24 May 2013

Mr John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Dear Mr Pierce

Publication of zone substation data

The NGF welcomes the AEMC's *Consultation Paper, National Electricity Amendment (Publication of zone substation data) Rule 2013*, as published on 26 April 2013.

The NGF considers that the AEMC's explanation and discussion of the Rule change accurately represents the key components of the proposal that we put forward. We also agree with the listing of key issues for consideration, noting that many relate to implementation matters. The NGF accepts that putting in place the necessary processes to give effect to the obligation to publish historic half-hourly load data at the zone substation requires the specialist advice and input of the distribution network service providers. We are hopeful that the all parties can see the common benefits of making this data available to the entire market.

The following submission includes an analysis and critique of past demand forecasts published by AEMO against actual demand levels. Following this background information we explore several implementation issues associated with the proposal:

- how far back the historical data should go;
- a possible capacity threshold for the exclusion of smaller zone substations; and
- the question of confidentiality and whether it is a real concern.

<u>AEMO demand forecasting performance</u>

As outlined in the Rule change proposal, generation operators and investors look to AEMO for forecasts of the supply and demand balance across a range of time horizons, including longer term

planning periods. In the current market environment of heavily depressed electricity prices and falling demand levels, existing thermal operators are considering decisions to retire plant or take units out of service for indefinite periods. Such decisions have significant consequences not only for owners, but for employees and major input suppliers. The key reason for pursuing this Rule change proposal is to provide a source of independent and transparent demand data to provide sufficient raw information to analyse demand trends at the sub-regional level of the NEM. This would then allow investors the opportunity to prepare independent assessments of likely future demand patterns, allowing more timely and efficient investment and exit decisions.

The NGF considers that AEMO has a poor record of consistently overstating forecast demand levels. This has occurred for both annual energy projections and forecasts for regional and co-incident NEM summer and winter peaks. The data reported below was taken from the annual Electricity Statement of Opportunities publications and the inaugural National Electricity Forecasting Report (NEFR 2012). These forecasts were compared with actual scheduled and semi-scheduled demand data published by AEMO.

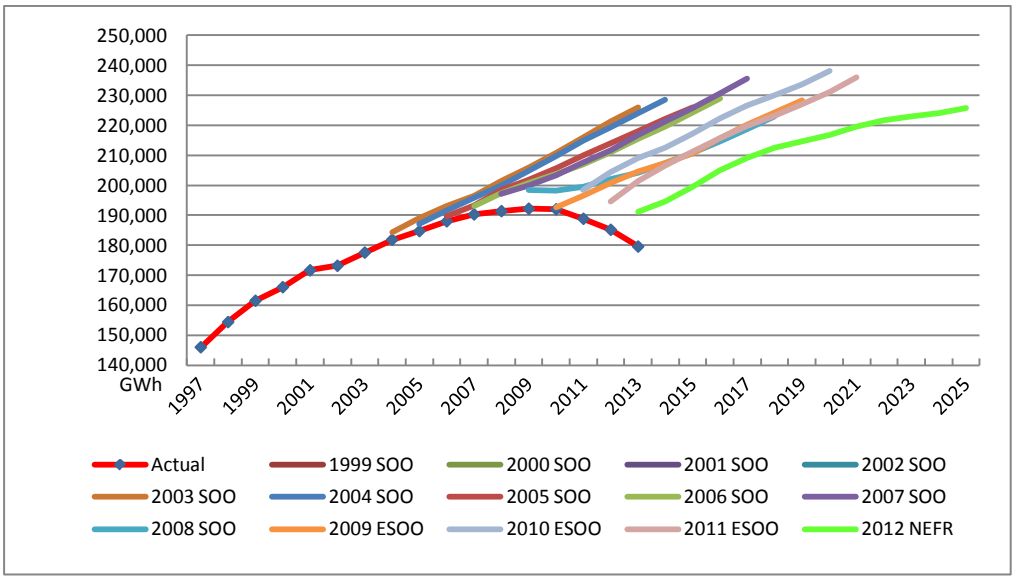
Up until 20012, AEMO relied on demand projections compiled by TNSPs in regions other than Victoria. In 2012, AEMO published the independent NEFR which substantially revised down the trajectory of demand growth for the decade ahead. Nevertheless, actual energy and peak demands for 2012/13 have fallen below forecasts, and the difference is material.

The following section sets out various charts for the NEM, New South Wales and Queensland where the degree of demand forecasting error is most pronounced. Attachment 1 to this submission provides the matching charts for Victoria, South Australia and Tasmania.

Chart 1 shows the ten year annual energy demand forecasts for the NEM from each ESOO published by NEMMCO/AEMO going back to 1999 – each ESOO year (coloured line) sets out the published ten year forecast from that base year. The chart shows that AEMO has revised down the trajectory of the projected demand growth in later ESOO publications, nevertheless actual annual energy demand has fallen well below forecasts. We are concerned that the AEMO growth forecasts in the period 3 to 10 years forward remain optimistically high.

The NGF has calculated 2012/13 actual demand using estimates for the last 6 weeks of the year based on energy usage for the same time period in 2012 – the difference between the NEFR 2012 forecasts and actual NEM energy demand is approximately 10 TWhs. The NEFR 2012 forecasts have been adjusted to provide the same baseline of scheduled and semi-scheduled generation that was provided in all previous ESOOs. This also aligns with the only real time demand and energy data published by AEMO. The NGF disagrees with the decision taken by AEMO to stop publishing scheduled and semi-scheduled forecasts with the first NEFR. The NGF has asked AEMO to publish these demand forecasts as part of the NEFR 2013 as we consider this would significantly improve the accountability and transparency of AEMO for its forecasting work.

Chart 1: AEMO ESOO 10 year forecasts versus actual, NEM, annual energy



Charts 2 and 3 show annual ESOO ten year forecasts of annual energy demand for New South Wales and Queensland against actual energy consumption in each year. These charts highlight the remarkable fall in energy demand in the last 3 or 4 years. While AEMO has attempted to scale down the starting point for its forecasts to reflect changing demand patterns, these revisions have not gone far enough. AEMO's ten year forecasts show demand tracking roughly the same gradient as historical growth levels from 6 or 7 years ago. We have serious doubts about these forecasts given recent substantial falls in aggregate demand.

Chart 2: *AEMO ESOO 10 year forecasts versus actual, New South Wales, annual energy*

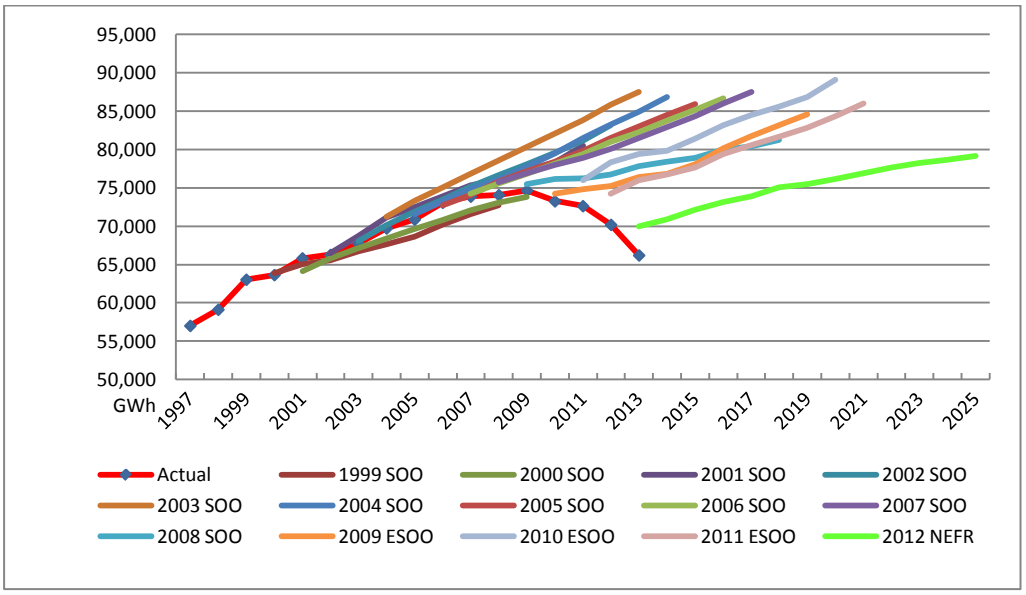
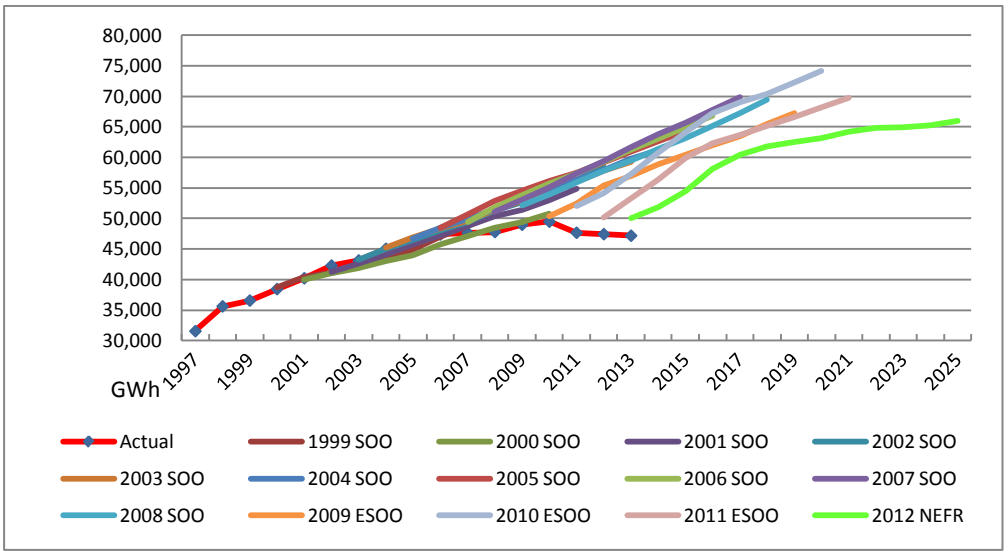


Chart 3: AEMO ESOO 10 year forecasts versus actual, Queensland, annual energy



The following series of charts compare actual summer and winter peak demand levels with the ESOO forecasts for that year as published in the *previous year's* ESOO. AEMO publishes a range of peak demand forecasts – a 90% probability of exceedance and a 10% POE – that is, actual demand should fall below or exceed these forecasts once in every ten years. Charts 4 and 5 show that actual demands across the NEM regions for summer and winter have fallen at the bottom end of the range of the AEMO forecasts from the previous year's ESOO. Only twice in the past 7 years has the combined summer peak demands exceeded the combined one year ahead 90% POE demand projections.

Chart 4: AEMO ESOO forecasts, NEM summer peak demand forecast one year prior and actual year

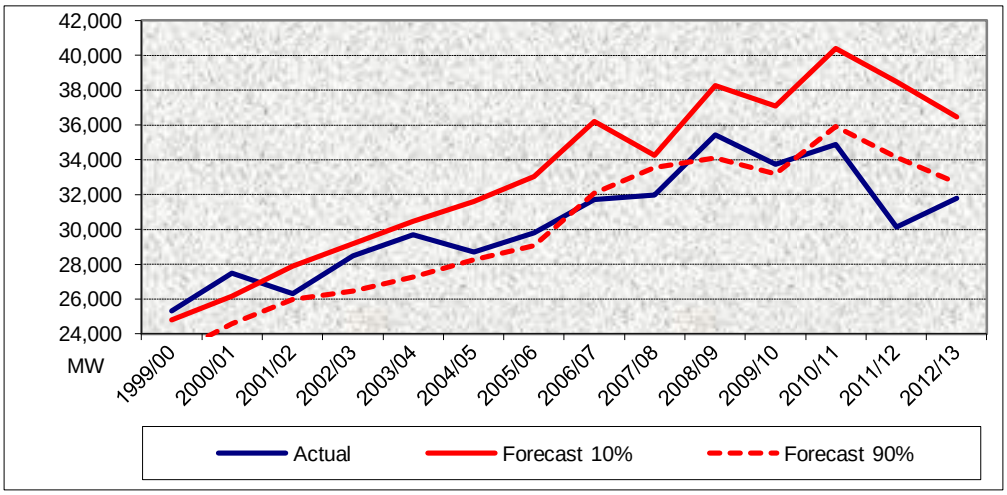
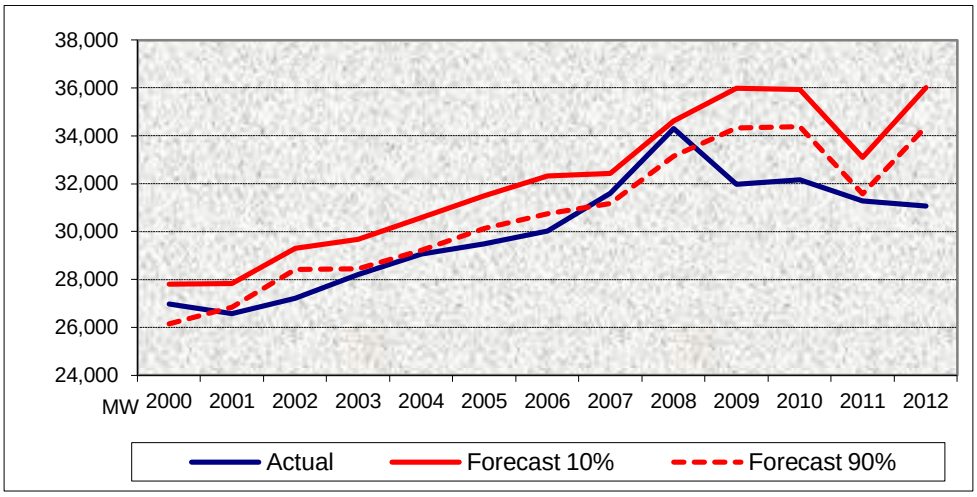


Chart 5: AEMO ESOO forecasts, NEM winter peak demand forecast one year prior and actual demand



Charts 6, 7, 8 and 9 show a similar pattern of AEMO forecasting demand to be higher than actually occurred in the relevant year (NSW summer forecasts are have been relatively accurate in comparison with other regions). The most glaring example of overstatement occurs in Queensland, where actual demands fall below the 90% POE winter and summer forecasts from the previous year in every year except one of the past six ESOO and NEFR 2012 publications.

Chart 6: AEMO ESOO forecasts, NSW summer peak demand forecast one year prior and actual demand

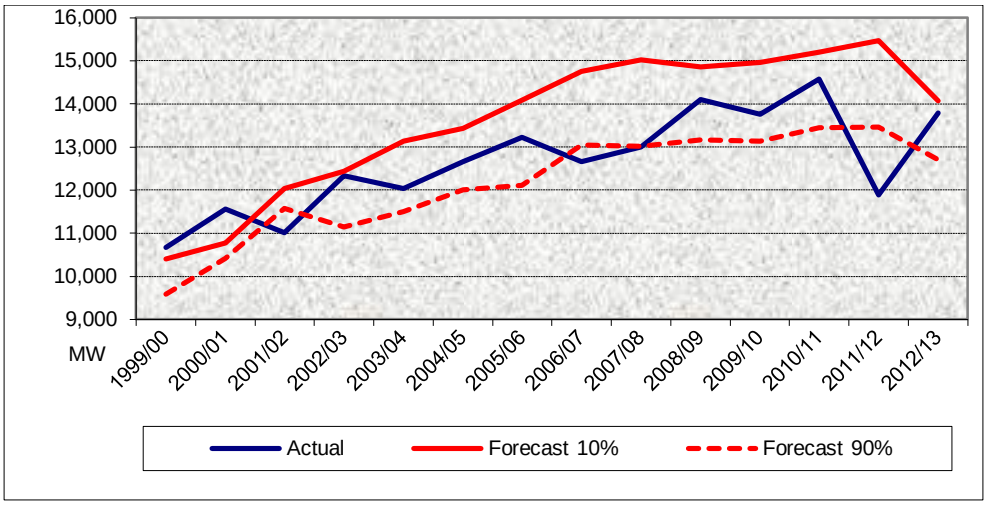


Chart 7: *AEMO ESOO forecasts, NSW winter peak demand forecast one year prior and actual demand*

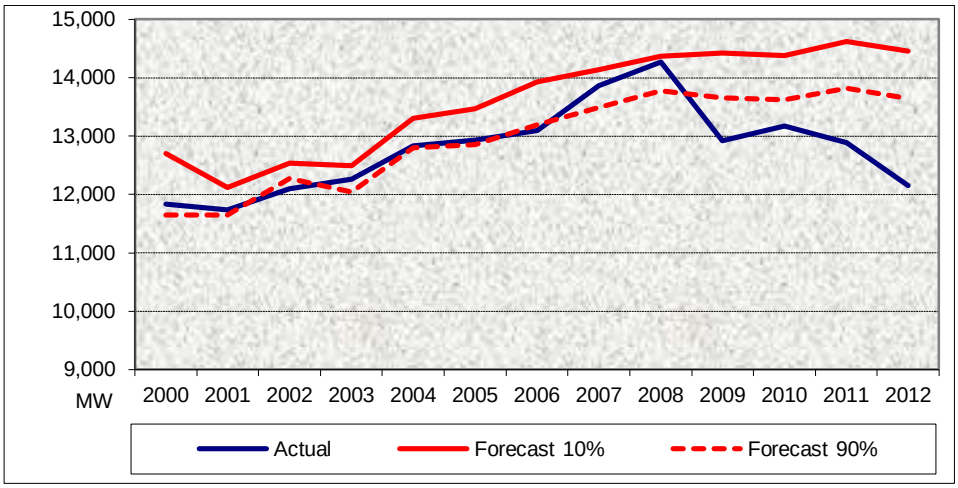


Chart 8: *AEMO ESOO forecasts, Queensland summer peak demand forecast one year prior and actual demand*

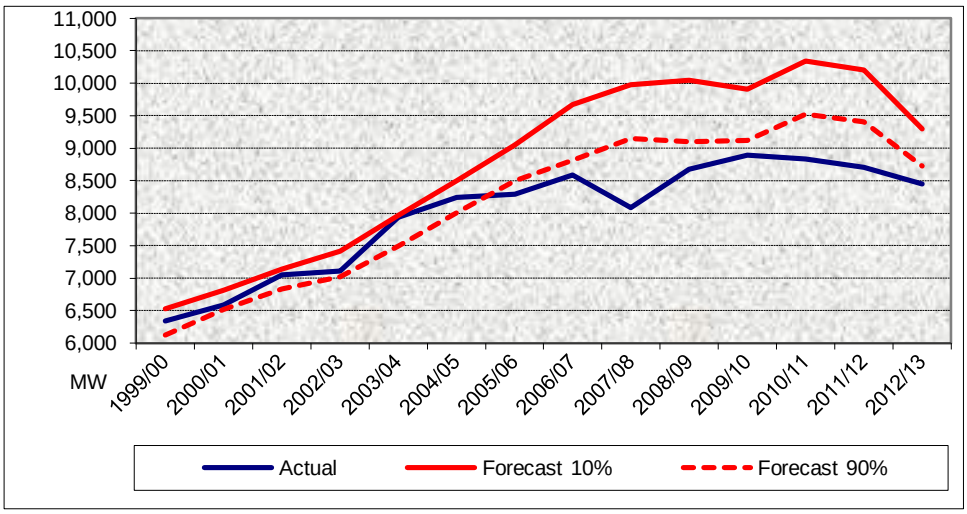
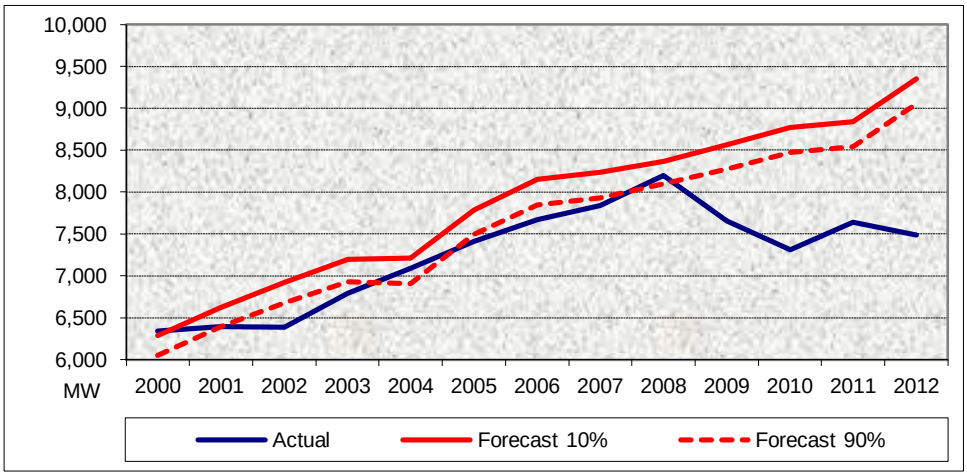


Chart 9: *AEMO ESOO forecasts, Queensland winter peak demand forecast one year prior and actual demand*



Data availability and accessibility

The NGF recognises that DNSPs may not have retained half-hourly load data for all zone substations going back over a period of ten years. If the data has not been collected then we accept that it is not possible to publish a complete time series across all DNSP supply districts. Nevertheless, where the data is available and it is possible to extract and publish that information at a reasonable cost, the NGF would like to see the data published in a one-off release.

The real value of this data gathering exercise is to examine changing demand patterns through time and the possible causes of those movements broken down by different customer categories. As noted above, the historical pattern of constantly rising aggregate regional demand and peak seasonal loads started to falter around 2007. Sub-regional data going back before this period would allow any participant to conduct empirical work on drivers of demand changes since this structural break point.

The NGF has had brief discussions with representatives of the Energy Networks Association to talk about possible implementation issues. We accept that there are some smaller zone substations that do not currently have installed metering equipment, and for which there are no historical records. The NGF would be open to the possibility of placing a capacity threshold on the zone substations that would be included in the data records under the proposed reporting obligation.

If the Rule proposal excluded a number of the smaller substations, such as remote rural substations, without materially reducing the overall population of demand data covered by the reporting requirement, it would probably still meet our hopes for this initiative. The NGF is not expert in understanding how many of these smaller substations exist and how they are metered in each DNSP supply district of the NEM. Advice from the DNSPs on the profile of their substation assets would assist in helping form a view on a possible threshold level.

While we accept that it may make it easier to implement this proposal by excluding a number of the smallest substations, the NGF would be concerned if the DNSPs did not meter and keep records for the majority of distribution zone substations in the NEM. Over the past five or so years, the DNSPs have spent billions on new capital assets, expansions and upgrades – roughly one-third of which has been allocated to zone substations. The rise in network charges has largely driven a near doubling of retail prices in that time. The NGF would expect that the network businesses would require accurate metering data for each zone substation to justify their capital budgets as part of the revenue reset process and to prioritise the timing of investment and maintenance decisions. We therefore would not anticipate significant incremental costs in publishing this data.

Confidentiality

The AEMC identified the potential to reveal information about individual customer loads which "would reasonably be considered by those customers as confidential" as a key area where it was seeking stakeholder feedback.

The NGF has given the issue of confidentiality further consideration since lodging the Rule change proposal, and we are leaning towards a view that the benefits of publishing all data in a consistent form may outweigh any concerns about releasing data on zone substation loads from which only a few customers take supply.

The NGF understands that the largest market customers in the NEM, the smelters and the major industrials, are unlikely to take supply from the distribution network. These customers generally take supply from the sub-transmission network. Consequently this Rule change proposal would not disclose any information relating to those customers who are likely to be most sensitive about revealing data on load profiles.

The NGF considers that there are a number of reasons why publication of all zone substation data should not create any significant concern about commercial disclosure:

- For any participant to use this information to track data an individual customer's load profile they would need to know the identity of the relevant zone substation, how many other customers received supply from that substation, and the approximate load shape of each customer taking supply.
- The proposal requires DNSPs to publish the half-hourly data once a year when the network businesses release their planning reports. The jurisdictions set the publication dates for these reports (possibly 6 months after the end of the financial year). The zone substation data is therefore historical – no third party gets to see any real time information load data from any zone substation.
- The zone substation data only relates to the volume and shape of electricity supply, it does not reveal the value of any supply contract. For a competitor to have an understanding of the business costs of its rivals, it would need information on contract prices and how those prices varied throughout the day, week, season and year.
- The AEMC's Power of Choice review recommended the development of a mechanism that would allow customers to bid a demand side response directly into the wholesale energy market – a form of negative generation. This mechanism will require detailed procedures to measure and verify the demand response from each market customer in each dispatch interval. Publication of zone substation data would seem to be compatible with other initiatives to quantify and publish details on the extent of demand response in the NEM.
- Electricity represents a relatively small proportion of business costs for the vast majority of businesses in the NEM – we would expect no more than 10% of input costs for those business customers taking supply from the distribution network system.
- AEMO publishes data on generator unit operations at the five minute level along with a range of other technical and commercial data for each power station facility. Generators do not object to the publication of this information.

Releasing all data in raw form for each zone substation would reduce the costs of collecting and publishing the data. It would also avoid the need for aggregation criteria which may shuffle loads

between zone substations as customer numbers increase or decrease through time. In this way the quality of the data sets would be preserved for those conducting any time series analysis.

Summary

The analysis of demand trends outlined in this submission shows how dramatically the NEM has changed in the past few years. Presently, AEMO and the TNSPs are the only entities with access to sub-regional demand data which can be used in empirical research on key demand drivers. AEMO and the TNSPs have a poor record in forecasting future growth patterns. The lack of quality data or analysis on likely future demand trends has serious implications for all generators as they plan major maintenance, upgrade and retirement decisions. This Rule change would allow full public disclosure of data at the sub-regional level to enable any third party to better understand these changes.

The NGF would like to thank the AEMC for publishing the consultation paper to initiate this Rule change process. We accept that there are a number of implementation issues that need to be resolved to make the Rule effective and to minimise administrative costs. We would welcome input and cooperation from the DNSPs in providing information which will assist all parties to understand any practical issues that need to be addressed to allow the publication of this data.

Yours sincerely

Tim Reardon
Executive Director

Attachment 1: Comparison of actual demands with AEMO forecasts of annual energy and peak demands in Victoria, South Australia and Tasmania

Chart A1: *AEMO ESOO 10 year forecasts versus actual, Victoria, annual energy*

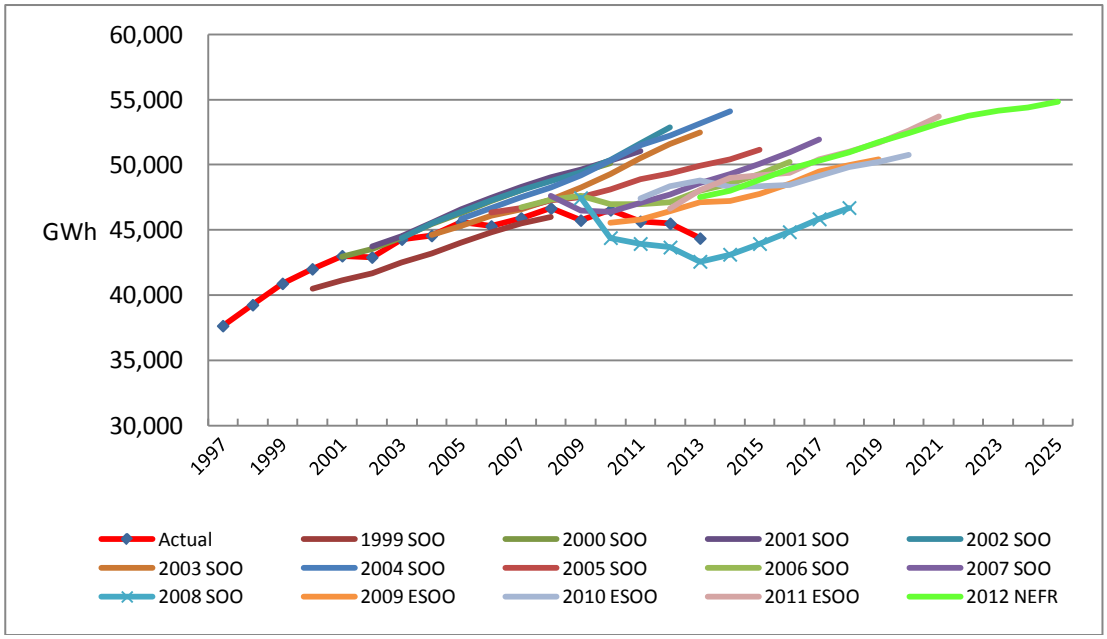


Chart A2: *AEMO ESOO 10 year forecasts versus actual, South Australia, annual energy*

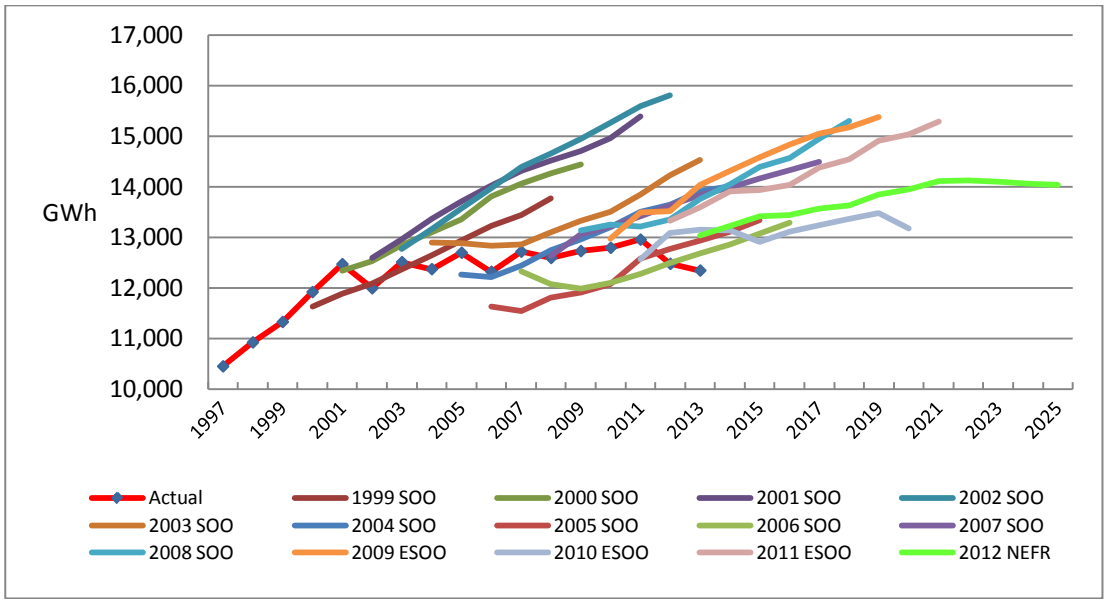


Chart A3 *AEMO ESOO 10 year forecasts versus actual, Tasmania, annual energy*

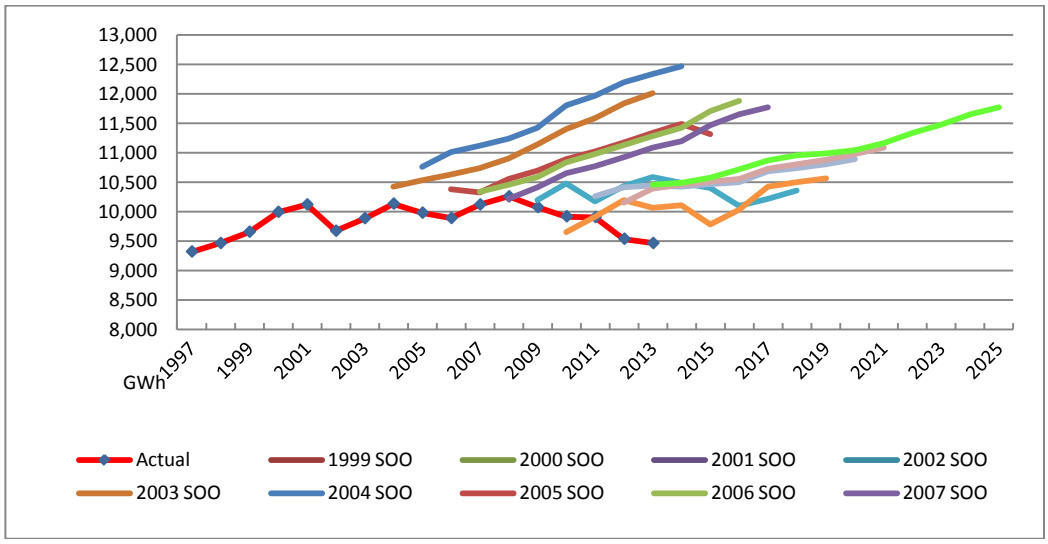


Chart A4: AEMO ESOO forecasts, Victoria summer peak demand forecast one year prior and actual demand

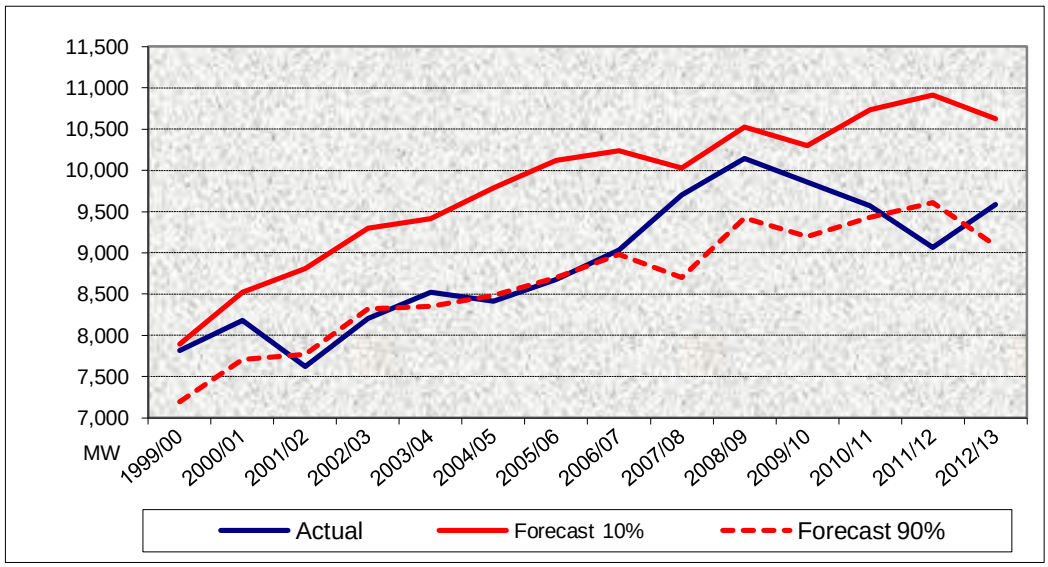


Chart A5: AEMO ESOO forecasts, Victoria winter peak demand forecast one year prior and actual demand

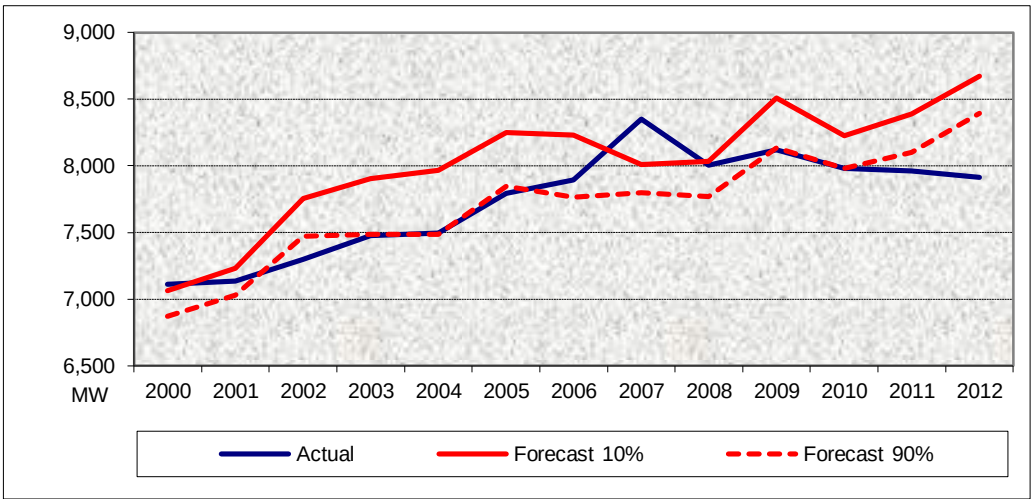


Chart A6: AEMO ESOO forecasts, South Australia summer peak demand forecast one year prior and actual demand

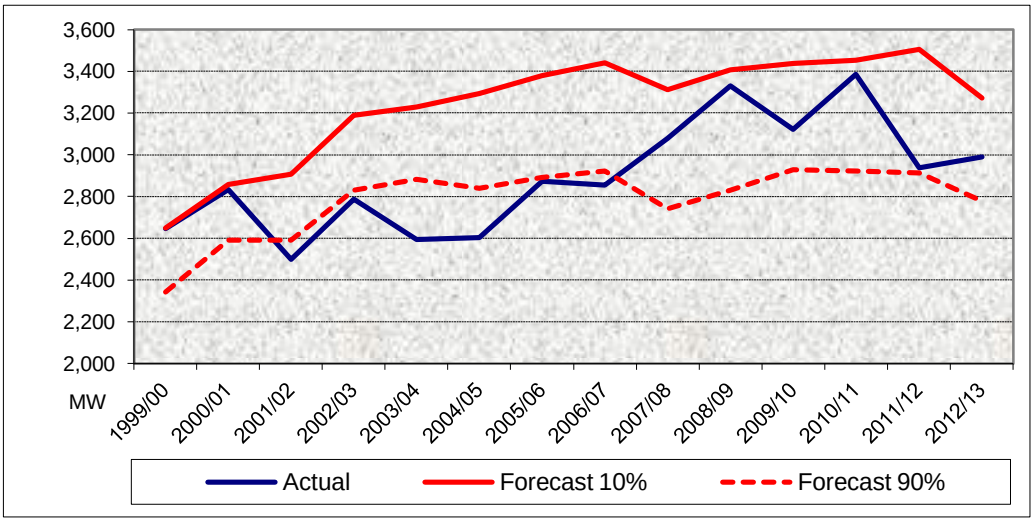


Chart A7: AEMO ESOO forecasts, South Australia winter peak demand forecast one year prior and actual demand

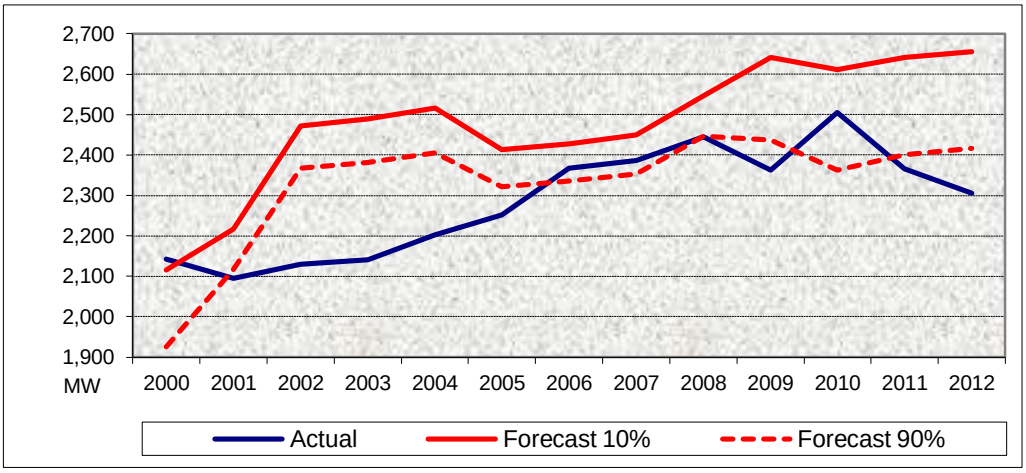


Chart A8: AEMO ESOO forecasts, Tasmania summer peak demand forecast one year prior and actual demand

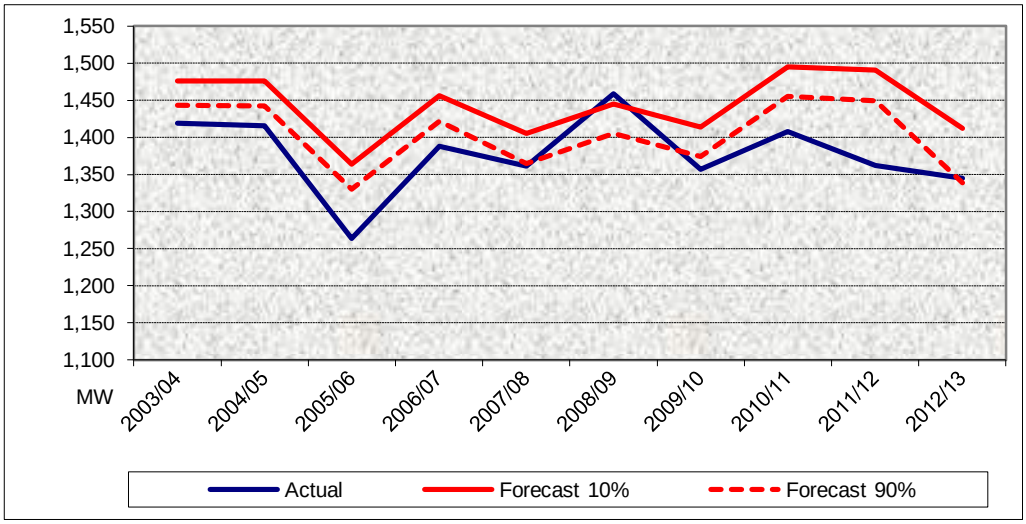


Chart A9: AEMO ESOO forecasts, Tasmania winter peak demand forecast one year prior and actual demand