

Demand Side Participation

DSP 2019

Agenda

1. Request for DSP information has been communicated.
2. What do we do with the data:
 1. Process
 2. Aggregation (to manage size).
 3. DSP trigger periods.
 4. Response calculation.
 5. Response probability curve.
3. What do we do with the insights:
 1. Supply team use it as extra “supply” coming on at certain triggers.
 2. Next Steps.

Deadline to submit DSP information by end of April

Reminders have been transmitted via AEMO communications as well as the Help desk Bulletin No. 2223

For more information, visit the [AEMO website](#) or contact the [DER Register team](#).

Reminder: Mandatory Demand Side Participation Information Portal (DSPIP) submissions close Tuesday, 30 April 2019

AEMO would like to inform all Registered Participants that the DSPIP will be open until **Tuesday, 30 April 2019** for the mandatory 2019 DSP submissions. This includes participants that do not engage in demand-side activities, who are required to submit a 'nil' response under the guidelines.

Following rule changes in 2015, a new requirement was included in the NER for registered participants to provide demand side participation information to the AEMO. The Australian Energy Regulator (AER) is monitoring participants' provision of this information pursuant to AEMO's Demand Side Participation Guidelines.

The AER will also consider compliance reviews or other forms of regulatory intervention for participants which have not submitted a full response to AEMO.

For more information, view [AEMO's DSP guidelines](#), the [Market Net Portal](#), or contact [AEMO's Support Hub](#).

Spot Market Operations Timetable Consultation

From: AEMO Information & Support Hub

Sent: Thursday, 11 April 2019 3:50 PM

Subject: AEMO Help Desk Bulletin No. 2223 : Reminder: Mandatory Demand Side Participation Submission Closes Soon

Reminder: Mandatory Demand Side Participation Information Portal (DSPIP) Submissions close April 30th, 2019.

AEMO would like to inform all Registered Participants that the DSPIP will be open till April 30th, 2019 for the mandatory 2019 DSP submissions. This includes participants that do not engage in demand side activities, who are required to submit a 'nil' response under the guidelines.

Following rule changes in 2015, a new requirement was included in the National Electricity Rules (Electricity Rules) for registered participants to provide demand side participation information to the Australian Energy Market Operator (AEMO). The Australian Energy Regulator (AER) are monitoring participants' provision of this information pursuant to AEMO's Demand Side Participation Guidelines.

The AER will also consider compliance reviews, or other form of regulatory intervention for participants which have not submitted a full response to AEMO.

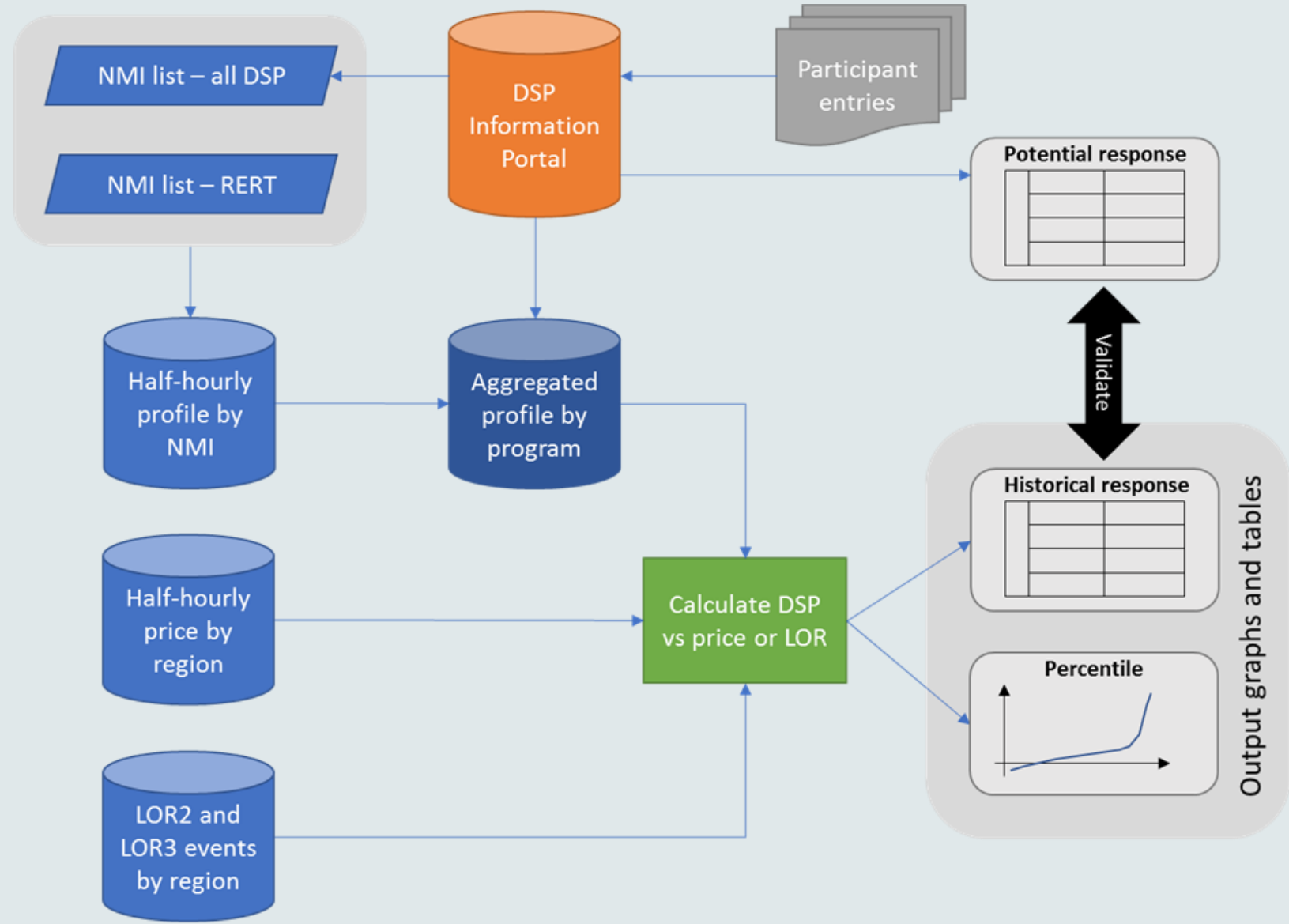
Submissions must be made via the MarketNet Portal: <https://portal.prod.nemnet.net.au>

For further information on AEMO's DSP guidelines please go to: <https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Demand-Side-Participation-Information-Guidelines>

What do we do with the data?

Process of estimating existing levels of DSP in the market.

AEMO's process for estimating existing levels of DSP in the market



Aggregate load profiles

- Once a year, all registered market participants have to provide AEMO with information about their DSP portfolios.
- Part of the information gathered is the National Meter Identifier (NMI) for each individual site; there are approximately 1.5million NMI's that are attached to an active DSP program.
- To manage the huge amount of load data from these, AEMO aggregates them into historical demand series by program and region. In this process, AEMO will:
 - Check for overlap of NMIs across programs.
 - Check for overlap of NMIs of current RERT providers

DSP triggers

AEMO estimates DSP responses for two different trigger types:

- Price triggers – the responses are estimated for when prices exceed different price levels. AEMO models the price triggers \$300/MWh, \$500/MWh, \$1,000/MWh, \$2,500/MWh, \$5,000/MWh, and \$7,500/MWh.
- Reliability triggers – the responses are estimated for periods with actual Lack of Reserve (LOR) 2 and LOR 3 events.

DSP response during trigger periods

The response during the trigger period is found as:

$$DSP \text{ response} = \text{baseline energy} - \text{actual energy}$$

where a positive number reflects DSP lower consumption from the grid.

Calculate a baseline

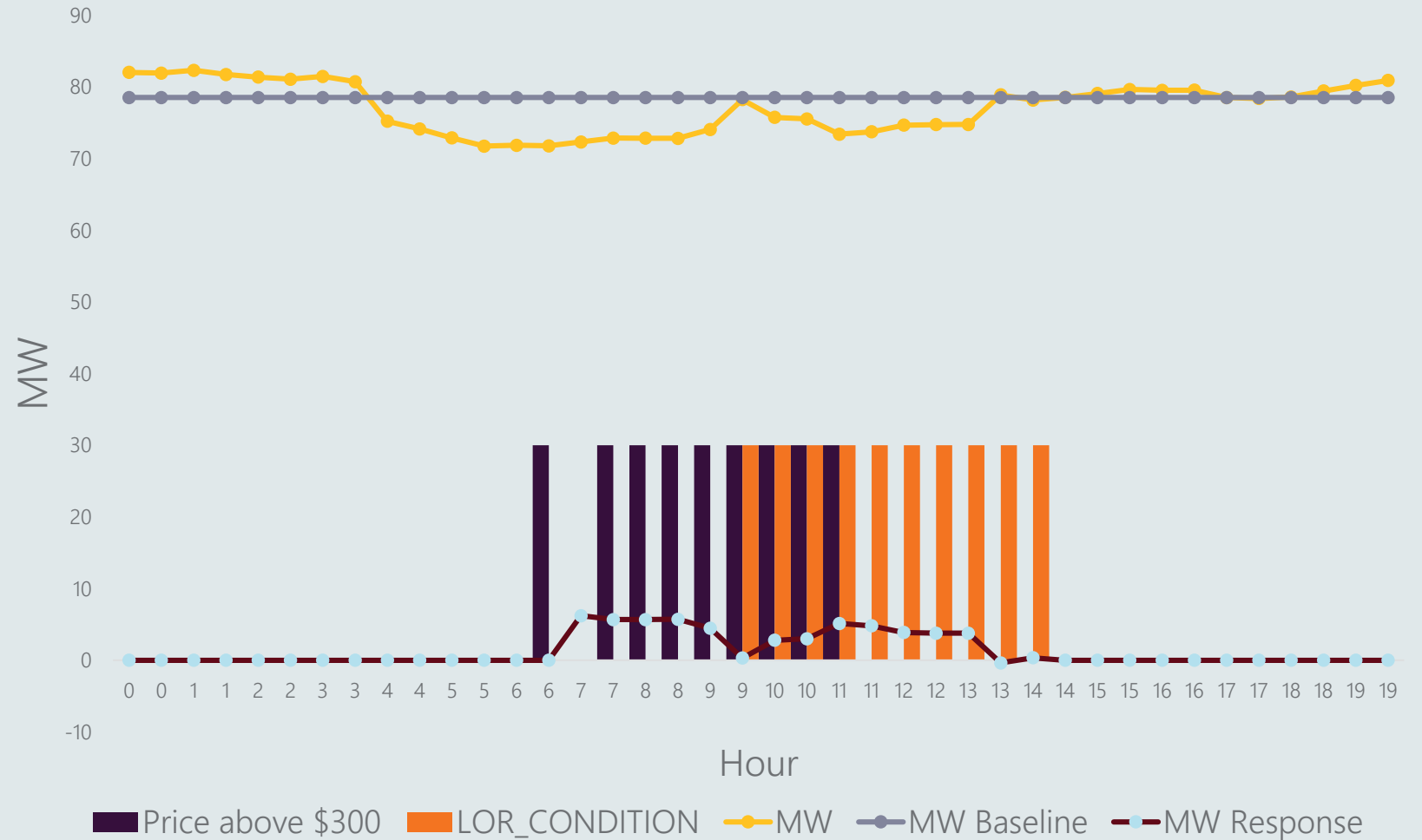
AEMO has implemented two different baseline methodologies to estimate the response during any trigger periods:

- Flat load shape
- Daily load shape

Flat load

Flat or constant load with LOR and price above \$300 trigger.

Flat or Constant Baseline, Response on Price above \$300 and LOR Trigger



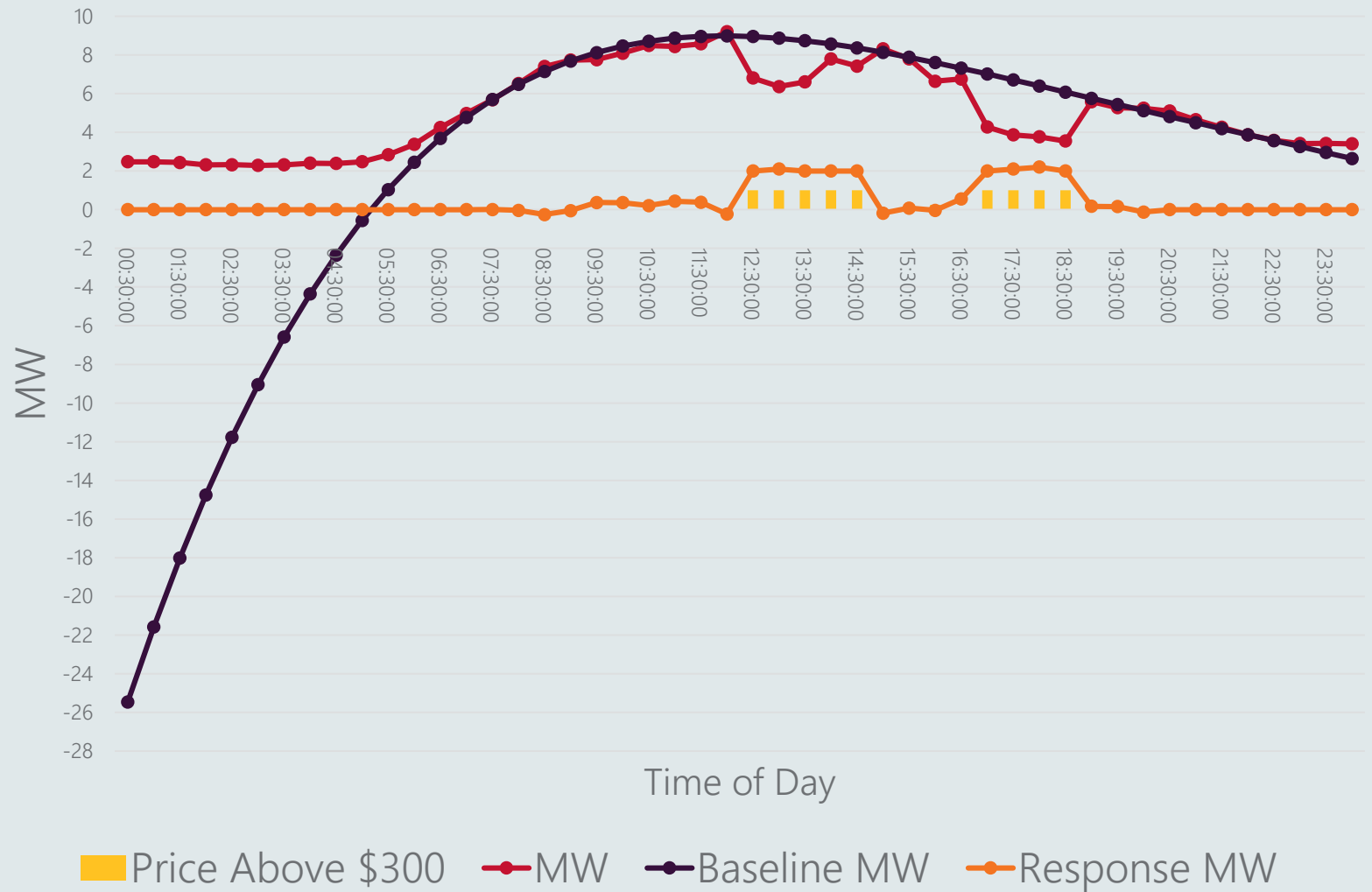
Flat load shape

- Flat load shape – this baseline methodology assumes load across the trigger period would be constant and equal to the average of the average load for all daytime half-hours outside the trigger period.
- This is the typical response of large industrial loads, such as smelters, or back-up generators responding to price spikes.

Daily load

Daily load with price above \$300 trigger.

Daily Load with \$300 Price Trigger



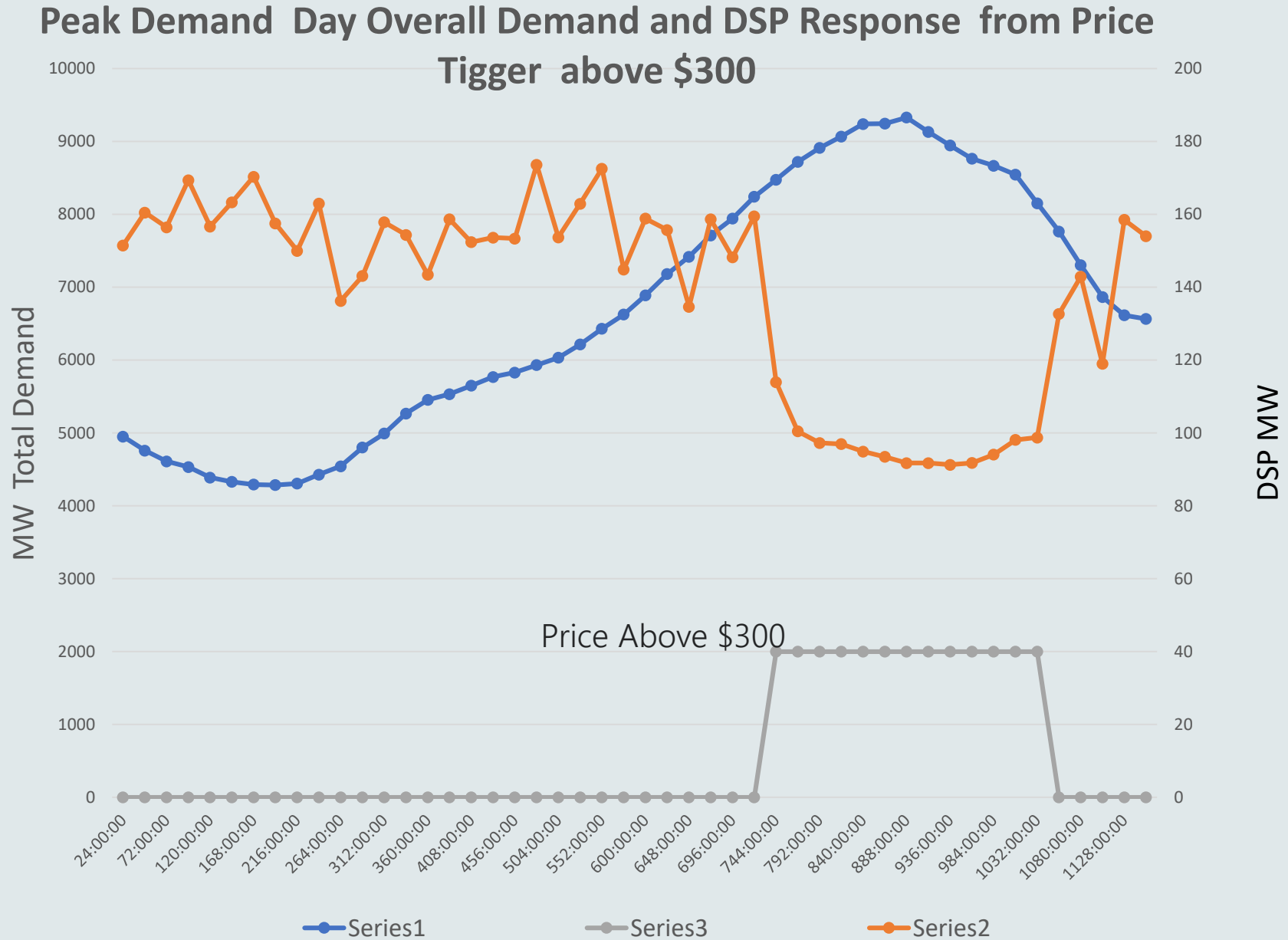
Daily load shape

- Daily load shape – this baseline assumes the load shape would have varied during the period the DSP resource was called.
- AEMO has approximated this through a 4th order polynomial that is fitted through the load in the half-hours just before and just after the trigger period.
- This may be the load shape of customers with temperature sensitive demand (including residential customers), or aggregation of a large number of different customers.

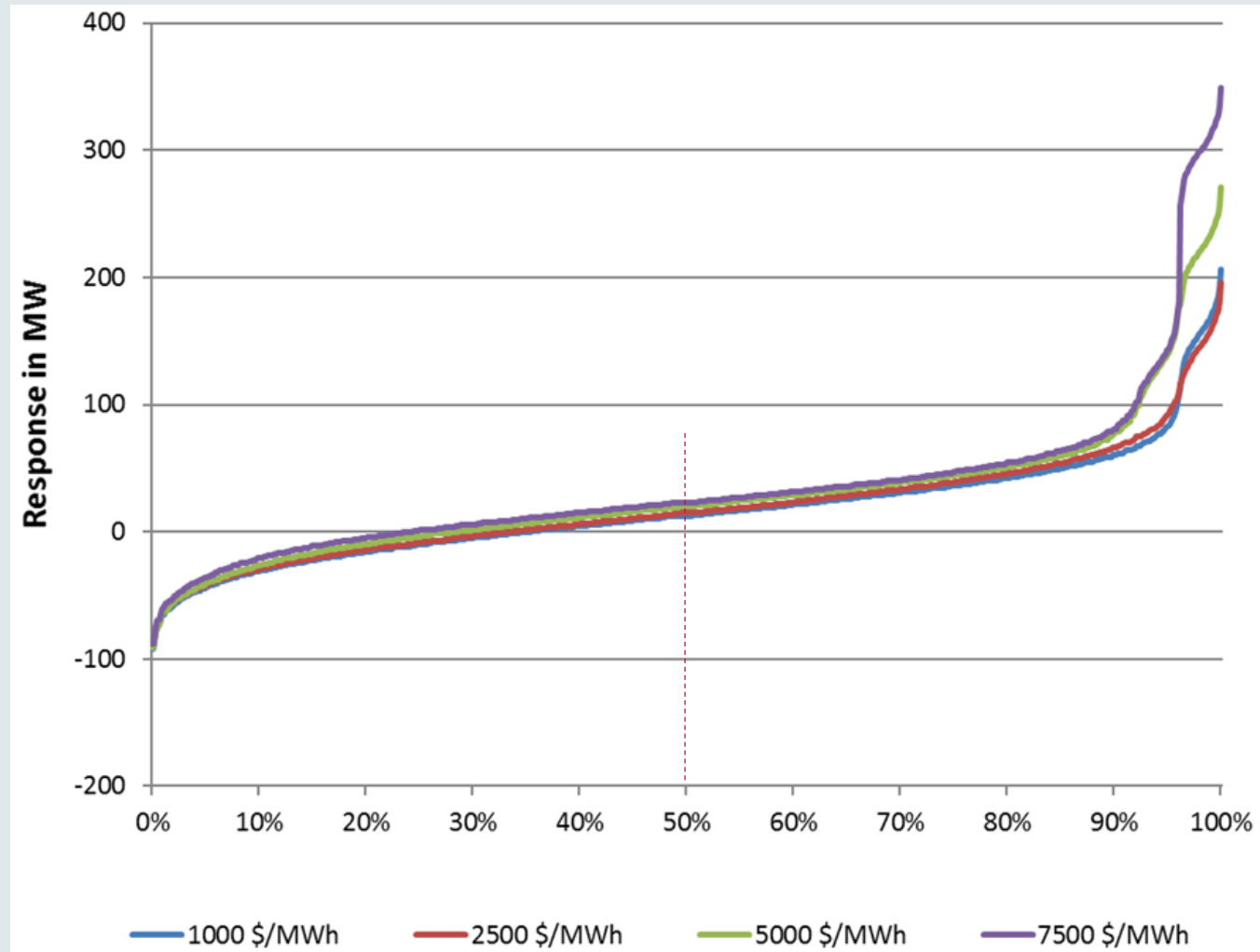
This was the recommended as an approach with a high accuracy in a study by Javad et al. "Baseline Methodologies for Small Scale Residential Demand Response", University of Melbourne, presented at Innovative Smart Grid Technologies (ISGT2016) conference, September 2016.

Aggregate response

Knowing the participating NMs we can quantify the aggregate response.



Example of DSP response to different price levels (percentiles of observed response)



AEMO uses the 50th percentile outcomes in its estimate of the current level of DSP responses for the different price bands.

What do we do with the insights

Supply forecasting , ESOO, MT-PASA

Use of DSP forecast in 2018

Forecast DSP used across AEMO's Market Modelling:

| | NSW | QLD | SA | TAS | VIC |
|-------------|-------|------|-----|------|------|
| \$300/MWh | 77.7 | 32.5 | 1.2 | 5.6 | 28.4 |
| \$500/MWh | 78.0 | 32.8 | 2.1 | 18.8 | 31.4 |
| \$1000/MWh | 78.0 | 33.9 | 2.1 | 19.3 | 33.0 |
| \$2500/MWh | 91.5 | 40.3 | 2.1 | 21.5 | 33.0 |
| \$5000/MWh | 97.2 | 40.3 | 5.4 | 21.5 | 33.0 |
| \$7500/MWh | 105.0 | 40.3 | 6.4 | 21.5 | 33.7 |
| Reliability | 105.0 | 66.4 | 6.4 | 23.2 | 77.2 |

50th percentile response for each price level used as forecast

Adds additional response from network reliability programs where available

Latest DSP (summer) forecast from March 2018 :

- Reliability response used by AEMO in MT-PASA, EAAP, ESOO (assumed current DSP level remain)
- ISP also uses this as well as price responses (projected DSP growth in some scenarios)

Next steps

- End of April
 - DSP information must be submitted
- May
 - Create new DSP forecast for use in 2019 ESOO (including for use in the reliability forecast to be produced as per the Retailer Reliability Obligation rules)
 - Review of network reliability programs and whether their contribution needs to be scaled down
- June
 - DSP forecast to be presented to industry in June FRG meeting
 - DSP forecast used in ESOO modelling.

