Report to

Australian Energy Regulator

Maximum demand forecasts for the Energex region – update addendum.

19th March 2010

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Ref: J1874

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VERSION CONTROL

Version	Date	Comment	Approved
Draft 1	01/03/2010	Draft to AER for comments	R Lewis
Responses	16/03/2010	Responses to AER comments	R Lewis
Final	19/03/2010		R Lewis

EXECUTIVE SUMMARY

The Australian Energy Regulator (AER) has asked MMA to review the basis of the revised demand forecasts provided by Energex and Ergon Energy in their Revised Regulatory Proposals, using the approach outlined in the AER's Terms of Reference provided on 29 January 2010. This report addresses the Energex Revised Regulatory Proposals.

In its RRP and in response to a request from MMA, Energex has submitted:

1. A critique of MMA's demand forecast adopted by AER in its Draft Decision
2. Demand data for the 2009/10 summer
3. A demand forecast prepared by NIEIR for Energex in October 2009

MMA has reviewed the Energex submissions regarding MMA's methodology and considers that they do not invalidate MMA's methodology or conclusions.

The demand data for 2009-10 show the expected 50% PoE maximum demand for this summer is likely to lie between 4600 and 4700 MW – approximately 100MW lower than the forecasts made by MMA in October 2009.

MMA has previously assessed the models provided by Energex and has seen the reports provided by NIEIR. Apart from changes in electricity consumption, there appears to have been little material change between the NIEIR forecasts in April 2009 and October 2009.

On this basis, MMA has concluded that the new information contained in the Energex Revised Regulatory Proposal and other submissions does not provide sufficient evidence to cause MMA to alter its previous conclusions regarding the reasonableness of the Energex maximum demand forecasts.

MMA has reconsidered its own previous forecasts with respect to issues raised by the DNSPs. MMA has updated its forecasts to take into account:

- the latest NIEIR GSP forecasts
- a small increase in estimated growth of air-conditioning due to assumptions about growth of additional air conditioners[1]. This has the effect of increasing assumptions about effective air conditioning growth by about 2.5% by 2015.

[1] The impact of growth in additional air conditioners has ben estimated by using the 2008 OESR survey to estimate the number of households which will add additional air-conditioning over the next five years and then multiplying this by a factor (18%) to take into account estimated size and diversity effects.

The updated underlying MMA forecasts are provided below. The changes we have made have had the effect of increasing the underlying MMA forecasts by about 1.4% on average across each year of the 2011 regulatory period.

Table E 1 Updated MMA forecasts of Energex system MD, MW

Forecast	2010	2011	2012	2013	2014	2015
MMA March 2010	4784	4949	5129	5395	5655	5876
MMA October 2009	4762	4882	5067	5295	5567	5828
Difference (MMA2010 – MMA2009)	22	67	62	100	88	48

MMA's revised forecast excluding DM programs is compared with Energex revised forecast in Table 4-3. They differ by approximately 200 MW or 3.5% in the first and last years and have the same growth rates. As with the 2009 forecast the major point of difference appears to be the starting point.

Table E 2 Comparison of MMA and Energex revised forecasts

Forecast	2011	2012	2013	2014	2015	CAGR (%)
MMA 2010 less DM programs	4931	5089	5328	5555	5733	3.8%
Energex 2010 less DM programs	5118	5376	5655	5814	5940	3.8%

1 INTRODUCTION

1.1 Background

The Australian Energy Regulator (AER) is required to determine the revenue requirements for services provided by electricity distribution network service providers (DNSPs) in Queensland, Energex and Ergon Energy, from 1 July 2010 to 30 June 2015 (2011 regulatory period). The National Electricity Rules require the AER to accept the forecasts of operating and capital expenditures in the DNSPs' regulatory proposals if they reasonably reflect, amongst other things, realistic expectations of demand.

AER engaged McLennan Magasanik Associates (MMA) to assist it by reviewing the key maximum demand forecasts used by the DNSPs in formulating their regulatory proposals. The final MMA reports were provided to the AER in October 2009 and were taken into account by the AER in the draft decisions which were published in November 2009 together with public versions of the MMA reports.

In January 2010 the DNSPs submitted revised regulatory proposals in which they commented on the MMA reviews of demand forecasts, provided some additional information and, to an extent, amended their forecasts.

The AER has asked MMA to review the basis of the revised demand forecasts provided by Energex and Ergon Energy using the approach outlined in the AER's Terms of Reference provided on 29 January 2010.

1.2 Approach to the review of revised proposals

The approach and work required by the AER are specified in the terms of reference:

- MMA is to limit its review to information submitted by Energex and Ergon Energy as part of their revised proposals and any subsequent submissions and information made available to MMA during the current review process

- MMA is to determine whether information contained in the DNSPs' revised proposals and submissions provides sufficient evidence to cause MMA to alter its previous conclusions regarding the reasonableness of the DNSPs' maximum demand forecasts.

- If MMA considers the DNSPs' revised maximum demand forecasts are reasonable, provide clear reasons to justify the conclusions reached.

- If MMA considers the DNSPs' revised maximum demand forecasts are not reasonable, MMA is required to reconsider its own previous forecasts with regard to issues raised by the DNSPs and, if necessary, provide updated forecasts. Any

amendments to MMA's previously advised forecasts or methodology should be explained and supporting information provided.

- MMA is to liaise with the AER and DNSPs by telephone and email to the extent required
- MMA is to report to the AER in the form or a letter or brief report which constitutes an addendum to the reports provided by MMA in October 2009.

1.3 Process followed

In line with the TOR, MMA has:

- reviewed the revised proposals and associated material provided by the DNSPs
- identified areas where the DNSPs have provided new information and evidence which might cause MMA to change its views about the reasonableness of the previous DNSP maximum demand forecasts
- requested additional clarification and information where considered appropriate
- reviewed the available evidence to assess the likely impact on forecasts
- reviewed the reasonableness of the changes to the forecasts proposed by the DNSPs
- re-assessed the previous MMA forecasts in light of any new evidence provided
- produced this brief draft addendum report (which is to be read in conjunction with earlier MMA reports) on which the DNSPs were requested to provide comment on confidentiality and errors of fact.

1.4 Addendum report

As this is an addendum report it should be read in conjunction with the previous MMA report.

The conventions adopted in the previous MMA report have been followed in this addendum report. All years in this report refer to financial years ending June 30th.

2 NEW EVIDENCE AND INFORMATION PROVIDED BY THE DNSPS

2.1 Basis of the initial capital expenditure (capex) and demand forecasts

Energex's capex forecasts were initially based on its V31 demand forecasts derived after the summer 2007/08 and winter 2008 peak demands. These forecasts were then adjusted at a gross level based on the NIEIR April 2009 forecasts commissioned by Energex which took into account the impacts of the Global Financial Crisis (GFC) expected at the time. In addition, Energex included an adjustment for the effect of demand management initiatives.

MMA reviewed the forecasts provided by Energex for the AER. Based in part on the MMA review the AER was not satisfied that the system and spatial maximum demand forecasts proposed by Energex provided a realistic expectation of the demand forecast required to achieve the capital and operating expenditure objectives and adjusted the Energex forecasts based on MMA analysis provided in the report to the AER.

2.2 New information

2.2.1 Provided by Energex

Energex has argued that the MMA forecasts are flawed on the basis that the starting point for analysis understates the initial value for 2008/09 based on the following points.

- there is no methodological justification for using 2006-07 summer values over another year;
- it ignores the changes in temperature sensitive load and the impact of those changes;
- there is no supporting information provided on the calculation of the lower range for maximum demand; and
- it misinterprets Powerlink's 2009 Annual Planning Report (APR) data[1].

These arguments are detailed in the Energex revised regulatory proposal.

Energex also commissioned a further report by the National Institute of Economic and Industry Research (NIEIR)[2] dated October 2009. As had been the case in earlier NIEIR reports to Energex, the report contained economic, energy and maximum demand forecasts together with a backcasting assessment by NIEIR of the accuracy of the NIEIR current summer MD forecast methodology.

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1 Energex, "Revised regulatory proposal for the period July 2010 – June 2015" page 6.

2 National Institute of Economic and Industry Research, "Electricity consumption and maximum demand projections for the Energex region to 2019", October 2009.

2.2.2 Requested by AER and MMA

In addition the AER and MMA requested some information from Energex and/or NIEIR. The questions and responses are provided below.

Question 1: Can Energex provide detailed information on NIEIR's maximum demand and energy consumption model including: the basic equation for the forecasting model in mathematical form, definitions of all variables used in the model, and how it is derived; historic and forecast data for all variables in the model, and the source of the data; and modelling spreadsheets and outputs including estimated coefficients, standard errors and residuals. If Energex is unable to provide any of aspects of this information, please provide an explanation as to why it cannot be provided.

Response 1:

"*NIEIR has advised the following:*

- *Its energy forecasting models have been developed over the last 20 years and include the following*
    - *detailed sectoral models of energy in each State and Electricity businesses within each State;*
    - *maximum demand models for summer and winter.*
- *NIEIR's maximum demand forecasting model uses industry data for air conditioning sales. This information is confidential.*
- *NIEIR is the leading forecaster in the NEM and has been engaged by NEMMCO (predecessor to AEMO) to prepare the document "Factors affecting the electricity demand in the NEM" that accompanies the annual to Statement of Opportunities. The demand forecasting methodology is outlined in this paper (attached below)*
- *NIEIR model is propriety information and cannot be released.*[3] "

Question 2: Can Energex provide actual daily system maximum demand and temperature data (appropriate for use in Energex models) from 1 November 2009 up until the latest date available.

Response 2:

"*The raw data is provided in attached file. These data will need to be validated as part of the forecasting process.*[4]". The attached file, "Energex summer 09 10 peak demand and temp data – to early Feb.xls" provided daily system maximum demand (MW) and maximum and minimum temperatures at Amberley station for the period 1/11/2009 to 3/2/2010.

[3] Energex response AER EGX RP 1 Part 2 – 120210 .doc provided to AER on 12 February 2010, AER.EGX.RP.1.7
[4] Energex response AER EGX RP 1 Part 2 – 120210 .doc provided to AER on 12 February 2010, AER.EGX.RP.1.8

Question 3: Energex has provided a NIEIR report dated October 2009. With regard to this report, could Energex ask NIEIR:

- what is the most recent year used to calibrate the NIEIR temperature sensitive load for this report? Is it 2004-5 as suggested by the NIEIR report?
- to provide weather corrected actuals of the last 5 years system maximum demand (i.e. 2004/05 to 2008/09) using their model. The historic figures they quote are non-weather corrected actuals.

Response 3:

"*NIEIR receives industry sales data on temperature sensitive load (i.e. Air Conditioning sales). This is up to 2009. The last calibration against the half hourly Energex MW data was 2004-05, the last hot summer.*[5] "

[5] Energex response AER EGX RP 1 Part 2 – 120210 .doc provided to AER on 12 February 2010, AER.EGX.RP.1.9

3 EVALUATION OF NEW INFORMATION

3.1 Consideration of Energex arguments

3.1.1 Section 2.2 of Energex RRP

Energex Revised Regulatory Proposal has commented as follows on MMA's system MD forecasts (p5 & 6):

"However, ENERGEX believes MMA's alternative demand forecasts are flawed on the basis that the starting point for analysis (2006-07) understates the initial value for the 2008-09 50 per cent PoE maximum demand.

ENERGEX believes the key limitations of MMA's analysis are that:

- there is no methodological justification for using 2006-07 summer values over another year;
- it ignores the changes in temperature sensitive load and the impact of those changes
- there is no supporting information provided on the calculation of the lower range for maximum demand; and
- it misinterprets Powerlink's 2009 Annual Planning Report (APR) data."

It is not clear to MMA how Energex could have drawn the first three conclusions from the report we submitted to AER and they are demonstrably untrue. It is clearly stated in that report that our projections are based on what we called Model B, for example on the last line of p47: "Model B is our preferred forecasting model". MMA's estimate of 4,624 MW for 2008-09 is based on this model (Table 4.4).

This model is a correctly estimated version of Energex's V31 model (which eliminates the upward bias in the Energex V31 model) and consequently:

- uses all the summer load values from all historical years and not just a single value

  (Energex reference to a 2006/07 summer values appears to relate to trend values based on data from 2005 to 2007, which we used to estimate a likely range for the 2008/09 50% PoE MD value. The high trend values were calculated using the highest estimates of 50% POE among the estimates considered: Energex V31, Power link, MA annual regressions and Energex annual regressions. Similarly for the low trend values. The trend analysis leads us to expect the 2009 50% POE MD to lie in the range 4636 to 4729 MW but other considerations led us to broaden it to 4600 to 4750 MW).

- contains growing temperature sensitivity coefficients (listed in Table 4.1 of the report) and therefore takes account of these changes
- provides all the supporting information required to establish how the system MD was calculated.

In relation to MMA's use of Powerlink's APR data, page 44 of our report contains the following wording: "The Powerlink estimate suggests a value of approximately 4900 MW but we note that Figure B.1 in Powerlink's 2009 APR suggests that native peak demand at the 50% POE reference temperature would be approximately 4,750 MW." We did not derive or interpret any Powerlink data but used numbers provided directly by Powerlink.

We were aware of the potential discrepancy between the Powerlink SE Qld definition and the Energex region. However figure 4.2 in our October 2009 report shows strong consistency of Powerlink SEQ 50% PoE and various estimates of Energex 50% PoE up to 2007 so we believe the differences must be immaterial.

The key problem in using the Powerlink information is which of Powerlink's 50% PoE estimates are used: the 4907 MW figure in Table B3; or the 4750 MW figure in Figure B.1 of Powerlink's 2009 APR. Both of these are stated to be the 50% PoE native daily peak demand for SE Qld. The APR does not indicate any reason for the difference. In view of this and the above discrepancy we, and AER, should probably ignore the Powerlink data and focus on estimates derived directly from Energex data.

MMA does not consider that any of the Energex statements above invalidate either the MMA methodology or conclusions.

It is also noted that in its response Energex has not attempted to refute MMA's assessment of the biases in and unsuitability of the Energex V31 model on which the original Energex forecast is based.

3.1.2 Section 2.2.1 of Energex RRP

Section 2.2.1 of the Energex RRP, headed "Methodology for Calculating Maximum Demand" presents a number of methodology related discussions but does not address methodology as such directly. MMA agrees that recent summers have been mild and that temperature sensitivity is increasing – as noted above the latter is incorporated in our model. Surprisingly, Figure 2.3 in the Energex RRP appears to validate rather than refute our estimates: it very clearly shows that the trend maximum daily demand in 2009 is approximately 4,600 MW.

On page 7 of the RRP, Energex repeats the mistaken assertion that "MMA adopted the 2006-07 summer as a starting point and utilised trend analysis to predict the 2007-08 and 2008-09 starting values".

3.1.3 Section 2.2.2 of Energex RRP

Section 2.2.2 of the Energex RRP, headed "MMA's conclusion on starting value in 2008-09", repeats the mistaken assertion that "no justification was provided by MMA" (of the starting value of 4624 MW). As noted above, the value was produced using Model B, the derivation of which is fully documented in our report to the AER. Since Model B is a modified version of the Energex V31 model its structure is already familiar to Energex.

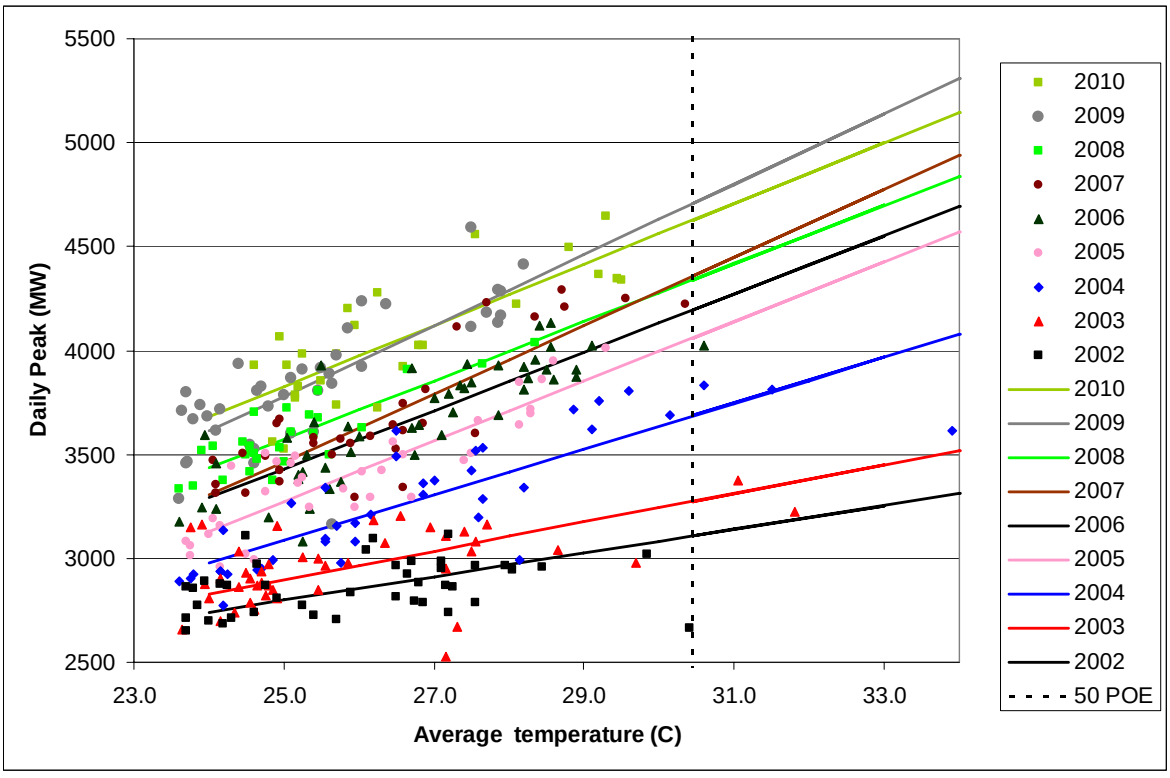
The argument in this section regarding the 2008-09 maximum of 4593 MW recorded at a temperature of 27.5 C is statistically meaningless, since peak demand on the hottest day of that summer (temperature 28.2C) was only 4412 MW. Extrapolating from the peak day can therefore be extremely misleading.

Figure 3-1 illustrates daily maximum demand vs temperature data provided by Energex, together with linear temperature sensitivities, for 2002 to 2010 (part summer to early February). Important points to note are:

1. The steady lift in the trends, with significant increases in slope (temperature sensitivity) from 2002 through to 2005, followed by more modest increases in 2006 and 2007. There was no growth in the trend in 2008 but growth resumed in 2009 - it appears to have stopped again in 2010 based on the part summer data available.

2. There are many years with lower temperature days with relatively high demand, for example 2004 and 2006, where demand on the higher temperature days is not much greater. This reinforces the need for care in assuming that high values at low temperatures will transfer to very high values at higher temperatures.

Figure 3-1 Daily maximum demand vs temperature data and linear trends



The coefficients for the regressions are tabled below. In view of the almost random variations in the constant term it is important not to draw any conclusions from the variations in the temperature sensitivity coefficient by itself. However, the zero constant model (not shown in the chart) does show consistent growth in the temperature sensitivity coefficients from year to year. Growth slowed from 6.75 MW/C/yr from 2002 to 2006 to 4.0 MW/C/yr from 2006 to 2010.

	Full model (in chart)		Zero constant model
Year	Temperature sensitivity (MW/C)	Constant (MW)	Temperature sensitivity (MW/C)
2002	57	1373	110
2003	69	1176	114
2004	110	336	122
2005	144	-327	132
2006	140	-71	137
2007	164	-623	140
2008	141	63	143
2009	170	-462	152
2010	146	167	153

3.1.4 Section 2.2.3 of Energex RRP

This section deals with Powerlink data – we have nothing to add to the statement in section 3.1.1.

3.1.5 Section 2.2.4 of Energex RRP

This section deals with the NIEIR October 2009 forecast prepared for Energex. This is addressed in section 3.3.

3.1.6 Summary

Energex' comments focus on information that MMA provided in support of its forecast starting point because the starting point was the clearest point of difference between MMA and Energex forecasts.

However, MMA's October 2009 forecast and its starting point are based on Model B and Energex has not found any faults with Model B other than the mistaken assertion that it (the forecast) ignores changes in temperature sensitive load. Furthermore Energex has not sought to refute MMA's criticism of their V31 model.

We therefore remain confident in our methodology and projections.

3.2 Changed economic circumstances

Between 2002 and 2007 Queensland gross state product (GSP) grew by about 5% pa. In its October 2008 report to Energex, NIEIR forecast that growth in GSP between 2009 and 2015 would be about 4.1% pa. In its April 2009 forecast to Energex this had been reduced to 3.1% pa and this remained the forecast over the period 2009 to 2015 in the October 2009 report – although the timing of the growth had changed somewhat.

According to the NIEIR October 2009 report:

"*The collapse in the financial sector and subsequent fall in commodity prices should see Queensland GSP growth slow considerably.*

Queensland GSP growth was 1.5 per cent in 2008-09, following growth of 5.3 per cent in 2007-08.

Queensland GSP growth is projected to grow by 1.1 per cent in 2009-10 and by 2.3 per cent in 2010-11. Business investment is expected to fall sharply in 2009-10 and 2010-11, however, private consumption expenditure is expected to recover.

Queensland GSP growth strengthens again by 2011-12 and 2012-13, as stronger domestic and world growth leads to a recovery in commodity prices. A number of delayed resource processing projects in Queensland are assumed to proceed after this period as the commodity export outlook improves. Projected GSP growth is 6.1 per cent in 2011-12 and around 4.8 per cent in 2012-13[6]."

The GSP growth rates between 2007 and 2015 and 2009 and 2015 from the NIEIR October 2008, April 2009 and October 2009 reports are illustrated in Figure 3-2. As can be seen, there has been little overall change in GSP growth rates between the April 2009 and October 2009 reports, although the annual timing of GSP growth is different.

In its report to the AER dated 19 October 2009, MMA stated:

"*Finally, we note that the Australian and Queensland economies remain volatile. We have used economic forecasts for Queensland prepared in April 2009 as the basis of our analysis of system maximum demand. If there is a material change to the expected outlook then it may also materially impact on the forecasts.*[7]"

Based on the above analysis, MMA considers the overall changes in NIEIR economic growth rates between its April 2009 report and October 2009 report to be relatively small.

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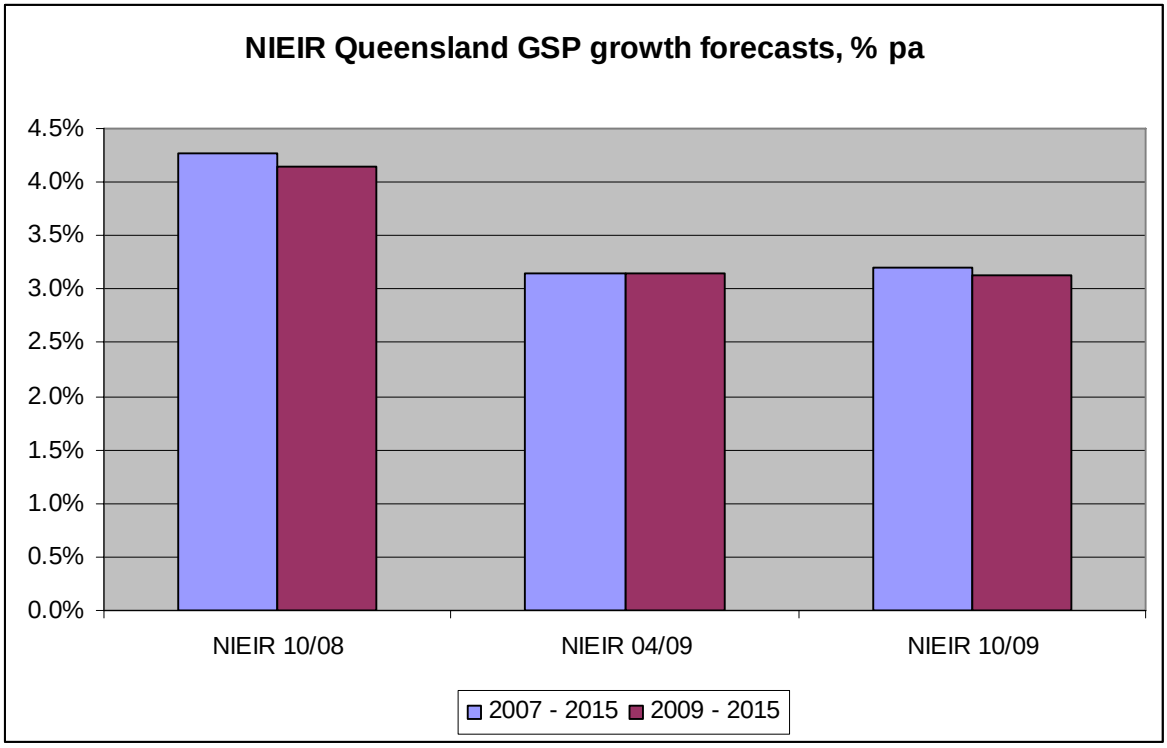
6 National Institute of Economic and Industry Research, "Electricity consumption and maximum demand projections for the Energex region to 2019", October 2009 page 21.

7 McLennan Magasanik Associates, draft report to Australian Energy Regulator "Review of Energex's maximum demand forecasts for the 2010 to 2015 price review", 19 October 2009 page 6.

However, we consider the latest NIEIR economic growth forecasts to be the most timely currently available and have used these in the updated MMA model.

Figure 3-2 NIEIR forecasts of Queensland GSP growth, 2007 – 2015 and 2009 – 2015, % pa



Source: NIEIR reports to Energex dated October 2008, April 2009 and October 2009. Note financial years ending June 30th.

3.3 Changes to NIEIR forecast energy sales

NIEIR's forecasts of total base case energy consumption in 2009 and 2015 according to the three NIEIR forecasts are provided in Table 3-1.

Table 3-1 Energex total electricity sales according to different NIEIR forecasts, GWh

	NIEIR Oct 2008	NIEIR April 2009	NIEIR Oct 2009
2009	21946	21698	21800
2015	25845	24712	25774

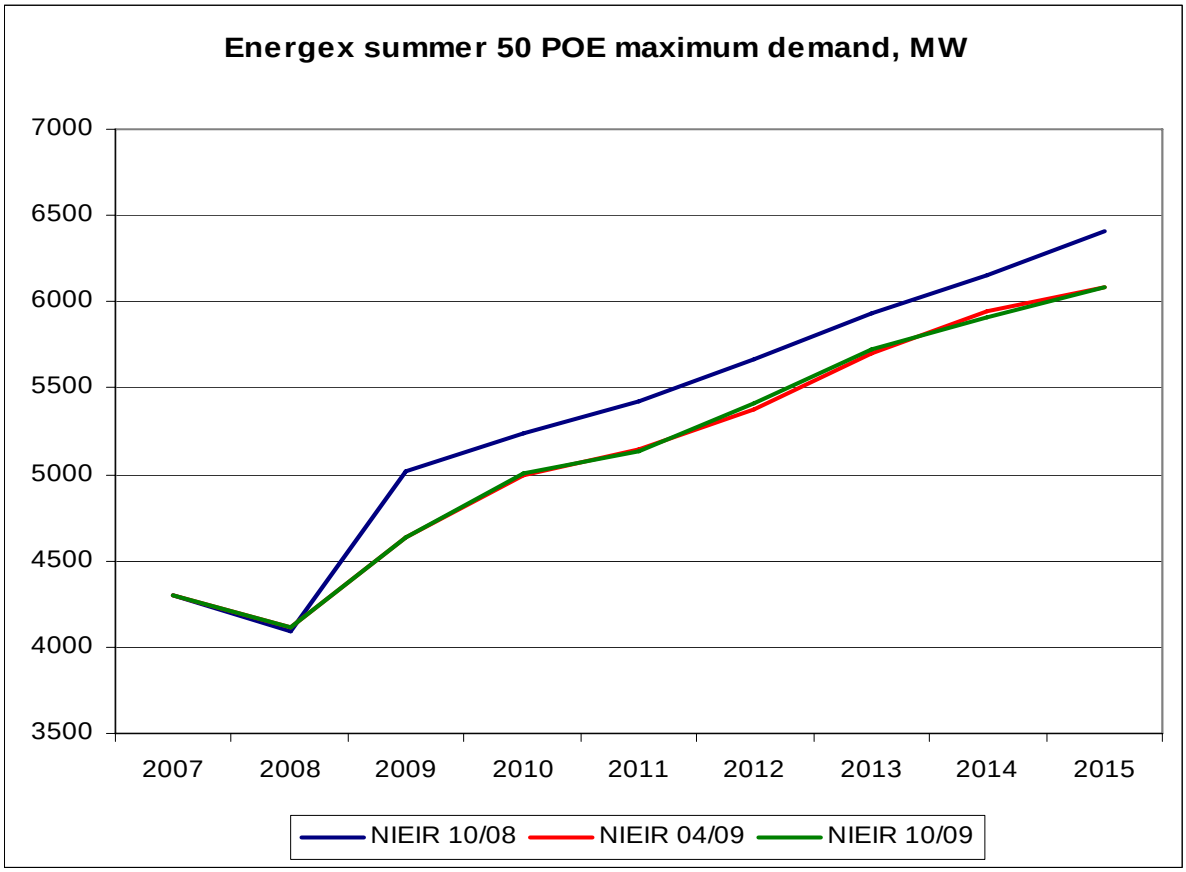
Source: NIEIR reports to Energex dated October 2008, April 2009 and October 2009. Note financial years ending June 30th

Despite similar starting points in 2009, differing by at most about 1%, and similar overall GSP growth rates, NIEIR forecasts of electricity sales in the year 2015 in the April 2009 and October 2009 differ by over 4%. It is not clear to MMA why this should be the case.

3.4 Changes to NIEIR forecast summer maximum demand

While NIEIR's forecasts of total electricity consumption by 2015 have changed by over 4% between the April 2009 and October 2009 NIEIR reports, maximum demand forecasts, as measured by the 50% POE day in a 50% POE summer, have not changed materially – as seen in Figure 3-3. However, as expected, there has been a 4% or so average reduction in forecast summer MD between the October 2008 and 2009 NIEIR forecasts.

Figure 3-3 NIEIR forecasts of Energex 50% POE MD in a 50% summer, MW



Source: NIEIR reports to Energex dated October 2008, April 2009 and October 2009. Note financial years ending June 30th

3.5 Data from summer 2010

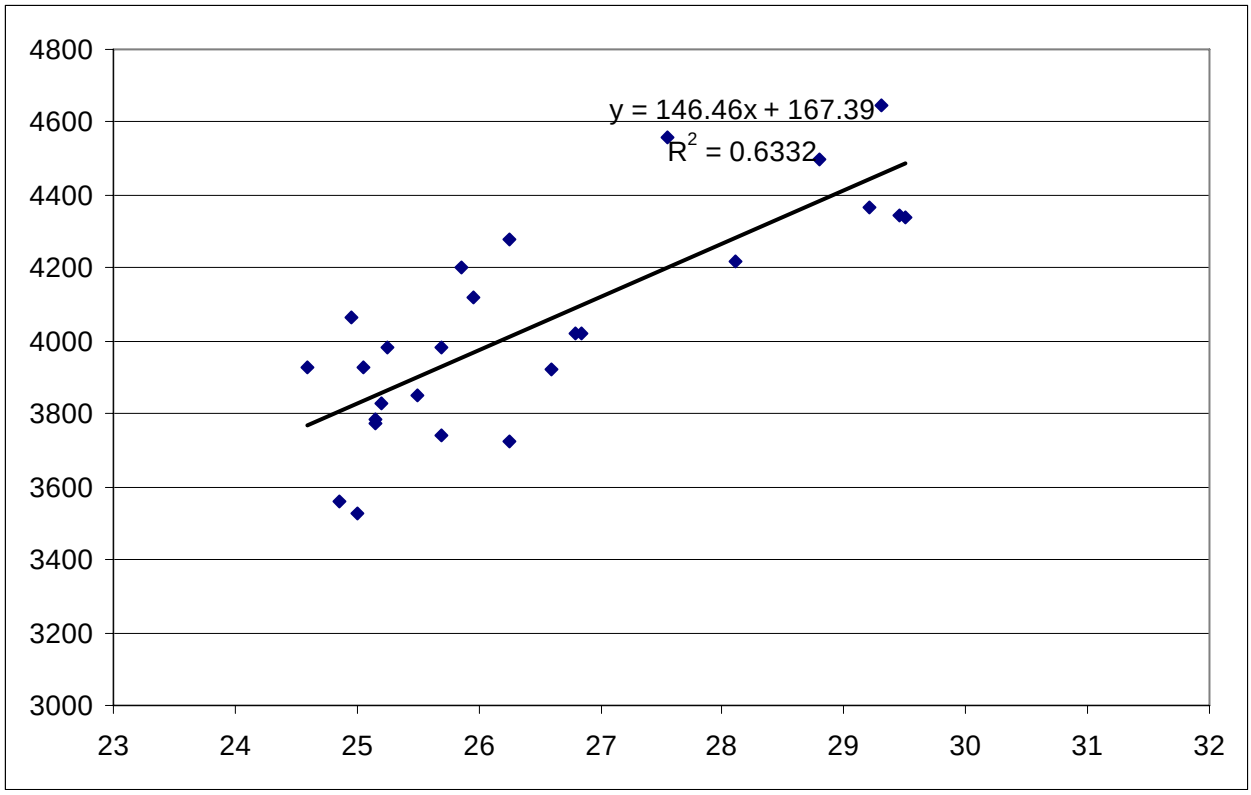
Energex has provided MMA with daily MD and temperature data for the period 1 November 2009 to 3 February 2010. MMA has examined this data to determine whether there is any evidence of higher MDs than revealed by MMA's analysis of data up to 2008/09 and incorporated in Model B.

MMA has assessed the data using a similar approach to that taken by Energex in its V31 model – by considering only daily maximum demands on working weekdays between December and February excluding a period from mid December to mid January. We have also excluded data with average of maximum and minimum temperatures of less than 24.C.

A linear regression model has been a standard approach used by other DNSPs to estimate maximum demand at a 50% PoE temperature.

A simple linear regression analysis of the system maximum demand against the average of the daily maximum and minimum temperatures is presented in Figure 3-4 and presents an indicative temperature corrected MD for the 2009-10 summer.

Figure 3-4 Linear regression analysis of Energex 2009/10 summer daily data



Source: Information provided by Energex

Assuming a 50% PoE temperature of 30.5 C at Amberley the estimated 50% PoE for 2010 is between 4600 and 4700 MW, around 4634 MW.

NIEIR calculate the 50 POE temperature at Amberley to be 30.0 degrees. This calculation is different to the 50 POE temperature calculated by others due to NIEIR de-trending the annual maximum temperatures to remove the trend of increasing summer max temperatures.

"Over the past fifty years, the summer highest temperature has tended to increase; there appears to be no noticeable change in the mean level of winter lowest temperatures. The trend increase in summer extreme temperatures may reflect a number of factors including changes to the weather metering equipment, changes to the environment surrounding the weather station, general city-wide urban development (i.e., heat island effect) and global warming. This trend suggests that the underlying distribution is not stationary and

therefore, the summer extreme temperatures observed in the past are not directly comparable to summer extremes observed today. To put the past temperature extremes on the same basis as today's extremes, the summer highest temperatures are detrended and then recasted in terms of today's mean (trend) level. The recasted series is used to calculate summer POE values."[8]

Based on the evidence of the available data for the 2009/10 summer, and that of recent summers we can see no reason to change the model used by MMA and the starting point that it projects. If this data were to be used in a recalibration of Model B it would most likely result in lower MD projections because the 4634 MW estimate is below the Model B trend.

We note that the last NIEIR calibration of Energex summer MD data was in 2004/05, the last hot summer. It is not clear how NIEIR's model has been calibrated to changes since 2004/05 and as is evident in Figure 3-1 and the supporting table, rates of growth of weather sensitivity appear to have slowed substantially since then.

3.6 Overall conclusion about new evidence

MMA has previously assessed the models provided by Energex and has seen the reports provided by NIEIR. Apart from changes in electricity consumption, there appears to have been little material change between the NIEIR forecasts in April 2009 and October 2009.

MMA notes that all 50% PoE MD values are statistical estimates, produced by statistical analysis of actual MD data recorded under conditions different from 50% PoE conditions. Consequently MMA does not consider the demand on any single day of the year, regardless of the relevance of the conditions on that day to 50%PoE conditions, to be a good representation of 50% PoE, without conducting a statistical analysis of data including other days and conditions. As can be seen in Figure 3-4, on the day with a temperature most like 50% POE conditions demand was lower than 4400 MW but the highest MD was 4647MW. Notwithstanding the above statement, on the basis of our analysis it seems 4647 MW would not be an unreasonable estimate of the 2010 50% PoE MD.

MMA does not consider the NIEIR forecasts of 50% MD to be reasonable.

MMA has reviewed the Energex arguments about the starting point used by MMA and considers that they do not invalidate MMA's methodology or conclusions.

The only new objective data provided are the daily maximum demands for summer 2009/10 requested by MMA and provided by Energex. These data show the expected 50% PoE maximum demand to likely lie between 4600 and 4700 MW – which is around 100MW lower than the forecasts made by MMA in October 2009.

On this basis, MMA has concluded that the new information contained in the Energex revised proposals and submissions does not provide sufficient evidence to cause MMA to

[8] NIEIR demand forecast report to Energex dated October 2009, P.36

alter its previous conclusions regarding the reasonableness of the Energex maximum demand forecasts.

4 UPDATED MMA FORECASTS

4.1 New factors taken into account

MMA has reconsidered its own previous forecasts with respect to issues raised by the DNSPs. MMA has updated its forecasts to take into account:

- the latest NIEIR GSP forecasts
- a small increase in estimated growth of air-conditioning due to assumptions about growth of additional air conditioners[9]. This has the effect of increasing assumptions about effective air conditioning growth by about 2.5% by 2015.

4.2 Updated underlying MMA forecast

The updated underlying MMA forecasts are provided in Table 4-1. These are based on Model B estimated using the same historical data as in our 19 October 2009 report. The model therefore has the same GSP coefficient as before but higher growth in the temperature sensitivity coefficients because of the above air-conditioning assumptions. The changes we have made have had the effect of increasing the underlying MMA forecasts by about 1.4% on average across each year of the 2011 regulatory period.

Table 4-1 Updated MMA forecasts of Energex system MD, MW

Forecast	2010	2011	2012	2013	2014	2015
MMA March 2010	4784	4949	5129	5395	5655	5876
MMA October 2009	4762	4882	5067	5295	5567	5828
Difference (MMA2010 – MMA2009)	22	67	62	100	88	48

4.3 Impact of demand management programs

From the underlying growth forecasts we have subtracted the same impact of demand management programs as has been previously estimated by Energex.

[9] The impact of growth in additional air conditioners has ben estimated by using the 2008 OESR survey to estimate the number of households which will add additional air-conditioning over the next five years and then multiplying this by a factor (18%) to take into account estimated size and diversity effects.

Table 4-2 MMA updated Energex system MD forecasts taking into account impact of demand management programs, MW

Forecast	2010	2011	2012	2013	2014	2015
MMA March 2010	4784	4949	5129	5395	5655	5876
Minus impact of DM programs		18	40	67	100	143
MMA 2010 amended forecast	4784	4931	5089	5328	5555	5733

4.4 Comparison with Energex revised forecast

MMA's revise forecast excluding DM is compared with Energex revised forecast in Table 4-3. The differ by approximately 200 MW of 3.5% in the first and last years and have the same growth rates. As with the 2009 forecast the major point of difference appears to be the starting point.

Table 4-3 Comparison of MMA and Energex revised forecasts

Forecast	2011	2012	2013	2014	2015	CAGR (%)
MMA 2010 less DM	4931	5089	5328	5555	5733	3.8%
Energex 2010 less DM	5118	5376	5655	5814	5940	3.8%