DEMAND SIDE PARTICIPATION INFORMATION GUIDELINES

DRAFT GUIDELINES

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1. INTRODUCTION

1.1 Purpose and scope

These are the Demand Side Participation Information Guidelines (**Guidelines**) made under clause 3.7D(e) of the National Electricity Rules (**NER**).

These Guidelines have effect only for the purposes set out in the NER. The NER and the *National Electricity Law* (**NEL**) prevail over these Guidelines to the extent of any inconsistency.

These Guidelines specify:

- The information *Registered Participants* are required to provide AEMO.
- When that information must be provided.
- How that information is to be provided.
- AEMO's methodology for assessing the accuracy of that information.
- The manner and form in which AEMO will publish a report on the extent to which that information informed its *load* forecasts.

1.2 Definitions and interpretation

1.2.1 Glossary

The words, phrases and abbreviations set out below have the meanings set out opposite them when used in these Guidelines.

Terms defined in the NER have the same meanings in these Guidelines unless otherwise specified.[1] Those terms are intended to be identified in these Guidelines by italicising them, but failure to italicise such a term does not affect its meaning.

Term	Definition
DNSP	*Distribution Network Service Provider*
DSPI	*demand side participation information*
NSP	*Network Service Provider*
MSGA	*Market Small Generator Aggregator*
TNSP	*Transmission Network Service Provider*

1.2.2 Interpretation

The following principles of interpretation apply to these Guidelines unless otherwise expressly indicated:

(a) These Guidelines are subject to the principles of interpretation set out in Schedule 2 of the NEL.

(b) References to time are references to *Australian Eastern Standard Time*.

2. INFORMATION

Clause 3.7D(b) of the NER requires *Registered Participants* to provide *demand side participation information* (**DSPI**) to AEMO in accordance with these Guidelines.

[1] Not all of the terms defined in the NER are to be found in Chapter 10; some are defined in clause 3.7D(a) of the NER.

Clause 3.7D(e) provides further information on what this entails. At a high level, this includes:

- *contracted demand side participation*; and
- the curtailment of *non-scheduled load* or the provision of *unscheduled generation* in respect of the demand for, or price of, electricity.

2.1 Contracted demand side participation information

Contracted demand side participation is defined in clause 3.7D(a)(1) of the NER as information relating to a contractual arrangement between a *Registered Participant* and a person, in which they agree to the curtailment of *non-scheduled load* or the provision of *unscheduled generation* in specified circumstances.

2.2 Non-scheduled load/unscheduled generation information

The reference to the curtailment of *non-scheduled load* or the provision of *unscheduled generation* in respect to the demand for, or price of, electricity in clause 3.7D(e)(1)(ii) excludes information captured by the term *contracted demand side participation.*

AEMO interprets this to include every non-contractual arrangement entered into between a *Registered Participant* and a person, or between two *Registered Participants.*

2.3 Information requirements

Clause 3.7D(e)(1) requires AEMO to specify the information that *Registered Participants* must provide under this rule. The information required by AEMO is specified in **Appendix A**.

The requirements apply to both *contracted demand side participation* and the curtailment of *non-scheduled load* or the provision of *unscheduled generation* in respect of the demand for, or price of, electricity.

3. RESPONSIBILITIES

Clause 3.7D(b) of the NER requires all *Registered Participants* to provide DSPI to AEMO in accordance with these Guidelines.

AEMO requires *Registered Participants* to complete a data request in the form detailed in **Appendix A**, and provide all requested data that is available through their current DSPI collection processes, 'current' being as at [insert date][2].

Although AEMO does not require *Registered Participants* to enhance their DSPI collection processes for the purpose of complying with these Guidelines, if any R*egistered Participant* does so, AEMO expects to receive data obtained by that *Registered Participant* following the introduction of the enhanced DSPI collection process.

3.1 Data submission timing and frequency

Each year, *Registered Participants* must provide data that was current as at 31 March of that year by 5.00 pm 30 April, beginning March 2018.

AEMO will open the web portal for *Registered Participants* to begin their data submissions on 31 March of each year.

3.2 Format of data submission

Each *Registered Participant* must provide the required information through a data portal, available on the AEMO website at [insert link].

[2] To be completed following the next round of consultation. This is intended to be the date of the publication of the Final Determination and Report.

4. ASSESSING THE ACCURACY OF INFORMATION

4.1 Information to be provided to assist AEMO

The information required to be provided by each *Registered Participant* is at the *NMI* level. This is to enable AEMO to reconcile the DSPI provided in accordance with these Guidelines with other data sources, such as *metering* and pricing databases to assess the accuracy of the data provided.

4.2 AEMO's methodology for assessing accuracy of information

The methodology that AEMO will use to verify the accuracy of the DSPI provided will be to:

- Audit each response and review it for gaps, errors, overlap, duplication, or missing data.
- Review responses against alternative data sets, such as *metering* and pricing data, to determine where incorrect or incomplete information may have been provided.
- Compare responses with those received from the same *Registered Participants* in previous years to highlight new DSPI and to determine where data may have been omitted.
- Compare responses against DSPI-related material published on *Registered Participant* websites.

AEMO anticipates that its ability to verify and assess the accuracy of the DSPI provided in accordance with these Guidelines will evolve over time.

5. REPORTING

AEMO publishes a number of reports that address the forecasting of *load*. At least once a year, in one or more of those reports, AEMO will include a discussion on the extent to which DSPI informed AEMO's *load* forecasts.

APPENDIX A. REQUIRED DEMAND SIDE PARTICIPATION INFORMATION

The data model detailed in this appendix specifies the DSPI required by AEMO under these Guidelines. Examples of how a DNSP or a *retailer* might complete their submissions are shown in **Appendix B**.

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

- **Connection** means the *load* or *generation* at the point at which a Customer connects to a *distribution network*.
- **Customer** means the owner or operator of the Connection; typically, this will be a *retailer's* customer.
- **DSP** means *contracted demand side participation* or *unscheduled generation*, or both.
- **Program** 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 criteria defined by the scheme operator.
- **Market Participant** means a *Registered Participant* who participates in the wholesale energy market (eg. a *retailer*).
- **Non-market Participant** means a *Registered Participant* who is not a Market Participant (eg. a *Network Service Provider*).

The data model is split into two sections, as described in the table below.

	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 Programs	• Applies to Connections and Programs 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 Program)	• Each *Registered Participant* to complete this section as many times as necessary to cover all relevant DSP (e.g. once per facility for large Connections)

Data Model Section 1

All *Registered Participants* are required to complete Section 1 of this data model once per submission. The 'Applies to' column indicates the classes of *Registered Participant* that are required to complete each category of data.

Category of data	Description / possible values	Field type / validation	Applies to	Other comments
Market-exposed Connections	*NMIs* of Connections exposed to *spot price*, either directly or via pass-through contract.	Semicolon separated list, 10 digit NMIs (alternatively 11 digit *NMIs* including NMI checksum, or 12 digit *NMIs* including datastream suffix are also acceptable)	Market Participants	
Connections on retail time-of-use tariffs	*NMIs* of Connections exposed to time-of-use pricing under their retail contract.	Semicolon separated list, 10 digit *NMIs* (alternatively 11 digit *NMIs* including NMI checksum, or 12 digit *NMIs* including datastream suffix are also acceptable)	Market Participants	
Connections on network event tariffs	*NMIs* of Connections with pricing that depends on *network* operating conditions (eg. critical peak pricing), separately for each tariff.	Semicolon separated list, 10 digit *NMIs* (alternatively 11 digit *NMIs* including NMI checksum, or 12 digit *NMIs* including datastream suffix are also acceptable) Free text for tariff type	Non-market Participants	This category may be filled out multiple times, once for each tariff type (each entry will generate a corresponding Section 2 form) This category covers tariff types where pricing varies in response to day-to-day operating conditions. It does not include tariffs where pricing varies according to a set schedule (such as network time-of-use tariffs).
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.	Semicolon separated list, 10 digit *NMIs* (alternatively 11 digit *NMIs* including NMI checksum, or 12 digit *NMIs* including datastream suffix are also acceptable) Select load category {Hot water, Air conditioning, Pool pumps, Other (Specify)}	Non-market Participants	This category 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).	Semicolon separated list, 10 digit *NMIs* (alternatively 11 digit *NMIs* including NMI checksum, or 12 digit *NMIs* including datastream suffix are also acceptable)	Both	
Future Programs	Detail on any upcoming changes to Programs (eg. new tariff classes).	Free text	Both	
Future deployment	List of individual committed contracts or projects where potential DSP response exceeds 1MW.	Free text	Both	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 assist Customers to determine whether to reduce demand, including how this information is distributed and how AEMO could opt-in to each such list.	Free text	Both	This does not include sales/marketing lists used to promote pricing plans etc.

Data Model Section 2

Section 2 applies to all *Registered Participants*, however, where a category in Section 1 does not apply (that is, it only applies to Market Participants or Non-market Participants), that *Registered Participant* does not need to complete Section 2 for that category of DSP. For example, an NSP who did not need to complete the category "Connections on retail TOU tariffs", does not need to complete a Section 2 form for any Connections in that category.

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 Program, 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 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	Semicolon separated list, 10 digit *NMIs* (alternatively 11 digit *NMIs* including NMI checksum, or 12 digit *NMIs* including datastream suffix are also acceptable)	
Meter configuration			Do the supplied *NMI(s)* directly measure response (eg. on an *embedded generating unit*), or are they measuring net *load* (response is behind the *meter*)	Select {Net load, Direct metering, Other (Specify detailed meter configuration)}	
Name / Address / Program name			Means of identifying location of *load*	Free text	Only one means of identification required (name, address or Program)
Available *load* reduction / *generation* increase / storage output			Maximum MW of potential response	Numeric	
DSP type				Multi-select {Load reduction, Embedded generation, Energy storage, Other (specify)}	
	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 NSP	Multi-select {Wholesale, Tariff, None, Other (specify)}	
	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 expose Customer directly to *spot price*, eg. a cap contract where Customer is incentivised to reduce *load* when *spot 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	Multi-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 to a set schedule.
	Controller	Any	Name of party who controls response	Free text	
	Trigger condition / algorithm	Any	What would cause a response	Multi-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, and any known limitations to the response (such as time of day)
	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)}	

Category of data	Sub-category of data	Applies to category	Description / possible values	Field type / validation	Other comments
	Opt-out ability	Any	Whether the Customer can opt out of a DSP response, and if so the limitations on the number of times this can happen	True/False + Specify limitations (free text)	If the Customer is the only party who can control the DSP response, select True
	Auditability	Any	Can the response be audited (is two-way communications or *meter* feedback available)	True/False + Specify mechanism (free text)	
Storage			Type of energy storage system installed at the Connection	Select {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, performance indication metrics?	Free text	
	Installation date	Any	Date when equipment was commissioned	Date	Not applicable for aggregated storage (where the storage devices are distributed across multiple locations on a network, with separate metering points for each device)
	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 (where the storage devices are distributed across multiple locations on a network, with separate metering points for each device)
Historical timing and magnitude of response			Complete audit of events, where the *Registered Participant* has the ability to control or monitor event status. This field only applies to events that occur on an ad-hoc basis, not to those that occur regularly, or those where the response timing is diverse across the population of *NMIs* within the specific Program	Comma Separated Values (CSV) file {Timestamp, Event status (active/inactive), MW requested (if available), MW observed (if available)}	Programs where *load* switching occurs on a daily/regular basis, such as hot water load control, are excluded from this category. Additionally, Programs are excluded where event control is diverse such that less than 1MW of response occurs in *synchronisation*. Timestamped event log preferred (ie. log on change), interval data of event status also acceptable Times should be provided in Australian Eastern Standard Time (AEST) Interval timestamps should indicate the **end** of the period in question Where the expected/requested MW reduction differs 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 Program ends (if applicable)	Date	

APPENDIX B. EXAMPLE SUBMISSIONS

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 Program does not include any *embedded generation*, so the question on fuel source is excluded.

Section 1

Market exposed Connections	N/A	
Connections on retail TOU tariffs	N/A	
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 Programs	We plan to expand our ripple control Program to cover air conditioning units by November 2017. We estimate 2000 Connections will participate in the new Program 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 / Program 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 zone substations ABC and XYZ is reduced by disabling hot water load during the evening peak. Trigger times vary, but in general load is switched off between 5pm and 9pm only if demand at 4:59pm exceeds 70% of each zone substation's maximum rating.
	BAU control algorithm	Ad-hoc activity
	Opt-out ability	False
	Audit ability	True Interval metering installed at terminal stations serving the above listed NMIs allows total MW of load shed to be estimated
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		Program 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 / Program name		CBD battery storage Program
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 a *retailer* might complete the data request. In this example, the *retailer* has a contract with a large industrial Customer that partially exposes the Customer to the *spot 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 *spot prices*.

Section 1

Market exposed Connections	6789012345;7890123456	
Connections on retail TOU tariffs	8901234567;9012345678 etc.	
Connections on network event tariffs	N/A	
Connections with network controlled load	N/A	
Connections with energy storage	1234567890;2345678901 etc.	
Future Programs	We will begin a Program 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 / Program 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 / Program 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 Program
	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 Program terminates July 2020