3.8.4 Continuous load forecasting process improvement

In preparing this year's SOO, NEMMCO, in conjunction with LFRG and IRPC, focused on three areas of continuous improvement for the load forecasting process. These include:

- reinforcing the adoption of a uniform POE definition across the NEM;

- developing and using historical assessments of demand projections; and

- ongoing improvement of load forecasting methodology.

Historical assessments of demand projections

In the 2006 SOO, NEMMCO introduced back assessment information that enabled an assessment of the previous year's MD projection methodologies.

In the 2007 SOO, this information now includes one-year and two-year back assessments of the summer MD projections from previous SOOs.

Main conclusions from back assessments

The back assessments analyse the summer MD projections from previous SOOs by comparing them with actual regional summer MDs. Earlier summer MD projections were developed using the underlying methodology in operation at the time.

For South Australia and Victoria, this methodology forecast summer MDs that would occur if the defined 90%, 50% and 10% POE reference temperature levels were to prevail across the region on a weekday during February when all usual loads, such as schools and industry, were present. Due to the combined effects of these pre-defined conditions, this methodology tends to forecast summer MDs with lower POE levels than 90%, 50% and 10%.

Confirming this conclusion, the back assessment demonstrated the tendency for a disproportionate number of actual MDs to fall

below the 50% POE forecast levels (see Appendix B for more information about backcasting and back assessments).

Ongoing improvement of load forecasting methodology

As part of an ongoing process aimed at improving forecasting methodologies, VENCorp and ESIPC have developed a better understanding of the probabilities of particular MD outcomes, and have applied this knowledge to improve their MD forecasting techniques.

These changes have contributed to the summer MD projection differences between the 2006 and 2007 SOO, and the significantly lower forecasts for South Australia and Victoria (see Section 3.3 for more information). Levels of forecast demand, using the previous methodology, may still occur in practice, but are less likely than previously understood.

The improvements implemented by the individual JPBs for the 2007 energy and MD projections are as follows.

Powerlink Queensland

Powerlink Queensland advises that improvements include:

- better accounting for the impact of embedded non-scheduled generation;

- ongoing updates of area [4] coincidence factors based on area temperature-corrected demands (see Section 3.8.8 for information about Queensland areas and temperature dependence); and

- more robust timing information regarding the commissioning of new, or stages of new, large industrial loads.

TransGrid

TransGrid advises that improvements include the use of:

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[4] Queensland areas refer to distinct load centres within the Queensland region.

- an improved model for energy projections;

- a flattening trend in modelling the increases in air-conditioner ownership;

- an approach, using a normal distribution, that now directly determines each of the 90%, 50% and 10% POE demand levels, which is expected to make the MD projections even more reliable; and

- improved backcasting techniques enabling improved forecast model validation.

VENCorp

VENCorp advises that NIEIR has revised the Victorian summer native MD forecast methodology to accommodate the POE definition. The new forecast approach involves:

- generating a preliminary forecast using NIEIR's pre-existing forecast method, which is based on economic drivers and air-conditioning stock;

- generating another preliminary forecast, represented by a distribution of synthetic summer native MDs based on a range of possible combinations of temperature, day-type, and time-of-peak-demand events, deriving from historical information; and

- deriving the final forecast by reconciling the two preliminary forecasts.

ESIPC

ESIPC advises that a new forecast methodology has been employed to prepare summer MD projections for South Australia, which:

- represents the culmination of several years of research into alternative forecasting techniques for South Australia, as reported progressively in past issues of the South Australian APR;

- has been developed by Monash University's Business and Economic Forecasting Unit; and

- builds upon earlier research undertaken by a PhD candidate sponsored by ESIPC.

ESIPC also advises that its objectives have been to develop probabilistic-based demand forecasts based solely on the economic assumptions provided by NEMMCO, and a more transparent forecasting process that can be reported to market participants. ESIPC intends to continue this development work into the future.

ESIPC advised that reports describing Monash University's research, forecasting models and results are available from ESIPC's website [18].

Transend Networks

Transend Networks advises that it has recently reviewed the methodology for calculating reference temperatures, resulting in changes to the:

- approach used to calculate summer reference temperatures; and

- number of years of historical data (sample size) used to calculate the reference temperature.

See Section 3.8.8 for more information about the changes to the Tasmanian summer and winter reference temperatures.

See the individual JPBs' 2007 APRs [4-8] for more information about ongoing load forecasting methodology improvements.