

## 2017–18 Reserve Capacity Target reflects Western Australia's changing electricity consumption patterns

The Australian Energy Market Operator (AEMO) has released its *Deferred 2015 Electricity Statement of Opportunities for the 2017–18 Capacity Year*, which is used to determine the amount of electricity capacity required in Western Australia's South West interconnected system (SWIS) by 2018 to ensure the electricity network can meet forecast peak demand.<sup>1</sup>

The report also presents longer-term electricity peak and operational consumption forecasts for the SWIS over a 10-year forecast period from 2016–17 to 2025–26, and provides information on generation and demand side management capacity operating in the SWIS, as well as planned capacity, capacity requirements and network development opportunities.

AEMO Managing Director and Chief Executive Officer Mr Zema explained that although consumers may have increasing numbers of electrical appliances at their disposal, energy delivered from the SWIS is expected to grow very slowly over the next ten years.

"Based on these forecasts, we've determined the Reserve Capacity Target (RCT), that is the amount of generation capacity required in the SWIS to efficiently meet forecast demand over the next two years, to be 4,552 megawatts (MW)," said Mr Zema.

"Given the current level of installed and committed capacity in the SWIS, no new generation or demand side management capacity will be required over the forecast period. However, the WA Government's Electricity Market Review currently underway could affect the excess capacity level in the WEM."

Mr Zema said the forecasts show consumer take-up of improved energy management technology, more energy efficient devices, and distributed generation options such as rooftop solar photovoltaic (PV), is changing the way households and businesses consume energy, impacting traditional consumption patterns and peak demand profiles in the SWIS.

"The report shows that forecast growth in rooftop solar PV, energy efficiency, battery storage and in-home energy monitoring devices is expected to result in slow electricity consumption growth from the SWIS from around 18,452 gigawatt hours (GWh) in 2015–16 to around 20,249 GWh by the end of the 10-year outlook," said Mr Zema.

"We're already seeing the effects of these new technologies today with rooftop solar PV systems installed by one in five residential customers, and more energy efficient new appliances replacing older models," added Mr Zema. "Consumer uptake of energy management systems including battery storage technology is expected to continue this trend and not only reduce demand from the network, but also shift peak demand to later in the day."

Mr Zema pointed out that annual peak demand in the SWIS is one area already impacted by changing consumer behaviour and emerging technologies.

"Annual peak demand in the SWIS has historically occurred on a late afternoon in February. However, three of the last five annual peaks have occurred later in the day and earlier in the year, between early January and early February," said Mr Zema. "This trend is primarily driven by the rapid take-up of rooftop solar PV, customers monitoring and lessening their consumption to reduce their exposure to capacity cost payments, and changing weather and temperature conditions."

The increasingly unpredictable nature of peak demand presents challenges for forecasting, noted Mr Zema.

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<sup>1</sup> Publication of the 2015 ESOO was postponed from June 2015, following direction from the Minister for Energy to defer aspects of the 2015 Reserve Capacity Cycle (which relates to the procurement of capacity for the 2017–18 Capacity Year), in light of the Electricity Market Review. Further information on the Electricity Market Review is available at:

[http://www.finance.wa.gov.au/cms/Public\\_Utility\\_Office/Electricity\\_Market\\_Review/Electricity\\_Market\\_Review.aspx](http://www.finance.wa.gov.au/cms/Public_Utility_Office/Electricity_Market_Review/Electricity_Market_Review.aspx).

“This shifting peak makes it harder to accurately determine the RCT and increases the risk of procuring too much or too little capacity for the SWIS, ultimately impacting the price consumers pay for electricity.”

Mr Zema said that growth in rooftop PV has allowed residential and commercial customers to generate some of their electricity needs on site, reducing the requirement for electricity delivered from the network during peak demand times.

“Rooftop PV is estimated to have reduced peak demand on 8 February 2016 by around 96 MW, or 2.3%, from 4,109 MW to 4,013 MW. AEMO estimates that rooftop PV also shifted peak demand by an hour, from the 16:30 to 17:30 trading interval,” said Mr Zema.

“The continued growth of rooftop PV installations has affected both the level and timing of peak demand over the last five years. And we expect rooftop PV capacity in the SWIS to continue to grow off the back of technological, commercial and regulatory factors such as government incentives, falling installation costs, electricity tariffs, and changes in consumer attitudes and behaviours.”

Mr Zema said AEMO’s challenge is to anticipate and plan for how the market will respond to these changing consumption patterns and peak demand trends profiles and how it might impact power system security and reliability.

“AEMO is working closely with the local and international energy community to monitor, analyse and report on changing demand profiles and energy usage trends in the Wholesale Electricity Market and the National Electricity Market and how this compares globally,” said Mr Zema. “We are also consulting with industry to explore possible impacts on the security and reliability of these major electricity networks as a result of these changes, and what actions if any, may need to be taken to maintain power system security.”

#### **FAST FACTS: SOUTH WEST INTERCONNECTED SYSTEM (SWIS) ELECTRICITY NETWORK**

- Incorporates over 7,800 kilometres of transmission lines from Kalbarri to Albany, and Perth to Kalgoorlie.
- Supplies 18 terawatt hours of electricity a year to over 1 million customers.

#### **Ends**

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#### **ABOUT AEMO**

*AEMO is responsible for operating Australia’s largest gas and electricity markets and power systems, including the National Electricity Market and interconnected power system in Australia’s eastern and south-eastern seaboard, and the Wholesale Electricity Market and power system in Western Australia.*

*AEMO also operates the Victorian Declared Wholesale Gas Market and the Victorian gas transmission system; the wholesale gas Short Term Trading Market hubs in Adelaide, Sydney and Brisbane; the Wallumbilla Gas Supply Hub in Queensland.*

*As Australia’s independent energy markets and power systems operator, AEMO provides critical planning, forecasting and power systems security advice and services to deliver energy security for all Australians. For more information, head to [www.aemo.com.au](http://www.aemo.com.au)*