Forecasting Reference Group Minutes

Forum:	June FRG 2023 (#5)
Date & time:	Wednesday 28 June 2023, 2:00pm – 3:45pm AEST

Disclaimer

This document provides an overview of the main points of discussion on the 28 June 2023 Forecasting Reference Group (FRG) meeting agenda. Readers, please note that:

- *This document is a summary only and is not a complete record of discussion at the forum.*
- *For presentation purposes, some points have been grouped together by theme and do not necessarily appear in the order they were discussed.*
- *The views expressed at the forum and reflected here are not necessarily those of AEMO.*

1 Welcome and Introductions

Levi Rosenbaum (AEMO) welcomed everyone and covered the following:

- ISP Methodology publication on 30 June and webinar on 13 August.
- FRG consultation submissions can be made to Energy.forecasting@aemo.com.au

2 Presentation 1 – Draft 2023 gas price forecasts

Michael Symes and Alan Smart (ACIL Allen) presented ACIL Allen's draft 2023 natural gas price forecasting methodology and draft forecasts. These will be used as part of the 2024 Gas Statement of Opportunities (GSOO) and the 2024 Integrated System Plan (ISP).

Key topics raised by stakeholders during this session included:

- Jennifer Brownie (QEUN): Do price forecasts consider variations throughout the year?
  - ACIL: These annual prices represent the weighted average of monthly gas prices. Monthly gas prices capture changing prices and Gas powered generation (GPG) requirements.
- Ron Logan (Shell): These forecasts are based on AEMO gas demand forecast. Were any sensitivities modelled using deviations from AEMO's forecasts?
  - ACIL Allen: No modelling sensitivities to AEMO's gas demand forecasts were done. ACIL may consider sensitivities for the final report.
- Lawrence Irlam (Energy Australia): Is it worth exploring the divergence between Gas Powered Generation (GPG) demand from ACIL's electricity market modelling and AEMO's GSOO modelling?
  - ACIL Allen: Different methodologies produce different GPG forecasts. ACIL's gas demand forecasts peak in 2030s as GPG replaces coal. A sensitivity using alternate GPG forecasts to explore gas price outcomes may be considered.
- Cameron Potter (FMGL): What causes Brisbane's long-term price in *Green Energy Exports* to be flatter than other states?
  - ACIL Allen: In *Green Energy Exports*, long-term gas prices are driven by low liquefied natural gas (LNG) netback prices. Since Brisbane will be self-sufficient in gas, prices in other regions will be higher due to delivery costs.
- Cameron Potter (FMGL): Why is this price separation between Brisbane and other regions not observed in the *Orchestrated Step Change* scenario?
  - ACIL: In *Orchestrated Step Change*, prices are still trending to higher long term LNG netback prices in all regions. Therefore, the prices remain high in all regions. In other

scenarios the prices align with the LNG netback earlier in the horizon, which results in price separation between Brisbane and other capital cities.

- Cameron Potter (FMGL): Why is it assumed that the *Green Energy Exports* LNG netback price stabilises at a lower level than other scenarios with decreasing global gas consumption and suppressed supply?
  - ACIL: Low international gas price drives the lower LNG netback price in *Green Energy Exports*. More gas from LNG producers can also be potentially supplied back to the domestic market, lowering local prices.
- Jennifer Brownie (QEUN): Given the electricity price-setting role of GPG, how integrated are gas price forecasts to electricity futures?
  - ACIL: Electricity market dynamics will be considered for the final report.
- Connor McLeod (Shell): How does power firming shape monthly gas prices?
  - ACIL: AEMO's GPG forecast was used. GPG prices are determined by matching GPG generation to ACIL's monthly gas price forecasts.
- Jennifer Brownie (QEUN): Since federal policy changes often occur in the May budget, do the forecasts include the gas price cap to June or December 2025?
  - ACIL: The modelling uses calendar years, with price caps until December 2025.
- Lawrence Irlam (Energy Australia): Are there any spiralling price pressures from networks applying accelerated depreciation as customers electrify? How are costs of retired network assets translated into gas prices and gas consumption?
  - ACIL: These wholesale gas price forecasts exclude distribution costs, hence do not consider the impact of demand decreases on distribution retail prices.
  - AEMO: AEMO's forecasts of gas consumption include elasticities in response to retail price changes.
- Connor McLeod (Shell): Will monthly price datasets be published?
  - AEMO: The 2023 IASR workbook will include average annual prices only.
- Jennifer Brownie (QEUN): Will the final report discuss the difference between AEMO and ACIL GPG forecasts?
  - ACIL: High level differences may be highlighted regarding input data selection.
  - AEMO: AEMO's GPG forecasts were used for this consultancy to maintain alignment and consistency with AEMO's scenarios.

3 Presentation 2 – Draft 2023 cost of capital survey

Kristian Kolding (Oxford Economics Australia) presented Oxford Economics Australia's draft 2023 cost of capital survey methodology and results. for use in the 2024 ISP

Key topics raised by stakeholders during this session included:

- Cameron Potter (FMGL): Can you share any insights about the split of the "portfolio" asset category (i.e., fossil fuel vs non-fossil fuel or peaking vs non-peaking)?
  - Oxford Economics Australia: Responses are clustered into the "portfolio" category to protect confidential information.
- Craig Oakeshott (AEMC): How much do state schemes that provide support contribute to the Weighted Average Cost of Capital (WACC), premiums or risk factors?
  - Oxford Economics Australia: The impacts of these schemes were not allocated to protect sensitive information. We found these schemes are useful where they mitigate merchant

risks. However, location was not a critical factor for cost of capital assessments by developers.

- Jennifer Brownie (QEUN): Are there any insights about risks from AUS/USD exchange rates impacting costs of capital?
  - Oxford Economics Australia: AUD/USD exchange rates were not included in the survey and interview questions, and were not raised in any interviews. Alongside the cost of equipment, construction risks pertaining to labour and machinery access are more pressing risks than AUD/USD exchange rates.
- Jennifer Brownie (QEUN): Was sovereign risk discussed?
  - Oxford Economics Australia: Sovereign risk was not explicitly asked in the survey or interview questions and did not feature as a topic in the interviews.
- Lawrence Irlam (Energy Australia): Must the ISP use a single discount rate? How does this affect build decisions/costs?
  - AEMO: AEMO is required to apply a single discount rate for all technology types in the ISP modelling, per AER's Cost Benefit Analysis Guidelines[1]. Therefore, analysis of the impact of using different discount rates has not been done. The biggest build cost driver is the carbon budget.
- Ron Logan (Shell): Has there been a substantial change to business hurdle rates[2] considering interest rate changes?
  - Oxford Economics Australia: Previous periods of falling interest rates may have caused falling hurdle rates, but more recently hurdle rates have not significantly changed. Recently, business decisions were likely driven by expected cash flows, rather than hurdle rates from COVID lockdown related volatility.
- Ron Logan (Shell): What should investment decisions in the NEM be guided by? Should a hurdle rate adjustment be applied to the WACC?
  - Oxford Economics Australia: The results of Synergies' capital asset pricing model and Oxford Economics Australia's market-led approach being similar, validates the result and shows that approaching this problem from two angles is worthwhile.

4 Meeting close

Visit the FRG webpage for the forward plan of agenda topics for 2023.

The next FRG meeting will be held on 30 August 2023 with discussion on the external forecasting accuracy methodology review and an FRG yearly review.

Feedback on the 28 June FRG can be submitted to: https://forms.office.com/r/kkwPMeSne3

[1] AER's Cost-Benefit Analysis Guidelines available at: Cost benefit analysis guidelines (aer.gov.au). (Discount rates on page 10)
[2] Hurdle rate discussion available at: Why Are Investment Hurdle Rates So Sticky? | Bulletin – December 2021 | RBA

A1 Attendees:

Table 1 28 June FRG Attendees

Name	Organisation	Name	Organisation
Derrick Calder	ACCC	Lawrence Irlam	Energy Australia
Han Zhou	ACCC	Shoaib Amjad	Energy Australia
Justin Martyn	ACCC	Benson Heng	Energy Queensland
Wallace Stark	ACCC	Ben Zhang	Equis
Alan Smart	Acil Allen	David Luu	Equis
Michael Symes	Acil Allen	Matthew Carolan	Equis
Tom Evetts	Acil Allen	Haiyan Liu	ERAWA
Craig Oakeshott	AEMC	Kerina Heath	Ergon
Abbas Mohammadi	AEMO	Cameron Potter	FMGL
Ali Habibi Khalaj	AEMO	Felicity Copeland	GLNG
Alice McLaren	AEMO	Amin Nabipour	Horizon Power
Ana Orozco Perez	AEMO	Anna Matala	Hydro Tasmania
Andrew Turley	AEMO	David Allen	Hydro Tasmania
Anula Abeygunawardana	AEMO	Kateryna Kiemele	Hydro Tasmania
Chang Liu	AEMO	Kevin Morrison	IEEFA
Claus Larsen	AEMO	Bev Hughson	ISP Consumer Panel
Eduard Munsayac	AEMO	Mark Henley	ISP Consumer Panel
Esther Adeyemi	AEMO	Nicolas Taylor	Lantau Group
Helen Wang	AEMO	Chotima Micallef	Lochard Energy
Jay Stein	AEMO	Wai Keung Terrence Mak	Monash
Jess Buttigieg	AEMO	Richard Hickling	Mott Mac
Jieyang Chong	AEMO	Pranav Deshpande	NSW DPIE
Jin Han Lim	AEMO	Kristian Kolding	Oxford Economics Australia
John Liang	AEMO	Niti Gupta	Oxford Economics Australia
Jose Viada Galvez	AEMO	Ruchira Ray	Oxford Economics Australia
Ken Harper	AEMO	Bryce Powdrill	Powerlink
Kristine Cruz	AEMO	Rinna Garcia	Powerlink
Leo Ma	AEMO	Jennifer Brownie	QEUN
Leslie Lay	AEMO	Linda Yu	QLD EPW
Levi Rosenbaum	AEMO	Metabha Wanninayaka	QTC
Maggie Du	AEMO	Paul Connor	QTC
Magnus Hindsberger	AEMO	Sam Lines	QTC
Marcela Cepeda Aponte	AEMO	Bret Harper	RepuTex
Matthew Marston	AEMO	Leo Xue	RM Hedge
Navid Mohammadzadeh	AEMO	Andrew Manson	SA DEM
Nick Cimdins	AEMO	Marino Bolzon	SA DEM
Reinzy Colle	AEMO	Brady Martin	SAPN
Saliw Cleto	AEMO	Lachlan Hillier	SAPN
Tim Abernethy	AEMO	William Coren	SAPN
Virginia Chen	AEMO	Adam Crudden	Shell Energy
Yee Siong Lee	AEMO	Connor McLeod	Shell Energy
Will Chivell	AGIG	Ron Logan	Shell Energy
Ed White	Ausgrid	Tao Liang Lee	Shell Energy
Jaysson Guerrero Orbe	Ausgrid	Noel Sligar	Sligar and associated
Navid Haghdadi	Ausgrid	Behrang Assemi	Stanwell
Anna Freeman	CEC	Connie Ganser	Stanwell
Jacob Hyslop	CEC	Steve Meiklejohn	Stanwell
Ramon Sa	CEFC	Rudy Khong	Synergy

Name	Organisation	Name	Organisation
Blake Coleman	CIP	Dhor Ngor-Apuol	Tas Networks
Ivy Zhu	CIP	Herath Samarakoon	Tas Networks
Alex Driscoll	Clean Co	Arwin Kahlon	VIC DEECA
David Green	CSIRO	Mark Kowalczyk	VIC DEECA
Glen Whitehead	DCCEEW	Riadi Tanzil	VIC DEECA
Caroline Valente	ECA	David Osmond	Windlab
Harry Yu	ElectraNet		

A2 Forecasting Reference Group (FRG) Actions Items

Table 2 FRG Action Items (at 15 August 2023)

Item	Date Raised	Topic	Action required	Closing comments	Status
1	26/04/2023	WDR forecasting	AEMO to talk to the WDR provider about its forecasting approach	AEMO has validated with the WDR provider that the approach is fit for purpose.	**CLOSED**
2	14/06/2023	Publishing half-hourly underlying data	Discuss publication of independently replicable models at a technical forecast workshop	For discussion at a Technical Forecast Workshop	**CLOSED**