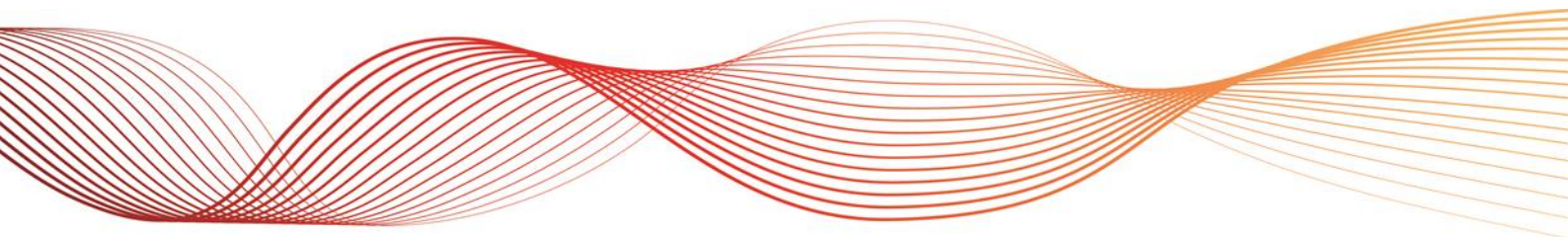




DEMAND SIDE PARTICIPATION

2016 NATIONAL ELECTRICITY FORECASTING REPORT

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IMPORTANT NOTICE

Purpose

AEMO has prepared this document to provide information about estimated demand side participation in the National Electricity Market, as at the date of publication.

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1. INTRODUCTION

This report is part of AEMO's 2016 *National Electricity Forecasting Report* (NEFR) documents. It provides AEMO's 2016 demand side participation (DSP) forecasts for all National Electricity Market (NEM) regions. The forecasts cover a 20-year outlook period from 2016–17 to 2035–36.

DSP can refer to a wide range of short-term demand responses by customers to electricity price signals and network reliability signals. In this report, it specifically means:

- DSP responding to different levels of high prices (market-driven response).
- DSP responding to critical system conditions (reliability-driven response).
- Net demand reduction due to small non-scheduled generation at different levels of high prices (market-driven response).

It excludes regular load management, such as daily control of electric hot water storage heaters, as this is embedded into the maximum demand forecast itself.

2. DEMAND SIDE PARTICIPATION FORECAST

Table 1 provides the estimated DSP available for each state from 2016–17 to 2035–36 relative to wholesale price. For example, in the above table, up to 38.3 megawatts (MW) of DSP is estimated to be available in New South Wales in 2016–17 at times when the electricity wholesale price reaches \$300/megawatt hour (MWh), and up to 50.2 MW when prices reach \$500/MWh.

Table 1 Estimated available DSP in MW by state

	NSW	QLD	SA	TAS	VIC Summer	VIC Winter
Prices > \$300/MWh	38.3	27.3	15.4	4.9	76.7	76.7
Prices > \$500/MWh	50.2	27.9	16.6	4.9	79.0	79.0
Prices > \$1000/MWh	53.2	28.6	17.2	4.9	81.5	81.5
Prices > \$7500/MWh	61.0	82.6	88.1	15.2	141.8	85.0
Reliability response	248.5	147.5	120.2	43.0	141.8	85.0

The entries for reliability responses¹ are the estimated highest level of response of DSP if the alternative is loss of supply. AEMO uses these values in its reliability processes, such as Medium Term Projected Assessment of System Adequacy (MT PASA) and Energy Adequacy Assessment Projection (EAAP).

With the exception of Victoria, where the survey indicated a different seasonal response for prices above \$7,500/MWh, the 2016 estimates of DSP available in each state do not vary between summer and winter.

Note that these estimates exclude DSP for the liquefied natural gas (LNG) projects in Queensland. For an estimate of this DSP please refer to section 2.2 below.

2.1 Differences from 2015 forecast

As in 2015 the forecast is made up of three components:

- Survey of retailers and network companies on available DSP
- Statistical assessment of observed industrial response to high price events since January 2000
- Statistical assessment of observed small non-scheduled generation (SNSG) response to high price events since January 2000

The 2016 forecast is lower than the 2015 forecast for most regions. This is attributed to:

- Decline in observed response from industry, mainly in Victoria (observed response after the closure of Point Henry smelter), but also to a smaller extent Tasmania and New South Wales.
- Decline in forecast response from small non-scheduled generation in South Australia as Lonsdale has moved from being a small non-scheduled generator, which contributed to DSP, to be a scheduled generator that is excluded from the DSP forecast.
- Decline in reported DSP from the survey responses from retailers and network businesses in New South Wales and Queensland.

¹ In previous years, this was referred to as a price response for when prices were at the market price cap (MPC).

2.2 Forecast DSP for LNG projects in Queensland

LNG is an emerging power intensive industry in Queensland with all six committed LNG trains expected to be operational by the end of 2016. Based on research by Lewis Grey Advisory for AEMO², it is assumed there is no DSP available during the ramp-up period. This is attributed to assumption that LNG plants would prioritise their production requirements over short-term commercial decisions such as responding to high wholesale electricity prices.

Beyond the commissioning period, from 2017–18 onwards, Lewis Grey Advisory has estimated that volume of DSP from LNG operations as result of high price signals will remain low. This is a change in assumptions since last year’s report, where some price response was assumed. The revised findings are based on an updated assessment of the impact on LNG operation, and alternatives for managing electricity price risk, including operation of gas-powered generators owned by the same organisations.

AEMO assumes operators of LNG plants will provide DSP from 2017–18 for reliability purposes, that is, to curtail consumption if the alternative is a loss in supply.

The estimated response varies between the strong, neutral and weak sensitivities presented in the 2016 NEFR³, as these see a different projection of LNG demand going forward. The estimated response is listed in the table below.

Table 2 Estimated additional DSP in MW from LNG in Queensland from 2017–18 onwards

	Weak sensitivity	Neutral sensitivity	Strong sensitivity
Prices > \$300/MWh	0	0	0
Prices > \$500/MWh	0	0	0
Prices > \$1000/MWh	0	0	0
Prices > \$7500/MWh	0	0	0
Reliability response	200	300	400

2.3 Methodology

The forecast followed exactly the same methodology as in 2015. Refer to the *2015 Demand Side Participation* report for further information.⁴

² Lewis Grey Advisory, 22 April 2016, *Projections of Gas and Electricity Used in LNG*. Available at: <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/National-Electricity-Forecasting-Report>.

³ AEMO, 16 June 2016, *2016 National Electricity Forecasting Report*. Available at: <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/National-Electricity-Forecasting-Report>.

⁴ AEMO, July 2015, *Demand Side Participation – 2015 National Electricity Forecasting Report*. Available at: <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/National-Electricity-Forecasting-Report>.