GUIDE TO DEMAND SIDE PARTICIPATION CSV FILES

PROVIDING DSP INFORMATION IN CSV FILES

Version: 1.00

Published: 20 November 2017

AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

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Purpose
The Australian Energy Market Operator (AEMO) has prepared this document to provide information about Demand Side Participation CSV files, as at the date of publication.

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Distribution
Available to the public.

Document Identification
Document owner: Manager, Forecasting, Strategy, and Innovation
Prepared by: Technical Writer, Market Systems
Last update: Monday, 20 November 2017 5:18 PM

Version History
1.00 Published for the Demand Side Participation information project.

Documents made obsolete
The release of this document changes only the version of Guide to Demand Side Participation CSV files.

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Email: supporthub@aemo.com.au

Feedback
Your feedback is important and helps us improve our services and products. To suggest improvements, please contact AEMO's Information and Support Hub.

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GLOSSARY

Abbreviations and Symbols

Abbreviation	Abbreviation explanation
AEMO	Australian Energy Market Operator
AEST	Australian Eastern Standard Time
DSP	Demand Side Participation
MW	Megawatt
NEM	National Electricity Market
NER	National Electricity Rules; also often just called the Rules
NMI	[electricity] National Metering Identifier

Special terms

Term	Definition
Connection	The load or generation at the point at which a Customer connects to a network
Market time	Australian Eastern Standard Time
Participant ID	Registered participant identifier
Program	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
Rules	National Electricity Rules

INTRODUCTION

Purpose

This document provides guidelines on how to complete Demand Side Participation (DSP) information in CSV template files for uploading to the AEMO DSP Portal.

Audience

This document is relevant to all registered participants who must provide DSP information under Clause 3.7D(b) in the NER.

How to use this guide

- The references listed throughout this document are primary resources and take precedence over this document.
- Text in this format, indicates a reference to a document on AEMO's website.
- This document is written in plain language for easy reading. Where there is a discrepancy between the Rules and information or a term in this document, the Rules take precedence.
- Glossary Terms are capitalised and have the meanings listed against them.
- *Italicised terms* are defined in the Rules. Any rules terms not in this format still have the same meaning.
- For an explanation of abbreviations or special terms, see the Glossary.

What's in this guide

- Chapter 1 Overview describes the guide's purpose, the audience, and a description of the three types of CSV template files used for submitting Demand Side Participation (DSP) information.
- Chapter 2 CSV format defines the formatting rules for CSV files.
- Chapter 3 CSV file types and requirements describes the three types of CSV files to provide DSP information, the requirements, and references to the CSV fields defined in the Demand Side Participation Information Guidelines.
- Chapter 4 Needing Help provides a list of related information and documents mentioned throughout this guide, and guidance for requesting assistance from AEMO.

CHAPTER 1 OVERVIEW

What the DSP CSV templates are for

AEMO provides a series of standard comma-separated (CSV) template files for participants to bulk upload DSP information through the DSP Portal.

Who can use the DSP CSV templates

All registered participants are required to provide DSP information as described in the NER Clause 3.7D and the Demand Side Participation Information Guidelines. Any of these participants may opt to use these CSV templates to submit their DSP information.

How to use the DSP CSV template files

AEMO have produced three CSV template files for download:

- NEMDSP_NMI.CSV: A list of NMIs associated with a program or connection.
- NEMDSP_METADATA.CSV: Metadata associated with a program or connection.
- NEMDSP_HISTORICAL.CSV: The event data associated with a program or connection. Some programs or connections are not required to provide this file. For more details, see the Demand Side Participation Information Guidelines, Appendix A.

The NEMDSP_NMI.CSV file can be used to upload lists of NMIs relating to Section 1 and/or Section 2 of the Guidelines. The NEMDSP_METADATA.CSV and NEMDSP_HISTORICAL.CSV files only relate to Section 2 of the Guidelines.

A separate NEMDSP_NMI.CSV file is required for each Section 1 data category. Similarly, separate NEMDSP_METADATA.CSV and NEMDSP_HISTORICAL.CSV files are required for each program or connection reported on in Section 2. Where a participant is required to complete Section 2 data relating to a set of NMIs that is also required for a Section 1 data category, the NEMDSP_NMI.CSV file for that category is only required to be uploaded once.

Filename conventions

The file name is constructed of the following elements separated by underscore "_" signs:

1. The NEM file identifier. For Demand Side Participation, it is "NEMDSP".

2. The CSV template file type: “NMI”, “METADATA”, or “HISTORICAL”.

3. The participant ID of the participant submitting the file.

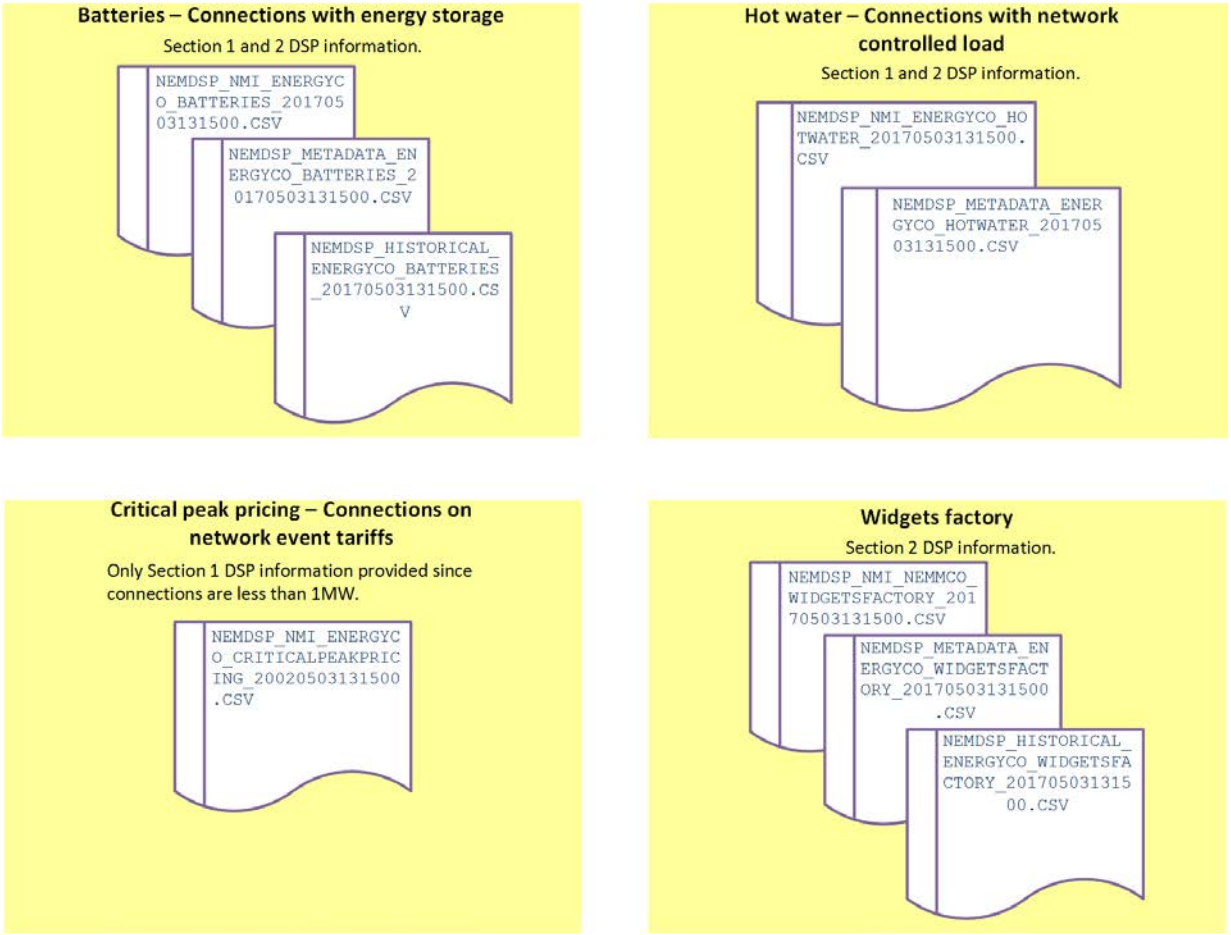
4. A category, code, or connection name defined by the participant of up to 15 characters.

5. Date and time stamp in the format YYYYMMDDHHmmSS when the file has been generated, 24-hour format, and local time of the originator.

6. The file extension of "CSV", case-sensitive, all uppercase, separated from the file name with a period "."

An example of a distribution network service provider “ENERGYCO” providing DSP information is shown in Figure 1.

Figure 1 CSV files provided by a distribution network service provider



CHAPTER 2 CSV FORMAT

A CSV file contains the values as a series of ASCII text lines in a table. It is organised so that each column value is separated by a comma from the next column's value and each row starts a new line.

Character set

The character set to be used within a CSV file is ASCII 7-bit. Unicode characters are not permitted.

Data types

The maximum character length and specification for data types is shown in Table 1.

Table 1 Data types

Data type	Maximum character length	Specification
String	300	No quotation marks in strings.
Boolean	5	TRUE or FALSE
Numeric	15	Maximum three decimal places Do not include comma separator for thousands. Do not include units.
Date	10	YYYY/MM/DD
Date and time	20	YYYY/MM/DD HH24:mm:SS
Options	300	For multiple options, separate using semicolons as explained in Values separator.
NMI	10	Ten alphanumeric digits only. Do not include data-stream suffix or check digit.

Literal quotes

A CSV element that incorporates commas must be enclosed by double-quotes. For example:

```
"123,This is a sample field,456"
```

Line breaks

Carriage Return (CR, ASCII decimal code 13) and Line Feed (LF, ASCII decimal code 10) are not permitted within fields.

Empty lines, i.e. lines containing just CR and LF, are not permitted.

Values separator

No trailing commas are allowed at the end of each line, i.e. the number of value separators in any one row will always be: *number_of_values – 1.*

When multiple selections are selected for a field, they must be separated by semicolons. For example:

```
LOAD_REDUCTION;EMBEDDED_GENERATION;ENERGY_STORAGE
```

Where a CSV element is not used, the field can be left blank.

Numeric values

Positive and negative values

Positive numbers in CSV file shall be unsigned. Negative numbers must be prefixed with a negative sign '-'.

Leading and trailing zeroes

No leading zeroes unless a specific data format requires this. Trailing zeroes are allowed.

Tab characters

Tab characters cannot be used in the CSV files.

Special characters

The use of CDATA (non-parsed character data), characters "**<**", "**>**", "**&**" and hexadecimal characters are not allowed.

Leading and trailing spaces

In the case of numeric values the use of a leading, embedded or trailing space is not supported. Spaces should not be used for numeric values.

For fields containing text, only embedded spaces are permitted. Leading and trailing space-characters after comma field separators must not be included. Therefore "John Citizen" can be added in the CSV as ---,John Citizen,--- or ---,"John Citizen",---.

Values must have a leading or trailing spaces as a valid part of the data must be delimited with double-quote characters. This indicates that the leading and trailing spaces are a component part of the data for example:

---," John Citizen ",---

CHAPTER 3 CSV FILE TYPES AND REQUIREMENTS

NEMDSP_NMI.CSV file

NMI information is populated in NEMDSP_NMI.CSV files using a separate file for each of the following data categories:

- Market-exposed connections.
- Connections on retail time-of-use tariffs.
- Connections on network event tariffs (separate files required for each tariff).
- Connections with network controlled load (separate files required for each load category).
- Connections with energy storage.
- Connections or programs relating to Section 2 data requirements in the Demand Side Participation Information Guidelines, where they do not fit into one of the Section 1 categories above.

Other data categories including Future Programs, Future deployment, and Alert lists are completed using the DSP Portal web interface.

Table 2 NEMDSP_NMI.CSV file parameters

Column name	Mandatory field?	DSP Information Guidelines category	Comments
NMI	Yes	NMI	
PARTICIPANT_REFERENCE	No	N/A	This is an optional field to link CSV files for Participant's purposes.

An example NEMDSP_NMI.CSV with NMIs associated with a hot water load control program for the Network Controlled Load data category is shown in Figure 2.

Figure 2 Example NEMDSP_NMI.CSV file

NMI	PARTICIPANT_REFERENCE
1234567890	HWLC_ZONE_A
2345678901	HWLC_ZONE_A
3456789012	HWLC_ZONE_A

NEMDSP_METADATA.CSV file

Table 3 provides a listing and description of the fields in the NEMDSP_METADATA.CSV file. For fields that do not require entering an option, refer to Table 1 for formatting conventions.

Table 3 NEMDSP_METADATA.CSV file parameters

Column name	Mandatory field?	Allowed values	Value description	DSP Information Guidelines category	DSP Information Guidelines subcategory	Comments
PARTICIPANT_REFERENCE	No	String data type		N/A		This is an optional field used by the participants to link-up various CSV files.
NAME	Yes	String data type		Name / Address / Program name		Means of identifying the load location. Note, only one means of identification is required (name, address, or Program).
METER_CONFIGURATION		NET_LOAD DIRECT_METERING OTHER	Net load Direct metering Other	Meter configuration		Do the supplied NMI(s) directly measure response (e.g. on an embedded generating

						unit), or are they measuring net load (response is behind the meter)?
METER_CONFIGURATION_OTHER_SPECIFY	No	String data type		Meter configuration		Specify details when "OTHER" is entered in METER_CONFIGURATION.
POTENTIAL_RESPONSE	No	Numeric data type		Available load reduction / generation increase / storage output		Maximum MW of potential response.
DSP_TYPE	No	LOAD_REDUCTION EMBEDDED_GENERATION ENERGY_STORAGE OTHER	Load reduction Embedded generation Energy storage Other	DSP type		
DSP_TYPE_OTHER_SPECIFY	No	String data type		DSP type		Specify details when "OTHER" is entered in DSP_TYPE.
DSP_TYPE_LOAD_TYPE	No	RESIDENTIAL COMMERCIAL INDUSTRIAL OTHER	Residential Commercial Industrial Other	DSP type	Load Type	Applies when DSP type equals Load Reduction.
DSP_TYPE_LOAD_TYPE_OTHER_SPECIFY	No	String data type		DSP type	Load Type	Specify details when "OTHER" is entered in DSP_TYPE_LOAD_TYPE.
DSP_TYPE_LOAD_TYPE_ANZSIC	No	Single capital letter	A. Agriculture, Forestry and Fishing B. Mining C. Manufacturing D. Electricity, Gas and Water Supply E. Construction F. Wholesale Trade G. Retail Trade H. Accommodation, Cafes and Restaurants I. Transport and Storage J. Communication Services K. Finance and Insurance L. Property and Business Services M. Government Administration and Defence N. Education O. Health and Community Services P. Cultural and Recreational Services Q. Personal and Other Services	DSP type	Load Type	Applies when DSP type equals Industrial or Commercial. See http://www.abs.gov.au/ANZSIC
DSP_TYPE_FUEL_SOURCE_PRIMARY	No	RENEWABLE_BIOMASS_WASTE FOSSIL HYDRO GEOTHERMAL SOLAR WAVE WIND TIDAL RENEWABLE COMBUSTION	Renewable/ Biomass / Waste Fossil Hydro Geothermal Solar Wave Wind Tidal Renewable Combustion	DSP type	Fuel Source	Applies when DSP type equals the Embedded Generation. Please refer to Appendix 8 of the NEM Generator Registration Guide. These values are related to the primary fuel source value.
DSP_TYPE_FUEL_SOURCE_DESCRIPTOR	No	BAGASSE BIODIESEL BIOFUEL_OTHER BIOGAS_OTHER BIOGAS_SLUDGE BIOMASS_RECYCLED_MUNICIPAL_AND_INDUSTRIAL_MATERIALS BLACK_COAL	Bagasse Biodiesel Biofuel - other Biogas - other (captured for combustion (not methane)) Biogas - Sludge (captured for combustion (methane only)) Biomass recycled municipal and industrial materials	DSP type	Fuel Source	Applies when DSP type equals the Embedded Generation. Refer to Appendix 8 of the NEM Generator Registration Guide. These values are related to the

		BLAST_FURNACE_GAS BROWN_COAL BROWN_COAL_BRIQUETTES CHARCOAL COAL_SEAM_METHANE COAL_TAILINGS COKE_OVEN_COKE COKE_OVEN_GAS CRUDE_OIL_AND_CONDENSATES DIESEL DRY_WOOD ETHANE ETHANOL FUEL_OIL GASEOUS_FOSSIL_FUELS_OTHER GASOLINE_AVGAS GASOLINE GEOLOGICAL_HEAT GREEN_AND_AIR_DRIED_WOOD HEATING_OIL KEROSENE_AVTUR KEROSENE LANDFILL_METHANE_LANDFILL_GAS LIQUEFIED_AROMATIC_HYDROCARBONS LIQUEFIED_PETROLEUM_GAS NAPTHA NATURAL_GAS_COMPRESSED NATURAL_GAS_LIQUEFIED NATURAL_GAS_UNPROCESSED NATURAL_GAS_PIPELINE NATURAL_GAS_DIESEL NATURAL_GAS_FUEL_OIL NATURAL_GAS_LIQUIDS_OTHER PETROLEUM_BASED_GREASES PETROLEUM_BASED_OILS_AND_LUBRICANTS PETROLEUM_BASED_PRODUCTS_OTHER PETROLEUM_COKE RECYCLED_FOSSIL_FUEL_DERIVED_INDUSTRIAL_AND_MUNICIPAL_MATERIALS REFINERY_COKE REFINERY_GAS_AND_LIQUIDS SOLAR SOLID_FOSSIL_FUELS_OTHER SOLVENTS_IF_MINERAL_TURPENTINE_OR_WHITE_SPIRITS SULPHITES_LYES TAR TOWN_GAS WASTE_COAL_MINE_GAS WATER WIND	Black coal Blast furnace gas Brown coal Brown coal Briquettes Charcoal Coal seam methane Coal tailings Coke oven coke Coke oven gas Crude oil and condensates Diesel Dry wood Ethane Ethanol Fuel Oil Gaseous fossil fuels - other Gasoline (aviation fuel used for stationary energy) avgas Gasoline (non-aviation fuel) Geological heat Green and air dried wood Heating oil Kerosene (aviation fuel used for stationary energy) -avtur Kerosene (non-aviation fuel) Landfill methane / Landfill gas Liquefied aromatic hydrocarbons Liquefied petroleum gas Naptha Natural gas – compressed Natural gas – liquefied Natural gas – unprocessed Natural gas (pipeline) Natural gas / diesel Natural gas / fuel oil Natural gas liquids – other Petroleum based greases Petroleum based oils and lubricants Petroleum based products – other Petroleum coke Recycled fossil fuel derived industrial and municipal materials Refinery coke Refinery gas and liquids Solar Solid fossil fuels – other Solvents if mineral turpentine or white spirits Sulphites lyes Tar Town gas Waste coal mine gas Water Wind			fuel source descriptor value.
PRICE_EXPOSURE	No	WHOLESALE TARIFF NONE OTHER	Wholesale Tariff None Other (specify)	Price exposure		

PRICE_EXPOSURE_OTHER_SPECIFY	No	String data type		Price exposure		Specify details when “OTHER” is entered in PRICE_EXPOSURE.
PRICE_EXPOSURE_TRIGGER_PRICE	No	Numeric data type		Price exposure	Trigger price	Applies when PRICE_EXPOSURE field value is WHOLESALE. Spot price that contract exposes a Customer to higher prices (if applicable).
PRICE_EXPOSURE_TRIGGER_PRICE_DETAILS	No	String data type		Price exposure	Trigger price	
PRICE_EXPOSURE_TARIFF_TYPE	No	TIME_OF_USE CRITICAL_PEAK_DAY OTHER	Time-of-use Critical Peak Day Other (specify)	Price exposure	Tariff type	Applies when price exposure is TARIFF.
PRICE_EXPOSURE_TARIFF_TYPE_OTHER_SPECIFY	No	String data type		Price exposure	Tariff type	Specify details when “OTHER” is entered in PRICE_EXPOSURE_TARIFF_TYPE
RESPONSE_CONTROL	No	NETWORK RETAILER AGGREGATOR CUSTOMER_DIRECT CUSTOMER_AUTOMATIC OTHER	Network Retailer Aggregator Customer Direct Customer Automatic Other	Response control		Who controls the response?
RESPONSE_CONTROL_OTHER_SPECIFY	No	String data type		Response control		Specify details when “OTHER” is entered in RESPONSE_CONTROL.
RESPONSE_CONTROL_CONTROLLER	No	String data type		Response control	Controller	Name of the party who controls response.
RESPONSE_CONTROL_TRIGGER	No	NETWORK_LOADING_CONDITIONS SPOT_PRICE CUSTOMER_COST_MINIMISATION THIRD_PARTY_PRICE_TRIGGER PROVISION_OF_ANCILLARY_SERVICES TEMPERATURE_TRIGGER OTHER	Network loading conditions Spot price Customer cost minimisation Third party price trigger (not related to price Customer is exposed to e.g. participant contract position) Provision of ancillary services Temperature trigger Other	Response control	Trigger condition / algorithm	What causes a response?
RESPONSE_CONTROL_TRIGGER_DETAILS	No	String data type		Response control	Trigger condition / algorithm	Specify details for any selected RESPONSE_CONTROL_TRIGGER. Specific data is required here e.g. exactly what network. Constraints or limits would cause a response, and any known limitations to the response (such as time of day).
RESPONSE_CONTROL_BAU	No	ADHOC_ACTIVITY NO_OPERATION MINIMISE_CUSTOMER_ENERGY_EXPENSE MINIMISE_PARTICIPANT_ENERGY_EXPENSE OTHER	Ad-hoc activity No operation Minimise customer energy expense Minimise participant energy expense Other	Response control	BAU control algorithm	What the load or generator does outside of events.

RESPONSE_CONTROL_BAU_DETAILS	No	String data type		Response control	BAU control algorithm	Specify details for any selected RESPONSE_CONTROL_BAU.
RESPONSE_CONTROL_OPT_OUT	No	Boolean data type		Response control	Opt out ability	Whether the Customer can opt out of a DSP response, and if so the limitations on the number of times this can happen. If the Customer is the only party who can control the DSP response, select TRUE.
RESPONSE_CONTROL_OPT_OUT_DETAILS	No	String data type		Response control	Opt out ability	Specify any limitations.
RESPONSE_CONTROL_AUDIT	No	Boolean data type		Response control	Auditability	Can the response be audited (is two-way communications or meter feedback available).
RESPONSE_CONTROL_AUDIT_DETAILS	No	String data type		Response control	Auditability	Specify the mechanism.
STORAGE	No	NONE BATTERY OTHER	None Battery Other	Storage		Type of energy storage system installed at the connection.
STORAGE_OTHER_SPECIFY	No	String data type		Storage		Specify details when “OTHER” is entered in STORAGE.
STORAGE_CAPACITY	No	Numeric data type		Storage	Storage capacity	MWh of available storage.
STORAGE_PURPOSE	No	String data type		Storage	Purpose	Why the storage was installed, e.g. backup supply, peak shaving, avoided augmentation, and performance indication metrics?
STORAGE_INSTALLATION_DATE	No	Date data type		Storage	Installation date	Date when the equipment was commissioned. Not applicable for aggregated storage (where the storage devices are distributed across multiple locations on a network, with separate metering points for each device).
STORAGE_EXPORT	No	Boolean data type		Storage	Export permitted	Is the storage allowed to net export to the grid?
STORAGE_INVERTER	No	String data type		Storage	Inverter	Make and model. Not applicable for aggregated storage (where the storage devices are distributed across multiple locations on a network, with separate metering points for each device).

MONITORING	No	SCADA MARKET_INTERVAL_METER NONMARKET_INTERVAL_METER OPENADR INTERNET MANUAL_OPERATION OTHER	SCADA Market interval meter Non-market interval meter OpenADR Internet Manual (on-site) operation Other	Monitoring and activation		Multi-select. Means of supervisory monitoring and/or control of response.
MONITORING_OTHER_SPECIFY	No	String data type		Monitoring and activation		Specify details when "OTHER" is entered in MONITORING.
SEASONALITY	No	String data type		Seasonality		Any expected variation with season.
TEMPERATURE_RESTRICTIONS	No	String data type		Temperature restrictions		Any limitation on capacity or duty cycle under high temperature conditions. Impact of DSP most critical during times of high network stress, which often coincides with high temperatures.
EXPIRY_DATE	No	Date data type		Expiry date		Date contract or Program ends (if applicable).

Figure 3 Example excerpt from a NEMDSP_METADATA.CSV file

PARTICIPANT_REFERENCE	NAME	METER_CONFIGURATION	METER_CONFIGURATION_OTHER_SPECIFY	POTENTIAL_RESPONSE	DSP_TYPE
HWLC_ZONE_A	HOT WATER CONTROL LOAD	NET_LOAD		88	LOAD_REDUCTION

NEMDSP_HISTORICAL.CSV file

The columns in the NEMDSP_HISTORICAL.CSV file are mapped to the Historical Timing and Magnitude of Response data category. Each row entry represents a single observation.

Table 4 NEMDSP_HISTORICAL.CSV

Column name	Mandatory field?	Allowed Values	Comments
TIMESTAMP_AEST	Yes	Date and time data type	Times must be provided in Australian Eastern Standard Time (AEST) in the format YYYY/MM/DD HH24:mm:SS. Interval timestamps must indicate the end of the period in question.
EVENT_STATUS	Yes	ACTIVE INACTIVE	
MW_REQUESTED	No	Numeric data type	
MW_OBSERVED	No	Numeric data type	
PARTICIPANT_REFERENCE	No	String data type	This is an optional field provided for participants to link CSV files.

Figure 4 Example NEMDSP_HISTORICAL.CSV file

TIMESTAMP_AEST	EVENT_STATUS	MW_REQUESTED	MW_OBSERVED	PARTICIPANT_REFERENCE
2016-01-22 15:35:00	ACTIVE	40	38.7	HWLC_ZONE_A
2016-01-22 16:00:00	INACTIVE	0	0	HWLC_ZONE_A
2016-01-25 15:03:30	ACTIVE	35	36.2	HWLC_ZONE_A
2016-01-22 18:12:40	INACTIVE	0	0	HWLC_ZONE_A

CHAPTER 4 NEEDING HELP

Related resources

You can find the following documents on AEMO's website:

- DSP CSV templates
- Demand Side Participation Information Guidelines
- **National Electricity Rules (NER)**: see the Australian Energy Market Commission (AEMC) website http://www.aemc.gov.au.

AEMO's Support Hub

Contacting AEMO's Support Hub

You can request for assistance through AEMO's Support Hub using one of the following methods:

- Phone: 1300 AEMO 00 (1300 226 600) and follow the prompts.
  For non-urgent issues, normal coverage is 8:00 AM to 6:00 PM on weekdays, Australian Eastern Standard Time (AEST).
- Email: supporthub@aemo.com.au
- The Participant Portal, http://helpdesk.preprod.nemnet.net.au/nemhelplite/ allows you to log your own requests for assistance. For access credentials, see your organisation's IT security contact or participant administrator.

Please note that AEMO recommends participants call AEMO's Support Hub for all urgent issues, whether or not you have logged a call in the Participant Portal.

Information to provide

Please provide the following information when requesting assistance from AEMO:

- Your name
- Organisation name
- Participant ID
- System or application name
- Environment: production or pre-production
- Problem description
- Screenshots

Feedback

Your feedback is important and helps us improve our services and products. To suggest improvements, please contact AEMO's Support Hub.