Frequency Performance Payments – Financial Operations (FPP FO) Test Plan

June 2025

Draft 0.1

Important notice

Purpose

The market trial test plan sets out the approach and schedule for the market trial test, which will support Frequency Performance Payments (FPP FO) implementation.

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Version control

Version	Release date	Changes
0.1	22/01/2025	Draft
1.0	24/01/2025	Final Draft for Industry Review

Executive summary

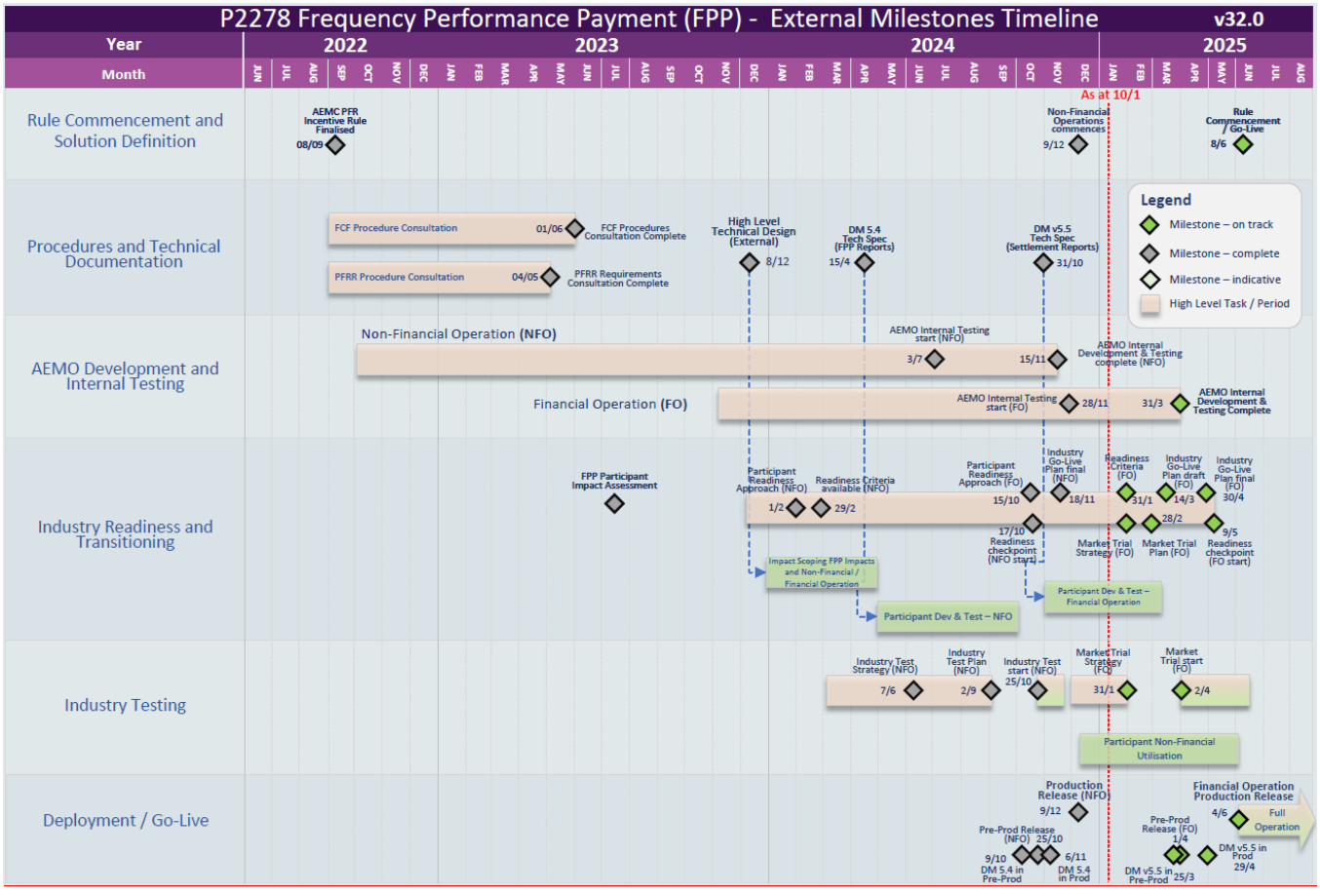
The Australian Energy Market Operator (AEMO) and National Electricity Market (NEM) participants are currently implementing the Frequency Performance Payments – Financial operation release (FPP FO) and the program has entered its implementation phase.

The National Electricity Rules (NER) changes for FPP FO have amended or introduced new regulatory obligations on certain NEM participants and AEMO. They require significant updates or changes to market procedures and market and participants' systems at various times. AEMO has a key coordination role, through collaboration with its industry working groups, to ready industry and itself for the various rule commencement and IT system "go-live" dates.

The FPP FO Market Trial Test Plan (the Plan) was developed to align with the FPP Market Trial Test Strategy. This document sets out the approach to developing the plan and defines how the FPP market trial testing will be executed, including:

- Entry and exit criteria
- Detailed scope
- Market trial timeframe.

Please see below FPP Overview Market Trial Timeline:



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1 Introduction

Frequency Performance Payments (FPPs) provide Cost Recovery for Market Participants (among whom the costs of Regulation FCAS are allocated) with an incentive to operate their facilities in a way that provides the power system with good primary frequency control, and a disincentive against operating in a way that negatively impacts frequency. It is a zero-sum system in which Cost Recovery Market Participants whose eligible units are determined to contribute to poor frequency outcomes fund payments made to Cost Recovery Market Participants whose eligible units contributed to positive frequency performance.

1.1 Frequency Performance Payments Reform

The National Electricity Market (NEM) is experiencing a period of significant change. The progressive replacement of thermal, synchronous generation with variable inverter-connected resources, such as wind, solar and batteries, makes the task of managing the power system securely more complex.

The Australian Energy Market Commission (AEMC) recognised the need for a new framework of incentives for NEM participants regarding Primary Frequency Response (PFR). On 8 September 2022, the Australian Energy Market Commission (AEMC) published a final determination in the Primary Frequency Response Incentives rule change. The new rules amend the existing provisions for the allocation of costs (often referred to as 'Causer Pays') relating to Regulation Frequency Control Ancillary Services (FCAS) as well as implementing a new incentive framework for the provision of PFR. The key effects of the rule change are to:

1. Extend the requirement for all scheduled and semi-scheduled generators to provide automatic PFR (be removing the sunset clause that would have seen that obligation lapse in June 2023)
2. Introduce a new system of incentives and penalties that will see scheduled generators, schedule loads and semi-scheduled loads either receive or be liable for payments, based on whether they have had a helpful or unhelpful impact on system frequency. These are the frequency performance payments that give their name to the overall reform
3. Use the performance values determined for FPPs, which are calculated for every five-minute interval, to allocate the cost of Regulation FCAS.

1.2 Purpose of the FPP FO market trial testing

The purpose of this test plan is to set out the details for managing, coordinating, monitoring, and reporting on AEMO's and NEM participants' testing activities and results. This market trial testing phase is for FPP FO – financial operations June 2025 release.

As set out in AEMO FPP market trial test strategy (the 'Strategy'), the Plan will cover the following points:

- Test phase objectives
- Detailed scope of testing
- Prerequisite activities

- Entry and exit criteria
- Test cycle approach and dates
- Data management
- Defect management
- Test reporting requirements.

1.3 Reference documents

FPP related documents listed in **Error! Reference source not found.** are relevant to the Market Trial Test Plan. The FPP project page is where additional information can be found for the FPP project.

Table 1 Reference documents and web sites

#	Document name
1	AEMO Technical Specification - Data Model v5.5
2	AEMO FPP Fact Sheet
3	AEMO FPP Factor Calculation Guide
4	AEMO project page AEMO | Frequency Performance Payments project

Table 2 Relationship between the FPP industry test and industry test plan and other documents

Related document	Description of relationship
FPP participant impact assessment	The FPP Participant Impacts and Timings provides the high-level impacts of the FPP rule change.
FO market trail test strategy	The FPP market trial test strategy defines the approach, scope, process and responsibilities and high-level schedule of the industry testing and industry test phase for FPP. The market trial test plan sets out how the strategy will be achieved.
FPP FO readiness & go-live plan	The readiness & go-live plan provides alignment of participants' and AEMO's system deployments and data model changes. The readiness & go-live plan will be published in March 2025. This will be available on the FPP project page - AEMO | Frequency Performance Payments project.

1.4 Audience

The Plan is primarily intended for all NEM participants affected by the FPP FO market reforms, particularly there:

- Test managers
- Test leads
- Test analysts (system integration, UAT, industry testing and industry test)
- Project managers.

Secondary audiences within these businesses including:

- Development managers
- IT operations teams
- Change controllers
- Operations teams

- Business and functional SMEs.

2 Approach to developing the FPP FO market trial test plan

The Plan is being developed in consultation with industry. AEMO utilises the Industry Testing Working Group (ITWG) for input to the Strategy and Plan. The Strategy sets out the high-level considerations that should be met when developing the Plan. These and other elements of the Plan were further discussed through the Industry Testing Working Group. Table 3 provides a summary of the opportunities for industry input.

Table 3 FPP market trial test plan: Consultation timeline

Milestone	Dates
Industry Testing Working Group (ITWG) – Feb	28 February 2025
First draft circulated to ITWG for review and comment	28 February 2025
ITWG Feedback on first draft due	10 March 2025
Final version published	17 March 2025
Industry Testing Working Group (ITWG) – March	28 March 2025
Industry Testing Q&As commence	3 April 2025
Industry Testing Working Group (ITWG) – April	28 April 2025

2.1 FPP FO market trial objective

The objective of the FPP FO market trial is to carry out coordinated testing of business process scenarios to confirm that the functionality that will be available for FPP Financial Operation is fit for purpose and operating as expected.

2.2 FPP FO market trial strategy: Key points

The Plan builds on the principles set out in the Strategy. The following principles were confirmed in the Strategy as starting positions for the Plan:

General:

- AEMO's pre-production environment will be used as the market trial test environment.
- Practitest will be used as the test management tool.
- No data requirements have been identified for the FO release for FPP.
- It is expected that participants will have upgraded to the latest data model.
- Participants will internally complete connectivity tests prior to market trial testing.

3 Detailed scope of testing

3.1 Scope Inclusions

The scope of and principles underlying the FPP FO industry test is set out in the Strategy (see section 2 of the Strategy for information on high-level scope). The objective of FPP June 2025 financial operation (FO) release is to support and confirm AEMO's and participants readiness for the FPP FO system and respective go-lives.

The scope of market trial testing for FPP FO June 2025 financial operation release:

- Upgrade and verification of new tables in data model 5.5
- Participants to validate any calculations published as part of the data model 5.5.
- Settlement testing using the FPP calculations

Notes:

1. Data model 5.5 release will provide two scripts to participants, one to create data model from scratch and other to update from previous version. This step is a pre-requisite for any participant to be able to perform their testing.
2. The data feed reports will be run at the same frequency which is planned for production.

3.2 Scope exclusions

Market trial scope exclusions are:

- Any data model changes, apart from FPP project related packages mentioned in Technical Specification Data Model 5.5 document, are not in-scope for FPP June 2025 financial operation release.
- Comparison of new FPP calculations against the existing Causer Pays FPP Reports is out of scope. The Causer Pays reports are not executed in the Preprod environment.
- Downstream business procedures for each industry participant.

Each NEM participant is responsible for their own preparedness in respect of the above matters and should account for such items within their respective organisational testing programs.

3.3 Testing the FPP FO changes

As this is a market trial, participants are suggested to check the following items as part of readiness for FPP:

- Upgrade to data model 5.5 is successful.
- Automatically subscribed to the FPP data feeds.
- Confirm data is being received into the data model.
- Settlement files are being received.

3.3.1 Settlements & Billing

- FPP FO introduces a new system of incentives and penalties for generators and scheduled generators.
- Generators will either receive or be liable for payments.
- Incentives and penalties are based on whether they are helpful or unhelpful to system frequency.
- Frequency performance payment is calculated and will appear on participant statements.
- Settlement & billing updates available in the data model.

3.3.2 Data Model

- Participants upgraded to data model 5.5 are automatically subscribed.
- Data is being ingested into the data model tables.

3.3.3 Retail data

- No retail changes for FPP Financial operations.

3.3.4 Registration

- No registration changes for FPP Financial operations.

3.4 Detailed scope

3.4.1 Settlement & Billing

Functional Area	Test Objective	Test Scope
Settlements & Billing	• Population of EMMS Data Model 5.5 that will affect participant reconciliation and reporting activities. • Confirm existing causer pay calculation methodology and reporting is not impacted for periods up to June 2025 release. • Confirm new FPP calculation methodology and reporting post June 2025 is being reflected in settlements and billing. • Execute a mix of daily, prelim, final and revision bill runs. • Provide participant RM Reports to support participant settlement reconciliation processes. • Provide participants confidential settlement and billing reports for executed settlement runs.	• Before the cutover date, confirm settlement run as reflected in current production state • Before the cutover date, confirm settlement reports as per production. • After the cutover date, confirm settlement run with the new calculations for FPP • After the cutover date, confirm updated settlement reports. • After each settlement run, confirm RM Reports are generated and received.

3.4.2 Data Model

- Data Model v5.5 changes as per below:

3.4.2.1 File interface changes

Package	File ID	Description	Batcher file masks	Frequency	Modification	Auto-subscription
SETTLEMENT_DATA	SETTLEMENTS		*_SETTLEMENTS_*.CSV	Daily	Modified	
SETTLEMENT_DATA	SETTLEMENTSEXT		*_SETTLEMENTSEXT_*.CSV	Daily	New	Yes
BILLING_RUN	BILLING		*_BILLING_*.CSV	Weekly	Modified	
SETTLEMENT_DATA	SETTLEMENTS_INIT	Settlement Results from an INITIAL Run processed using the INITIAL Meter data AEMO receive.	*_SETTLEMENTS_INIT*.CSV	Daily	New	No

Package	File ID	Description	Batcher file masks	Frequency	Modification	Auto-subscription
BILLING_RUN	BILLING_INITIAL	Billing Results from an INITIAL Run.	*_BILLING_INITIAL*.CSV	Daily	New	No
P5MIN	P5MIN		*_P5MIN_*.CSV	5 minutes	Modified	

PRE_DISPATCH	PREDISPATCHIS	*_PREDISPATCHIS_*.CSV	30 minutes	Modified	
DISPATCH	DISPATCH	*_DISPATCHIS_*.CSV	5 minutes	Modified	
BIDS	BIDOFFERFILETRK	*_BID_*.CSV		Modified	
BIDS	NEM_BIDS	*_NEM_BIDS_*.CSV		Modified	
BIDS	BID_MNSP	*_BID_MNSP_*.CSV		Modified	
PD7DAY	PD7DAY	*_PD7DAY_*.CSV		Modified	
FPP	FPP_UNIT	*_FPP_UNIT_*.CSV	5 minutes	Modified	
	FPP_RUN	*_FPP_RUN_*.CSV	5 minutes	Modified	
	NEXT_DAY_FPP	*_NEXT_DAY_FPP_*.CSV	Daily	Modified	No
	NEXT_DAY_FPPMW	*_NEXT_DAY_FPPMW_*.CSV	Daily	Modified	No
	NEXT_DAY_FPPMW_2	*_NEXT_DAY_FPPMW2_*.CSV	Daily	New (split delivery of NEXT_DAY_FPPMW)	No (participants that are currently subscribed to NEXT_DAY_FPPMW will be automatically subscribed to NEXT_DAY_FPPMW_2)

Package	File ID	Description	Batcher file masks	Frequency	Modification	Auto-subscription
	FPP_DCF		*_FPP_DCF_*.CSV	Weekly	Modified	
	FPP_HIST_REGION_PERFORMANCE		*_FPP_HIST_REGION_PERFORMANCE_*.CSV	Weekly	New	Yes
	FPP_PRIV_P5MIN_EST		*_FPP_PRIV_P5MIN_EST_*.CSV	5 minutes	Modified	
	FPP_P5MIN_RESID_EST		*_FPP_P5MIN_RESID_EST_*.CSV	5 minutes	Modified	

	FPP_PRIV_PD_EST	*_FPP_PRIV_PD_EST_*.CSV	30 minutes	Modified
	FPP_PD_RESID_EST	*_FPP_PD_RESID_EST_*.CSV	30 minutes	Modified

3.4.2.2 Participant interfaces changes

Package	Data model table	File ID	CSV report type	Change
SETTLEMENT_DATA	DAYTRACK	SETTLEMENTS	SETTLEMENTS,DAYTRACK,7	Modified
	SET_FCAS_CLAWBACK_RUN_TRK	SETTLEMENTSEXT	SETTLEMENTS,FCAS_CLAWBACK_TRK,1	New
	SET_FCAS_CLAWBACK_UNITSOLN	SETTLEMENTSEXT	SETTLEMENTS,FCAS_CLAWBACK_UNITSOL,1	New
	SET_FCAS_CLAWBACK_REQ	SETTLEMENTSEXT	SETTLEMENTS,FCAS_CLAWBACK_REQ,1	New

Package	Data model table	File ID	CSV report type	Change
	SET_FCAS_REG_AMOUNT	SETTLEMENTSEXT	SETTLEMENTS,FCAS_REG_AMT,1	New
	SET_FCAS_REG_RESIDAMT	SETTLEMENTSEXT	SETTLEMENTS,FCAS_REG_RESIDAMT,1	New
	SET_FCAS_REG_DEF_AMT	SETTLEMENTSEXT	SETTLEMENTS,FCAS_REG_DEF_AMT,1	New
	SET_FCAS_REG_DEF_RESIDAMT	SETTLEMENTSEXT	SETTLEMENTS,FCAS_REG_DEF_RESIDAMT,1	New
	SET_FPP	SETTLEMENTSEXT	SETTLEMENTS,FPP,1	New
	SET_FCAS_REGULATION_TRK	SETTLEMENTS	SETTLEMENTS,SET_FCAS_REGULATION_TRK,3	Modified
	SET_FCAS_RECOVERY	SETTLEMENTS	SETTLEMENTS,FCAS_RECOVERY,9	Modified
BILLING_RUN	BILLING_FCAS_REG_AMT	BILLING	BILLING, FCAS_REG_AMT, 1	New
	BILLING_FCAS_REG_RESIDAMT	BILLING	BILLING, FCAS_REG_RESIDAMT, 1	New

	BILLING_FPP	BILLING	BILLING, FPP, 1	New
	BILLINGASRECOVERY	BILLING	BILLING, ASRECOVERY,10	Modified
P5MIN	P5MIN_REGIONSOLUTION	P5MIN	P5MIN,REGIONSOLUTION,10	Modified
	P5MIN_UNITSOLUTION	P5MIN	P5MIN,UNITSOLUTION,6	Modified
PRE_DISPATCH	PREDISPATCHLOAD	PREDISPATCHIS	PREDISPATCH,UNIT_SOLUTION,4	Modified
	PREDISPATCHREGIONSUM	PREDISPATCHIS	PREDISPATCH,REGION_SOLUTION,9	Modified
DISPATCH	DISPATCHLOAD	DISPATCHIS	DISPATCH,UNIT_SOLUTION,5	Modified
	DISPATCHREGIONSUM	DISPATCHIS	DISPATCH,REGIONSUM,9	Modified

Package	Data model table	File ID	CSV report type	Change
BIDS	BIDOFFERPERIOD	BIDOFFERFILETRK	BIDS,BIDOFFERPERIOD,3	Modified
	BIDOFFERPERIOD	NEM_BIDS	BIDS,BIDOFFERPERIOD,3	Modified
	MNSP_BIDOFFERPERIOD	NEM_BIDS	BIDS,MNSPBIDOFFERPERIOD,2	Modified
	MNSP_BIDOFFERPERIOD	BID_MNSP	BIDS,MNSPBIDOFFERPERIOD,2	Modified
PD7DAY	PD7DAY_PRICESOLUTION	PD7DAY	PD7DAY,PRICESOLUTION,2	Modified
FPP	FPP_CONTRIBUTION_FACTOR	FPP_UNIT	FPP,CONTRIBUTION_FACTOR,2	Modified
	FPP_CONTRIBUTION_FACTOR	NEXT_DAY_FPP	FPP,CONTRIBUTION_FACTOR,2	Modified
	FPP_RUN	FPP_RUN	FPP,FPP_RUN,2	Modified
	FPP_FORECAST_DEFAULT_CF	FPP_DCF	FPP,FORECAST_DEFAULT_CF,2	Modified
	FPP_HIST_REGION_PERFORMANCE	FPP_HIST_REGION_PERFORMANCE	FPP,FPP_HIST_REGION_PERFORMANCE,1	New

	FPP_UNIT_MW	NEXT_DAY_FPPMW	FPP,FPP_UNIT_MW,2	Modified
	FPP_UNIT_MW	NEXT_DAY_FPPMW_2	FPP,FPP_UNIT_MW,2	New (split delivery of file id NEXT_DAY_FPPMW)
	FPP_P5_FWD_EST_COST	FPP_PRIV_P5MIN_EST	FPP,P5_FWD_EST_COST,2	Modified
	FPP_P5_FWD_EST_RESIDUALRATE	FPP_P5MIN_RESID_EST	FPP,P5_FWD_EST_RESIDUALRATE,2	Modified
	FPP_PD_FWD_EST_COST	FPP_PRIV_PD_EST	FPP,PD_FWD_EST_COST,2	Modified
	FPP_PD_FWD_EST_RESIDUALRATE	FPP_PD_RESID_EST	FPP,PD_FWD_EST_RESIDUALRATE,2	Modified

3.4.2.3 Discontinued reports

- As part of this data model the following reports are discontinued.

Data model table	File ID	Delivered in file	CSV report type	Replaced by
SETCPDATA	SETTLEMENTS	*_SETTLEMENTS_*.CSV	SETTLEMENTS,CPDATA,7	SET_ENERGY_TRANSACTIONS
SETGENDATA	SETTLEMENTS	*_SETTLEMENTS_*.CSV	SETTLEMENTS,GENDATA,6	SET_ENERGY_GENSET_DETAIL
SETSMALLGENDATA	SETTLEMENTS	*_SETTLEMENTS_*.CSV	SETTLEMENTS,SMALLGENDATA,1	SET_ENERGY_TRANSACTIONS
DISPATCH_FCAS_REQ	DISPATCHIS_FCAS	*_DISPATCHIS_FCAS_*.CSV	DISPATCHIS_FCAS,DISPATCH_FCAS_REQ,3	DISPATCH_FCAS_REQ_RUN and DISPATCH_FCAS_REQ_CONSTR AINT Note that decommissioning of the old FCAS_REQ report will only be effective from after June 2025

Data model table	File ID	Delivered in file	CSV report type	Replaced by
DISPATCH_FCAS_REQ	DISPATCHIS_FCAS_LEGACY	*_DISPATCHIS_FCAS_*.CSV	DISPATCHIS_FCAS_LEGACY,DISPATCH_FCAS_REQ,3	DISPATCH_FCAS_REQ_RUN and DISPATCH_FCAS_REQ_CONSTR AINT Note that decommissioning of the old FCAS_REQ report will only be effective from after June 2025
PREDISPATCH_FCAS_REQ	PREDISPATCHIS_FCAS	*_PREDISPATCHIS_FCAS_*.CSV	PREDISPATCHIS_FCAS,PREDISPATCH_FCAS_REQ,2	PD_FCAS_REQ_RUN and PD_FCAS_REQ_CONSTRAINT Note that decommissioning of the old FCAS_REQ report will only be effective from after June 2025

PREDISPATCH_FCAS_REQ	PREDISPATCHIS_FCAS_LEGACY	*_PREDISPATCHIS_FCAS_*.CSV	PREDISPATCHIS_FCAS_LEGACY,PREDISPATCH_FCAS_REQ,2	PD_FCAS_REQ_RUN and PD_FCAS_REQ_CONSTRAINT Note that decommissioning of the old FCAS_REQ report will only be effective from after June 2025
P5MIN_FCAS_REQUIREMENT	P5MIN_FCAS_REQUIREMENT	*_P5MIN_FCAS_REQUIREMENT_*.CSV	P5MIN_FCAS_REQUIREMENT,P5MIN_FCAS_REQUIREMENT,1	P5MIN_FCAS_REQ_RUN and P5MIN_FCAS_REQ_CONSTRAINT Note that decommissioning of the old FCAS_REQ report will only be effective from after June 2025

4 Prerequisite activities, entry and exit criteria

In advance of the market trial testing, AEMO will request that participants complete their own connectivity testing with the preproduction environment.

AEMO will report on the exit criteria for market trial testing. The completion of each exit criterion will allow AEMO to notify participants that a successful market trial has been executed.

4.1 Prerequisite activities

- Participants have completed connectivity tests in the pre-production environment.
- Participants have registered for market trial testing

4.2 Entry criteria checklist

Participants will be asked to confirm the following criteria in advance of the commencement of market trial:

- Participants internal testing completed
- Pre-production participant ID received for new participants (via registration), if relevant
- Connectivity testing complete
- Test data preparation (in line with test scripts/cases, i.e. roles) is complete, if required
- Appropriately skilled resource capability available to execute and support testing.

AEMO will confirm the following:

- Pre-production environment available and all relevant functionality is available for testing
- The relevant market trial test plan is complete, agreed and delivered to the ITWG
- Practitest is configured with all required test information and is accessible and useable by all testing participants
- AEMO expects participants to be ready before the commencement of the market trial testing
- AEMO will confirm to participants that AEMO internal testing is successfully completed to extent to support commencement of market trial testing
- AEMO will confirm what defects are outstanding from AEMO's internal testing that could impact participant or AEMO testing in market trial testing.
- Practitest has been setup for market trial testing

4.3 Exit criteria

Exit criteria for the text execution phase may include:

- No outstanding Priority 1 or Priority 2 defects on AEMO
- Any open defects (Priority 3 or 4) have agreed resolutions or work around in place and published
- Final Test Summary Report completed
- The overall result of market trial testing will be one factor included in the assessment of the overall market readiness for each phase of implementation.

5 Test cycle approach

The Test Schedule has been developed in line with the approach that was agreed in consultation with the Industry Testing Working Group.

5.1 Market Trial timeframe

The FPP FO market trial period will commence on Wednesday 02 April 2025 and will end Fri 16 May 2025.

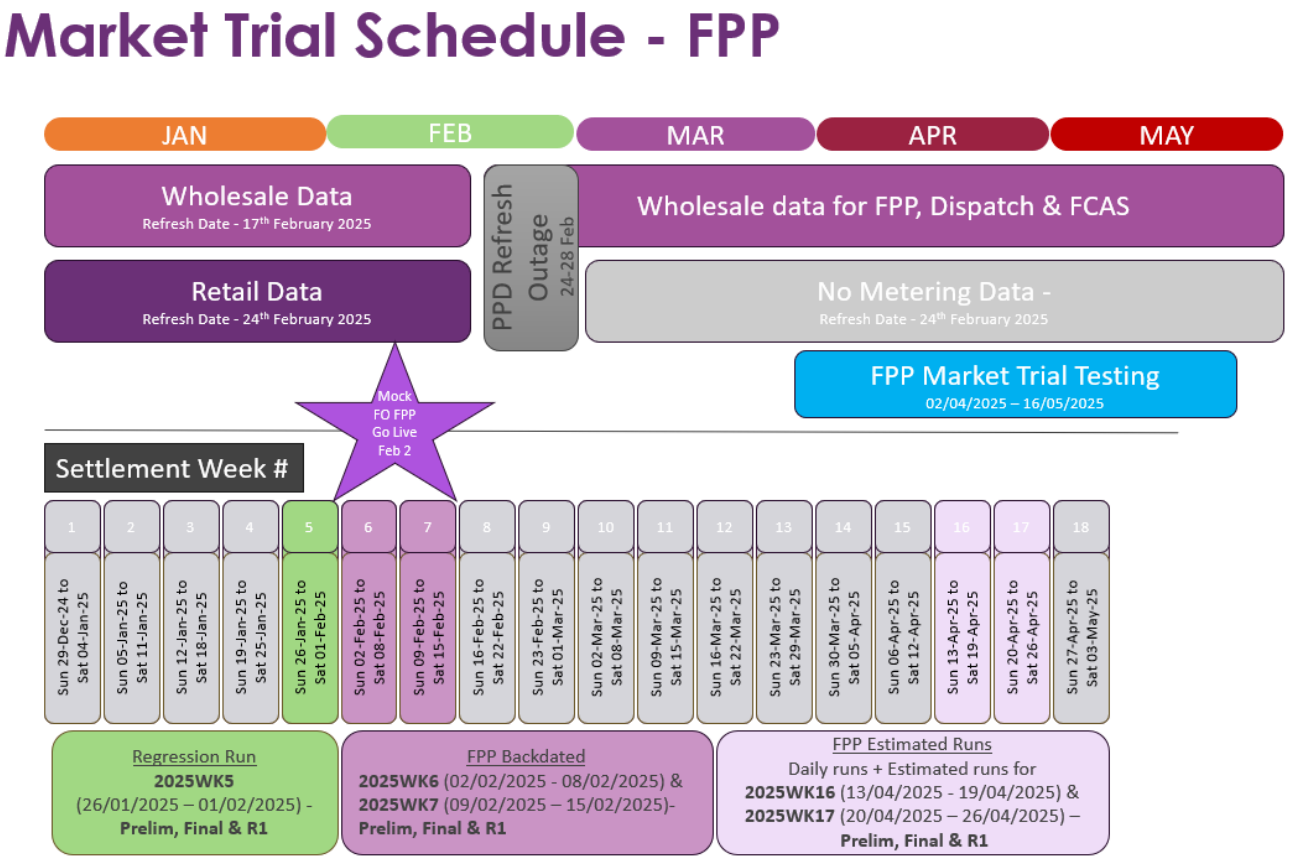
5.2 Test scenario and script execution

As this is a market trial test there will be test scenarios captured by AEMO. AEMO will be reporting only on defects identified, closed, and fixed.

Test Scenarios:

The following schedule below demonstrates the scenarios and settlement runs being executed as part of market trials. Detailed tests will be captured in Practitest for participants.

Figure 1 FPP Market Trial Schedule



5.3 Data management

The pre-production refresh was completed, and dates are below:

- Wholesale system was refreshed from production using an as effective at date of Monday 17 Feb 2025.
- BDU Dispatch and bidding along with the Settlements applications, was refreshed with data from production using an as effective at date of Monday 17 February 2024.
- The Retail systems including MSATS is expected to be refreshed from production using an as effective at date of Monday 24 February 2025.

Data Model 5.4 information:

- Data model tables will be populated several days after the data model 5.5 is upgraded in pre-production.
- PRIVATE and PUBLIC population frequencies apply for some tables. Some data types are only populated weekly, others every 5 minutes. These are documented in the data model 5.5 tech spec.
- Participants can update their respective systems from the time that AEMO has updated pre-production to the data model 5.5 and the update scripts are made available.

FPP calculations:

- FPP calculations in pre-production will be generated from pre-production dispatch and pre-production SCADA data. AEMO will populate the FPP tables with the same frequency as production.

5.4 Communication and support

During the market trial period support will be provided between 09:00 and 17:00 Hrs (AEST) on business days. AEMO will also establish direct communication channels as set out in the following sub-sections.

5.4.1 Q&A meetings

AEMO will establish daily test status meetings during the market trial period. The invitation will also be sent to the Industry Testing Working Group so that any participant may observe the meeting regardless of whether they are participating in market trial testing or not.

Each call will follow a core agenda:

- Review of open defects
- Discuss new defects and potential triage of issues where applicable.

5.4.2 Market trial report

AEMO will produce a daily market trial test Report which will provide an update on the status of the FPP FO readiness and defects. The market trial Report will be circulated prior to the daily test status meetings.

As set out in the Strategy, the test metrics are:

- Outstanding defects including the impact and agreed date of resolution.

5.4.3 Support contact details

Participants requiring support should raise a ticket with AEMO's Support Hub: https://aemo.com.au/en/contact-us

e.g. Access to the environment would be raised via the support hub. Testing related questions should be directed to the NEMReform@aemo.com.au mailbox.

5.4.4 Communication tool

AEMO will use the NEMReform mailbox to communicate with those participants registered for the market trial. These communications will include, but are not limited to, planned outages, status reports, meeting invitations. AEMO will CC the ITWG on all communications.

The daily stand-up will be used to communicate any upcoming changes, releases, or outages.

5.5 Defect management

The market trial is an opportunity for defects to be identified and closed prior to FPP FO Rule Commencement. Market trial testing defect management will be a collaborative effort, principally involving AEMO's and participants' testing teams, development teams and business analysis teams. There will, at times, be a need to consult other projects' team members for advice and assistance on the resolution of defects.

Participants can report defects via NEMReform email. AEMO will manage all the defects that were identified during market trial testing. The objective of defect management is to resolve all defects within the project lifecycle. However, this objective must be balanced against other project objectives, such as achieving the schedule and the system impact and priority of the defect (discussed below). The acceptable level of defects within each stage of testing is typically defined as part of the 'exit criteria' for that stage.

AEMO will manage and report on all defects identified during market trial testing. Where it is determined that it is not an AEMO defect, AEMO will coordinate with market participants to obtain the status of the defect.

5.6 Defect management approach

5.6.1 Raising defects

Defects raised during market trial testing will be captured in Practitest, with the following information:

- Description of defect
- The test scenario and/or test script associated with the defect

- Who detected it and the date it was detected
- Defect owner (entered after gaining agreement between testing counterparties as to who owns the defect)
- Target fix date (entered by defect owner)
- Defect severity
- Defect priority
- Defect status
- Defect root cause (entered by defect owner)
- Defect assigned to (nominated AEMO representative confirmed before commencement of industry tests).

For FPP implementation, the term "defect" is used broadly to include defects that would ordinarily fall outside of a narrow "IT" definition. For example:

- Information could be captured regarding lack of required support. This affects test execution from a timing perspective
- Testing may indicate that an automated business process needs manual intervention to work correctly and given constrained timings an automated fix cannot be developed and tested in time for go-live. Information such as this can feed into the deployment\cutover planning for go-live.

As a general principle, any information that occurs during market trial testing and assists with risk mitigation for the "go-live" solution may be captured.

Defect statuses and progress on defect fixes will be discussed in the twice weekly Q&A meeting.

5.6.2 Defect triage

Defect triage occurs during the Q&A meeting. Critical or high priority defects will be discussed in the meeting. The defect owner and the target fix time will be agreed for critical and high priority defects.

Participants and AEMO should review defects frequently on daily basis and update the target fix date/time in Practitest for everyone's reference.

Section 5.6.6 contains a defect workflow for the testing process.

5.6.3 Defect escalation

All open defects will be discussed in the Q&A meeting. If a critical/high priority defect can't be resolved within the agreed timeframes, it can be escalated in the Q&A meeting.

Defect triage meetings will be held internally by AEMO to discuss the status of any reported defects. A defects report will be shared with participants prior to the Q&A meeting.

5.6.4 Defect severity and prioritisation

Defects will be classified according to severity and where there are multiple within a severity, they will be address based on priority by the participant test leads in consultation with other affected participants, as described in Table

4. Priority will indicate the degree to which the defect affects both the system capability, testing execution and the overall project. Priority is determined by assessing probability of system and the business impacts. Table 4 and Table 5 describes each priority classification.

Table 4 Defect severity classification

Severity	Definition
1- Showstopper	Defect is considered critical to business operations and/or testing. Core business and project impact.
2-Major	Defect is considered high impact to the business operations and/or testing. However, core business processes are still able to be completed (possibly via workarounds, etc.) and some testing is still able to continue.
3-Moderate	Defect is considered moderate impact to the business operations and/or testing. Core business processes are unaffected, and workarounds available, with testing still able to continue.
4-Minor	Defect is considered low impact to the business operations and/or testing. Core business processes are unaffected, and testing is still able to continue.

Table 5 Defect priority classification

Priority	Definition
1- Blocker	Entire functionality is blocked, and no testing can be conducted. Fix/resolution turnaround time best endeavour effort in first 4 hours or provide update on impact.
2-Highest	Defect is considered high impact to testing, multiple tests are blocked/failed due to the defect and no workaround is available.
3-High	Defect is considered high impact to testing one or more tests can be linked to the defect, but workaround is available, and testing is still able to continue.
4-Medium	Defect is considered moderate impact to testing with one or more tests can be linked to the defect, but workaround is available and none of these tests are currently a priority.
5-Low	Defect is considered low impact to testing, no tests are failed or blocked due to this defect.

Following acceptance of a defect, a resolution date will be added and published in the Q&A status report for all identified defects.

5.6.5 Defect management status

Shows the valid defect management statuses. This will be updated by AEMO and feedback will be provided to the participant raising the defect.

Table 6 Defect management status

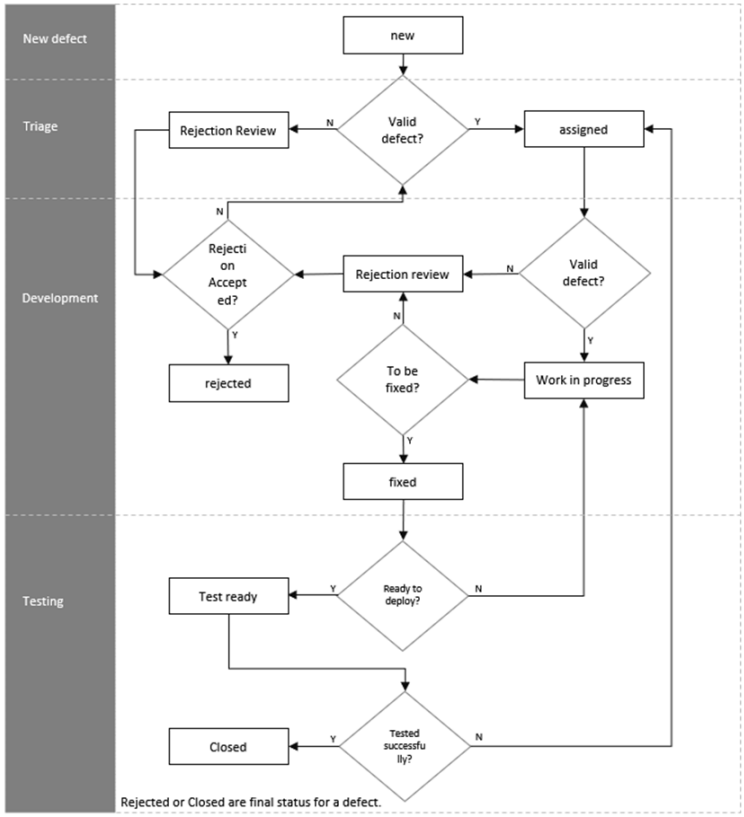
Status	Definition
New	Initial defect raised but will require a triage to determine if further analysis is required and whether it is a true defect as such to move to an assigned status.
Assigned	Defect will be assigned to the appropriate development team to be addressed further assessed and progressed.
Work in Progress	Practitest item that is considered valid to be set to 'Work in Progress' to be fixed by development. This status means, a team is working on the Practitest item (analysis or fixing).
Rejection Review	After Triage or review by developer the defect is not considered valid the defect will be assigned to the status of 'Rejection Review' and assigned to the participant who raised the defect to accept rejection or update defect to allow it to be 'assigned'.

Status	Definition
Rejected	Practitest item that is in a 'Rejection Review' status can be progressed to this state. If a participant accepts a defect is not valid, they can confirm the acceptance of the defect by changing the status to 'Rejected'.
Fixed	Once Practitest item has been fixed and unit tested by developer the status is set to 'fixed'. This indicates the release of the fix is ready for deployment to a test environment.
Test Ready	Once the fix is released to test environment successfully the status is set to 'Test Ready' and assigned to the participant who raised it.
Closed	If the participant (defect originator) is satisfied that the testing of the defect is successful they should update the defect.

5.6.6 Defect process flow

Figure 2 shows the defect management process throughout the various defect management statuses of the defect lifecycle from its inception through to its closure.

Figure 2 Defect management cycle



5.6.7 Defect cause

The defect root cause of a valid defect will be updated in Practitest by AEMO's test team once the defect cause is identified. Table 7 shows the available defect causes and their descriptions.

Table 7 Defect cause

Defect Cause	Definition
Design	The design of the process does not meet the requirements specified. Defect may include examples, algorithm (incorrect calculation), error handling, creation/release of object or memory, decision logic error, loop control, procedure call, failing to validate data values before being used.
Configuration	The intended outcome of the configuration is not met.
Data	There are system data issues for the process that may prevent test completion.
Requirements	Unclear or incorrect requirement, Functional and Business specification documentation.
Infrastructure/Hardware	Defect is not in the object being tested but, in the test, set up, for example the wrong configuration or version control of platform, operating system, browser, hardware or networking, system is down, or the environment is down.

5.7 Suspension criteria and resumption requirements

AEMO in consultation with the ITWG will determine if a complete or partial suspension of testing is required during market testing and will also determine when testing will continue. Suspension and resumption criteria and actions are described below.

5.7.1 Suspension criteria

Complete or partial suspension of testing may be required if:

- High severity (i.e. showstopper) or combination of defects open
- Significant change to specifications (delaying release of software to the pre-production).

If these circumstances arise, the following actions will be taken:

- AEMO will make a recommendation to suspend the test activities in consultation with ITWG
- AEMO will advise the industry participants of the potential delays due to the test suspension, and the impact of defect / defects concerned
- AEMO and the ITWG will support and coordinate the development and test efforts to resolve the defects raised.

5.7.2 Resumption criteria

Test resumption can occur after the issues that caused the suspension of testing have been resolved. If these circumstances arise, the following actions will be taken:

- AEMO will inform the testing participants of the successful deployment of the defect fix(s) and its successful verification
- AEMO will inform the testing participants that the test environment is in a suitable condition to resume the suspended testing
- AEMO in consultation with the participant who raised the defect, will inform the participants of the impact(s) of the defect fix, and suggest if any re-execution must be done.

A1. Test management activities

Table 8 below shows the activities which will occur during market trial testing and who is responsible for them.

Table 8 Test Management Activities

Activities	Description	Timing	Responsibility
Identify data	Identify data sets for testing.	During market trial phase.	Participants
Raising defects	Raising defects	Real time as soon as defect has been identified.	AEMO and Participants
Managing defects	Review defects logged to identify major defects and determine the impact of those defects.	Daily	AEMO and Impacted Participants
Retesting defects	Retesting defects once they are available to testers is a priority.	As soon as defect fix has been deployed. Participants can retest.	AEMO and Participants
Test phase entry	Complete entry criteria checklist.	Prior to the commencement of market trial testing	AEMO and Participants
Test phase exit	Complete exit criteria check.	At the completion of market trial.	AEMO and Participants
Q&A status meetings	Test status meeting to be attended by test representatives from all participants to discuss issues and defects.	Twice weekly	AEMO and Participants

A2. Glossary

This document uses many terms that have meanings defined in the National Electricity Rules (NER). The NER meanings are adopted unless otherwise specified.

TERM	DEFINITION
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
B2B	Business-to-business
B2M	Business-to-market
BDU	Bidirectional unit
Commencement	Date when a rule takes effect under the NER
Cutover	Process and steps for implementing Market Systems capability. Includes once-off data updates conducted in association with system deployments.
DUID	Dispatchable unit identifier
Go-live	System and capability available in production environment, may take place prior to commencement dates.
FRMP	Financially responsible market participant
FPP	Fast Frequency Performance
Industry testing	Informal, non-coordinated testing by participants in AEMO's IT environments. Self-testing of functionality such as connectivity, and/or coordinated multi-party testing of functional scenarios.
Invitation industry testing	Coordinated testing of business process scenarios with a select number or subset of participants with systems ready for testing
IRP	Integrated resource provider
IRS	Integrated resource system
ITWG	Industry testing working group
Market testing	Umbrella term covering industry testing, invitation industry testing and industry test
Market Trial	Formal, industry coordinated test activities between participants' and AEMO's IT environments. Involves coordinated multi-party end-to-end testing of business process scenarios.
MSATS	Market settlements and transfer solutions
MSGA	Market small generation aggregator
NCC	NMI classification code
NECR	Non-energy cost recovery
NEM	National electricity market
NEMDE	National electricity market dispatch engine
NER	National electricity rules
NMI	National metering identifier
PAE	Profiling and allocation engine
PASA	Projected assessment of system adequacy
PCF	Program consultative forum
PDSE	Participant development support environment
PFR	Primary Frequency Response
SGA	Small generation aggregator

TERM	DEFINITION
SoC	State of charge
Transition	Process of shifting from current to future operating state
UFE	Unaccounted for energy