

The background of the lower half of the page is a photograph of a wind farm and power lines, overlaid with a semi-transparent blue filter. On the left, several large white wind turbines are visible, their blades extending outwards. On the right, a tall metal lattice tower for high-voltage power lines stands prominently, with other similar towers receding into the distance. The overall scene is set in a hilly, open landscape under a clear sky.

**Providing New Capacity in the
South West Interconnected
System**

**A Guide for Investors and
Developers**

November 2008

DISCLAIMER

In preparing this publication the Independent Market Operator (IMO) has used all reasonable endeavours to include the best information available to it at the time.

The purpose of publication is to provide technical and market data and information regarding opportunities in the Wholesale Electricity Market (WEM) in Western Australia.

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EXECUTIVE SUMMARY

On 21 September 2006, a competitive market for trading wholesale electricity was launched in the South West Interconnected System in Western Australia. The Wholesale Electricity Market allows generators and retailers to trade wholesale electricity through a number of mechanisms.

A feature of this market is the Reserve Capacity Mechanism, a set of processes through which:

- the amount of generation and demand side management capacity needed to ensure reliable electricity supplies is determined.
- new generation and demand side management capacity is encouraged to enter the system.
- incentives are provided to ensure that capacity is made available for service.

The operation of the market is controlled by the Wholesale Electricity Market Amending Rules (Market Rules) and any subsequent amendments. This document is provided as a guide to the requirements of the Market Rules for parties considering the development of new capacity. It provides:

- an outline of the South West Interconnected System;
- a brief description of the energy trading mechanisms now in operation;
- a more detailed description of the Reserve Capacity Mechanism; and
- a guide to where more detailed information can be obtained.

Please note that this document is only a guide and any party considering participation in the Wholesale Electricity Market should familiarise themselves with the Market Rules. These are available to be downloaded from the Independent Market Operator's website at www.imowa.com.au.

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Western Australia showing the area served by the South West Interconnected System



INTRODUCTION

The Government of Western Australia, with extensive input from industry, has established the Wholesale Electricity Market or WEM. This market covers the south-west portion of the state generally bounded by Geraldton, Kalgoorlie, Albany and the Perth metropolitan area. Electricity customers here are served by the South West Interconnected System (SWIS) as shown in Figure 1. Energy trading in this market commenced on 20 September 2006.

A critical consideration in the specification and design of the market was the provision of secure electricity supplies to customers. The SWIS is a relatively small and isolated system and there was questions as to whether a pure market-based system could ensure reliability. The WEM design therefore includes a Reserve Capacity Mechanism (RCM) that facilitates the provision of sufficient generation and demand side management (DSM) capacity to ensure that system reliability is maintained at a defined level.

This publication provides a guide to the RCM for parties who may wish to invest in generation or DSM facilities within the SWIS. It also provides general background on the RCM for Market Participants and other interested persons.

The RCM must be considered in the overall context of the electricity sector in Western Australia and the various components that together form the WEM. This introduction provides background on the electricity sector, the overall WEM design and the main players within the market.

Background to the Electricity Sector in Western Australia

The SWIS serves approximately 900,000 retail customers. Approximately 20,000 of these customers have an annual consumption in excess of 50 MWh and so are defined as contestable customers who may choose their supplier. The remaining customers are supplied under tariffs by the State-owned retailer Synergy.

The maximum electricity demand in the system is approximately 3,400 MW, measured on a sent-out basis, and annual electricity consumption including network losses is approximately 16,500 GWh.

The Western Australian economy is growing strongly and has good long term prospects driven by resource development, agricultural production and an increasingly affluent population. Both the maximum demand and electricity sent out within the SWIS are forecast to grow at an average of 3.9% per annum over the next ten years. New major loads, generally associated with resource development, are expected to contribute significantly to these growth rates.

More information on the IMO demand forecasts can be found in the annual Statement of Opportunities Reports published by the IMO. Copies of these may be downloaded at http://www.imowa.com.au/10_5_1_m_stmt_of_opp.htm. These reports also provide general information on the annual and daily load shape within the SWIS.

Independent Market Operator

The Independent Market Operator (IMO) is a Government organisation specifically established to administer and operate the WEM. As the market administrator, the IMO fulfils a number of distinct roles within the market, including:

- registering participants and their facilities;
- developing and maintaining market rules and procedures;
- conducting market settlement; and
- publishing market information.

In its role as market operator, the IMO:

- receives information from participants in respect to their bi-lateral contracts and the planned output from their generating facilities;
- operates the Short Term Energy Market (STEM) (which is described in more detail below); and
- operates the RCM.

The IMO also has responsibility for monitoring and surveillance of the market to identify any rule breaches by participants.

More information on the IMO is available at its website at www.imowa.com.au

System Management

System Management is the entity that operates the power system, instructing generating plant to increase or decrease output so as meet demand on a moment-by-moment basis. It is a ring-fenced entity within Western Power, the Government-owned transmission and distribution network operator.

System Management's real-time function is to dispatch the power system, taking whatever steps may be necessary to ensure system security, safety and reliability. It conducts short and medium term system planning, including the co-ordination of scheduled outages of generators and other major facilities.

System Management also schedules the generation facilities owned by Verve Energy, the Government-owned generation entity, to meet their contractual requirements while facilitating transactions scheduled by Independent Power Producers (IPPs).

More information on Western Power can be found at its website www.wpcorp.com.au.

Economic Regulation Authority

The Economic Regulation Authority (ERA) has a substantial involvement within the electricity sector through its licensing and network access responsibilities. In respect to the market, its key roles are market surveillance and monitoring and reporting to Government on the efficiency and effectiveness of the market.

The ERA also has several other approval functions within the market including:

- approving the maximum prices for the reserve capacity mechanism;
- approving the maximum and minimum energy prices; and
- approving the efficient costs for the operation of both the IMO and System Management.

More information about the ERA can be found at its website at www.era.wa.gov.au.

Network Operator

A network operator is an entity that operates or intends to operate a registered transmission or distribution system within the SWIS. Most of the networks in the SWIS are operated by Western Power but it is expected that a number of private transmission systems may also register.

Network operators also have responsibility for metering of electricity usage by end-use customers. This responsibility includes:

the provision of customer meters;

gathering and processing data from these meters; and

providing metering data to the IMO for billing and settlement for energy traded in the wholesale market.

Independent network operators have the option of ceding their metering responsibilities to Western Power.

Market Generator

A Market Generator is an entity that operates a generating facility to provide energy to the market. Subject to some exemptions in the rules, all generating facilities with a capacity in excess of 10 MW are required to register.

The largest generator in the SWIS is the State government-owned Verve Energy that controls a range of coal-, gas- and liquid-fuelled plant. Verve Energy provides the generation capacity required to balance the system in real time and, as a consequence, it is treated differently in the market from IPPs.

Market Customer

A Market Customer is an entity that purchases power from the market either for its own consumption or for retail sale. End use customers, such as domestic customers, who purchase electricity from a retailer, are not part of the market. Most Market Customers are retailers and the experience in other markets is that very few end-use customers will buy wholesale power from the market.

The Government-owned Synergy is the largest retailer in the market. It competes with independent retailers to supply contestable customers but is also required to serve all non-contestable customers.

A number of Market Participants undertake both generation and retail functions.

ELECTRICITY TRADING ARRANGEMENTS

One of the features of electricity is that demand and production costs and hence prices vary across time. An electricity supplier will generally have access to supplies from a variety of different generating plants, each of which will have different operating costs depending on its efficiency and the type of fuel it uses. The supplier will seek to maximise output from the lowest cost plant but, as demand increases, it will be necessary to put more expensive plant into service. This means that the overall production cost increases as the total demand increases.

Production costs will also change as a result of changes in fuel prices or reductions in output from generators due to, for example, higher ambient temperatures. To be effective, the market must accommodate prices that vary from day-to-day and within each day.

The market must also be able to accommodate the variations that occur in supply and demand. Factors such as generator breakdowns, fuel supply restrictions and unseasonable weather mean that actual supply and demand will vary from Market Participants' forecasts.

The WEM fulfils these requirements by a combination of three energy trading mechanisms:

- Bilateral Contracts;
- the Short Term Energy Market; and
- Balancing.

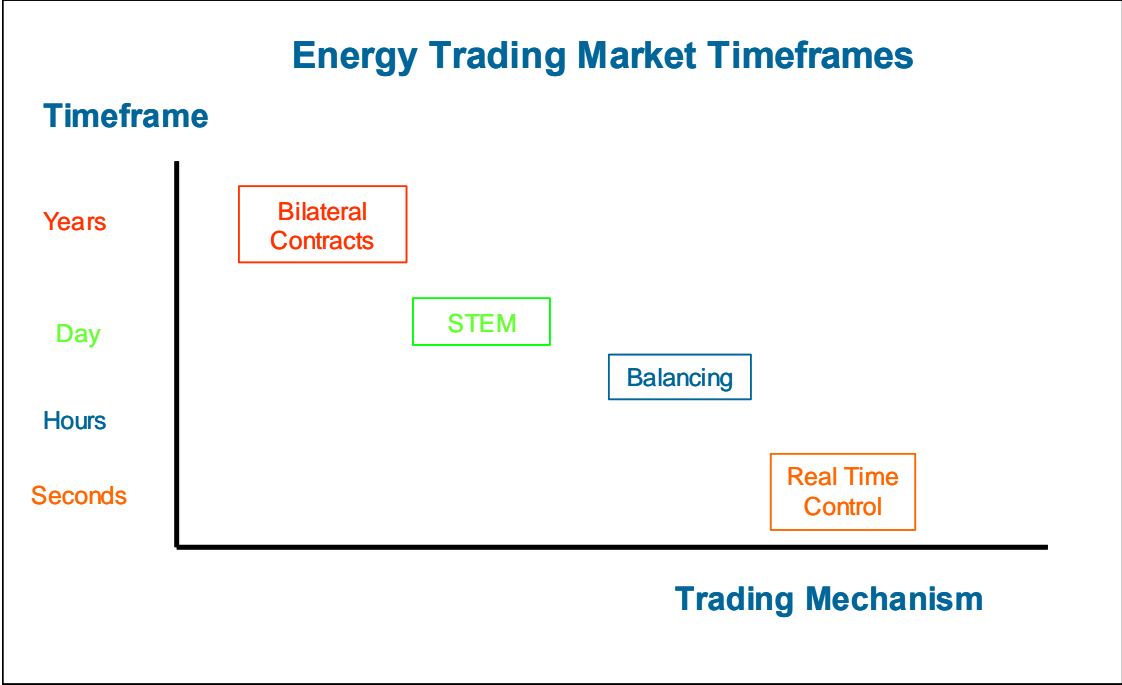
Bilateral contracts between Market Generators and Market Customers are the main mechanism for trading within the WEM with, typically, about 80% - 90% of electricity being traded through contracts.

By locking in a substantial amount of their purchases or sales through contracts, participants can minimise their exposure to potential price changes. These bilateral contracts are formed on a purely commercial basis and the market has no role in the structure, duration or pricing of these contracts. As part of the generator scheduling process, Market Participants must advise the IMO of the quantities, but not prices, of electricity for which they have contracted.

The IMO does not operate any secondary trading market for bilateral contracts, though there is no reason why an exchange could not develop outside the market if there were demand for this.

Whether a bilateral contract has a term of one trading interval or multiple years, it provides the holders with certainty over their settlement position with respect to that transaction. To the extent that one of the parties cannot conform to their contractual requirements then those parties will be individually liable to settle their deviations from the contract position. This places discipline on the market to only form bilateral contracts that reflect a reasonable expectation of the ability of the generator, and the network, to delivery of that energy.

Participants still need some flexibility to be able to respond to fluctuations in demand resulting from less predictable factors such as the weather. This is provided through the day-ahead



Short Term Energy Market (STEM), an energy-only forward market operated by the IMO to facilitate trading around bilateral contract positions.

Each day, participants make bids to buy and offers to sell various quantities of electricity in each trading interval on the following day. These are in the form of price curves where, for example, a generator will offer to supply increasing quantities into the market as the price rises. A buyer would provide a demand curve that would show it offering to purchase increasing quantities as the price moves lower.

The IMO takes these supply and demand price curves and determines the clearing price and quantity at which the offers and bids exactly match for each half-hour trading interval on the following day.

The STEM is run for every trading interval of the Trading Day, and determines a single clearing price for each trading interval as well as the quantities that sellers will sell to the IMO and that buyers will purchase from the IMO. The auction is designed so that the IMO purchases the same amount of energy it sells and has no net exposure.

The STEM schedules can be viewed as bilateral contracts between suppliers and the IMO and between the IMO and consumers. If a Market Participant has made a bilateral submission indicating that it will supply 100 MWh of energy, and then the IMO purchases 10 MWh from it in the STEM, then the net bilateral position of the Market Participant is to supply the market with 110 MWh.

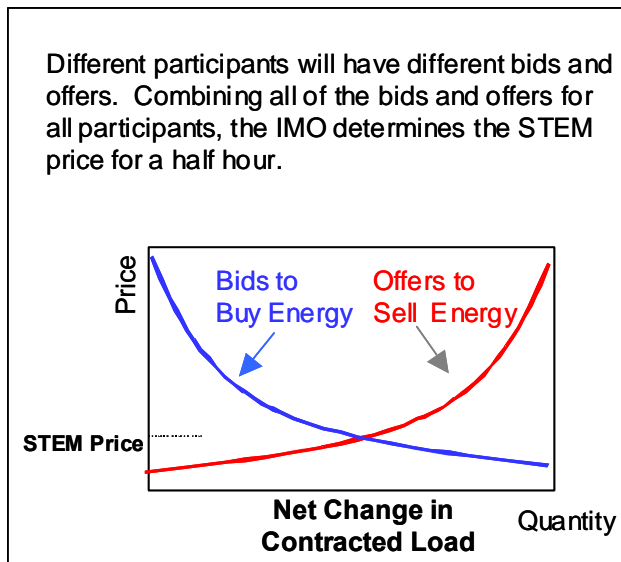
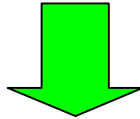
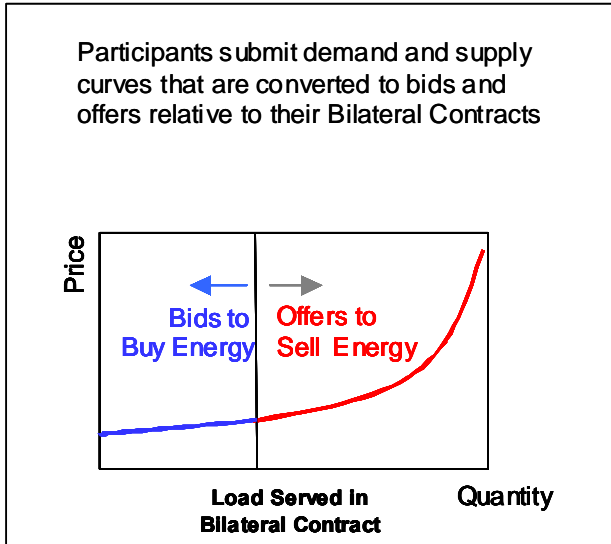
Participation in the STEM is open to all Market Participants, but is not compulsory. However, those Market Participants operating non-intermittent generators that hold Capacity Credits are required to make adequate energy available to the market to cover their Reserve Capacity obligations.

The bilateral contract and STEM processes determine the quantity of electricity that will be provided by IPPs in each trading interval. IPPs are then required to manage their operations in each trading interval so as to produce or consume the quantities determined by their bilateral contracts plus any quantities traded in the STEM. Verve Energy has responsibility to supply all remaining demand from its generating plant.

Balancing and real time control provide the mechanisms to accommodate the inevitable short-term variations in IPP generation and customer demand. In the first instance, balancing is provided by Verve Energy's generators. If Verve Energy is unable to fully cover any system imbalance, System Management can instruct IPP generators to either increase or reduce generation from their plants.

Some of Verve Energy's generating plant uses liquid fuels as either the primary or secondary fuel. To minimise overall system costs, IPPs that have gas-fired or coal-fired capacity available can be instructed to dispatch this for balancing ahead of Verve Energy liquid-fuelled plant.

Price Setting in the Short Term Energy Market



Market Design Summary

A more detailed description of the market is available in the document, entitled %Wholesale Electricity Market Design Summary+ which is available on the IMO website at www.imowa.com.au.

Key Steps within the Reserve Capacity Mechanism

Step 1 – Set the criteria for reliable supply



Step 2 – Forecast the future electricity demand



Step 3 – Determine the amount of capacity needed to meet the forecast with the agreed reliability target



Step 4 – Select the generation and DSM capacity to be assigned capacity credits



**Step 5 – Pay suppliers of capacity
Refunds for non-performance**

THE RESERVE CAPACITY MECHANISM

The purpose of the RCM is to ensure that sufficient generation and DSM capacity is made available to the SWIS to meet electricity demand. This is achieved through several interrelated steps:

- the amount of capacity required is determined.
- that amount of capacity is brought onto the system.
- incentives are provided to ensure that the capacity can be provided as required.

Central to this process are payments for capacity credits from the IMO to market participants who undertake to make capacity available.

Payment for Generation and DSM Capacity

The Reserve Capacity Mechanism is based around the trade of Capacity Credits where a generation or DSM facility that can offer one megawatt of capacity is eligible to be assigned one capacity credit. The amount of capacity that can be offered is set through the process of certification which is described below. Market Customers, retailers and other loads, are required to purchase credits in proportion to their demand.

Generators can either sell their capacity credits directly to Market Customers or to the IMO who will on-sell them to Market Customers. The number of credits assigned to generation and DSM facilities equals the number that Market Customers must purchase and any credits that are not sold to Market Customers are automatically purchased by the IMO at a set price. Currently, capacity credits are priced by the IMO at approximately \$100,000 per MW per year so they represent a significant income stream for a generator or DSM provider.

Determining how much capacity is required

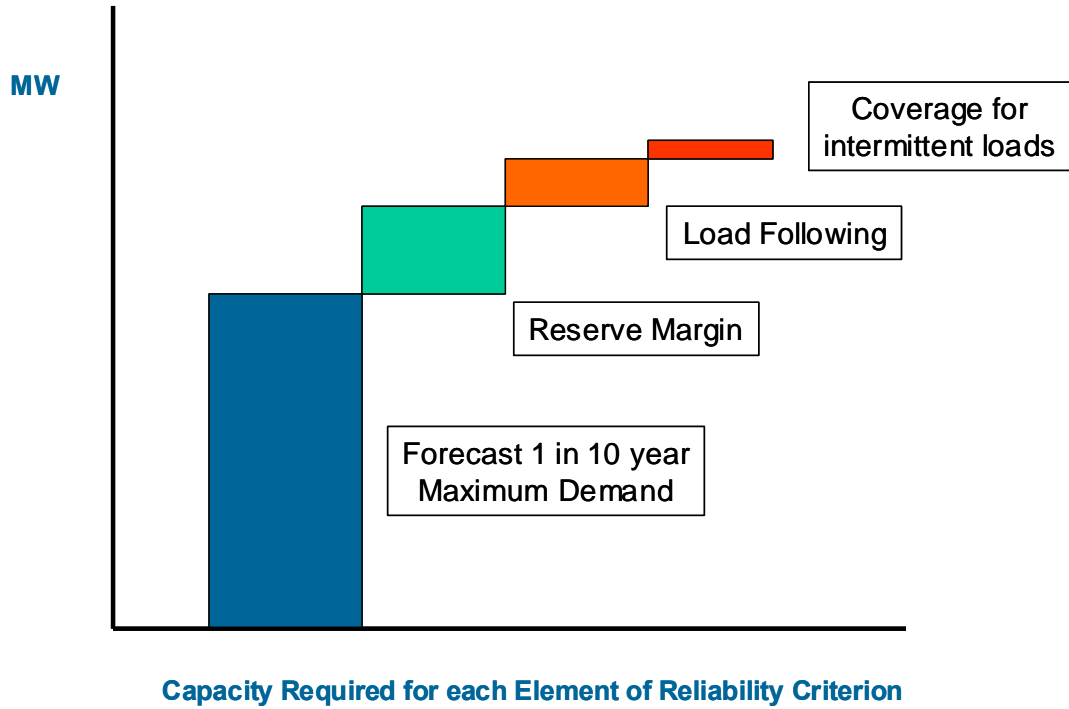
The Market Rules require the IMO to undertake an annual Long Term Projected Assessment of System Adequacy (LT PASA) to determine whether there is sufficient capacity available in future years. The level of adequacy is assessed against two criteria:

- having sufficient capacity to meet the forecast maximum demand plus a reserve margin: and
- having sufficient capacity to meet energy requirements.

In 2007, a Working Group established by the Market Advisory Committee reviewed these criteria and some changes were implemented. A copy of the report issued by the Working Group, and the supporting consultant report, are available on the IMO website at http://www.imowa.com.au/rc_reserve_capacity_reviews.htm.

The most important of the four elements used to build up the first reliability criteria is the forecast maximum demand. Electricity demand in the SWIS is strongly correlated with the daily temperature in the metropolitan area and the highest maxima are recorded when there is a

Determining the required quantity of Reserve Capacity



sequence of very hot days with high overnight temperatures. To ensure that sufficient capacity is provided to meet demand during an unusually hot period, the forecast maximum demand used for planning is one that is expected to occur during

only one year in ten. This level of maximum demand could be expected, in general terms, to result from a sequence of three or four days with sustained high mean temperatures (ie maximum temperatures around 41°C and overnight temperatures of around 28°C).

The other three elements are:

- a reserve margin, equal to 8.2% of the forecast maximum demand, to cover for generation plant outages;
- a load following reserve to accommodate the moment-by-moment variation in demand from loads and output by generators, particularly wind farms; and
- a margin to cover the occasional demand from intermittent loads (Loads such as major industrial sites where demand is usually covered by on-site generation).

The energy based reliability criterion requires that enough capacity be provided to ensure that expected energy shortfalls are limited to 0.002% of annual energy consumption. This is determined by computer modelling of the power system. The capacity requirement determined through this process has historically been lower than that determined by the maximum demand criterion.

Choosing which facilities receive Capacity Payments

There is a two stage process for selecting which facilities are assigned capacity credits, and hence receive payment for their capacity. The first process is ~~certification~~ certification through which Market Participants demonstrate that:

the facility will be able to deliver the quantity of megawatts which the market participant claims.

If the facility has yet to commence operation, ie is only proposed or is under construction, it will be able to supply power into the SWIS by the date claimed.

The second stage is the actual assignment of capacity credits. There is no limit to the amount of capacity that can be certified. However, the IMO will seek to only assign just enough capacity credits to meet the reserve capacity requirement. This means that some capacity that has been certified may not be assigned capacity credits.

Clauses 4.9 through 4.11 of the Market Rules describe the process for applying for and setting Certified Reserve Capacity. Applicants must provide a range of information including:

- details of the facility;
- key project dates;

- the capacity of the facility and the temperature dependence of that rating; and
- information on projected outage rates.

In considering applications, the IMO places critical emphasis on three critical areas of information. The first of these is access to the transmission or distribution network because experience in Western Australia suggests that network access is on the critical path for most generation projects.

To receive certification, a facility that has not yet entered service must have a letter from the network operator indicating that it has made an offer of access in respect of the project. This letter must also indicate that the facility will be entitled to have access from the service date nominated by the developer. This is an absolute requirement and an application for certification cannot be considered unless this letter is provided.

The second key area is that evidence must be provided that any necessary environmental approvals have been granted, or are expected to be granted, by the proposed service date. The IMO understands that a generation project will receive environmental approvals progressively and that some of these will not be provided until construction and commissioning is well advanced. With an application for certification, the IMO requires a report from an independent environmental advisor that:

- outlines the major potential environmental issues for the project;
- explains the steps that are to be taken to address these issues;
- details the approvals that have been secured so far and the level for further approvals set by the relevant Government agencies; and
- advises the IMO that, in the opinion of the independent consultant, all environmental approvals will be granted within the necessary timeframe.

The third key requirement, for both new and existing facilities, is information to demonstrate that the facility has access to appropriate firm fuel and fuel transport arrangements. The Market Rules require the IMO to certify a facility to the level which does not exceed the IMO's reasonable expectation of the capacity available at daily peak demand times. In respect to fuel supply, this requirement is satisfied if the developer can demonstrate that it has access to sufficient fuel and fuel transport to maintain output between 8 am and 10 pm each day. This will vary depending on the type of plant. For example:

- a liquid fuelled peaking plant could have 24 hours of on-site fuel storage combined with a contract that guarantees resupply within 12 hours.
- a gas fired plant could have a gas transport contract that provides firm capacity between 8 am and 10 pm combined with a gas supply contract that allows sufficient gas to be drawn, as required, to operate continuously.

The Market Participant must be able to provide evidence to the IMO that appropriate arrangements are in place.

Certification is undertaken on an annual basis. Each year, all facilities must apply to be certified for the year which commences two years hence. So, for example, in mid 2008 facilities will apply to be certified for the reserve capacity year that runs from 1 October 2010 through to 1 October 2011.

Assignment of Capacity Credits

Where the IMO has certified facilities, Market Participants must advise whether they intend to trade their capacity credits bilaterally, that is, do they plan to sell them to a retailer rather than to the IMO. These facilities are considered first and:

- Capacity credits are first assigned to facilities that already exist or are under construction and where the Market Participants have indicated their intention to trade its credits bilaterally.
- if sufficient capacity credits have been assigned to meet the requirement the process is deemed to be complete and no further credits are assigned.
- if more capacity is required to meet the requirement, credits are assigned to facilities that have been certified but are not yet under construction but where the Market Participant has indicated its intention to trade any credits.

If, after assigning capacity credits to all facilities which intend to trade their capacity bilaterally, there is still a shortfall, the IMO holds a reserve capacity auction in which all remaining certified facilities are considered.

For this auction, all Market Participants who had indicated that they did not intend to trade their credits bilaterally, are required to offer a price at which they will sell their credits to the IMO. The IMO accepts offers for facilities, taking the lowest priced offers first, until sufficient capacity is secured to meet the requirement.

Any certified capacity that has not been assigned capacity credits through this process will not receive payment for its capacity. The facility may still participate in the market, selling energy, and can seek to be assigned capacity credits in subsequent years.

Setting the Price for Capacity Credits

The price for capacity credits must be set high enough to support the cost of installing new generation without imposing excessive costs on customers or encouraging over capacity. Each year the IMO develops an estimate of the cost of building a new liquid-fuelled gas turbine power station. This estimate is annualised and forms the basis of the Maximum Reserve Capacity Price (MRCP).

The determination of the MRCP is published on the IMO website and the actual figure is published in the Request for Expressions of Interest in January each year as well as on the website. If the IMO runs a reserve capacity auction, market participants may offer prices up to the MRCP. The price for all capacity credits, both those secured through the auction and those

Refunds applicable for failure to offer Capacity

Dates	1 April to 1 October	1 October to 1 December	1 December to 1 February	1 February to 1 April
Business Days Off-Peak Trading Interval Rate (\$ per MW shortfall per Trading Interval)	0.25 x Y	0.25 x Y	0.5 x Y	0.75 x Y
Business Days Peak Trading Interval Rate (\$ per MW shortfall per Trading Interval)	1.5 x Y	1.5 x Y	4 x Y	6 x Y
Non-Business Days Off-Peak Trading Interval Rate (\$ per MW shortfall per Trading Interval)	0.25 x Y	0.25 x Y	0.5 x Y	0.75 x Y
Non-Business Days Peak Trading Interval Rate (\$ per MW shortfall per Trading Interval)	0.75 x Y	0.75 x Y	1.5 x Y	2 x Y
Maximum Participant Refund	The total value of the Capacity Credit payments paid or to be paid under these Market Rules to the relevant Market Participant for the 12 Trading Months commencing at the start of the Trading Day of the previous 1 October assuming the IMO acquires all of the Capacity Credits held by the Market Participant and the cost of each Capacity Credit so acquired is determined in accordance with clause 4.28.2(b), (c) and (d) (as applicable).			
<p>Where:</p> <p>For an Intermittent Facility that has been commissioned: Y equals 0</p> <p>For all other facilities, including Intermittent Facilities that have not been commissioned: Y equals the greater of the Reserve Capacity Price and 85% of the Maximum Reserve Capacity Price for the relevant Reserve Capacity Auction, expressed as a \$ per MW per Trading Interval figure. This is determined by dividing the Monthly Reserve Capacity Price by the number of Trading Intervals in the relevant month.</p>				

secured through the bilateral trade process, receive the price set in the auction (the price of the last offer accepted).

If the IMO secures sufficient capacity without an auction, assigning capacity credits only to those facilities that intend to trade their capacity bilaterally, an administered price is determined. This price is equal to 85% of the MRCP multiplied by a factor that accounts for any excess of capacity credits assigned. For example, if:

- the MRCP is \$200,000 per year;
- the reserve capacity target is 5,000 MW; and
- the actual number of credits assigned is 5,250 MW; then
- the Reserve Capacity Price is $\$200,000 \times 85\% \times 5,000 / 5,250 = \$161,900$ per year.

The reserve capacity price applies for a single year and is recalculated each year. It is paid to Market Participants in equal monthly instalments.

Special Price Arrangements

If a Reserve Capacity Auction is held, new capacity that is cleared in that auction will have the option to take up a Special Price Arrangement. A Special Price Arrangement allows a market participant to receive the auction price, including an adjustment for inflation, for up to 10 years from commissioning without being required to participate in the Reserve Capacity Auction. This provides revenue certainty for new entrant generators.

The Special Price Arrangement is a floor price and the facility receives the higher of this price and the Reserve Capacity Price.

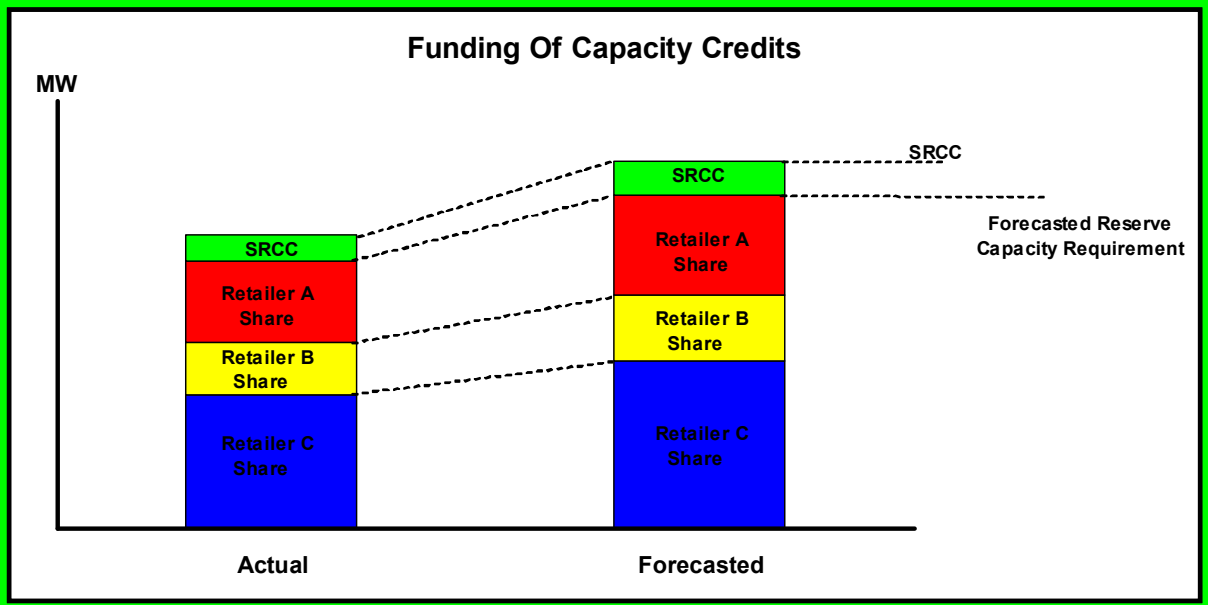
Obligations on providers of Capacity Credits

The Capacity Credit payment is made to generators and Demand Side Management providers in return for making their capacity available to the system. The amount of capacity that must be provided is termed the Reserve Capacity Obligation Quantity (RCOQ) and for most generators this is equal to the number of capacity credits that have been assigned.

For an intermittent generator, such as a windfarm, the RCOQ is zero once it has demonstrated that it has been successfully commissioned and its output can match its assigned number of capacity credits.

There are two key obligations imposed on providers. The first is that facilities must participate within the centralised scheduled maintenance planning processes unless otherwise authorised by System Management.

Secondly, the RCOQ capacity must be offered into the market at all times unless the facility is undergoing an approved outage. If the facility is being used to provide energy to another



market participant through a contract, then the facility is being offered into the market. Any capacity, up to the RCOQ level, that is not under contract must be offered into the STEM.

Where a generator fails to meet its obligation to offer capacity into the market it must make refunds of its reserve capacity payments. The level of refunds varies with the level in the Hot Season being significantly higher than during the Cold and Intermediate Seasons. This reflects the generally higher power system risk during the Hot Season.

Holders of capacity credits are also required to accept dispatch instructions from System Management and submit to regular facility tests undertaken for the IMO.

Reserve Capacity Security

When a market participant seeks assignment of capacity credits for a facility that has not yet entered service, it must post a security deposit with the IMO. This security may be in the form of cash, a guarantee or a bank undertaking. The value of the deposit is equal to 25% of the MRCP multiplied by the capacity which is being offered.

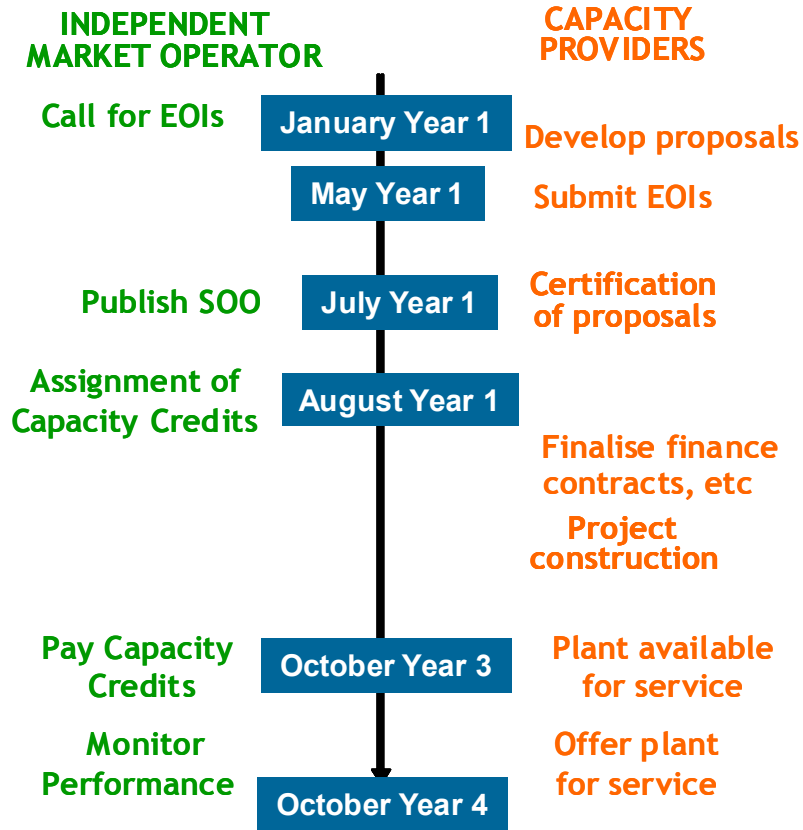
The security is returned to the market participant as soon as the facility output meets at least 100% of its RCOQ. If the facility fails to meet 100% of its RCOQ but does achieve at least 90% of its RCOQ, the security is returned to the Market Participant at the end of the first full reserve capacity year during which the facility was scheduled to operate. If the facility fails to achieve 90% of its RCOQ by the end of the first full reserve capacity year, the security is not returned to the Market Participant.

How Loads pay for Capacity Credits

Retailers are required to purchase capacity credits in proportion to the demand of their end-use customer loads during the previous summer. The proportion of the total load supplied by each retailer is calculated over the three trading intervals with the highest energy consumption which occur during each of the four days with the highest total consumption. These are referred to as the **Top 12 Trading Intervals**.

These ratios are applied to the total number of capacity credits that have been assigned to generators and DSM facilities up to the forecasted Reserve Capacity Requirement. This Requirement is known as the Targeted Reserve Capacity Requirement (TRCR). The cost of Capacity Credits in excess of the Reserve Capacity Requirement is shared across all market customers and is billed as a Shared Reserve Capacity Cost (SRCC). The TRCR plus SRCC is calculated each month for each contestable customer and the retailers' obligations are recalculated as customers churn between suppliers.

Timeline for bringing New Capacity into Service



TIMETABLE OF KEY RESERVE CAPACITY ACTIVITIES

There are three key stages in the development of a proposal for new capacity for the SWIS the first of which is the development of a firm proposal. The first formal interaction between developers and the IMO is when the IMO calls for Expressions of Interest from developers in late January each year. However, unless the proposal is well advanced by this time, it is unlikely to be able to meet the subsequent requirements for certification.

Developers need to keep in mind that by mid-July, when applications for certification close, the project must have secured transmission network access and environmental approvals. It must also have appropriate arrangements in place for the supply of fuel as well as access to a site. These processes tend to be lengthy and should be commenced early.

The specific dates for each of the steps required by the Market Rules are published on the IMO website. They are also included within the Request for expressions of Interest and the Statement of Opportunities Report, both of which are available on the website.

Processes for Small Generators

The Market Rules have special provisions for generators that have a nameplate capacity of 1 MW or less. Any such generator may apply for Capacity Credits and, subject to it meeting the requirements for certification, Capacity Credits may be granted as from the next 1 October. This allows a small generator, which may only take a short period of time to build and commission, to receive payments earlier than if it followed the standard process.

This process only applies where that generator:

- is a non-scheduled generator that has commenced operation;
- has not previously held Capacity Credits;
- does not hold capacity credits for the reserve capacity cycle for which it is seeking Capacity Credits; and
- there has been no opportunity for it to apply for Capacity Credits in the normal processes.

FURTHER INFORMATION

The IMO website at imowa.com.au provides further information that may be of use to prospective developers of generation or DSM capacity in the SWIS. Of particular note are:

The annual Statement of Opportunities Reports containing:

Forecasts of maximum demand and sent out electricity.

Information on existing and planned generation facilities.

Estimates of the supply . demand balance in future years.

Real time market data available from the IMO website.

The Wholesale Electricity Market Amending Rules.

Market Procedures.

The Wholesale Electricity Market Design Summary.

All of this information is available on the IMO website www.imowa.com.au.

Please remember also that the IMO can arrange for briefings to be provided to potential developers. Regular training course are also provided that focus on specific aspects of the market.

Potential Changes/Rule Improvements

Potential Changes/Rule Improvements There are currently a number of proposed Rule improvements under consideration in the rule change mechanism provided for under the Market Rules. These potential changes relate to:

- The Certified Reserve Capacity Provisions;
- The timing and deadlines associated with the Certification process;
- Fuel provisions and requirements; and
- Renewable generation certification and requirements.

For more information on these Rule changes please refer to the IMO website (www.imowa.com.au) or contact the IMO System Capacity team (system.capacity@imowa.com.au).

GLOSSARY OF KEY TERMS

Availability Class: Any one of 4 classes of annual availability of Reserve Capacity set out in clause 4.5.12(c) of the Market Rules, where each class corresponds to Reserve Capacity being available from a Facility for not more than a specified number of hours per year.

Balancing: The process for meeting supply and consumption deviations from contracted bilateral and STEM positions in each Trading Interval.

Base Load Plant: Generating plant that is generally scheduled to operate continuously except for reductions in output for maintenance.

Bilateral Contract: A contract formed between any two persons (excluding System Management) for the sale of electricity by one of those persons to the other.

Capacity Credit: A notional unit of Reserve Capacity provided by a Facility during a Capacity Year. The total number of Capacity Credits provided by a Facility is determined in accordance with clause 4.20 of the market Rules. Each Capacity Credit is equivalent to 1 MW of Reserve Capacity.

Certified Reserve Capacity: For a Facility is the quantity of Reserve Capacity that the IMO has assigned to the Facility for the Reserve Capacity Cycle. Certified Reserve Capacity assigned to a Facility registered by a Market Participant is held by that Facility.

Contestable Customer: A person that may purchase electrical energy from any retailer, including Western Power, because their consumption of electrical energy exceeds the Current Access Threshold.

Curtable Load: A Load through which electricity is consumed where such consumption can be curtailed at short notice in response to a request from System Management to the party managing the Load.

Demand Side Management: A type of capacity held in respect of a Facility connected to the SWIS; specifically, the capability of a Facility connected to the SWIS to reduce its consumption of electricity through the SWIS, as measured at the connection point of the Facility to the SWIS.

Dispatch Instruction: A direction from System management to a Generating Facility or Demand Side Management Facility to increase, decrease or otherwise vary its production or consumption of electricity.

Dispatchable Load: A Load, with a rated capacity of not less than 0.2 MW, through which electricity is consumed where such consumption can be increased or decreased to a specified level upon instruction to do so by System Management to the person managing the Load.

Economic Regulation Authority: The body established under section 4(1) of the Economic Regulation Authority Act, responsible under these Market Rules for market monitoring and surveillance.

Energy Market Commencement: The date and time at which the first Trading Day commences, as published by the Minister in the Government Gazette.

Environmental Approval: In respect of a Facility is a licence, consent, certificate, notification, declaration or other authorisation required under any law relating to the protection or conservation of the environment for the lawful construction of the Facility or the development of the site on which the Facility is to be constructed.

IMO: The Independent Market Operator, established under the Regulations to administer and operate the Wholesale Electricity Market.

Intermittent Generator: A Non-Scheduled Generator that cannot be scheduled because its output level is dependent on factors beyond the control of its operator (e.g. wind).

Interruptible Load: A Load through which electricity is consumed, where such consumption can be curtailed automatically in response to a change in system frequency.

Independent Power Producers (IPP): An electricity provider other than the state owned corporation Verve Energy which produces electricity for the SWIS.

Load Forecast: An expectation of the demand levels in the SWIS or in a region of the SWIS in future Trading Intervals.

Long Term Special Price Arrangement: A Special Price Arrangement that applies for more than one Reserve Capacity Cycle.

Market Rules: The set of rules which govern the operation of the Wholesale Electricity Market being the *Wholesale Electricity Market Amending Rules (September 2006)*

Mid-merit Plant: Generating plant that generally operates during periods of medium and high demand.

Minister for Energy: The Minister responsible for administering the Electricity Industry Act 2004.

Network Operator: Network Operator: A person who registers as a Network Operator, in accordance with clause 2.28.2, 2.28.3 or 2.28.4 of the Market Rules.

Non-Dispatchable Load: A Load which is not a Dispatchable Load, a Curtailable Load or an Interruptible Load, and is therefore self scheduled.

Peaking Plant: Generating plant that is generally operated only at times of high system demand.

Power System Reliability: The ability of the SWIS to deliver energy within reliability standards while maintaining Power System Adequacy and Power System Security.

Power System Security: The ability of the SWIS to withstand sudden disturbances, including the failure of generation, transmission and distribution equipment and secondary equipment.

Reserve Capacity: Capacity associated with a generation or DSM Facility.

Reserve Capacity Auction: The process for determining the Reserve Capacity Price for a Reserve Capacity Cycle and the quantity of Reserve Capacity scheduled by the IMO for each Market Participant.

Reserve Capacity Auction Requirement: The quantity of Reserve Capacity, calculated in accordance with clause 4.15.2(b) of the Market Rules, which is the target quantity to be procured in a Reserve Capacity Auction.

Reserve Capacity Information Pack: A package of information, including the information described in clause 4.7.3 of the Market Rules, pertaining to a Reserve Capacity Auction.

Reserve Capacity Mechanism: The processes through which the IMO determines the required capacity to be available to the SWIS and ensures that this capacity is provided. The Reserve Capacity Mechanism is covered by chapter 4 of the Market Rules.

Reserve Capacity Obligations: The quantity of capacity that a Market Participant is required to make available to the market as a result of holding Capacity Credits. It is determined in accordance with clause 4.12.1 of the Market Rules.

Reserve Capacity Target: In respect of a Capacity Year, the IMO's estimate of the total amount of generation or Demand Side Management capacity required in the SWIS to satisfy the Planning Criteria for that Year.

Scheduled Generator: A generation system that can increase or decrease the quantity of electricity it generates and sends out into a network forming part of the SWIS (subject to limits on its physical capabilities) in response to instructions from System Management.

Short Term Energy Market (STEM): A forward market operated under Chapter 6 of the Market Rules in which Market Participants can purchase electricity from, or sell electricity to, the IMO.

South West Interconnected System (SWIS): The interconnected transmission and distribution systems, generating works and associated works located in the South West of Western Australia and generally extending between Kalbarri, Albany and Kalgoorlie.

Special Price Arrangement: An arrangement whereby a Market Participant can secure a price for Reserve Capacity that may differ from the Reserve Capacity Price.

System Management: A segregated business unit of Western Power Corporation responsible for dispatching the power system.

Western Power: The body corporate established under the Electricity Corporation Act as Western Power Corporation.

Wholesale Electricity Market: The market established under section 122 of the Electricity Industry Act.

The Independent Market Operator

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