DRAFT MINUTES – Forecasting and Planning Reference Group (FPRG) Gas and Electricity

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| MEETING: | # 3  |
| DATE: | Tuesday 18 April 2017 |
| Contact: | Energy.Forecasting@aemo.com.au  |
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 ATTENDEES:

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| **NAME** | **ORGANISATION** | **LOCATION** |
| Clare Greenwood (Chair) | AEMO | Melbourne |
| Kirsty Camilleri (Secretariat) | AEMO | Melbourne |
| Andrew Turley | AEMO | Brisbane |
| Elijah Pack | AEMO | Brisbane |
| Suzette Lizamore | AEMO | Brisbane |
| Brooke Edwards | AEMO | Melbourne |
| Craig Price | AEMO | Melbourne |
| Matthew Armitage | AEMO | Melbourne |
| Nadesan Pushparaj | AEMO | Melbourne |
| Nicola Falcon | AEMO | Melbourne |
| Michael Zammit | AGL | Melbourne |
| Peter Young | AGL | Melbourne |
| Luke Russell | AusNet Services | Melbourne |
| Sujeewa Vithana | United Energy and Multinet Gas | Melbourne |
| John Sligar | Sligar & Associates | Sydney |
| Brad Parker | ElectraNet | Adelaide |
| Marino Bolzon  | SA Government | Adelaide |
| Abe Abdallah  | SA Government | Adelaide |
| Steve Meiklejohn | Stanwell | Brisbane |
| Dominic Eaton | AGNL | Teleconference |
| Will Chivell | AGNL | Teleconference |
| Daniel Tucci | APA  | Teleconference |
| Don Prentis | APA  | Teleconference |
| Damian Dwyer | APPEA | Teleconference |
| Robbie Thompson | Ausgrid | Teleconference |
| Nick Cimdins | AusNet Services | Teleconference |
| Jacqueline Bridge | AusNet Services | Teleconference |
| Paul Graham | CSIRO | Teleconference |
| Terry Hogan | Dept. of Environment & Energy | Teleconference |
| Thomas Dargue | Edge Energy Services | Teleconference |
| Brad Harrison | ElectraNet | Teleconference |
| Geoff Bongers | Gamma Energy Technology | Teleconference |
| Stephanie Byrom | Gamma Energy Technology | Teleconference |
| David Headberry | Major Energy Users Association | Teleconference |
| Prasad Tadipatri | NSW Government | Teleconference |
| Jeremy Tarbox | NSW Government | Teleconference |
| Steven Rawlins | Powerlink | Teleconference |
| James Bennett | SA Power Networks | Teleconference |
| Richard Xu | TransGrid | Teleconference |
| Marwa Khalah | VIC Government | Teleconference |

# Welcome and Introductions

Clare Greenwood (Chair, AEMO) welcomed participants to the April Forecasting and Planning Reference Group (PFRG) meeting.

# Administration (Previous meeting minutes and actions)

Previous meeting minutes from the Forecasting and Planning Reference Group (PFRG) were accepted without further amendments.

Updates to the action items are appended to these meeting minutes.

# Fuel-related Energy Constraints (and load trace development)

Nicola Falcon (AEMO) explained to the group that the draft agenda was amended prior to this meeting to enable AEMO to ask more detailed questions to be able to improve energy supply outlook modelling.

Nicola noted the recently published Gas Statement of Opportunities (GSOO) highlighted potential fuel supply shortages that may impact the electricity market. Gas supply shortages would potentially impact on the ability of Gas Powered Generation (GPG) to meet electricity demand. AEMO is in the process of obtaining additional information from producers regarding their production profiles for the next five years. Feedback on the GSOO is still welcomed by participants and this group. An ‘Energy Supply Outlook’ is intended to be published by AEMO in May 2017, and will provide an updated assessment of energy adequacy considering updates to key gas and electricity inputs since the GSOO was published.

Andrew Turley (AEMO) expanded on the fact that the GSOO highlighted potential gas shortages, and that further information is being sought from existing generation fleets. AEMO is considering the potential for energy limitations to affect all generation technologies, including the coal and gas fleets.

Andrew asked the group what degree of flexibility is appropriate for coal and gas generators, when assessing reliability and generation adequacy.

John Sligar (Sligar and Associates) suggested developing a ‘resource availability’ document which reflects current stockpiles at power stations and the necessary transportation arrangements. John also commented that more detail is required on any major weather events expected in the next three months. David Headberry (Major Energy Users) commented that by focusing on gas and coal it excludes other energy sources e.g. hydro, solar and wind from our forecasting. Nicola Falcon noted that information on the weather is already accessible by AEMO and that it will be used to support forecasting going forward. The challenge being faced currently is that resource availability is not being made aware to AEMO.

David Headberry questioned whether there is a process in place to measure behind the meter. Matt Armitage (AEMO) advised that AEMO has consulted with industry to develop Demand Side Participation (DSP) Information Guidelines which will mandate participants to provide DSP information after March 2018.

Nicola questioned whether stakeholders are making assumptions based on energy constraints. Thomas Dargue (Edge Energy Services) commented that assumptions have been made based on historical data. Steve Meiklejohn (Stanwell) commented in response to the ‘resource availability document’ by mentioning that from a thermal generator’s point of view, there would be an issue with releasing stockpile information.

Andrew Turley commenced discussion around load traces/ demand profiles, and how to reflect the geographical distribution of demands along with the effect of weather on peak demand. AEMO currently use a ten percent probability of exceedance once in every 10 years. Andrew asked how the grid would capture the differences between extreme and average years in modelling, as well as how to treat peak demand and diversity in demand.

Luke Russell (AusNet Services) advised that the way they forecast peak demand is to look at demand compared with temperatures, and complete sigmoidal curves against that data. This enables them to forecast what the demand would be for different types of weather events. More information on how AusNet complete this analysis has been requested by AEMO. Clare to pass on Luke’s contact details to Andrew for an offline discussion. (Action item 3.3.1)

James Bennett (SA Power Networks) noted that SA Power networks consider the fact that major customers can be price responsive, as well as looking at an index of temperatures and analysing the effects of heating.  James commented that weather stations such as Kent town are not always reliable.

The number of sites to gauge reference temperatures was discussed. For distribution networks, three sites were noted as potentially sufficient, but this depended on the geographical size of the loads being assessed.

Matt Armitage commented that the inputs AEMO receive for MT PASA are based off a single reference temperature per region. Matt questioned whether it would it be helpful to provide more context around that temperature e.g. fourth day of a heat wave with 40+ degrees.

AEMO mentioned that an ad-hoc workshop may be required to further discuss load traces/demand profiles. Nicola Falcon suggested that a temperature curve may be requested by AEMO from participants instead of a single figure.

Sujeewa Vithana (United Energy) suggested AEMO request that participants specifically define the technical requirements as part of the ESOO. Specifically, the ESOO should give greater clarity on the necessary levels of frequency control ancillary services (FCAS), not just the capacity required to meet peak demands (MW). Further analysis and discussion required around this was suggested.

The appropriateness of the Reliability Standard was mentioned, and the balance that exists between reliability and costs / price. Nicola noted that it was to be reviewed again this year by the AEMC.

The contact details of Craig Price, Andrew Turley and Nicola Falcon are to be shared with the group. (Action item 3.3.2).

David Hoch (Engie) commented that accurate plant reliability data is required. Nicola mentioned that another department within AEMO surveys generators for reliability, in particular focusing on outages.

*Based on the feedback provided in the FPRG meeting, consideration of energy limitations was broadly agreed to be required in modelling future reliability outcomes. AEMO has requested energy limits of all generators via the existing GELF framework, which provides a two year view of each generators limits. This has been requested for gas, coal, diesel, water. Advice provided by generators is incorporated into the latest assessment, and includes limitations to some gas, coal and hydro generators. AEMO will seek details from generators of their energy limits over a longer time horizon to apply for the ten year reliability assessments.*

*Based on the discussions in the FPRG meeting, AEMO considers that the capabilities of the generation fleet needs to reflect ambient temperatures appropriate for each generator and coincident with conditions driving peak demands at the major load centres. In future, AEMO will be seeking from generator’s a temperature rating curve and the appropriate ambient temperatures coincident with the major load centres reference temperatures.*

*Based on the limited feedback in the FPRG meeting, AEMO will continue to develop alternative methodologies to capture demand variability to reflect underlying weather conditions, and incorporate these into demand traces. In the interim, AEMO will continue to use existing established methods. AEMO will consult on the alternative methodology at a future FPRG forum.*

# New categories for nearly committed plant

Matt Armitage (AEMO) advised that the following agenda item (Item five – Updated Data Dashboard) will be combined with this topic in the interest of time. Currently AEMO conducts a ‘Generation information survey’ annually, to capture generator forecasts for summer/winter capacities and information on any proposed, committed or advanced projects. AEMO is redeveloping the online survey to make it easier for stakeholders to supply this information, which should be live by the end of the year. This is also due to the fact that AEMO will be needing this information on a more regular basis.

In order to enable AEMO to undertake expansion modelling, they require information on all projects that are currently in the pipeline. AEMO uses a commitment criteria which can be found on slide seven in the presentation included in the meeting pack. AEMO is questioning whether the existing commitment criteria is sufficient. Matt suggested that perhaps financing has to be concluded for it to be included in the advanced class.

David Hoch (Engie) questioned what the incentive for projects to provide information currently is and Matt responded that there is no direct incentive, though more stakeholders are asking how they can get their projects included in AEMO’s Planning. Luke Russell (AusNet services) asked what the process to get onto this list is. Matt clarified that AEMO currently reach out to proponents directly through the survey.

Steve Meiklejohn (Stanwell) commented that finance would definitely be a good gauge of their commitment level, and talking to the Transmission Network Service Providers (TNSPs) is also very important.

David Headberry (Major Energy Users) questioned whether AEMO ask (through the survey) what the probability is of the demand increasing or decreasing and by how much. AEMO confirmed that they do, through different forecasting surveys.

Matt commented that although this is potentially sensitive information, the percentage of likelihood of a generator being operational in fifteen years would be beneficial for modelling. David Hoch commented that although this would be desirable, it is not necessarily known since it is simply too difficult to forecast that far ahead.

Nicola commented that there is an obligation for participants to provide their best expectation of available capacity for the next ten years of generation. Participants then sometimes estimate the likelihood of withdrawing their generator.

*Based on the feedback provided in the FPRG meeting, AEMO will modify the advanced project category, making it more stringent. Current thinking is that a project will be categorised as advanced if it satisfies four of the five commitment criteria, including finance. Projects categorised as advanced will be included as a sensitivity in reliability assessments such as the Energy Supply Outlook.*

# Updated Data Dashboard

This item was covered in agenda item four.

# Medium Term Projected Assessment of System Adequacy (MT PASA)

Suzette Lizamore (AEMO) noted that the MT PASA redevelopment process began last year with a review by Ernst & Young into the current process. They identified the need to replace the current process with a probabilistic approach that is better able to capture the intermittent generation impacts on supply adequacy. AEMO accepted this recommendation after consultation with stakeholders and has now begun the implementation process. The redevelopment of MT PASA involves the design of a new probabilistic model as well as changes to the Reliability Standard Implementation Guidelines (RSIG).

The high level model design has now been completed and AEMO is in the process of selecting a vendor for the modelling software. The proposed changes to the modelling process and the reliability standard implementation guidelines are covered in the ‘Issues Paper’ that was released as part of the RSIG consultation process which began on 30 March 2017. A link to this consultation was provided in the meeting pack (paper one) and AEMO would appreciate feedback through formal submissions by 10 May 2017.

Suzette summarised the approach AEMO are intending to use and the questions feedback is being sought on through the consultation process. AEMO is proposing to model the two year time frame at half hourly resolution. Three different types of model runs will be needed to provide the outputs as specified in the rules. These include:

1. Dispatch run (to determine network capabilities and energy constrained capacity with and without network outages).
2. Reliability run (probabilistic run used to assess the likelihood of reliability standard breaches).
3. Loss of load probability run – this probabilistic run will consider the maximum “scheduled load” by modelling every half hour, and then taking the half hour with the maximum LOLP, considering both 10POE demand in that half hour, and intermittent generation availability.

AEMO’s intention is that the use of the five historical demand traces is merely the start of the probabilistic modelling and that they will ultimately be using many more traces built through more advanced forecasted demand modelling techniques. This would enable AEMO to move away from the 10 POE and 50 POE to a full probability assessment. More information will be available in the next few months as work is progressed internally.

The questions that are being asked as part of the consultation:

* Will the proposed probabilistic modelling approach provide the information that participants and the market require for planning, outage scheduling and implementing the reliability standard?
* Is there additional information that AEMO should be seeking from participants, particularly in regard to energy restrictions. Do you see benefit in AEMO using information provided through GELF to better model the likely energy limitations? Currently only weekly constraints are provided but reliability is assessed on an annual basis.
* How do participants use information provided on aggregate constrained and unconstrained regional capacity allowing for the impact of network constraints, forecast interconnector transfer capabilities and when and where network constraints may become binding on load? This information relates to rule requirements 3.7.2.f 5A, 5B, 6iv & 6v.
* Would more granular reporting of aggregate generation capacity by either DUID or energy constrained and unconstrained by region promote the national electricity objective? Participants requested this data at workshops held last year, but AEMO is currently unable to provide it due to confidentiality concerns. Where only one or two generators are constrained in a region, it could be possible to identify those affected. Provision of this information would require a rule change.

AEMO is interested to hear from stakeholders on what they feel are the main issues and challenges faced in modelling today and in the future, and how they can solve them. Treatment of energy constraints and the best way to develop an adequate set of coincident demand and intermittent generation traces are two items of particular interest to AEMO.

Sujeewa Vithana (United Energy) asked whether MT PASA picked up the network limitations/ constraints that would be caused by the Hazelwood closure in advance. Elijah Pack (AEMO) advised that the Hazelwood closure had not been modelled until recently because the announcement of its closure was received quite late. AEMO is looking to improve on their communication with TNSPs to improve this kind of modelling. AEMO will also consider looking into more ‘what if’ analysis of this kind.

Steve Meiklejohn (Stanwell) questioned whether visibility of stated availability will be lost from the MT PASA report and Suzette confirmed that the three-hourly reporting will remain unchanged. Steve also asked if there has been any discussion around increasing the two year window. Suzette advised that the move to probabilistic modelling should allow for greater consistency between MT PASA and ESOO with MT PASA covering reliability assessments for years one and two and ESOO covering year’s three to ten. Steve commented that a three year outlook might be desirable in the case of three year contracts. Nicola Falcon (AEMO) requested that this be included in a submission to the RSIG.

# Other Business

No other business items were raised.

# Forward Plan

Nicola Falcon commented that AEMO will be seeking feedback from stakeholders regarding the combined Forecasting and Planning reference group meeting. Further information will be provided at the May 2017 meeting.

# Meeting Close

The next FPRG meeting will be held on Tuesday 23 May 2017.

**Forecasting and Planning Reference Group (FPRG) Electricity Actions Items**

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| **Item** | **Date Raised** | **Topic** | **Action required** | **Responsible** | **By** | **Status** |
| **3.3.1** | 18-Apr-17 | Fuel-related Energy Constraints (and load trace development)  | Discussion between Andrew Turley, Luke Russell and James Bennett regarding the treatment of peak demand. Look into an ad-hoc meeting for further discussion.  | Andrew Turley (AEMO) | 23-May-17 | In Progress |
| **3.3.2** | 18-Apr-17 | Fuel-related Energy Constraints (and load trace development) | Distribute the contact details of Craig Price, Nicola Falcon and Andrew Turley to the FPRG. | Clare Greenwood (AEMO) | 23-May-17 | In Progress |
| **2.5.1** | 21-Mar-17 | 2017 ESOO  | Set this as an agenda item for the April meeting, for further discussion. | Clare Greenwood (AEMO) | 18-Apr-17 | Completed. |
| **2.6.1** | 21-Mar-17 | 2017 GSOO  | Set this as an agenda item for the April meeting, for further discussion. | Clare Greenwood (AEMO) | 18-Apr-17 | Completed. |
| **1.6.1** | 21-Feb-17 | National Transmission Network Development Plan Consultation | Circulate an email to the group requesting their permission for contact details to be shared with the NTNDP group. | Clare Greenwood (AEMO) | 21-Mar-17 | Completed -Sent with meeting pack 13/04/17 |
| **8.4.1** | 27-Sep-16 | Modelling Future Weather | Luke Russell (AusNet Services) to investigate their metering data during heat waves and provide information on indications of such systems tripping. | Luke Russell (AusNet Services) | On-going | In progress – work to be presented at a future FRG – timing TBC |