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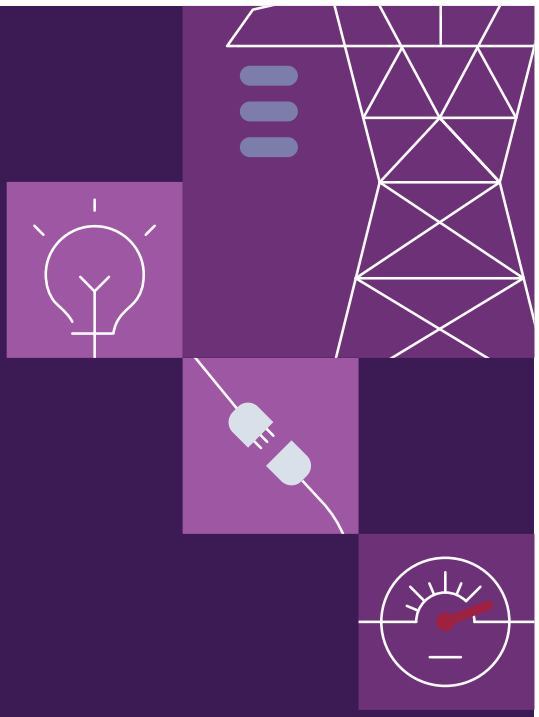

Demand Side Participation Forecast Methodology

Consultation paper

Published: 1 September 2023

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New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia

Australian Energy Market Operator Ltd ABN 94 072 010 327

Explanatory statement and consultation notice

This consultation paper commences the first stage consultation conducted by AEMO to review its Demand Side Participation (DSP) forecast methodology. This consultation is intended to satisfy AEMO's requirements to review each key component of its Forecasting Approach at least every four years, as required by the Australian Energy Regulator's (AER's) Forecasting Best Practice Guidelines (FBPG)[1], and AEMO's Reliability Forecast Guidelines[2].

DSP is a key input into a number of AEMO's reliability processes specified in the National Electricity Rules (NER), including the Electricity Statement of Opportunities (ESOO) and its associated reliability forecast. It refers to the flexibility by electricity consumers to reduce, or avoid, electricity consumption at times, typically if electricity prices are at high levels or if risks are forecast to the reliability of the power system.

Given the importance of the reliability forecast in potentially triggering obligations under the Retailer Reliability Obligation (RRO), AEMO strives to engage with all relevant stakeholders, to ensure the methodologies used for each component of the forecast reflect stakeholder feedback and insights.

The detailed sections of this consultation paper include more information on the matters for consultation, including questions that may prompt feedback from stakeholders. Given the preliminary status of the consultation topics, AEMO is not including a draft or proposed methodology with this consultation paper. A draft DSP forecast methodology will be released with the draft determination, which will take into account the submissions received in this first stage of consultation. Stakeholders will be given a further opportunity to provide feedback on the draft determination and draft DSP forecast methodology prior to finalisation.

Consultation notice

AEMO invites written submissions from interested persons on the issues identified in this paper to energy.forecasting@aemo.com.au by 5:00 pm (Melbourne time) on 29 September 2023.

Stakeholders may make alternative or additional proposals you consider better meet the objectives of this consultation and the national electricity objective in section 7 of the National Electricity Law. Please include supporting reasons.

Before making a submission, please read and take note of AEMO's consultation submission guidelines, which can be found at https://aemo.com.au/consultations. Subject to those guidelines, submissions will be published on AEMO's website.

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so. Material identified as confidential may be given less weight in the decision-making process than material that is published.

AEMO is not obliged to consider any submission received after the closing date and time except in exceptional circumstances. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

[1] At https://www.aer.gov.au/system/files/AER%20-%20Forecasting%20best%20practice%20guidelines%20-%2025%20August%202020.pdf.

[2] At https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/rsig/reliability-forecast-guidelines.pdf?la=en.

Interested persons can request a meeting with AEMO to discuss any particularly complex, sensitive or confidential matters relating to the proposal. Meeting requests must be received by the end of the submission period and include reasons for the request. We will try to accommodate reasonable meeting requests but, where appropriate, we may hold joint meetings with other stakeholders or convene a meeting with a broader industry group. Subject to confidentiality restrictions, AEMO will publish a summary of matters discussed at stakeholder meetings.

Contents

Figures

1. Stakeholder consultation process

This consultation paper commences the first stage of consultation conducted by AEMO to review its Demand Side Participation (DSP) forecast methodology.

This consultation is intended to satisfy the requirements in the AER's FBPG and AEMO's Reliability Forecast Guidelines, which require that AEMO review each component of its Forecasting Approach at least once every four years. The DSP forecast methodology is one component of AEMO's Forecasting Approach and was last consulted on between February and August 2020.

AEMO's indicative process and timeline for this consultation are outlined below. Future dates may be adjusted and additional steps may be included if necessary, as the consultation progresses. In the event that these dates change, AEMO will clearly identify the timetable on the webpage for this consultation.[3]

Consultation steps	Dates
Publication of consultation paper, with stakeholder consultation for this paper commencing.	1 September 2023
Discussion at Forecasting Reference Group meeting	27 September 2023
Submissions on consultation paper due	29 September 2023
Publication of draft determination and draft methodology, with stakeholder consultation for these papers commencing.	27 October 2023
Submissions on draft determination	24 November 2023
Publication of final determination and final methodology to be applied in 2024 Electricity Statement of Opportunities and other relevant reliability modelling.	15 December 2023

Within this same consultation, AEMO is consulting on the DSP Information Guidelines, which is seeking stakeholder feedback on:

- Whether changes should be made to the information collected.
- Whether the process or portal used to collect the data should change.
- Whether the quality of the information submitted can be improved.

Stakeholders may benefit from reading this consultation paper in conjunction with the consultation paper on the DSP Information Guidelines.

[3] At https://aemo.com.au/consultations/current-and-closed-consultations/demand-side-participation-forecasting-methodology-and-dsp-information-guidelines-consultation

2. Background

2.1. Context for this consultation

AEMO's DSP forecast is an input into a number of AEMO reliability and planning processes in the National Electricity Market (NEM), including:

- The Medium Term Projected Assessment of System Adequacy (MT PASA).
- The ESOO and its associated reliability forecast.
- The Integrated System Plan (ISP).

AEMO is required to produce reliability forecasts in accordance with the FBPG and the Reliability Forecast Guidelines.

AEMO's Forecasting Approach[4] sets out the various components that contribute to AEMO's NEM forecasting and planning publications, including the reliability forecast. AEMO's Reliability Forecast Guidelines outline a number of methodology documents that explain the methodologies used for the various processes required to produce the reliability forecast. These methodologies must be consulted on at least every four years using the consultation procedures outlined in Appendix A of the FBPG, to determine:

- The fundamental methodologies needed in the forecasting processes.
- The components on which the forecasts are to be based, and the way they are to be determined and used.
- The stakeholder engagement process for determining the forecasting methodologies, inputs, and assumptions.

The DSP Forecast Methodology is one of the methodologies within AEMO's Forecasting Approach and was last consulted on between February and August 2020. This consultation therefore intends to meet the FBPG requirement to review and consult on the components of AEMO's Forecasting Approach at least once every four years.

2.2. The national electricity objective

Within the specific requirements of the NER applicable to this proposal, AEMO will seek to make a determination that is consistent with the national electricity objective (NEO) and, where considering options, to select the one best aligned with the NEO.

The NEO is currently expressed in section 7 of the National Electricity Law as:

> *to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system.*

[4] At https://aemo.com.au/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-approach.

AEMO will also take into account applicable targets for reducing Australia's greenhouse gas emissions, where consistent with the NEO and the requirements of the NER. AEMO expects any such considerations are likely to be consistent with broader objectives of efficient planning for the long-term interests of consumers of electricity.

3. AEMO's DSP forecast methodology

This section outlines the key areas that AEMO is seeking feedback on in this consultation. This section closely follows AEMO's existing DSP forecast methodology[5] and presents questions on that methodology that stakeholders may elect to address in their written submissions to this consultation. The questions presented in this section are intended to prompt feedback from stakeholders, however stakeholders may provide submissions on relevant matters not specifically referred to in this consultation paper.

3.1. Requirements for AEMO to forecast DSP

Collecting DSP information and accounting for this in its forecasts is a Rules requirement, as outlined in the DSP forecast methodology section 2.1, referring to NER 3.7D. Further specifics are provided in NER 4.9.1(c), which lists the factors that must be taken into account in the development of demand forecasts, to the extent that such are relevant to the particular forecast. DSP is included in this list as NER 4.9.1(c)(6b).

The DSP approach consulted on here is the one used by AEMO to produce the DSP forecast that is applied in AEMO's long term forecasting processes and publications, including:

- MT PASA.
- NEM ESOO (and Retailer Reliability Obligation [RRO] reliability forecasts).
- Energy Adequacy Assessment Projection (EAAP).
- ISP.

The DSP forecast is made specifically to be consistent with the load forecast used in these processes. The load forecast estimates demand in the absence of DSP, and the forecast DSP is used as a resource to lower demand if the various triggers of that demand flexibility are met, should insufficient supply be available in the modelling to meet demand otherwise.

For processes other than these, such as Pre-dispatch and Short Term PASA (PD PASA and ST PASA), AEMO uses a different approach to account for DSP. For example, for Wholesale Demand Response (WDR) AEMO is using the market dispatch offers[6] supplied by participants directly.

3.2. Categorising DSP

AEMO's DSP forecast represents a subset of overall demand flexibility and is sometimes also referred to as demand response. Demand flexibility describes consumers' capability to shift or adjust their demand. This flexibility is usually achieved through the use of (automated) technology, but also involves consumers making manual adjustments to load or generation resources, typically in response to price signals.

[5] See https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/demand-side-participation/final/demand-side-participation-forecast-methodology.pdf.

[6] See https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/procedures/so_op_3703-short-term-reserve-management.pdf.

Demand flexibility exists in many forms, from residential consumers on time-of-use tariffs or using battery storage, to large industrial facilities capable of reducing consumption or starting embedded generators during high-price events.

For practical purposes when it comes to collecting information on, forecasting and reporting on DSP, AEMO groups DSP into two broad categories:

- Market-driven responses:
  - This category includes residential, commercial, and industrial responses that are typically triggered in respect to specific and identifiable price signals.[7]
    - Examples include industrial facilities that are exposed to the wholesale price and elect to reduce electrical load at times of high prices, consumers who are incentivised to switch off air-conditioners, and small non-scheduled generators that have the ability to produce electricity at these times, offsetting local consumption.
- Reliability event responses:
  - This category includes consumer responses that are called on when power system reliability requires support. They are most common under Lack of Reserve (LOR) conditions, although they often also coincide with high wholesale prices. These responses can be contracted.
  - As an example, network event programs that may be aimed at distribution network demand management are included in the reliability event group (for instance, on a set maximum number of days per year, networks may call upon agreements to reduce demand or incentivise reductions through temporary increases in electricity costs).

Questions

1. **Does the classification of DSP into market-driven responses and reliability responses provide a useful distinction of the high-level drivers of DSP?**

3.3. DSP in AEMO's demand and supply forecasts

As noted in section 2.2 of the DSP forecast methodology, AEMO's DSP definitions (see previous section) are restricted to avoid double-counting. That is, demand flexibility that is used regularly is already included in AEMO's demand forecasts, because this regular use of demand flexibility is contained in the historical data on which AEMO's forecasting models are trained. An example of this type of DSP is daily load control (such as hot water), or the consumption of energy by customers on time-of-use tariffs. This type of demand flexibility is therefore excluded from AEMO's DSP forecasts (but implicitly included in its energy and demand forecasts).

Another notable exclusion from DSP is any response from loads which were contracted for long-notice Reliability and Emergency Reserve Trader (RERT)[8] and responses delivered by short- and medium-term RERT panel members when activated under RERT. This is because AEMO's forecasts of unserved energy need to consider supply and demand without the RERT responses, so that forecast unserved

[7] This is distinct from a customer reducing its demand in response to a general increase in electricity prices, which is captured in AEMO's price elasticity assumptions within its energy forecasts.

[8] See https://aemo.com.au/en/energy-systems/electricity/emergency-management/reliability-and-emergency-reserve-trader-rert.

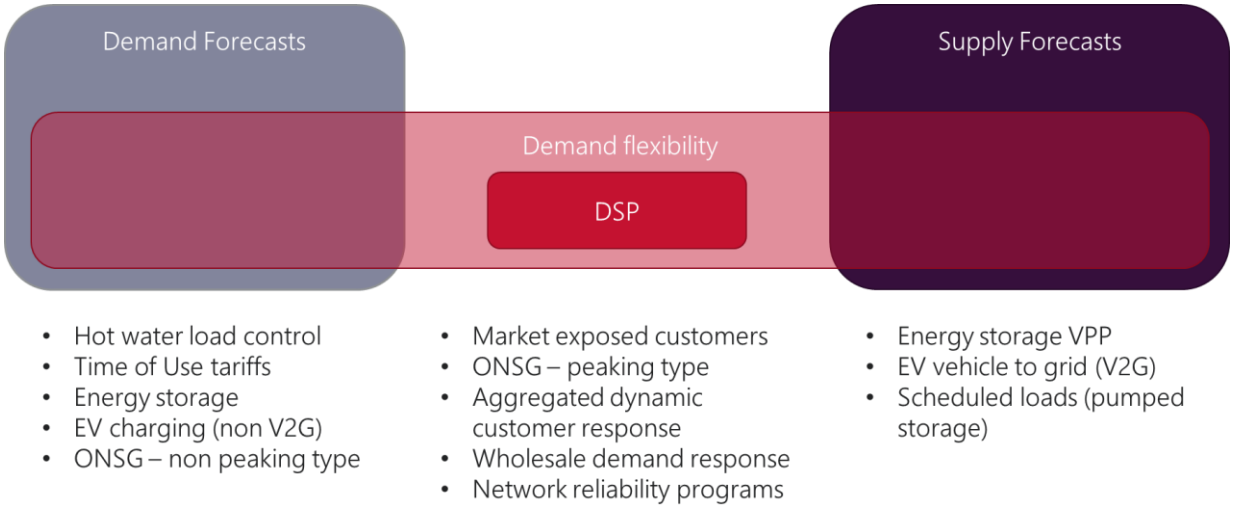
energy in excess of the relevant reliability standard can be detected and guide the need for RERT resources in the coming year. On the other hand, responses from loads which were on the RERT panel, but were not activated for RERT at that time, *are* included in the DSP assessment for those periods, because the response (if any) was not driven by RERT contracts.

Demand flexibility may also be provided by electric vehicles (for example, through vehicle-to-grid flows) and battery storages orchestrated via virtual power plants (VPPs). These are both modelled and forecast by AEMO separately to DSP forecasts, therefore are excluded from the DSP forecast.

Finally, price-responsive embedded (or small) generators behave in a similar manner to DSP load reductions. Their generation offsets demand at times of high prices and/or reliability events and thus they are included in the DSP forecast.

Figure 1 depicts which types of load are included in AEMO's DSP forecasts.

Figure 1 Flexible demand sources included in AEMO's DSP forecast



Questions

2. **Does AEMO's DSP forecast methodology adequately explain why certain types of demand response are included or excluded in AEMO's DSP forecasts?**
3. **Are the inclusions and exclusions described in AEMO's DSP forecast methodology appropriate when preparing a DSP forecast?**

3.4. DSP forecasting cycle

Section 2.3.3 of AEMO's DSP forecast methodology sets out the annual DSP forecasting cycle, which in summary is:

- Collecting DSP information from market participants by the end of April of each year.
- Publishing a DSP forecast no later than the publication date of the ESOO.
- Following publication of the ESOO, assessing the accuracy of the different components of the previous year's forecasts (including DSP) and reporting on the findings, as well as any areas for improvement, in the annual Forecast Accuracy Report (FAR).

AEMO is not proposing to alter the above DSP forecasting cycle. However, as noted in the consultation paper on the DSP Information Guidelines, AEMO is seeking feedback on whether to keep access to the portal open all year round, rather than opening it at the start of April. Stakeholders are encouraged to provide feedback on that topic via the consultation on the DSP Information Guidelines.

Question

4. Do you agree with AEMO's proposal to retain the existing annual DSP forecasting cycle?

3.5. Current DSP

Section 3.1 of the DSP forecast methodology sets out AEMO's data sources, the DSP program categories and the logic for how AEMO treats NMIs that are part of more than one DSP program. In summary:

- AEMO relies on data uploaded by market participants to AEMO's DSP Information Portal (DSP IP), which includes:
  - The National Meter Identifier (NMI) for each customer that meets the criteria of the DSP information guidelines.
  - Demand response program information.
  - Potential customer response amounts (in megawatts) where relevant.

  This information is validated against AEMO's own data sources.
- In instances where a NMI is part of several DSP programs, or part of an included DSP program and an excluded DSP program, AEMO does not attempt to split the DSP response into those distinct DSP programs. This is due to the difficultly in analysing the available meter data to make a determination of what proportion of the DSP response was attributable to a given DSP program.

Questions

5. Do stakeholders have any feedback on how the DSP forecast methodology describes the source of AEMO's DSP data, or how it treats NMIs which are part of multiple DSP programs?

3.6. Estimating current level of DSP

Section 3.2 of the DSP forecast methodology explains how AEMO estimates the current level of DSP. At a high level, AEMO's approach involves:

- Aggregating meter data by NEM region, according to the two response categories (market-driven and reliability event responses),
- Any NMI exhibiting both responses (market driven and reliability event) is allocated to the market-driven category, to avoid duplication
- Using a three-year time series for the analysis of historical DSP responses, which provides a balance between recent customer behaviour and a large enough sample size. AEMO may choose to use a

different time period, to ensure sufficient DSP events are in the training dataset or to avoid unrepresentative periods

- Identifying the wholesale price and periods where LOR events have occurred.

Using baseline demand to estimate DSP

For each identified trigger event (typically a price event), a baseline is required to estimate the DSP response for the duration of the period the trigger conditions are met. A baseline is an estimate of a consumer's demand in the absence of a DSP response.

AEMO:

- Calculates a baseline (counterfactual) demand for each trigger event, whereby aggregated loads in the absence of a DSP response are estimated using one of three models for each event period, then
- Subtracts actual observed demand from the calculated baseline to provide an estimate of DSP at a given market interval.

Wholesale demand response mechanism

Since the development of the DSP forecast methodology, the WDR Mechanism has been established[9]. The WDR mechanism allows for DSP in the wholesale electricity market at any time, however, most likely at times of high electricity prices and electricity supply scarcity. Demand Response Service Providers (DRSPs) classify and aggregate the demand response capability of large market loads for dispatch through the NEM's standard bidding and scheduling processes.

The DRSP receive payment for the dispatched response, measured in megawatt hours (MWh) against a baseline estimate, at the electricity spot price.

WDR is therefore a type of DSP and it must be included in AEMO's DSP forecasts. To establish the current level of WDR, AEMO analyses the most recent year of WDR activity to establish the likelihood of a WDR response for each trigger event, as well as the mean response in megawatts (MW) for each trigger event[10].

Response by event

DSP responses are currently estimated for any period where the following event trigger conditions are met:

- Price triggers, that is, DSP response where wholesale electricity prices[11] exceed:
  - $300/MWh.
  - $500/MWh.
  - $1,000/MWh.

[9] For more information on WDR, see https://aemo.com.au/en/initiatives/trials-and-initiatives/wholesale-demand-response-mechanism.

[10] One year, instead of three years, is used for WDR analysis due to the recent creation of the mechanism. The growth in WDR responses means that the most recent year is a better indicator of baselined WDR response than a longer term average.

[11] To match the time resolution of AEMO's supply modelling, the prices used are half-hourly average prices, with the associated DSP responses estimated reflecting the average response over the same 30-minute period.

  - $2,500/MWh.
  - $5,000/MWh.
  - $7,500/MWh.

- Reliability triggers, that is, DSP response in periods with actual LOR 2 or LOR 3 events[12].
- Load-on trigger, that is, *increases* in demand where the price is less than $0/MWh.

In a recent draft report on AEMO's Forecast Accuracy Report methodology[13], the University of Adelaide recommended that AEMO consider revising its price triggers away from "greater than" categories (which can have a mix of low, medium and high prices, for example, in the case of >$300/MWh) into disjoint categories, for example, "between $300/MWh and $500/MWh". The University of Adelaide noted that having a smaller price band comes at the expense of having a smaller sample size, and recommended that AEMO consider having fewer price triggers, but making each trigger mutually exclusive.

AEMO considers that this recommendation has merit and is seeking stakeholder views on AEMO adopting the following price trigger bands for the draft DSP forecast methodology:

- ≥$300/MWh to <$1,000/MWh.
- ≥$1,000/MWh to <$7,500/MWh.
- ≥$7,500/MWh to the market price cap (currently $16,600/MWh).

AEMO considers that the above price triggers appropriately balance the number of price bands with the likelihood of having adequate sample sizes in each price band.

DSP response probabilities

As section 3.2.3 of the DSP forecast methodology notes, DSP responses vary even for the same trigger value. For each trigger and response category, AEMO forms a DSP response probability curve from historical DSP responses. It then uses the 50th percentile of DSP response at each price trigger as the most reasonable estimate of the response distribution for future DSP.

AEMO intends to continue using the 50th percentile of DSP response at each price trigger as the basis for its future DSP forecasts.

DSP during reliability events

Section 3.3 of the DSP forecast methodology notes that LOR 2 and LOR 3 events are extremely rare and therefore the sample size on which to estimate a DSP response is small. To overcome this, AEMO starts with the 50th percentile of responses above $7,500/MWh as an approximation of the likely DSP response to a reliability event, as such events usually coincide with prices being very high.[14]

[12] See AEMO's reserve level declaration guidelines, at https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/reserve-level-declaration-guidelines.pdf.

[13] Presented at the August 2023 Forecasting Reference Group. At https://aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/forecasting-reference-group-frg.

[14] To be clear, there is no duplication involved in using the above $7,500/MWh response. It is simply the starting point to which incremental reliability responses (network event programs or other adjustments) are added.

To this, AEMO is adding any responses from programs that are not price-driven, but target reliability directly. These programs are typically operated by network service providers and targets to deliver DSP at times of high network demand and/or in times where networks are more likely to experience reliability events. Rather than estimating the impact of network event programs itself, AEMO requests that the organisations running the network event programs provide an estimate of the DSP response. This estimate is added to AEMO's estimate of DSP response using the $7,500/MWh price trigger described above.

AEMO may also make adjustments to its DSP estimate for reliability events where AEMO learns of new loads or changes to consumption patterns that may reasonably result in changed DSP response during reliability events. It can for example be from larger loads that don't respond consistently to price signals, but do so only if risk of reliability issues, in which case any response not reflected in the 50th percentile price response will be added.

Each year, AEMO assesses the accuracy of the combined reliability response estimate against any appropriate reliability events[15].

Network event programs and other adjustments to reliability response

In addition to using the 50th percentile of responses above $7,500/MWh in its assessment of DSP during reliability events, AEMO also uses information gathered from market participants (usually network service providers) who run network event programs. These programs target DSP at times of high network demand and/or in times where networks are more likely to experience reliability events.

Rather than estimating the impact of network event programs itself, AEMO requests that the organisations running the network event programs provide an estimate of the DSP response. This estimate is added to AEMO's estimate of DSP response using the $7,500/MWh price trigger described above.

AEMO may also make adjustments to its DSP estimate for reliability events where AEMO learns of new loads or changes to consumption patterns that may reasonably result in changed DSP response during reliability events.

Load-on DSP

Section 3.4 of the DSP forecast methodology notes that DSP can also include load increase (and/or reduction of embedded generation) during low or negative price events. This type of DSP can be an important means to address power system security issues during minimum load conditions.

This type of response is assessed in the same way as other price triggers, using a calculated baseline as a reference point, and AEMO will include load-on DSP as it starts seeing evidence of such behaviour.

Duration of DSP response

Currently, AEMO does not analyse the duration over which DSP can be activated during a price or reliability event. The way DSP is calculated reflects the median response across the historical range of durations a particular trigger is met. AEMO does not attempt to further disaggregate each price trigger into responses that lasted for a specific set of durations. If the future range of durations (and the

[15] The accuracy of the approach is assessed annually in AEMO's Forecast Accuracy Reports, at https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/nem-forecasting-and-planning/forecasting-and-reliability/forecasting-accuracy-reporting.

distribution of those) differ from the historical, the calculated response (which is based on the median) may no longer be appropriate. In particular, there may be an opportunity for longer duration DSP response to help balance the system during longer periods of low wind and/or solar generation, but the estimated DSP from history will not reflect its use for such longer periods.

Therefore, when consulting on an update to the ISP Methodology[16], AEMO proposed to limit the daily energy contribution from the reliability response band of DSP to a maximum of two hours of continuous operation. This update was proposed to reflect that the conditions corresponding to the reliability response band typically do not exceed two hours in duration per event. This is in line with how it is currently applied in AEMO's MT PASA and ESOO processes. AEMO did not propose to limit the demand response at lower price bands, on the understanding that DSP accessed through lower price bands is called upon more frequently and for longer durations than DSP accessed through the reliability response band.

Several stakeholders submitted feedback on this proposal, both in support of and in opposition to the two-hour limit for DSP relating to reliability response. In the finalised ISP Methodology to apply for the 2024 ISP, AEMO confirmed it would retain the original proposal to limit the daily energy contribution from the reliability response band of DSP to two hours and allow the DSP applied in lower price bands to behave in a more dynamic and flexible manner. AEMO committed to monitor actual market data and engage with stakeholders to investigate whether there is an improved approach to capture future DSP behaviour for future ISPs.

AEMO will consult on broadening the DSP information guidelines to ask market participants to indicate the potential duration of a DSP response. AEMO may use this information, or its own analysis, to incorporate a potential duration of DSP response in its DSP forecasts.

Questions

6. **Is it appropriate to assign NMIs that fall into two response categories to the 'market-driven' category?**
7. **Does a three year time series for historical analysis provide an appropriate balance between recent customer behaviour and a large enough sample size?**
8. **Could AEMO's approach to calculating baseline demand be improved? If so, how?**
9. **Could AEMO's approach for assessing the level of WDR be improved? If so, how?**
10. **Do you support AEMO's proposed consolidation of the price trigger bands? If not, do you have any views on what the price triggers (or bands) should be and what use each trigger or band provides to stakeholders?**
11. **Do you support using the 50th percentile of DSP response at each price trigger? If not, do you have any suggested improvements to reflect the variation in DSP response at the same price trigger?**
12. **Do you support AEMO's approach to estimating DSP for reliability events? If not, do you have any suggestions for how DSP during reliability events should be estimated?**

[16] At https://aemo.com.au/consultations/current-and-closed-consultations/consultation-on-updates-to-the-isp-methodology.

Questions
13. Is it appropriate for AEMO to use the estimates of DSP response from organisations undertaking network event programs?
14. Is it appropriate to assess load-on DSP in the same manner as other price triggers?
15. Would you support AEMO adding to its DSP forecast methodology by calculating the potential duration of DSP response to a certain trigger event? Do you have any suggestions for how this may be calculated?

3.7. DSP in AEMO's forecasting and planning publications

The following sections explain how AEMO uses its DSP forecasts in its long term forecasting and planning publications, such as the ESOO and ISP.

3.7.1. DSP in the ESOO and reliability forecast

Section 4.1 of the DSP forecast methodology describes how AEMO assesses whether a DSP program is "committed"; that is, will continue to operate over the period of its DSP forecast. In summary, DSP projects are considered committed if they are:

- reported through the DSP IP as qualifying contracts under the Retailer Reliability Obligation (RRO), or
- an approved Demand Management Incentive Scheme (DMIS) initiative under the AER's revenue reset process, or
- other initiatives providing a similar level of certainty of the DSP progressing. For example, in the 2023 ESOO, AEMO included the New South Wales Peak Demand Reduction Scheme (PDRS).

Any reported closures of sites with currently active DSP are removed from the forecasts.

For the ESOO and associated reliability forecast, AEMO's DSP forecast assumes the existing level of DSP (as described in section 3.6) and any committed changes, as outlined above. In other words, for the ESOO, AEMO assumes that the DSP capacity remains static over the forecast horizons for use in reliability forecasts. The reason for this approach is to remain consistent with the other supply-side assumptions in the ESOO, which adopt an existing/committed criteria for inclusion in the ESOO.

This 'static' approach differs to the approach used in the ISP (refer section 3.7.2**Error! Reference source not found.**), which has a longer forecast horizon than the ESOO and presents multiple forecast scenarios and sensitivities. This is different to the reliability forecast in the ESOO, which is based on a a Central forecast, considered the most likely of AEMO's scenarios and based on the above criteria.

AEMO seeks stakeholder views on the appropriateness of the DSP forecast applied in the reliability forecast, which is based on existing DSP and committed changes.

Question
16. Should the DSP forecast used in the ESOO and associated reliability forecast continue to be based existing DSP and committed changes, consistent with the other ESOO supply-side criteria?

3.7.2. DSP in the ISP and other long-term studies

Section 4.2 of the DSP forecast methodology outlines AEMO's approach to forecasting growth in DSP for the ISP and longer-term studies. In summary, the process involves:

- Establishing the current level of DSP.
- Making assumptions around committed (see section 3.7) and, separately, forecast future DSP projects in the next five years.
- Defining the magnitude of DSP relative to maximum demand at that five-year time horizon and and linearly interpolating the trend from this point to meet the scenario-specific target at the end of the forecast period.

Currently, the scenario-specific DSP target – that is, the potential of DSP as a percentage of regional maximum demand at the end of the forecast period – is based on a literature review of the potential for demand response in international energy markets, primarily the United States and Europe.

AEMO seeks stakeholder views on its approach to forecasting growth in DSP for long-term planning studies such as the ISP. For example, the current approach to setting a DSP target (based on a literature review) is not the only way to determine such a target and AEMO is seeking stakeholder views on alternative approaches.

Question
17. Is AEMO's approach to forecasting growth in DSP over longer-term forecasting horizons reasonable? Can you suggest any improvements to AEMO's forecasting approach for growth in DSP?

3.8. Validation of DSP forecasts

To validate its estimate of the existing DSP response, AEMO:

- Cross-checks the results against data submitted to the DSP IP (including directly meeting with market participants where required).
- Compares it to the most recent observed DSP responses to both high price and reliability events.
- Presents draft DSP forecasts to the Forecasting Reference Group for stakeholder feedback.

AEMO intends to retain these validation steps in the update to the DSP forecast methodology.

Question
18. Should AEMO be undertaking any additional validation steps for its DSP forecasts?

4. Summary of issues for consultation

Submissions may be made on any matter relating to the proposal discussion in this consultation paper. AEMO would welcome particular comment and feedback on the following matters. AEMO would also welcome additional feedback on relevant and material issues not described in this Consultation paper.

Questions

1. **Does the classification of DSP into market-driven responses and reliability responses provide a useful distinction of the high level drivers of DSP?**
2. **Does AEMO's DSP forecast methodology adequately explain why certain types of demand response are included or excluded in AEMO's DSP forecasts?**
3. **Are the inclusions and exclusions described in AEMO's DSP forecast methodology appropriate when preparing a DSP forecast?**
4. **Do you agree with AEMO's proposal to retain the existing annual DSP cycle?**
5. **Do stakeholders have any feedback on how the DSP forecast methodology describes the source of AEMO's DSP data, or how it treats NMIs which are part of multiple DSP programs?**
6. **Is it appropriate to assign NMIs that fall into two response categories to the 'market-driven' category?**
7. **Does a three year time series for historical analysis provide an appropriate balance between recent customer behaviour and a large enough sample size?**
8. **Could AEMO's approach to calculating baseline demand be improved? If so, how?**
9. **Could AEMO's approach for assessing the level of WDR be improved? If so, how?**
10. **Do you support AEMO's proposed consolidation of the price trigger bands? If not, do you have any views on what the price triggers (or bands) should be and what use each trigger or band provides to stakeholders?**
11. **Do you support using the 50th percentile of DSP response at each price trigger? If not, do you have any suggested improvements to reflect the variation in DSP response at the same price trigger?**
12. **Do you support AEMO's approach to estimating DSP for reliability events? If not, do you have any suggestions for how DSP during reliability events should be estimated?**
13. **Is it appropriate for AEMO to use the estimates of DSP response from organisations undertaking network event programs?**
14. **Is it appropriate to assess load-on DSP in the same manner as other price triggers?**
15. **Would you support AEMO adding to its DSP forecast methodology by calculating the potential duration of DSP response to a certain trigger event? Do you have any suggestions for how this may be calculated?**

Questions
16. Should the DSP forecast used in the ESOO and associated reliability forecast continue to be based existing DSP and committed changes, consistent with the other ESOO supply-side criteria?
17. Is AEMO's approach to forecasting growth in DSP over longer-term forecasting horizons reasonable? Can you suggest any improvements to AEMO's forecasting approach for growth in DSP?
18. Should AEMO be undertaking any additional validation steps for its DSP forecasts?