Draft 2025 Electricity Network Options Report Webinar

6 June 2025

We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country, and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first Reconciliation Action Plan in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation – a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Read our RAP

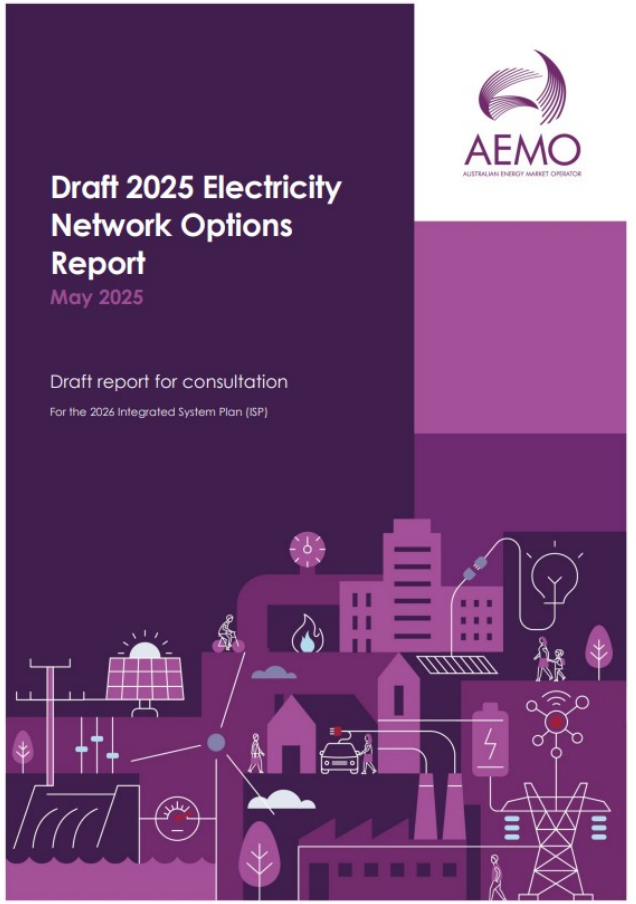
Today's agenda

Time (AEST)	Item	Speaker
9:00 am	Agenda & welcome	**Angela Heck**, Principal Stakeholder Advisor
9:05 am	Introduction and Objective	**Merryn York**, Executive General Manager System Design
9:10 am	Draft 2025 Electricity Network Options Report and next steps	**Samantha Christie**, Manager Strategic Planning **Darran Wu**, Principal Engineer
9:50 am	Q&A	*Facilitated by Angela Heck*
10:25 am	Survey and close	**Angela Heck**

Today's objectives

Present the Draft 2025 Electricity Network Options Report to support stakeholder engagement and consultation submissions.

Ask questions using Slido for response by AEMO in a Q&A session after the presentation



Read the report and supporting material

How to interact today

www.sli.do
#AEMO

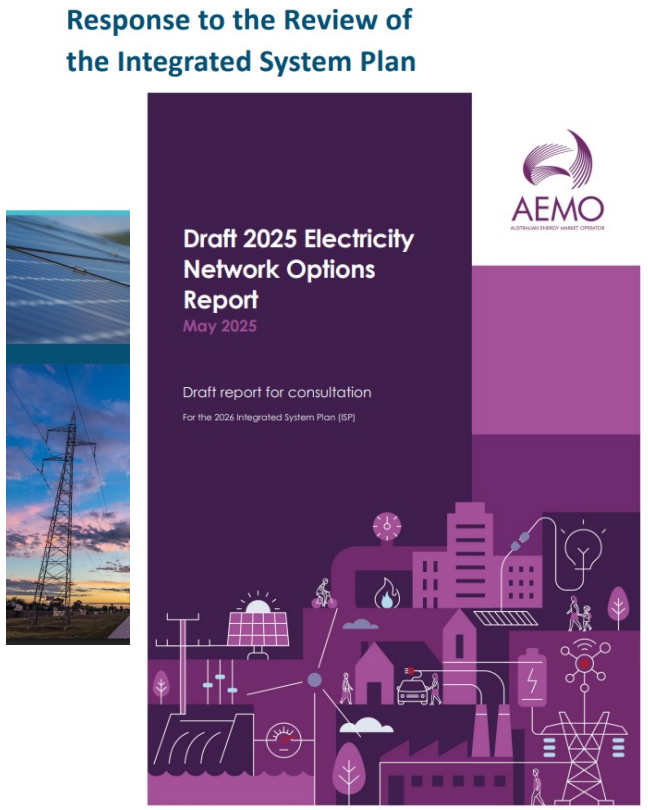
- Please ask questions using Slido www.sli.do #AEMO
- Join with your name, no need to log in
- Ask your own questions or up-vote others' questions
- Provide feedback through our post-webinar survey

Introduction

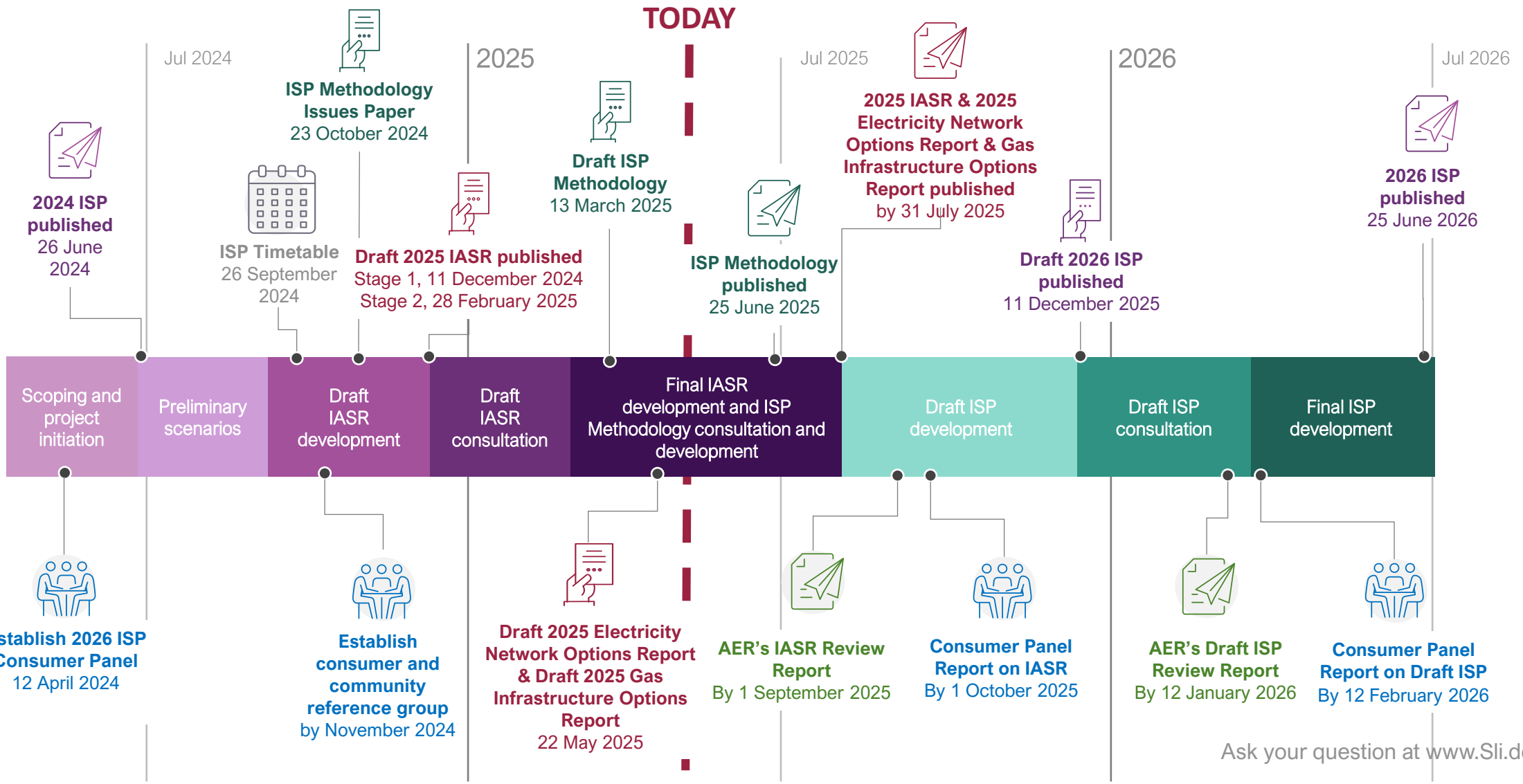
Merryn York
Executive General Manager System Design

Efficient investment in the electricity network is essential to ensure consumers have access to secure, reliable and affordable electricity through the energy transition

- **Transmission and distribution companies worked with AEMO** in developing draft network augmentation options.
- **Transmission costs have risen**, particularly for overhead lines.
- **Social licence for transmission** has been further considered.
- **Distribution network opportunities** to facilitate increased operation of consumer energy resources and other distributed resources have been included for the first time.



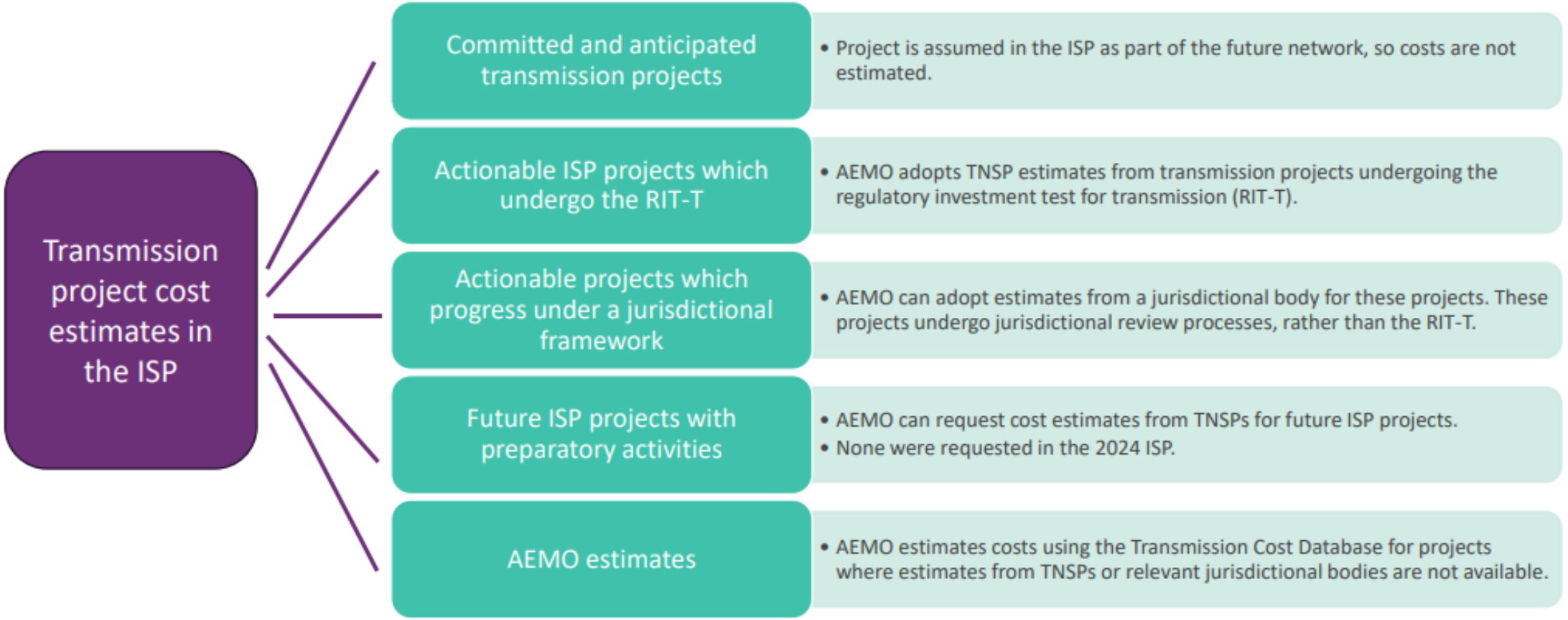
AEMO is almost halfway through the development timetable for the 2026 ISP



Transmission network options

Samantha Christie, Manager Strategic Planning

Transmission cost estimates are a key input to the ISP and are calculated by AEMO or project proponents

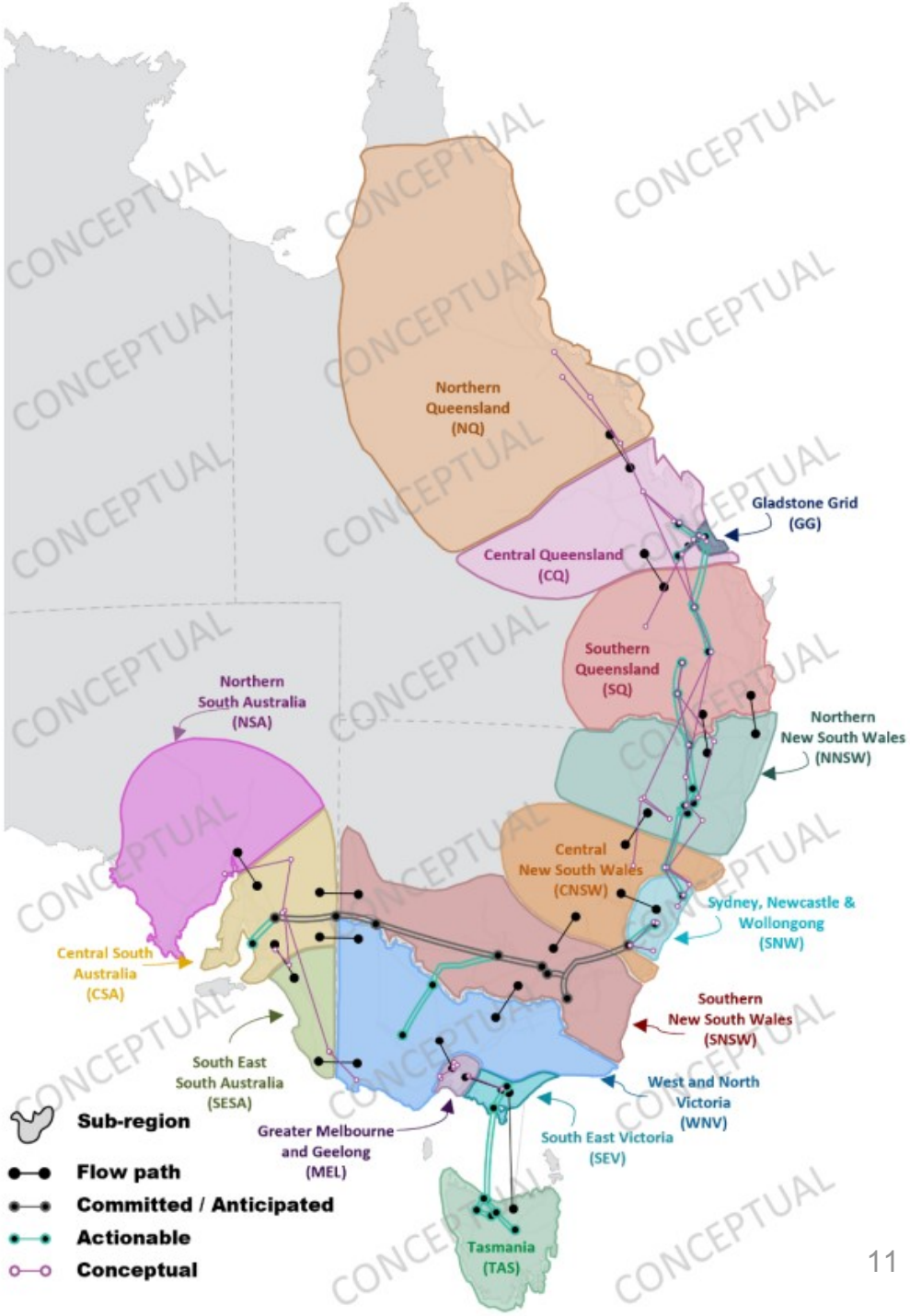


Note: The 'RIT-T' is the regulatory investment test for transmission, applied by transmission network service providers consistent with guidelines set by the Australian Energy Regulator.

Flow path augmentation options

Purpose of flow paths

- Transport significant amounts of electricity across the backbone of the network.

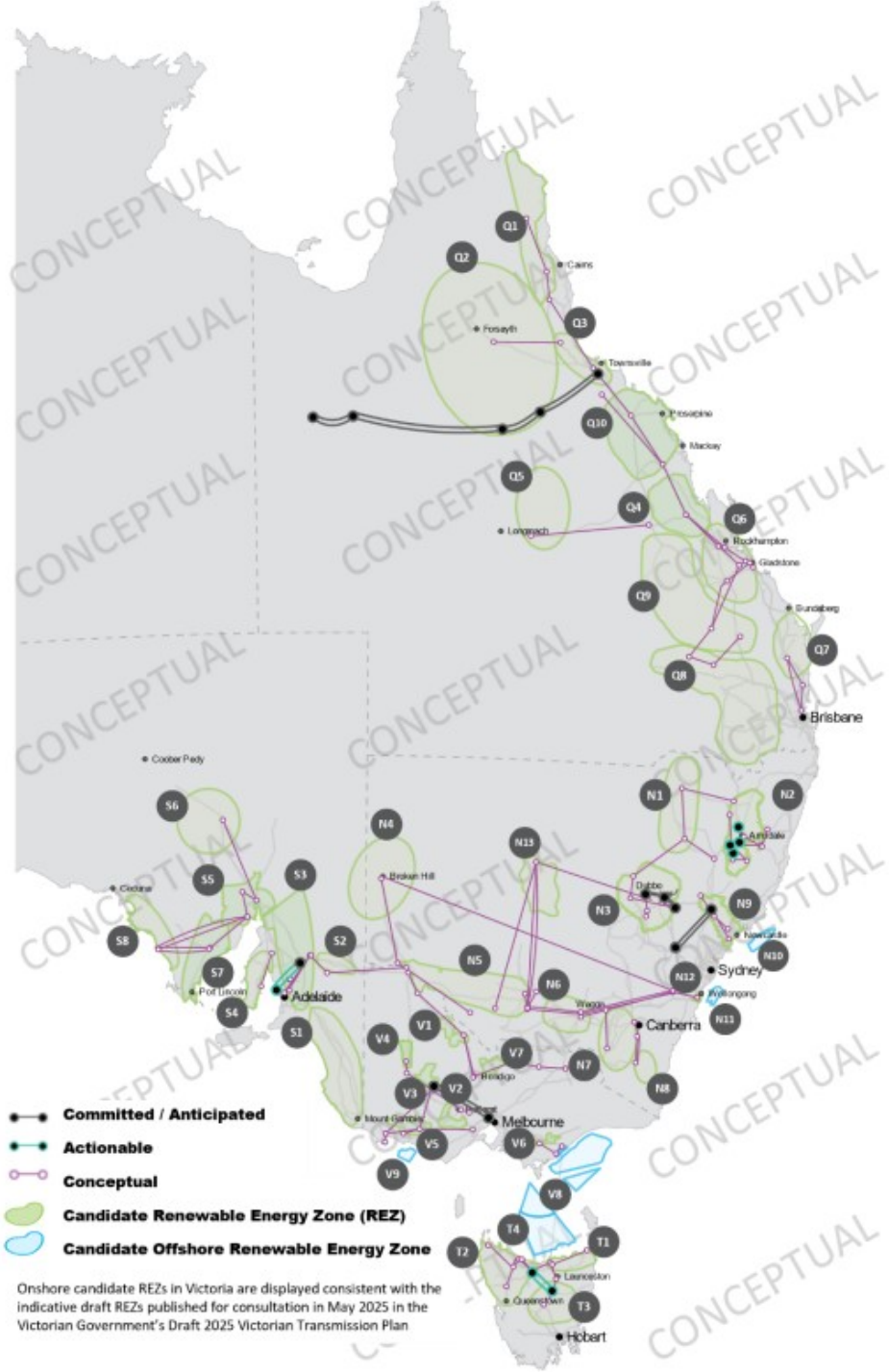


Renewable Energy Zone (REZ) augmentations

Purpose of REZs

Connect renewable generation in areas where clusters of large-scale renewable energy can be developed using economies of scale.

Some of the options are designed to transfer power from more than one REZ through to a big load centre (known as ‘group constraints’).



Queensland
Q1 Far North Qld
Q2 North Qld Clean Energy Hub
Q3 Northern Qld
Q4 Isaac
Q5 Barcaldine
Q6 Fitzroy
Q7 Wide Bay
Q8 Darling Downs
Q9 Banana
Q10 Collinsville

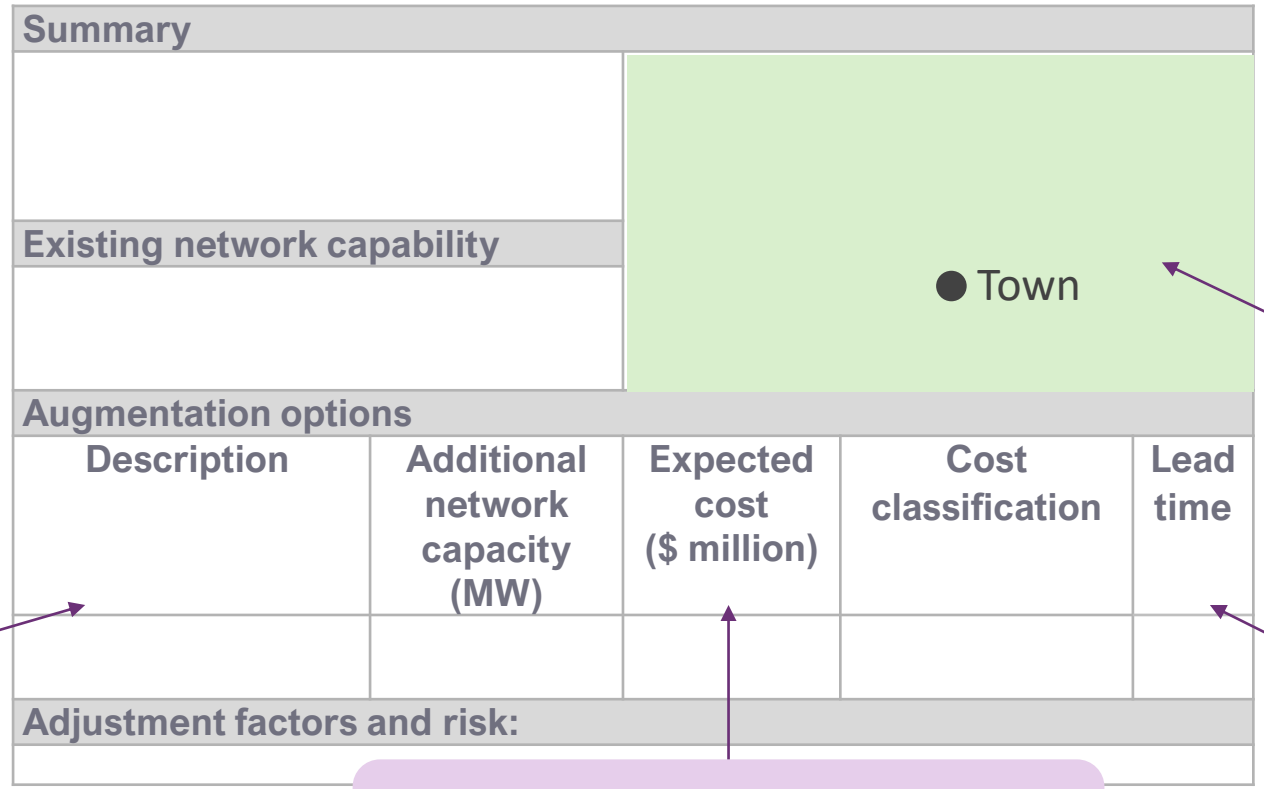
New South Wales
N1 North West NSW
N2 New England
N3 Central-West Orana
N4 Broken Hill
N5 South West NSW
N6 Wagga Wagga
N7 Tumut
N8 Cooma-Monaro
N9 Hunter-Central Coast
N10 Hunter Coast
N11 Illawarra Coast
N12 Illawarra
N13 South Cobar

Victoria
V1 North West
V2 Central Highlands
V3 Grampians Wimmera
V4 Wimmera Southern Mallee
V5 South West
V6 Gippsland Onshore
V7 Central North
V8 Gippsland Shoreline
V9 Southern Ocean

South Australia
S1 South East SA
S2 Riverland
S3 Mid-North SA
S4 Yorke Peninsula
S5 Northern SA
S6 Roxby Downs
S7 Eastern Eyre Peninsula
S8 Western Eyre Peninsula

Tasmania
T1 North East Tasmania
T2 North West Tasmania
T3 Central Highlands
T4 North Tasmania Coast

Conceptual transmission options are described in a 'report card' for each flow path and renewable energy zone



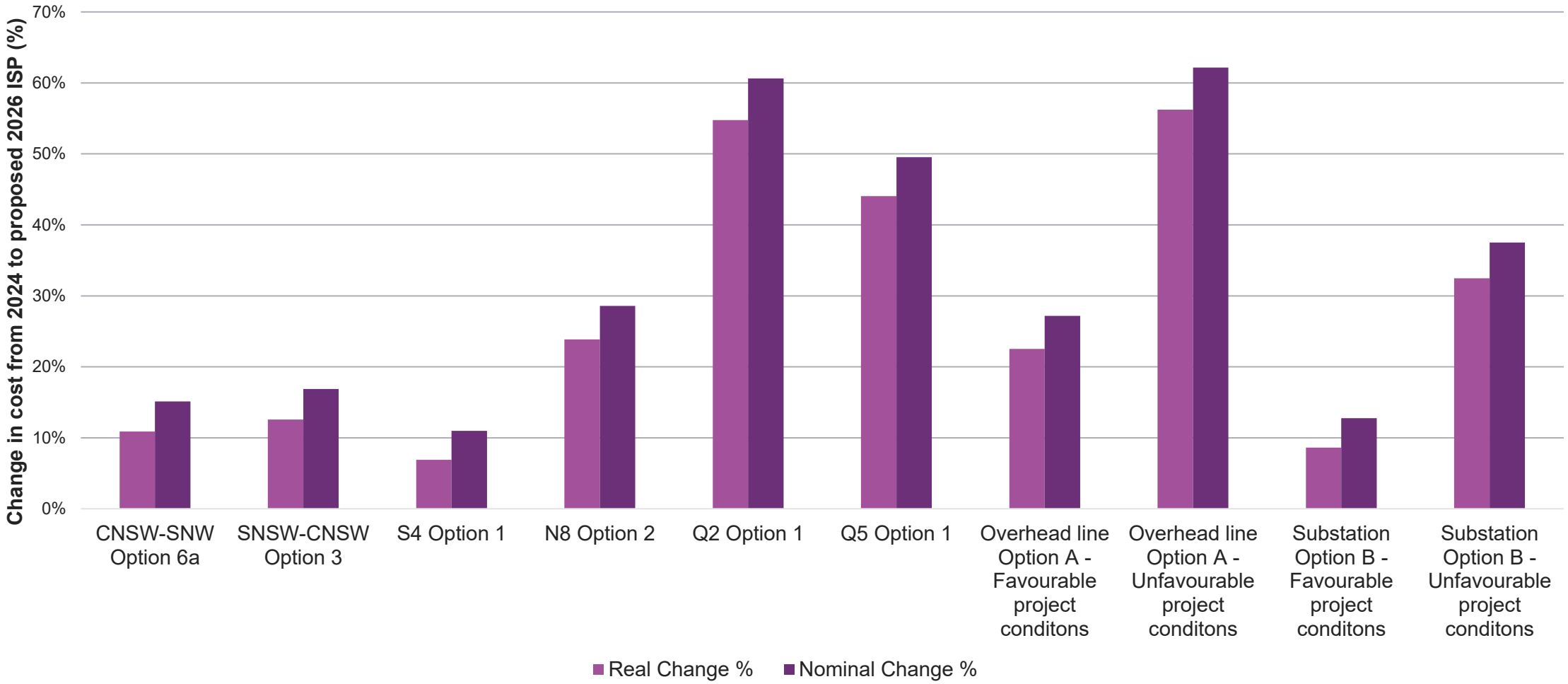
Location
Conceptual area for the option is shown on a map

Conceptual design is described

Lead time is estimated

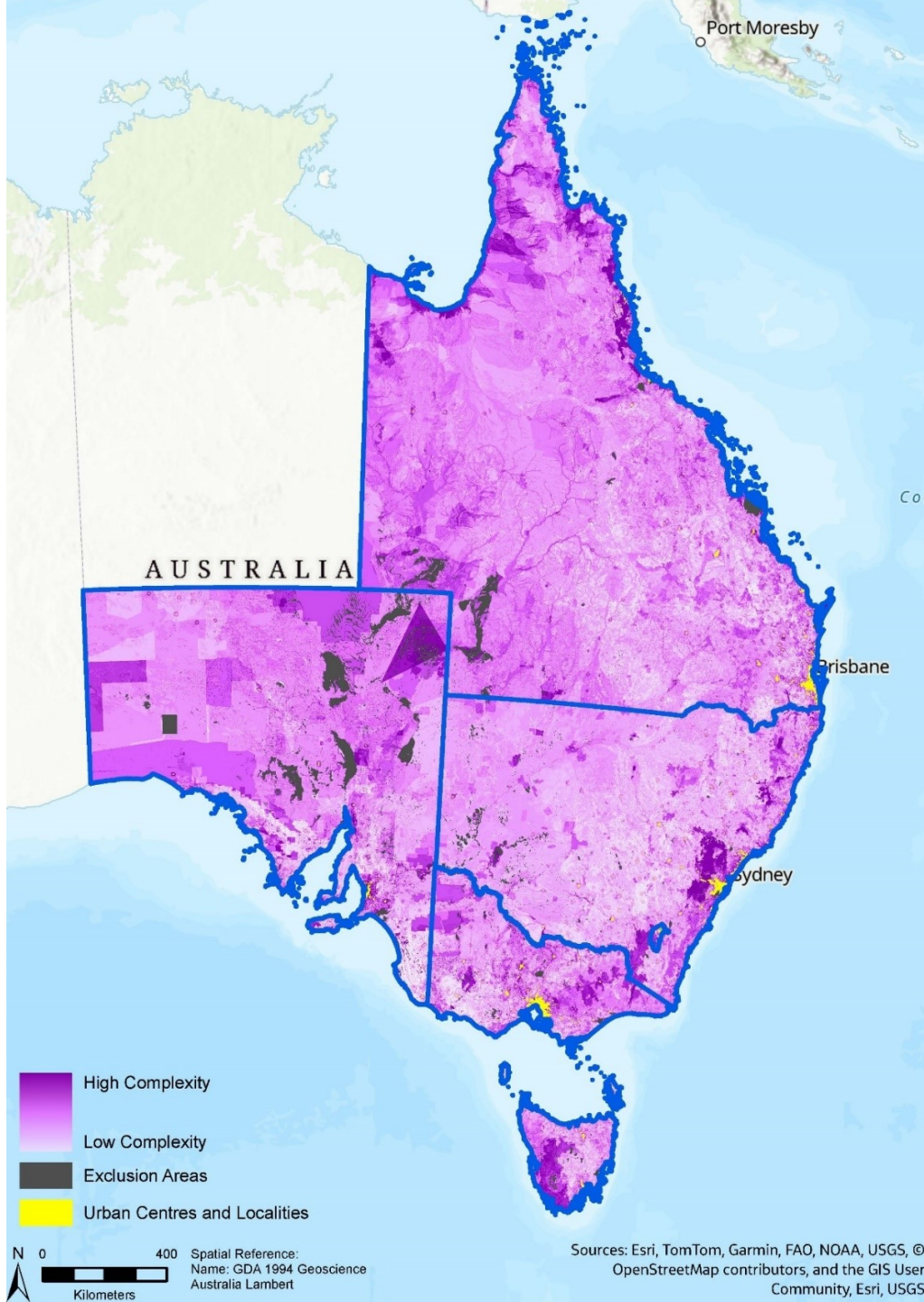
Cost estimate is provided, including accuracy range

Transmission costs show an approximately 25% to 55% increase in real costs for overhead lines and 10% to 30% for substation projects, compared to the 2024 ISP



Social licence for transmission has been further considered

- AEMO has continued to jointly plan with transmission networks service providers and jurisdictional bodies to incorporate social licence into transmission options.
- In this report, updated land use complexity analysis for transmission infrastructure has been used to represent the possible need for line route changes in cost estimates.



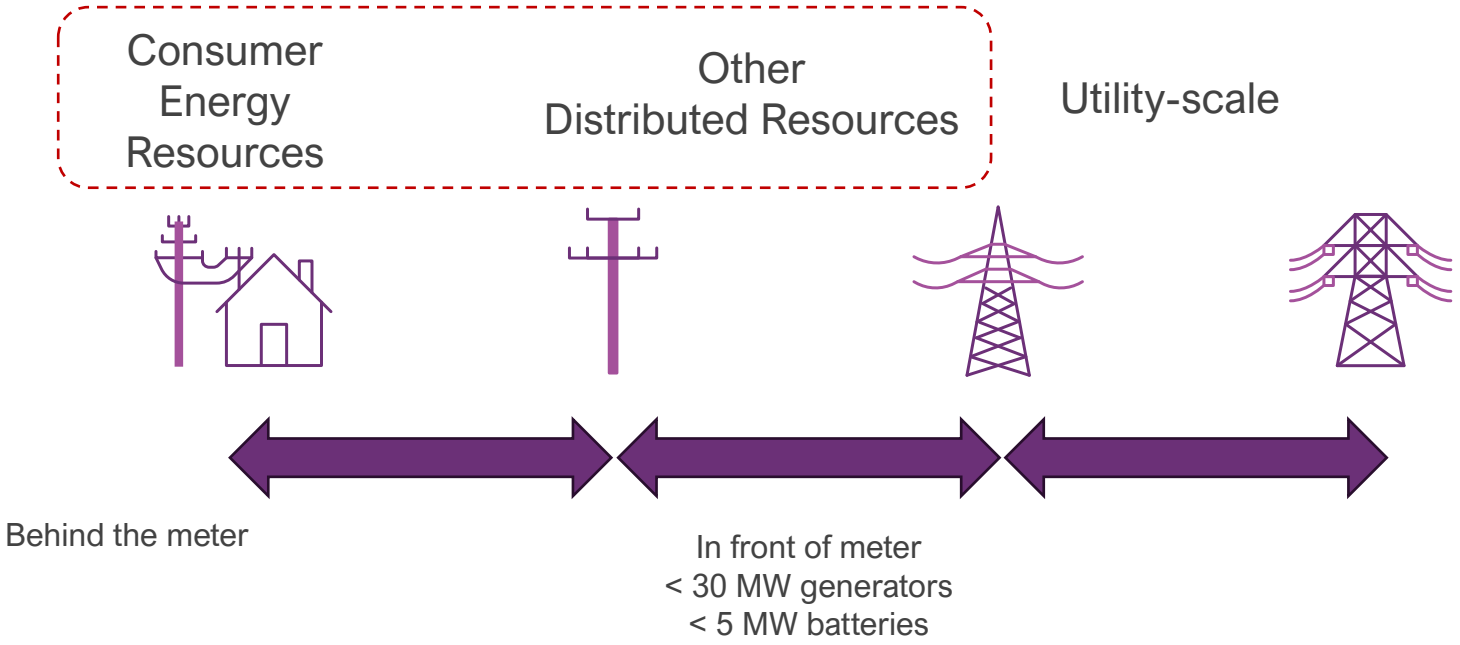
Distribution network opportunities

Darran Wu, Principal Engineer

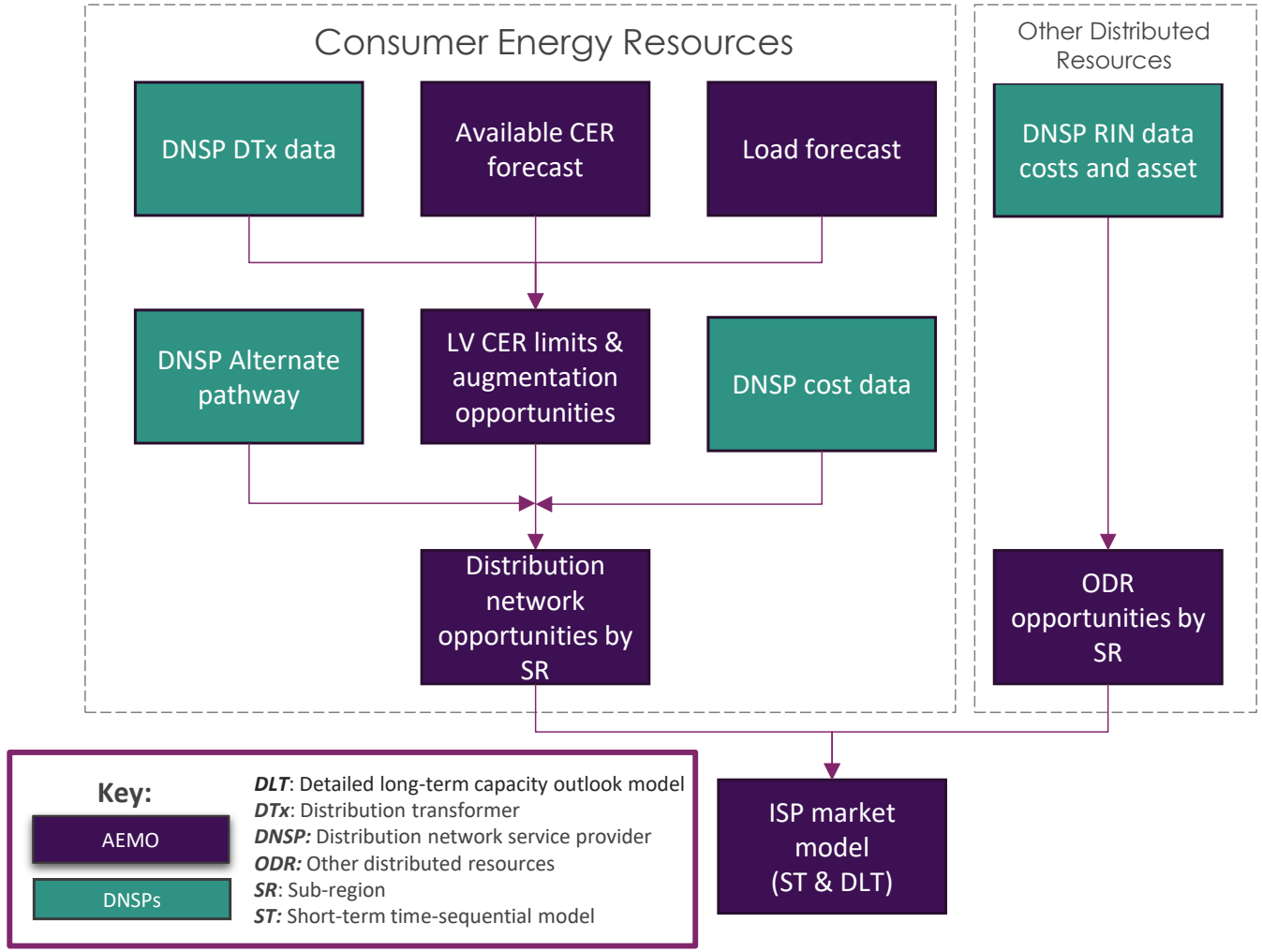
Exploring opportunities for distribution networks to support the uptake of CER and other distributed resources

Distribution network opportunities

The ISP Review called for AEMO "to work with the relevant stakeholders, including DNSPs, to develop a suitable approach to trade off the cost of unlocking increasing tranches of orchestrated CER and distributed resources against other investment options for use in the earliest ISP practicable"



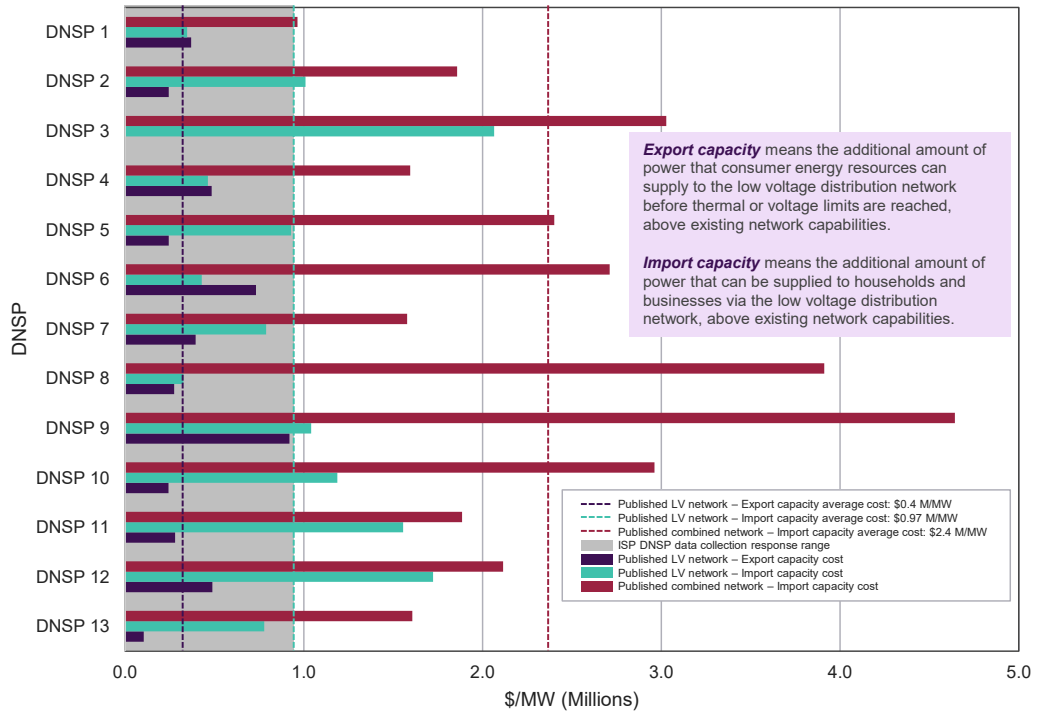
An approach is proposed to include distribution network opportunities in the ISP



This approach applies for facilitating operation of consumer energy resources (CER) and other distributed resources. It is not applicable for higher-voltage distribution network options to connect utility-scale generation and storage, which may be proposed by networks alongside the transmission network options.

Through consultation with distribution networks, three tranches of opportunities were identified for consultation

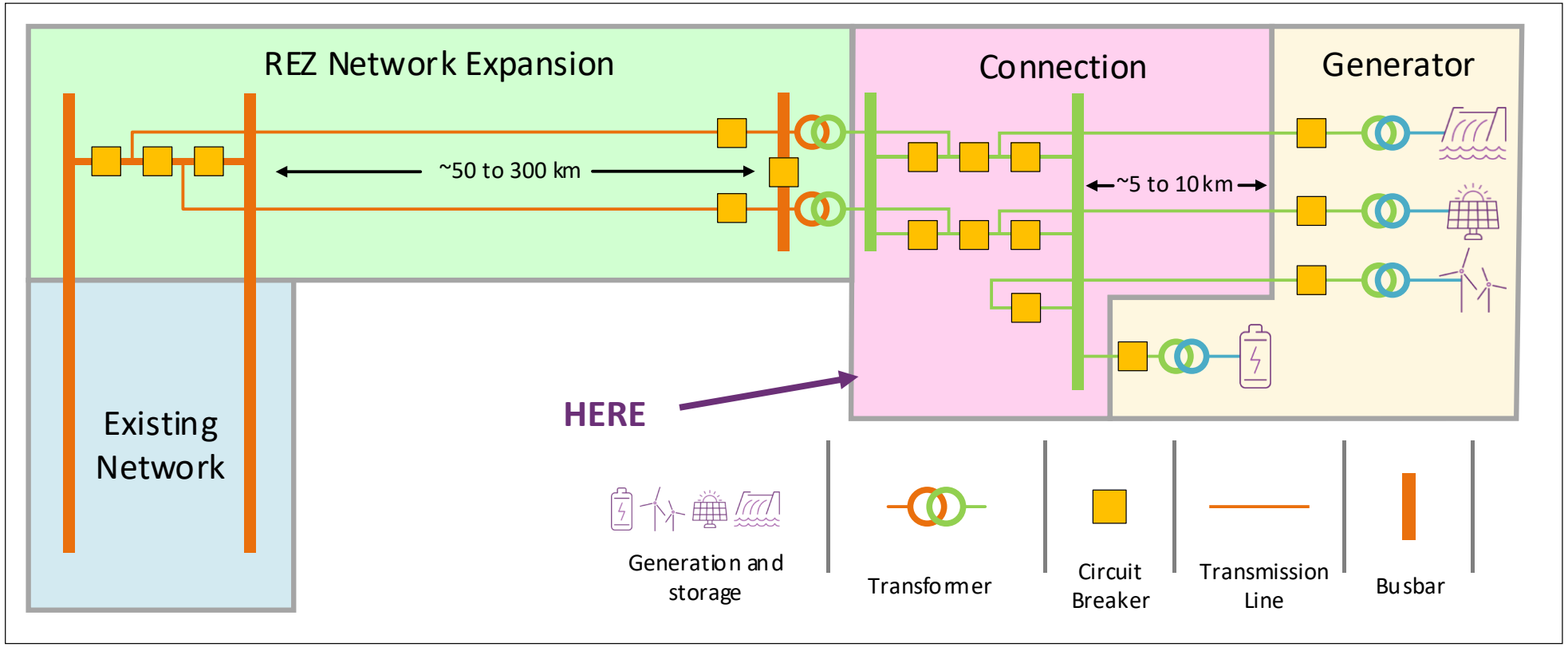
- **Tranche 1 – Use existing capacity**, assuming even CER distribution across networks and up to the first two thirds of existing capacity.
- **Tranche 2 – Voltage management optimisation**, to unlock the final third of existing capacity to enhance network management and/or tighten voltage bandwidth. Cost of $400k/MW of network capacity for most networks.
- **Tranche 3 – Network augmentation**, to upgrade the network including between the low voltage network and the transmission network. Cost of $2.5m/MW of network capacity for most networks.



Generation and storage connection costs

Samantha Christie, Manager Strategic Planning

Updated costs to connect generation and storage to a REZ network are included, which depend on the proximity to transmission assets and voltage of the network



Updated cost estimates for system strength services are provided for application in the ISP model – used for supporting coal retirements and developing new inverter-based resources

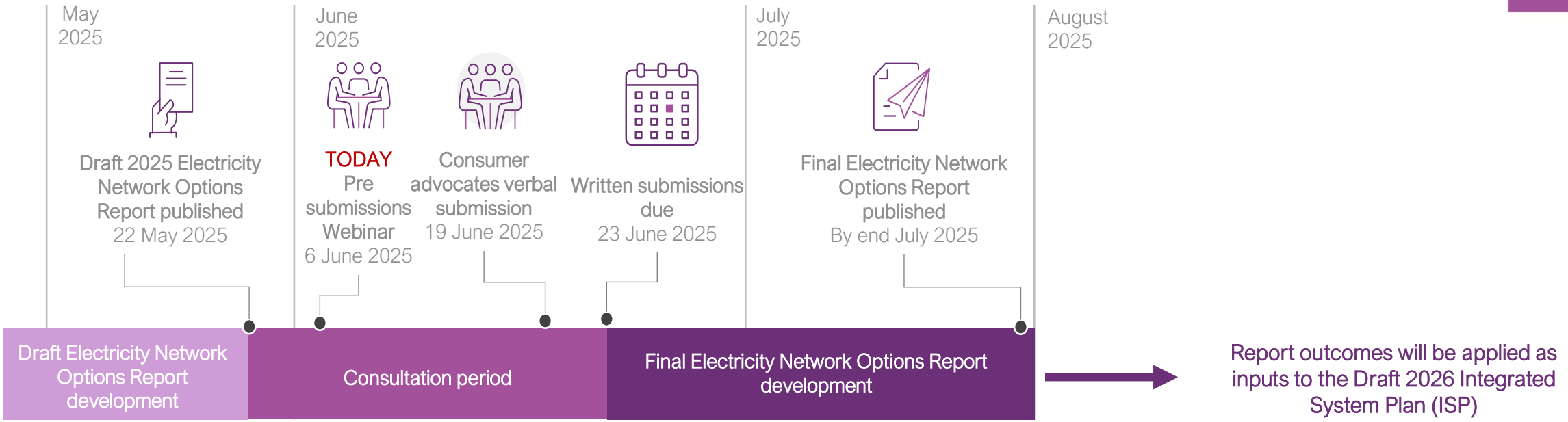
Description	Expected cost ($ million)	Cost classification
80 MVA synchronous condenser	138	Class 5b (±50%)
125 MVA synchronous condenser	185	Class 5b (±50%)
250 MVA synchronous condenser	323	Class 5b (±50%)

- AEMO proposes to use synchronous condensers as component of system strength remediation costs, which change over time. Options such as retrofitting existing units, adding clutches to gas turbines, or leveraging grid-forming technology with batteries in the medium term, are all likely to contribute to meeting system security requirements, and influence the trajectory of this cost. Refer to the Draft Inputs, Assumptions and Scenarios Report for more information.
- An additional cost of $8 million can be applied to include a flywheel and represent a high-inertia synchronous condenser.

Next Steps

Angela Heck, Principal Stakeholder Advisor

AEMO has released the Draft 2025 Electricity Network Options Report for consultation



Ask your questions at www.Sli.do #AEMO
Sign in with your name

Next steps

- Consumer advocates can register here for a verbal comment session on 19 June 2025 at 11am.
- Written submissions due to ISP@AEMO.com.au by 5.00pm AEST 23 June 2025
- Please provide feedback on today's webinar.

Questions & comments

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aemo.com.au