



**Energy Transformation
Implementation Unit**

Transformation Design and Operation Working Group Meeting 10

6 April 2020





Ground rules and virtual meeting protocols

- Please place your microphone on mute, unless you are asking a question or making a comment.
- Please keep questions relevant to the agenda item being discussed.
- If there is not a break in discussion and you would like to say something, you can 'raise your hand' by typing 'question' or 'comment' in the meeting chat. Questions and comments can also be emailed to TDOWG@energy.wa.gov.au
- The meeting will be recorded for minute-taking purposes. Please do not make your own recording of the meeting.
- Please state your name and organisation when you ask a question to assist with meeting minutes.
- If there are multiple people dialling in through a single profile, please email TDOWG@energy.wa.gov.au with the names of the attendees to be recorded in the minutes
- If you are having connection/bandwidth issues, you may want to disable the incoming and/or outgoing video.



Agenda

- 
- Generator Performance Standards: Regulatory framework, monitoring and rectification
 - Commissioning plan and process
 - Rule drafting plan

Generator Performance Standards: Regulatory framework, monitoring and rectification

Scope

Previous Taskforce decisions



Move Revised Generator Performance Standards to the WEM Rules



Create Register of Individual Generator Performance Standards



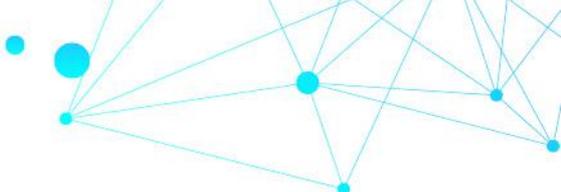
Monitoring Program
- Self-monitoring
- Central monitoring



Improve Compliance Framework
- Early rectification
- Civil penalty framework

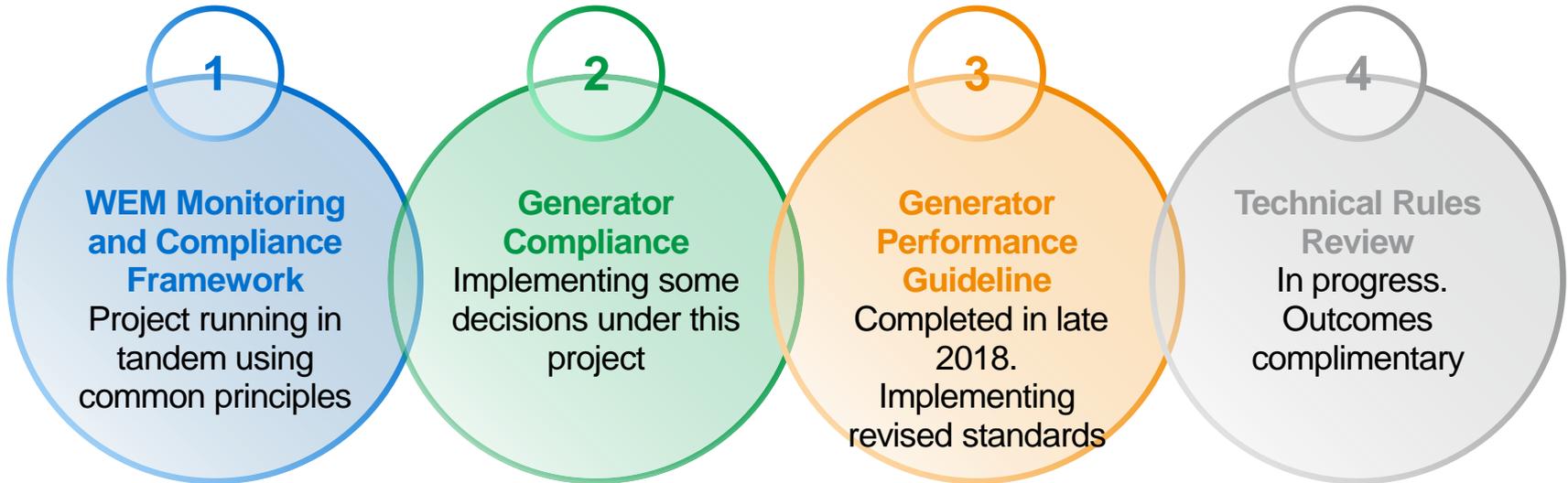


Scope

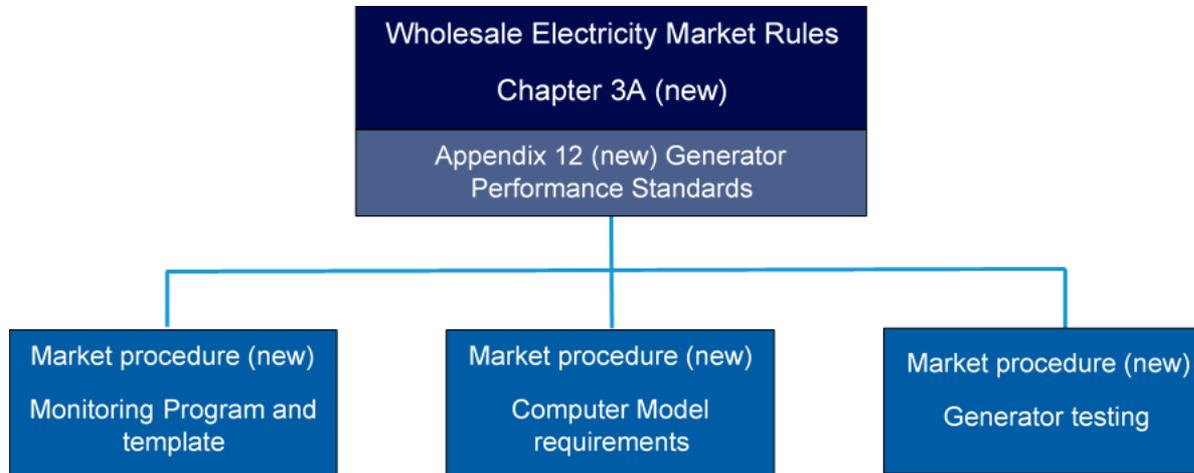
- 
- Framework applies only to market participants with transmission connected generating facilities
 - Includes those intending to register for market participation
 - Revised standards apply only to new generator connections, or existing generators seeking to undertake modifications
 - No retrospective application of standards. Past exemptions from the Technical Rules will be retained
 - Flexibility for existing generators in developing monitoring programs
 - Accounting for age, technology type and existing monitoring equipment
 - Focus on reducing unnecessary costs
 - Process to be developed to backfill the register for existing generators
 - Greater relevance for older generators (pre-1997 and to a lesser extent, 1997 - 2007)
 - Process likely to require updated computer models

Related work

This is one of several projects relating to generator performance standards. Other key projects, and their relationship to this work, are:



Overview of regulatory framework

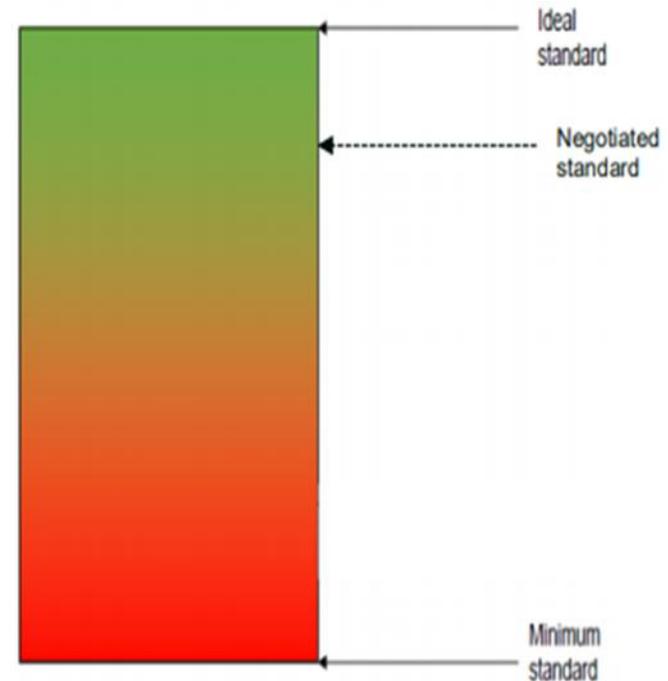


Minor changes to the Access Code are also required to limit the scope of the Technical Rules

Framework commences February 2021

Connection and negotiation

- Standards under the Generator Performance Guideline to be applied
- Negotiated standards must be as close to possible to the ideal standard, having regard to:
 - the need to protect the generator from damage;
 - power system conditions at the location of the proposed connection; and
 - the commercial and technical feasibility of complying with the ideal standard.
- Trigger events permitted allowing a negotiated level of performance until trigger is reached



Connection and negotiation

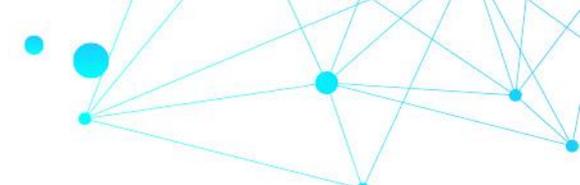
- Western Power and AEMO will have a shared role in the negotiation of standards



- Negotiation through Western Power
 - Ensures all parties have access to the same information and generators are not required to engage with multiple parties on the same matters
 - Nothing prevents generator from discussing directly with AEMO or jointly with AEMO and Western Power
- Can accept, reject, or request further information. If rejecting, must provide an alternative standard that they would accept
- WEM Rules dispute process will not apply to elements of chapter 3A
- As per current process, certain generator modifications will require a new connection agreement and hence connection process

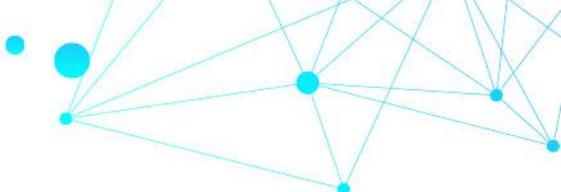


Register

- 
- Register created and maintained by Western Power, with visibility provided to the ERA, AEMO and individual generators seeking access to their own data
 - Register to include:
 - Status of connection
 - Performance standards related to the new Appendix 12, including any negotiated performance standards and trigger events
 - Generator’s computer model
 - AEMO approved compliance self-monitoring plan
 - Register initially populated following network access contract agreement and updated as needed. Generators will have an obligation to advise Western Power when their situation changes, requiring that the register is updated



Testing and approval to operate



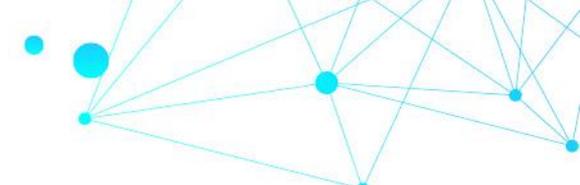
- New Market Procedure specifying testing requirements
- Generator requirement to undertake appropriate tests prior to being granted interim approval to operate
- Western Power will not be permitted to provide final approval to operate until:
 - A monitoring plan has been approved by AEMO and has been added to the register
 - The operational performance of the generator is considered satisfactory by both Western Power and AEMO
 - The generator has demonstrated compliance to Western Power and AEMO's satisfaction with the applicable generator performance standards
- If, during testing, a generator's performance is not as expected, the generator will be expected to bring the facility up to compliance. However where this can be demonstrated as unachievable, re-negotiation may be permitted if deemed appropriate by all parties



Monitoring program

Self-monitoring

- 
- Primary mechanism for ensuring compliance is through a self-monitoring plan
 - Supported by central, non-invasive monitoring by AEMO and Western Power
 - Self-monitoring Market Procedure to be developed by AEMO
 - Process for approval and amendment of plans
 - Includes template self-monitoring plan
 - Connecting generators to develop a self-monitoring plan consistent with the template, for AEMO approval
 - Changes to the template can be applied retrospectively
 - Generators will have 6 months to undertake the required changes and re-submit for AEMO approval
 - Generators may also request changes to their plans
 - Generators are not required to provide outcomes of their plans as a matter of course, but must do if requested by the ERA, AEMO or Western Power



Addressing early non-compliance

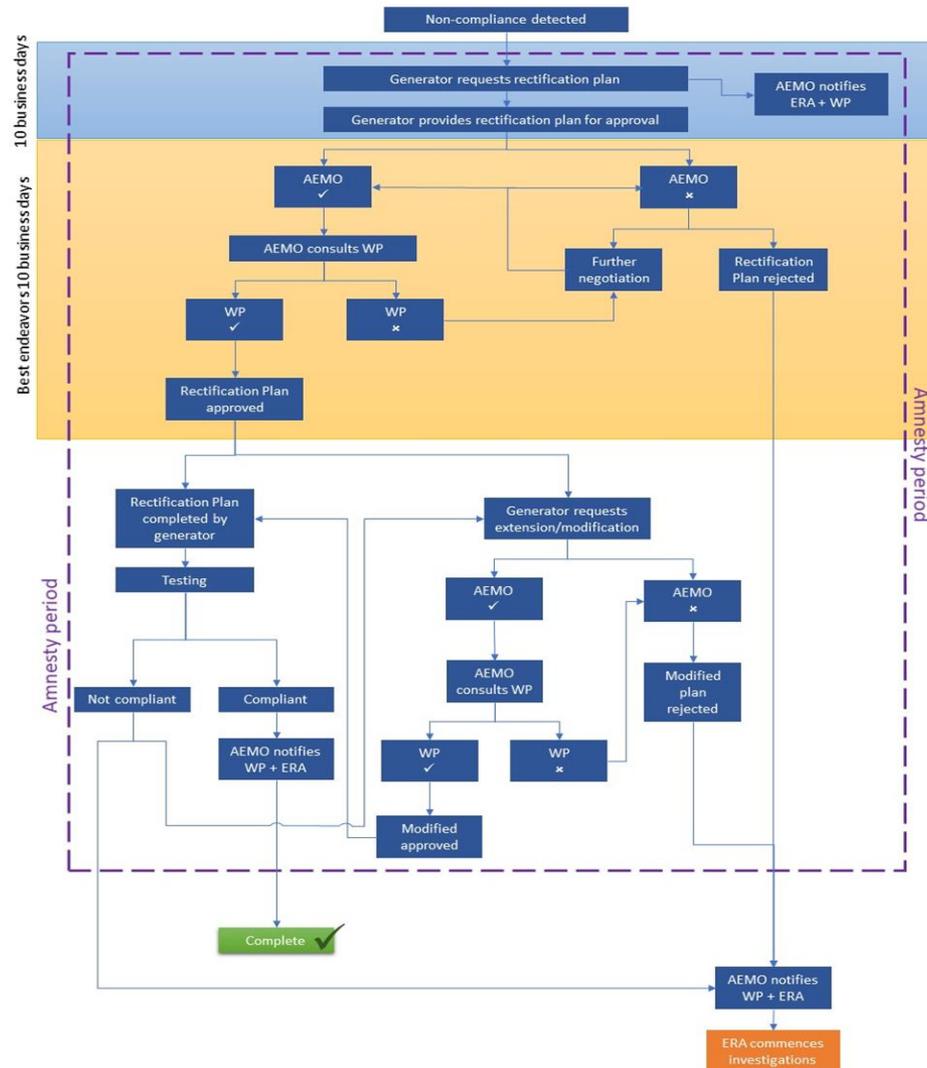
- Generators must report all instances of non-compliance with their generator performance standards to AEMO, whether discovered through their self-monitoring plan, or by any other means
- Generators must also report if they cannot comply with the terms of their monitoring plan
- In reporting non-compliance, generators may request a rectification plan. If agreed by AEMO, the generator must submit the plan within 10 business days, unless agreed otherwise
- Minimum information in the plan includes:
 - the actions to be taken to rectify non-compliance
 - the timeframes for the generator to become compliant
 - any testing required to establish compliance with applicable generator performance standards
- Alignment with wider WEM compliance framework, once implemented



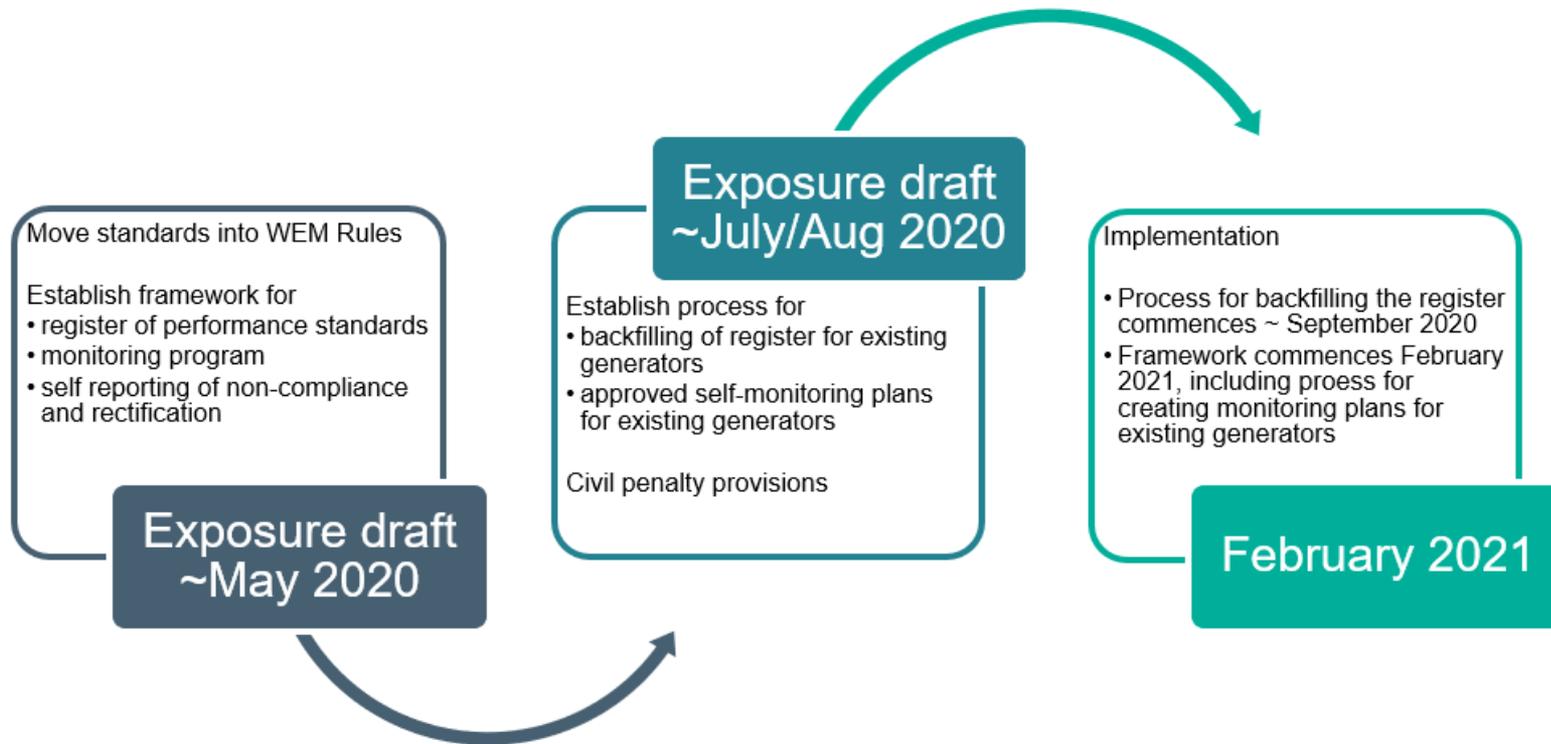
Addressing early non-compliance

- AEMO to consider a rectification plan, consulting with Western Power
 - Timeframe ‘best endeavours’ 10 business days
 - Cannot approve if Western Power rejects
- Once developed, a generator may request an amendment to plan for the approval of AEMO
- Amnesty period applies from the time a generator’s request to develop a rectification plan is agreed, until either:
 - A rectification plan is not submitted within the required timeframes; or
 - A rectification plan is submitted, but not agreed; or
 - A rectification plan is agreed, but is not complied with, and hence is cancelled by AEMO; or
 - The rectification plan is agreed, but testing shows the generator remains non-compliant and an amendment to the plan could not be negotiated; or
 - The rectification plan is successfully completed
- Nothing will prevent a generator from undertaking action to remedy non-compliance, whether or not a rectification plan is agreed

Addressing early non-compliance



Next Steps



Work will shortly commence on a process for backfilling the register and ensuring that all generators have a suitable monitoring plan. Generators are encouraged to meet with ETIU on these matters

Commissioning plan and process





Commissioning Plan & Process

TDOWG Meeting 01
10th March 2020

Key issues

- Commissioning tests are required to support reliable operation of equipment, and to confirm the capability of equipment to meet certain standards and provide certain services
- Tests can create risks to Power System Security and Power System Reliability, and so must be planned and coordinated
- For some tests, it can be difficult to designate specific times in advance as they are dependent on power system conditions
- The existing Commissioning Test Plan arrangements are cumbersome and do not allow for flexibility in adjusting tests close to realtime
- Testing often requires coordination between AEMO and Western Power, and the process can be confusing for participants, including understanding the information required and when it is required

The focus of these changes are to:

- Provide clarity on the various types of tests for which AEMO's approval is required
- To provide clarity on submission timelines for various type of tests, allowing for variable timeframes
- To provide greater clarity on the information requirements and approval process
- To allow certain flexibility to accommodate realtime testing requirements

Current WEM Rules Requirements and high level issues identified

- Commissioning Test is a series of activities which confirm the ability of a generating system to operate at different levels of output reliably [WEM Rule 3.21A.1]
 - The current definition needs to expand to cover the various types of tests that we are including such as ESS accreditation, GPS compliance.
- Market Participant conducting a Commissioning Test for a new generating system and an existing generating system that has undergone significant maintenance must conduct such tests under a Commissioning Test Plan approved by AEMO [WEM Rule 3.21A.2]
 - This rule limits the submission of CTP for the various new types of test to be covered such as demonstrating GPS compliance, demonstrating ESS accreditation.
- AEMO may approve a Commissioning Test Plan only for a new generating system that is yet to commence operation, or for an existing generating system that has undergone significant maintenance [WEM Rule 3.21A.3]
 - This rule limits the various types of test that AEMO is including for approval.
- Market Participant requesting permission for a Commissioning Test must use best endeavours to submit to AEMO its Commissioning Test Plan for approval at least 7 Trading Days prior to the start of the Commissioning Test Period [WEM Rule 3.21A.4]
 - This timeline is suitable for certain type of tests but is not suitable for commissioning of new generating system where longer timeframe is required for assessment.
- AEMO must notify a Market Participant as to whether it has approved a Commissioning Test Plan as soon as practicable but in any event no later than 8:00am on the Scheduling Day for which the Commissioning Test Plan would apply [WEM Rule 3.21A.9]
 - Need to ensure this timeframe is consistent with new SCED arrangements (e.g. Pre-Dispatch)

Principle #1

Expand the definition of Commissioning Test

- AEMO carries an obligation in the WEM to coordinate and approve the MP's Commissioning Test Plan containing Commissioning Tests.
- Under the current framework, a Commissioning Test "is a series of activities which confirm the ability of a generating system to operate at different levels of output reliably".
- With the Generator Performance Standards (GPS) moving into the WEM Rules, there will be a need to conduct tests in order to demonstrate compliance
- Additionally, with the new ESS provisions there will be a need to conduct tests to demonstrate capability to provide a service.
- The Commissioning Test definition, while reasonably broad, does not cover testing for these purposes. Therefore the definition of Commissioning Test needs to expand to cover the new types of test such as ESS accreditation, GPS compliance.
- Retain from RC_2013_15, the ability for a market participant to conduct a Commissioning Test under an approved CTP during a Planned or Forced Outage.

Principle #2

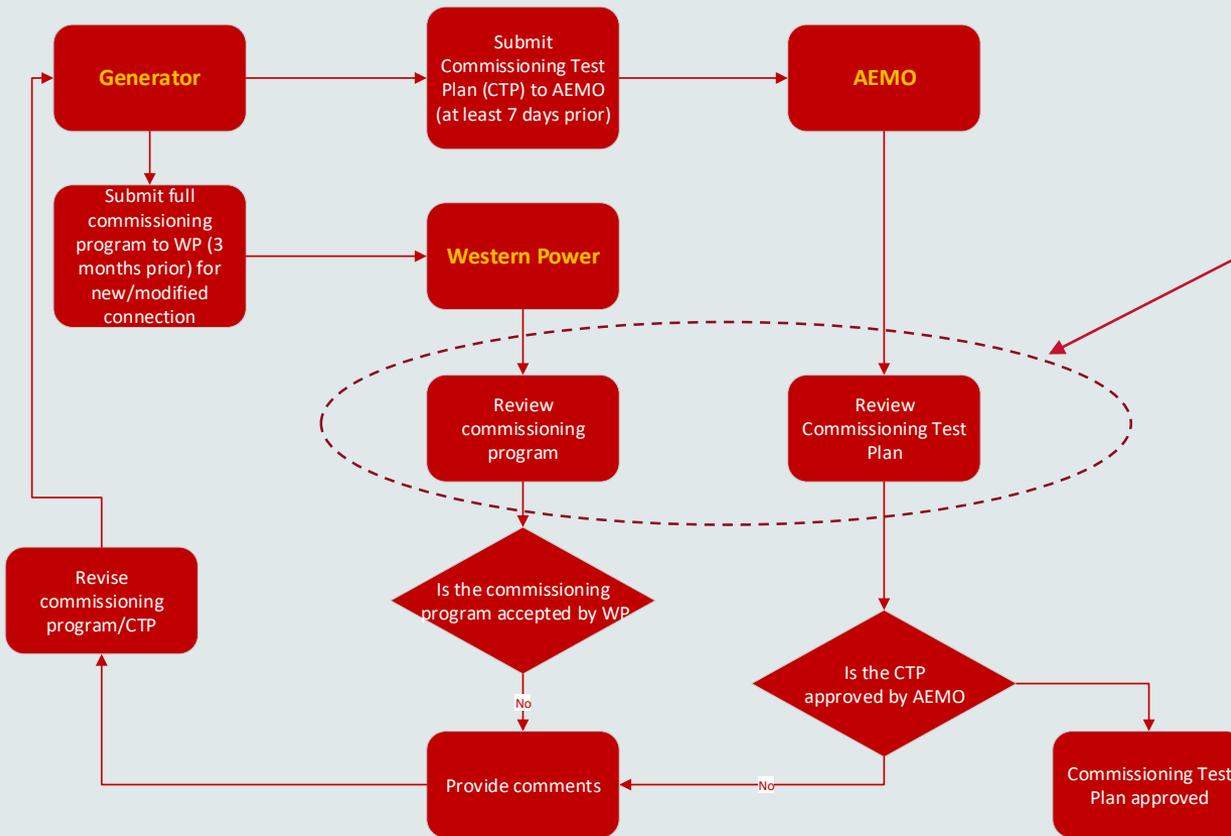
Clarify the requirements on when to submit a Commissioning Test Plan

- Currently, there are two requirements for submitting a Commissioning Test Plan for approval;
 - An existing generating system that has undergone significant maintenance, or
 - A new generation system that has yet to commence operation.

New Design:

- Moving forward, a market participant who wishes to engage in a test of its facilities or equipment referred to in the rules or that could affect the security or reliability of the SWIS or the operation of the market must request the approval of AEMO to conduct the test.
- Retain the current obligation to submit tests, and expand on the various type of test covered for which AEMO's approval is required, including:
 - Commissioning tests of new generation facilities
 - Commissioning tests of existing generation facilities that has undergone significant maintenance (AEMO to define in market procedure)
 - Demonstrating compliance with GPS
 - Demonstrating capability to AEMO for ESS accreditation
 - Commissioning and re-commissioning tests of control, monitoring and communication systems in all transmission substations and generation facilities including new facilities
- AEMO to have an obligation to describe these conditions/tests in a Market Procedure

Current Process Example - Testing a new/modified generator



There are two parallel processes occurring here with different timeframes and different information requirements.

However in practice coordination is required between AEMO and Western Power in assessing the testing, and final approval of the Market Commissioning Test Plan is dependent on review of the specific details

Principle #3

Clarify the requirements on information and timing required when submitting Commissioning Test Plans

- AEMO to be able to define certain data requirements and timeframes in the Market Procedure with the WEMR defining minimum requirements. This allows for different types of information to be provided for different purposes (e.g. control system recommissioning).
 - This would include providing early visibility of the more detailed commissioning program
 - There must also be an allowance in the WEMR for AEMO to confirm details and coordinate with other Rule Participants (e.g. Western Power)
- This will provide greater flexibility to define specific requirements more easily and will minimise rule complexity.
- Some of the additional data to be considered;
 - Specific details on the equipment being tested
 - Relevant details of contracts or agreements as they relate to the test activities e.g. ETAC/Connection agreement – Approval from WP to connect
 - In addition to preferred dates/times, to also potentially include alternative dates and times for the conduct of the test activities within the commissioning window.
 - Details of special readings, curves, plots or observations, as available (e.g. expected results).

Principle #4

Modify the timeline for Commissioning Test Plan submission

- Currently, MPs requesting permission for a Commissioning Test must use best endeavours to submit to AEMO its CTP for approval at least 7 Days, however AEMO may also reject where the request has been received less than 20 Days prior to the start of the Test.
- Additionally, participants have a requirement under the Technical Rules to submit a Commissioning Program to Western Power not less than 65 Business Days in advance for new or replacement equipment.
- The current 7 day timeline is insufficient for the more complex type of testing (although this may be acceptable for less complex testing), and there is currently no clear guidance for participants on what is required.

New Design:

- The different timeframes will depend on the type of tests being conducted. AEMO will detail the requirements for different types of tests in a Market Procedure. For example:
 - For new generator connections, participants must submit a CTP to AEMO with their commissioning program and an "indicative" profile at least 65 business days prior to the commencement of commissioning.
 - High impact test plans (e.g. large swings, trip testes, etc) must be submitted at least 20 days.
 - Other commissioning plans that are lower impact may be able to be submitted 7 days in advance.
- Participants must provide the required information within the timelines in the Market Procedure.

Principle #5

Ensure the approval rules support the submission of required information ahead of assessment, and modify last time for approval

- Currently, AEMO must approve a Commissioning Test Plan unless, in its opinion:
 - inadequate information is provided in the Commissioning Test Plan; or
 - conducting any of the proposed activities to be undertaken at the proposed times would pose a threat to Power System Security or Power System Reliability; or
 - inadequate time to properly consider the Commissioning Test Plan has been provided
- There is little guidance for participants on what information is required in order to conduct this assessment.

New Design:

- As per current rules, AEMO will not approve the CTP when it determines that the performance of the test will have an adverse impact on the reliability or security of the transmission system. AEMO will define the more detailed assessment criteria the Market Procedure (as per current obligation).
- For the tests that require advanced notice and additional information, AEMO will include in the Market Procedure the timeframes it will use to provide initial review and response.
 - E.g. reasonable endeavours to respond to the participant within 20 business days of receipt of the commissioning program when submitted 65 days in advance
- If there is inadequate time or information provided by Participants, AEMO will not assess the CTP and notify participant of its rejection.
 - E.g. new generator commissioning that is submitted without an associated commissioning program
- AEMO will retain the obligation to notify the MP of its assessment as soon as practicable, however no later than 48 hours ahead of the start of the CTP (currently 8am on the Scheduling Day for which the CTP would apply).

Principle #6

Include the requirements for undertaking a Commissioning Test

- As commissioning activities may impact on the power system or WEM, specific actions may be required prior to undertaking online commissioning tests.
- Submission of Offers:
 - Participants must ensure all offers associated with commissioning or testing are submitted to pre-dispatch at least 48 hours in advance to support STEM submissions.
- For some of the tests, AEMO will require that Participants to:
 - Contact AEMO control room prior to commencing a test that may impact:
 - The MW, MVA_r, voltage or frequency of the generating system or
 - Has the potential to impact the performance of the generating system as outline in the Generator Performance Standards
 - Tripping of the Facility or any other test with a high risk of tripping as indicated in the CTP
 - These process will be described in the Market Procedure

Principle #7

Allow flexibility to update CTP once its established.

- Currently a revised CTP is taken to be a new CTP (which must be subsequently approved).

New Design:

- Approval of the overarching CTP provides a “window” for which to conduct the specific tests. Minor adjustments to individual tests inside the window will not constitute a “new” CTP that is subject to the broader assessment timeframes.
- MP must not submit a revised CTP to AEMO that proposes:
 - New start and end points outside of the approved CTP (i.e. outside of approved testing “window”).
 - Major changes to the indicative test program
- Per current practice, AEMO will review changes that are minor and requested with sufficient time to assess, with details to be formalised in the Market Procedure, including:
 - Participants will have obligation to adjust offers at least 2 hours prior to the commencement of the actual test to reflect any updates.
 - For certain tests, contacting the AEMO control room ahead of the test to confirm permission to proceed.
- As per the current framework, AEMO will not provide permission to proceed with the test if there is insufficient time to assess, and tests may be cancelled, delayed or altered based on system conditions.

Generator Performance Standards

- With the Generator Performance Standards (GPS) being moved to the WEM Rules, there will be a need to demonstrate compliance as part of initial connection (as is currently the case).
- This enhanced design will support sharing information on the new facilities commissioning program to AEMO ahead of testing commencing, and liaising with Western Power to confirm the tests are acceptable to proceed.
- Given scheduling of these types of tests are required happen well in advance, the flexibility in the enhanced design to provide an indicative profile and make changes closer to actual testing time will help to manage testing uncertainty.
- Where appropriate, participants may also include other types of tests at the same time, e.g.
 - *Commissioning of SCADA systems relating to the generating system.*
 - *Demonstration of ESS capability*

Principle #8

Include a requirement to publish the Commissioning Test Plan

- Why is there a need to publish approved CTP?
 - Improve market transparency/timeline of processes and commissioning-related information
 - Provide as much certainty as possible to AEMO and registered participants.
 - To support the information published in MT PASA, ST PASA and Pre-Dispatch
 - To allow other participants potentially impacted by the variability of commissioning to adjust their own offers and reduce impact on market costs
 - Discourage the withholding of information from AEMO.

Commissioning Plans and Process: Next Steps

- Seek participant feedback
- Design issues to be addressed (if any)
- Drafting instructions and recommended changes to the WEM rules
- Further updates to TDOWG (if any)



Questions

Scenario - insufficient time to assess

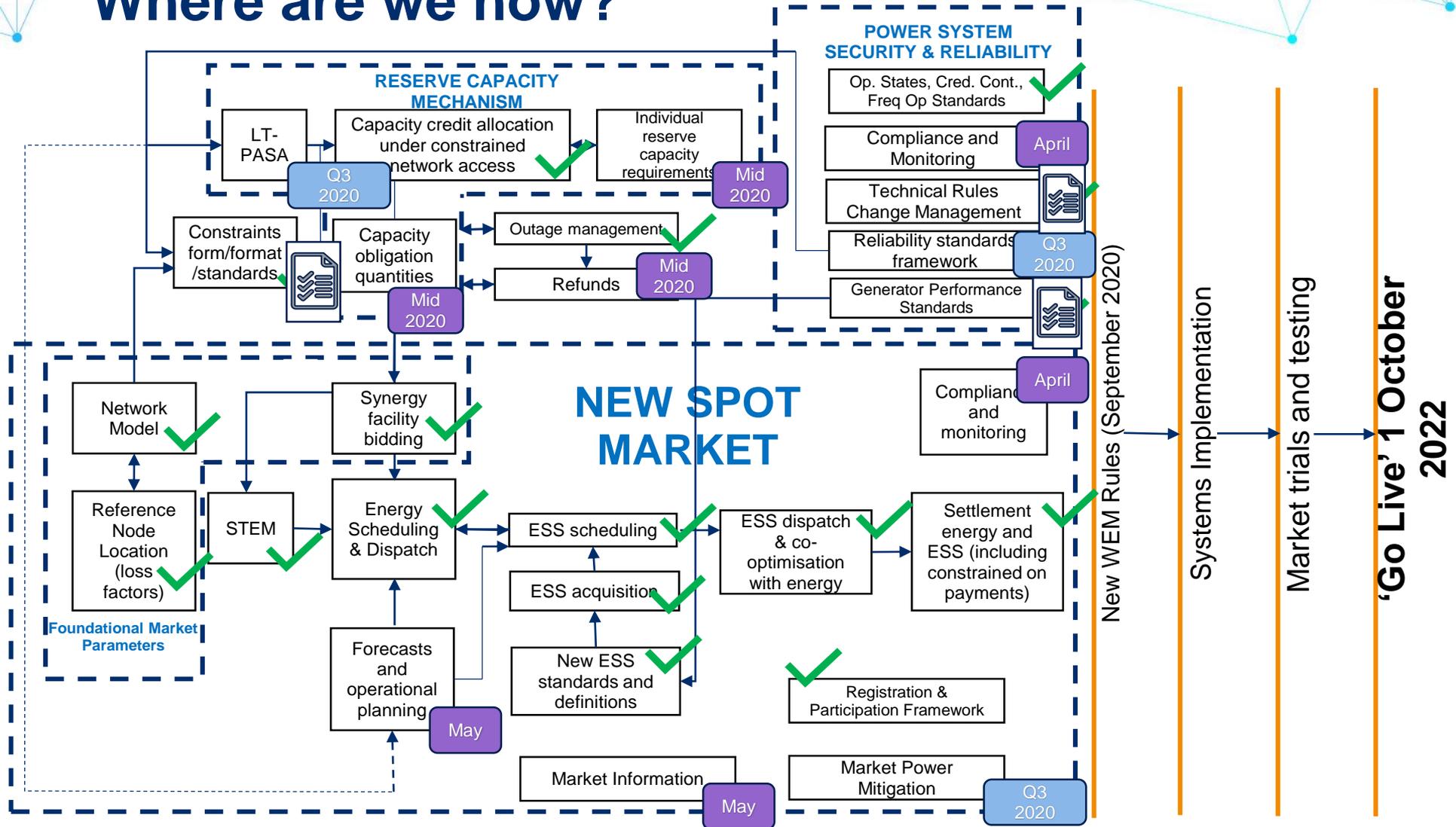
- When Commissioning Test Plan first received, if less than 20 days prior to commencement of Commissioning Test Period, then AEMO will determine whether sufficient time is available to assess.
 - AEMO will determine based on the individual circumstances of each Commissioning Test Plan as per the timeframes defined in the Market Procedure
- If Commissioning Test Plan or Modified Commissioning Test Plan is received such that there is insufficient time to assess 48 hours ahead of the start time
 - AEMO will reject the Commissioning Test Plan
 - AEMO will negotiate with the Market Participant to identify a satisfactory time for the Commissioning Test Plan which can be approved
- When an update to a specific Commissioning Test within the window is received :
 - AEMO must assess whether there is sufficient time to approve
 - If the modified plan does not include unreasonable increases in risk to the power system, then AEMO will assess the change for approval
 - If AEMO does not have sufficient time to assess, the proposed change will be rejected

Scenarios – dispatch and operation

- Dispatch of Facility for Commissioning Test Plan
 - Market Participant must conform to the Commissioning Test Plan approved by AEMO
 - Offers must be in accordance with most recently approved/updated CTP
 - AEMO will dispatch in accordance with the overarching Dispatch Algorithm (i.e. subject to offers, forecasts and constraints)
 - Market Participants must comply with the most recently issued Dispatch Instruction
- Operation of Facility for Commissioning Test Plan
 - Synchronisation must be in accordance with the CTP
 - If the Market Participant cannot conform to the approved CTP then it must notify AEMO and (if it still wishes to complete the Commissioning Test) submit a change to the Commissioning Test Plan with sufficient time provided for AEMO to assess.
- Delay of Commissioning Test by AEMO beyond Trading Interval but within Commissioning Test Period
 - If a specific test is not required (such as a trip test) and Facility can still comply with Dispatch Instruction then a Modified CTP is not required
 - Otherwise:
 - An update to the Commissioning Test Plan is required

Rule drafting plan

Where are we now?



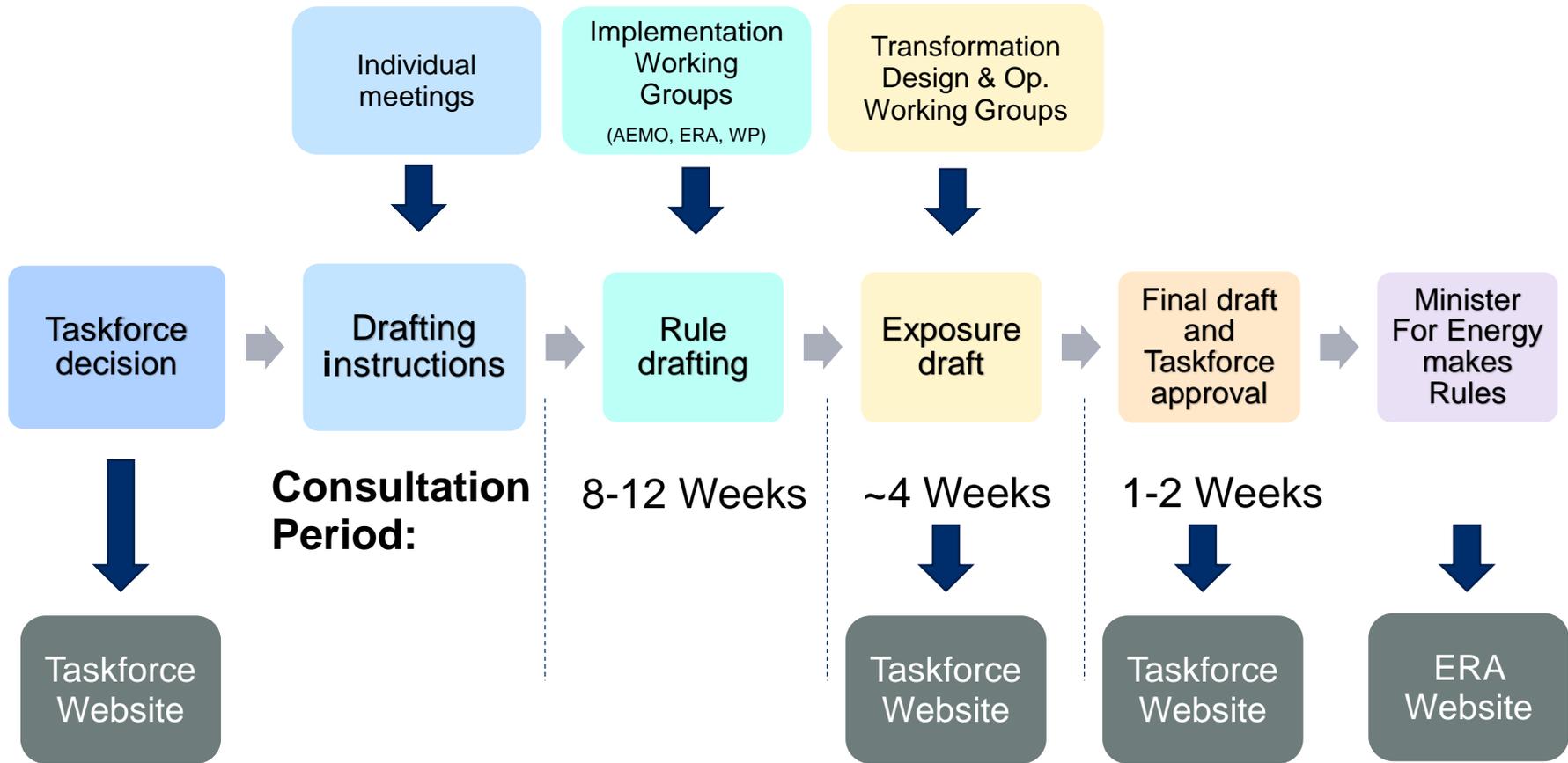


WEM Rules Delivery Approach



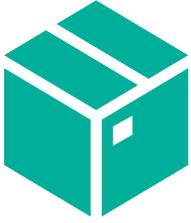
- Rules will be consulted-on and provided to the Minister in five main packages.
- Packages have been developed taking into consideration the following:
 - Priority workstreams
 - Dependencies
 - Certainty for Market Participants and AEMO to inform system build
 - Implementation timing
- Stakeholders will be consulted on all Rule drafting packages.
- Rules will be provided to the Minister for Energy by September/October 2020.

Process and consultation



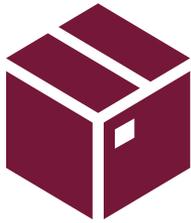
Market Procedures – 3 Approaches

Box 1



- Required as a fully drafted and complete Procedure to support immediate requirements/obligations
- Examples includes Procedures stemming from the revised GPS or Constraints Governance obligations in the WEM Rules

Box 2



- Core content required (but not fully formed Procedures) to enable stakeholders to understand and assess proposed Rule/Code amendments or undertake implementation planning
- Examples include Procedures related to Settlements or Scheduling and Dispatch

Box 3



- Procedures not required in the short-medium term to support Rule development or implementation planning – can be developed in parallel with implementation activities



Meeting close

- 
- Questions or feedback can be emailed to TDOWG@energy.wa.gov.au
 - There will be two more meetings in April (dates TBC).
 - There will also be a WRIG email in April. Please register for the WRIG email list (WRIG@energy.wa.gov.au) if you would like to receive WRIG meeting invites.