Draft 2022 Gas Powered Generation (GPG) Forecasts

November 2021 FRG Meeting

Background and Purpose

- The purpose of today's presentation is to share and discuss the draft 2022 GPG forecast, which is a key input of the 2022 GSOO

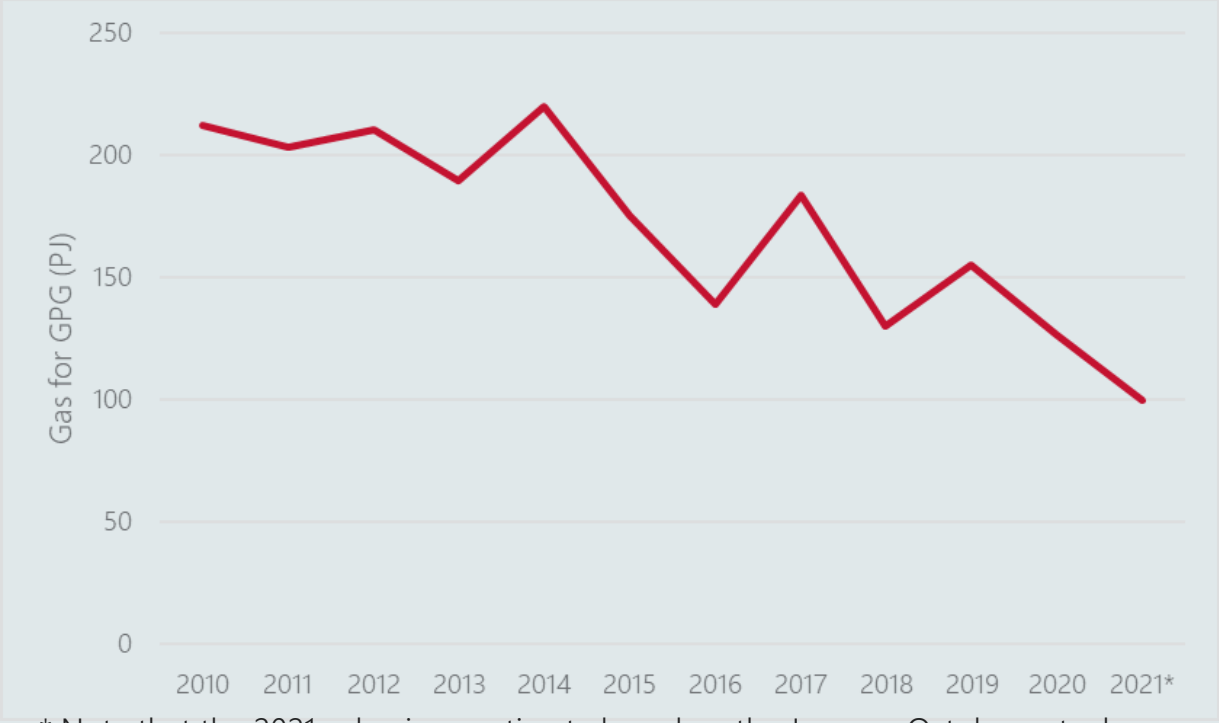
- Today's agenda includes:
  - Annual GPG forecasts and drivers
  - Impact of power system events on GPG forecasts
  - GPG maximum demand day forecasts
  - Sensitivity studies

Timing	Forecast	Responsible
Jan 2021	2021 GPG FRG discussion	AEMO and FRG
July 2021	2021 IASR consultation and publication	AEMO and ISP stakeholders
Today	Discussion on 2022 forecasts	AEMO and FRG
March 2021	2022 GSOO Released	AEMO

All forecasts shown focus on the **Net Zero 2050** scenario, except where explicitly mentioned.

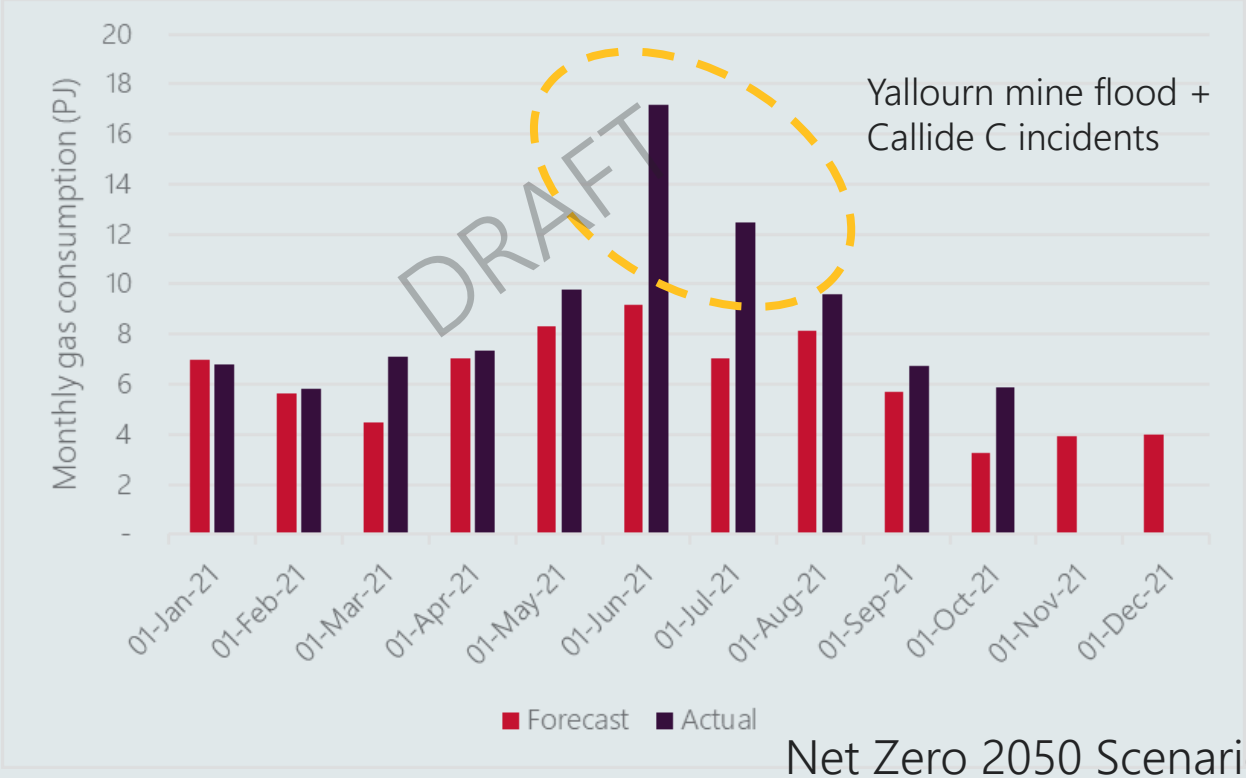
Declining annual GPG since 2010, yet power system events and weather drive variability

Historical trend of GPG



* Note that the 2021 value is an estimate based on the January-October actuals.

Monthly GPG actual vs Central forecast in calendar year 2021



Net Zero 2050 Scenario

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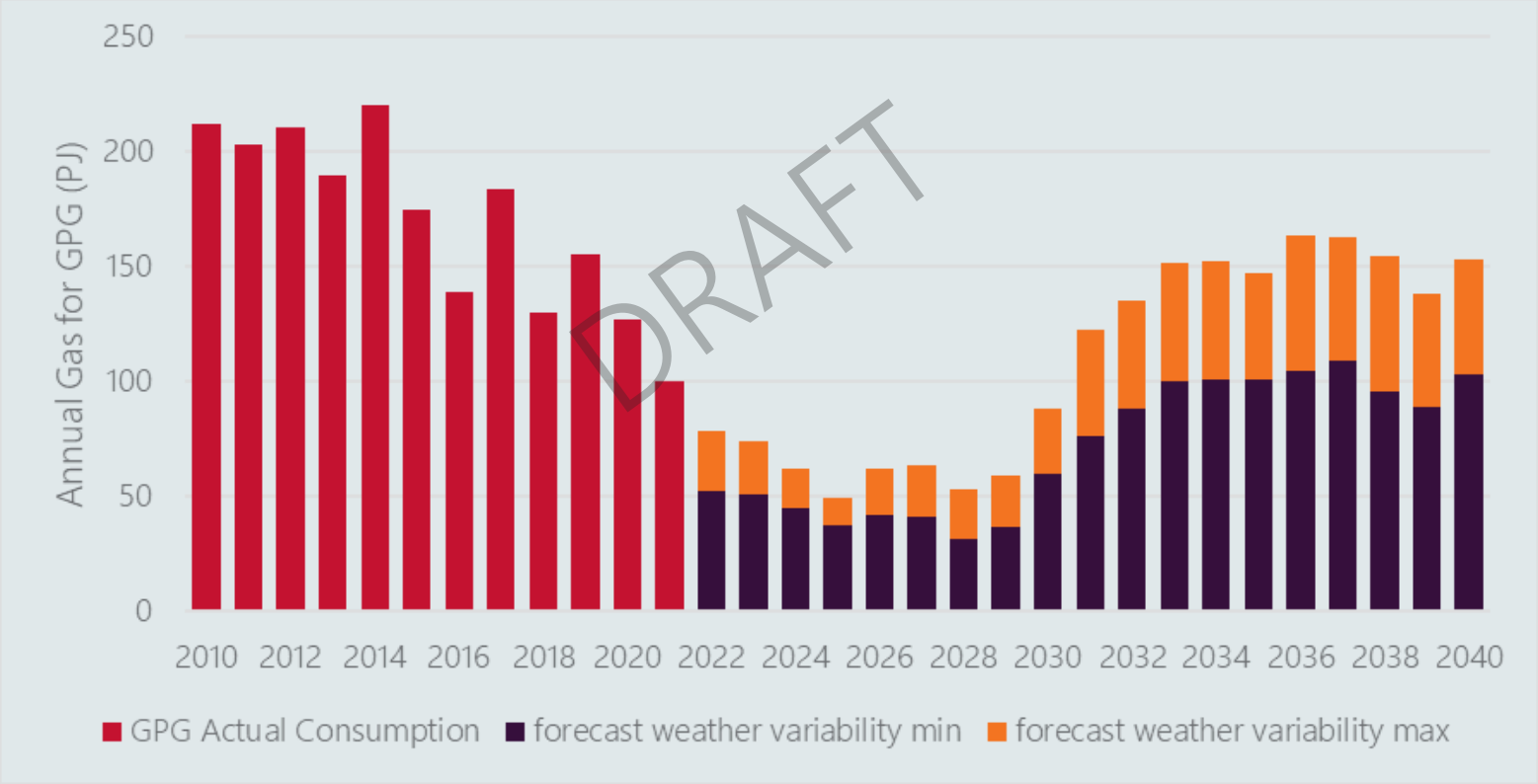
GPG forecast to decline, but outcomes vary widely across weather conditions and unexpected events

Actual GPG consumption, GPG forecasts and the variation due to weather variability, Net Zero 2050 scenario



An example of some of the events that are forecast to impact (increase) GPG in 2022 .

Sensitivity	Impact in 2022 (PJ)
Weather variability	10
Coal Unit Unavailability	16
High Coal Unit Unavailability	20
Higher demand (Step Sensitivity)	26

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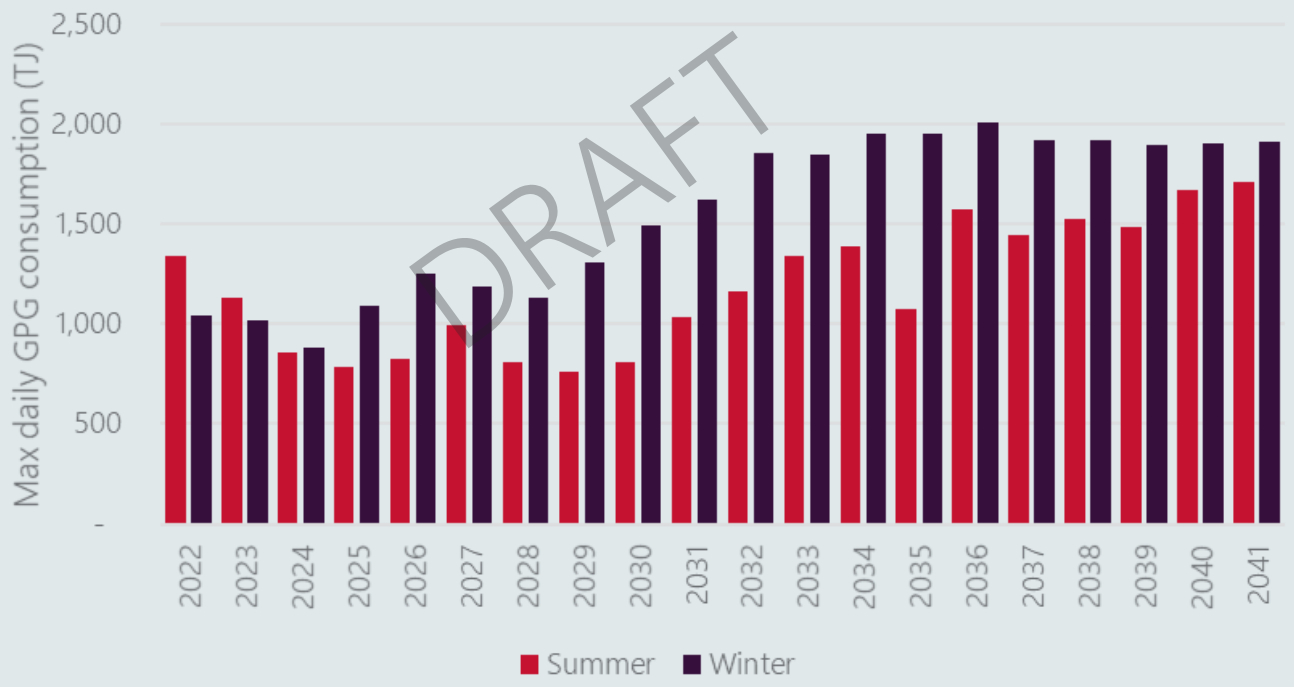
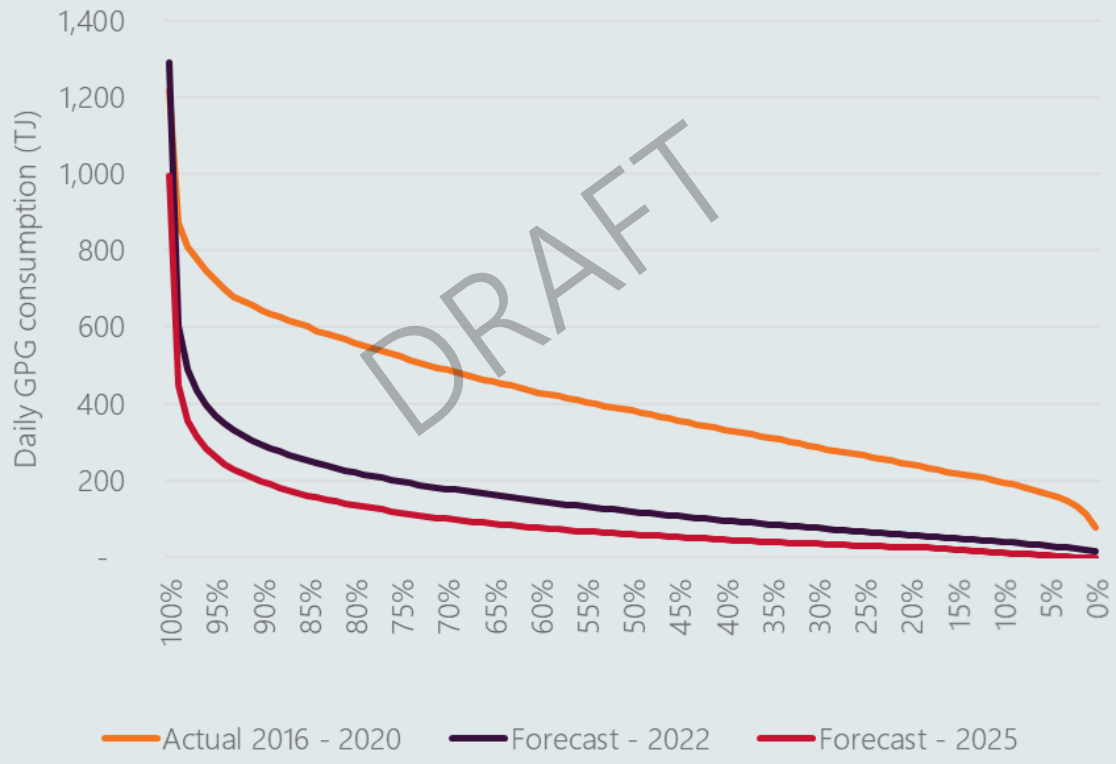
Maximum winter GPG daily demand grows as weather is increasingly impactful with high VRE penetration

Summer and Winter maximum GPG daily demand



Daily GPG duration curve, actual and forecast



* Thanks to Stephen Coughlan (Jemena) for requesting analysis of GPG peak days, January 2021 FRG.

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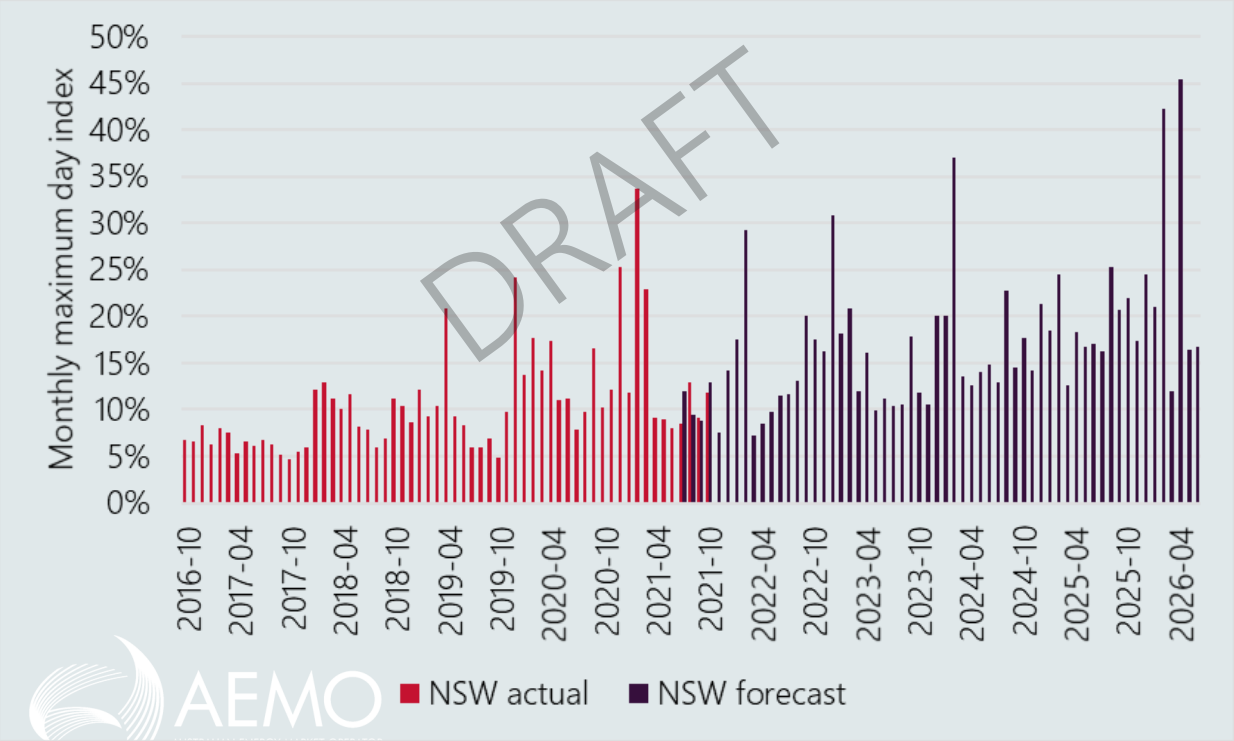
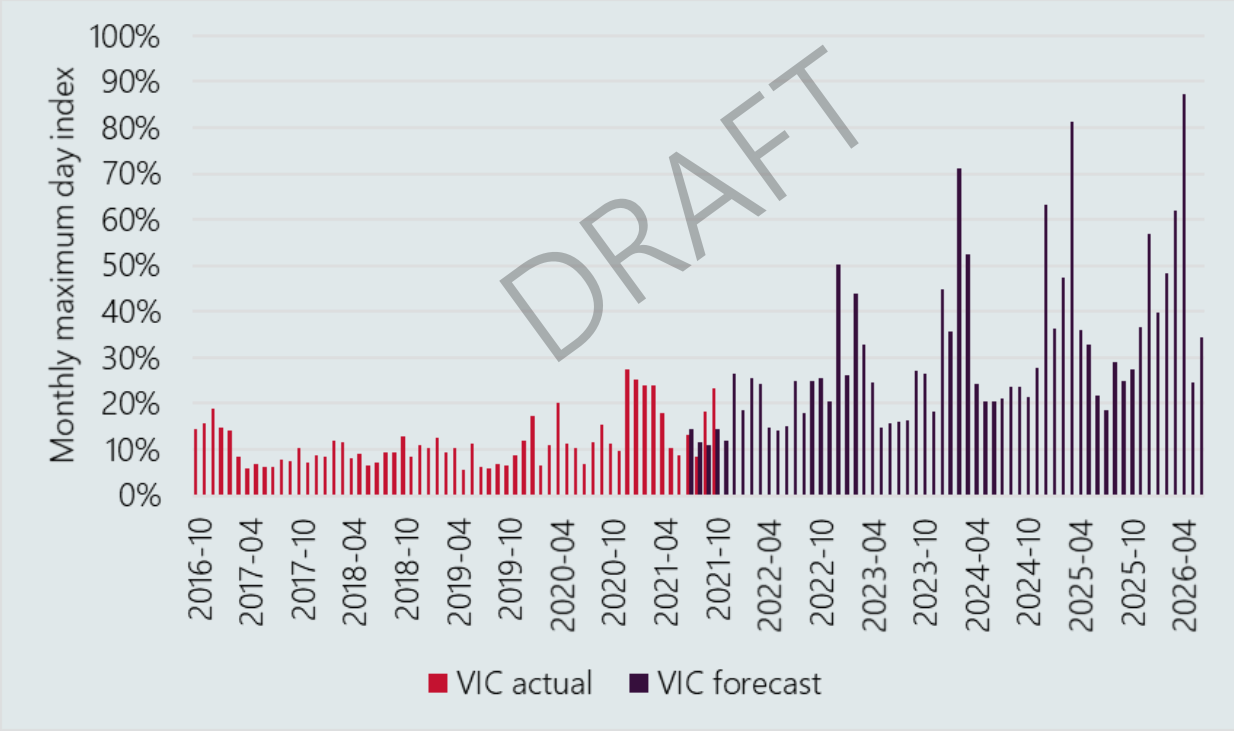
Net Zero 2050 Scenario

GPG grows increasingly peaky, as monthly gas volumes decline

- As monthly gas volumes reduce with more available alternative energy supply, the significance of the peak-day consumption in each month grows (*represented as a ratio of GPG maximum day demand : GPG monthly generation*).
- Drawing large volumes of gas for peak days only may challenge the deliverability and storage of gas in the pipeline system.
- Trends are already visible historically for VIC and NSW. The forecasts continue this trend.





* Incorporating feedback from David Headberry (Major Energy Users), regarding peak GPG vs volume, January 2021 FRG

Net Zero 2050 Scenario

GPG sensitivities

GSOO Scenarios

Net Zero 2050

Hydrogen

Strong electrification

Peaks in GPG are highly event-driven.

To capture a plausible range of GPG outcomes, sensitivity studies are used to explore the plausible range of gas consumption for GPG.

Sensitivities may include events / conditions such as:

- Low gas prices
- Dry weather
- Major transmission / coal outages
- Delayed VRE commissioning
- Early coal retirement

What conditions do you consider most impactful on the adequacy of gas infrastructure?

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