ISSUES PAPER – DEMAND SIDE PARTICIPATION INFORMATION GUIDELINES

21 November 2016

AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

EXECUTIVE SUMMARY

This Issues Paper commences the consultation on the development of Demand Side Participation Information Guidelines (DSP Information Guidelines) required under clause 3.7D of the National Electricity Rules (Rules).

The DSP Information Guidelines will require participants to submit specified information to AEMO that will be used by AEMO when developing or using electricity load forecasts. AEMO will have access to better quality information through the application of the DSP Information Guidelines to further develop and improve its current load forecasting.

AEMO has prepared this Issues Paper to facilitate an informed debate around any issues relating to the DSP Information Guidelines.

AEMO proposes that the DSP Information Guidelines:

- Provide for the annual collection of DSP data, where it would not require analysis or interpretation by participants, which reduces the impact on them and allows AEMO to analyse and interpret the data effectively and efficiently.
- Focus on obtaining details relating to intra-day demand response, either due to price signals or network loading.
- Commence on a date that will be determined after consultation with affected Registered Participants.

AEMO invites all Registered Participants and any other interested parties to provide feedback on the proposed DSP Information Guidelines

Stakeholders are invited to submit written responses on the issues and questions identified in this paper by 5.00 pm (Melbourne time) on 19 January 2017. Please email submissions to energy.forecasting@aemo.com.au.

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1. STAKEHOLDER CONSULTATION

AEMO is consulting on issues relating to the Demand Side Participation Information Guidelines that AEMO will develop under clause 3.7D of the National Electricity Rules (Rules). This Issues Paper includes information provided by interested parties through pre-consultation meetings held through August and September 2016.

This consultation will be conducted in accordance with clause 8.9 of the Rules.

AEMO's indicative timeline for this consultation is outlined in the table below. Dates may be adjusted depending on the volume and complexity of issues raised in submissions and any meetings with stakeholders. Stakeholders will have advance notification of any date changes.

Deliverable	Indicative date
Issues Paper published	Monday 21 November 2016
Submissions due on Issues Paper	Thursday 19 January 2017
Draft Report published	Monday 20 February 2017
Submissions due on Draft Report	Monday 6 March 2017
Final Report published	Wednesday 19 April 2017

Prior to the submissions due date, interested parties can request a meeting with AEMO to discuss the issues raised in this Issues Paper.

2. BACKGROUND

2.1 National Electricity Rules requirements

This Issues Paper concerns the application of clause 3.7D of the Rules, which was introduced by the AEMC on 26 March 2015.[1]

Clause 3.7D(e) of the Rules requires AEMO to develop, maintain and publish guidelines that require Registered Participants to provide Demand Side Participation (DSP) information to AEMO, and that AEMO must take this information into consideration when developing its electricity load forecasts in accordance with the Rules. It further specifies that the DSP Information Guidelines must specify:

- The information required to be submitted by Registered Participants.
- When the information must be provided and updated by Registered Participants.
- How the information must be provided by Registered Participants.
- AEMO's methodology for assessing the accuracy of DSP information submitted in accordance with the DSP Information Guidelines.
- The manner and form in which AEMO will publish details in accordance with clause 3.7D(d).

Clause 3.7D(d) of the Rules requires AEMO to, no less than annually, publish details on the extent that the information received has informed AEMO's development, or use, of load forecasts.

Clause 3.7D(h) of the Rules requires that, in this case, the DSP Information Guidelines will commence no sooner than three months following publication of the first version.

[1] Australian Energy Market Commission, Final Rule Determination: National Electricity Amendment (Improving demand side participation information provided to AEMO by registered participants) Rule 2015 No. 4.

AEMO was required to develop and publish the DSP Information Guidelines by 26 September 2016, with a minimum three months period before they come into effect. In June 2016, AEMO notified the AER[2] that it would be unable to publish them by 26 September 2016, and will now publish these by 31 May 2017.

2.2 Context for this Consultation

Before the commencement of clause 3.7D, AEMO had a practice of surveying Registered Participants for DSP information, but not all responded, and the responses varied in quality. AEMO could make better use of quality DSP information to improve the efficiency of its market operational functions under the NER, and as an input into its public reporting obligations. This could in turn provide participants and consumers with better information to support investment and consumption decisions.

Clause 3.7D of the Rules allows AEMO to establish a process to obtain information on DSP from Registered Participants. AEMO understands that the purpose of this rule is to encourage greater DSP by consumers in Australia's energy markets.

3. AEMO CONSIDERATIONS

This Issues Paper seeks feedback on the development of the DSP Information Guidelines with particular focus on the information requirements, the method by which data accuracy will be considered, AEMO's reporting, and the proposed commencement date.

3.1 Information requirements

3.1.1 AEMO information usage

Clause 3.7D(c) provides that AEMO must take into account the DSP information it receives when developing or using load forecasts for its functions. This includes, but is not limited to, the following:

- Maximum demand forecasting – including the National Electricity Forecasting Report (NEFR) and the associated Demand Side Participation, and Transmission Connection Point Forecasting Reports (TCPF).
- Operational forecasting – such as the pre-dispatch forecast, Short Term Projected Assessment of System Adequacy (STPASA), and Medium Term Projected Assessment of System Adequacy (MTPASA).

AEMO will determine the suitability, including costs and benefits, of using the DSP information provided to AEMO within the different forecasting requirements across different time horizons.

Maximum Demand forecasting

DSP information is relevant to both the NEFR and TCPF due to the impact that demand reduction may have on the magnitude and timing of maximum demand at the regional and transmission connection point[3] level. These reports are key inputs into the Electricity Statement of Opportunities (ESOO) and National Transmission Network Development Plan (NTNDP), which are key drivers of investment and augmentation decisions across the NEM.

Operational forecasting

There are several ways in which DSP information could be used in AEMO's operational forecasting functions:

- Data from the NEFR DSP report is currently used as an input to MTPASA, which provides an assessment of power system security and reliability.

[2] Australian Energy Regulator, Quarterly Compliance Report: National Electricity and Gas Laws (April – June 2016).
[3] A transmission connection point is the physical point at which the assets owned by a transmission network service provider (TNSP) meet the assets owned by a distribution network service provider (DNSP).

- AEMO intends to develop a model to forecast the behaviour of grid-connected batteries, and data will be required to train and test this model.
- DSP information can be used to investigate and correct anomalous behaviour in short term forecasts such as pre-dispatch by providing visibility on how demand is likely to respond at times of high market prices or network loading.

Operational forecasts directly impact market systems which, in turn, contribute to managing power system security. Any changes to these processes need to be planned, and AEMO will consult with stakeholders before any changes are implemented.

3.1.2 Frequency of data submission

AEMO currently uses and publishes DSP information in publications such as the annual NEFR. At this stage, AEMO intends to collect DSP information on an annual basis. This initial approach minimises the impact on Registered Participants while providing data at a suitable time for input into these forecasts.

Any changes to the collection frequency in the future will be discussed with stakeholders before implementation.

3.1.3 Timing of data submission

To ensure the currency of AEMO forecasts, AEMO will seek to align the information collection process with its current reporting obligations, whilst considering the impact on Registered Participants. Feedback on data submission timing is requested in Section 5.

3.1.4 Format of data submission

AEMO will develop a method for Registered Participants to securely submit their DSP information, giving due consideration to minimising the effort required to submit the data, and verifying data formats (Section 4 and Appendix A).

3.1.5 Accuracy of data submission

Clause 3.7D(e)(4) of the Rules requires the DSP Information Guidelines to include AEMO's methodology for assessing the accuracy of information provided to AEMO. The accuracy and confidence of the information provided to AEMO largely impacts its suitability for using it across different time horizons and for different purposes.

AEMO believes many factors impact the accuracy of the DSP information that could be provided to AEMO. These factors include, but are not limited to:

- Data accessibility.
- Data cleansing.
- Range of factors that drive Registered Participants and consumers to modify their demand.
- Drivers for change in demand not always known.
- NMI allocation moving between Registered Participants.

AEMO intends to focus primarily on collecting quantitative data that avoids interpretation, aggregation or analysis by Registered Participants. This will allow AEMO to use a consistent analytical methodology on the data provided, thereby avoiding inaccuracy introduced by collating the results of multiple analysis techniques.

3.2 Guidelines commencement date

Following publication, Registered Participants will have a minimum of three months to prepare for compliance. AEMO invited submissions on whether this gives affected Registered Participants sufficient time to prepare for compliance. Registered Participants should consider the upfront preparation that they need to become ready to comply with these new obligations. It is suggested that, in doing so, they keep in mind:

- What is the incremental obligation based on existing obligations to provide data to AEMO?
- The simplicity and accessibility of the data being requested by AEMO.
- The difference between upfront once-only costs versus ongoing operational costs.

3.3 AEMO reporting and publication

Clause 3.7D(d) of the Rules requires AEMO to publish, no less than annually, details on the extent to which DSP information received under clause 3.7D has informed the development of load forecasts. These details will be available on AEMO's website, and will include:

- A list of the load forecasts that have been informed by the DSP information.
- A description of how the DSP information was used in each of the forecasts.
- Where available, a reference to a document or location where the impact of the DSP information on the forecast can be viewed (such as the MTPASA reports, available on AEMO's website).

3.4 Initial stakeholder feedback

AEMO held individual meetings in August 2016 with 13 self-nominated stakeholders to gain initial feedback. This feedback was presented[4] to industry representatives (most of whom were Registered Participants) in an aggregated form on 12 September 2016. Further feedback received in this meeting included the following:

Information requirements

- Annual submission of DSP data is most appropriate given that AEMO would largely use the data on an annual basis.
- Using National Meter Identifiers (NMIs) avoids double-counting.
- The accuracy of data provided should not be a concern to AEMO based on providing a list of NMIs, because, in aggregation, any error is likely to be too small to warrant a costly validation process.

Commencement date

- Participants may require a longer preparation time if the requirements are onerous, or to allow for overlap with other processes or requirements.
- Initial feedback indicates that retrieval of the requested data should not be onerous.
- If a longer time is determined, this should not prevent Registered Participants that are ready from submitting their data earlier.

AEMO reporting

- AEMO would not be disclosing any protected or commercially sensitive DSP information as part of its reporting function. Only aggregated data would be published.

Impact from future rule changes:

- That AEMO should draft the DSP Information Guidelines to avoid future unnecessary consultation.

[4] The slides that AEMO presented to are located at http://www.aemo.com.au/Stakeholder-Consultation/Consultations/-/media/6EC72B7699E849C58140E47A3BBDFFBB.ashx. These slides include a summary of feedback that AEMO had received before the meeting on 12 September 2016.

4. AEMO PROPOSAL

AEMO will apply the following principles in determining what DSP information to request:

- The primary focus of the collection exercise will be to obtain details on intra-day demand response, either due to price signals or network loading.
- Quantitative data will be collected wherever possible.
- Raw data will be targeted, as opposed to aggregate data or analysis. This both minimises workload on Registered Participants, and also reduces the likelihood of different Registered Participants interpreting the data in different ways.
- Specific fields will be selected to allow responses to be cross-referenced with data already held in AEMO's systems. For example, by requesting NMIs, AEMO can compare responses with metering data held in AEMO's market systems.

The proposed data model will be split into two sections:

Table 1 Data requirements and usage

	Requirements and usage
Section 1: DSP connection types	• Lists of NMIs where various types of DSP are present • Allows AEMO to perform targeted analysis on subsets of customers
Section 2: Larger connections and programmes	• Specific detail on individual or aggregate customers • Enables more accurate modelling of customers with significant levels of response

Further detail on the proposed data model, with sample data, is contained in Appendix A.

5. FEEDBACK

AEMO seeks feedback on any aspect of this Issues Paper or other relevant issues associated with developing the DSP Information Guidelines. In particular, AEMO seeks responses to the questions below:

1. **What are the costs and impacts of AEMO's proposed data requirements? Please break down and describe these costs based on:**
   a. **Upfront once-only costs versus ongoing costs**
   b. **Separation of internal labour costs, contracted labour, system improvement**
2. **What time of year should the information be submitted to AEMO ?**
3. **What would be the incremental cost if AEMO requested the data twice annually, rather than once annually?**
4. **How much time do Registered Participants think they will need to prepare for compliance with the DSP Information Guidelines? If longer than three months, please provide evidence-based reasons.**
5. **What DSP information do Consulted Persons want to see published by AEMO?**

6. NEXT STAGE

In accordance with the indicative timeline in Section 1, AEMO will publish the following:

- A draft determination and report, including a summary of the feedback received to the first stage of consultation
- A draft of the proposed DSP Information Guidelines

AEMO will provide Consulted Persons with regular updates using the weekly AEMO Communications newsletter and the DSP Information Guidelines Consultation page on the AEMO website (http://aemo.com.au/Stakeholder-Consultation/Consultations/NEM-Demand-Side-Participation-Information-Guidelines-Consultation).

APPENDIX A - DATA MODEL

For the purposes of this data model, the following terms are defined:

- **Connection** means the load or generation at the point at which a third party connects to a distribution network.
- **Customer** means the owner or operator of the Connection; typically, this will be a retailer's customer.
- **Programme** means a scheme operated either by a Registered Participant or a third party, where a group of Customers are incentivised or required to offer DSP in response to a defined set of criteria.

The proposed data model will be split into two sections:

Table 2 Scope and process of proposed data model

	Scope	Process
Section 1: DSP Connection types	• All demand	• Each Registered Participant to complete this section once to cover all their DSP
Section 2: Larger Connections and Programmes	• Applies to Connections and Programmes with a potential DSP response greater than 1MW, including: – Individual industrial and commercial Connections where demand may vary due to price signals or network loading (eg. an industrial facility partly exposed to the spot price) – Aggregated load that may vary due to price signals or network loading, where that load is controlled as a single entity (eg. a group of Connections with battery storage where the operation of the batteries is controlled by a third party, or a set of Connections that are all enrolled in a critical peak pricing Programme)	• Each Registered Participant to complete this section as many times as necessary to cover all relevant DSP (eg. once per facility for large Connections)

This appendix provides a description of the data model, followed by two examples of how a DNSP and a Retailer might complete the information request.

Data Model Section 1

Category of Data	Description / Possible Values	Field type / validation	Other comments
Market exposed Connections	NMIs of Connections exposed to spot price, either directly or via pass-through contract.	Comma separated list	Most likely known by Retailers 10, 11 or 12 digit NMIs acceptable
Connections on retail TOU tariffs	NMIs of Connections exposed to time-of-use pricing under their retail contract.	Comma separated list	Most likely known by Retailers 10, 11 or 12 digit NMIs acceptable
Connections on network event tariffs	NMIs of Connections with pricing that depends on network operating conditions (eg. critical peak pricing), separately for each tariff.	Comma separated list Free text for tariff type	This line may be filled out multiple times, once for each tariff type (each entry will generate a corresponding Section 2 form)
Connections with network controlled load	NMIs for all Connections with load that is directly controlled by the NSP (eg. hot water, air conditioning), separately for each load category.	Comma separated list Select load category {Hot water, Air conditioning, Pool pumps, Other (Specify)}	This line may be filled out multiple times, once for each load category (each entry will generate a corresponding Section 2 form)
Connections with energy storage	NMIs of Connections with on-site energy storage (eg. batteries).	Comma separated list	
Future Programmes	Detail on any upcoming changes to Programmes (eg. new tariff classes).	Free text	
Future deployment	List of individual committed contracts or projects where potential DSP response exceeds 1MW.	Free text	This list should include any contracts or projects that, when commissioned, will fall under the scope of section 2 of the data model
Alerts lists	Detailed information on any electronic distribution lists used by the Registered Participant to disseminate pricing information to Customers in order for them to determine whether to reduce demand, including how this information is distributed and how AEMO could opt-in to each such list.	Free text	This does not include sales/marketing lists used to promote pricing plans etc.

Data Model Section 2

Interpretation of section 2 of the data model:

- Some categories of data have sub-categories that only apply under certain conditions. For example, when filling in data for a residential air conditioner load curtailment Programme it does not make sense to ask for information on embedded generation. Similarly, if no energy storage is associated with the DSP, questions relating to types of storage will not apply.
- Categories that have associated sub-categories are shown in orange, alongside the options that may be selected for that category. Sub-categories are listed underneath, alongside the categories that they apply to.
- Where a field type of 'Select' is indicated, one of the listed options must be selected. A field type of 'Multi-select' indicates that one or more options must be selected.

Category of Data	Sub-category of Data	Applies to category	Description / Possible Values	Field type / validation	Other comments
NMI(s)			Meter number(s) where response will be measured	Comma separated list, 10 digits (11 with checksum, 12 with data stream suffix)	
Meter configuration			Do the supplied NMI(s) directly measure response (eg. on an embedded generator), or are they measuring net load (response is behind the meter)	Select {Net load, Direct metering, Other (Specify detailed meter configuration)}	
Name / Address / Programme name			Means of identifying location of load	Free text	
Available load reduction / generation increase / storage output			Maximum MW of potential response	Numeric	
DSP type				Multi select {Load reduction, Embedded generation, Energy storage}	
	Load Type	Applies when DSP type = Load Reduction		Select {Residential, Commercial, Industrial} Select ANZSIC division for industrial or commercial {A. Agriculture, B. Mining, C. Manufacturing etc. as per ABS classification}	
	Fuel Source	Applies when DSP type = Embedded Generation		Select primary and descriptor {Options as per appendix 8 of NEM generator registration guide}	
Price exposure			Wholesale - Response is driven by spot price, either directly or via pass-through/cost sharing contract with retailer Tariff - response driven by price not linked to spot price ie. set by retailer or network	Select {Wholesale, Tariff, None, Other (specify)}	

Category of Data	Sub-category of Data	Applies to category	Description / Possible Values	Field type / validation	Other comments
	Trigger price	Applies when price exposure = Wholesale	Spot price at which contract exposes Customer to higher prices (if applicable)	Numeric + specify details	Contract does not need to directly expose Customer to market price, eg. a cap contract where Customer is incentivised to reduce load when market prices are over a set value. Further detail can be specified as free text where necessary
	Tariff type	Applies when price exposure = Tariff	Category of tariff, with regards to price seen by Customer	Multi-select {Time-of-use, Critical Peak Day, Other (Specify)}	
Response control			Who controls the response	Select {Network, Retailer, Aggregator, Customer Direct, Customer Automatic, Other (Specify)}	Choose Customer Direct if manual intervention is required to activate the response. Choose Customer Automatic if the response is activated by a free-running algorithm, eg. a battery that charges and discharges on a set schedule.
	Controller	Any	Name of party who controls response	Free text	
	Trigger condition / algorithm	Any	What would cause a response	Select + specify details {Network loading conditions, Spot price, Customer cost minimisation, 3rd party price trigger (not related to price customer is exposed to eg. participant contract position), Provision of ancillary services, Temperature trigger, Other (specify)}	Specific data is required here eg. exactly what network constraints/limits would cause a response
	BAU control algorithm	Any	What does the load/generator do outside of events	Select + specify details {Ad-hoc activity, No operation, Minimise customer energy expense, Minimise participant energy expense, Other (Specify)}	
	Opt-out ability	Applies when the Customer does not control the response	Whether the Customer can opt out of a response, and if so the limitations on the number of times this can happen	True/False + Specify limitations (free text)	
	Audit ability	Any	Can the response be audited (is two-way comms or meter feedback available)	True/False + Specify mechanism (free text)	
Storage			Type of energy storage system installed at the Connection	{None, Battery, Other (specify)}	
	Storage capacity	Any	MWh of available storage	Numeric	
	Purpose	Any	Why was the storage installed eg. backup supply, peak shaving, avoided augmentation, interruption KPIs/SAIDI?	Free text	
	Installation date	Any	Date when equipment was commissioned	Date	Not applicable for aggregated storage
	Export permitted	Any	Is the storage allowed to net export to the grid?	True/False	
	Inverter	Any	Make and model	Free text	Not applicable for aggregated storage
Historical timing and magnitude of response			Complete audit of events (if tracked individually)	CSV file {Timestamp, Event status (active/inactive), MW requested (if available), MW observed (if available)}	Timestamped event log preferred (ie. log on change), interval data of event status also acceptable Where the expected/requested MW reduction may differ from the observed/metered MW reduction (eg. in a distributed load control system where some devices may fail to activate), both values may be included as separate columns
Monitoring and activation			Means of supervisory monitoring and/or control of response	Multi-select {SCADA, Market interval meter, Non-market interval meter, OpenADR, Internet, Manual (on-site) operation, Other (Specify)}	
Seasonality			Any expected variation with season	Free text	
Temperature restrictions			Any limitation on capacity or duty cycle under high temperature conditions	Free text	Impact of DSP most critical at times of high network stress, which often coincide with high temperatures
Expiry date			Date contract or Programme ends (if applicable)	Date	

Example: Distribution Network Service Provider

The following example shows how a DNSP might complete the data request. In this example, the DNSP has a large number of residential customers with hot water load activated by ripple control, and also engages a third party aggregator to manage a group of distributed battery storage systems to shift load from the evening peak back toward the afternoon.

Items are shown crossed out when they do not apply – in the example below the hot water load control programme does not include any embedded generation, so the question on fuel source is thereby excluded.

Section 1

Market exposed Connections	Nil	
Connections on retail TOU tariffs	Nil	
Connections on network event tariffs	Nil	
Connections with network controlled load	Hot water load control 1234567890, 2345678901, 3456789012, etc.	
Connections with energy storage	4567890123, 5678901234 etc.	
Future Programmes	We plan to expand our ripple control programme to cover air conditioning units by November 2017. We estimate 2000 Connections will participate in the new programme over the 2017/18 summer.	
Future deployment	We will be installing a 2MW, 5MWh battery at XYZ terminal station to provide backup for feeder ABC and to allow us to defer augmentation of the number 1 transformer by reducing peak demand.	
Alerts lists	Email list used to alert customers on critical peak pricing tariffs about upcoming peak days. AEMO can opt-in by contacting alerts@examplednsp.com.au	

Section 2: Hot water load control

NMI(s)		1234567890, 2345678901, 3456789012, etc.
Meter configuration		Net load
Name / Address / Programme name		Hot water load control
Available load reduction / generation increase / storage output		88 MW
DSP type		Load reduction
	Load Type	Residential
	~~Fuel Source~~	
Price exposure		None
	~~Trigger price~~	
	~~Tariff type~~	
Response control		Network
	Controller	ExampleDNSP
	Trigger condition / algorithm	Network loading conditions Peak demand at terminal station XYZ is reduced by disabling hot water load during the evening peak. Load is switched off between 5pm and 9pm only if demand at 4:59pm exceeds 300 MW.
	BAU control algorithm	Ad-hoc activity
	Opt-out ability	False
	Audit ability	True Interval metering installed at all sites allows MW of load shed to be estimated
Storage		None
	~~Storage capacity~~	
	~~Purpose~~	
	~~Installation date~~	
	~~Export permitted~~	
	~~Inverter~~	

Historical timing and magnitude of response		Timestamp,Event Status,MW requested,MW observed 2015-01-01 17:00:00,Active,88,25 2015-01-01 21:00:00,Inactive,0,0 etc.
Monitoring and activation		Market interval meter
Seasonality		Programme only operates November through April
Temperature restrictions		None
Expiry date		Ongoing

Section 2: Distributed battery storage systems

NMI(s)		4567890123, 5678901234 etc.
Meter configuration		Net load
Name / Address / Programme name		CBD battery storage programme
Available load reduction / generation increase / storage output		5 MW
DSP type		Energy Storage
	~~Load Type~~	
	~~Fuel Source~~	
Price exposure		None
	~~Trigger price~~	
	~~Tariff type~~	
Response control		Aggregator
	Controller	Example DSP Aggregator
	Trigger condition / algorithm	Network loading conditions Can be activated up to 10 times per year to manage peak demand at terminal station XYZ
	BAU control algorithm	Minimise customer energy expense
	Opt-out ability	True Customer can opt out of one event per year without incurring penalty
	Audit ability	True Aggregator has two-way communication with each battery
Storage		Battery
	Storage capacity	10 MWh
	Purpose	Customers minimise their energy expense, assisted by annual payment from aggregator
	Installation date	N/A
	Export permitted	True
	Inverter	N/A
Historical timing and magnitude of response		Timestamp,Event Status,MW requested,MW observed 2015-01-22 17:32:01,Active,5,4.5 2015-01-22 18:51:30,Inactive,0,0 etc.
Monitoring and activation		OpenADR
Seasonality		None
Temperature restrictions		Discharge limited to 80% rated capacity when ambient temperature exceeds 40 degrees C
Expiry date		Contract expires July 2019

Example: Retailer

The following example shows how an electricity retailer might complete the data request. In this example, the retailer has a contract with a large industrial customer which partially exposes them to the wholesale market price. The retailer also has a number of commercial customers on time-of-use tariffs, and is running a pilot program where 500 residential customers with battery storage systems agree to let the retailer control their batteries to limit its exposure to high summer pool prices.

Section 1

Market exposed Connections	6789012345, 7890123456	
Connections on retail TOU tariffs	8901234567, 9012345678 etc.	
Connections on network event tariffs	Nil	
Connections with network controlled load	Nil	
Connections with energy storage	1234567890, 2345678901 etc.	
Future Programmes	We will begin a programme in 2017 to incentivise agricultural customers to curtail their pumping load at times of high wholesale prices. Initial rollout will begin in central and northern Victoria.	
Future deployment	None	
Alerts lists	We alert our customers on time-of-use tariffs when summer pricing comes into effect. AEMO can sign up on our website at http://exampleretailer.com.au/signup	

Section 2: Large industrial load

NMI(s)		6789012345, 7890123456
Meter configuration		Net load
Name / Address / Programme name		Example Facility Ltd.
Available load reduction / generation increase / storage output		100 MW
DSP type		Load Reduction, Embedded Generation
	Load Type	Industrial C. Manufacturing
	Fuel Source	Diesel
Price exposure		Wholesale
	Trigger price	$300
	~~Tariff type~~	
Response control		Customer Direct
	Controller	Example Facility Ltd.
	Trigger condition / algorithm	Spot Price
	BAU control algorithm	Ad-hoc activity
	~~Opt-out ability~~	
	Audit ability	True Interval meters installed
Storage		None
	~~Storage capacity~~	
	~~Purpose~~	
	~~Installation date~~	
	~~Export permitted~~	
	~~Inverter~~	
Historical timing and magnitude of response		N/A
Monitoring and activation		Market interval meter
Seasonality		None

Temperature restrictions		None
Expiry date		N/A

Section 2: Battery storage pilot

NMI(s)		1234567890, 2345678901 etc.
Meter configuration		Net load
Name / Address / Programme name		Inner West battery storage trial
Available load reduction / generation increase / storage output		1.7 MW
DSP type		Energy Storage
	~~Load Type~~	
	~~Fuel Source~~	
Price exposure		None
	~~Trigger price~~	
	~~Tariff type~~	
Response control		Retailer
	Controller	Example Retailer
	Trigger condition / algorithm	Spot price Used to limit hedging expense by reducing demand at times of high spot price
	BAU control algorithm	Minimise customer energy expense
	Opt-out ability	False
	Audit ability	True
		Two-way communications to battery available
Storage		Battery
	Storage capacity	3.2 MWh
	Purpose	Customers with existing battery systems incentivised to join pilot programme
	Installation date	N/A
	Export permitted	True
	Inverter	N/A
Historical timing and magnitude of response		Timestamp,Event Status,MW requested,MW observed 2015-01-22 17:30:00,Active,1.7,1.5 2015-01-22 17:05:00,Inactive,0,0 etc.
Monitoring and activation		Other Proprietary 3G communications devices installed
Seasonality		None
Temperature restrictions		None
Expiry date		Pilot programme terminates July 2020