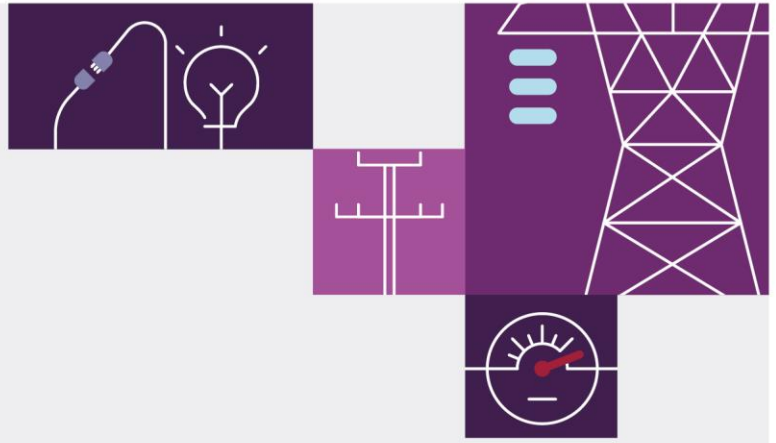# Frequency Performance Payments – Non-financial operations (9 December 2024)

November 2024

Industry Go-live Plan

Important notice

Purpose

This document describes the go-live approach for upgrading AEMO's wholesale systems for the Non-Financial Operations (NFO) release of the Frequency Performance Payments (FPP) initiative 9 December 2024.

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Version control

Version	Release date	Changes
0.1	23 October 2024	Draft for Industry Review
1.0	18 November 2024	Final version
		Table 2 updated to include activation requirements and timings for data population of FPP reports

Executive summary

On 9th December 2024, AEMO will implement the "FPP-NFO" software release across its Wholesale systems under the NEM Reform Program.

The release introduces changes that facilitate a period of non-financial operations for Frequency Performance Payments to give impacted participants – scheduled and semi-scheduled generators and loads – an opportunity to observe how different patterns of operation would result in penalties or payments, based on actual performance and in real time, prior to full financial operations and rule commencement on 8 June 2025.

To support this change, a new solution, based on contemporary architecture, has been developed to replace the Causer Pays system. Note, Causer Pays will continue operation during the period of non-financial operations until full financial operations of FPP and rule commencement.

AEMO has a key coordination role, through collaboration with its industry working groups, to ready Industry and itself for the various system and market "go-live" dates.

At a high level, the go-live responsibilities are set out below:

- AEMO to facilitate Industry Tests for the FPP-NFO release.
- AEMO to enable the market software to commence operations in line with requirements.
- Participants are encouraged to complete their preparations in readiness for the FPP-NFO release.

Contents

Tables

1. Introduction

1.1 Audience

This document provides information to Participants and their IT staff that will be impacted by the functional and technical changes being implemented with the FPP-NFO release and to confirm activities and timeframes associated with go-live planning.

1.2 FPP-NFO release

This is the first release for the FPP project and includes changes associated with the introduction of new FPP calculations and reporting to impacted participants. The release does not include financial settlements (penalties or payments) made to participants based on unhelpful or helpful behaviour in maintaining system frequency within normal operating bands. The latter will be delivered in the second release FPP-Financial Operations and rule commencement 8 June 2025.

This document covers the procedural, IT system and market readiness arrangements needed to implement the FPP-NFO Go-Live Plan using the following workstreams:

- Procedures – defines and implements the required changes to market procedures
- Systems – designs, develops, tests, and implements changes to AEMO's market systems
- Readiness – coordinates, assists, and prepares AEMO and participants to transition to the FPP-NFO changes

AEMO's FPP-NFO Release has entered the implementation planning phase. This paper relates to the go-live planning for this release.

1.2.1 Frequency Performance Payments rule change

On 8 September 2022, the Australian Energy Market Commission (AEMC) published a final determination and a final rule to amend the existing provisions for the allocation of costs (often referred to as 'Causer Pays') relating to regulating raise services and regulating lower services as well as implementing a new incentive framework for the provision of Primary Frequency Response (PFR).

AEMO uses Regulation Frequency Control and Ancillary Services (FCAS), to make relatively small adjustments to the supply and demand balance in the electricity system. Under the current Causer Pays framework, electricity generators are assessed based on the relative unhelpfulness of their impact on the power system frequency. Causer Pays recovers Regulation FCAS costs from those electricity generators who have an overall negative impact on the power system, while those who do not have a negative impact avoid paying any costs.

The new rule creates a system of positive and negative Frequency Performance Payments (FPP), which will give market participants information on their frequency performance and its dollar value (or cost). Under the new arrangements, generation units' performance and five-minute Contribution Factors (CF) calculated for FPP will be used to allocate the recovery of Regulation FCAS costs.

1.2.2   EMMS Data model 5.4

Changes to the EMMS Data Model are required to support FPP-NFO reporting. These changes are documented in EMMS Technical Specification[1].

1.3   Document purpose & approach

This document describes the go-live approach for the FPP-NFO Release with respect to the deployment of Wholesale System enhancements.

The FPP-NFO Release Industry Go-Live plan is developed in consultation with industry through the Implementation Forum. Table 1 below illustrates AEMO's engagement approach and timeline for developing the plan.

Table 1   FPP-NFO Release Go-Live Plan development timeline

Milestone	Date
Publish draft for industry feedback	23 October 2024
Deadline for industry feedback	15 November 2024
Publish final plan	18 November 2023

2. Go-live Plan Framework

2.1   In Scope

- Deployment of wholesale system and report changes for the FPP-NFO release

- EMMS Data Model v5.4 changes for FPP reporting

- High level industry cutover schedule including Participant impacts and required actions

- Communications around the FPP-NFO deployment

- Support arrangements post Go-Live

2.1.1   Out of Scope

- Participant implementation planning.

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[1] https://aemo.com.au/en/energy-systems/market-portals-directory/tech-specs

2.2 Principles

The industry transition and go-live strategy principles apply to FPP-NFO changes. These are:

- AEMO's commitment to providing a 3 to 6 month period of non-financial operations is Procedure mandated.

- Operation of the NEM must be unimpacted during periods of go-live, unless strictly necessary and for as short a time as possible.

- Market system go-live risks should be minimised

- Participants should be provided with implementation flexibility where possible

- Participants and AEMO are each responsible for their own go-live planning.

3. Go Live Plan

3.1 Go/No-Go decision

A checkpoint decision was communicated, via the October Implementation Forum, that the FPP NFO solution is 'green' for go-live for Production deployment on 9 December 2024.

Deployment to the Production environment will be according to Table 2 FPP-NFO Go-live Schedule.

Based on the outcome of the cutover activities, AEMO will make one of the following decisions:

- Proceed with the cutover – upgraded platform live

- Proceed with cutover - upgraded platform live, but with identified issues

- Rollback FPP-NFO solution.

Participants will be informed of the outcome of the cutover in line with the process and timing outlined in 3.2 Communications and Table 2 FPP-NFO Go-Live Schedule. In case of a 'no go' or rollback decision, Participants will be advised of an alternative plan. This will be reviewed with consideration of other releases and resource requirements.

3.2 Communications

Correspondence regarding the go-live will be released through AEMO Support Hub bulletins and the NEM Reform mailbox. AEMO will provide the following forms of updates to participants during the AEMO cutover:

- **General updates** – provide participants with information about the status of the AEMO cutover process. These will be communicated via the NEM Reform mailbox to NEM Reform Implementation Forum (IF) members.

- **Support Hub Notices** – provides information to the market on cutovers activities that may impact participant processes, e.g. stopping B2M batch handlers. This will be communicated through AEMO's established Market Notices mailing list.

- **Issues** – should any issues arise or deviations from the previously communicated processes, participants will be notified through the NEM Reform mailbox. If the issue or deviation is in relation to a notice previously sent through AEMO's Support Hub Notices, participants will receive a communication through this channel in addition to the NEM Reform mailbox.

3.3 EMMS Data Model v5.4 release

EMMS Data Model v5.4 was released to pre-production on 9th October 2024 and production on 6th November 2024 to allow participants to install/upgrade prior to industry test start and go-live respectively.

Data model 5.4 release provides two scripts to participants, one to create the data model from scratch and the other to update from a previous version. This step is a pre-requisite for any participant to be able to perform their testing.

Data will be populated from Industry Test start on 25th October 2024 and for Go-live on 9th December 2024.

For further information – AEMO | NEMweb Help

3.4 Go-live schedule

The wholesale system's production deployment for FPP-NFO is scheduled for Monday 9th December 2024. No interruption to production is expected.

Table 2 outlines the activities required by both AEMO and participants for go-live, including timings and agreed communications.

Table 2   FPP-NFO Go-live Schedule

Ref ID	AEMO Action	Participant Impact/Action	Date	Communication Channel
		Pre-Production Deployment		
1	EMMS Data Model 5.4 release to Preproduction including scripts to install/upgrade the data model.	• No outage required • Impacted Participants can upgrade their systems to EMMS Data Model v5.4	**Wed 9 Oct 2024**	• Support Hub Notification • Email to NEM Reform Implementation Forum members
2	Deployment of FPP solution to Preproduction Note: P5MIN and PREDISPATCH forward estimate reports currently unavailable	• No outage required • No participant impact	**Fri 25 Oct 2024**	• Email to Implementation Forum members at completion of deployment that supported industry test period has opened
3	EMMS Data Model 5.4 data population	• New data elements populated in data model for FPP Reporting • Dispatch and Private reports available from 4pm • Public market reports available from 4am following day	**Fri 25 Oct 2024**	
4	AEMO email notification that supported industry test period has concluded		**Fri 22 Nov 2024**	• Email to Implementation Forum members at completion
		Prior to Production Go-live		
1	EMMS Data Model 5.4 release to Production including scripts to install/upgrade the data model.	• No outage required. • Impacted Participants can upgrade their systems to EMMS Data Model v5.4. • Current Participants are auto-subscribed to new tables when they upgrade to the new data model. • Manually subscribe to other reports using the Data Model Mgr. • Check that all FPP reports be set to 'active' in PDR Monitor.	**Wed 6 Nov 2024**	• Support Hub Notification • Email to NEM Reform Implementation Forum members
2	FPP-NFO deployment notification • AEMO issues notification of planned production deployment of Wholesale Applications	• Communication only	**Prior to Mon 9 Dec 2024**	• Support Hub Notification

Ref ID	AEMO Action	Participant Impact/Action	Date	Communication Channel
3	Deployment of FPP solution to Production	• No outage required • No Participant impact	**Prior to Mon 9 Dec 2024**	• Email to Implementation Forum members at completion of deployment
9 December 2024 FPP-NFO Go-live				
4	EMMS Data Model v5.4 data population	New data elements populated in data model for FPP Reporting commencing prior to 12:00pm (noon). • Same Day reports available from 12:00pm (noon) • Next Day market reports available from 4am following day • Unused FCAS and Default Contribution factor values in FPP_EST_COST from 23 December and FPP_CONTRIBUTION_FACTOR tables from 24 December • Appendix provides further details for each report	**Mon 9 Dec 2024**	• Email notification to NEM Reform Implementation Forum members
5	AEMO confirms FPP-NFO Production release	• Communication only	**Mon 9 Dec 2024**	• Support Hub Notification
6	Deployment of 4 non-mandatory reports: FPP_P5_FWD_EST_COST FPP_P5_FWD_EST_RESIDUALRATE FPP_PD_FWD_EST_COST FPP_PD_FWD_EST_RESIDUALRATE	• No outage required • No participant impact • Data will populate	**Expected availability mid Jan 2025**	• Email notification to NEM Reform Implementation Forum members

3.5 Deployment Contingency

The FPP-NFO release will be comprised of a new FPP solution and updates to current AEMO systems.

Where a task/deployment has a participant impact, AEMO will provide communication confirming the successful deployment.

Where an issue arises that impacts the Readiness and Go-live Criteria, participants will be notified and a path forward will be communicated. This may involve consultation and will be assessed if/when required.

4. Participant Support Arrangements

All production issues should be raised via the Support Hub and managed through the current wholesale system support processes.

AEMO will run Hypercare for the FPP-NFO changes for one month from 9th December 2024. There will be heightened SME availability to support participants during this time along with:

• Issue Tracking:

    – Publication of identified Issues Log

    – Q&A Sessions as required

    – Participants are requested to follow BAU process and log issues via the AEMO Support Hub

• Communications:

    – Market communications will be used for the notification of any impacts to processing

    – The AEMO FPP project will organise post-go-live open Q&A sessions as required

    – Q&A session to discuss any issues or queries

Glossary

Term	Definition
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
BAU	Business as Usual
Cutover	System or process implementation event
FO	Financial Operations
IF	Implementation Forum
Industry testing	Informal, uncoordinated testing by participants in AEMO's IT environments. Self-testing of functionality such as connectivity, and/or coordinated multi-party testing of functional scenarios.
ITWG	Industry Testing Working Group
NEM	National Electricity Market
NER	National Electricity Rules
NFO	Non-financial Operations
PDR Monitor	Participant Data Replication Monitor
SME	Subject Matter Expert
Q&A	Question and Answer

Appendix: FPP Report Availability Timings

The following tables provide information when data for FPP reports will start populating share at the ITWG Q&A sessions. For Production go-live, FPP reports will be activated to start flowing to participants prior to 12:00pm (noon) market time on 9th December.

FPP Tables & Timings

Package: FPP			
Table Name:	**Frequency/Timing:**	**Data Delivered From (AEDT):**	**Folder:**
FPP_UNIT_MW	The private report delivers at the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes) The public report delivers the next market day (at 4am)	**Preprod** = 25th October 4am **Prod** = 10th December	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_REGION_FREQ_MEASURE	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_PERFORMANCE	The private report delivers at the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes) The public report delivers the next market day (at 4am)	**Preprod** = 25th October 4am **Prod** = 10th December 4am	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_RESIDUAL_PERFORMANCE	The public report delivers at the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_CONTRIBUTION_FACTOR	Private at the completion of FPP calculation run for a closed trading interval (i.e. every 5 minutes) Public from next market day (at 4am)	**Preprod** = 8th November 4am **Prod** = 24th December 4am	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_RESIDUAL_CF	The public report will be delivered at the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_RCR	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

FPP Tables & Timings

Package: FPP			
Table Name:	**Frequency/Timing:**	**Data Delivered From:**	**Folder:**
FPP_USAGE	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_FCAS_SUMMARY	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_RUN	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_HIST_PERFORMANCE	Approval of a FPP historical performance calculation run (i.e. every week)	**Preprod** = From 24th October first week. **Prod** = From 9th December 12pm first week.	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_EST_COST	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 7th November every 5 min. **Prod** = 23rd December every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_EST_RESIDUAL_COST_RATE	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_P5_FWD_EST_COST	At the completion of a P5MIN estimation calculation run (i.e. every 5 mins)	AEMO expects these reports to be available mid Jan 2025. AEMO will notify participants closer to the date.	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

FPP Tables & Timings

Package: FPP			
Table Name:	**Frequency/Timing:**	**Data Delivered From:**	**Folder:**
FPP_P5_FWD_EST_RESIDUALRATE	At the completion of a P5MIN estimation calculation run (i.e. every 5 mins)	AEMO expects these reports to be available mid Jan 2025. AEMO will notify participants closer to the date	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_PD_FWD_EST_COST	At the completion of a PREDISPATCH estimation calculation run (i.e. every 30 mins)	AEMO expects these reports to be available mid Jan 2025. AEMO will notify participants closer to the date	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_PD_FWD_EST_RESIDUALRATE	At the completion of a PREDISPATCH estimation calculation run (i.e. every 30 minutes)	AEMO expects these reports to be available mid Jan 2025. AEMO will notify participants closer to the date	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_FORECAST_DEFAULT_CF	Approval of a FPP historical default contribution factor calculation run (i.e. every week)	**Preprod** = From 24th October first week. **Prod** = From 9th December 12pm first week.	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_FORECAST_RESIDUAL_DCF	Approval of a FPP historical default contribution factor calculation run (i.e. every week)	**Preprod** = From 24th October first week. **Prod** = From 9th December 12pm first week.	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_CONSTRAINT_FREQ_MEASURE	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
FPP_EST_PERF_COST_RATE	At the completion of a FPP calculation run for a closed trading interval (i.e. every 5 minutes)	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

Package P5MIN Tables & Timings

Table Name:	Frequency/Timing:	Data Delivered From:	Folder:
P5MIN_FCAS_REQ_RUN	Public at the completion of a constraint FCAS processor run for a 5 minute predispatch run	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
P5MIN_FCAS_REQ_CONSTRAINT	Public at the completion of a constraint FCAS processor run for a 5 minute predispatch run	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 5min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

Package PRE_ DISPATCH Tables & Timings

Table Name:	Frequency/Timing:	Data Delivered From:	Folder:
PD_FCAS_REQ_RUN	Public at the completion of a constraint FCAS processor run for a 30 minute predispatch run	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 30min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
PD_FCAS_REQ_CONSTRAINT	Public at the completion of a constraint FCAS processor run for a 30 minute predispatch run	**Preprod** = 24th October 3:20pm every 5min. **Prod** = 9th December 12pm every 30min	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

Package Dispatch Tables & Timings

Table Name:	Frequency/Timing:	Data Delivered From:	Folder:
DISPATCH_FCAS_REQ_RUN	Public at the completion of a constraint FCAS processor run for a dispatch run	Preprod = 24th October Prod = 9th December 12pm	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
DISPATCH_FCAS_REQ_CONSTRAINT	Public at the completion of a constraint FCAS processor run for a dispatch run	Preprod = 24th October Prod = 9th December 12pm	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
DISPATCH_UNIT_SCADA		Preprod = 24th October Prod = 9th December 12pm	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

Package Participant Registration
Tables & Timings

Table Name:	Frequency/Timing:	Data Delivered From:	Folder:
DUDETAIL	DUDETAIL updates only when registration details change.	As need when updates occur	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
GENUNITS_UNIT	GENUNITS_UNIT updates whenever plant details change.	As need when updates occur	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
GENUNITS_UNIT	GENUNITS_UNIT updates whenever plant details change.	As need when updates occur	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports

Package Demand Forecasts
Tables & Timings

Table Name:	Frequency/Timing:	Data Delivered From:	Folder:
INTERMITTENT_GEN_SCADA	INTERMITTENT_GEN_SCADA shows data for every 5 minutes for all Intermittent Generating Units	Preprod = 24th October 3:20pm Prod = 9th December 12pm	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
GENUNITS_UNIT	GENUNITS_UNIT updates whenever plant details change.	As need when updates occur	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports
GENUNITS_UNIT	GENUNITS_UNIT updates whenever plant details change.	As need when updates occur	<#INTRFACE>\<#PARTICIPANTID>\IMPORT\REPORTS\CSVReports