imo
Independent Market Operator

Statement of Opportunities

July 2008

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Executive Summary

This is the fourth Statement of Opportunities Report (SOO) published by the Independent Market Operator (IMO). It covers the Reserve Capacity Requirement for the period from 1 October 2010 through to 1 October 2011.

The objective of the report is to provide information to Market Participants of the Wholesale Electricity Market and other industry stakeholders on the status of electricity consumption, demand and generation within the South West Interconnected System (SWIS).

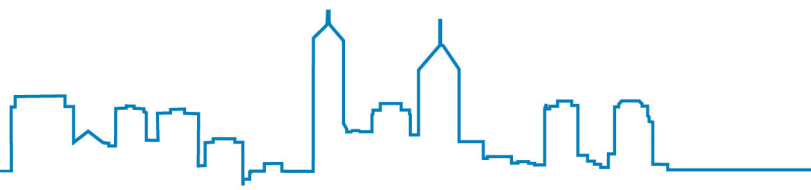
The main purpose of the Statement of Opportunities Report is to:

- Set the amount of capacity required to be available from 1 October in the 2010/11 Reserve Capacity Year.
- Provide information on maximum demand and electricity consumption within the SWIS over the Long-Term Projected Assessment of System Adequacy (LT PASA) Study Horizon.
- Provide an indication of the maximum level of Demand Side Management (DSM) that can be reliably accommodated within the SWIS.
- Provide information relating to opportunities for investment in generation capacity and DSM capability through the Reserve Capacity Mechanism over the medium term, with particular emphasis on 2010/11 and 2011/12.

The Statement of Opportunities Report also provides supporting information about electricity generation within the SWIS, and presents an overview of the forecasting and modelling methods and assumptions that contribute to the above outcomes.

The key outcomes of the 2008 SOO include:

- Economic growth within Western Australia (WA) is forecast to remain strong over the period to 2017/18, with an annual average rate of growth of 4.9% in Gross State Product, a rise of 0.7% on the figure predicted in the 2007 SOO.
- Electricity consumption and maximum demand are both forecast to grow through to 2017/18 at 3.9% per annum on average.
- Several new large industrial loads are expected to be commissioned by 2010/11, which will result in substantial increases in both electricity consumption and maximum demand. Without these new major loads, electricity consumption is forecast to grow at 2.2% and maximum demand at 3.3%.



- The Reserve Capacity Target for 2010/11 is set at 5,146 MW. To meet this target, 226 MW of new generation and demand side management capacity will be required beyond that which is already in place or under construction.

This report also identifies a number of significant issues with the timing of new transmission facilities and potential changes to the level of certification for intermittent generators and demand side management. Developers of new capacity should note these issues.

Key Results for 2010/11

The Reserve Capacity Target for 2010/11 is 5,146 MW.

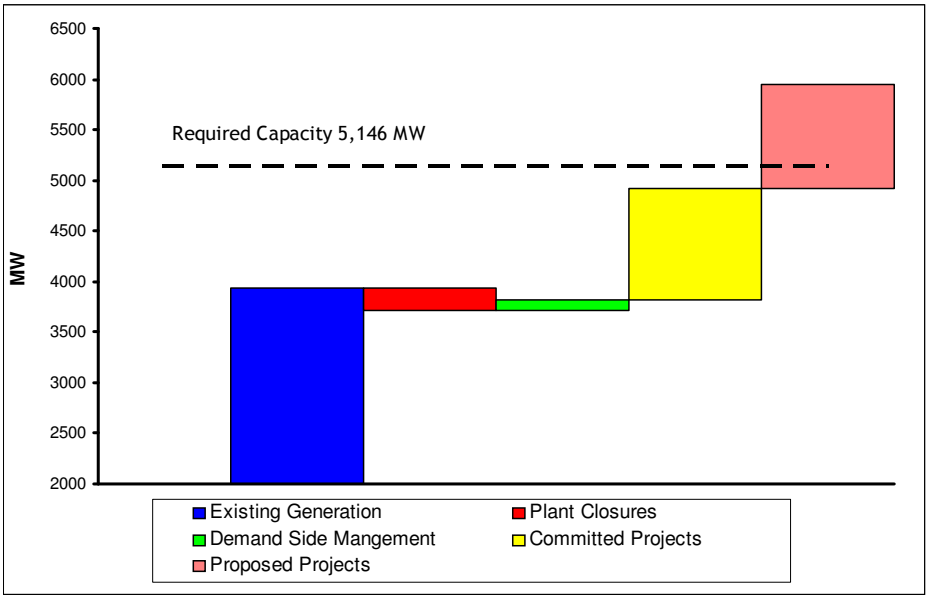
The IMO anticipates that 3,732 MW of existing generation and DSM capacity that has been assigned Capacity Credits for 2009/10 will continue in service through to 2010/11. A further 1,188 MW of new capacity has been assigned Capacity Credits for 2009/10 and is currently under construction.

Therefore, an additional 226 MW of new Reserve Capacity, beyond that already in service or under construction, will be required to meet the Reserve Capacity Target.

The most recent Expression of Interest process, conducted during the first quarter of 2008, identified 1,036 MW of potential new capacity in 2010/11, however, not all of this is expected to proceed. It should be noted that potential delays to the proposed Geraldton 330 kV transmission lines may prevent some new capacity meeting the 2010/11 timeframe.

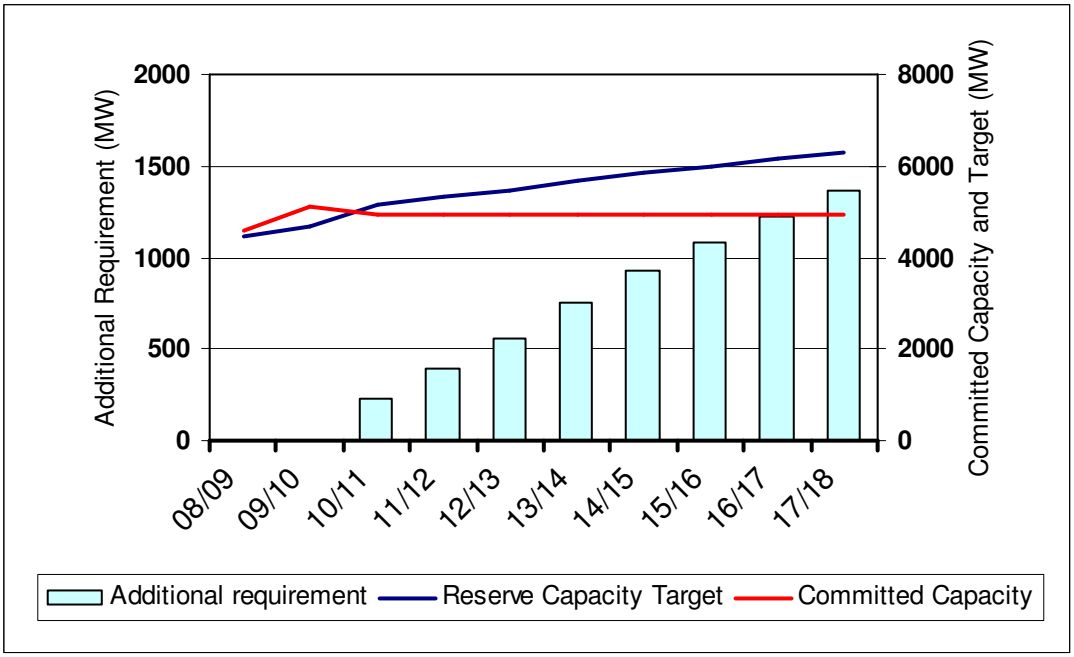
The following figure illustrates the expected status of capacity in the SWIS in the 2010/11 Reserve Capacity Year.

Forecast Reserve Capacity Status for 2010/11



Supply Demand Balance

The figure below shows the supply-demand balance over the period 2008/09 through to 2017/18.



Key points to note from this figure are:

- Sufficient Capacity Credits have been procured to meet the Reserve Capacity Requirement during 2008/09 and 2009/10.
- Additional Capacity Credits will be needed to meet the Reserve Capacity Target from 2010/11 onwards.
- By 2017/18 the capacity requirement is forecast to be 6,288 MW.

This figure illustrates the substantial opportunity for investment in generation and DSM capacity in Western Australia with approximately 1,500 MW of new capacity being required over the coming decade to meet load growth. This represents an excellent opportunity for new and existing investors in the Wholesale Electricity Market.

The Reserve Capacity Mechanism Process

All parties offering a generation or a DSM facility as Reserve Capacity must register with the IMO as a Market Participant and register their facilities. Market Participants must then apply for their facilities to be certified and apply to be assigned Capacity Credits.

Certification is required for all new and existing facilities. Applications for Certification of Reserve Capacity of generation and DSM capacity for the 2010/11 Reserve Capacity Year are now open.

Assignment of Capacity Credits is a two-stage process:

- In Stage 1, Capacity Credits are first assigned to those Market Participants that indicate their intention to trade their Capacity Credits bilaterally.

- In Stage 2, if sufficient Capacity Credits are not secured through this first stage, the IMO will call a reserve Capacity Auction to secure the balance.

Next Steps

The next steps in the Reserve Capacity Mechanism for the 2008 Reserve Capacity Cycle are:

- Applications for Certification of Reserve Capacity must be provided to the IMO by 5:00 PM WST on Friday, 18 July 2008.

- Market Participants whose facilities are granted Certified Reserve Capacity must then apply for Capacity Credits, indicating whether they intend to trade capacity bilaterally or whether they wish to offer the Certified Reserve Capacity into a Reserve Capacity Auction (if one is required). This process must be completed by 5:00 PM on Friday, 8 August 2008.

- On Monday 11 August 2008, the IMO will advise Market Participants who have indicated their intention to trade their capacity bilaterally how many Capacity Credits have been assigned to their Facilities.

- By 5:00 PM on Monday 18 August 2008, the IMO will advise whether sufficient capacity has been secured through bilateral trades. If the Reserve Capacity Requirement has been met, no Reserve Capacity Auction will be held. If sufficient capacity has not been secured through bilateral trades, the IMO will also advise that it will run a Reserve Capacity Auction to secure the outstanding quantity.

- If a Reserve Capacity Auction is required, Market Participants must provide their offers between Wednesday 20 August and Friday 29 August 2008. The IMO would run the Reserve Capacity Auction on Monday 1 September 2008.

The recent gas supply situation has focused attention on ensuring that appropriate fuel supply arrangements are in place for all facilities. This year, all Market Participants will be required to provide full details of their fuel supply and transport contract arrangements as part of the certification process.

The IMO acknowledges that fuel supply arrangements are complex and may comprise a portfolio of supply contracts. Market Participants should prepare a presentation for the IMO clearly explaining their fuel supply and transport arrangements.

Further information on these processes is available on the IMO website at http://www.imowa.com.au. Parties planning to participate in these processes should brief themselves fully on the requirements of the relevant Market Rules and Market Procedures.

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1. Introduction

Western Australia (WA) continues to experience strong economic growth underpinned by a second round of resource infrastructure development. The main focus of these developments have been on natural gas and iron ore projects but nickel, gold, bauxite and other resource developments are supporting growth within the state.

Investors are making major investment in power generation capability within the SWIS as shown in Table 1 below. Over the past year, plans have been announced for further conventional generation in the metropolitan, south west and the mid-west regions. At the same time Commonwealth and State Government measures to encourage renewable generation are stimulating proposals for windfarm projects.

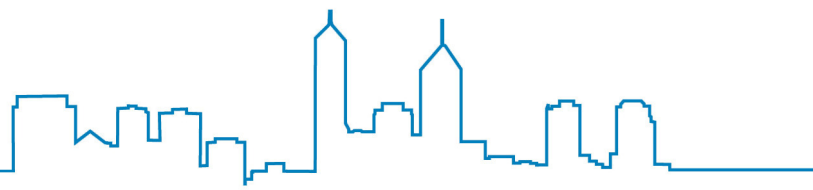
Western Power has also announced its commitment to the construction of new transmission works during the next two financial years that will support new generation projects.

Table 1 – Major Actual and Proposed Private Generation Projects

Project	Fuel	Capacity
Alinta Pinjarra Cogeneration	Gas	258 MW
Alinta Wagerup Gas Turbines	Gas/Liquids	351 MW
Alinta Wind Farm	Wind	89 MW
Coolimba Power	Coal	400 MW
Emu Downs Wind Farm	Wind	79 MW
Eneabba Energy	Gas	168 MW
Griffin Badgingarra Wind farm	Wind	130 MW
Griffin Bluewaters Power Station units 1 & 2	Coal	408 MW
Griffin North Peak Power Station	Gas	330 MW
NewGen Kwinana	Gas	320 MW
NewGen Neerabup	Gas	330 MW
Perth Energy	Gas/Liquids	120 MW
WA Biomass	Biomass	40 MW

In previous years, transport restrictions on the Dampier to Bunbury Pipeline have limited the potential for new gas-fired generation. These have now largely been overcome with completion of Stage 5B expansion, and plans for further looping. However, the potential for new gas-fired generation is currently limited by restrictions in supplies of new gas. The price of gas has also increased dramatically.

This Statement of Opportunities Report (SOO) is published to provide information to parties considering participation in the Reserve Capacity element of the Wholesale Electricity Market (WEM). It also provides electricity demand and consumption information for Market Participants and other interested parties. As such, the SOO is a key step in the Reserve Capacity Mechanism, a series of processes through which the Independent Market Operator (IMO) identifies the requirement for future generation and demand side management (DSM) capacity and facilitates the introduction of this capacity onto the SWIS.



This year's SOO provides updated expectations on capacity available on the SWIS from that provided in the 2007 SOO and in the Summary of Expressions of Interest published in March 2008. Forecasts of key economic parameters, along with energy consumption and demand forecasts, are provided for the LT PASA Study Horizon, which extends to 2017/18.

This year's SOO provides additional analysis on the current economic environment. It also includes a system load profile, typical load duration curves and forecasts of the winter peak demand.

2. Electricity Generation and Consumption in the SWIS

This section of the SOO provides information on electricity generation and consumption characteristics within the SWIS. Historically, electrical output from power stations has been measured at two distinct points:

- At the generator terminals (which is a measure of the gross production level).
- At the point where the electricity is sent out from the power station (the net amount of electricity exported onto the transmission grid).

As the Wholesale Electricity Market uses sent-out capacity quantities, the information provided in the SOO is presented in terms of sent-out capacity expressed in megawatts (MW), unless otherwise specified. Energy production is also presented in sent-out terms and is measured in gigawatt-hours (GWh).

2.1 2007/08 Summer Weather and Maximum Demands

Electricity demand in the SWIS is strongly correlated with the daily temperature in the metropolitan area. Summer maxima can range from mid-20°C to mid-40°C with consequent maximum electricity demands from below 2,000 MW to approaching 3,500 MW. The highest maximum demands are normally recorded when there is a sequence of hot days with high overnight temperatures.

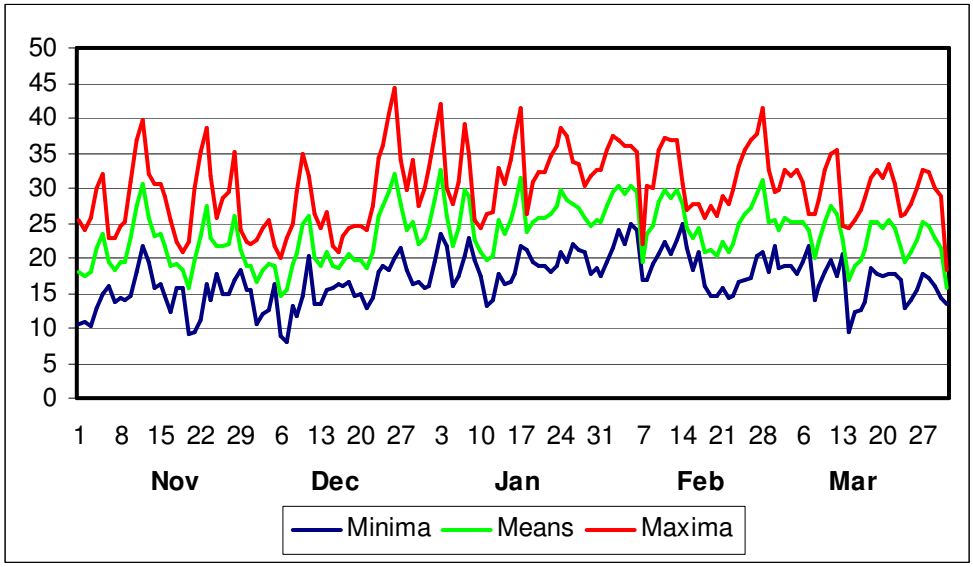
The reserve capacity target is based on meeting a maximum demand that has a probability of occurring only one year in ten.

The Hot Season for the SWIS is defined as the months of December through March. The highest maximum demands are expected between mid-January and mid-March. The maximum demand on any particular day also depends on whether hot weather events occur on a business day, when demand is naturally higher than on a weekend or public holiday.

In 2007, Perth experienced unseasonable hot weather in November with 12 days recording maximum temperatures in excess of 30°C. The temperatures were significantly lower than average in December with both the daily maxima and minima being below average. Higher temperatures occurred during January and February before average conditions returned through March. Figure 1 shows the maximum, minimum and mean Perth temperatures from November 2007 through March 2008 as published by the Bureau of Meteorology.

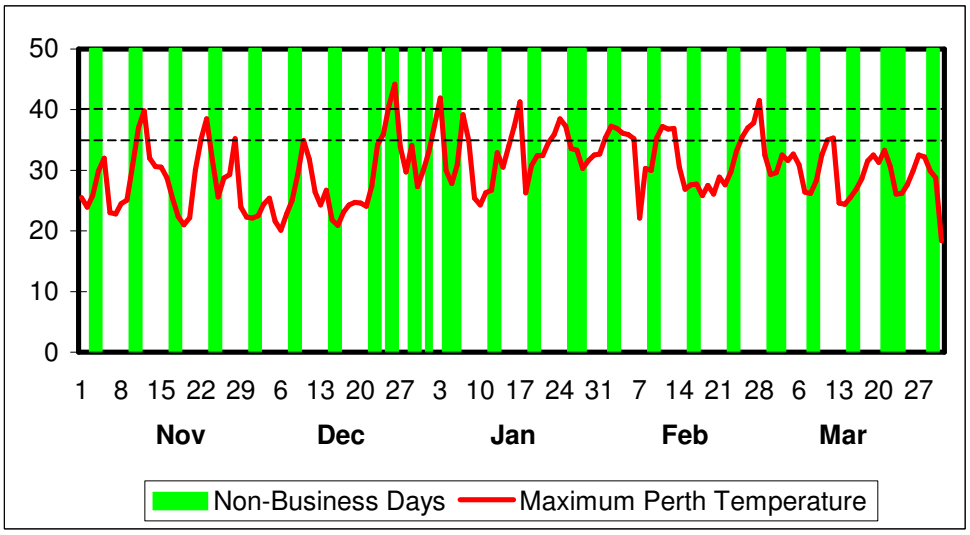
Figure 1 – Perth Temperatures November 2007 to March 2008

(source: Bureau of Meteorology)



In addition to the high temperature spikes in November, when a maximum of 39.8°C was recorded in Perth, there were four occasions when the temperature exceeded 40°C. However, there were no long sequences of high temperature days and, as shown in Figure 2, some of the high temperatures in December and January occurred on non-business days or adjacent to them. Mean temperatures through this period were modest.

Figure 2 – Maximum Perth Temperature on Business and Non-Business Days



The highest Hot Season temperature, 44.2°C, was recorded on Boxing Day which followed 40.7°C on Christmas Day. These high temperatures were not maintained and because these

days were public holidays the maximum demand peaked at under 2,800 MW. On January 17 the temperature reached 41.3°C and maximum demand peaked at 3,366 MW. However, the following day was much cooler with a maximum of 26.3°C and the peak demand only reached 2,519 MW.

A sequence of hot days occurred at the end of February, as shown in Table 2, which led to increasing high peak demands and a summer maximum demand of 3,392 MW on February 28.

Table 2 – Maximum Temperatures and Maximum Demand

February 26 through March 1, 2008

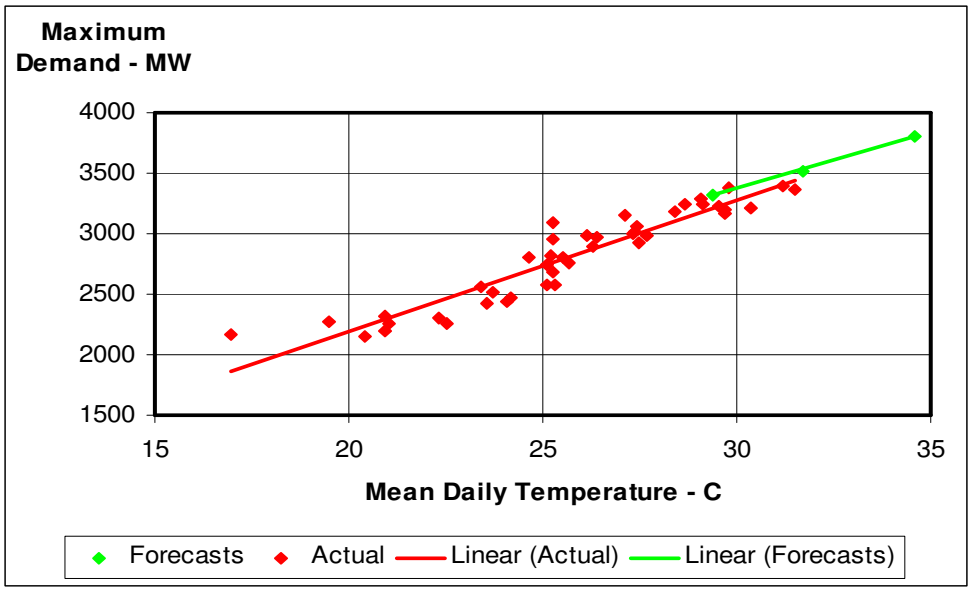
Date	Day of Week	Maximum Temperature	Mean Temperature	Maximum Demand
February 26	Tuesday	37.0°C	27.1°C	3,154 MW
February 27	Wednesday	37.4°C	29.1°C	3,290 MW
February 28	Thursday	41.5°C	31.2°C	3,392 MW
February 29	Friday	32.5°C	25.3°C	3,096 MW

It can be seen that the demand rose sharply from February 26 to February 27 as the mean daily temperature rose. The demand remained high despite the lower temperature on the Friday.

To assess whether the actual maximum demands are consistent with the forecasts provided in the 2007 SOO, a graph showing the correlation between the mean temperature and the maximum demand for each day is provided as Figure 3. Data is shown for the period of January 14 through to March 14 corresponding to the period when the highest maximum demands are expected.

Figure 3 – Correlation of Mean Temperature and Maximum Demand

14 January 2008 to 14 March 2008



The red points show the actual mean temperatures versus the daily maximum demands recorded on the 43 Business Days in this period. The red line shows a line of best fit through the data. The three points shown in green are the three forecast maximum demands, and associated mean daily temperatures corresponding to the 10%, 50% and 90% Probability of Exceedance maximum demand forecasts from the 2007 SOO.

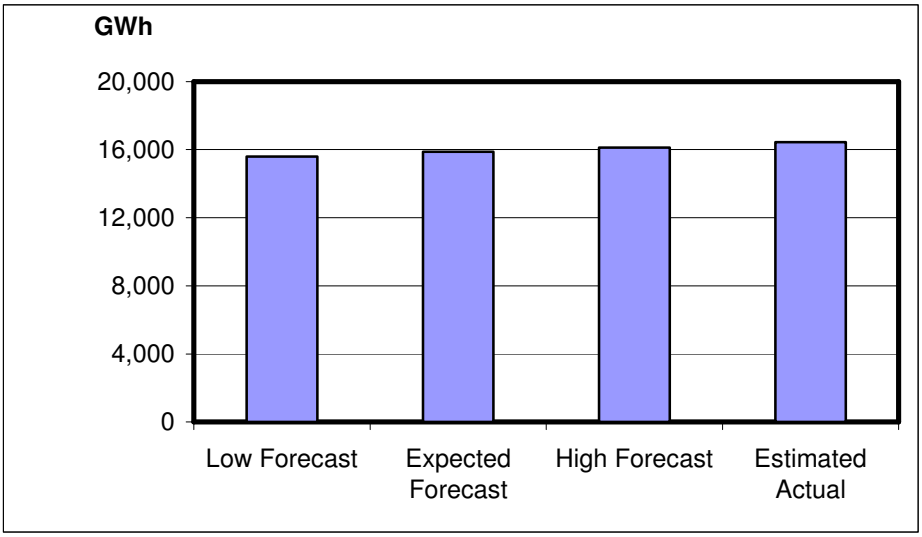
This graph shows that the forecast maximum demand provided in the 2007 SOO is well represented by actual data.

2.2 Actual Sent-Out Energy

Figure 4 compares the forecast energy, from the 2007 SOO, with the actual energy for the Expected, Low and High economic growth cases, provided in the 2007 SOO and compares this with the estimated consumption of 16,441 GWh for the 2007/08 financial year (comprised of nine months actual data plus three months forecast to the end of June 2008).

The actual energy is above the forecasts provided in the 2007 SOO. One of the factors which has led to this difference is the much higher level of economic activity than was forecast. A second key factor was the relatively high temperatures experienced in 2007/08. These two factors, plus the one additional day due to 2008 being a leap year, led to the actual energy sent out being approximately 2% above the high economic forecast case and 3.5% above the expected forecast.

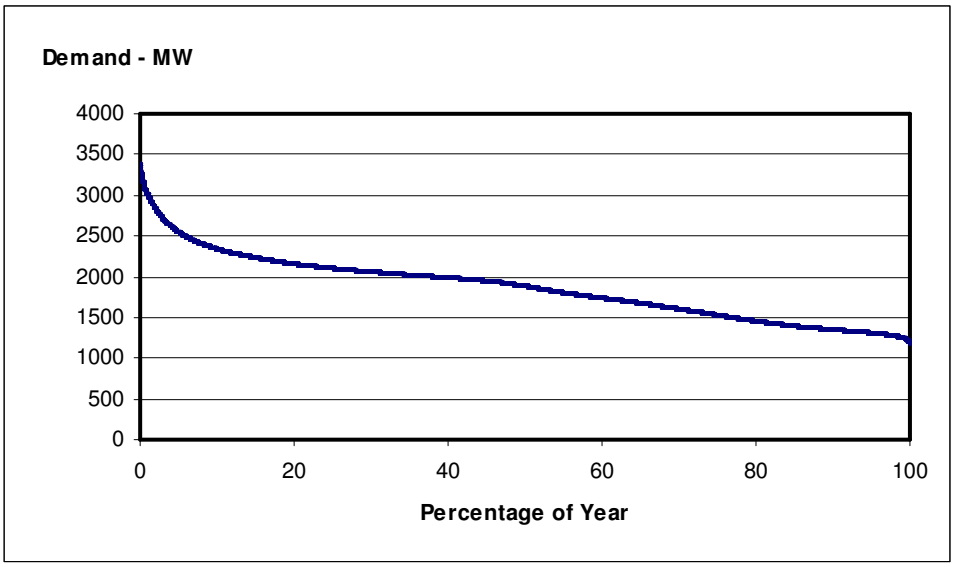
Figure 4 – Comparison of Actual and Forecast Sent-Out Energy



2.3 SWIS Load Duration Curve

Figure 5 shows the load duration curve for the period from April 2007 through to March 2008.

Figure 5 – Load Duration Curve April 2007 to March 2008



The most significant factors shown in this figure are that:

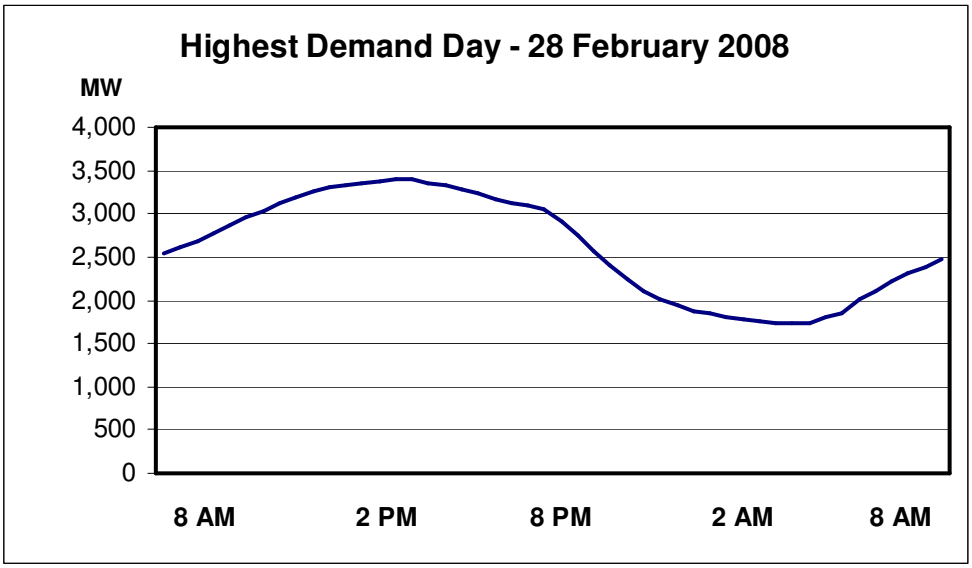
- The load exceeded 90% of the annual maximum, ie 3,053 MW, for less than one per cent of the year (132 trading intervals).
- The load exceeded 80% of the annual maximum, ie 2,714 MW, for only 3% of the year (517 trading intervals).
- The mean load over the year was 1,862 MW, which is 55% of the maximum demand.
- The minimum load was 1,186 MW at 4:00 AM on 14 October 2007.

2.4 Typical SWIS Daily Load Shape

Electricity demand varies substantially through each day with overnight loads being markedly lower than day time demand. Figure 6 illustrates the level of demand in each trading interval on 28 February 2008, the day of highest maximum demand. Appendix 6 includes further daily load curves covering:

- The four highest demand days which are used to set the Initial Reserve Capacity Requirement.
- The winter day with the highest maximum demand.
- Typical autumn and spring days.

Figure 6 –Daily Load Curve



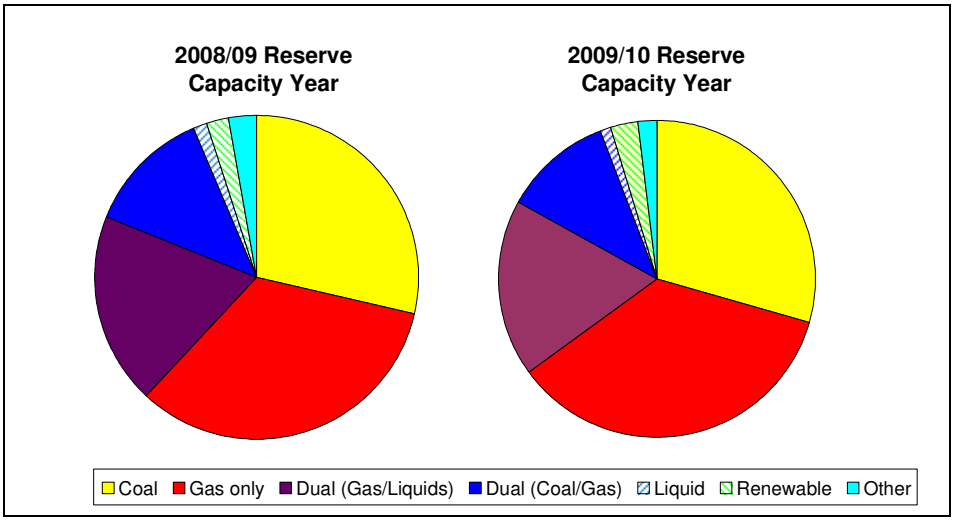
2.5 Information on Market Generators

2.5.1 Capacity Credits by Fuel Type

Figure 7 illustrates the proportion of Capacity Credits provided by generators using each fuel type in the 2008/09 and 2009/10 Reserve Capacity Years:

- Approximately 34% of generating plant in the SWIS uses natural gas as its primary fuel.
- A further 20% of plant is able to operate on both gas and liquid fuels.
- Approximately 40% of capacity uses coal.
- Approximately 6% of capacity is driven by wind and other renewable sources.

Figure 7 - Capacity Credits by Fuel Type



This figure shows that the proportions will remain relatively constant between 2008/09 and 2009/10. It should be noted, however, that the proportion of energy provided from these different fuels varies due to the different roles undertaken by the different plants with coal-fired plant operating primarily at base load and most gas-fired plant operating in mid-merit and peaking roles.

2.5.2 Capacity Credits by Market Participant

Figure 8 shows the Capacity Credits assigned to Market Participants as a percentage of the total number assigned in the SWIS for the 2008/09 and 2009/10 Reserve Capacity Years.

Figure 8 - Capacity Credits by Market Participant

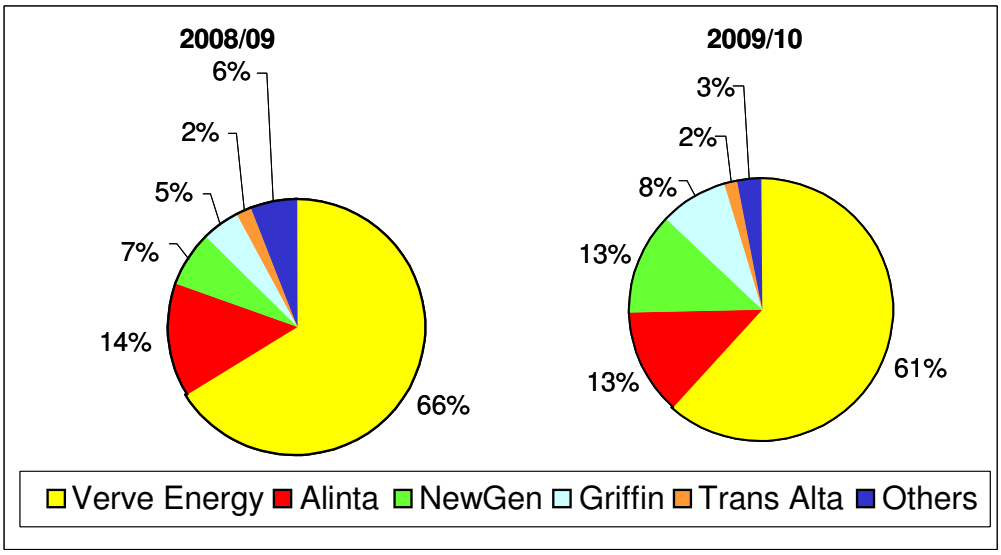


Figure 8 illustrates the continuing decrease in the relative share of the capacity market held by Verve Energy as a result of the capacity cap placed on it by Government. In 2009/10, Verve Energy will hold 61% of Capacity Credits and it is anticipated that this share will decrease over time as older Verve Energy plant is retired and new private capacity is put into place.

The capacities of each generation Registered Facility and each generation project under construction are provided in Appendix 7. Further information on the capacity of plant registered to Market Participants is available on the IMO website.

3. Economic Environment

3.1 Background

The level of economic activity has both a general and specific impact on the maximum demand for, and consumption of, electricity. Buoyant economic conditions encourage the purchase of discretionary items such as air conditioning and plasma TVs. Construction of new dwellings is strongly correlated with the strength of the economy. This leads directly to the purchase and usage of electrical appliances and demand for basic materials.

At present, the economy in WA is being driven by the development of new infrastructure to support resource extraction and export. An initial round of developments is coming to completion. Projects such as the Fortescue Metals Group iron ore operations and LNG Train 5 are well developed and moving into operational phases. A second round is now commencing with further gas, iron ore and other mineral developments receiving approval.

Many of these developments are occurring in regional areas but there are a number of projects within the SWIS scheduled to commence operation in 2010/11, subject to transmission upgrades being completed. These include iron ore developments that have substantial power needs for processing and, in some cases, for ore transport.

Developments in areas outside of the SWIS can also have a significant impact on SWIS electricity demand because:

- Much of the design, procurement and management support is provided by personnel based within the Perth metropolitan area.
- Much of the fly-in/fly-out workforce resides in the SWIS.
- Substantial quantities of basic materials and equipment are sourced from within the SWIS.
- This economic activity has encouraged overseas migration to WA.

The electricity forecasts used by the IMO are provided by the National Institute of Economic and Industry Research (NIEIR or National Economics). NIEIR's approach includes a top-down consideration of the Australian economy from which forecasts are developed for Western Australia and the region served by the SWIS. These economic forecasts, combined with historic electricity demand data and projections of air conditioning demand, are major determinants of the final electricity forecasts.

The forecasts included in this report show an increase in the economic growth rates compared with those in the 2007 SOO. These increases in economic growth flow though to an increase in the forecast growth rate for electricity demand and consumption. This chapter therefore includes discussion on changes in economic outlook which have occurred since that report was published. A comparison is also provided between NIEIR's forecasts and a number of other publicly available forecasts.

3.2 Economic Outlook

The key economic forecast data provided by NIEIR is shown in Table 3.

Table 3 – Key Economic Forecasts

(All figures are financial year percentage growth)

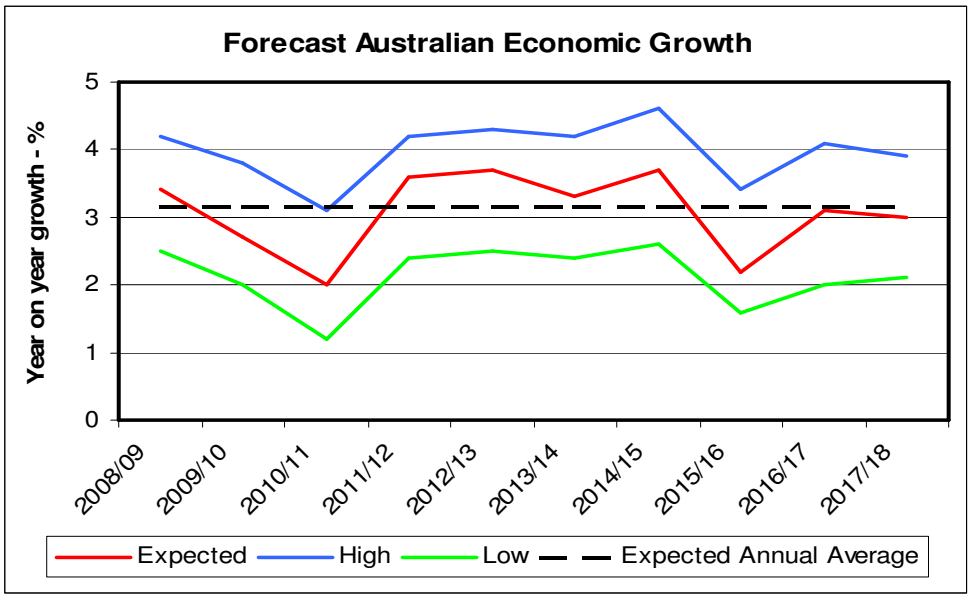
	07/08 expected	08/09 forecast	09/10 forecast	10/11 forecast
Australia Gross Domestic Product	3.8	3.4	2.7	2.0
WA Gross State Product	6.4	6.4	5.5	3.8
WA Dwelling Commencements	9.4	0.5	3.0	10.2
WA Population	2.2	2.1	2.1	1.9
WA Employment	4.6	4.1	3.7	3.0

In summary, the figures above indicate strong economic growth within the state with the Gross State Product (GSP) growing at an average of 5.9% (compounded) employment growth remain steady. The one area of volatility is in housing where NIEIR forecasts dwelling commencements to grow by only 0.5% in 2008/09 though this follows a high growth rate in 2007/08.

As the table shows, NIEIR expects the Australian economic growth rate, as measured by the Gross Domestic Product (GDP), will fall from 3.8% in 2007/08 to 2.0% in 2010/11. Figure 9 shows the forecasts of growth, measured by GDP and GSP, through to 2017/18 for the Expected, High and Low growth cases.

NIEIR forecasts that Australia's annual average economic growth over the period to 2017/18 will be close to 3% (compounded) while Western Australia is expected to grow much faster at close to 5% per year over the same period.

Figure 9 – Forecast Australian and Western Australian Economic Growth



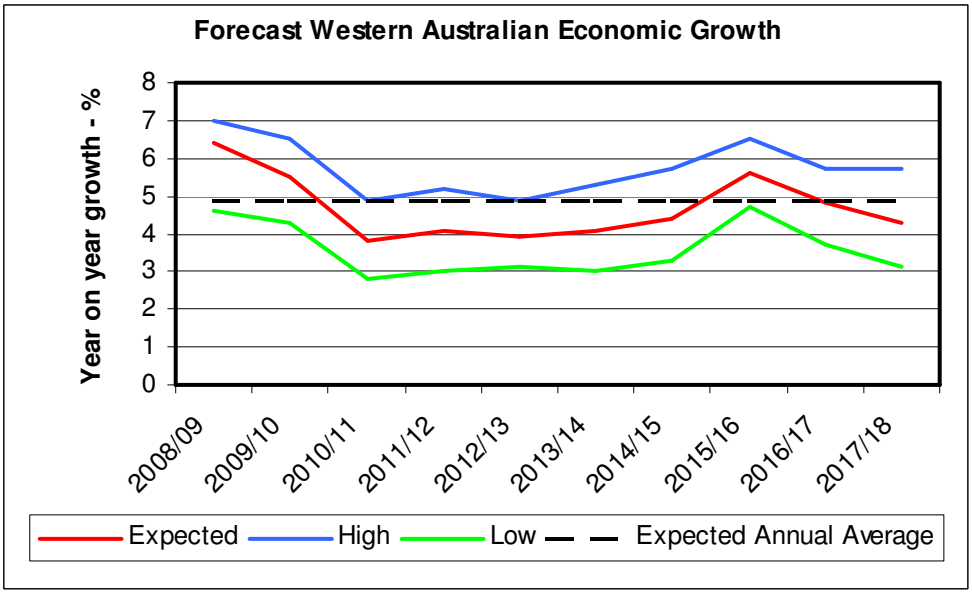
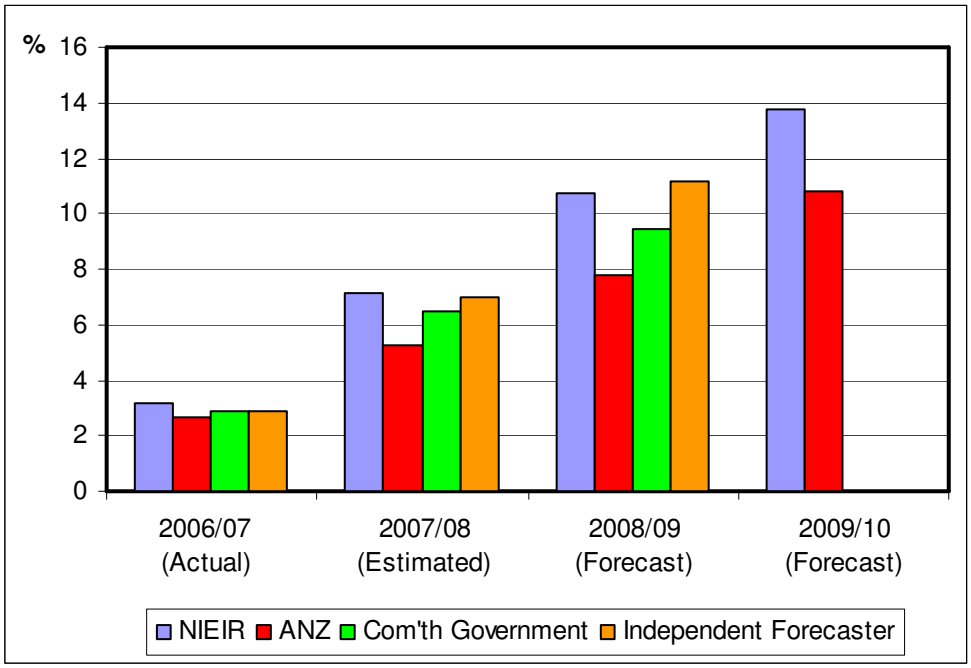


Figure 10 compares NIEIR's forecasts with those of three other organisations:

- The Commonwealth Government Budget Papers.
- The ANZ Economic Outlook.
- A major independent forecaster.

These comparisons are presented on a compounded basis to smooth out the variations that occur from year to year. Due to copyright restrictions, the IMO is unable to provide details on independent forecasting agency used below.

Figure 10 – Compound Australian Economic Growth

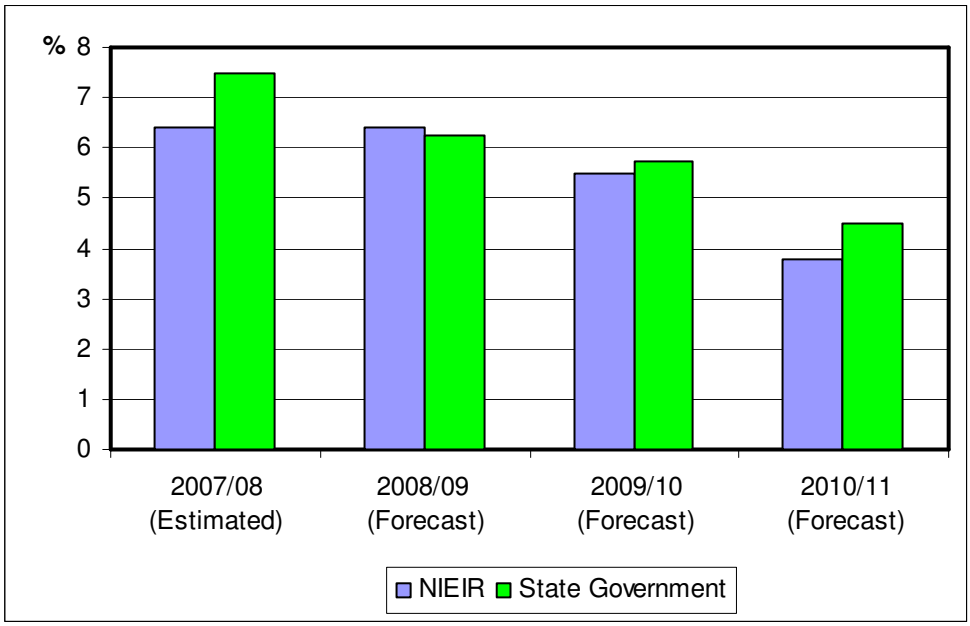


NIEIR's forecasts are generally at the higher end of the spectrum of all forecasts but do not differ significantly from those analysed.

Similarly, the forecasts of Western Australian Gross State Product (GSP) over this time period closely reflect those published by the WA Department of Treasury and Finance (DTF) in the May 2008 budget papers. Figure 11 shows the annual forecasts through to 2010/11. DTF forecasts average growth over the period to 2010/11 at 8.1% compared to NIEIR's forecast growth rate of 7.4%.

Both NIEIR and DTF forecast a substantial slow down in the number of new dwelling construction commencements over 2008/09 and 2009/10 along with a gradual reduction in the growth rates of employment within Western Australia.

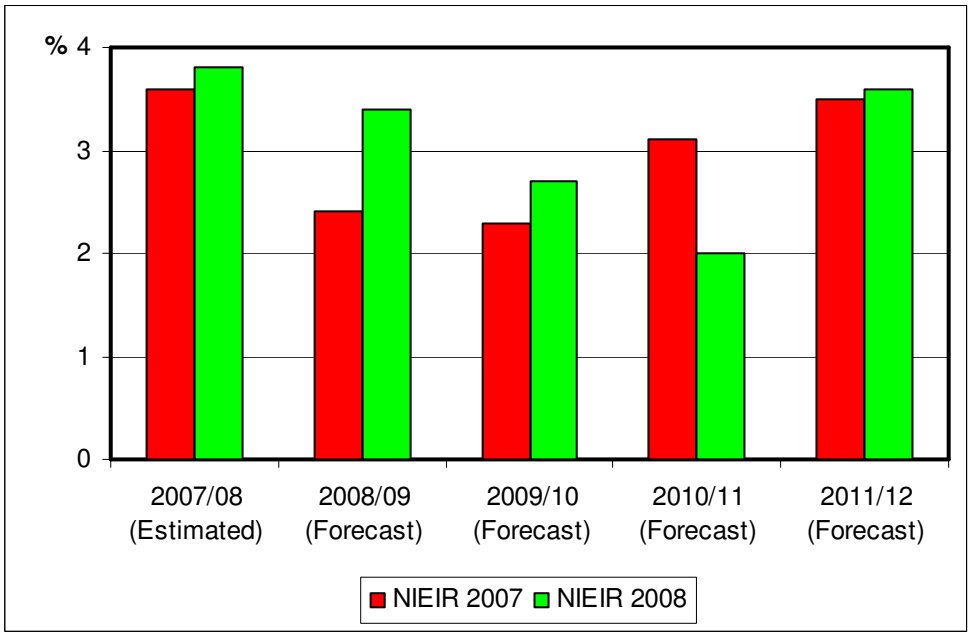
Figure 11 – Comparison of WA Economic Growth Forecasts



3.3 Comparison NIEIR's Previous Economic Forecasts

Figure 12 shows that NIEIR's 2008 forecasts for Australian GDP have a more positive expectation of GDP growth in the short to medium term than those published in 2007. The effect of this adjustment is a more gradual down-turn extending between 2007/08 and 2010/11, rather than a substantial correction forecast previously for 2008/09.

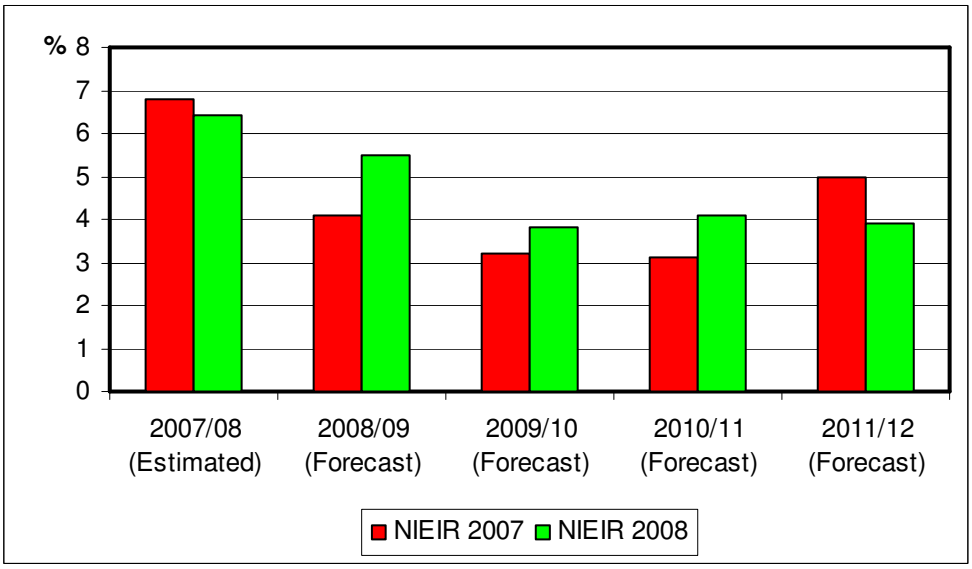
Figure 12 – Comparison of 2007 and 2008 Australian Economic Growth Forecasts



Note that in Figures 12 and 13 the 2007/08 forecast prepared in 2008 is an expected figure based on nine months actual data.

The forecast for Western Australian GSP in Figure 13 shows a similar trend with a reduction in growth to 2009/10 followed by stabilisation through to 2011/12. This compares with the 2007 forecast of a more rapid slow down and recovery cycle.

Figure 13 – Comparison of 2007 and 2008 WA Economic Growth Forecasts



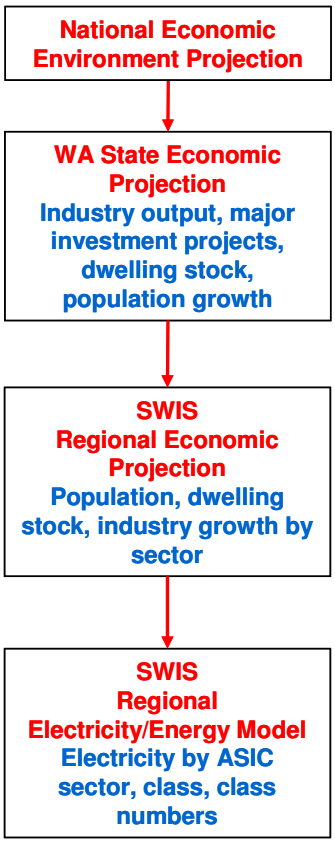
4. Forecasts

4.1 Forecasting Methodology

Most of the forecast preparation for this SOO has been undertaken by the NIEIR on behalf of the IMO. NIEIR prepare forecasts of economic activity, electricity consumption and maximum demand for many of the electricity jurisdictions within Australia. For the SWIS, NIEIR has prepared forecasts for the past six years, initially for Western Power Corporation, and subsequently for the IMO's SOO.

The forecasting process used by NIEIR is comprised of a number of different econometric forecasting modules. Figure 14 shows the relationships between the major components of NIEIR's integrated energy modelling systems.

Figure 14 - NIEIR Energy and Electricity Forecasting Systems



The core tool used by NIEIR is its national econometric model of the Australian economy. This provides projections of national economic growth using inputs from various statistical sources including the Australian Bureau of Statistics and the Australian Taxation Office.

The national economic projections are used as input into a state economic projection model which provides an estimate of Gross State Product and other indicators. The State model is then further disaggregated into the statistical subdivisions that make up the region served by the SWIS.

The economic forecasts of the SWIS include projections of population growth, dwelling stock composition and industry growth by sector. This portion of the forecasting system then links the SWIS regional economic forecast with electricity use based on assumptions about appliance penetration and efficiency, weather conditions and separate forecasts of major industrial loads.

The IMO publishes two sets of forecasts each year within the SOO. These forecasts cover:

- The maximum demand, which is the measure of the highest level of power consumption at any point in time over the year. This is measured in MW.

- Electricity consumption which is the amount of energy sent-out and consumed within the SWIS over a financial year. This is measured in GWh over the full year.

Electricity consumption is driven, to a large extent, by underlying economic-based drivers. Maximum demand, while also partially dependent on economic growth, is highly correlated with ambient temperatures.

Because summer maximum demands are so strongly influenced by the ambient temperature, a number of forecasts are prepared for the IMO. Each group of forecasts is based on three sets of temperature conditions:

- The 10th percentile temperature condition which is expected to be exceeded only once in every ten years. (Termed the 10% Probability of Exceedance or 10% POE).

- The 50th percentile temperature condition which is expected to be exceeded once in every two years. (Termed the 50% Probability of Exceedance or 50% POE).

- The 90th percentile temperature condition which is expected to be exceeded nine times in every ten years. (Termed the 90% Probability of Exceedance or 90% POE).

The 10th, 50th and 90th POE temperature conditions have been determined by analysis of historic weather data. Mean daily temperatures (the arithmetic mean of the daily maximum and daily minimum temperature) are the metrics used and for the Perth metropolitan region, temperatures of 34.9°C, 29.4°C and 27.1°C correspond to the 10th, 50th and 90th POE temperature conditions respectively.

The expected level of economic activity in the State, and in the SWIS region also strongly influences the maximum demand and the amount of electricity consumption.

4.2 New Major Loads

The most significant change in the forecasts from those published in 2007 is the expected increase in demand from new major loads. If the impact of new major loads is excluded, the

average growth in electricity demand is forecast to be 3.3% per year over the period to 2017/18. The introduction of Boddington Gold Mine in late 2008 will represent a 3% increase in the maximum demand forecast demand for this one year. So the introduction of this one significant load accounts for almost 50% of the total load growth in one year. Furthermore, loads of this nature typically operate continuously, which results in significant impacts on electricity consumption forecasts.

The dramatic increase in demand for iron ore, and the associated price rises, has stimulated a number of proposals for mining developments within the SWIS. Much of the iron ore to be mined is magnetite which requires high levels of mechanical crushing for magnetic separation. The expected electrical demand for this processing is very high. In addition to high process-driven electrical demand, at least one of the projects plans to transport its product for export through a slurry pipeline.

To make an assessment of the magnitude of expected demand, and the likelihood that various projects will proceed, the IMO enters into discussions with developers of these major projects. However, it is not possible to definitively predict maximum demand that may eventuate from proposed projects and the dates from which demand is likely to occur. Timing uncertainty results from:

- Decisions associated with the actual development of the proposed mining operations; and
- The timing for the provision of support infrastructure, in particular new transmission lines and associated facilities.

Because of the small number of potential new loads it is not possible to use a probabilistic approach to forecasting demand in these circumstances. For the purposes of developing its load forecasts, the IMO has therefore assumed that:

- The start-up dates and ramp profiles provided by developers will be adhered to.
- The necessary transmission facilities, and other support infrastructure, will be developed to the current nominated timetables.

Generally, the IMO considers 20 MW to be minimum threshold for new major loads. It is also acknowledged some of these projects depend on timely construction of transmission upgrades.

To respect the confidentiality of some of the information received by the IMO, it is not possible to list all potential new major loads. Two of the potential new major loads that can be identified are the:

- Extension Hill Magnetite Project.
- Southern Seawater Desalination Plant.

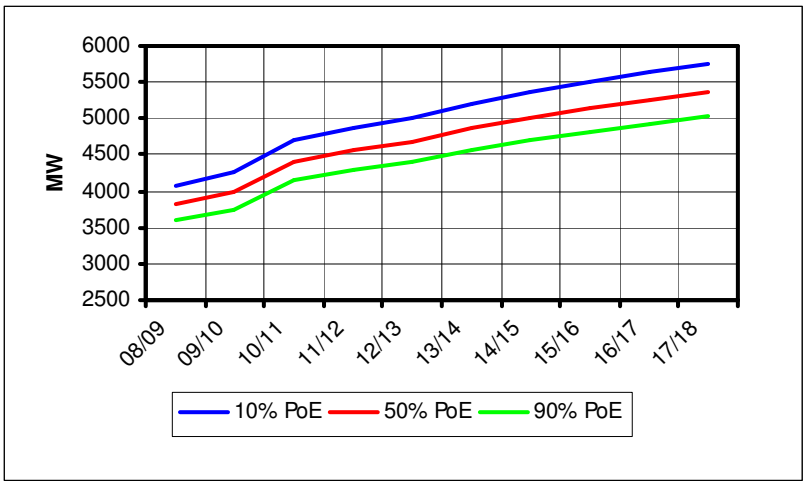
The total capacity of all new loads that are expected to commission during 2010/11 is 285 MW. This is in addition to that of the Boddington Gold Mine, which is expected to commission during 2008/09.

A key feature of these proposed new major loads is that, unlike the Boddington Gold Mine, they are not as yet associated with specific new generation capacity.

4.3 Maximum Demand Forecast

Figure 15 shows the forecast SWIS maximum demand for each year in the period to 2017/18. This figure shows the maximum demands for the 10% POE, 50% POE and 90% POE provided by NIEIR. These forecasts are based on expected economic growth conditions and include the demand from the Boddington Gold Mine, those mentioned in section 4.2 and other new major loads identified by the IMO.

Figure 15 - Forecast Maximum Demand - Expected Economic Growth



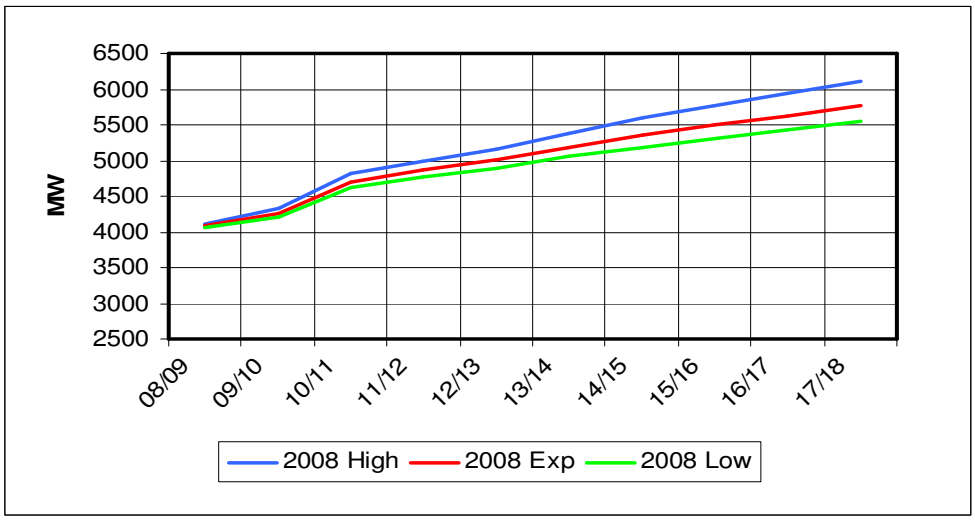
The maximum demand is forecast to increase at an annual compound growth rate of 3.9% over the 10-year period to 2017/18. In the two years that are the main focus of this report, 2010/11 and 2011/12, the maximum demand is forecast to increase to 4,704 MW in to 4,860 MW respectively. These figures are tabulated in Appendix 2.

New major loads have a very strong impact on the rate of growth. If these loads are excluded, the increase in the maximum demand is forecast to be approximately 3.3% per annum. This is slightly higher than the figure forecast in the 2007 SOO.

The sensitivity of temperature on maximum demand can be seen in the differences between the POE values in Figure 15. For the 2010/11 Reserve Capacity Year, if average (50% POE) temperature conditions are experienced, the maximum demand is forecast to be 6% lower (approximately 300 MW) than the 10% POE forecast. Similarly, if the system maximum demand is experienced on a cooler than average day (eg. 90% POE), the maximum demand is forecast to be approximately 11% lower (540 MW) than the 10% POE scenario.

The effect of the assumptions about state economic growth (as forecast by GSP), which underpin the maximum demand forecasts, is shown in Figure 16. The 10% POE forecasts for the Expected, High and Low economic growth scenarios are shown.

Figure 16- Impact of Economic Growth on Maximum Demand for the 10% POE Forecast



Sensitivity analysis of the economic assumptions on maximum demand shows that if conditions similar to the High economic case are experienced up to 2010/11, the maximum demand is forecast to be approximately 100 MW (~2.2%) higher than for the Expected case. Should economic growth be aligned with the Low scenario, the 10% POE maximum demand forecast would be approximately 75 MW lower.

The maximum demand and electricity consumption forecasts used to determine Reserve Capacity Target is based on Expected economic growth conditions. The forecast outcomes associated with Higher or Lower economic growth conditions are provided as a guide to the variability in outcomes that could be expected.

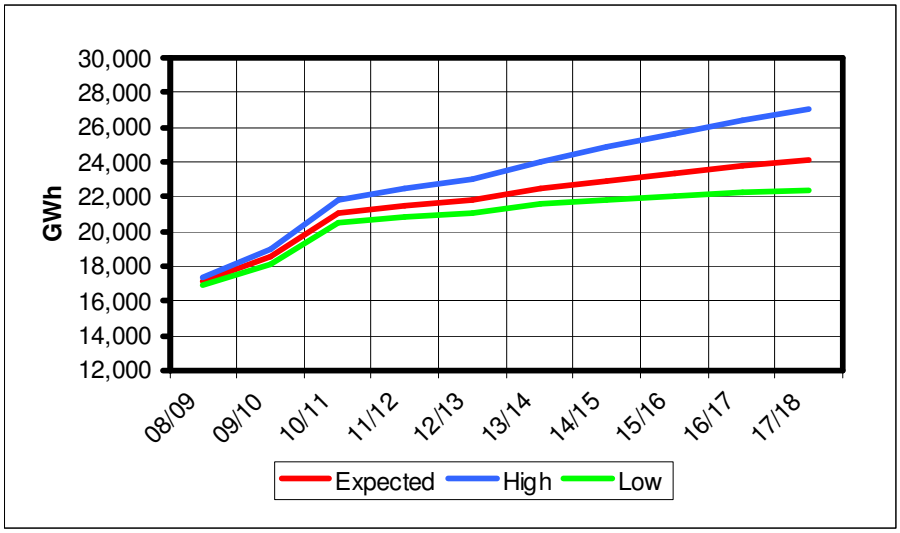
4.4 Energy Forecast

Figure 17 presents the energy consumption forecasts for the SWIS over the LTPASA Study Horizon to 2017/18. Over this period, energy consumption is forecast to grow by approximately 3.9% on average per annum. The impact of new major loads on energy consumption is substantially higher than on peak demand. Without these new major loads, the forecast energy growth would have been 2.2%.

Under the High economic growth scenario, the growth in energy consumption is forecast to be 5.1%, while in the Low economic growth scenario energy consumption is forecast to increase at 3.2% per annum on average.

When the impact of new major loads is excluded, these growth rates are essentially unchanged from the 2007 forecasts.

Figure 17 - Forecast Sent-Out Energy



The expected energy requirements of the SWIS in 2010/11 are forecast to be 21,066 GWh. This represents an increase of approximately 16% over the energy forecast in the 2007 SOO and is largely due to the new major loads that have been included. The energy forecasts can be found in Appendix 4.

4.5 Differences Between the 2007 and 2008 Forecasts

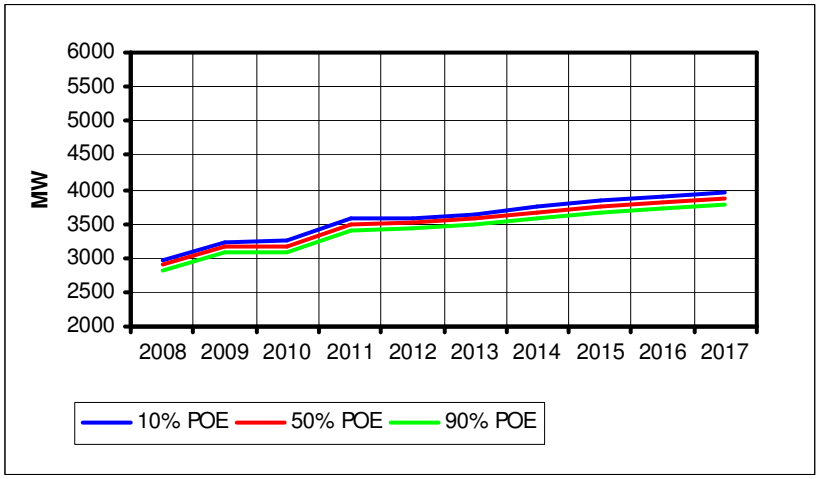
Previously, there have been significant step changes in the maximum demand forecasts from year to year. During 2007/08, the IMO retained Frontier Economics to undertake a review of the forecasting processes utilised by NIEIR. Frontier concluded that a significant proportion of NIEIR's forecasting practices are best practice but did also provide a number of recommendations for improvement.

The 2008 SOO forecasts for maximum demand in 2008/09 exhibit little change from the 2007 SOO. The forecasts increase over time as a result of the higher economic growth expectations together with large increases in demand from new major loads.

4.6 Winter Maximum Demand Forecasts

Figure 18 shows the maximum demands forecast for winter periods during the LTPASA Study Horizon.

Figure 18 – Winter Maximum Demands



Winter peak demand is strongly influenced by the requirement for heating. However, electricity competes directly with gas and other energy sources in this sector so only supplies a portion of total demand. Electricity demand for winter heating is substantially lower than the demand for summer cooling, which generally does not have alternative fuel sources, so the winter maximum demand is much lower than the summer maximum.

Because the total demand is lower, the contribution from base industrial and commercial loads during the winter is proportionately higher than in summer. This means that the variability due to changes in ambient temperature is also substantially lower than in summer.

Residential and commercial lighting is a significant component of the maximum demand. These, coupled with demand for domestic heating and cooking, mean that the winter peak occurs in the evening, around 6:00 PM.

A number of factors will influence the rate of growth in the winter peak demand including:

- The increased use of reverse cycle air conditioning for domestic heating.
- The decreased use of domestic wood heaters and non-ducted gas heaters.
- Government programs to replace incandescent lights with more energy efficient units.

Currently, the winter peak demand is forecast to grow at an average rate of 2.7% to reach a level of 3,966 MW in 2018. This is 63% of the forecast summer maximum demand.

5. Reserve Capacity Requirements

5.1 Planning Criteria

The IMO is required to set the Reserve Capacity Target for each year at a level which ensures that the Planning Criterion is met. The first is a maximum demand-based criteria, based on meeting load on the day with the highest maximum demand. The second criteria is an energy-based metric to ensure that adequate levels of energy can be supplied throughout the year.

The market rule[1] in respect of the maximum demand criteria was changed during 2007/08 and now requires the Reserve Capacity Target be set so there is sufficient generation and DSM capacity to:

> *"meet the forecast peak demand (including transmission losses and allowing for Intermittent Loads) supplied through the SWIS plus a reserve margin equal to the greater of:*
>
> *i. 8.2% of the forecast peak demand (including transmission losses and allowing for Intermittent Loads); and*
> *ii. the maximum capacity, measured at 41°C, of the largest generating unit;*
>
> *while maintaining the Minimum Frequency Keeping Capacity for normal frequency control. The forecast peak demand should be calculated to a probability level that the forecast would not be expected to be exceeded in more than one year out of ten;"*

The second criteria[2] ensures that sufficient available capacity is procured to meet energy consumption needs and requires that sufficient capacity be provided to:

> *"limit expected energy shortfalls to 0.002% of annual energy consumption (including transmission losses)".*

The Reserve Capacity Target is set at a level which ensures both planning criteria are met, that is, the most stringent criterion will be used to determine the Reserve Capacity Target. The Planning Criterion is limited to the provision of generation and DSM capability and does not include transmission reliability planning.

The capacity required to meet the first criterion is shown in Table 4.

In each year of the LTPASA Study Horizon, 8.2% of the forecast maximum demand is greater than the capacity of the largest generating unit (measured at 41°C). The 8.2% factor therefore sets the level of reserve margin. The Minimum Frequency Keeping Capacity is determined by Western Power and is set at 30 MW in 2008/09 but is increased to 50 MW in subsequent years to accommodate generation fluctuations caused by the large wind farms.

[1] Clause 4.5.9(a) of the Wholesale Electricity Market Rules
[2] Clause 4.5.9(b) of the Wholesale Electricity Market Rules

Table 4 – Capacity Required to Cover Peak Demand Criterion

(All figures in MW)

	Maximum Demand	Reserve Margin	Load Following	Intermittent Loads	Total
2008/09	4,081	335	30	6	4,452
2009/10	4,260	349	50	6	4,666
2010/11	4,704	386	50	6	5,146
2011/12	4,860	398	50	6	5,314
2012/13	5,010	411	50	6	5,477
2013/14	5,192	426	50	6	5,674
2014/15	5,354	439	50	6	5,849
2015/16	5,497	451	50	6	6,004
2016/17	5,631	462	50	6	6,148
2017/18	5,759	472	50	6	6,288

The second planning criterion takes account of the ability of generation facilities to deliver energy throughout the year. The IMO has retained McLennan Magasanik Associates (MMA) to conduct reliability modelling of the SWIS to determine the energy served planning criterion and the availability curve.

The Reserve Capacity Requirement for 2010/11 to meet the energy based planning criterion, as determined by reliability modelling, is 4,934 MW. This is less than the Requirement determined in accordance with the maximum demand planning criterion. The figure of 5,146 MW, as shown in Table 4, is therefore the Reserve Capacity Target for the 2008 Reserve Capacity Cycle.

5.2 Availability Curve

In addition to providing modelling and analysis of the Planning Criterion, MMA also provides advice on the Availability Curve, the determination of which is a formal requirement under the Market Rules. The Availability Curve indicates the maximum amount of DSM that can be introduced into the SWIS before the system is unable to supply all of the energy requirements of users[3].

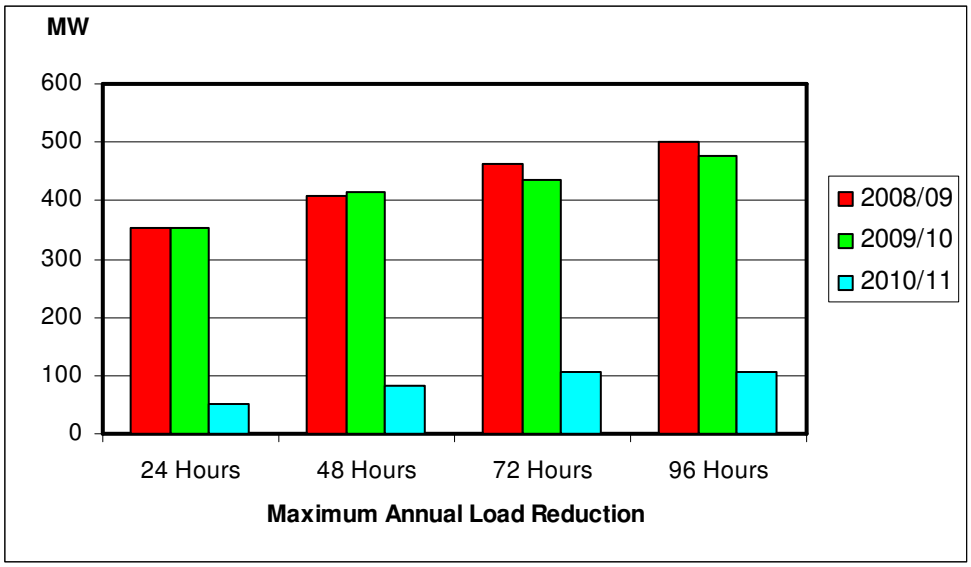
The Availability Curve is reported in discrete blocks, which are aligned with the Availability Classes under the Market Rules. Class 1 covers DSM facilities that can provide capacity for a minimum of 96 hours per year. Classes 2, 3 and 4 cover facilities that are available for a minimum of 72, 48 and 24 hours respectively.

In 2010/11, 5,040 MW of the Reserve Capacity Requirement must be provided by generation while the remainder can be provided by DSM.

Figure 19 show the amount of DSM capacity that may be provided by each of the Availability Classes in 2008/09, 2009/10 and 2010/11.

[3] This is based on the assumption that the Reserve Capacity Target is just met.

Figure 19 – Availability Curves for 2009/10 and 2010/11



These figures are summarised for 2009/10 and 2010/11 in the Availability Curve in Appendix 5.

5.3 Transmission Restrictions on the SWIS

Each year, Western Power publishes the Annual Planning Report (APR) to provide advice and guidance on the status of the bulk transmission network and distribution system. It presents the results from scenario-based transmission planning activities conducted by Western Power for their long term planning purposes. The most recent Western Power APR, published in May 2008, can be downloaded from the Western Power website[4].

The transmission system is nearing capacity in several locations. While this is in part due to the strong increase in overall electricity demand, it is also due to the requests for connections for new generators and to accommodate differing energy flows across the system. The changing economics between various fuel types and high levels of interest in renewable energy generation makes it difficult to determine the likely location and size of future power generation projects. Consequently, Western Power is now planning substantial capacity upgrades throughout the transmission system.

The most significant new project is the construction of a double circuit 330 kV line from Pinjar to Moonyoonooka (close to Geraldton), to provide additional capacity in the Mid West region. This new line will serve a number of planned mineral loads and prospective power generation developments. The 2008 State Budget provided funding to cover the cost of this project.

Western Power has identified the need for a series of facility upgrades to increase the power transmission capability from the south west of the state to the metropolitan area. This work

[4] http://www.westernpower.com.au/documents/investmentPlanning/apr2008.pdf

includes new 330 kV lines, new switchyards and static var compensation. If approved, the project would be completed in the fourth quarter of 2011.

However, it should be noted that when a Market Participant applies for Certified Reserve Capacity in respect of a generation facility that has not yet entered service, the Market Rules require that facility to provide a letter from the relevant Network Operator indicating:

- That it has made an access offer; and
- That the facility will be entitled to firm access from the nominated service date.

To be certified in the 2008 Reserve Capacity Cycle, a new facility must be capable of fully meeting its reserve capacity obligations by 30 November 2010. In regard to the new 330 kV transmission development to the Mid West region, the target completion date published by Western Power is November 2010. However, Western Power has advised that some of the requisite approvals for the project may not be in place until after applications for the current round of certification, which closes on 18 July 2008.

The IMO will only be able to consider applications for certification for proposed generators if Market Participants provide appropriate letters of offer from Western Power[5] advising that firm access will be available from a date prior to 30 November 2010. These letters must be provided by the 18 July 2008 closing date for applications for certification.

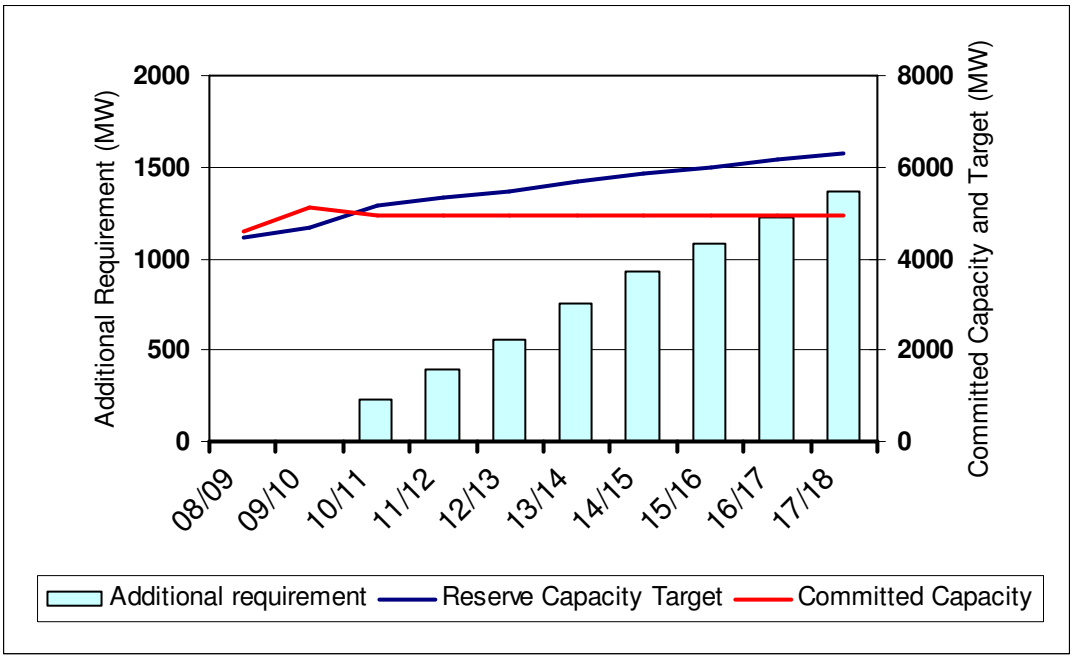
5.4 The Supply-Demand Balance

The supply-demand balance for the period to 2017/18 in the SWIS is presented in Figure 20. In this figure:

- The blue line shows the Reserve Capacity Target, measured on the left hand axis, increasing from 4,081 MW in 2008/09 to 6,288 MW by 2017/18.
- The red line shows the level of generation which is in place or under construction and DSM capacity rising through to 2009/10. This represents the commitment to new facilities made in the 2007 Reserve Capacity Cycle. At the end of 2009/10 Kwinana Stage A is scheduled to be decommissioned which accounts for the reduction in capacity available thereafter.
- The blue bars, which are measured on the right hand axis, show the requirement for additional capacity to meet the Reserve Capacity Target over the next ten years.

[5] Made in accordance with clause 4.10.1(c)(i) of the Market Rules

Figure 20 - Required Generation and DSM Capacity



The following observations can be made from this figure:

- Sufficient capacity is expected to be available to meet the Reserve Capacity Requirement in 2008/09 and 2009/10.
- Approximately 226 MW of additional capacity will be required the 2010/11 Reserve Capacity Year to meet the Reserve Capacity Target.
- Approximately 1,500 MW of additional capacity will be required to meet the forecasted increase in maximum demand over the study period. Further capacity would be required to cover any plant closures during this period.

Circumstances may change over the period through to 2017/18 and project proponents, investors and developers are advised to make independent assessments of the possible supply and demand conditions.

5.5 Opportunities for Investment

A total of 5,146 MW and 5,314 MW of generation and DSM capacity must be available to meet the Reserve Capacity Requirements in 2010/11 and 2011/12 respectively.

Verve Energy's Kwinana Stage A power station is expected to be retired at the end of 2009/10. The IMO therefore anticipates that a total of 3,671 MW of generation capacity that has been assigned Capacity Credits for 2009/10 will continue in service through 2010/11 and 2011/12. Approximately 61 MW of certified DSM is also expected to remain in service.

This means that 226 MW of new capacity, in addition to that already in place, or under construction, must be secured to meet the requirements for 2010/11 and a further 168 MW must be secured for 2011/12.

The most recent Expressions of Interest process identified proposals for 1,036 MW of new capacity for 2010/11 and a further 257 MW for the 2011/12 Reserve Capacity Year. It should be noted, however, that the proponents of these developments have not necessarily indicated any level of commitment to proceed.

Based on these expectations, the opportunities for new investment are summarised in Table 5 and are illustrated in Figures 21 and 22.

Table 5 – Opportunities for Investment

	2010/11	2011/12
Existing Generation	3,671 MW	3,671 MW
Existing DSM	61 MW	61 MW
New Generation under Construction	1,151 MW	1,151 MW
New DSM under Construction	37 MW	37 MW
Reserve Capacity Requirement	5,146 MW	5,314 MW
Additional Capacity Required	226 MW	394 MW

Figure 21 – Opportunity for Investment – 2010/11

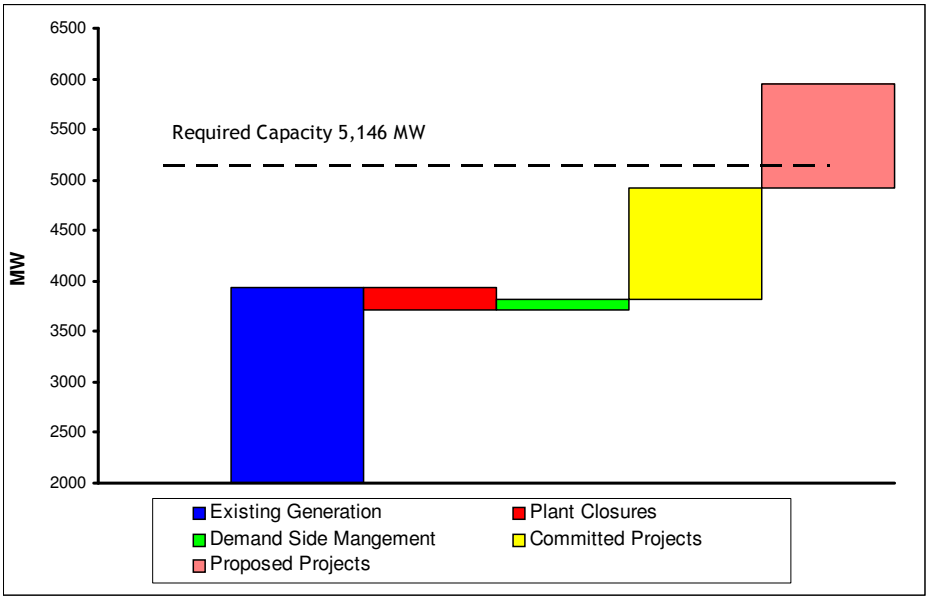
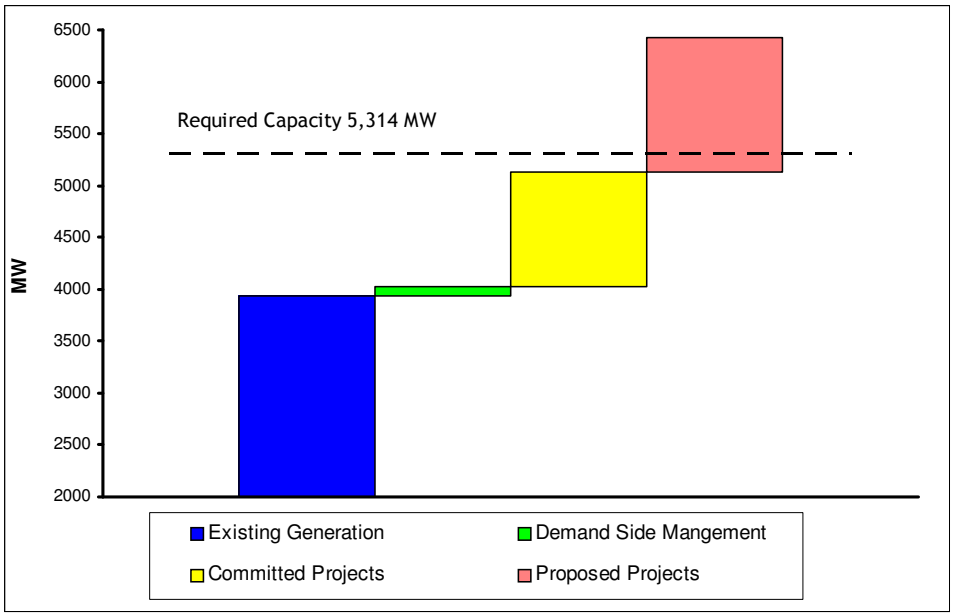


Figure 22 – Opportunities for Investment – 2011/12



6. Next Steps in the Reserve Capacity Process

The next stage in the RCM is for Market Participants to apply for Certified Reserve Capacity and then apply to be assigned Capacity Credits. Certification and Capacity Credits apply only to one year so new applications must be made each year for all existing or planned generation and DSM facilities. Applications for Certification of Reserve Capacity of generation and DSM capacity for the 2010/11 Reserve Capacity Year are now open.

The timetable for the process is:

- Applications for Certification of Reserve Capacity must be provided to the IMO by 5:00 PM WST on Friday, 18 July 2008.
- Market Participants whose facilities are granted Certified Reserve Capacity must then apply for Capacity Credits, indicating whether they intend to trade capacity bilaterally or whether they wish to offer the Certified Reserve Capacity into a Reserve Capacity Auction (if one is required). This process must be completed by 5:00 PM on Friday, 8 August 2008.
- On Monday 11 August 2008, the IMO will advise Market Participants who have indicated their intention to trade their capacity bilaterally how many Capacity Credits have been assigned to their Facilities.
- By 5:00 PM on Monday 18 August 2008, the IMO will advise whether sufficient capacity has been secured through bilateral trades. If the Reserve Capacity Requirement has been met, no Reserve Capacity Auction will be held. If sufficient capacity has not been secured through bilateral trades, the IMO will also advise that it will run a Reserve Capacity Auction to secure the outstanding quantity.
- If a Reserve Capacity Auction is required, Market Participants must provide their offers between Wednesday 20 August and Friday 29 August 2008. The IMO would run the Reserve Capacity Auction on Monday 1 September 2008.

Prospective developers should note that for a facility to receive Certified Reserve Capacity, it must fully meet the requirements of Market Rule 4.10.1 (c) in respect to network access and environmental approvals. Both of these processes can take a considerable time and potential developers are encouraged to contact Western Power and the Department of Environment at the earliest opportunity.

The recent gas supply situation has focused attention on ensuring that appropriate fuel supply arrangements are in place for all facilities. In seeking certification for generation facilities, Market Participants must provide full details of their fuel supply and transport contract arrangements with appropriate supporting documentation. The IMO acknowledges that fuel supply arrangements are often complex and may comprise a portfolio of supply and transport arrangements. Market Participants should develop a presentation that will address potential questions and assist the IMO in undertaking the certification assessment within the short timeframe provided.

Further information on the certification[6] and bilateral trade declaration and Reserve Capacity Auction[7] process is available on the IMO website.

[6] http://www.imowa.com.au/Attachments/MarketProcedures/ProcedureChange_2008_05.htm

[7] http://www.imowa.com.au/Attachments/MarketProcedures/ProcedureChange_2008_04.htm

7. Key Issues for Potential Developers

7.1 Potential Change to Certification of Intermittent Generators

Developers are considering proposals for significant levels of new wind farm capacity. The Federal and State Governments have recently announced mechanisms designed to increase the proportion of energy produced by renewable generation. It is anticipated that there may be substantial increases in the amount of wind capacity proposed for service in the SWIS.

The intermittent nature of wind farms has several significant impacts on the power system in respect to generation requirements. In particular:

- Their output may be very low during times of system maximum demand.
- Their output may be high during periods of low system demand forcing the output from other generators to be reduced.
- The variability of their output may cause excessive frequency fluctuations on the power system.

The Market Advisory Committee (MAC) has recently convened the Renewable Energy Generation Working Group, chaired by the Office of Energy. This Working Group has been instructed to focus on the treatment of renewable energy generation in respect to three issues:

- Reserve Capacity Mechanism impacts.
- The allocation of ancillary service charges.
- Low-load compensation mechanisms.

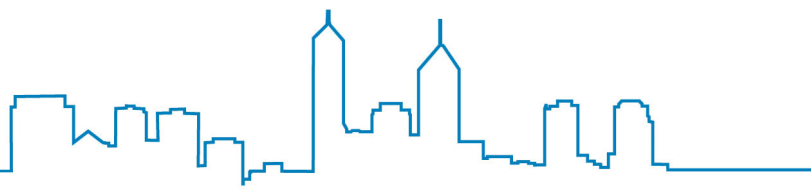
Parties considering development of wind farms, and other intermittent generation options, should be aware of this review and that proposals for changes to the Market Rules may be put forward for stakeholder consultation.

7.2 Potential Changes for Demand Side Management

Demand Side Management (DSM) is the process of deliberately reducing or curtailing the consumption of energy, usually in response to external factors. DSM has always been an integral a part of the Wholesale Electricity Market and DSM providers are able to apply for Certified Reserve Capacity and assignment of capacity credits.

Experience gained since commencement of the market has identified a number of operational issues with DSM. Consequently, the MAC established the Demand Side Management Working Group in December 2007 to determine a set of terms and conditions under which DSM can be certified.

It is anticipated that proposals for changes to the Market Rules for DSM will be made available for public comment in July 2008.



Market Participants considering offering DSM into the WEM are encouraged to read this document and to consider participation in the Rule Change processes.

Appendices

Appendix 1 – Forecasts of Economic Growth

Growth in Australian Gross Domestic Product - %

	Expected	High	Low
2008/09	3.4	4.2	2.5
2009/10	2.7	3.8	2.0
2010/11	2.0	3.1	1.2
2011/12	3.6	4.2	2.4
2012/13	3.7	4.3	2.5
2013/14	3.3	4.2	2.4
2014/15	3.7	4.6	2.6
2015/16	2.2	3.4	1.6
2016/17	3.1	4.1	2.0
2017/18	3.0	3.9	2.1

Growth in Western Australian Gross State Product - %

	Expected	High	Low
2008/09	6.4	7.0	4.6
2009/10	5.5	6.5	4.3
2010/11	3.8	4.9	2.8
2011/12	4.1	5.2	3.0
2012/13	3.9	4.9	3.1
2013/14	4.1	5.3	3.0
2014/15	4.4	5.7	3.3
2015/16	5.6	6.5	4.7
2016/17	4.8	5.7	3.7
2017/18	4.3	5.7	3.1

Appendix 2 – Forecasts of Summer Maximum Demand

Maximum Demand Forecasts with Expected Economic Growth (MW)

	10% POE	50% POE	90% POE
2008/09	4,081	3,824	3,604
2009/10	4,260	3,987	3,753
2010/11	4,704	4,415	4,167
2011/12	4,860	4,555	4,293
2012/13	5,010	4,689	4,414
2013/14	5,192	4,857	4,569
2014/15	5,354	5,003	4,703
2015/16	5,497	5,132	4,820
2016/17	5,631	5,253	4,929
2017/18	5,759	5,368	5,033

Maximum Demand Forecasts with High Economic Growth (MW)

	10% POE	50% POE	90% POE
2008/09	4,114	3,855	3,633
2009/10	4,338	4,061	3,825
2010/11	4,807	4,514	4,263
2011/12	4,991	4,681	4,415
2012/13	5,168	4,842	4,562
2013/14	5,382	5,039	4,745
2014/15	5,602	5,243	4,936
2015/16	5,780	5,406	5,086
2016/17	5,950	5,562	5,229
2017/18	6,120	5,717	5,372

Maximum Demand Forecasts with Low Economic Growth (MW)

	10% POE	50% POE	90% POE
2008/09	4,050	3,795	3,577
2009/10	4,204	3,934	3,702
2010/11	4,630	4,344	4,100
2011/12	4,768	4,468	4,211
2012/13	4,902	4,588	4,318
2013/14	5,068	4,739	4,456
2014/15	5,188	4,845	4,551
2015/16	5,313	4,956	4,651
2016/17	5,429	5,059	4,743
2017/18	5,537	5,155	4,828

Appendix 3 – Forecasts of Winter Maximum Demand

Maximum Demand Forecasts with Expected Economic Growth (MW)

	10% POE	50% POE	90% POE
2009	2,975	2,907	2,823
2010	3,225	3,154	3,068
2011	3,255	3,182	3,095
2012	3,568	3,493	3,404
2013	3,584	3,507	3,417
2014	3,647	3,569	3,477
2015	3,754	3,673	3,579
2016	3,833	3,751	3,655
2017	3,903	3,819	3,721
2018	3,966	3,879	3,780

Maximum Demand Forecasts with High Economic Growth (MW)

	10% POE	50% POE	90% POE
2009	3,035	2,966	2,882
2010	3,195	3,122	3,035
2011	3,431	3,355	3,266
2012	3,806	3,727	3,635
2013	3,885	3,803	3,708
2014	4,018	3,934	3,836
2015	4,212	4,123	4,022
2016	4,373	4,281	4,177
2017	4,527	4,432	4,324
2018	4,685	4,586	4,475

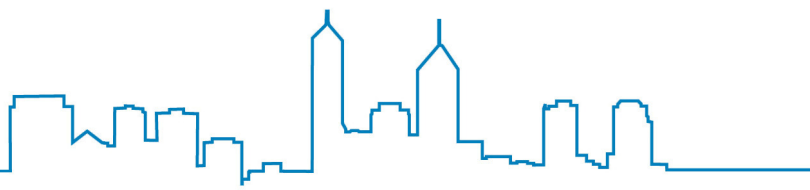
Maximum Demand Forecasts with Low Economic Growth (MW)

	10% POE	50% POE	90% POE
2009	2,913	2,855	2,767
2010	2,976	2,916	2,827
2011	3,119	3,058	2,968
2012	3,396	3,334	3,242
2013	3,381	3,318	3,225
2014	3,408	3,344	3,250
2015	3,469	3,404	3,309
2016	3,507	3,441	3,345
2017	3,534	3,467	3,369
2018	3,551	3,483	3,385

Appendix 4 – Forecasts of Energy Sent-Out

Forecasts of Energy Sent-Out for the SWIS (GWh)

	Expected	High	Low
2008/09	17,072	17,283	16,844
2009/10	18,504	19,020	18,103
2010/11	21,066	21,795	20,543
2011/12	21,492	22,453	20,835
2012/13	21,851	23,051	21,091
2013/14	22,500	23,972	21,603
2014/15	22,940	24,871	21,768
2015/16	23,373	25,640	22,041
2016/17	23,752	26,365	22,246
2017/18	24,087	27,112	22,397



Appendix 5 – Availability Curve

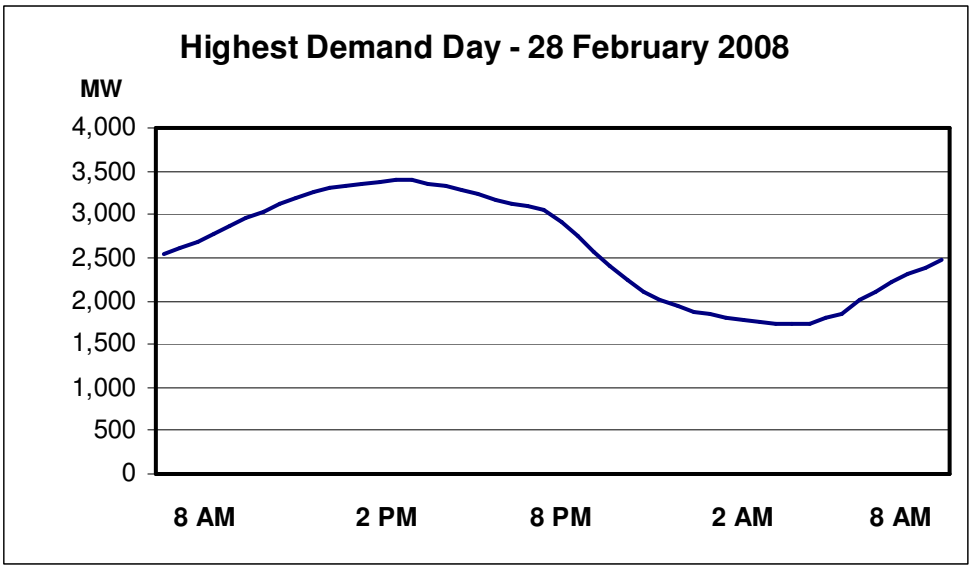
The Availability Curve for the 2009/10 Reserve Capacity Cycle is:

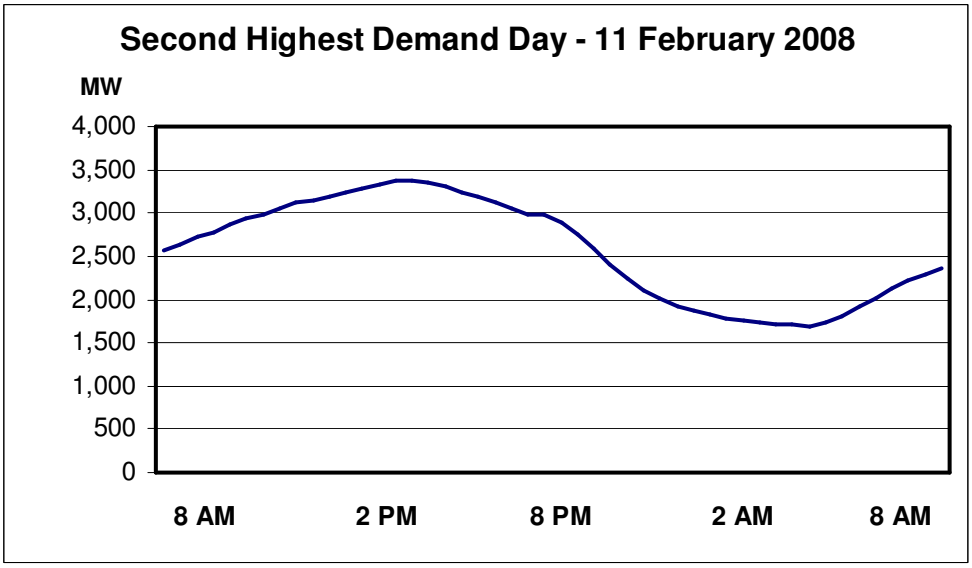
- Reserve Capacity that may be provided by facilities that are available for between 24 and 48 hours per year (Availability Class 4) is 352 MW.
- Reserve Capacity that may be provided by facilities that are available for between 48 and 72 hours per year (Availability Class 3) is 416 MW.
- Reserve Capacity that may be provided by facilities that are available for between 72 and 96 hours per year (Availability Class 2) is 437 MW.

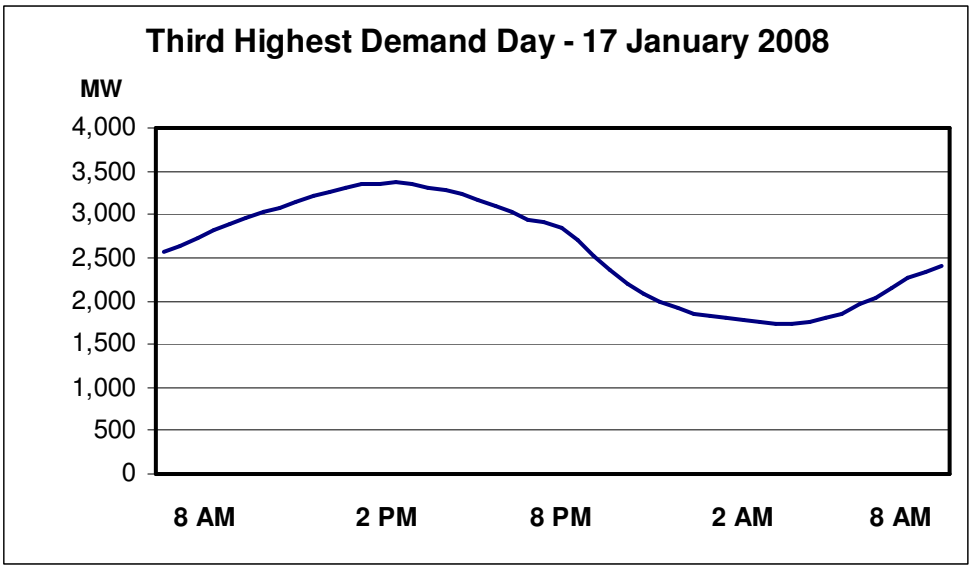
The Availability Curve for the 2010/11 Reserve Capacity Cycle is:

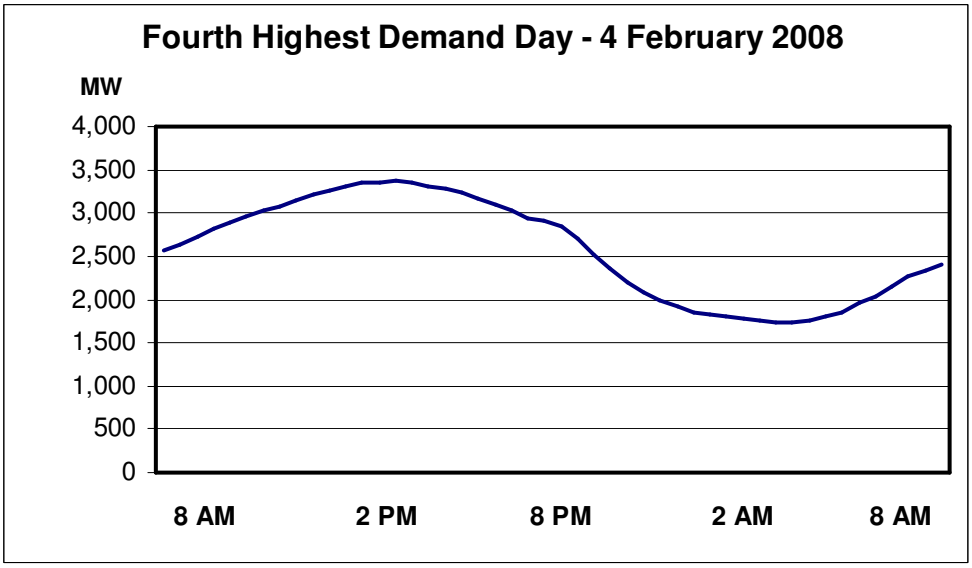
- Reserve Capacity that may be provided by facilities that are available for between 24 and 48 hours per year (Availability Class 4) is 51 MW.
- Reserve Capacity that may be provided by facilities that are available for between 48 and 72 hours per year (Availability Class 3) is 84 MW.
- Reserve Capacity that may be provided by facilities that are available for between 72 and 96 hours per year (Availability Class 2) is 106 MW.

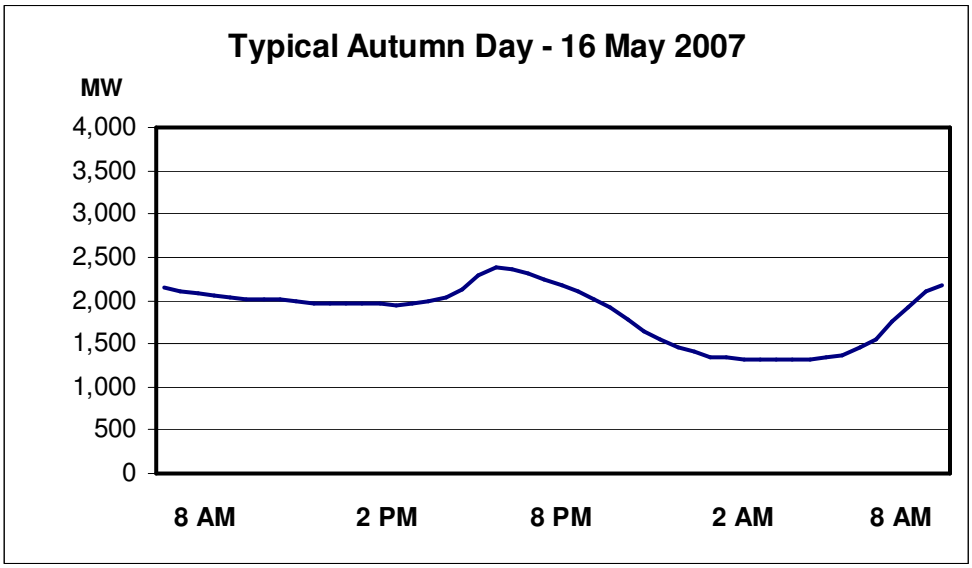
Appendix 6 – Typical Daily Load Curves

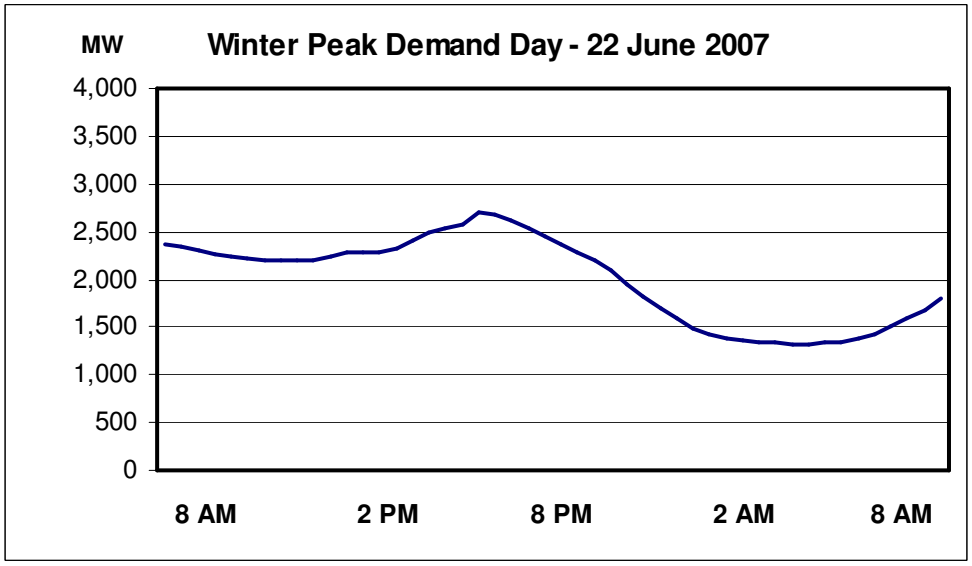


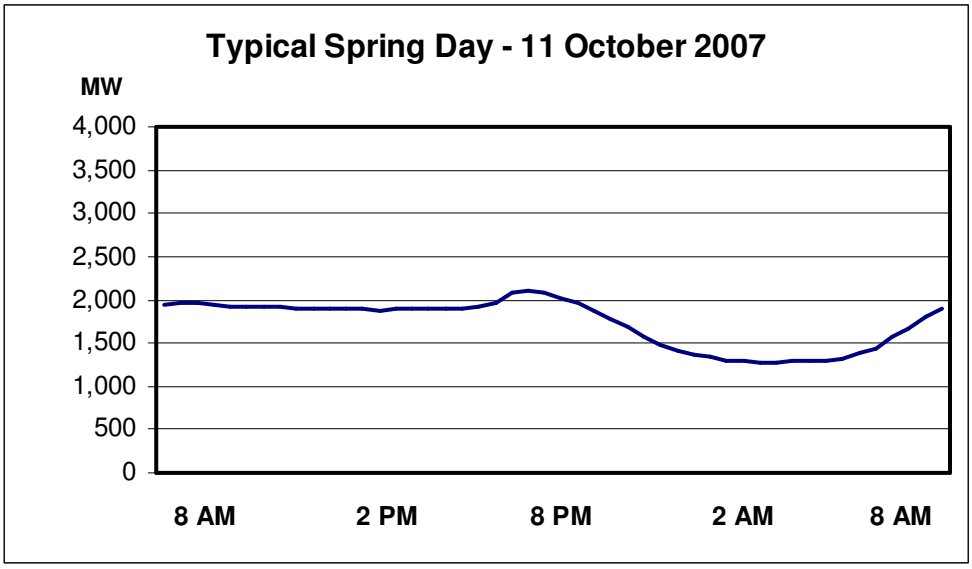



Third Highest Demand Day - 17 January 2008
MW
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
8 AM
2 PM
8 PM
2 AM
8 AM


Fourth Highest Demand Day - 4 February 2008
MW
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
8 AM
2 PM
8 PM
2 AM
8 AM


Typical Autumn Day - 16 May 2007
MW
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
8 AM
2 PM
8 PM
2 AM
8 AM


MW
Winter Peak Demand Day - 22 June 2007
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
8 AM
2 PM
8 PM
2 AM
8 AM


Typical Spring Day - 11 October 2007
MW
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
8 AM
2 PM
8 PM
2 AM
8 AM

Appendix 7 – Facility Capacities

Generation Registered Facilities

Participant Name	Facility Name	Capacity - MW
Alcoa of Australia	ALCOA_KWI	5.0
Alcoa of Australia	ALCOA_PNJ	10.0
Alcoa of Australia	ALCOA_WGP	25.0
Alinta Sales Pty	ALINTA_PNJ_U1	145.0
Alinta Sales Pty	ALINTA_PNJ_U2	145.0
Alinta Sales Pty	ALINTA_WGP	380.0
Alinta Sales Pty	ALINTA_WWF	89.1
EDWF Manager Pty Ltd	EDWFMAN_WF1	80.0
Griffin Power 2 Pty Ltd	BW1_BLUEWATERS_G1	204.0
Goldfields Power Pty Ltd	PRK_AG	68.0
Landfill Gas & Power Pty Ltd	CANNING_MELVILLE	3.0
Landfill Gas & Power Pty Ltd	KALAMUNDA	0.6
Landfill Gas & Power Pty Ltd	RED_HILL	3.3
Landfill Gas & Power Pty Ltd	TAMALA_PARK	4.5
Mount Herron Engineering Pty	MHPS - 1	1.4
Mount Herron Engineering Pty	MHPS - 2	1.4
Perth Energy	ATLAS	1.1
Perth Energy	GOSNELLS	1.0
Perth Energy	ROCKINGHAM	2.0
Perth Energy	SOUTH_CARDUP	3.3
Perth Energy	PERHT_ENERGY_GT1	85.0
Southern Cross Energy	STHRNCRS_EG	23.0
Verve Energy	ALBANY_WF1	21.6
Verve Energy	COCKBURN_CCG1	236.6
Verve Energy	COLLIE_G1	315.0
Verve Energy	GERALDTON_GT1	20.8
Verve Energy	KALBARRI_WF1	1.6
Verve Energy	KEMERTON_GT11	154.0
Verve Energy	KEMERTON_GT12	154.0
Verve Energy	KWINANA_G1	111.5
Verve Energy	KWINANA_G2	111.5
Verve Energy	KWINANA_G3	1.9
Verve Energy	KWINANA_G4	109.0
Verve Energy	KWINANA_G5	185.0
Verve Energy	KWINANA_G6	185.0
Verve Energy	KWINANA_GT1	20.8
Verve Energy	MUJA_G1	0.0
Verve Energy	MUJA_G2	0.0
Verve Energy	MUJA_G3	0.0
Verve Energy	MUJA_G4	0.0
Verve Energy	MUJA_G5	185.0
Verve Energy	MUJA_G6	185.0

Generation Registered Facilities - Continued

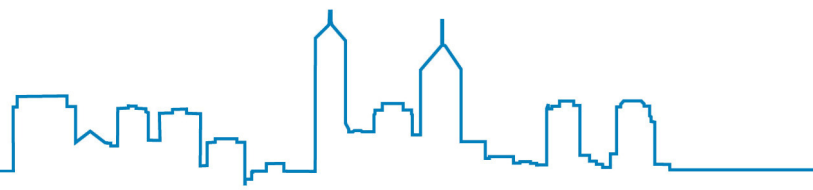
Participant Name	Facility Name	Capacity - MW
Verve Energy	MUJA_G7	211.0
Verve Energy	MUJA_G8	211.0
Verve Energy	MUNGARRA_GT1	37.2
Verve Energy	MUNGARRA_GT2	37.2
Verve Energy	MUNGARRA_GT3	38.2
Verve Energy	PINJAR_GT1	37.2
Verve Energy	PINJAR_GT10	116.0
Verve Energy	PINJAR_GT11	123.0
Verve Energy	PINJAR_GT2	37.2
Verve Energy	PINJAR_GT3	38.2
Verve Energy	PINJAR_GT4	38.2
Verve Energy	PINJAR_GT5	38.2
Verve Energy	PINJAR_GT7	38.2
Verve Energy	PINJAR_GT9	116.0
Verve Energy	PPP_KCP_EG1	79.2
Verve Energy	SWCJV_WORSLEY_COGEN_COG1	119.0
Verve Energy	TIWEST_COG1	37.7
Verve Energy	WEST_KALGOORLIE_GT2	38.2
Verve Energy	WEST_KALGOORLIE_GT3	24.6
WA Biomass Pty Ltd	BRIDGETOWN_BIOMASS_PLANT	40.0
Waste Gas Resources Pty Ltd	HENDERSON_RENEWABLE_IG1	2.1

Committed Generation Projects – not yet registered

Participant Name	Facility Name
Grifin Power Pty Ltd	BW1_BLUEWATERS_G2
Waste Gas Resources Pty Ltd	HENDERSON_RENEWABLE_IG2

Demand Side Management Capability and Availability

Availability	Class	Capacity - MW
96+ hours per year	1	8
72 - 96 hours per year	2	79
48 - 72 hours per year	3	20
24 - 48 hours per year	4	21



Appendix 8 – Abbreviations

APR - Transmission and Distribution Annual Planning Report (published by Western Power)

DSM - Demand Side Management

DTF - Western Australian Department of Treasury and Finance

GDP – Gross Domestic Product (for Australia)

GSP – Gross State Product (for Western Australia)

GWh – gigawatt-hour

IMO – Independent Market Operator

kV – kilovolt

LT PASA – Long Term Projected Assessment of System Adequacy

MW – megawatt

NIEIR – National Institute of Economic and Industry Research

POE – Probability of Exceedance

RCM – Reserve Capacity Mechanism

SOO – Statement of Opportunity Report

SWIS – South West Interconnected System