Government of **Western Australia**
Energy Policy WA

Minutes

Transformation Design and Operation Working Group – Meeting 8

Time: 9.30am -11.30am
Date: 12 February 2020
Venue: Central Park Conference Centre

Attendees:

Name	Organisation	Name	Organisation
Iulian Sirbu	Infinite Energy	**Erin Stone***	Point Global
Oscar Carlberg	Alinta Energy	**Ross Davies***	Western Power
Bronwyn Gunn	EPWA	**Dev Tayal***	Tesla
Emma Rowe	Treasury	**Luke O'Callaghan***	Lavan
James Townsend	Lacour Energy	**Chris Wilson***	AEMO
Dora Guzeleva	EPWA	**Matthew Fairclough***	AEMO
Sue Paul	Robinson Bowmaker Paul	**Mike Hales***	AEMO
Mena Gilchrist	EPWA	**Kang Chew***	AEMO
Brooke Eddington	EPWA	**Stuart MacDougall***	AEMO
Brad Huppatz	Synergy	**Stuart Featham***	AEMO
Rhiannon Bedola	Synergy	**Melinda Anderson***	AEMO
Clayton James	AEMO	**Allicia Volvricht***	AEMO
Simon Middleton	AEMO		
Dean Frost	Western Power		
Glen Carruthers	Western Power		
Greg Ruthven	AEMO		
Jenny Laidlaw	Rule change panel		
Peter Huxtable	Water Corp		
Rodney Littlejohn	Tersum Energy		
Noel Schubert	ERA		
Matt Shahnazari	ERA		
Patrick Peake	Perth Energy		
Rebecca White	EPWA		

* Via phone

Item No.	Issue
	Aditi Varma (AV) opened the meeting and noted that both the registration and participation framework and the operating states and credible contingency events would be covered in this meeting.
1.	**Registration and Participation Framework**
	Sue Paul (SP) discussed the agenda SP discussed purpose of registration taxonomy

- To create a classification system that takes into account common attributes to assist enforcement of WEM Rule obligations

SP discussed drivers for change:

- The registration framework is not set up for the participation of new technologies or business models that will become more prevalent under the energy transition
- Other Taskforce decisions have focused on how energy and ESS are procured and settled and there is a need to change the registration framework to reflect/operationalise these decisions
- Existing shortcomings need to be fixed. Assumptions that facilities only produce or consume electricity have led to inequitable cost recovery arrangements and there are issues with the static registration process in a more dynamic industry.

SP discussed principles being used to guide decision in the registration and participation project:

- Alongside the WEM objectives and Taskforce reform guiding principles:
  - Taxonomy and framework should not restrict participation in specific services such as ESS or reserve capacity
  - Should be able to slot new technology and business models into the framework
  - Cost recovery should not be explicitly linked to a participant or facility type but rather to the extent to which the facility contributed to the need for that product or service.
    - SP gave the example of individual reserve capacity requirement - currently linked explicitly to market customer. Consequence is that a market generator who draws auxiliary load at start up during 12 peak intervals doesn't incur an IRCR. Principle is that it should be linked to participant category but the extent to which your facility contributed to need for service

SP discussed registration taxonomy for rule participants:

- Subsume market generator and market customer into market participant category – a market participant will be any party who has financial obligations in the WEM
- Ancillary services provider category to be removed – facilities providing essential system services will register as a market participant and accredit themselves for ESS
- Subsume System Manager and System Operator into AEMO category

SP discussed facility definition

- Definition of what a facility is will remain largely unchanged
  - Include storage system and remove DSP.
  - DSP is redundant as it is an aggregation of connection points which are already facilities in their own right. However, will retain as a facility class

SP discussed facility attributes that affect the taxonomy

- Purpose of taxonomy to place appropriate regulatory obligations on market participants in respect of their facilities.
- 2 key attributes that affect regulatory obligations
  - Controllability is essential – affects what AEMO can tell a facility to do during dispatch and the dispatch compliance obligations
  - Configuration – traditional stand alone or defined across multiple connection points. The latter aspect will become increasingly important as more DER enters the market as these types of facilities will start to affect the system and this may need to be reflected in their obligations.

SP discussed facility classes

- Based on controllability, three facility classes are being proposed
  - Scheduled – can move up and down in response to dispatch instructions and can control output for period of time.
  - Semi scheduled – also receives dispatch instructions based on forecast output. No compliance if they don't reach forecast output but must respect any curtailment cap.

	- Non-scheduled – doesn't receive dispatch instructions but can be directed by AEMO to curtail. - Key difference from current framework is splitting out existing non-scheduled class into non-scheduled and semi-scheduled and placing more onerous dispatch obligations on semi-scheduled facilities. • In addition, any of these facilities may have specific attributes. These don't necessarily affect dispatch compliance but may come with other obligations. Don't require own class but do need to be able to call it out to enforce relevant obligations - Storage component – must be able to provide real time state of charge and schedule withdrawals (above a certain size). - Scheduled load component – this concept is analogous to scheduled generator counterpart if in one location (but is cleared on the demand curve as opposed to the supply curve). If distributed, has specific offer restrictions – single tranche offer at market cap. Must maintain load and drop to any curtailment cap if directed/instructed by AEMO. A distributed scheduled load has no analogous counterpart in the current WEM. - Jenny Laidlaw (JL) queried how a scheduled load would register. - SP noted it would depend on other attributes as to the facility class but register with a scheduled load component. • 3 additional facility classes that do not fit a controllability classification - Network - Demand side provider. - Interruptible load – provide contingency raise only and cleared differently as all or nothing trip. Want people to be able to come in and provide this service only. Doesn't preclude a facility registered in a different class providing this. • Oscar Carlberg (OC) asked what the difference between semi-scheduled and non-scheduled would be. - SP – communication and control requirements. Semi-scheduled must be able to receive dispatch instructions from AEMO but not subject to dispatch compliance if cannot reach level of forecast generation. Must be able to curtail in response to dispatch instructions. - Non-scheduled not required to respond to dispatch instructions but AEMO may require them to turn down in extenuating circumstances (won't be instructed through usual dispatch instruction process). • JL asked whether non-scheduled or semi-scheduled would be required to bid in. - SP –bid at the floor for expected output and everything else at market cap as per current processes. SP discussed the facility class summary • Noted that scheduled, semi-scheduled and non-scheduled facilities can provide any other services (reserve capacity, essential system services) for which they can meet the technical criteria and that this would be assessed separately • Pure non-dispatchable loads (e.g. residential rooftop solar PV) don't provide any WEM services and are associated with a retailer for the purposes of settlement only. • JL asked whether a non-scheduled facility could be made up of pure non-dispatchable loads. - SP – yes, could aggregate to create this facility. Noted that work to determine how multiple trading relationships will be dealt with will be done by the DER aspect of the Energy Transformation Strategy. • PP asked what is being done about Western Power being registered as a network and installing and operating its own battery facility. - AV noted that Western Power is a registered network operator for purposes of rule participant and cannot also be a market participant. If Western Power is able to put in battery storage in the distribution network, they cannot directly participate in the WEM. This restriction exists currently and will remain. • JL asked who registers an aggregated facility

- AV – the market participant. SP noted that whether this is the financially responsible market participant (FRMP) for the connection point or another market participant is a question for the DER workstream.

- Greg Ruthven (GR) asked whether Western Power could be the FRMP.
  - AV replied that this was in the remit of the DER workstream. SP noted that the registration and participation framework would be set up flexibly enough to accommodate a range of decisions about DER participation.

SP discussed criterion for classification in a facility class.

- Controllability is the ability of a facility to control output in any direction in response to a dispatch instruction for a specified period of time. It is a key attribute that is essential to power system security and reducing regulation costs.
- Noted AEMO would determine the controllability of a facility using 3 principles:
  - Reliability and accuracy in meeting dispatch target
  - Configuration
  - Fuel type
- Participant can nominate their facility class but ultimately decision would sit with AEMO.
- Participants may nominate intermittent facilities as scheduled if confident enough in forecasts.
- Rodney Littlejohn (RL) asked what would happen in there was disagreement between the facility and AEMO?
  - AV – AEMO will determine. Rules will contain provisions to ensure requests are not unreasonably denied.
- DF asked how the reliability criterion would be assessed for distribution connected generation as there is a different reliability standard for the transmission and distribution network.
  - AV replied that it is a facilities ability to meet dispatch instructions that is of concern, not the reliability of the network. Would apply in the same way.
- PP asked whether there would be there a dispatch tolerance, as not having one is problematic now.
  - AV noted that one had not been determined but the need had been recognised.
  - PP noted that 3 per cent would be appropriate.

SP discussed transitioning to the new framework

- Noted that the intent is not to make participants go through the registration process again – should be moved into the relevant class.

SP discussed the de-minimis threshold

- Noted that the purpose is to determine the point at which scheduling and dispatch become mandatory. Having an appropriate de minimis ensures accurate dispatch and enables AEMO to set essential system services requirements accurately.
- In the future there may be sufficient small generation such that the current de minimis does not support power system security
- Explained that 10MW threshold for mandatory registration would be retained but that AEMO would have more discretion as to whether facilities below that are required to register. Framework will allow for standing exemptions to be issued.
  - JL expressed a concern that the framework allows AEMO to impose costs of registration at its discretion (e.g. could require all rooftop PV to register).
  - SP noted that this is where standing exemptions will be useful.
  - JL reiterated concern about AEMO ability to set this.
  - SP noted that the Rules would need a head of power to prevent unnecessary registration. May have a level below which AEMO can't force registration (e.g. current floor is 0.2MW). But need to be able to balance cost and complexity with power system security
  - PP noted that if there are a lot of 9 MW generators on the system AEMO may need to be able to control them.
  - JL noted that her concern was more about the mechanism for and ownership of that decision.

	- AV noted that the procedure change process requires a consultation process and that there is no evidence that AEMO is making unreasonable decisions, and that there is no incentive for AEMO to be unreasonable – it would impose additional administrative burden on them. - Clayton James (CJ) noted that a floor would be useful. - AV reiterated that the aim is to have a de-minimis that can move in response to system changes and not have to go through a rule change process each time • SP noted that for storage facilities, the de-minimis would be calculated in reference to the maximum potential change in a single cycle as this is the potential impact on power system security SP discussed electrical location • Noted that this has been a relatively moot point until now however in a future with locational dispatch it becomes more important. • Want to allow DER to participate but need some restrictions to be placed on facilities at diverse locations (exceptions for DSP and aggregated scheduled loads) • Current definition – the relevant zone substation (TNI) is fit for purpose. - JL noted that most distribution connected loads are not assigned a specific TNI in Western Power's systems. - DF noted that while this doesn't happen now they can do and can see the value in doing so. - JL noted that this could be a lot of work - DF agreed but noted it's not difficult work - Peter Huxtable (PH) queried whether a DER facility aggregated will need to be attached to one zone substation. SP clarified yes, unless the aggregated DER is a distributed scheduled load or DSP only. SP discussed intermittent loads • Noted two issues with current treatment of intermittent loads: - That IRCR arrangements introduce significant complexity and may lead to inequitable cost recovery in some circumstances - If embedded generation gets to large can be the largest contingency – but will not be recognised and therefore AEMO will under procure reserves • Future arrangements: - AEMO approval required for net metering for all new intermittent loads. Should be fine for most as long as the generator doesn't set the contingency raise requirement. - Remove unique IRCR arrangements for all new intermittent loads. This shouldn't create an issue if not consuming during 12 peak intervals. - ETIU to discuss future IRCR arrangements with existing intermittent loads to determine best way forward. SP discussed registration processes • One off registration process creates issues currently and is likely to become more problematic as new technologies and business models enter. - E.g. if a participant puts in a large battery attached to an intermittent generator they may need to have different compliance obligations. - DER facilities will be dynamic in nature – will need to notify AEMO so AEMO can decide if there are any consequential changes to their registration • Consequential changes also needed to reflect other taskforce decisions. • Noted that for certification of reserve capacity the facility class is not a consideration. Controllability assessment will occur before active participation and RCOQ obligations applying. • JL asked whether a facility would need to be registered before RCOQ obligations apply. AV noted that a facility needs to be registered for scheduling and dispatch before RCOQ obligations apply. • JL noted a facility would have to pay for refunds if they were not operational when their obligations were due to apply. There would need to be a facility to impose those against. • Noted that ESS accreditation will be a separate process and can occur anytime.

	• Existing suspension and registration processes would remain the same.
	
	General discussion
	
	• PP queried whether there is a link between certification and facility class, and why a facility should be forced into being scheduled when they want to be semi scheduled
	  - SP noted that in an ideal market other price signals would drive behaviour. In the absence of this a mechanism is needed to ensure a facility meets dispatch instructions where it is able to
	  - PP noted this could be considered discrimination based on technology
	• JL asked if current loopholes in the CRC process would be addressed
	  - AV noted it would be delinked and criteria would be needed for capacity certification
	• Glen Carruthers (GC) asked if the same considerations would apply to hybrid facilities. SP answered yes.
	• GC noted difficulties with compliance if you have different generating units behind a connection point. E.g. 50MW of gas and 50MW of intermittent. AV noted in this case the participant might have to register two separate facilities. GC put forward view that the market should move away from facilities and register units.
	• JL noted that the method of certification and assigning capacity credits needs to work down the line - need to take into account obligations in the market, exposure to refunds and how facilities are dispatched.
	• GR noted that controllability is a relevant factor in considering how much a unit contributes to meeting the reliability standard.
	  - AV noted that AEMO would likely take into account capacity certification when looking at registration. The facility will have similar characteristics and they will be assessed in the same way even if there is no formal relationship.
	• RB asked about the relationship between the framework presented and NAQs. AV noted that how NAQs link to RCOQ is yet to be determined. Refunds would be linked to how many capacity credits you have.
	• PP commented that the presentation was very comprehensive.

2.	**Operating States and Credible Contingency Frameworks**

	Clayton James (CJ) discussed operating states and credible contingency frameworks
	
	• Noted that a series of changes were discussed at the Power Systems Operation Working Group (PSOWG) in late 2018.
	• This included taking some content from the technical rules and moving it into the WEM Rules (e.g. FOS).
	• The following design outcomes were agreed for Operating States
	  - Remove the “hard coding” of specific conditions within the definitions
	  - Remove the “blending” of reliability and security concepts
	  - Ensure AEMO has reasonable powers to manage the reliability and security of the power system
	  - Provide clarity and transparency on how power system security is maintained
	  - Address ambiguities in the application of the operating states framework
	  - Be consistent with a move towards SCED.
	• Consultation on draft rules scheduled for Q2 2020.
	
	CJ gave an overview of the PSOWG design outcomes
	
	• Create new definition for *contingency event* which includes generating units, facilities and network elements and allows for consideration of large swings in load or non-scheduled generation
	• Create a new definition of *credible contingency event* which allows for AEMO to determine events that it considers likely to occur that could impact power system security or reliability.
	• Create a new framework for classifying *contingency events* as either *credible* or *non-credible* based on circumstances on the power system

- Require AEMO to describe in a Market Procedure what is included as a *credible contingency event*, and the process for re-classification
- Noted that sometimes it is not clear when the power system is reliable or secure. Need to clarify this to be clear on when AEMO should take action.

CJ discussed the contingency events framework

- Noted the need for a new definition of credible contingency event and what can be included. May be events that are credible all the time such as loss of generating unit, loss of network elements or un-forecasted deviations in load or generator output. May include events such as storms or bushfires that change something from non-credible to credible. Need a process to identify when this happens, reclassify, and notify the market.

CJ discussed the use of the contingency events framework by other workstreams

- Need to know what a credible contingency event is to maintain frequency operating standards
- When building and using network constraints, it's based on what credible contingencies are included – if new credible events emerge there may be a need to develop or enable new constraints
- When assessing an outage proposal, what types of contingencies need to be considered?
- Assessing what a reasonable negotiated generator performance standard is includes consideration of credible contingency events.
- PASA framework

CJ discussed operating states PSOWG recap

- Replace 'Normal' and 'High Risk' operating states with:
  - Satisfactory Operating State
  - Secure Operating State
- New definitions
  - Add a defined set of *Power System Security Principles* for AEMO to follow in maintaining a *Secure Operating State*, including a timeframe to return to a *Secure Operating State*
  - Retain the ability for AEMO to use additional powers to ensure the power system operates within, or can be returned to, a *Secure Operating State*
  - Introduce a new term, *Stable,* required for the *Satisfactory Operating State*
  - Retain *Emergency Operating State* concept but with revised definition and retain AEMO's powers to manage *Emergency Operating States*
  - Introduce new *Reliable Operating State*
    - Note that further work on power system reliability across a range of instruments in the WEM will be considered in the latter half of 2020.
- Need to revise existing definitions/create new ones to be up to date with other principles that have been proposed

CJ discussed changes to operating states framework since PSOWG

- Proposing to document in a Market Procedure how AEMO will assess operating states
  - Satisfactory Operating State:
    - AEMO will be required to develop a Power System Stability Implementation Procedure for how it assesses when the SWIS is 'stable' to support the *Satisfactory Operating State.*
    - This will be linked to other processes such as GPS Negotiation, Outage assessment, development of Constraints.
  - Reliable Operating State:
    - While the WEM Rules refer to reliability standards, these are not currently defined.
    - To give effect to the proposed definition of the *Reliable Operating State*, a set of Power System Reliability Principles will be added to the WEM Rules and AEMO will be required to develop a Reliability Standards Implementation Procedure.

	▪ This will provide transparency on the processes AEMO will follow in assessing whether the SWIS is operating reliably, and allow AEMO to continue work on implementation activities, such as the development of constraints ▪ The Taskforce will consider a broader review of the reliability framework later in the year. • Proposing revised definitions for: - Power System Reliability ▪ The ability of the SWIS to operate in accordance with the *Power System Reliability Principles* - Power System Adequacy ▪ The ability of the SWIS to supply all demand for electricity in the SWIS at the time, allowing for scheduled and unscheduled outages, taking into account the *Reliability Standard Implementation Procedure* - Reliable Operating State ▪ The SWIS is in a Reliable Operating State when AEMO has not initiated any manual load shedding instructions, and does not expect to initiate any manual load shedding instructions in accordance with the assessments and criteria identified in the *Reliability Standard Implementation Procedure* • Noel Schubert (NS) asked whether when consideration would be given to the circumstance where demand is so low that the system is not reliable. CJ noted that the determination of reliability is in relation to power system security. It does not consider or replace reliability standards themselves. • Matt Shahnazari (MS) noted that the definition of power system adequacy seemed deterministic. Noted that adequacy is a long-term concept while security is a short-term view. Reliability is determined by adequacy and security and this seems to be separating the two concepts. - CJ noted that other definitions will link security and adequacy. - JL asked if these are the types of matters that will be outlined in the procedure. CJ clarified yes. CJ discussed new power system reliability principles • To the extent practicable, the SWIS should be operated such that it is in a *Reliable Operating State*. • Where the SWIS is not in, or is forecast not to be in, a *Reliable Operating State*, AEMO must take action to restore or maintain a *Reliable Operating State* as soon as practicable, subject to maintaining *Power System Security*. • AEMO will assess risks to *Power System Adequacy* and act to minimise the risks in accordance with the *Reliability Standard Implementation Procedure.* • Challenge - may need to be shedding load due to power system security. Will need to take this into account in deciding what action to take. • DF queried this may include action pre-contingent event. CJ clarified yes, may shed load to prevent damage occurring. • JL asked whether the intention is to provide clarity, not to reduce reliability? CJ replied yes, aim is to provide clarity and transparency about processes. • MS noted AEMO has the option to procure supplementary capacity to address reliability. CJ replied that these principles were more about how risks are assessed not what action will be taken. Longer term planning would look at what type of generation is available. CJ noted in closing that • There is a core obligation for AEMO in WEM Rule 2.2.1 is to ensure they operate the SWIS in a secure and reliable manner but there is no guidance about how to do this. • Idea of power system security and reliability principles is that it provides the link between the core obligation and what AEMO will do to ensure they are meeting their core obligation • Happy to take feedback on definitions. • Industry participants noted that more clarity will be beneficial. Good to have more clarity. AV closed the meeting and noted that feedback and questions are welcome via TDOWG@energy.wa.gov.au Noted that Taskforce papers would be released in March.