

**ENERGY SECURITY BOARD
TRANSMISSION ACCESS
REFORM TWG**

INITIAL DISCUSSION OF ALTERNATIVE MODELS

18 February 2022





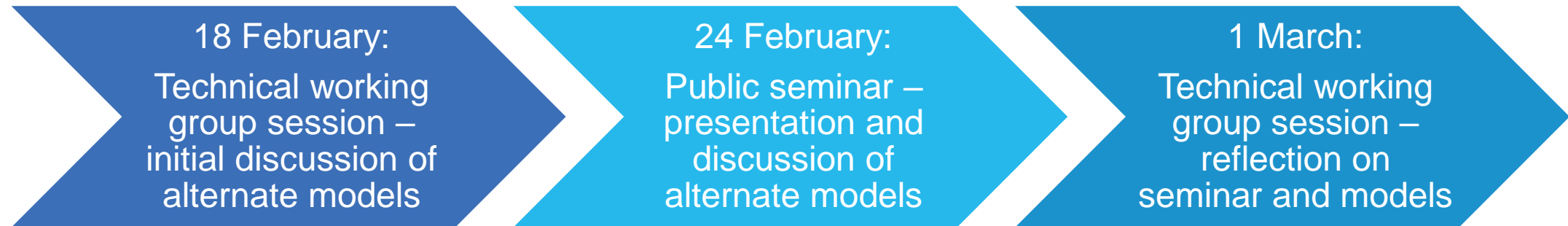
AGENDA

Item	Time
Welcome	10:00
TAR objectives – presentation and discussion	10:05
TAR assessment criteria – presentation and discussion	10:25
Presentation of alternate models from submissions with open Q&A on alternate models	10:45
Next steps	11:55
Thanks and close	12:00



TODAY'S OBJECTIVE

- Begin the TWG's consideration of the "Alternative models" to the CMM which have been submitted
- Context of this discussion is the following sessions:





DRAFT TAR OBJECTIVES



1. **Locational signals:** Better signals for generators to locate in efficient areas where they can provide the most benefit to customers.
2. **Congestion management:** Better use of the network in operational timeframes, resulting in more efficient dispatch outcomes and lower costs.
3. **Enabling new technologies:** Rewards for storage and demand side resources who locate where they are needed most and operate in ways that benefit the broader system.
4. **Risk management tools:** Measures to give investors confidence that their investments will not be undermined by inefficient subsequent connections.



OPEN DISCUSSION

DRAFT TAR OBJECTIVES:

- COMPLETE?
- CONGRUENT?
- INTUITIVE (MAKE SENSE)?
- EXAMPLES OBSERVABLE?



DRAFT TAR ASSESSMENT CRITERIA

No.	Criteria	Description
1	Efficient market outcomes – investment	<ul style="list-style-type: none">Better incentivises for generators, storage such as batteries, and load such as hydrogen electrolyzers to locate in areas that are efficient. In the case of generation this is most likely to be where there are low levels of congestion, such that transmission assets are better utilised. In the case of storage and load, this may be areas that are congested, in order to help alleviate that congestion and utilise otherwise wasted renewable electricity that was unable to reach load.
2	Efficient market outcomes - dispatch	<ul style="list-style-type: none">Better incentives for generation, storage such as batteries, and load such as hydrogen electrolyzers to bid in a fashion that best reflects its underlying costs, resulting in more efficient dispatch outcomes and reducing fuel costs across the NEM. In turn, this may also reduce emissions.
3	Appropriate allocation of risk	<ul style="list-style-type: none">The allocation of risk arising due to congestion in the NEM should be done as efficiently as possible noting the practical limitations on exposing parties to risk without appropriate mitigation tools and measures.
4	Appropriately allocation of the cost of transmission investment	<ul style="list-style-type: none">The efficient allocation of the cost of transmission between consumers and generators.
5	Implementation considerations	<ul style="list-style-type: none">Cost and complexity: cost and complexity of implementation and ongoing regulatory and administrative costs to all market participants, consumers and market bodies, across all potential solutions (consider timing, nature of issue)Timing and uncertainty: uncertainty of outcome, and the likely timing of benefits versus costs.
6	Flexibility to enable consideration of jurisdictional differences	<ul style="list-style-type: none">As requested by Ministers, the proposed rules must provide flexibility such that differences between jurisdictions, such as those without REZ schemes, can be appropriately adapted.



OPEN DISCUSSION

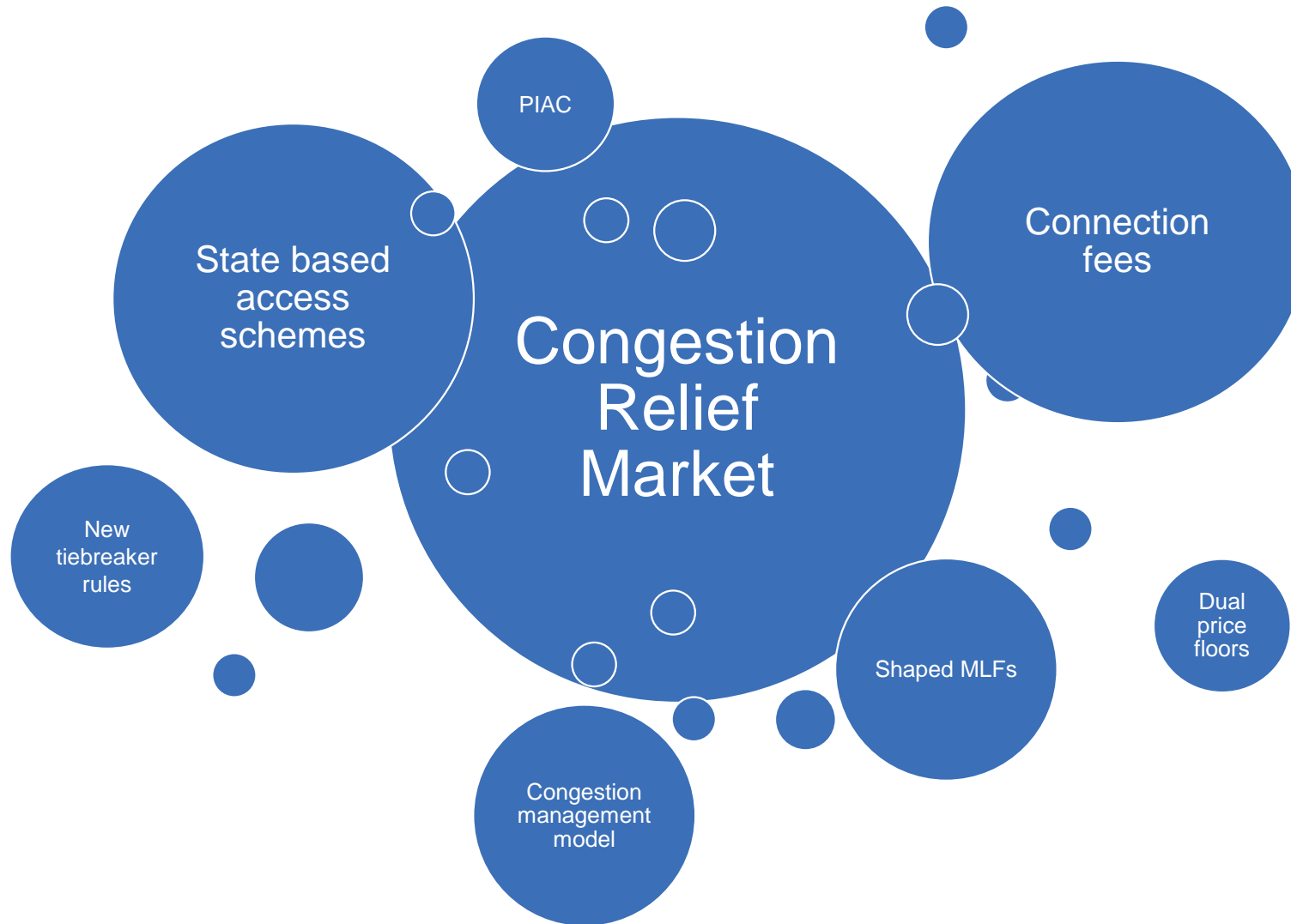
DRAFT TAR ASSESSMENT CRITERIA:

- COMPLETE?
- CONGRUENT?
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EXPLORATION ALTERNATIVE MODELS



CONGESTION MANAGEMENT – SUBMISSIONS PROPOSE SEVERAL ALTERNATIVE MODELS



Congestion relief market

CEIG model

Physical access

Dual price floors

Shaped MLFs

PIAC model



CONGESTION RELIEF MARKET (EDIFY)

Edify to present key features of the model

Medium term access reform

Introducing the Congestion
Relief Market



Congestion relief market



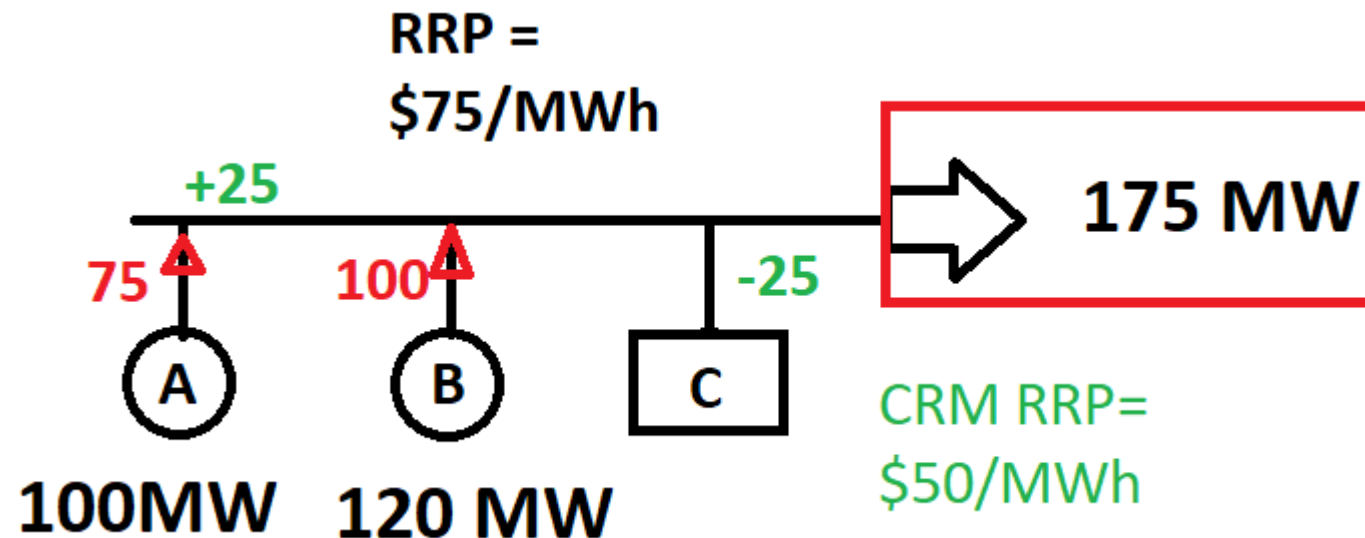
An alternate approach – Introduction

- Market participants have limited options during a constraint
- Constraint can be relieved, by adjusting the generator or load outputs, or by improving power system stability
- There is no incentive to relieve constraints as all participants are exposed to the RRP, and the benefit of doing so is shared amongst all participants behind a constraint
- Nodal pricing introduces too much change, CMM doesn't promote price discovery of congestion, and access rights over-simplify the causes of congestion at the expense of efficiency
- So, consider – an ancillary service that:
 - Facilitates a financial transaction between those who provide constraint relief and those who receive constraint relief;
 - Dispatches the outcomes to physically relieve congestion; and
 - Excludes non-participants from the transaction

Congestion relief market



Simplified example – action on constraint LHS



- Gen A has submitted a bid for 25MW of congestion relief
- Gen B has also submitted a bid for congestion relief however it is priced lower than Gen C's lowest offer
- Market clears 25MW of congestion relief at \$50/MWh to Gen A and C
- Gen C pays a net energy cost of \$25 / MWh [RRP-CRM]
- Identical logic can be applied for action on the RHS of a constraint



OPEN Q&A

WHAT DO OTHER'S CONSIDER ARE KEY FEATURES?

Congestion relief market

CEIG model

Physical access

Dual price floors

Shaped MLFs

PIAC model



CEIG ALTERNATE MODEL

CEIG to present key features of the model



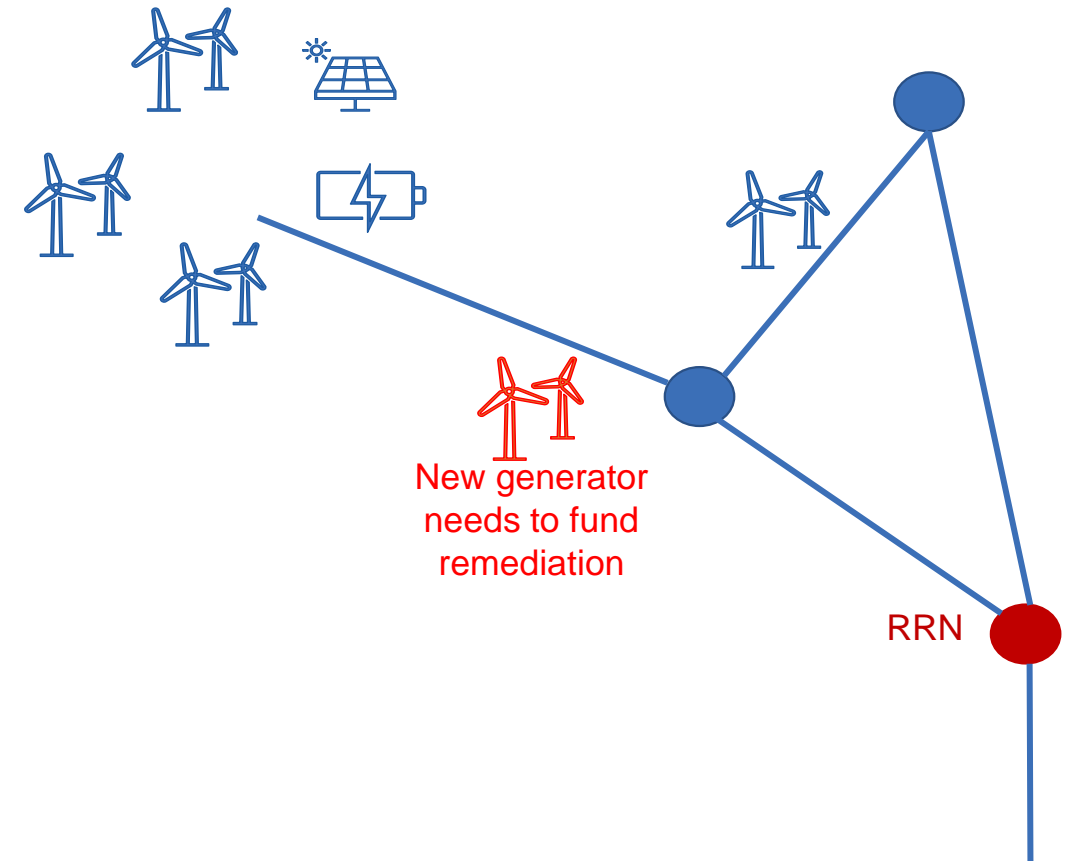
OPEN Q&A

WHAT DO OTHER'S CONSIDER ARE KEY FEATURES?



LOCATIONAL CONNECTION FEES / PHYSICAL ACCESS REGIME (SHELL ENERGY)

- Form of physical access regime given effect via locational connection fees
- New connecting generators must “do low harm” to incumbent generators.
- Scope to negotiate with TNSP on how to avoid harm:
 - physical upgrades to transmission
 - run-back schemes or
 - commercial compensation agreements.





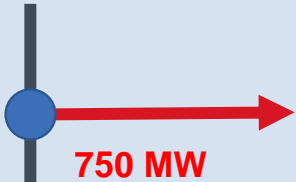
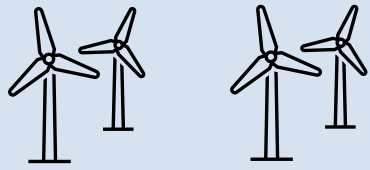
OPEN Q&A

WHAT DO YOU CONSIDER ARE KEY FEATURES OF THIS MODEL?



DUAL PRICE FLOORS (SNOWY HYDRO RULE CHANGE REQUEST)

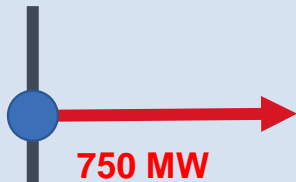
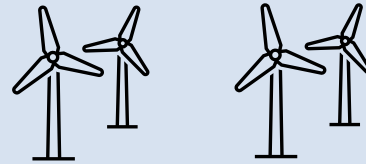
Available output:
250 MW



Available output:
700 MW



Dispatched
output: 50 MW



Dispatched output:
700 MW



- Market price floor for scheduled generators set to -\$1000
- Market price floor for semi-scheduled generators set to a higher amount (e.g. -\$100)
- Effect is that scheduled generators are dispatched first
- Snowy Hydro have lodged this model as a rule change request with the AEMC - model suggested for consideration by CS Energy (not Snowy Hydro).

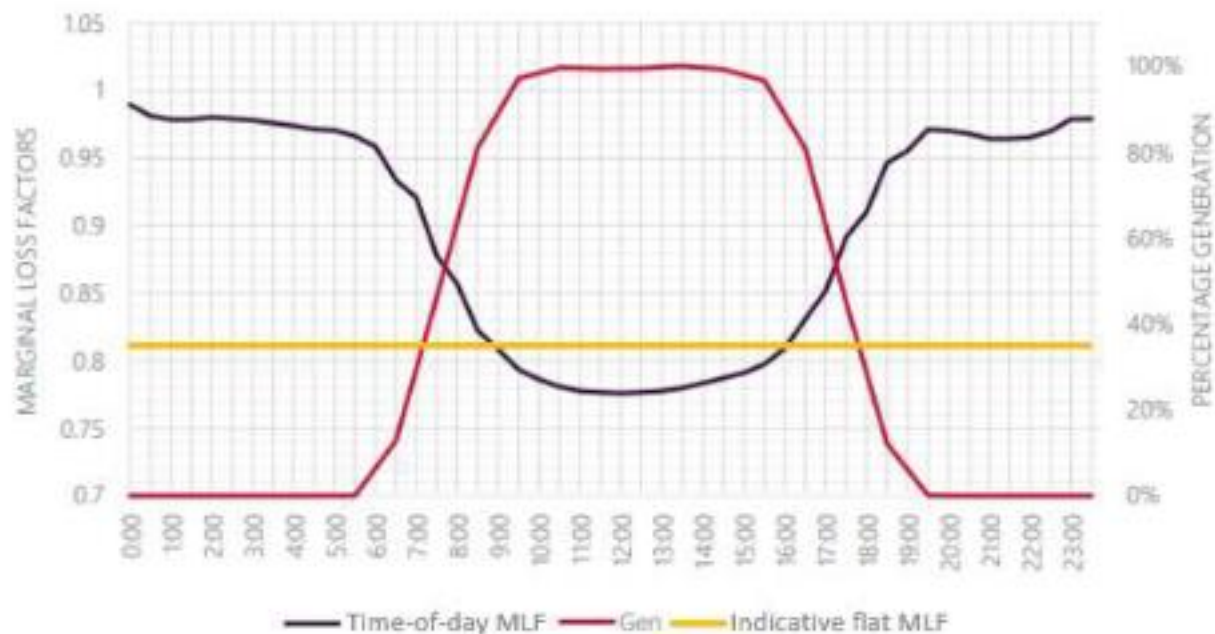


OPEN Q&A

WHAT DO YOU CONSIDER ARE KEY FEATURES OF THIS MODEL?



SHAPED MARGINAL LOSS FACTORS (CS ENERGY)



- Fixed-shape time-of-day MLFs would reflect the changes in physical losses of different generation units in different parts of the network over the course of the day.
- Calculated by AEMO per connection point as part of the MLF process.
- Better aligns the incentives and signals faced by incumbent and prospective market participants.









OPEN Q&A

WHAT DO YOU CONSIDER ARE KEY FEATURES OF THIS MODEL?



PIAC RISK SHARING MODEL

- Cost and risk of investment in REZ transmission shared between consumers, generators, TNSPs, and speculative investors.
- Suggested for consideration by CS Energy (not PIAC).

 <p>Identify REZ</p>	<ul style="list-style-type: none"> • Initiated by AEMO, government or industry • Indicative capacity and location/s determined • Network options for design determined
 <p>Design transmission</p>	<ul style="list-style-type: none"> • Market testing of prospective generators • Planning and approval processes commence • Specify prescribed capacity • Apportion capex to generators and consumers
 <p>Choose investor</p>	<ul style="list-style-type: none"> • Contestable tender or reverse auction process • One or more transmission options • Lowest bid rate of return selected • Develop revenue and access proposal
 <p>Determine revenues</p>	<ul style="list-style-type: none"> • Capex for TNSP and speculative investor • Opex for TNSP • Connection charge cap for generation
 <p>Build and operate</p>	<ul style="list-style-type: none"> • TNSP builds and operates network • Generators build and operate generation
 <p>Connect generation</p>	<ul style="list-style-type: none"> • Generators pay connection charge • Charge per MW paid to speculative investor • Earlier payment reduces charge



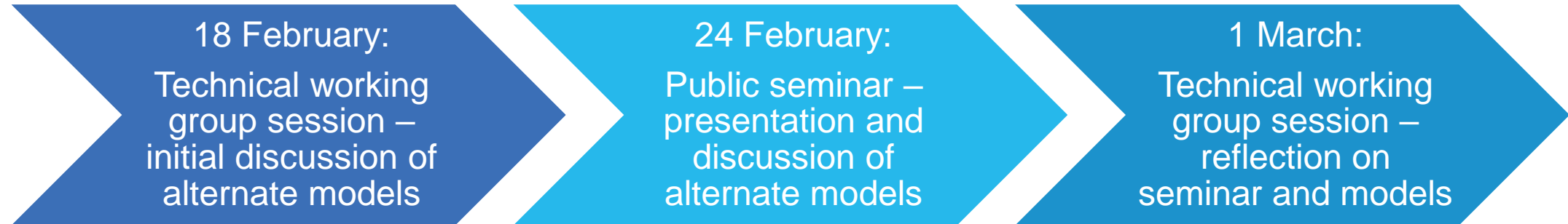
OPEN Q&A

WHAT DO YOU CONSIDER ARE KEY FEATURES OF THIS MODEL?



IMMEDIATE PRIORITIES AND NEXT STEPS

- Prepare for Public Seminar on 24 February 2022 – please register online
- Subsequent TWG discussion to debrief on the public seminar on 1 March 2022 – this is already in diaries





THANKS AND CLOSE