AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

WEM REGISTRATION TECHNICAL GUIDE

Version 3.10

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Important notice

PURPOSE

AEMO has prepared this document to provide information about the formats of Standing Data required by AEMO in the Wholesale Electricity Market Systems (WEMS) in accordance with the WEM Rules, as at the date of publication.

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VERSION CONTROL

Version	Release date	Changes
3.9	28/01/2021	Updated WEM Rule references related to NSG maximum sent out generation.

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1. Overview

1.1 Relationship with the WEM Rules

1.1.1 This document is the WEM Registration Technical Guide. It specifies the formats of Standing Data required by AEMO in the Wholesale Electricity Market Systems (WEMS) in accordance with the WEM Rules.

1.2 Purpose

1.2.1 The document specifies the formats of Rule Participant, Facility and Standing Data information required by the WEMS in accordance with the WEM Rules.

1.3 Application

1.3.1 This document applies to AEMO and System Management, and Rule Participants who are required to submit Standing Data for a Registered Facility or as a Market Customer.

1.3.2 All references to rules and procedures relate to the Wholesale Electricity Market (WEM).

1.4 Associated Market Procedures and Market Documents

1.4.1 The following AEMO WEM Documents are associated with this Technical Guide:

- Participant Registration WEM Procedure
- Facility Registration WEM Procedure
- WEM Participant Registration User Guide

1.5 Further Information

1.5.1 Please contact Market Operations (WA) for further information regarding the materials contained in this document.

Contact	**Telephone**	**Email**
Duty Operator - primary Market Operations (WA) contact number during office hours, after hours, weekends, public and holidays.	1300 989 797	– wa.operations@aemo.com.au

2. Participant Information

2.1 General Information

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Short Name	Organisation short name set by AEMO during application. This field cannot be changed.	Set field	Text	N/A	2.33.1 (c)
Organisation Name	Name of Participant, set by AEMO during application. This field cannot be changed.	Set field	Text	N/A	2.33.1 (c)
Authorised Person	The person within your organisation who has signing authority for agreements and contracts.	Text Box	Text	N/A	2.33.1 (d)
Australian Business Number	Organisation identifier registered with the Australian Tax Office (ATO).	Text Box	Numeric	N/A	2.33.1 (d)
Mailing Address	Address where all correspondence from AEMO to the participant will be sent.	Text Box	Text/ Numeric	N/A	2.33.1 (c)
City/ Town	City or Town where the organisation resides.	Text Box	Text	N/A	2.33.1 (c)
State	State where the organisation resides.	Drop down list	Only one option may be selected	N/A	2.33.1 (c)
Post Code	Post code for the organisations' address.	Text Box	Numeric	N/A	2.33.1 (c)
Country	Country where the organisation resides.	Drop down list	Only one option may be selected	N/A	2.33.1 (c)
Phone	Phone number of organisation.	Text Box	Numeric	N/A	2.33.1 (c)
Fax	Fax number of organisation.	Text Box	Numeric	N/A	2.33.1 (c)
Email	Email address of Authorised Person.	Text Box	Text/ Numeric	N/A	2.33.1 (c)
Website	Website address of organisation.	Text Box	Text/ Numeric	N/A	2.33.1 (c)

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Main Contact User	The person within your organisation who AEMO will send correspondence and digital certificates to.	Drop down list	Only one option may be selected	N/A	2.33.1 (c)

2.2 Financial Information

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Bank Name	Name of organisations' bank.	Text Box	Text	N/A	2.33.1(m)
Branch Name	Branch name of organisations' bank.	Text Box	Text	N/A	2.33.1(m)
Branch Description	Description of organisations' bank branch.	Text Box	Text	N/A	2.33.1(m)
BSB No	Organisations' six digit number as part of their bank account number that indicates the bank and the branch where the account is held.	Text Box	Numeric	N/A	2.33.1(m)
Branch Address	Organisations' bank branch address.	Text Box	Text/ Numeric	N/A	2.33.1(m)
City/Town	City/ Town of organisations' bank branch.	Text Box	Text	N/A	2.33.1(m)
State	State of organisations' bank branch.	Drop down list	Only one option may be selected	N/A	2.33.1(m)
Postal Code	Post Code of organisations' bank branch.	Text Box	Numeric	N/A	2.33.1(m)
Country	Country the organisations' bank branch resides.	Drop down list	Only one option may be selected	N/A	2.33.1(m)
Phone	Phone number of organisations' bank branch.	Text Box	Numeric	N/A	2.33.1(m)
Fax	Fax number of organisations' bank branch.	Text Box	Numeric	N/A	2.33.1(m)
Austraclear Id	Organisation identification number for AEMO's nominated electronic fund transfer facility. Assigned to participant as part of Austraclear registration process.	Text Box	Text/ Numeric	N/A	2.33.1(l)
Account No	Organisations' bank account number.	Text Box	Numeric	N/A	2.33.1(m)
Account Name	Organisations' bank account name.	Text Box	Text	N/A	2.33.1(m)

3. Facility Information

3.1 Facility Status

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	Name of Facility. This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
Participant	Organisation short name set by AEMO during application. This field cannot be changed.	Set field	Text	N/A	2.33.3(b)
Facility Type	Facility type as set out in clause 2.29, 2.30 and 2.30B of the WEM Rules. This field is set by AEMO during the application. This field cannot be changed. The facility type can only be one of the following; • Scheduled Generator • Non-Scheduled Generator • Non-Scheduled Generator (Intermittent) • Interruptible Load • Network • Non-Dispatchable Load • Demand Side Programme	Set field	Text	N/A	System Requirement
Facility Class	Facility class as set out in clause 2.29 of the WEM Rules. This field is set by AEMO during the application. This field cannot be changed. The facility class can only be one of the following; • Scheduled Generator • Non-Scheduled Generator • Interruptible Load • Network • Non-Dispatchable Load • Demand Side Programme	Set field	Text	N/A	2..3.3(c)iii
Registration Status	Defines the Registration Status of the Facility. The status may be set as one of the following: • Candidate for Registration	Set field	Text	N/A	System Requirement

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
	• Registered Facility • De-Registered • Transferred This field is set by AEMO during the application. This field cannot be changed. By default when a new facility is created, this will be "Candidate for Registration".				
Exemption from Spinning Reserve	Defines the Status of the facility dependent on The Outcome of the Exemption from Funding Spinning Reserve Application, according to the criteria in clause 2.30A of the WEM Rules. Applies only to Non-Scheduled Generators that are of the Intermittent Generator Sub-Type. This field is set by AEMO during the application. This field cannot be changed.	Set field	Text	N/A	2.30A
Intermittent Load Status	Status set in accordance with clause 2.30B of the WEM Rules. This field is set by AEMO during the application. This field cannot be changed. Applied to Non-Dispatchable Load.	Set field	Text	N/A	2.30B.1
Associated Intermittent load	Specifies the Intermittent Load that is associated with the Generation System (where Applicable). This field is set by participants through the Facility General Information Change Request. Applies to Scheduled and Non-Scheduled Generators only. Can only be associated with one load.	Drop down list	Only one option may be selected	N/A	2.30B.2
Registration Sub-Type	Specifies the Sub type that is used by Intermittent Load Applications. This field is set by participants through the Facility General Information Change Request. One value must be selected. Default is REG for all facilities. Selectable from the following Options: • REG • SIL • EG • MIL	Drop down list	Only one option may be selected	N/A	System Requirement
Remote Flag	Used for Associating Intermittent Loads with Generation Systems. This field is set by participants through the Facility General Information Change Request.	Tick Box	Yes or No	N/A	System Requirement
Demand Side Management Programme	Denotes if the Load is being registered as a DSM Programme. This field is set by participants through the Facility General Information Change Request. Applies to Interruptible Loads.	Tick Box	Yes or No	N/A	System Requirement

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Associated Demand Side Management Programme (DSMP)	List of Demand Side Management Programmes registered to the Participant. If the Load being registered is an Interruptible Load. and is being associated with an existing Demand Side Management Programme (DSMP) then the participant can select from a list of created DSMPs to associate the load with. This field is set by participants through the Facility General Information Change Request. This field is optional.	Drop down list	Only one option may be selected	N/A	System Requirement
Facility Received from Transfer	Only set to "Yes" if participant acquired facility through the Facility Transfer process, otherwise "No". This field is set by AEMO during the application. This field cannot be changed. Applies to Transferred Facilities only.	Set field	Text	N/A	System Requirement
Previous Participant Owner	Previous owner of facility. This field is set by AEMO during the application. This field cannot be changed. This field will only appear for facilities that have been transferred and the Facility received from Transfer flag is "Yes". Applies to Transferred Facilities only.	Set field	Text	N/A	System Requirement
Forms Part of an Aggregated Facility	Denotes if the facility is being registered as a part of an Aggregated facility. This field is set by AEMO and may be changed through an Application for Facility Registration. Applies to Individual Facilities Only	Set field	Text	N/A	2.33.3(c)v
Defines the Aggregated Facility that the facility is associated with.	Specifies the aggregated facility that individual facility is associated to. This field is set by AEMO and may be changed through an Application for Facility Registration. Applies to Individual Facilities Only	Drop down list	Only one option may be selected	N/A	2.33.3(c)v
Aggregated Facility Status	Specifies the aggregation status of the facility. This field is set by AEMO and may be changed through an Application for Facility Registration. Applies to Individual Facilities Only	Set field	Text	N/A	2.33.3(c)v
Aggregation Status	Specifies the aggregation status of the facility. This field is set by AEMO and may be changed through an Application for Facility Registration.	Set field	Text	N/A	2.33.3(c)v

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
	Applies to Aggregated Facilities Only				
Associated Individual Facilities	Denotes the individual facilities that form the Aggregated facility. This field is set by AEMO and may be changed through an Application for Facility Registration. Multiple individual facilities may be associated. Applies to Aggregated Facilities Only.	Drop down list	May select more than one facility	N/A	2.33.3(c)v

3.2 Facility General Information

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	Name of Facility. This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
Facility Owner	Organisation that currently owns the facility. This field cannot be changed except for through the facility transfer process.	Set field	Text	N/A	2.33.3(b)
Facility Type	Facility type as set out in clause 2.29, 2.30 and 2.30B of the WEM Rules. This field is set by AEMO during the application. This field cannot be changed. The facility type can only be one of the following; • Scheduled Generator • Non-Scheduled Generator • Non-Scheduled Generator (Intermittent) • Interruptible Load • Network - Network • Non-Dispatchable Load • Demand Side Programme	Set field	Text	N/A	System Requirement
Facility Class	Facility class as set out in clause 2.29 of the WEM Rules. This field is set by AEMO during the application. This field cannot be changed. The facility class can only be one of the following; • Scheduled Generator	Set field	Text	N/A	2..3.3(c)iii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
	• Non-Scheduled Generator • Interruptible Load • Network • Non-Dispatchable Load • Demand Side Programme				
Facility Street Address	Street address where the facility is located.	Text Box	Text/ Numeric	N/A	2.33.3(c)iv
City/Town	City or Town where the Facility is located.	Text Box	Text	N/A	2.33.3(c)iv
State	State where the Facility is located.	Drop down list	Only one option may be selected	N/A	2.33.3(c)iv
Postal Code	Postal Code for the Facility's Street Address	Text Box	Numeric	N/A	2.33.3(c)iv
Country	Country where the Facility is located.	Drop down list	Only one option may be selected	N/A	2.33.3(c)iv
Phone	Contact phone number of Main Contact User defined in User Management and set in Participant Information section. Can be altered through a change request in Participant Information or by altering information in User Management.	Set field	Text	N/A	2.33.1 (c)
Fax	Contact fax number of Main Contact User defined in User Management and set in Participant Information section. Can be altered through a change request in Participant Information or by altering information in User Management.	Set field	Text	N/A	2.33.1 (c)
Email	Contact email address of Main Contact User defined in User Management and set in Participant Information section. Can be altered through a change request in Participant Information or by altering information in User Management.	Set field	Text	N/A	2.33.1 (c)
Contact Person	Name of Main Contact User, defined in User Management and set in Participant Information section. Can be altered through a change request in Participant Information or by altering information in User Management.	Set field	Text	N/A	2.33.1 (c)
Demand Side Management Programme	Denotes if the Load is being registered as a DSM Programme. This field is set by participants through the Facility General Information Change Request. Applies to Interruptible Loads.	Tick Box	Yes or No	N/A	2.33.3(c)v

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Associated Demand Side Management Programme	List of Demand Side Management Programmes registered to the Participant. If the Load being registered is an Interruptible Load. and is being associated with an existing Demand Side Management Programme (DSMP) then the participant can select from a list of created DSMPs to associate the load with. This field is set by participants through the Facility General Information Change Request. This field is optional.	Drop down list	Only one option may be selected	N/A	2.33.3(c)v
Associated Intermittent Load	Specifies the Intermittent Load that is associated with the Generation System (where Applicable). This field is set by participants through the Facility General Information Change Request. Applies to Scheduled and Non-Scheduled Generators only. Can only be associated with one load.	Drop down list	Only one option may be selected	N/A	2.33.3(c)v
Registration Sub-Type	This field is used to associate Intermittent Loads with Generations Systems. Specifies the Sub type that is used by Intermittent Load Applications. Sub-type includes: • REG • SIL • EG • MIL The default value is set to REG for all Facilities.	Drop down list	Only one option may be selected	N/A	System Requirement
Remote Flag	This field is used to associate Intermittent Loads with Generations Systems.	Tick Box	Yes or No	N/A	System Requirement
NMI	The NMI numbers of any meters associated with the facility. This field is updated from meter information sent to AEMO by Western Power and cannot be altered by the participant.	Set field	Numeric	N/A	Appendix (f)(v)
Evidence of Arrangement for Access	Commercial arrangement through which access to the network is obtained. Given meaning in Chapter 11 of WEM Rules.	File Upload	Word or PDF document	N/A	2.33.3(c)viii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Details of the operational control over the Facility	Evidence that the communication and control systems required by clause 2.35 of the WEM Rules are in place and operational. Providing an endorsement from the relevant System Operator(s) indicating that all SCADA indication and control equipment and all voice and data communications links required under the operating protocol are fully operational.	File Upload	A word document or pdf.	N/A	2.33.3(c)xi
Current Date of Commencement of Commissioning of the Facility	The Participant's declaration of the proposed start date of commissioning for the facility. Submitted to System Management in accordance with clause 3.21A of the WEM Rules.	Text Box	Numeric or select date from calendar ratio pop-up.	N/A	2.33.3(c)vii1
Current Commissioning Plan	The latest uploaded commissioning plan of the facility. Submitted to System Management in accordance with clause 3.21A of the WEM Rules.	File Upload	PDF document	N/A	2.33.3(c)vii2
Current Date for Commencement of Operation	Latest date for Energy Market commencement of the facility. This field is populated by AEMO upon approval of the facility registration. This field can only be changed through a new Facility Registration Application.	Set field	Text	N/A	2.33.3(d)

4. Standing Data

4.1 All Facilities

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Standing Data Change Supporting Evidence Comment	Participant users can comment on the Standing Data Changes being made in accordance with clause 2.34.3(b) of the WEM Rules.	Text Box	Text/ Numeric	N/A	2.34.3(b)
Further support documentation	Providing support documentation regarding any changes made to the Standing Data.	File Upload	A word document or pdf.	N/A	System Requirement

4.2 Network

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	Name of Facility. This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
The positive, negative and zero sequence network impedances for the network elements (Appendix 1.(a).i)*	Impedances are to include positive, negative and zero sequence components to allow calculation of fault level. • Generator impedances to include subtransient, transient and steady state reactance. • Transformer tap change step and nominal ratio • Voltage control bus and AVR regulation voltage setting	File Upload	File formats to be .csv with the following fields on each line – • sequence_number (integer 3), • circuit_identity (character 24), • resistance (real 8:5 with exponent), • positive_sequence_reactance (real 8:5 with exponent), • positive_sequence_susceptance (real 8:5 with exponent), • admittance (real 8:3), • negative_sequence_reactance (real 8:5 with	N/A	Appendix 1.(a).i

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
			exponent), • zero_sequence_reactance (real 8:5 with exponent), • pu or ohms (character 4), • transformer_tap_changer_highest_ratio (real 8:3), • transformer_tap_changer_lowest_ratio (real 8:3), • transformer_tap_change_ratio_step (real 8:4), • voltage_control_bus_identity (character 48), • voltage_regulator_setting (real 8:3) The first line is to indicate the field names as above. Where data is not applicable to the component type then indicate this with a null entry in the field.		
Information on the network topology (Appendix 1.(a).ii)*	Identifies all elements comprising network where each asset is given an Asset ID and an Asset Type (each circuit, transformer) and each bus bar is given a code. Showing the connection of all HV transmission and distribution lines, transformers, auto-transformers, regulators, earthing compensators, circuit breakers /switches, rackable switch connectors, isolators, tee and star points, busbars, bus sections, current transformers, voltage transformers, capacitive voltage transformers, combined current and voltage transformers, removable taps, fixed earthing switches, fuses, fuse switches, reactors, capacitors, saturable reactors, filters, surge diverters, metering points, and any other electrical devices forming part of the network. Transformer, etc. winding configurations (e.g. delta, star) to be indicated including earthing connections. All devices must be clearly identifiable on the diagrams with legends to indicate the meaning of symbols used. Data is to include the location of SCADA telemetry measurement points and the accuracy class of the measuring components (CTs,	File Upload	System Management require clearly labelled single line diagrams in electronic CAD or Adobe Acrobat format (.dxf, .dgn or .pdf files). Diagrams must be kept up to date and revised diagrams with amendments clearly indicated forwarded to SM in accordance with the WEM Rules.	N/A	Appendix 1.(a).ii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
	VTs, transducers, ADCs, etc.). All voltage levels to be clearly indicated. (This information may be used by System Management to identify assets subject to outages and by AEMO to identify the network connection points of facilities).				
Information on transmission circuit limits (Appendix 1.(a).iii)*	Information on transmission circuit limits	File Upload	Circuit fault make and break capability: • sequence_number (integer 3), • circuit_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent) The first line is to indicate the field names as above.	N/A	Appendix 1.(a).iii
Information on security constraints (Appendix 1.(a).iv)*	Electrical model data is also required to enable SM to conduct state estimation, load flow, contingency analysis, and fault studies of the network. Data required for all circuits - generator, line, transformer, earthing compensator, series and shunt reactors, capacitors, SVCs/ Statcoms, etc.	File Upload	File format should be .csv. Resistance, reactance, susceptance and admittance data (PI equivalent for lines and transformers) expressed in ohms or per unit on 100 MVA base at nominal voltage.	N/A	Appendix 1.(a).iv
Overload ratings, including details of how long overload ratings can be maintained (Appendix 1.(a).v)*	Overload ratings of the facility equipment to allow SM to model the network and its capabilities.	File Upload	Circuit ratings in amps calculated as the rating of the lowest rated series connected item of plant in a circuit. Circuit high and low voltage limits in kilovolts (kvolt) – determined from the rating of the equipment comprising the circuit components (e.g. voltage and current transformers, surge diverters, transformers, insulation, etc.). Fault make/ fault break capability for each circuit making/breaking device in a circuit.	N/A	Appendix 1.(a).v

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
			File format should be .csv with the following fields on each line Circuit rating: • sequence_number (integer 3), • circuit_identity (character 24), • circuit_rating_amps (real 8:3), • circuit_high_kvolt_limit (real 8:3), • circuit_low_kvolt_limit (real 8:3) The first line is to indicate the field names as above.		
Short circuit capability of facility equipment (Appendix 1.(a).vi)	The short circuit capability of facility equipment.	File Upload	Data required in kiloamps for each circuit making/breaking device in the facility equipment connection circuit. File format should be .csv with the following fields on each line • sequence_number (integer 3), • facility_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent) The first line is to indicate the field names as above.	N/A	Appendix 1.(a).vi

4.3 Scheduled Generator

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
Dispatch Tolerance	This field is set by AEMO during facility registration in accordance with clause 6.17.9 of the WEM Rules. This field cannot be changed.	Set field	Numeric	MWh	6.17.9
Evidence that the communication and control systems required by clause 2.35 are in place and operational (Appendix 1.(b).i)	Providing an endorsement from the relevant System Operator(s) indicating that all SCADA indication and control equipment and all voice and data communications links required under the operating protocol are fully operational.	File Upload	A word document or pdf.	N/A	Appendix 1.(b).i
Maximum Nameplate Generator Capacity (MW) (Appendix 1.(b).ii)	Name plate capacity of facility.	Text Box	Numeric	MW	Appendix 1.(b).ii
Minimum load at the connection point of the generator that will automatically trip off if the generator fails (MW) (Appendix 1.(b).iiA)	Refers to parts of the generator unit/station service load which are automatically disconnected by the Participant. Includes unit auxiliary load which is supplied directly from the generator via the unit transformer and station load supplied from the network if disconnected automatically when the generator trips. Participants may need to know how to handle where trippable load is dependent on the unit generated output load.	File Upload	File format to be .csv with each line having the following fields: • generator_sequence_number (integer 3), • generator_identity (character 24), • load_tripped (real 8:3) The first line is to indicate the field names as above.	N/A	Appendix 1.(b).iiA
The dependence of capacity on the type of fuel used by the facility for each fuel described in Appendix 1.(b).xi	A separate relationship for each fuel type is required except where provided as a database value for a primary or secondary fuel. If a facility has two or more fuels then data must be provided in this file. If the facility has just one fuel insert "NOT APPLICABLE" Each of the following parameters must be provided where it has not been provided via a DV field. The	File Upload	File format to be .csv with the following fields on each line: • sequence_number (Integer 3), • facility_identity (character 24), • fuel_type (character 24),	MW	Appendix 1.(b).iiiA

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
	meaning and format of each description field below should be as for the corresponding primary fuel DV field name (i.e. as if the data had been provided as a database value): • Fuel • Liquid or non-Liquid • Overload capacity • Ancillary Service Capability (just the types) • Minimum Loading Level • Minimum Dispatchable Loading • Time to Minimum Dispatchable Loading •The minimum time to synchronization for cold, warm and hot states and the number of hours that must have elapsed since the facility last ran to be in that state. • Restart Time • Response Time The first line is to indicate the field names.		• Liquid_or_ non-Liquid (character 24) • Overload capacity (real 6:1) • Ancillary Service Capability (just the types) • Minimum Loading Level (real 6:1) • Minimum Dispatchable Loading (real 6:1) • Time to Minimum Dispatchable Loading (real 8:5 with exponent) • The minimum time to synchronization for cold, warm and hot states and the number of hours that must have elapsed since the facility last ran to be in that state. HOT (real 8:5 with exponent) • The minimum time to synchronization for cold, warm and hot states and the number of hours that must have elapsed since the facility last ran to be in that state. WARM (real 8:5 with exponent) • The minimum time to synchronization for cold, warm and hot states and the number of hours that must have elapsed since the facility last ran to be in that state. COLD (real 8:5 with exponent) • Restart Time (real 8:5 with exponent) • Response Time (real 8:5 with exponent) The first line is to indicate the field names as above.		
The dependence of capacity on temperature at the location of the facility (Appendix 1.(b).iv)	Rated (installed) capacity as a function of temperature at the location of the facility. A separate relationship for each fuel type is required expressed in terms of generated MW. Maximum generation details for each 0.1 interval from 0 to 45°C.	File Upload	File format to be .csv with the following fields on each line: • facility_identity (character 24), • fuel_type (character 1) – L | N, followed by the following data pairs for each temperature breakpoint: • temperature (real 3:1), • facility_capability (real 6:3)	N/A	Appendix 1.(b).iv

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
			The last pair terminated by carriage return. Note that the first row must be a header row, containing the names of the four columns respectively; facility_identity, fuel_type, temperature, facility_capability.		
Plant Type (Fuel) (Appendix 1.(b).xi)	Facilities must be Liquid, Non-Liquid or Dual Fuel. Note that dual refers to the ability to use both liquid and non-liquid fuel.	Drop down list	Only one option may be selected	N/A	Appendix 1.(b).xi
Details of Primary Fuel (Non-Liquid) (Appendix 1.(b).xi)	Non-Liquid fuels can be either coal, gas, coal/gas, renewable or other.	Drop down list	Only one option may be selected	N/A	Appendix 1.(b).xi
Details of Secondary Fuel (Liquid) (Appendix 1.(b).xi)	This field is only available if Plant Type (Fuel) from Appendix 1.(b).xi is Dual. Only available option for this field is Distillate.	Drop down list	Only one option may be selected	N/A	Appendix 1.(b).xi
Process for changing fuels (Appendix 1.(b).xi)	Details the process of changing fuels if Plant Type (Fuel) from Appendix 1.(b).xi is Dual. Report containing process on fuel change. Include the details of the fuel or fuels that the facility can use including dual fuel capabilities and the process for changing fuels.	File Upload	Pdf document	N/A	Appendix 1.(b).xi
Potential Energy Limits (Appendix 1.(b).xii)	Details of any potential energy limits of the facility. This may be quite user specific and broad ranging given experience in RC certification Ideally Database Value so that system management can develop rules for scheduling plant.	File Upload	Pdf document Description to indicate where energy limits occur because of fuel or other constraints which System Management would not know about otherwise. SM may want to work with the Participant in determining a suitable method of incorporating this into SMMITS.	N/A	Appendix 1.(b).xii
Non-Liquid Generator Sent Out Capacity (MW) (Appendix 1.(b).iii)	Maximum sent-out capacity (for IPP facilities) or generated capacity (for Verve facilities) when running on Non-liquid Fuel (operating at standard conditions).	Text Box	Numeric	MW	Appendix 1.(b).iii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Non-Liquid Normal Ramp Up Rate (MW) (Appendix 1.(b).v)	Ramp up (generated basis) For primary Non-Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).v
Non-Liquid Normal Ramp Down Rates (MW) (Appendix 1.(b).v)	Ramp down (generated basis) For primary Non-Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).v
Non-Liquid Emergency Ramp Up Rate (MW) (Appendix 1.(b).vi)	Emergency Ramp down (generated basis) For primary Non-Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).vi
Non-Liquid Emergency Ramp Down Rates (MW) (Appendix 1.(b).vi)	Emergency Ramp up (generated basis) For primary Non-Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).vi
Minimum stable loading level of the Non-Liquid generator (MW) (Appendix 1.(b).xiii)	The minimum stable loading level of the generator, expressed in MW for primary Non-Liquid Fuel. This is defined as the emergency level. Note that this is generally equal to Minimum Generator Capacity and Minimum Dispatchable Generation. This is generated at 15 ºC.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW	Appendix 1.(b).xiii
Liquid Generator Sent Out Capacity (MW) (Appendix 1.(b).iii)	Maximum sent-out capacity (for IPP facilities) or generated capacity (for Verve facilities) when running on liquid Fuel (operating at standard conditions).	Text Box	Numeric	MW	Appendix 1.(b).iii
Liquid Normal Ramp Up Rate (MW) (Appendix 1.(b).v)	Ramp up (generated basis) For secondary Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).v
Liquid Normal Ramp Down Rate (MW) (Appendix 1.(b).v)	Ramp down (generated basis) For secondary Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).v
Liquid Emergency Ramp Up Rate (MW) (Appendix 1.(b).vi)	Emergency Ramp down (generated basis) For secondary Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).vi

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Liquid Emergency Ramp Down Rate (MW) (Appendix 1.(b).vi)	Emergency Ramp up (generated basis) For secondary Liquid Fuel.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(b).vi
Minimum stable loading level of the Liquid generator (MW) (Appendix 1.(b).xiii)	The minimum stable loading level of the generator, expressed in MW for secondary Liquid Fuel. This is defined as the emergency level. Note that this is generally equal to Minimum Generator Capacity and Minimum Dispatchable Generation. This is generated at 15 ºC.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW	Appendix 1.(b).xiii
Overload Capacity (MW) (Appendix 1.(b).vii)	The overload capacity of the generator, if any, expressed in MW.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW	Appendix 1.(b).vii
AGC capabilities of the facility (Appendix 1.(b).viii)	AGC Capabilities including: -Min loading at which AGC can be provided. - Max loading at which AGC can be provided. - AGC response rate A separate set of data is required for each fuel type.	File Upload	Generated MW/min should not be greater than normal ramp, must not be greater than emergency ramp. File format to be .csv with the following fields on each line: • sequence_number (integer 3), • facility_identity (character 24), • fuel_type (character 24), • min_agc_load (real 6:1), The first line is to indicate the field names as above.	MW	Appendix 1.(b).viii
Black Start capability of the facility (Appendix 1.(b).ix)	Details of facilities capability to provide black start capacity.	File Upload	File format to be .csv with each line in the file having the following fields: • Item_sequence_number (integer 3), • generator_id (character 24), • black_start (Boolean 1=yes, 0=no) The first line is to indicate the field names as above.	N/A	Appendix 1.(b).ix

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Load Following (Appendix 1.(b).x1)	Specify whether the facility can provide Load Following.	Tick Box	Yes or No	N/A	Appendix 1.(b).x1
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Load Following (Appendix 1.(b).x1) (Supporting Evidence)	Provides details of Load Following Capability Load following reserve (LFR) is a constant amount in MW which is zero outside the dispatchable load range and is dependent on fuel type. It is an expression of the achievable upwards or downwards load response of the generator facility in 1 minute to changes in system load. - Min load in MW at which LFR available - below this no LF credit is given - Max load in MW at which LFR can be provided - Maximum LFR contribution which the facility can make	File Upload	File format to be .csv with the following fields on each line: • sequence_number (integer 3), • facility_identity (character 24), • fuel_type (character 24), • min_lfr_load (real 6:1), • max_lfr_load (real 6:1), • max_lfr_contrib (real 6:1) A separate set of data is required for each fuel type.	N/A	Appendix 1.(b).x1
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Spinning Reserve (Appendix 1.(b).x2)	Specify whether the facility can provide Spinning Reserve.	Tick Box	Yes or No	N/A	Appendix 1.(b).x2
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is	Provides details of Spinning Reserve Capability. The spinning reserve contributions for each fuel type have previously been classified in the following empirical terms: - Min load in MW at which SR available - below this	File Upload	File format to be .csv with the following fields on each line: • sequence_number (integer 3), • facility_identity (character 24), • fuel_type (character 24),	N/A	Appendix 1.(b).x2

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
provided simultaneously - Spinning Reserve (Appendix 1.(b).x2) (Supporting Evidence)	no SR credit is given - Max load in MW at which SR can be provided - Maximum SR contribution which the facility can make - Factor which is applied to difference between the max load MW at which SR can be provided and the facility load MW - this indicates load dependent SR contribution from the facility. This creates a trapezoidal shape connecting facility MW and MW reserve capability. This relationship is to be expanded for each time based SR contribution (i.e. 6 sec, 60 sec, 6 min).		• min_sr_load (real 6:1), • max_sr_load (real 6:1), • max_sr_contrib (real 6:1), • factor (real 4:2) A separate set of data is required for each fuel type. The first line is to indicate the field names as above.		
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Load Rejection Reserve (Appendix 1.(b).x4)	Specify whether the facility can provide Load Rejection Reserve.	Tick Box	Yes or No	N/A	Appendix 1.(b).x4
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Load Rejection Reserve (Appendix 1.(b).x4) (Supporting Evidence)	Provides details of Load Rejection Reserve Capability. Load rejection reserve (LRR) contributions for each fuel type have previously been classified in the following empirical terms: - Min load in MW at which LRR available - below this no SR credit is given - Max load in MW at which LRR can be provided - Maximum LRR contribution which the facility can make. Factor which is applied to difference between the min load MW at which LRR can be provided and the facility load MW - this indicates load dependent LRR contribution from the facility.	File Upload	File format to be .csv with the following fields on each line: • sequence_number (integer 3), • facility_identity (character 24), • fuel_type (character 24), • min_lrr_load (real 6:1), • max_lrr_load (real 6:1), • max_lrr_contrib (real 6:1), • factor (real 4:2) A separate set of data is required for each fuel type.	N/A	Appendix 1.(b).x4

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Minimum dispatchable loading level of the generator (MW)(Appendix 1.(b).xiv)	This is defined as the emergency level. Note that this is generally equal to Minimum Generator Capacity and Minimum Dispatchable Generation. This is generated at 15 ºC.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW	Appendix 1.(b).xiv
Stable Operation Limits (Including any output range between minimum Dispatchable loading level and Maximum Generator Capacity in which the facility is incapable of stable or safe operation (Appendix 1.(b).xv)	Any output ranges between minimum dispatchable loading level and name plate capacity in which the facility is incapable of stable or safe operation. Include any output range between minimum dispatchable loading level and name plate capacity in which the facility is incapable of stable or safe operation	File Upload	File format to be .csv with the following fields on each line: • sequence_number (integer 3), • facility_identity (character 24) • fuel_type (character 24) Followed by the following data pairs for each disallowed region: • lower_disallowed_load (real 6:1), • upper_disallowed_load (real 6:1), The last pair determined by carriage return. A separate set of data is required for each fuel type. The first line is to indicate the field names as above.	N/A	Appendix 1.(b).xv
Impedances (sub-transient, transient and steady state impedances(positive, negative and zero sequence) for the facility) (Appendix 1.(b).xvi)	Sub-transient, transient and steady state impedances (positive, negative and zero sequence) for the facility and any other related data required. Positive Impedance for Element (While included, System Management will generally get this information via access connection information).	File Upload	Electrical model data - file format to be .csv with the each line in the file having the fields indicated below: • Item_sequence_number (Integer 3), • facility_identity (character 24), • resistance (real 8:5 with exponent), • positive_sequence_steadystate_reactance (real 8:5 with exponent), • positive_sequence_steadystate_susceptance (real 8:5 with exponent), • negative_sequence_reactance(real 8:5 with exponent), • zero_sequence_reactance (real 8:5 with exponent), • sub_transient_reactance (real 8:5 with exponent), • transient_reactance (real 8:5 with exponent)	N/A	Appendix 1.(b).xvi

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
			The first line is to indicate the field names as above		
Minimum Synchronisation Time (Cold) (minutes) (Appendix 1.(b).xvii1)	Cold synchronisation time. The minimum time to synchronise in this state.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xvii1
Elapsed Synchronisation Time (Cold) (minutes) (Appendix 1.(b).xvii1)	Number of minutes elapsed for Cold Sync time.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xvii1
Minimum Synchronisation Time (Warm) (minutes) (Appendix 1.(b).xvii2)	Warm synchronisation time. The minimum time to synchronise in this state.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xvii2
Elapsed Synchronisation Time (Warm) (minutes) (Appendix 1.(b).xvii2)	Number of minutes elapsed for Warm Sync time.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xvii2
Minimum Synchronisation Time (Hot) (minutes) (Appendix 1.(b).xvii3)	Hot synchronisation time. The minimum time to synchronise in this state.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xvii3
Elapsed Synchronisation Time (Hot) (minutes) (Appendix 1.(b).xvii3)	Number of minutes elapsed for Hot Sync time.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xvii3
Minimum Restart Time (minutes) (Appendix 1.(b).xviii)	The minimum time before the facility can be restarted after it is shut down.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xviii
Minimum Dispatch Time (minutes) (Appendix 1.(b).xix)	Minimum response time before the facility can begin to respond to an instruction from System Management to change its output.	Text Box	Numeric Value must be positive.	Minutes	Appendix 1.(b).xix
The Metering Data Agent for the facility (Appendix 1.(b).xx)	The Metering Data Agent for the facility. One Meter Data Agent must be selected.	Drop down list	Only one option may be selected	N/A	Appendix 1.(b).xx

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Single line diagram for the facility (Appendix 1.(b).xxi)	Details the locations of transformers, switches, operational and settlement meters. Same information and format required as for network topology. Any other related data should include generator winding configuration (e.g. connection delta, star, other). Operations data is also required to allow SM to model the connecting network and its equipment capabilities. Data required includes: • circuit ratings in amps calculated as the rating of the lowest rated series connected item of plant in a circuit • circuit high and low voltage limits in kilovolts (kvolt) – determined from the rating of the equipment comprising the circuit components (e.g. voltage and current transformers, surge diverters, transformers, insulation, etc.). • Fault make/ fault break capability for each circuit making/breaking device in a circuit.	File Upload	File format should be .pdf illustrating the following information Circuit rating: • circuit_identity • circuit_rating_amps (real 8:3), • circuit_high_kvolt_limit (real 8:3), • circuit_low_kvolt_limit (real 8:3) Circuit fault make and break capability: • circuit_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent)	N/A	Appendix 1.(b).xxi
The Network nodes at which the facility can connect (Appendix 1.(b).xxii)	If the facility can be connected at more than one connection point, the alternate connection points should be detailed. Note that the primary connection point is entered in the field "Connection Point". For a facility without an alternate connection point, please submit a file with the message "Only 1 connection point for this facility."	File Upload	The name of the network node at which the facility is connected. If facility can connect at more than one node a circuit single line diagram in similar format as the facility single line diagram showing each network connection node and the circuit elements in each connection node. The connection node should include the busbar name, number and section of that busbar if there is more than one section. The description must be completely unambiguous.	N/A	Appendix 1.(b).xxii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
The short circuit capability of facility equipment (Appendix 1.(b).xxiii)	Details the circuit fault devices and ratings. The circuit fault devices identity information should match those identified on the Single Line Diagram (Appendix 1.(b).xxi)	File Upload	Data required in kiloamps for each circuit making/breaking device in the generator connection circuit. File format should be .csv with the following fields on each line • sequence_number (integer 3), • facility_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent) The first line is to indicate the field names as above.	N/A	Appendix 1.(b).xxiii

4.4 Non Scheduled Generator

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
Name plate Capacity of the generator (MW) (Appendix 1.(e).ii)	Name plate Capacity of the generator	Text Box	Numeric	MW	Appendix 1.(e).ii
Evidence that the communication and control systems required by clause 2.35 are in place and operational (Appendix 1.(e).i)	Providing an endorsement from the relevant System Operator(s) indicating that all SCADA indication and control equipment and all voice and data communications links required under the operating protocol are fully operational.	File Upload	A word document or pdf.	N/A	Appendix 1.(e).i
Plant Type (Fuel)	Facilities must be Liquid, Non-Liquid or Dual Fuel. Note that dual refers to the ability to use both liquid and non-liquid fuel.	Drop down list	Only one option may be selected	N/A	System Requirement
Non-Liquid Maximum Generator Capacity (MW) (Appendix 1.(e).iiiA)	Maximum sent-out capacity (for IPP facilities) or generated capacity (for Verve facilities) when running on Non-liquid Fuel (operating at standard conditions).	Text Box	Numeric	MW	Appendix 1.(e).iiiA
Non-Liquid Minimum Generator Capacity (MW) (Appendix 1.(e).iiA)	Minimum sent-out capacity (for IPP facilities) or generated capacity (for Verve facilities) when running on Non-liquid Fuel (operating at standard conditions).	Text Box	Numeric	MW	Appendix 1.(e).iiA
Liquid Maximum Generator Capacity (MW) (Appendix 1.(e).iiiA)	Maximum sent-out capacity (for IPP facilities) or generated capacity (for Verve facilities) when running on Liquid Fuel (operating at standard conditions).	Text Box	Numeric	MW	Appendix 1.(e).iiiA
Liquid Minimum Generator Capacity (MW) (Appendix 1.(e).iiA)	Minimum sent-out capacity (for IPP facilities) or generated capacity (for Verve facilities) when running on Liquid Fuel (operating at standard conditions).	Text Box	Numeric	MW	Appendix 1.(e).iiA
Normal Ramp Down Rates (MW/min) (Appendix 1.(e).iii)	Ramp down rate	Text Box	Numeric	MW	Appendix 1.(e).iii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
The capability to provide Load Rejection Reserve, including information on trade-off functions when energy is provided simultaneously	Specify whether the facility can provide Load Rejection Reserve.	Tick Box	Yes or No	N/A	Appendix 1.(e).iv
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Load Rejection Reserve (Appendix 1.(e).iv)	Provides details of Load Rejection Reserve Capability. Load rejection reserve (LRR) contributions for each fuel type have previously been classified in the following empirical terms: - Min load in MW at which LRR available - below this no SR credit is given - Max load in MW at which LRR can be provided - Maximum LRR contribution which the facility can make. Factor which is applied to difference between the min load MW at which LRR can be provided and the facility load MW - this indicates load dependent LRR contribution from the facility.	File Upload	File format to be .csv with the following fields on each line: • sequence_number (integer 3), • facility_identity (character 24), • fuel_type (character 24), • min_lrr_load (real 6:1), • max_lrr_load (real 6:1), • max_lrr_contrib (real 6:1), • factor (real 4:2) A separate set of data is required for each fuel type.	N/A	Appendix 1.(e).iv
Minimum Dispatch Time (minutes) (Appendix 1.(e).vi)	Minimum response time before the facility can begin to respond to an instruction from System Management to change its output	Text Box	Numeric	Minutes	Appendix 1.(e).vi
The Metering Data Agent for the facility (Appendix 1.(e).vii)	The Metering Data Agent for the facility. One Meter Data Agent must be selected.	Drop down list	Only one option may be selected	N/A	Appendix 1.(e).vii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Single line diagram for the facility (Appendix 1.(e).viii)	Details the locations of transformers, switches, operational and settlement meters. Same information and format required as for network topology. Any other related data should include generator winding configuration (e.g. connection delta, star, other). Operations data is also required to allow SM to model the connecting network and its equipment capabilities. Data required includes: • circuit ratings in amps calculated as the rating of the lowest rated series connected item of plant in a circuit • circuit high and low voltage limits in kilovolts (kvolt) – determined from the rating of the equipment comprising the circuit components (e.g. voltage and current transformers, surge diverters, transformers, insulation, etc.). • Fault make/ fault break capability for each circuit making/breaking device in a circuit.	File Upload	File format should be .pdf illustrating the following information Circuit rating: • circuit_identity • circuit_rating_amps (real 8:3), • circuit_high_kvolt_limit (real 8:3), • circuit_low_kvolt_limit (real 8:3) Circuit fault make and break capability: • circuit_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent)	N/A	Appendix 1.(e).viii
The Network nodes at which the facility can connect (Appendix 1.(e).ix)	The network nodes at which the facility can connect (if more than one). If the facility can be connected at more than one connection point, the alternate connection points should be detailed. Note that the primary connection point is entered in the field "Connection Point". For a facility without an alternate connection point, please submit a file with the message "Only 1 connection point for this facility."	File Upload	The name of the network node at which the facility is connected. If facility can connect at more than one node a circuit single line diagram in similar format as the facility single line diagram showing each network connection node and the circuit elements in each connection node. The connection node should include the busbar name, number and section of that busbar if there is more than one section. The description must be completely unambiguous.	N/A	Appendix 1.(e).ix

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
The short circuit capability of facility equipment (Appendix 1.(e).x)	Details the circuit fault devices and ratings. The circuit fault devices identity information should match those identified on the Single Line Diagram (Appendix 1.(e).viii)	File Upload	Data required in kiloamps for each circuit making/breaking device in the generator connection circuit. File format should be .csv with the following fields on each line • sequence_number (integer 3), • facility_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent) The first line is to indicate the field names as above.	N/A	Appendix 1.(e).x
Impedances (sub-transient, transient and steady state impedances(positive, negative and zero sequence) for the facility) (Appendix 1.(e).xi)	Sub-transient, transient and steady state impedances (positive, negative and zero sequence) for the facility and any other related data required. Positive Impedance for Element (While included, System Management will generally get this information via access connection information).	File Upload	Electrical model data - file format to be .csv with the each line in the file having the fields indicated below: • Item_sequence_number (Integer 3), • facility_identity (character 24), • resistance (real 8:5 with exponent), • positive_sequence_steadystate_reactance (real 8:5 with exponent), • positive_sequence_steadystate_susceptance (real 8:5 with exponent), • negative_sequence_reactance(real 8:5 with exponent), • zero_sequence_reactance (real 8:5 with exponent), • sub_transient_reactance (real 8:5 with exponent), • transient_reactance (real 8:5 with exponent) The first line is to indicate the field names as above	N/A	Appendix 1.(e).xi

4.5 Non–Dispatchable Load

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
Nominated maximum consumption quantity per interval (MWh) (Appendix 1.(f).iii)	The Market Customer's nominated maximum consumption quantity for Non-Dispatchable Loads which are intermittent loads or are embedded behind and intermittent load. This is entered in an Intermittent Load facility registration.	Text Box	Numeric	MWh	Appendix 1.(f).iii
Intermittent Load Status (Appendix 1.(f).vi)	Specify whether the facility is an Intermittent Load. Load must meet the requirements set out in Clause of the WEM Rules 2.30.B.2 to be considered intermittent.	Tick Box	Yes or No	N/A	Appendix 1.(f).vi
Maximum Intermittent Load (MWh/Trading Interval) (Appendix 1.(f).vii)	If an intermittent load meter, the maximum allowed level of Intermittent Load, where this cannot exceed the nominated Maximum Requirement for the facility.	Text Box	Numeric	MWh / Trading Interval	Appendix 1.(f).vii
Maximum Non-Metered Consumption (MWh/Trading Interval) (Appendix 1.(f).viii)	The maximum level of net consumption at that meter which is not separately metered and which is not Intermittent Load.	Text Box	Numeric	MWh / Trading Interval	Appendix 1.(f).viii
Nominated Capacity Requirement (MW) (Clause of the WEM Rules 2.30B.3.a)	In addition to registering its maximum intermittent load, a participant must nominate the actual capacity to be treated as intermittent for any given Capacity Year.	Text Box	Numeric	MW	2.30B.3.a
Anticipated Reduction in the maximum capacity when the ambient temperature is 45°C (MW) (Clause of the WEM Rules 2.30B.3.b.i)	Anticipated reduction in the maximum capacity that the generating system can be guaranteed to have available to supply Intermittent Load when the ambient temperature is 45'C.	Text Box	Numeric	MW	2.30B.3.b.i

4.6 Interruptible Load

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
Market Customer's nominated maximum consumption quantity per interval (MWh) (Appendix 1.(g).i)	The Market Customer's nominated maximum consumption quantity, in units of MW/h per Trading Interval for the facility.	Text Box	Numeric	MWh	Appendix 1.(g).i
Evidence that the communication and control systems required by clause 2.35 are in place and operational (Appendix 1.(g).ii)	Providing an endorsement from the relevant System Operator(s) indicating that all SCADA indication and control equipment and all voice and data communications links required under the operating protocol are fully operational.	File Upload	A word document or pdf.	N/A	Appendix 1.(g).ii
Real-time telemetry capabilities (Appendix 1.(g).iii)	Details of telemetry system, including band width, polling frequency etc.	File Upload	A word document or pdf with an endorsement from the relevant System Operator(s) indicating that all SCADA indication and control equipment and all voice and data communications links required under the operating protocol are fully operational.	N/A	Appendix 1.(g).iii
Maximum amount of load that can be interrupted (MWh) (Appendix 1.(g).iv)	The maximum amount of load that can be interrupted.	Text Box	Numeric	MW	Appendix 1.(g).iv
Maximum duration of any single interruption (minutes) (Appendix 1.(g).v)	The maximum duration of any single interruption.	Selection Panel	Day, Hour, Minute, Seconds	Minutes	Appendix 1.(g).v

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Spinning Reserve (Appendix 1.(g).vi1)	Specify whether the facility can provide Spinning Reserve.	Tick Box	Yes or No	N/A	Appendix 1.(g).vi1
The capability to provide the following Ancillary Service, including information on trade-off functions when more than one other type of Ancillary Service and/or energy is provided simultaneously - Spinning Reserve (Appendix 1.(g).vi1)	Provides details of Spinning Reserve Capability. The spinning reserve contributions for each fuel type have previously been classified in the following empirical terms: - Min load in MW at which SR available - below this no SR credit is given - Max load in MW at which SR can be provided - Maximum SR contribution which the facility can make - Factor which is applied to difference between the max load MW at which SR can be provided and the facility load MW - this indicates load dependent SR contribution from the facility. This creates a trapezoidal shape connecting facility MW and MW reserve capability. This relationship is to be expanded for each time based SR contribution (i.e. 6 sec, 60 sec, 6 min).	File Upload	File format to be .csv with the following fields on each line: • sequence_number (integer 3), • facility_identity (character 24), • fuel_type (character 24), • min_sr_load (real 6:1), • max_sr_load (real 6:1), • max_sr_contrib (real 6:1), • factor (real 4:2) A separate set of data is required for each fuel type. The first line is to indicate the field names as above.	N/A	Appendix 1.(g).vi1
The Metering Data Agent for the facility (Appendix 1.(g).vii)	The Metering Data Agent for the facility. One Meter Data Agent must be selected.	Drop down list	Only one option may be selected	N/A	Appendix 1.(g).vii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Single line diagram for the facility (Appendix 1.(g).viii)	Details the locations of transformers, switches, operational and settlement meters. Same information and format required as for network topology. Any other related data should include generator winding configuration (e.g. connection delta, star, other). Operations data is also required to allow SM to model the connecting network and its equipment capabilities. Data required includes: • circuit ratings in amps calculated as the rating of the lowest rated series connected item of plant in a circuit • circuit high and low voltage limits in kilovolts (kvolt) – determined from the rating of the equipment comprising the circuit components (e.g. voltage and current transformers, surge diverters, transformers, insulation, etc.). • Fault make/ fault break capability for each circuit making/breaking device in a circuit.	File Upload	File format should be .pdf illustrating the following information Circuit rating: • circuit_identity • circuit_rating_amps (real 8:3), • circuit_high_kvolt_limit (real 8:3), • circuit_low_kvolt_limit (real 8:3) Circuit fault make and break capability: • circuit_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent)	N/A	Appendix 1.(g).viii
The Network nodes at which the facility can connect (Appendix 1.(g).ix)	If the facility can be connected at more than one connection point, the alternate connection points should be detailed. Note that the primary connection point is entered in the field “Connection Point”. For a facility without an alternate connection point, please submit a file with the message “Only 1 connection point for this facility.”	File Upload	The name of the network node at which the facility is connected. If facility can connect at more than one node a circuit single line diagram in similar format as the facility single line diagram showing each network connection node and the circuit elements in each connection node. The connection node should include the busbar name, number and section of that busbar if there is more than one section. The description must be completely unambiguous.	N/A	Appendix 1.(g).ix

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
The short circuit capability of facility equipment (Appendix 1.(g).x)	Details the circuit fault devices and ratings. The circuit fault devices identity information should match those identified on the Single Line Diagram (Appendix 1.(e).viii)	File Upload	Data required in kiloamps for each circuit making/breaking device in the generator connection circuit. File format should be .csv with the following fields on each line • sequence_number (integer 3), • facility_identity (character 24), • circuit_fault_make_break_device_identity (character 24), • fault_make_rating (real 8:5 with exponent), • fault_break_rating (real 8:5 with exponent) The first line is to indicate the field names as above.	N/A	Appendix 1.(g).x
Intermittent Load Status (Appendix 1.(g).xi)	Specify whether the facility is an Intermittent Load. Load must meet the requirements set out in Clause of the WEM Rules 2.30.B.2 to be considered intermittent.	Tick Box	Yes or No	N/A	Appendix 1.(g).xi

4.7 Demand Side Programme

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Facility Name	This name has a maximum of 32 characters and is set by AEMO. This field cannot be changed.	Set field	Text	N/A	2.33.3(c)i
Evidence that the communication and control systems required by clause 2.35 are in place and operational (Appendix 1.(h).ii)	Providing an endorsement from the relevant System Operator(s) indicating that all SCADA indication and control equipment and all voice and data communications links required under the operating protocol are fully operational.	File Upload	A word document or pdf.	N/A	Appendix 1.(h).ii
Maximum curtailable load (MW) (Appendix 1.(h).iii)	The maximum amount of load that can be curtailed.	Text Box	Numeric	MW	Appendix 1.(h).iii
Maximum duration of any single curtailment (minutes) – peak (Appendix 1.(h).iv)	The maximum duration of any single interruption.	Selection Panel	Day, Hour, Minute, Seconds	Minutes	Appendix 1.(h).iv
Maximum duration of any single curtailment (minutes) - off peak (Appendix 1.(h).iv)	The maximum duration of any single interruption.	Selection Panel	Day, Hour, Minute, Seconds	Minutes	Appendix 1.(h).iv
Consumption Decrease Price for Peak Trading Intervals ($/MWh) (Appendix 1.(h).vi1)	Consumption Decrease Price for Peak Trading Intervals. This must be to the nearest cent and not less than the Minimum STEM Price and not more than the Alternative Maximum STEM Price.	Tick Box to nominate Alternative Maximum STEM Price or alternatively Text Box	For Tick Box select Yes or No: • If yes is selected the value will automatically refer to the Alternative Maximum STEM Price. If no is selected, the Tick Box is available with Numeric format.	$/MWh	Appendix 1.(h).vi1
Consumption Decrease Price for Off-Peak Trading Intervals ($/MWh) (Appendix 1.(h).vi2)	Consumption Decrease Price for Off-Peak Trading Intervals. This must be to the nearest cent and not less than the Minimum STEM Price and not more than the Alternative Maximum STEM Price.	Tick Box to nominate Alternative Maximum STEM Price or alternatively Text Box	For Tick Box select Yes or No: • If yes is selected the value will automatically refer to the Alternative Maximum STEM Price. If no is selected, the Tick Box is available with Numeric format.	$/MWh	Appendix 1.(h).vi2

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Extra Consumption Decrease Price for Peak Trading Intervals ($/MWh) (Appendix 1.(h).vi.3)	Extra Consumption Decrease Price for Peak Trading Intervals. This must be to the nearest cent and not less than the Minimum STEM Price and not more than the DSM Activation Price. Note that the value can be linked to the DSM Activation Price by selecting the associated tick-box.	Text Box	Numeric	$/MWh	Appendix 1.(h).vi.3
Extra consumption decrease price for Off-Peak Trading Intervals ($/MWh) (Appendix 1.(h).vi.4)	Extra Consumption Decrease Price for Off-Peak Trading Intervals. This must be to the nearest cent and not less than the Minimum STEM Price and not more than the DSM Activation Price. Note that the value can be linked to the DSM Activation Price by selecting the associated tick-box.	Text Box	Numeric	$/MWh	Appendix 1.(h).vi.4
Minimum response time before the facility can respond to instruction from System Management (minutes) (Appendix 1.(h).vii)	The minimum response time before the Demand Side Programme can begin to respond to an instruction from System Management to change its output.	Selection Panel	Hour, Minute	Minutes	Appendix 1.(h).vii
Maximum number of hours per year the Demand Side Programme can be curtailed (Appendix 1.(h).viii)	The maximum time the Demand Side Programme can be called to respond to an instruction from System Management to change its output for the Capacity Year.	Text Box	Hour, Minute	Minutes	Appendix 1.(h).viii
The capability to provide real-time telemetry (Appendix 1.(h).viii)	Specify whether the facility can provide real-time telemetry. Note that this tick-box has an interdependency with the telemetry capability upload file. If it is ticked, the file must be uploaded.	Tick Box	Yes or No	N/A	Appendix 1.(h).viii
Details of the real-time telemetry capabilities of the Facility	The details of the real-time telemetry capabilities of the Facility. Note that this field has an interdependency with the telemetry tick-box. If the file is uploaded, the tick-box must be selected.	File Upload	No defined format.	N/A	Appendix 1.(h).viii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
For Business Days, the start interval of availability for dispatch (Appendix 1.(h).ix)	The start of the interval time the DSP is available for dispatch, recorded as 24HH:MM. Business Days Only	Selection Panel	Hour, Minute	Minutes	Appendix 1.(h).ix
For Business Days, the end interval of availability for dispatch (Appendix 1.(h).ix)	The end of the interval time the DSP is available for dispatch, recorded as 24HH:MM. Business Days Only	Selection Panel	Hour, Minute	Minutes	Appendix 1.(h).ix
For Non-Business Days, the start interval of availability for dispatch (Appendix 1.(h).ix)	The start of the interval time the DSP is available for dispatch, recorded as 24HH:MM. Non-Business Days	Selection Panel	Hour, Minute	Minutes	Appendix 1.(h).ix
For Non-Business Days, the end interval of availability for dispatch (Appendix 1.(h).ix)	The end of the interval time the DSP is available for dispatch, recorded as 24HH:MM. Non-Business Days	Selection Panel	Hour, Minute	Minutes	Appendix 1.(h).ix
Any restrictions on the availability of the Demand Side Programme (Appendix 1.(h).x)	Details of any restrictions of the facility. Only information not already recorded in Appendix 1(h) should be included. This information must match any restrictions recorded during RC certification.	File Upload	A word document or pdf.	N/A	Appendix 1.(h).x
The normal ramp up rate as a function of output level, if applicable (MW/Min) (Appendix 1.(h).xi)	Normal ramp up rate expected when a DSP dispatch period ends in MW/Min This field is to apply for periods up to and including Trade Date 30/09/2017.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(h).xi
The normal ramp down rate as a function of output level, if applicable (MW/Min) (Appendix 1.(h).xi)	Normal ramp down rate expected when a DSP dispatch period ends in MW/Min. This field is to apply for periods up to and including Trade Date 30/09/2017.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(h).xi

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
The DSP ramp rate limit for each trading interval, as a function of output level, if applicable (MW/Min) (Appendix 1.(h).xi)	The expected DSP Ramp Rate for consumption when dispatch ends, if applicable (MW/Min) This field is to apply for periods including Trade Date 01/10/2017 onwards.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(h).xi
The rate at which the facility is expected to increase its consumption when dispatch ends, as a function of output level, if applicable (MW/Min) (Appendix 1.(h).xi)	The expected DSP Ramp Rate to increase consumption when dispatch ends, if applicable (MW/Min) This field is to apply for periods including Trade Date 01/10/2017 onwards.	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(h).xi
The emergency ramp up rate, if applicable (MW/Min) (Appendix 1.(h).xii)	Emergency Ramp up rate	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(h).xii
The emergency ramp down rate, if applicable (MW/Min) (Appendix 1.(h).xii)	Emergency Ramp down rate	Text Box	Numeric Value must be positive and to a precision of 0.001	MW / min	Appendix 1.(h).xii
Maximum number of times that the Demand Side Programme can be curtailed during the term of its Capacity Credits (Appendix 1.(h).xiii)	Maximum number of times the DSP can be called during the Capacity Year. This number must be at least six (Clause of the WEM Rules 4.10.1(f) iv).	Text Box	Numeric	N/A	Appendix 1.(h).xiii

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Forecast consumption profile or profiles of the facility (Appendix 1.(h).xv)	Forecast of a consumption profile at which the Facility is likely to operate for the rest of the Trading Day, if it is issued a Dispatch Instruction. This data item must be provided as soon as a practicable on the Trading Date of which the Dispatch Instruction is issued.	File Upload	File format in Excel via the Forecast Consumption Profile template provided by AEMO with values inputted for the below fields on each line: • Facility Shortname (character 24), • Interval start time (HH:MM), • Forecast Consumption for remainder of Trading Day MW (Value must be non-negative and to a precision of 0.1)	MW	Appendix 1.(h).xv

5. Reserve Capacity

5.1 Facility Reserve Capacity Status

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Reserve Capacity Facility Status	This field determines the status of the facility for the purposes of the Reserve Capacity Mechanism. By default this box is set to "Proposed" when a facility is created.	Drop down list	Only one option may be selected	N/A	Appendix 1 - Market Procedure for Declaration of Bilateral Trades

5.2 Current Effective and Future Approved Facility Reserve Capacity Temperature Information

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Reserve Capacity Year	Capacity Year for which the change request for Reserve Capacity Temperature Information relates.	Drop down list	Only one option may be selected	N/A	System Requirement
Reference Number	Internal reference for each Reserve Capacity Temperature Information Application / Change Request. This field is set and cannot be changed.	Set field	Numeric	N/A	System Requirement
Date Submitted	Date and time reference for each Reserve Capacity Temperature Information Application / Change Request. This field is set and cannot be changed.	Set field	Numeric	DD/MM/YYYY HH:MM:SS	System Requirement
Application / Change Request Type	Information on the type of Application / Change Request submitted by participant. This field is set and cannot be changed.	Set field	Text	N/A	System Requirement

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Effective Date	Date each respective Reserve Capacity Temperature Information Application / Change Request is to become effective. This field is set can only be changed by re-submitting a new Reserve Capacity Temperature Information Application / Change Request for the same Capacity Year and Effective Date.	Set field	Numeric	DD/MM/YYYY	System Requirement
Status	Status of each Reserve Capacity Temperature Information Application / Change Request.	Set field	Text	N/A	System Requirement

5.3 Facility Reserve Capacity Temperature Information

Data Field	Description	Field type	Format	Units	WEM Rule Requirement
Reserve Capacity Temperature Method	Displays the Reserve Capacity Temperature Method for the relevant Capacity Year according to Clause of the WEM Rules 4.10.1(e)iv. This field is compulsory and one option must be selected: - BOM - SCADA - 41'C This field is set by AEMO and may be changed by submitting a Change Request for Facility Reserve Capacity Temperature Information.	Drop down list	Only one option may be selected	N/A	Clause of the WEM Rules 4.10.1(e)iv
RCOQ Temperature Location	Displays the RCOQ Temperature Location for the Facility for the relevant Capacity Year. This field is available only if SCADA or BOM are selected as the Facility's' Reserve Capacity Temperature Method. Participants must select one location from the menu however more locations can be requested. This field is set by AEMO and may be changed by submitting a Change Request for Facility Reserve Capacity Temperature Information.	Drop down list	Only one option may be selected	N/A	Clause of the WEM Rules 4.10.1(e)iv