# TRANSITIONAL ARRANGEMENTS AND MODEL SIMPLIFICATION

## COGATI - TECHNICAL WORKING GROUP #10

24/07/2020

AEMC

# Agenda

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|---|---|
| 1. | Welcome and introductions |
| 2. | Objectives for transitional arrangements |
| 3. | Transitional FTR allocation: Determining individual participant eligibility and volumes |
| 4. | Transitional FTR design: Determining other elements of the design |
| 5. | Simplification of the access model design |
| 6. | Next steps |

# Welcome and introductions

- **Recap**:
- The technical working group **assists with the detailed design of the model**
- It includes representatives from **networks, generators, consumer bodies and market bodies** – it has also expanded to **include** interested **ESB 2025 working group members**
- The purpose of the technical working group:
  - **Provide advice** and **input** into the progression of the project by attending and participating inworking groups
  - **Share expertise** to input into consideration and development of issues
  - Provide **differing view points** to challenge thinking.

# Workplan

| Month | July 20 | Aug 20 | Sept 20 | Oct 20 | Nov 20 | Dec 20 |
|---|---|---|---|---|---|---|
| NERA modelling completed | | | | | | |
| Cost modelling – IT, implementation and participant costs | | | | | | |
| TWG#9 Contract market liquidity | | | | | | |
| TWG#10 Transitional arrangements and model simplification | | | | | | |
| TWG #11 Market power | | | | | | |
| TWG#12 Reform Model Design | | | | | | |
| Public forum – NERA modelling results | | | | | | |
| Public forum – Simplified excel model of LMPs/FTRs | | | | | | |
| August consultation paper – design of access model | | | | | | |
| ESB consultation paper on 2025 work | | | | | | |
| Written feedback on consultation paper | | | | | | |
| Rule drafting | | | | | | |
| Report and draft rules published | | | | | | |
| Energy National Cabinet meeting | | | | | | |

- Extensive consultation in TWG meetings, public forums and August paper will run through to the end of September.
- Draft rules and accompanying report to be published in November in time for Energy National Cabinet consideration in December. We will welcome feedback on these and report this feedback to the Energy National Cabinet.

# Purpose of this session

This session is intended to discuss two aspects:

1. **Transitional arrangements** provided through the allocation of **transitional financial transmission rights**.

The main issues that the project team will discuss with the TWG are:

- What should the shape of the allocation profile be?
- Who should qualify to receive transitional FTRs?
- How should the available transitional FTRs be allocated between different parties?
- Other design issues related to transitional FTR arrangements.

This slide pack lays out potential views on a number of these matters.

2. **A measure to simplify** the access reform model, which involves setting up trading hubs.

We welcome feedback from TWG members on both of these aspects.

# OBJECTIVES for TRANSITIONAL ARRANGEMENTS

# Objectives: A transition towards grid access reform in the NEM

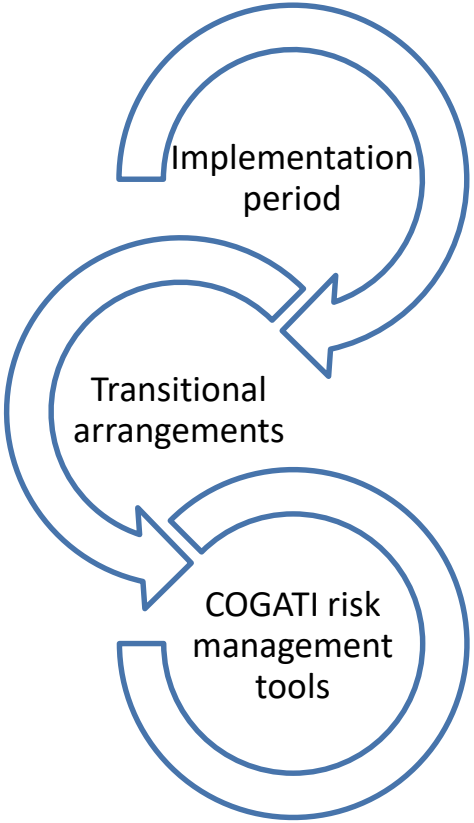
Given that the COGATI reforms are substantial, there are clear benefits in making the transition as smooth as possible.

A smooth and lengthy transition is provided in two ways.

1. An approximately four year implementation period
2. A multi-year transitional allocation of FTRs which provides existing participants with a 'soft start' to grid access reform.

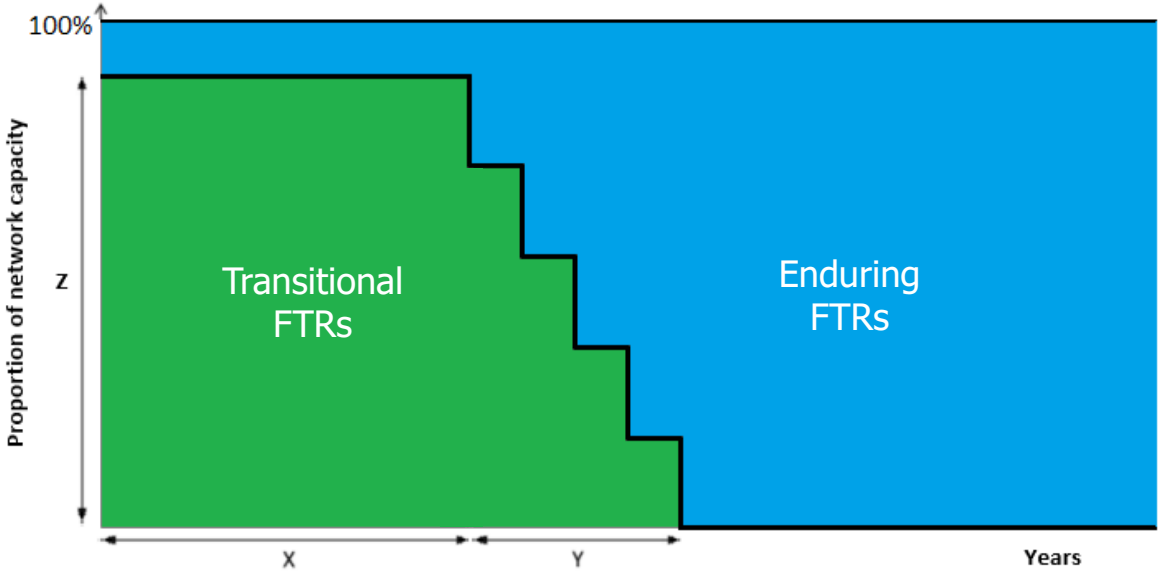
We consider the three main objectives for the implementation timeframe and transitional arrangements are to:

- provide market participants and AEMO with a learning and adjustment period
- minimise sudden changes to operations, revenues and balance sheets
- balance the interests of incumbent market participants with the interests of consumers and new entrants through the transitional period.



# Background: What are transitional FTRs?

- Transitional FTRs would operate the same as the enduring FTRs, but would be provided for free.
- There are a number of questions in considering this:
  - What is the initial level of transitional FTRs that are to be granted (Z on the diagram opposite)?
  - How long should this initial allocation last for (X)?
  - Over what period should the allocation be sculpted (Y)?



# Question 1: What is the initial level of transitional FTRs that can be granted?

- The proportion of transitional FTRs allocated on day 1 of the transitional period should be reflective of as **close to 100%** of the available network capacity as possible. This approximates the implicit access that generators currently enjoy, based on how they use the network.
- However, the further out this maximum allocation is made, the more conservatism is required, given knowledge of the network and outages to the network becomes more uncertain the further into the future the forward projection of available network capacity is made.
- There is therefore a balance to be struck between the desired **firmness** of the transitional allocation of FTRs, and the **amount of network capacity** that can be allowed for in the initial allocation.

# Question 2: How are transitional FTR allocations adjusted over time?

- While the transitional FTRs allocated should initially be consistent with a large proportion of Tx capacity, we considers that there is a strong case for adjusting this over time by sculpting, ie. reducing the allocation of transitional FTRs over time. This is because:
  - **Existing market participants** are provided with a learning period where they are able to take part in the FTR auction for a progressively increasing portion of their capacity over time.
  - **New entrants** have the opportunity to adjust to the new FTR framework as more capacity becomes available for auction and into the secondary market
  - **Consumers** benefit from the period of stability and learning provided to existing market participants through a period of changes in how the market operates. Consumers also benefit as transitional allocations decrease over time.

# Question 3: How long should transitional FTR be allocated before sculpting?

- Given the objectives of the transitional FTRs, outlined on slide 7, we think that transitional FTRs should begin sculpting shortly after the implementation of access reform.
- Such an approach minimises *sudden* changes to incumbents, while balancing the needs of new generators and consumers.
- We welcome views on this approach.

# Transitional objectives and profile – Questions

*What are your views on the following:*

- What is the initial level of transitional FTRs that are to be granted, ie. what is Z? What are the pros and cons of different quantities?
- How is the initial level of transitional FTRs allocated adjusted over time, ie. what is X? How long should sculpting occur for? What proportion of capacity should roll of each year?
- How long should transitional FTRs be allocated before sculpting, ie. what is Y?

# ALLOCATION – ELIGIBILITY AND VOLUMES

# Who qualifies to receive transitional FTRs?

"Existing" physical participants at the time that the final rules are made **would** qualify for transitional FTRs.

There are a number of other questions that need to be answered:

- *Should participants that are "committed" (but not yet built) receive transitional FTRs? How might they be defined?*
- *Should new entrants during the implementation period (ie., between the final rule change being made and LMPs going live) and/or during the transitional period be eligible for transitional FTRs?*
    - Providing transitional FTRs to these parties would diminish their incentives to locate in parts of the network which minimise total system costs; the arrangements should also be known at this point; however, they still 'connect' before the regime goes fully live.
- *What happens to transitional FTRs that are allocated to participants who then retire?*
    - Requiring them to sell them would promote liquidity; but forcing this could also incentivise these participants to retire later than otherwise necessary or efficient.

# Who qualifies to receive transitional FTRs? (continued)

- *Should market network service providers be eligible for transitional FTRs?*
  - Note there is only one MNSP currently in the NEM (Basslink), which is connected directly to the Tasmanian RRN.
- *Should scheduled load receive transitional FTRs?*
  - Note that currently the only scheduled loads are storage, who would likely benefit from lower LMPs at times of charging.

# How should the transitional rights be allocated between parties?

- The COGATI project team has developed two approaches for allocating transitional FTRs between participants that could achieve the transitional period objectives.
- Both of these methods involve attempting to initially allocate FTRs broadly consistent with financial outcomes under RRP pricing. The two methods are:
  - **Historic allocation method** – which uses historic actual data to determine a quantity of FTRs such that recipients would have been financially indifferent between the status quo RRP pricing and LMP pricing + transitional FTRs.
  - **Forecast allocation method** – which uses forecast estimates of RRPs, LMPs and dispatch quantities to determine a quantity of FTRs such that recipients are expected to be financially indifferent between the status quo RRP pricing and LMP pricing + transitional FTRs.

# The historic allocation method

- For this method, historic actual LMPs, RRPs and dispatch quantities would be used to determine a quantity of FTRs for each qualifying recipient such that the financial outcome of the recipients over the period in question is unchanged, ie.:

$$\sum_{DI=1}^{DI=n}(Q \times LMP) + \sum_{DI=1}^{DI=n}(F \times \max(0,(RRP - LMP))) = \sum_{DI=1}^{DI=n} Q \times RRP$$

- That is, find a quantity of FTRs (F) such that:
  - had the quantity of physical dispatch (Q), LMPs and RRPs been the same historically, then…
  - the financial outcomes summed over all the historic dispatch intervals in question (DI) for the generator under LMPs with transitional FTRs equals…
  - the actual financial outcomes summed over all the historic dispatch intervals under the status quo.
- This method would not guarantee that the FTRs are simultaneously feasible. We would have to check outcomes were simultaneously feasible and make adjustments if necessary (to the quantities, or the auction products – eg., make them less firm and so more consistent with existing access arrangements)

# The forecast allocation method

- This method uses forecast LMPs, RRPs and dispatch quantities derived from a forward looking model of the NEM. Determine a quantity of FTRs to be allocated such that the financial outcome for a generator over a future period of time is unchanged under LMP versus the status quo, or a world where the generator receives the RRP.

$$\sum_{DI=1}^{DI=n} (Qc \times LMPc) + \sum_{DI=1}^{DI=n} (F \times \max(0, (RRPc - LMPc))) = \sum_{DI=1}^{DI=n} Qs \times RRPs$$

- That is, find a quantity of FTRs (F) such that:
  - the financial outcomes given forecast quantity of physical dispatch under COGATI (Qc), the forecast LMPs under COGATI (LMPc) and the forecast regional price under COGATI (RRPc, which might be the VWAP or the existing regional pricing method), summed over n future dispatch intervals, equals…
  - the forecast financial outcomes using forecast quantities under the status quo arrangements (Qs) and forecast RRPs under the status quo arrangements (RRPs), summed over n future dispatch intervals
- This method recognises that the quantities and prices would be changed as a consequence of introducing LMPs.
- Again, this method would not guarantee that the FTRs are simultaneously feasible and adjustments may be required.

# Pros and cons of each method

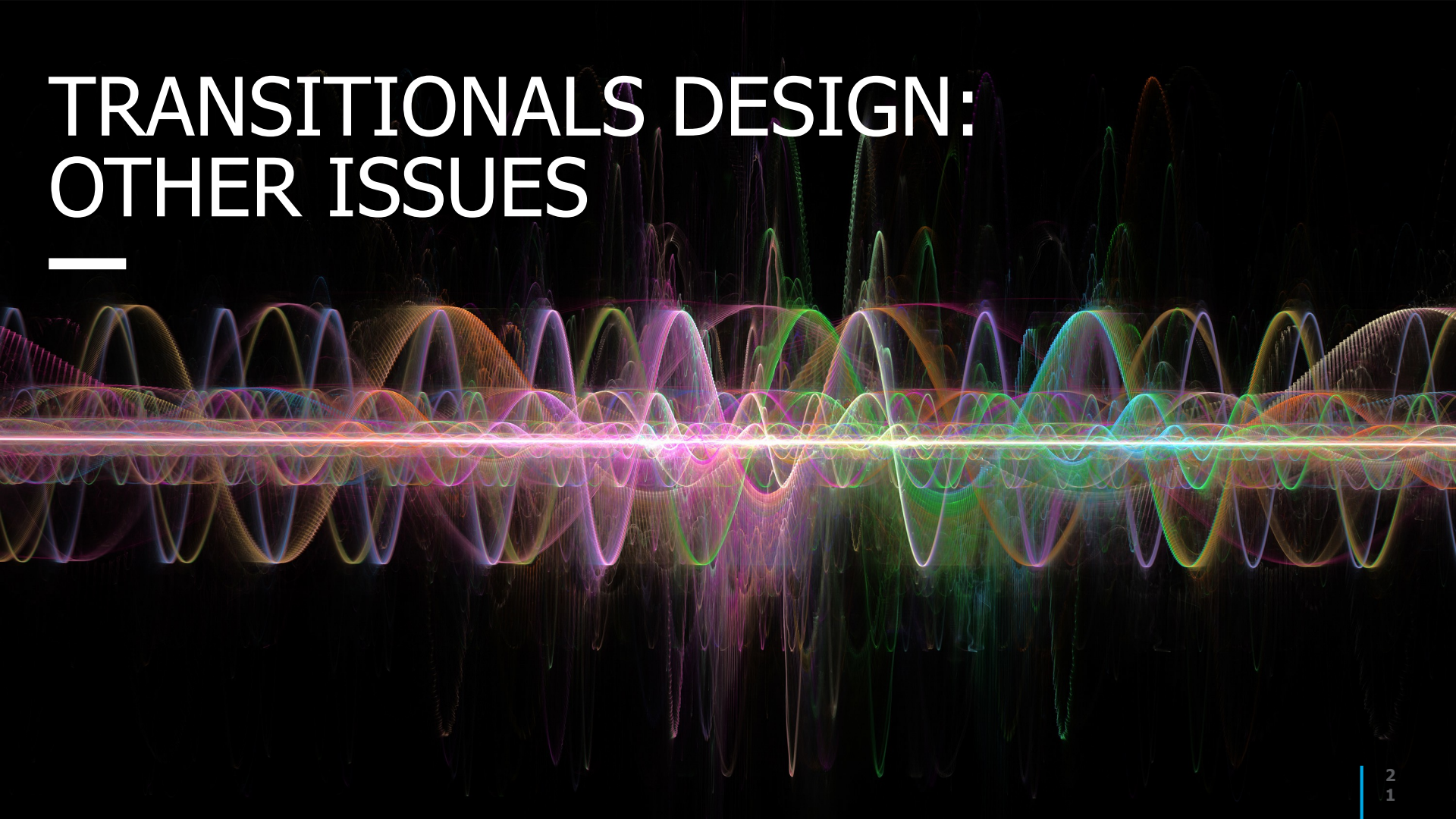
| Method | Pros | Cons |
|---|---|---|
| **Historic allocation method** | • Relatively simple<br>• Uses actual data, not subject to different views of the future NEM. | • Allocating FTRs based on past may not mitigate against sudden changes because:<br>  • LMPs, RRPs and physical dispatch quantities would have been different in the past were LMPs in place, due to different incentives to bid<br>  • Regardless of the above, history is not necessarily a good indicator of the future. A number of other variables other than the market design may also change. |
| **Forecast allocation method** | • Attempts to account for changes that would occur in future as a result of introduction of LMPs (and other changes)<br>• More consistent with likely changes in congestion patterns, a key rationale for the reforms. | • Relatively complicated<br>• Based on forecast information, subject to different views of the future NEM. |

# Eligible parties and methodology for transitional FTRs – Questions

*What are your views on the eligibility of various parties to receive transitional FTRs?*

*Which allocation method do you consider preferable? Are there any other methods that you consider would achieve the transitional access objectives?*

# TRANSITIONALS DESIGN: OTHER ISSUES



# Transitional FTR firmness

- Under the proposed model, auction revenue is used to back FTR firmness.
- Transitional FTRs are allocated for free rather than purchased at an auction, so there is no auction revenue to back them. Currently, we do not favour using auction revenue to back transitional allocations of FTRs that are provided for free, as it would appear to subsidise recipients of transitional FTRs by buyers of enduring FTRs.
- If there isn't enough settlement residue to back a transitional FTR, then the payments for that FTR would be scaled back to preserve revenue adequacy – this relatively lack of firmness is consistent with how access is currently provided in the NEM.
- Alternatively this might entail some conservatism with the amount of FTRs allocated initially (Z in the sculpting chart shown on slide 8). This is in order to preserve revenue adequacy.

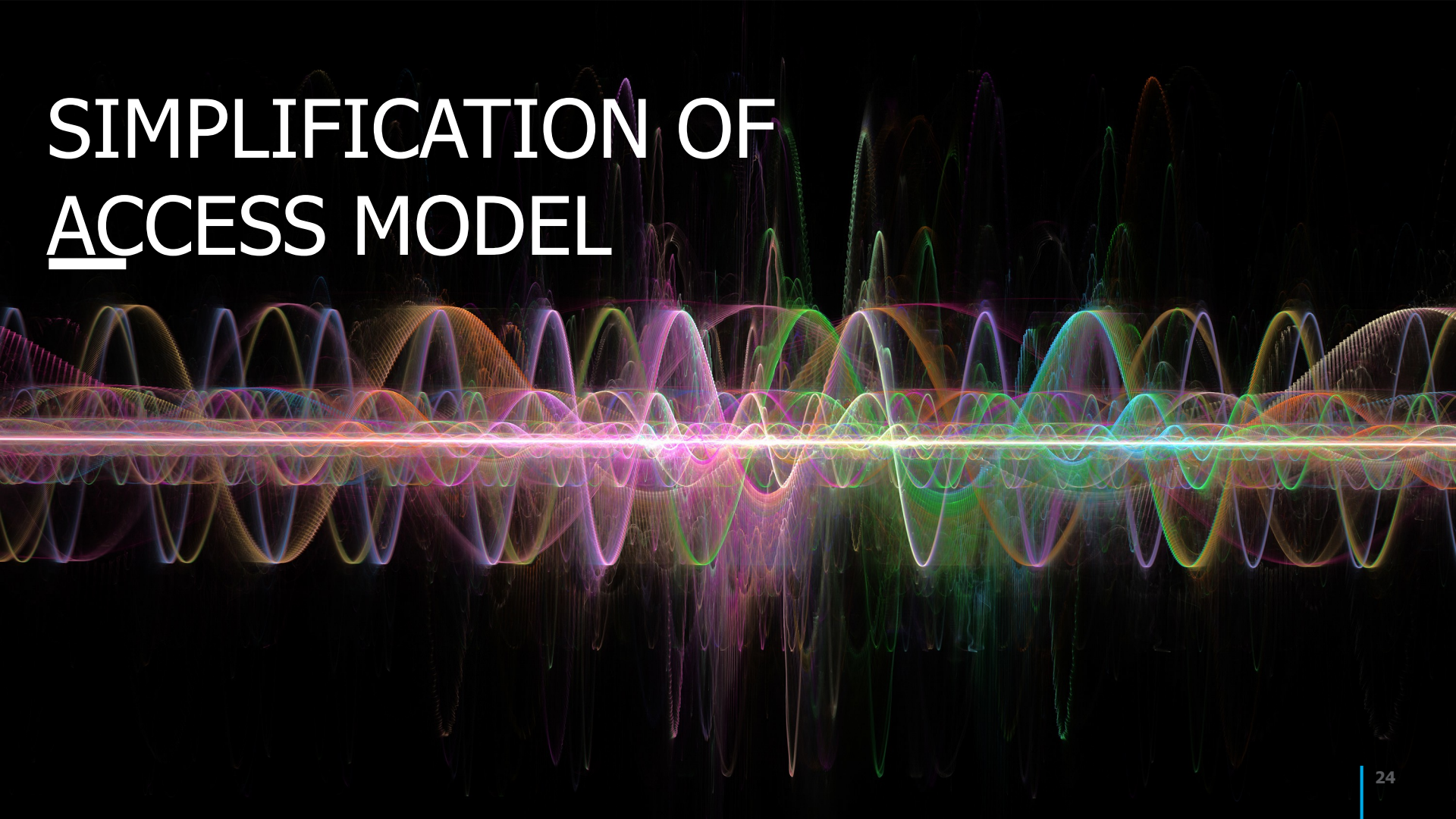
- *What are stakeholder views on this?*

# Options versus obligations

- The current design is for regular FTRs to be option instruments only, meaning FTR holders would not be subject to a liability when the price differences are negative (eg., when RRP < LMP).
- In contrast, an obligation FTR would require its holder to make payments in circumstances where the price differences are negative.
- Implementing transitional FTRs as obligations would enable more transitional FTRs to be allocated to eligible market participants, since transitional FTRs need to remain revenue adequate. The value for Z (the quantity of transitional FTRs allocated initially) would therefore be higher if the transitional FTRs were obligations.
- However, transitional FTRs that are obligations would
  - function in a different way to regular FTRs – potentially undermining the learning period
  - increase complexity
  - Require recipients to payout when price differences are negative.

- *Should transitional FTRs be options or obligations (or a combination)?*

# SIMPLIFICATION OF ACCESS MODEL



# Simplification of access model

A number of stakeholders have suggested that the access model could be simplified, at least for its initial implementation.

Under the current specification, FTRs are available which pay out on:

- the price difference **between any LMP and any regional price**, including the regional price in another region, or
- the price difference **between any two regional prices**.

As we have heard from stakeholders, this would entail stakeholders looking at a large number of FTR routes (in the order of a few thousand), although considerably less than the total number of possible routes because FTRs would not be available between *any* 2 locations.

Some US markets have any-to-any FTRs, and so our current specification already represents a degree of simplification. For example MISO (midcontinent ISO) has 4.8 million conceivable FTR paths and PJM has 3.5 million.

The project team has thought about how we could make the model less complex – in particular in relation to how many FTRs and nodes market participants have to consider.

One idea is to further reduce the number of FTRs routes, and so potentially increase liquidity, trade and competition for all FTR products.

- FTRs would only be able to be bought between a (small) number of pre-selected transmission connection points.
- This is the approach taken in the New Zealand FTR market. In New Zealand, financial transmission rights can be bought and sold between **eight predefined transmission connection points (known as 'hubs')**.

# Simplification – Pros and Cons

**Benefits of simplification**

- Less complex
- Increased liquidity in each FTR
- Reduced scope for exercise of market power in FTR market, although it should be noted that each FTR route is not its own market: the simultaneous feasibility auction for FTR allocation means that the allocation of FTRs along a particular route reduces the allocated of FTRs on another route. This means that buyers of FTRs all compete with one another for different routes.
- May increase competition for FTRs, increasing auction revenue, increasing firmness, increasing value and so on.
- Readily allows for more "hubs" to be added over time (as per in NZ, which has gone from 2 to 8 so far) – allowing participants to learn and become familiar with the arrangements before they are expanded.
- Hubs could be placed in REZs, promoting investment in these areas.

**Drawbacks of simplification**

- Not all basis risk is covered. Leaves market participants with the risk of any remaining price difference between their connection point and the hub, and limited means to manage this. In turn, this may reduce the value placed on the FTRs, reduce FTR auction revenue, reduce FTR firmness, and so on.
- How do we decide what nodes are included or not included – may be difficult if congestion patterns are changing.

# Simplification - Questions

*To what extent would a move to smaller set of hubs for FTRs assist participants?*

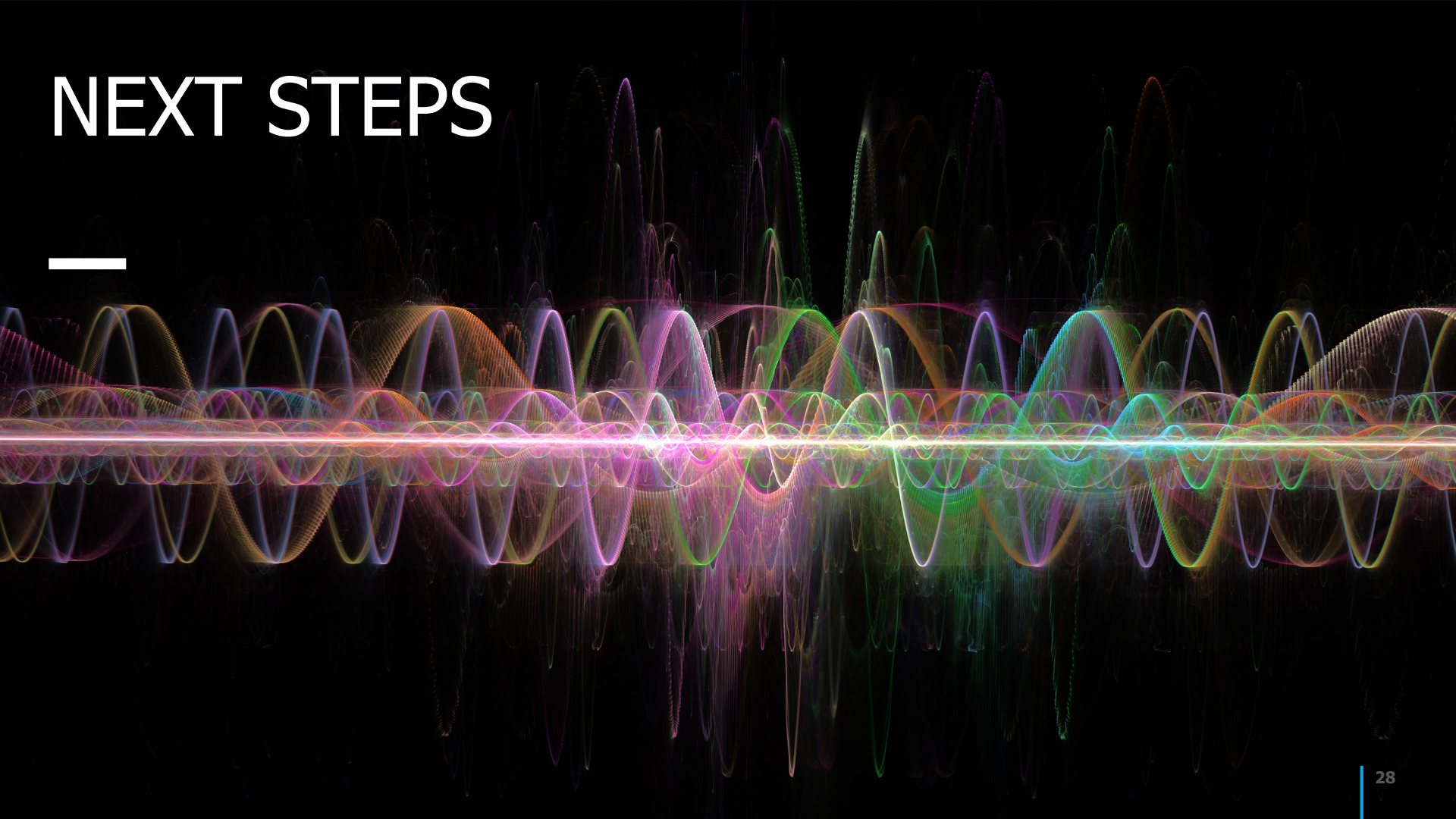
*What impact would it have on liquidity for FTRs?*

*Would this increase firmness and if so does this benefit outweigh concerns of the remaining price risk left unhedged?*

*What impact would it have on market power?*

*How many hubs do participants think should exist? How would these be determined?*

# NEXT STEPS



# Upcoming consultation

Technical working group meetings

- Further working groups planned for July and August, invites to be sent out shortly

Public forums

- Quantitative modelling results – August
- Simplified model of reforms in action – August

Written consultation

- ESB post-2025 market design consultation paper – featuring COGATI – August
- COGATI specific technical specification document consultation report – August

- Please reach out to Russell (Russell.Pendlebury@aemc.gov.au) or Tom (tom.walker@aemc.gov.au) for a further discussion.