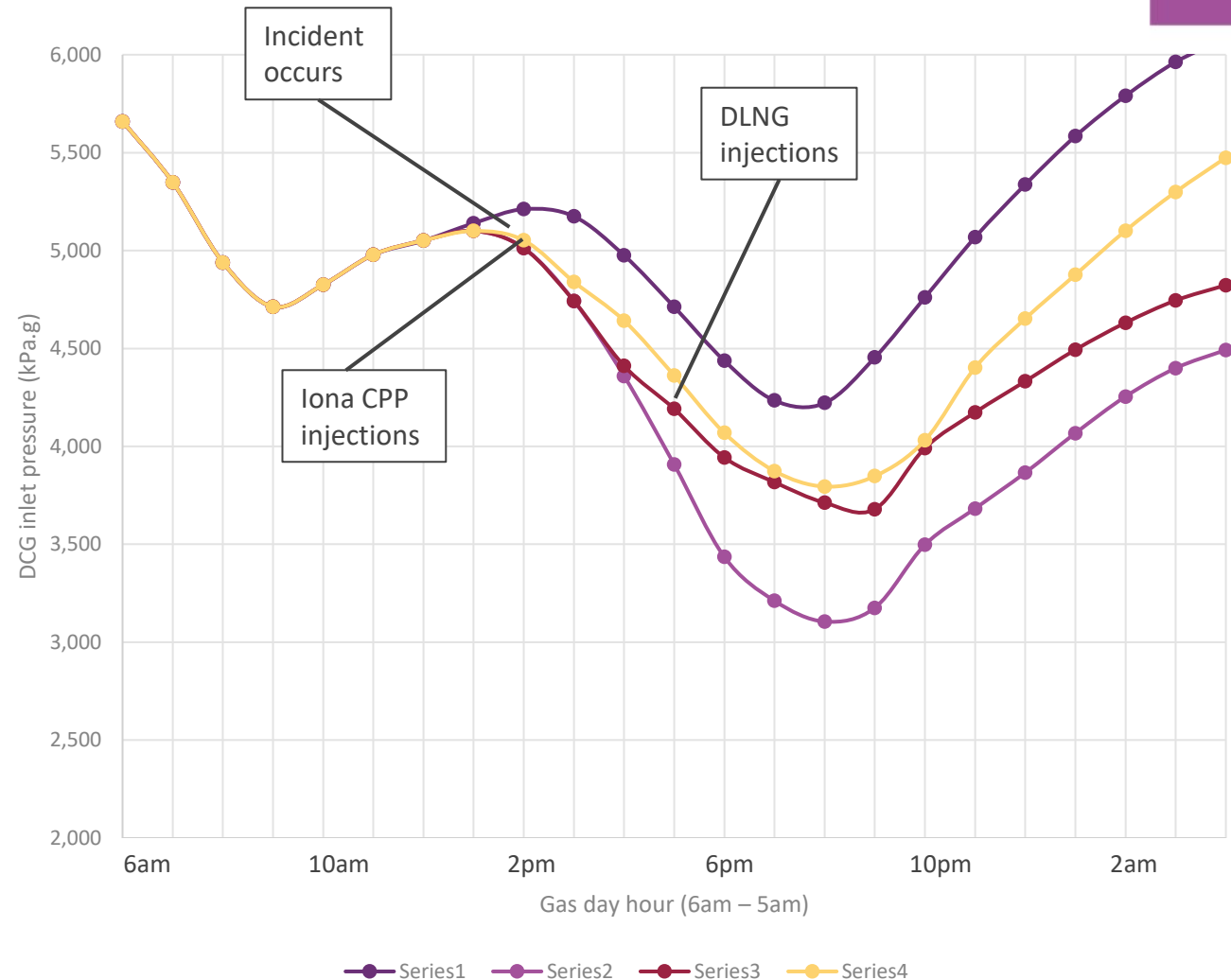
Comparison of responses available – scenario

- At 2 PM supply from Longford into the DTS decreases by 20%
- Pressure is a problem now at DCG
- Let's compare available responses



Comparison of responses available – scenario

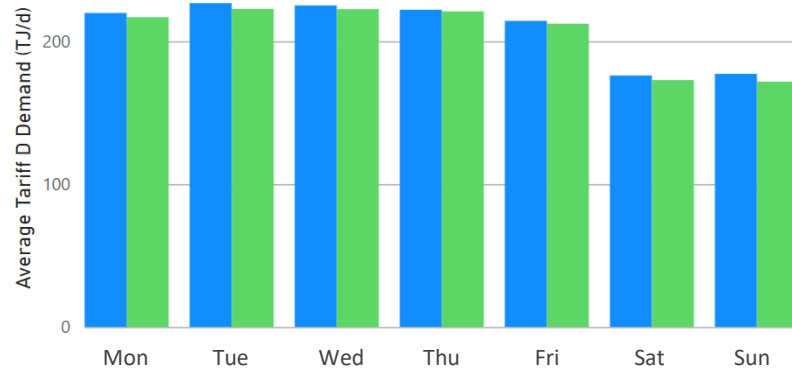
- 25 TJ of DLNG was injected starting 3 hours after the incident at a rate of 5 TJ/hr for 5 hours
- Only way for Iona CPP to achieve similar pressure response is additional Iona CPP supply starting immediately at the time of the incident.
- In this case 60 TJ was the maximum supply available pushing the SWP up to its capacity limit of ~18.5 TJ/hr



DLNG compared to Tariff D demand

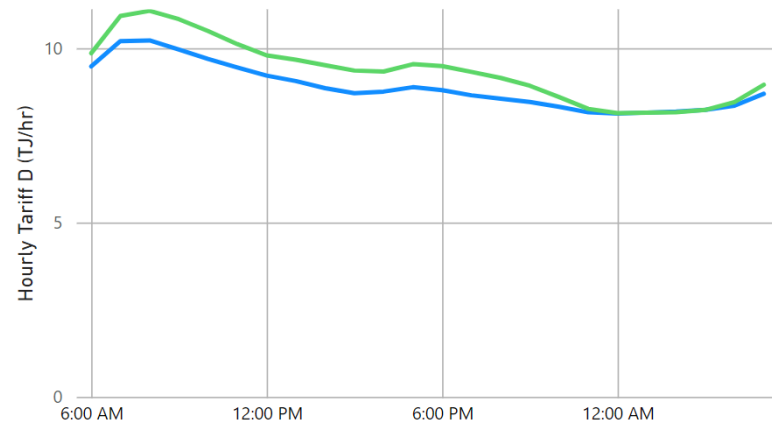
Average Daily Tariff D Demand for each Weekday

Year ● 2020 ● 2021



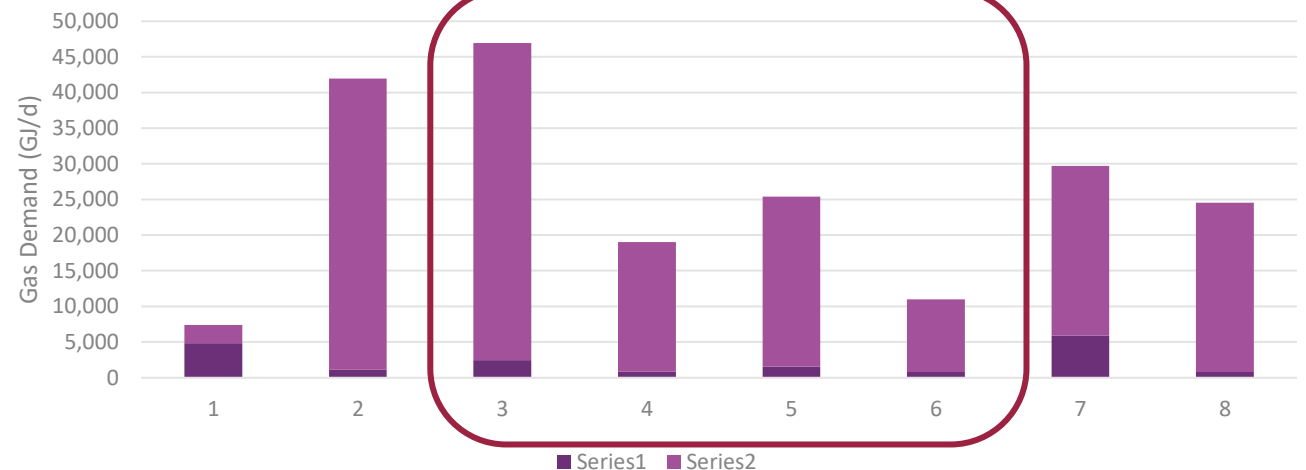
Average Hourly Tariff D Demand

Year ● 2020 ● 2021



- Key here is there is an hourly response requirement not a daily requirement
- Response / curtailment would have to occur within the Melbourne Metro region and could not include essential and critical loads
- To achieve a system pressure response similar to the 5 TJ/hr of DLNG would require more than all other tariff D loads available
- Melbourne Metro (non essential / critical) tariff D loads equivalent to ~4.1 TJ/hr and would require over 500 customers to cease using gas all within 2 hours

Industrial and Commercial usage by region

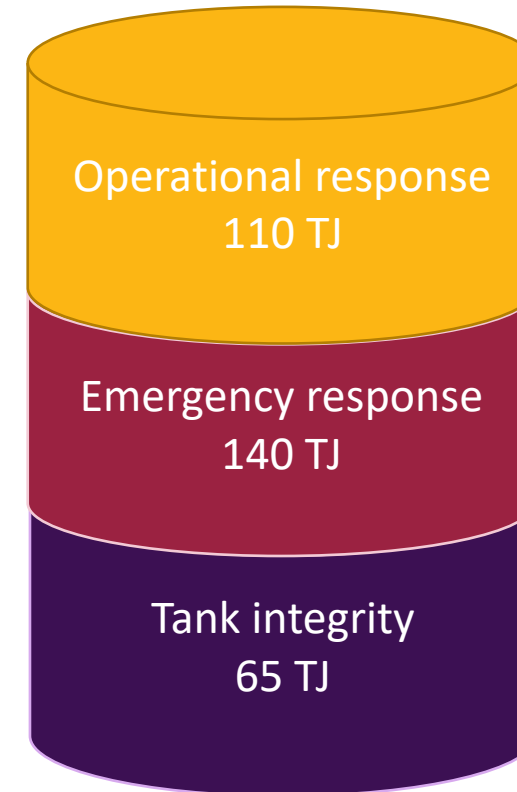


2021 DLNG inventory modelling

110 TJ was the amount of LNG AEMO determined that was required to respond to threats to system security and reduce the likelihood of curtailment.

140 TJ of inventory is required to support maintaining system pressures while enacting large scale curtailment due to an emergency incident.

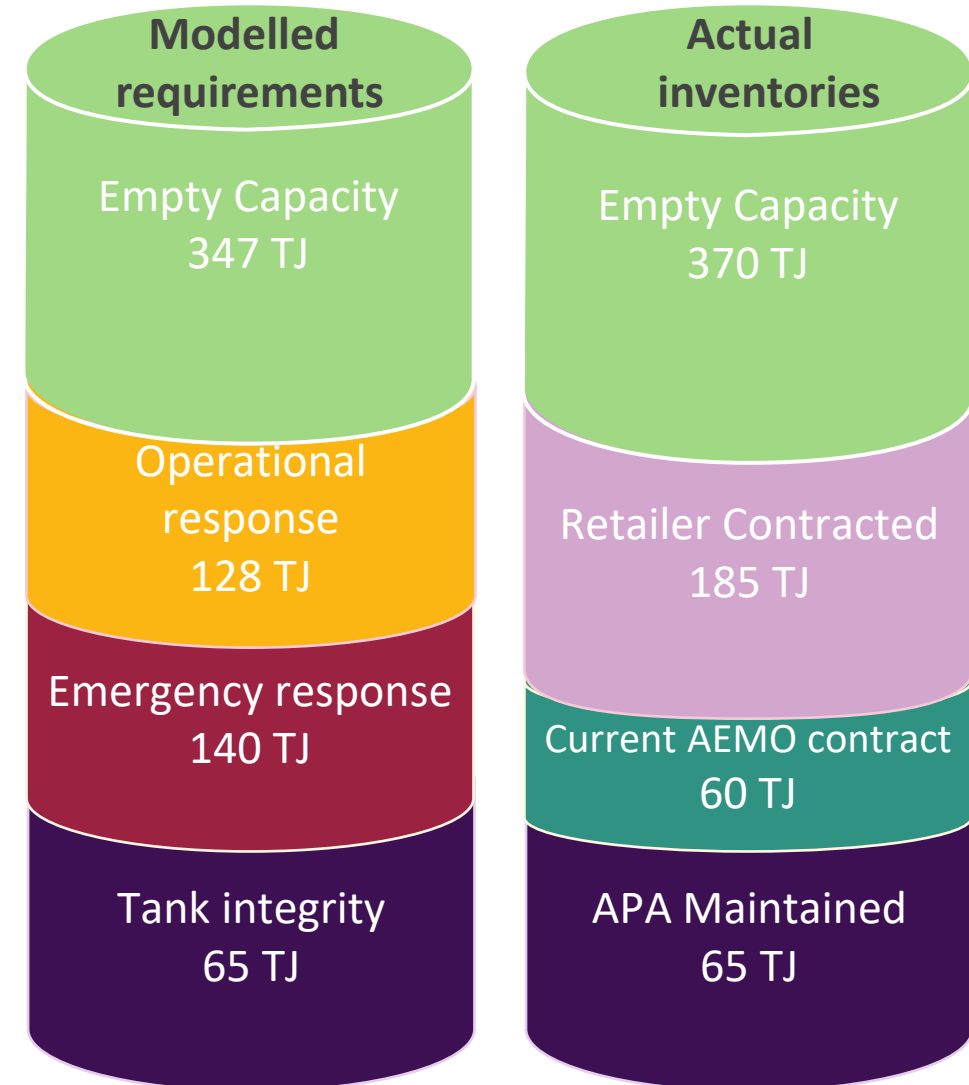
65 TJ of LNG should be held at all times as a minimum stock level for tank integrity purpose



DLNG Inventory requirements for 2022

Total Tank Capacity 680 TJ

- Emergency response quantity and tank integrity quantity unchanged – combined these two volumes set a “tank floor” of 205 TJ as the minimum inventory that must be maintained within the tank at all times
- The remainder of the tank is available for system balancing and responding to threats to system security – modelling indicates that 128 TJ is required for this operational response purpose
- Modelling is based on a probabilistic assessment of how much inventory is required to limit the likelihood of curtailment to 5%
- Based on the current contracted volume there is a 6% probability of curtailment occurring during winter 2022
- If the operational response (currently 105 TJ available) is exhausted, AEMO would need to conduct curtailment to maintain the 205 TJ in the tank

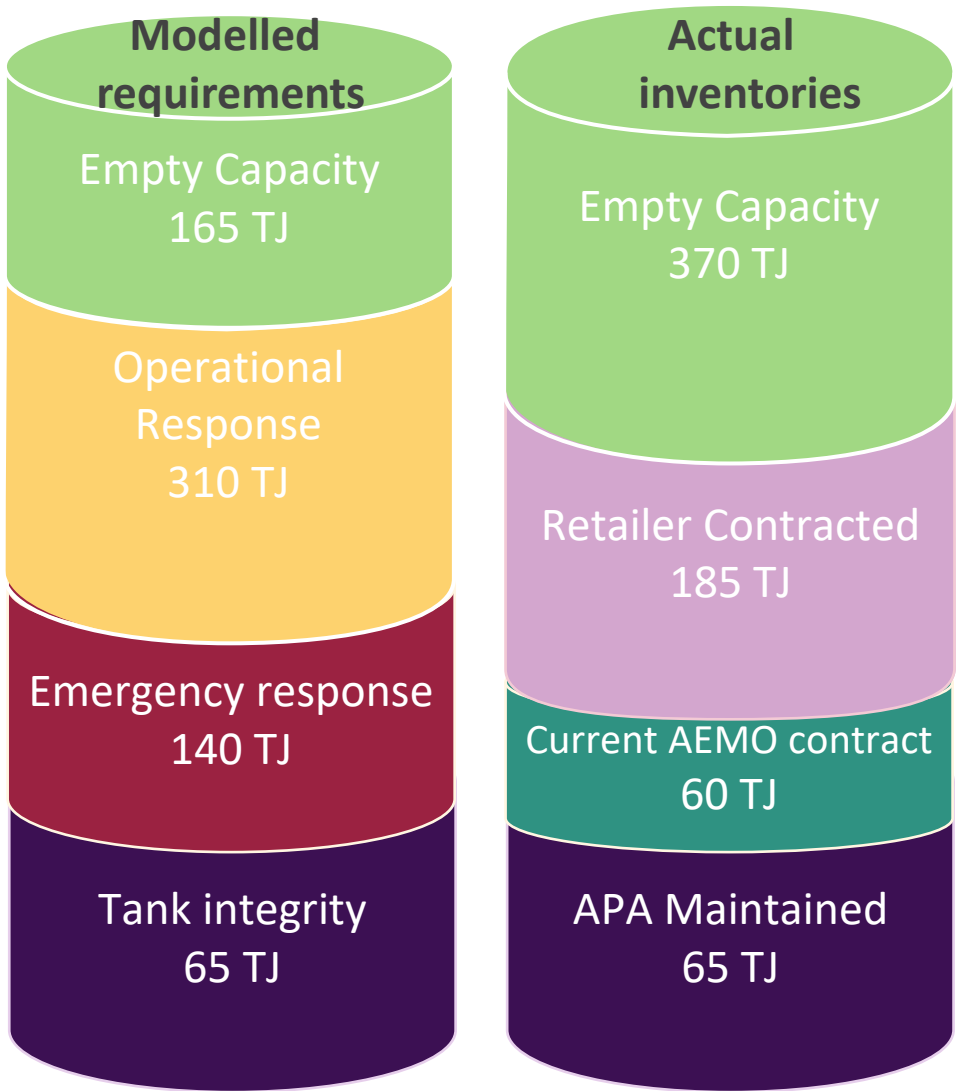


DLNG Inventory requirements for 2023

Total Tank Capacity 680 TJ

- In 2023 the modelled requirements change significantly due to the advised decrease in Gippsland production of ~300 TJ/d which is ~24% of SE Australia’s daily winter gas production
- The “tank floor” remains constant at 205 TJ as the minimum inventory however the Longford decline significant impacts the operational response requirements
 - Note emergency response volume likely to reduce with new pipelines e.g. WORM
- To achieve the 5% likelihood of curtailment during 2023, 310 TJ of operational response would be required

Tank floor (140 TJ + 65 TJ)	205 TJ	205 TJ	205 TJ	205 TJ
Available for Operational response	45 TJ	105 TJ	185 TJ	310 TJ
Total Inventory	250 TJ	310 TJ	390 TJ	515 TJ
Likelihood of curtailment	86%	35%	15%	5%



AEMO consultation

- AEMO presented at the Gas Wholesale Consultative Forum (GWCF) and sought industry feedback.
- Options to maintain DLNG emergency reserve were
 - AEMO directs APA to ensure tank level does not drop below 205 TJ “tank floor” which restricts retailers accessing their own contracted inventories, or
 - AEMO contract the entire emergency reserve
- Strong feedback was that AEMO should not restrict access to retailer contracted inventory and that AEMO should maintain the emergency reserve as the DTS operator.
- All feedback requested that AEMO document the approach and provide the market with transparency.

Next steps

- AEMO is exploring what is required for AEMO to contract the entire emergency reserve
- AEMO will also;
 - Review with industry whether a rule change should be conducted to clarify any LNG reserve components within the rules
 - Update the Wholesale Market System Security Procedures to transparently articulate how the quantity is determined
 - Update the Wholesale Market Gas Scheduling Procedures to articulate when AEMO would use the emergency reserve and how it will be managed
 - Update the Wholesale Market Gas Ownership Rules to articulate how AEMO would transfer the title of any gas AEMO injects into the DTS
 - Consult with participants on cost recovery with respect to the LNG reserve



For more information visit

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