

DRAFT MINUTES – Forecasting Reference Group (FRG)

MEETING: #9

DATE: WEDNESDAY 30 OCTOBER

CONTACT: Energy.Forecasting@aemo.com.au

ATTENDEES:

Attendee	Company	Site
Deborah Marsh	AEMO	Brisbane
Andrew Turley	AEMO	Brisbane
Magnus Hindsberger	AEMO	Brisbane
Nicola Falcon	AEMO	Melbourne
Rachael Saw	AEMO	Melbourne
Vivian Mai	AEMO	Melbourne
Greg Staib	AEMO	Melbourne
Bella Pennington	AEMO	Melbourne
Nick Cimdins	AusNet Services	Melbourne
Norman Jip	DELWP	Melbourne
Kate Sadler	DELWP	Melbourne
Felicity Sands	DELWP	Melbourne
Alessio Bonato	AGL	Melbourne
Ben Skinner	AEC	Teleconference
Roberta Maher	AEMO	Adelaide
Paul Taliangis	CORE Energy	Adelaide
Jason West	CORE Energy	Adelaide
Joachim Tan	AEMO	Perth
Ron Logan	ERM Power	Teleconference
David Headberry	Major Energy Users	Teleconference
David Heard	Finncorn	Teleconference
Damian Dwyer	APPEA	Teleconference
Joe Hemingway	Stanwell	Teleconference
Andrew Godfrey	Energy Australia	Teleconference
Daniel Guppy	AEMO	Teleconference
David Havyatt	Energy Consumers Australia	Teleconference
David Headberry	Major Energy Users	Teleconference
David Hoch	Engie	Teleconference
Bradley Harrison	ElectraNet	Teleconference
Jordan Mill	Energy Australia	Teleconference
Karan Sharma	APPEA	Teleconference
Kieran Ryan		Teleconference
Marino Bolzon	Department for Energy and Mining, SA Government	Teleconference
Michael Connarty	UPC Renewables	Teleconference
Paul Grzinic	Aurora	Teleconference
Reinzy Colle	NSW Department of Planning and Environment	Teleconference
Sanju Vargeese	BHP	Teleconference
Shane Brunker	Energy Queensland	Teleconference

Attendee	Company	Site
Shane Ng	Energy Australia	Teleconference
Peter Frost	Energy Australia	Teleconference
Bret Harper	RepuTex	Teleconference
Matt Sherwell	Santos	Teleconference

1. Welcome and Introductions

Magnus Hindsberger (AEMO) welcomed everyone to the October FRG meeting.

2. Previous Minutes, Action Items and Forward Plan

Minutes and action items from the previous FRG meeting were addressed, and the forward plan was discussed.

Key topics raised by stakeholders during this section included:

- Andrew Godfrey (Energy Australia) requested AEMO circulate the slide pack earlier to allow attendees more time to review the forum content.
- David Headberry (Major Energy Users) commented that AEMO should filter and collate submitted feedback and only circulate to stakeholders a summary of relevant information.
- Nicola Falcon (AEMO) responded that AEMO has been doing filtering on the submitted feedback while also attempting to keep the authenticity of those submissions. Keeping in mind that stakeholders need time to go through the slides and submitted feedback (if there is any) attached in the draft minutes, AEMO will endeavour to circulate the draft minutes and forum content earlier in future FRGs.

3. Presentation 1: Gas scenarios for the 2020 Gas Statement of Opportunities (GSOO)

Andrew Turley (AEMO) presented on the Gas scenarios for the 2020 GSOO. An overview of AEMO's 2019-20 Forecasting and Planning scenarios, and implications for the gas sector on scenarios and decarbonisation were discussed in detail.

Key topics raised by stakeholders during this section included:

- David Headberry (Major Energy Users) commented that many large gas users are susceptible to price and many firms are on the cusp of closing. Price is the most important element to their operations. Large gas users have limited capability for fuel switching as it will require a significant amount of capital expenditure (CAPEX), and very little CAPEX will be made available for fuel switching. Hence, it may be highly likely that there will be more closures than fuel switching in the industrial sector in a future of very high gas prices. Nicola Falcon

responded that AEMO is keen to seek further feedback on gas price impacts from stakeholders in order to gain a broader view and better understanding of the price impact from an industry perspective.

- John Sligar (Sligar and Associates) questioned why AEMO has two different sets of central scenarios for Gas Statement of Opportunities (GSOO) and Electricity Statement of Opportunities (ESOO). Andrew Turley (AEMO) answered that the central scenarios in these two reports are identical, only some of the inputs are updated for the more recent publication reflecting the latest available information at the time of publication.
- Ron Logan (ERM Power) commented that the settings in Step and Slow Change scenarios appear to be in reverse. Andrew Turley (AEMO) agreed that high gas prices may have a negative impact on gas consumption, but productivity growth with a more buoyant economy may balance this, particularly in other less energy-intensive sectors.
- Nicola Falcon (AEMO) encouraged FRG members to comment on the scenario settings and asked if there are any other factors that AEMO should incorporate into this set of factors that are specific to gas sector.
- David Heard (Finnicorn) raised a comment that as the Step Change scenario reflects tougher climate change policies and a push toward renewables as a substitute for coal, AEMO needs to be clear on how gas is used in this scenario. In this context, he suggested that it is possible there will be a push towards gasification in heavy industry, as a result, there could be an increase in gas consumption in the Step Change scenario. Ben Skinner (AEC) shared an alternate view that the scenarios in the table are intuitive. Step Change does emphasise fuel switching away from gas. AEMO may need to consider the role of hydrogen as a direct substitute for gas. In this scenario, Ben considered that we need to move away from carbon-based fuels.
- Ron Logan (ERM Power) suggested that any change in gas reservation policy will drive gas wholesale price. This is a potential additional factor which is specific to the gas sector to be considered in the scenario settings.

4. Presentation 2: 2020 Gas Statement of Opportunities Consumption Methodology

Joachim Tan (AEMO), Deborah Marsh (AEMO), and Greg Staib (AEMO) presented on the methodology and inputs for the Australian East Coast gas consumption forecasts to be used in the 2020 GSOO.

Key topics raised by stakeholders during this section included:

- Paul Taliangis (CORE Energy) questioned if AEMO differentiate between Liquefied Natural Gas (LNG) producers planned and contract sales. Rachael Saw (AEMO) replied that AEMO's surveys to LNG producers will cover what

they have contracted and what the producers expect to send out in the LNG spot market.

- Nick Cimdins (AusNet Services) asked how AEMO is going to model fuel switching and differentiate between fuel switching and energy efficiency in the forecast. In addition, given historical efficiency is not considered in the forecasts, if it is correct to say that AEMO assumes there is no transition to energy efficiency for houses built in the 90's and the current housing stock stops getting more efficient over time. Deborah Marsh (AEMO) responded that there are three components taken into AEMO's fuel switching modelling, these are:

1. National Construction Code identifies what changes in technology will capture fuel switching effects.
2. State schemes affecting reverse cycle air-conditioning uptake.
3. Hot water heating schemes such as Vic rebate for solar hot water.

Deborah further advised that the modelling assumes that demolitions and renovations occur, which will lead to an evolution in the energy efficiency of current housing stock.

- Nick Cimdins (AusNet Services) asked whether the Tariff D forecast has a separate parameter for closures to differentiate from existing customers getting more efficient over time. Greg Staib (AEMO) responded that AEMO incorporates change in energy efficiency and closures into industrial forecasts. AEMO assesses closure risks through surveys and direct interviews. Any closure that has been publicly announced will feature in all scenarios.
- David Headberry (Major Energy Users) commented that there seems to be no price sensitivity modelling in this forecast. Based on current expected prices, a massive reduction in the use of gas in the East Coast can be expected. With Tariff V, many houses are already shutting down gas space heating. Furthermore, if there is a carbon price coming in, many industrials will potentially not be able to afford high gas prices; this issue also needs to be examined and incorporated into the forecasts. Greg Staib (AEMO) stated that AEMO interviews industrials to determine the appropriate sensitivity to price and assess the closure risk. Regarding Tariff V forecasting, AEMO has a stock model with fuel switching which has regards to policy and sub-regional trends on Tariff V consumption as well as trends at individual Meter Installation Registration Number (MIRN). As such, any observed behaviours switching away from gas (such as no longer consuming gas for heating in winter) will inform our model. Nicola Falcon (AEMO) also advised that though AEMO is not putting a price on carbon in the scenarios, decarbonisation is incorporated within scenarios using carbon budget constraints.

5. Presentation 3: CORE Energy – Gas Price Outlook in Eastern Australia

Paul Taliangis (CORE Energy) presented on CORE's 2020 draft gas price forecast for Eastern Australia for use in the GSOO. The forecasting approach and draft results were discussed in detail.

Key topics raised by AEMO and stakeholders during this section included:

- Nicola Falcon (AEMO) questioned why Brent oil prices are higher in Central than in Slow Change scenario. Paul Taliangis (CORE Energy) responded by outlining that forces of oil and LNG are different from the macroeconomic forces for the scenarios. CORE is seeing that consumer preferences may influence gas demand, and in some instances be a greater driver than simply price. In relation to Gas-Powered Generators (GPG), there are few substitutes for peak gas electricity, this is not going to go away anytime soon. Hence, the demand for gas is not particularly price sensitive at peak level for GPG, nor residential sector, but highly sensitive at industrial sector.
- Alessio Bonato (AGL) asked what is EIA's rationale for \$110 long term price and why prices in Adelaide, Sydney and Melbourne are so high. Paul Taliangis (CORE Energy) answered that the EIA trajectory was caused by significant growth of oil based technologies, together with a range of other forces. In addition, there is an ability to trade gas in multiple positions. Therefore, Wallumbilla is becoming a reference price with some differential on haulage but if a specific party has an arrangement in place, CORE will take this into account. The big separation is Hobart after arbitration.
- Nicola Falcon (AEMO) commented that with new innovative technologies emerging, such as electric vehicles, we may need to question if the choice of oil price for the Step Change scenario remains appropriate.
- Joe Hemingway (Stanwell) raised a question about Brent oil prices, whether there was a reason that the EIAs forecasts were used instead of a visible futures market, current available to March 2029. David Heard (Finncorn) also said that EIA is probably using assumptions about decline of existing fields, and the marginal cost of new reserves to replace that decline. Jason West (CORE) replied the futures market is not a forecast and does not take into consideration many factors, also it is only trading out to December 2028 while the forecast horizon in 2020 GSOO is to 2040. Joe Hemingway (Stanwell) stated (via the Webex chat window given technical difficulties) that he would disagree that the Brent oil futures market is not a forecast, his understanding is that a forward market is designed to encapsulate known assumptions of future risks at day 0, similar to how electricity futures work. Of course it is always wrong, but he does not see why it is disregarded, particularly when there are large discrepancies between the

futures market and EIAs forecast. David Heard (Finncorn) (via the Webex chat window) also agreed with Joe Hemingway's view.

- David Headberry (Major Energy Users) asked for an explanation to the linkage between Brent oil prices and LNG. Specifically, the market has seen spot price move more than Brent, and companies buying LNG are trying to break their contracts using Brent as an inflator. Paul Taliangis (CORE Energy) notes that there is a separation between spot and long-term contract. Gladstone market has a shortage of gas supply. Spot market is high, but it is the contract market that is most relevant in influencing the domestic gas market. All of those LNG contracts are set against oil – with 0.15 pricing slope against Brent. Hence, it is a real factor until 2024. Contractors are better understanding international players and CORE believe capitalists will price up to meet marginal supplier. The spot market represents opportunity cost to sell marginal volume. Therefore, spot price will not have a massive bearing on LNG producers.
- Shane Ng (Energy Australia) and Joe Hemingway (Stanwell) had further questions, however, as time did not permit, it was agreed that we would email the questions to CORE Energy to address (see below).

After the FRG, AEMO provided to CORE a list of submitted questions for CORE to answer:

Question	CORE Response
<i>What is the process for obtaining CORE's assumed Brent slopes? This forecast contradicts other forward curves and forecasts out there (for example, World Bank forecasts October 2019 release) and if this is an important input to the gas prices, then it could have adverse implications.</i>	<i>The slopes used are consistent with market observation by Core, and pricing logic and actual prices disclosed by ACCC</i>
<i>The question was asked during the FRG, but why isn't the Forward curve used for the first few years?</i>	<i>Not an accurate basis for projection – places higher weight on short term forecast from EIA which considers all issues</i>
<i>Why the price forecast provided by Core is so different to any information available out there?</i> <ol style="list-style-type: none"> <i>As a comparison, 2019 year-to-date DWGM is above \$9/GJ,</i> <i>ACCC's assessment of 2020 prices provided by producers and retailers to all buyers is in the range of 9.54/10.44 per GJ in regards to the bid and offers</i> 	<ol style="list-style-type: none"> <i>DWGM pricing and contract prices are different beasts</i> <i>We are focused on the cost of gas to retailers and our position to 2023 is consistent with ACCC. We are not considering industrial prices.</i>
<i>Why is Core's assessment of the price differential between Brisbane and Sydney significantly below the published transport eyeballing the difference, it is ~1.45/GJ. Based on ACCC's lowest range of prices, 0.71+0.7=\$1.41/GJ. We believe that a very select number of customers have access</i>	<i>We are focused on retailers selling to R&C markets and prices to GPG (mostly Retailers) – these are the select parties you reference above</i>

Question	CORE Response
<i>to those prices, and so the price differential should be higher as not everyone in the market will have access to those low prices, and parties who have access to those prices are unlikely to on-sell it at those prices. Instead the WAP price of ~1.75/GJ is probably more realistic.</i>	
<i>The short discussion we had during the FRG, Core suggested that the forecast prices are what they think some of the major retailers have contracted their supply. Is this information inferred from publicly available data that Core can provide, or is this an estimate?</i>	<i>The major retailers source from a range of contracts and Core's prices are based on estimates of those contracts during contract periods. Beyond that the pricing is based on an estimated relationship with Brent/JKM markers – up to 8% slope.</i>
<i>Also if these are longer termed prices that parties have agreed on from historical legacy contracts (prices could be low because of the term risk and other unknowns that affect price), why is Core certain that these counterparties would not make pricing decisions based on current markets prices, which have moved from and is higher than the historical gas prices?</i>	<i>Per above, Core assumes a relationship will be maintained between US\$ LNG and A\$ domestic – so higher p[rices in future are based on assumed movements in LNG prices and USD:AUD.</i>

6. Presentation 4: 2020 Gas Statement of Opportunities commitment classification

Rachael Saw (AEMO) presented on how AEMO is classifying gas plants' commitment criteria in 2020 GSOO.

Key topics raised by stakeholders during this section included:

- Shane Brunker (Energy Queensland) asked whether AEMO will use publicly available information in the 2020 GSOO and if a table with project information will be provided in the 2020 GSOO publication. Rachael Saw (AEMO) answered that AEMO is not able to provide production level information due to confidentiality. However, in terms of classification of committed projects, it may be possible to include in the 2020 GSOO.
- Matt Sherwell (Santos) questioned how AEMO is going to use the additional categories in the modelling of the 2020 GSOO. Nicola Falcon (AEMO) responded that the additional categories will enable AEMO to conduct "What if" analysis to add more layers on top of AEMO's base supply forecast. This will improve the quality of risk and uncertainty analysis to better inform decision makers.
- John Sligar (Sligar and Associates) questioned how far ahead engineers operate their prediction and who makes the revision for 2P and 3P. Ben Skinner (AEC) stated that it is the current view of all resources. Damian Dwyer (APPEA) added that companies use their framework to classify projects as part of their BAU activities, including engaging specialised auditors to validate assessed reserves.

7. Meeting Close

Nicola Falcon (AEMO) announced that following an FRG member's request, AEMO has published ISP Demand Traces including sub-components such as electric vehicles and battery storage onto AEMO's website. They are located in the Integrated System Plan section under the 2019-20 ISP database (linked [here](#)). These traces go out to 2050.

The next FRG meeting is scheduled for Wednesday 27th November 2019.

Forecasting Reference Group (FRG) Actions Items - OPEN

Item	Date Raised	Topic	Action required	Responsible	By	Status
2.3.1	28/08/2019	Generation Information survey formatting	Review the advice given to participants when asking them to provide seasonal availability	Nick Culpitt	TBC – will bring back to FRG when discussing methodology for derating generating units over summer	OPEN
2.4.1	28/08/2019	Power Station FOM Costs	AEMO to ask power station operators how FOM costs can be adequately modelled during times when units are allowed to sit idle	Luke Sumner	TBC Will report back to FRG once consultation is complete.	OPEN Consultation on this is progressing
3.1.2	25/09/2019	Information sharing	Consider developing a mechanism for sharing inbox submissions with the wider FRG group. FRG to provide suggestions to AEMO.	AEMO and FRG	Tbd	OPEN In interim, have included a table at end of minutes to capture ideas from these submissions

Item	Date Raised	Topic	Action required	Responsible	By	Status
3.5.1	25/09/2019	DSP Update – small non-scheduled generation	Investigate whether small non-scheduled generation can be moved from demand forecasting to DSP forecasting.	Magnus Hindsberger	31/1/2020	OPEN
3.5.3	25/09/2019	DSP forecasting methodology	Consult on methodology for forecasting DSP, including choice of exclusions (e.g. due to RERT or overlapping programmes)	Magnus Hindsberger	Early 2020	OPEN

Forecasting Reference Group (FRG) Actions Items - CLOSED

Item	Date Raised	Topic	Action required	Responsible	By	Status
2.3.2	28/08/2019	Trace Methodology Session	AEMO to assess efficacy of trace session in FRG	Andrew Turley	25/09/2019	CLOSED Will be combined with action arising from Submission 2 below
2.4.2	28/08/2019	Revenue Sufficiency Approach	FRG participants to provide feedback to the forecasting inbox on AEMO's proposed revenue sufficiency approach and other possible approaches	FRG participants	25/09/2019 Extended for one more month, to increase opportunity for feedback.	CLOSED
3.1.1	25/09/2019	Proposed Change to Seasonal Generator Capability Ratings (see email submission 1 below)	Circulate Ron Logan's submission to the forecasting inbox about 70th percentile temperature outcomes	Nick Culpitt	30/10/2019	CLOSED. Submission attached to these minutes
3.5.2	25/09/2019	DSP portal modifications	Discuss with AER, options for allowing participants to provide DSP data without their contract qualifying under RRO.	Magnus Hindsberger and Craig Oakeshott	30/11/2019	CLOSED Clarification from AER obtained. Will feed into update of DSPI

Item	Date Raised	Topic	Action required	Responsible	By	Status
						Guidelines in 2020
3.6.1	25/09/2019	Electric Vehicle Modelling Roadmap	Share NSW Department of Planning Electric Vehicle reports from Bill Nixey with FRG when they are published.	Bill Nixey (NSW Planning) / Greg Staib	30/10/2020 If anyone would like these reports, please contact AEMO through the Energy Forecasting mailbox	CLOSED
3.6.2	25/09/2019	Provide more details around electric vehicle traces, especially truck and LCV profiles.	Details are provided in the CSIRO report. AEMO to follow up directly with Katelyn.	Greg Staib	30/10/2020	CLOSED
4.5.1	30/10/2019	Q&A for CORE's gas price forecasts	Circulate Core's responses to the FRG	AEMO	21/11/2019	CLOSED (see these minutes)