TRANSPOWER

ERS Co-design Workshops 2026

Emergency Reserve Scheme Design

May-June 2026

Workshop 1

Welcome to the ERS co-design workshops

Thank you for attending and we look forward to hearing your views on the new Emergency Reserve Ancillary Service.

Scope of these workshops:

Decisions made	Areas for feedback
• EA Code changes • Transpower internal implementation including market system, post event reporting	• Commercial considerations • Requirements of providers • Some proposed settings (outlined later today)

Independent Chair’s Welcome

John Hancock
Signature Consulting

Overview of Emergency Reserve Ancillary Service

May 2026

ELECTRICITY AUTHORITY
TE MANA HIKO

Purpose

To outline:

- Background and context for Emergency Reserve Ancillary Service (ERAS)
- Why an ERAS
- High-level design parameters as set out in the Code

This deck describes what the Code requires and what the Authority intended, not how the System Operator will implement it.

Background to the Emergency Reserve Ancillary Service

- Emergency Reserve Ancillary Service (ERAS) development was an 'immediate' action in the Energy Competition Task Force's *Rewarding industrial demand flexibility – issues and options paper* released in May 2025
- It aims to make better use of demand flexibility to support electricity system reliability, particularly for managing capacity challenges. It was initially focused on industrial flexibility, but this has since been expanded.
- Preliminary ERAS design work was informed by:
  - Market Design and Advisory Group's (MDAG) *Price discovery in a renewables-based electricity system,* which recommended a last-resort demand side flexibility scheme (recommendation 30)
  - CEO Forum proposal for a 'winter peak ancillary service product'
  - Additional analysis performed by Robinson Bowmaker Paul (RBP) on options for the design of an ERS.

Note that during development we called initiative the Emergency Reserve Scheme (ERS), however in the Code it is defined as Emergency Reserve. We have used ERAS and ER for the purposes of this presentation.

What the Emergency Reserve Ancillary Service aims to achieve

- The ERAS is designed as a ‘penultimate resort’ mechanism to be used before involuntary load shedding. The Authority wants to ensure that involuntary load shedding only occurs when absolutely necessary, given the impact on consumers. It is intended to be used after EDB controllable load is instructed off by the System Operator.
- It is anticipated to operate infrequently, likely when a supply shortfall emerges due to a ‘perfect storm’ of factors – such as unusually low wind availability coinciding with generator unavailability due to unplanned outages.
- It means that purchasers will pay for additional reliability on behalf of consumers when these infrequent events occur. As long as that payment is less than the ‘cost’ of the alternative – an involuntary power cut – it contributes to an efficient electricity supply.
- The Authority has two objectives for the ERAS:

Primary Objective	Promote system security and reliability, and minimise the likelihood and extent of uneconomic load shedding during infrequent periods when demand is high and inadequate supply is available from other sources
Secondary Objective	Build capability to provide demand flexibility more generally, through building organisational capability and investments in equipment.

Why now?

- Greater generation intermittency is expected to create challenges for security of supply, especially during cold, still mornings and evenings:
    - ‘Perfect storm’ conditions means that even if adequate supply is in place reflecting longer-term forecasts, operational conditions and supply availability at a point in time may still result in load curtailment, and the potential for such conditions is likely to be higher with a higher proportion of weather-dependent supply sources
    - The draft 2026 SOSA identifies that while we are expected to remain above the winter capacity margins, we are still sensitive to these types of challenges
    - The ERAS is designed to help manage situations as we saw on 9 August 2021 (which had involuntary load shedding of about 3% of demand) and the System Operator’s call for voluntary demand reduction on 10 May 2024.

Previous publications

- The Authority consulted on the ERAS three times:
  - 28 May 2025: Energy Competition Task Force *Rewarding industrial demand flexibility – Issues and options paper* in which set out the Authority's intent to develop an ERAS as an 'immediate action'
  - 31 July 2025: *Establishing an Emergency Reserve Scheme consultation paper* , which considered submissions on the above paper, and set out the rationale for, and high-level design of, an ERAS
  - 17 October 2025: Code amendment proposal consultation paper, which we considered feedback on the ERAS consultation paper and set out proposed Code changes
- On 13 January 2026, the Authority announced its decision to create the ERAS and published the support decision paper and final Code amendment.

Key design features

The amended Code sets out a high-level framework that the System Operator must operate within while implementing and operating the scheme.

We designed the framework to provide as much flexibility in implementation as possible – so we can all ‘learn by doing’.

The following slides summarise the ‘boundaries’ that the Code sets out for the System Operator in implementation and operation of the ERAS.

Making changes to the Ancillary Service Procurement Plan and Policy Statement

- Many of the detailed operational requirements will need to be set out in the Ancillary Service Procurement Plan and Policy Statement, which are developed by the System Operator
- These documents are ‘incorporated by reference’ into the Code – the regulatory process for this is set out in Part 7
- This includes requirements for public consultation on the proposed changes, and approval by the Authority of any amendments to the document
- The Authority sees this co-design group as important for providing a forum for issues to be raised and discussed, ahead of the SO entering the formal regulatory process.

Eligibility

- Demand flexibility, including aggregations, and off-market generation are eligible to provide emergency reserve, provided they can meet the additionality and service requirements set out in the Ancillary Services Procurement Plan and the contracts determined by the System Operator.
- Providers are generally excluded where they have participated in the wholesale electricity market or have provided a similar service under a contract or other arrangements within the previous 12 months.
- This exclusion does not apply to providers of interruptible load (provided they are no longer offering this service) or where the provider is no longer able to provide the service due to circumstances outside of the provider's control.

What we want to achieve	These requirements are intended to ensure the ERAS procures capability that would not otherwise be available to the system in emergency conditions. We want to ensure that the ERAS genuinely adds value for both the System Operator and participants.

Procurement

- The System Operator should procure Emergency Reserve as close as possible to the period for which it expects the service will be required. Ideally this will occur up to four weeks ahead of an identified potential shortfall, via a competitive tender process.
- The trigger methodology and service requirements will be set out in the Procurement Plan and determined by the System Operator.
- The System Operator may establish a pre-approved panel of providers in advance of procurement.

Activation

- The System Operator should:
  - pre-activate up to 36 hours ahead of real time; and
  - activate up to one hour ahead of real time.
- The System Operator can activate Emergency Reserve in a grid emergency after the operation of all market and business-as-usual mechanisms (eg, contracted demand response and the use of EDB controllable load) and ahead of involuntary load curtailment.
- The System Operator should add back into the nodal load schedule any demand reduction because of activation, or take an equivalent action
  - This is to ensure prices remain at the level they would have been without ERS activation.
- The trigger methodology and service requirements will be set out in the Procurement Plan and determined by the System Operator.

What we want to achieve	We want to ensure spot price outcomes are the same as if the ERAS was not activated so as to not undermine incentives on participants for managing risk. We are open minded as to the exact method the System Operator uses to achieve this.

Pricing and settlement

- Providers can recover both pre-event and event fees. They can determine these fees on an individual basis and set them out in their contract with the System Operator. The System Operator must make reasonable endeavours to ensure that the anticipated costs of ERS are less than VoLL (on a per-unit basis).
- ERAS costs are to be recovered from purchasers on a national basis:
    - **pre-event costs** are allocated to loads based on their share of monthly metered consumption in relevant months; and
    - **event costs** are allocated to loads based on their metered consumption during activation events.

Performance management

- The System Operator should include performance management measures in the process of procurement and pre-activation (eg, due diligence, consideration of resource fatigue, and effective communication). It should also include performance requirements in the Procurement Plan and ERAS contracts.
- ERAS contracts should provide for testing, along with forfeiture of payments proportionate to any non-performance.

Information and publication

- The System Operator should publish:
  - the forecasts on which it bases its decision to procure and activate emergency reserve;
  - information to support the procurement of emergency reserve as part of the Procurement Plan and associated contract documents; and
  - details of the use and expected cost of emergency reserve within 20 business days following any use of the service.
- The System Operator's periodic reporting should include information about the procurement and use of emergency reserve, to be specified in the Procurement Plan.
- The System Operator should also provide the Authority with further details of the procurement and cost of emergency reserve, to be specified in the Procurement Plan.

Emergency Reserve – delivery steps

System Operator's steps to deliver Emergency Reserve

System Operator ER design step-through

- Design overview today – primer for next workshop
- Design is a balance
- Shedding has occurred infrequently
- Challenges usually arise over peaks – ‘short and sharp’
- Informed elements of the design

‘Learn as we go’

System Operator ER design step-through

- Workshop 2 (Friday) is wholly geared around getting your input on elements of the ERS design

Delivering the Emergency Reserve scheme

Co-design workshops

Final design

Update SO tooling and processes to accommodate Emergency Reserve

Consult on updated Procurement Plan and Policy Statement

Publish Policy statement and Procurement Plan

Emergency Reserve scheme established

Now

Q4 2026

Electricity Authority
1. Permission to consult
2. Approves changed documents

Procurement Plan

Details what ancillary services SO procures

For each ancillary service:

- basis and process for procurement
- performance and technical requirements
- forms the basis for each contract

"the Code for ancillary services"

I certify that this is a correct copy of the Procurement Plan incorporated by reference into the Electricity Industry Participation Code 2010 (Code) for the purposes of clause 8.42(1) of the Code with effect from 7 August 2025.

Sarah Gillies
Chief Executive
Electricity Authority
Date: 6 August 2025

Procurement Plan

Ancillary services procurement plan

Contents

Policy Statement

Details how the SO meets Code based obligations and expands on others in greater detail.

Policy Statement

Emergency Reserve

Demand Management Process

74A. Where the **system operator** determines that **demand management** may be required if **participant** responses to a **formal notice** do not mitigate a situation, the **system operator** may:

74A.1 request the **grid owner** to reconfigure the **grid**:

74A.2 request **participants** to increase **offers** and **reserve offers** and/or:

74A.3 request **participants** to reduce **demand** including **controllable load**.

74B. Where the **system operator** determines that **demand management** is required, the **system operator** may:

74B.1 instruct the **grid owner** to reconfigure the **grid**:

74B.2 instruct one or more **participants** to reduce **controllable load**:

74B.3 instruct one or more **participants** to reduce **demand** (either by a specific **MW** or percentage of **MW**):

74B.4 instruct one or more **participants** or the **grid owner** to **electrically disconnect demand** and/or:

74B.5 take any other reasonable action to alleviate the **grid emergency**.

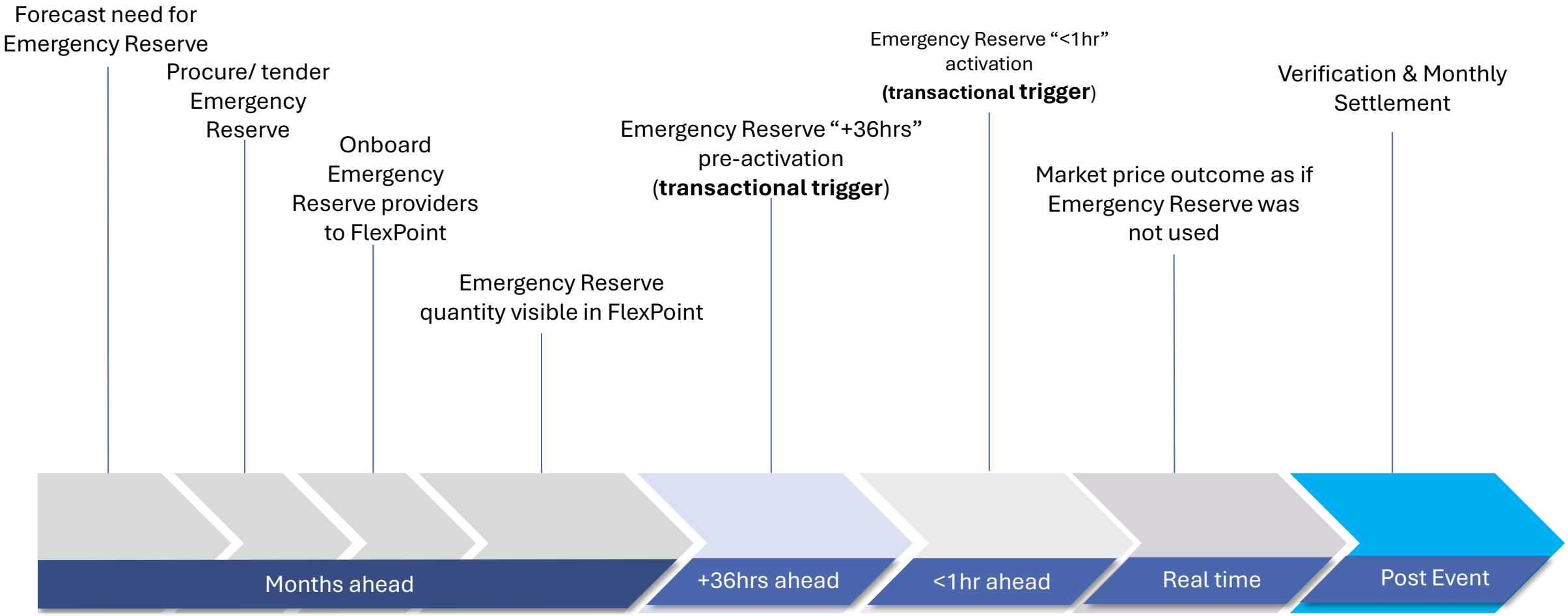
Allocation of Demand Reduction

Emergency Reserve – design

System Operator's Emergency Reserve design

Emergency Reserve scheme conceptual design – Process Overview

Operationalising the Emergency Reserve scheme



NB: scope for pragmatic 'initial' options as described in the Electricity Authority's decision paper.

Forecast need for Emergency Reserve

- We cannot achieve a “probabilistic forecast” for go-live
- Will use existing sources e.g.
  - Security of Supply analysis
  - NZ Generation Balance
  - Experience and intuition
- Determines
  - Procurement period, and
  - Tender quantity
- Publish methodology/results

> *“We consider that it would be appropriate for the System Operator to consider a defined availability period for the early operation of the scheme (eg, three to six months), to provide greater certainty for both the operator and providers in determining the costs of the scheme during this period.” – Electricity Authority*

Procure/tender Emergency Reserve

- Following Procurement Plan process
- Quantity and price part of tender
  - Defined duration
  - Quantity – minimum fixed ER amount
  - Price “pre-event” & “event”
  - Pre-event – fixed fee i.e. per month
  - Event fee – fixed or variable

Pricing and settlement

What we said

5.59. We proposed that ERS providers could recover both pre-event (ie, preparation and availability costs) and event fees (ie, pre-activation and activation costs). Providers could determine these fees on an individual basis in their contract with the System Operator.

Procure/tender Emergency Reserve

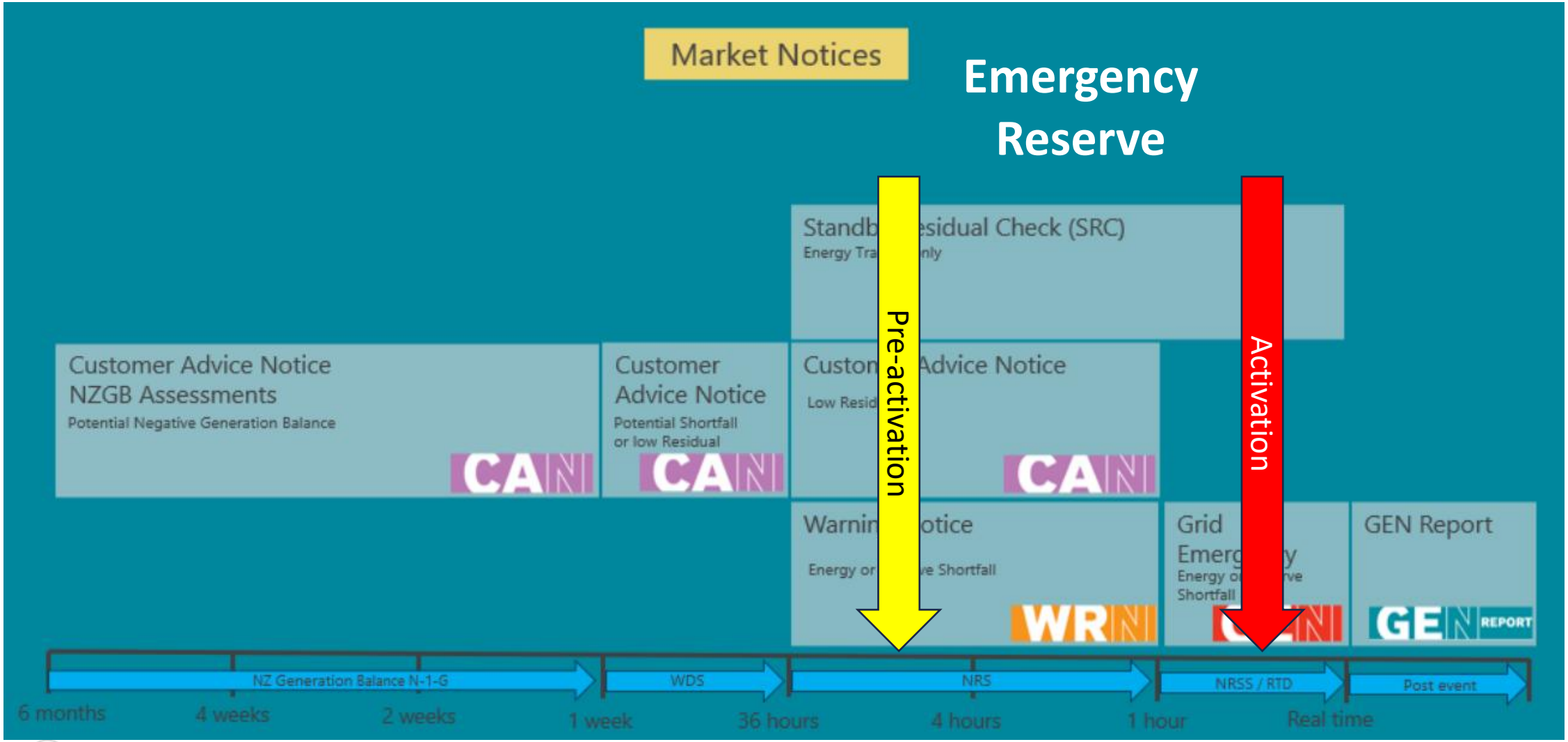
- Testing will be required
  - **Eligibility** – will check with Authority
  - Baselining
  - Proof of performance – incl. metering requirements
  - Communications
- Compliance / $ clawback provisions

FlexPoint – The window into ERAS

FlexPoint™ DERMS is the ER provider's interface to the ERAS. Inhouse, FlexPoint enables Operators with the ability to:

- Register ER providers, conduct verification / validation testing and coordinate ER providers and their assets (DER) seamlessly
- Coordinating / orchestrating both pre-activation and activation event notifications
- FlexPoint removes barriers to entry, providing a graphical user interface to assist and enable new ER providers easily.
- FlexPoint provides baselining capabilities and is equipped with post M&V assessment toolsets.

ER timing within existing shortfall management process



Pre-activation and activation triggers

- Must be ‘mechanical’
- Indicates likelihood of load shedding in absence of ER activity
- Pre-activation - ‘heads up’
  - Up to 36hrs ahead
- Activation – deliver contracted ER quantity
  - Up to 1hr ahead

Pre-activation and activation triggers

- Use price-responsive schedule (PRS) results
  - PRSL – every 2hrs covers next 36hrs
  - PRSS – every 30mins covers next 4hrs
- Trigger is when “residual” < defined value
  - Low-residual process uses <200MW
  - **NB** low-residual is a manual process, ER will be **automated**
- Residual is calculated by SPD – “what’s left?”

Pre-activation trigger

- Pre-activation
  - every 2hrs with ‘X’ hrs lock-out to give minimum notice
  - pre-activate **all** ER providers
  - ER providers to acknowledge and confirm available quantity
  - **not** rescinded - can track residual on WITS

- Tricky to be precise with IG and unit commitment changing through the pre-activation timeframe

Activation trigger

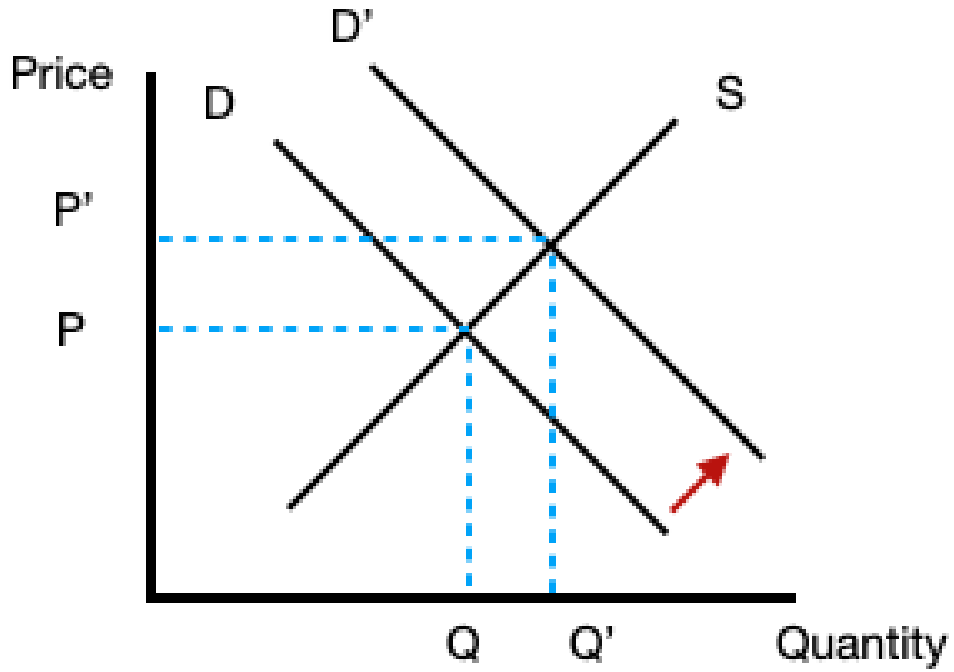
- Activation
  - Every 30mins using PRSS
  - Issued ~25mins ahead
  - Quantity the residual shortfall
  - Cheapest ER providers selected – whole bids
  - ER providers acknowledge activation
  - Trigger may be different value (lower) than pre-activation
  - Activation **can** occur if not pre-activated
    - Payment as though pre-activated
    - No compliance – best endeavours

Emergency Reserve delivery

- Deliver (minimum) contracted quantity
- Timeframe
  - **Before** start of period of first activation
  - ~20mins to achieve activation
  - Restoration manually co-ordinated
  - Instruction via FlexPoint

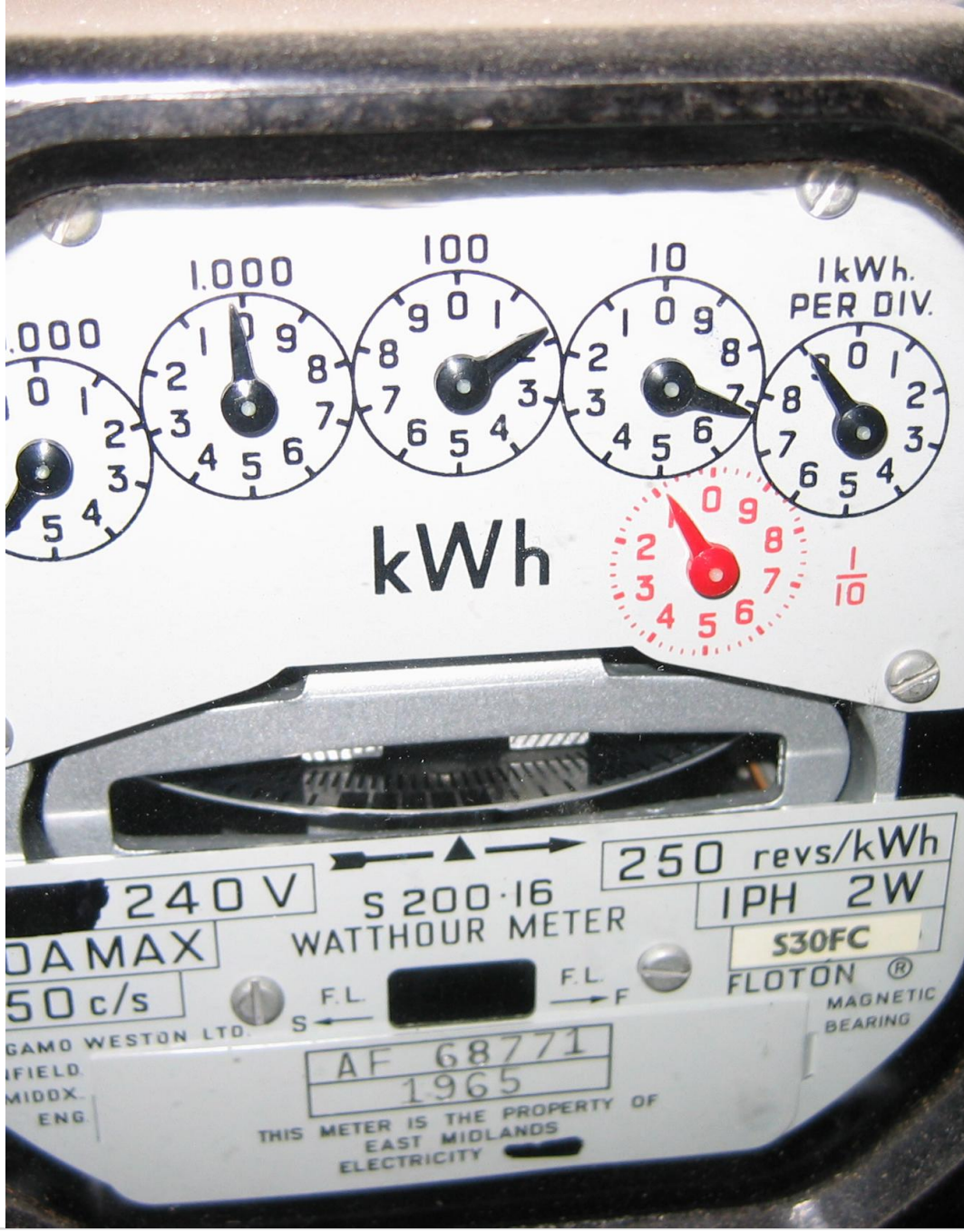
Market price maintenance

- Activated ER quantities added back to the RTD-P schedule until restored
- Achieves ‘what-if’ prices consistent with instructed load shedding and if ER not used



Verification/performance assessment

- ER Providers required to provide metering to SO per Procurement Plan settings (tbc)
  - Granularity
  - Before and after ‘tails’
  - Aggregation



Monthly settlement

- System Operator sends ER info to Clearing Manager
  - Pre-event costs
  - Event costs
- For each ER provider in the billing period
- Clearing Manager
  - bills purchasers for ER costs
  - Pays ER providers
- Clawbacks/non-payment possible for non-performance
- Usual timings, wash-up etc apply

Payments per contract

System Operator ER reporting

- System Operator must report on use of ER
  - Details of ER use
  - Comparison with VoLL costs

- Learn as we go feedback loop which may inform future ER settings

Hot topics for workshop 2

- Forecasting the need for ERS
- Provider technical requirements
- Commercial arrangements
- Pre-activation and activation triggers and timelines
- Verification and performance assessment including load baselining and approach

Thank you

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