



Transgrid Advisory Council

Meeting #2

Thursday 23 March 2023

Acknowledgement of Country

We would like to acknowledge the Gadigal people as the custodians of the lands and waters of the Eora Nation, on which we meet today.

We pay respect to Elders past and present.

Agenda

No.	Time	Agenda item	Presenter
1.	10.30am (5 mins)	Welcome	David Feeney, GM of Regulatory Policy
2.	10.35am (10 mins)	Actions from last meeting	David Feeney, GM of Regulatory Policy
3.	10.45am (10 mins)	2023 TAC engagement program	Nicole Ryan, GM of Community, Stakeholder and Government
4.	10.55am (10 mins)	Regulatory Policy and Government Affairs update	David Feeney, GM of Regulatory Policy Nicole Ryan, GM of Community, Stakeholder and Government
5.	11.05am (25 mins)	Regulatory Projects Engagement	Stephanie McDougall, GM of Regulation
6.	11.30am (15 mins)	Systems Strength RIT-T/EOI update	Marie Jordan, EGM of Networks Fiona Orton, GM of Innovation & Energy Transition
	11.45am (10 mins)	Break	
7.	11.55am (10 mins)	Major Projects Portfolio update	Nathan Rhodes, GM of Powering Tomorrow Together
8.	12.05pm (45 mins)	HumeLink project update and CPA engagement	Mayur Kulkarni, Acting Project Director, HumeLink Stephanie McDougall, GM of Regulation Michael Johnson, Program Director Stakeholder Relations Major Projects
9.	12.50pm (10 mins)	Summary, next steps and close	David Feeney, GM of Regulatory Policy
	1.00pm	Close	

Actions from last meeting

Action	Due date	Status
Transgrid team to provide further information, to build a shared understanding, of what the key factors that will influence the net benefit equation.	21 March	Update to be provided at TAC meeting #3
TAC members to review and reflect on Transgrid's proposed approach for engaging with TAC, including for the HumeLink project and give some feedback to Cassie or Jane this week on thoughts of meeting regularity, sub-committees.	21 March	Some feedback provided by members at TAC meeting #1 Pulse survey emailed to TAC members on 15 March
Andrew and Mark to discuss inconsistencies in narrative between AEMO and Transgrid (VNI-W project example)	21 March	Follow up email sent to Andrew on 16 March
Transgrid to give update on latest modelling of net benefits for HumeLink project, in relation to Snowy Hydro project timeframe.	21 March	Update to be provided at TAC meeting #3



2023 TAC engagement program

Nicole Ryan, General Manager of Community,
Stakeholder and Government

Engagement principles

Genuine

We will engage early and often, ensuring time for your feedback to be considered and integrated into our projects and decision- making processes.

Inclusive

We will provide ongoing engagement opportunities, using various methods, to facilitate meaningful involvement in issues and projects.

Accessible

We will ensure our communication materials are clear, concise and easy to understand, and we will provide information materials in a timely manner.

Responsive

We will work with TAC members to regularly review and refine our engagement approach and processes.

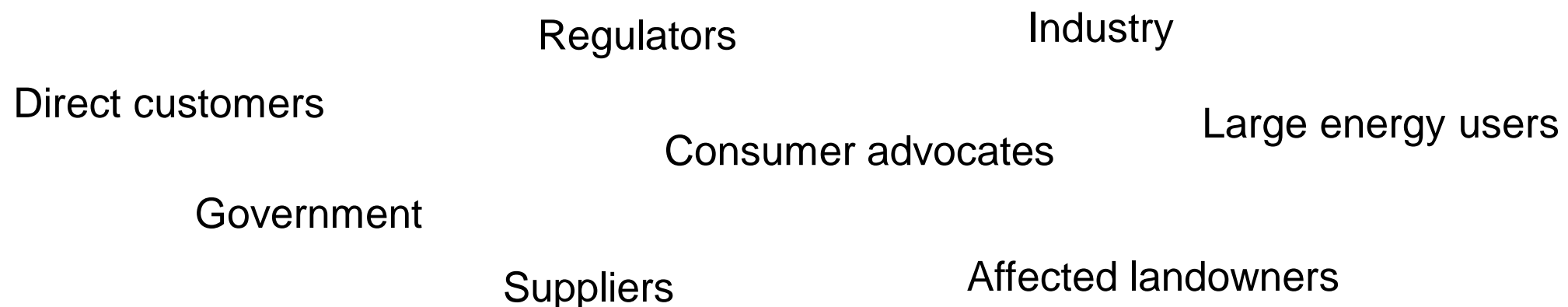
Transparent

We will engage openly, honestly and transparently and we will demonstrate how we have considered your feedback, the decisions we make and why.

Stakeholder reputation research

- Implemented since 2015 to explore and monitor sentiment amongst key stakeholders
- Guides our understanding of what is driving our reputation, what we are doing well and where we can do better
- Key metrics retained each year to ensure trackability
- Linked to our Corporate Strategy: stakeholder survey trust score >90 by 2025
- Involves in-depth interviews, online survey and telephone survey
- Undertaken by SEC Newgate Research
- Next round of research commences April 2023

Stakeholder segments



Research results over time

Reputation Score

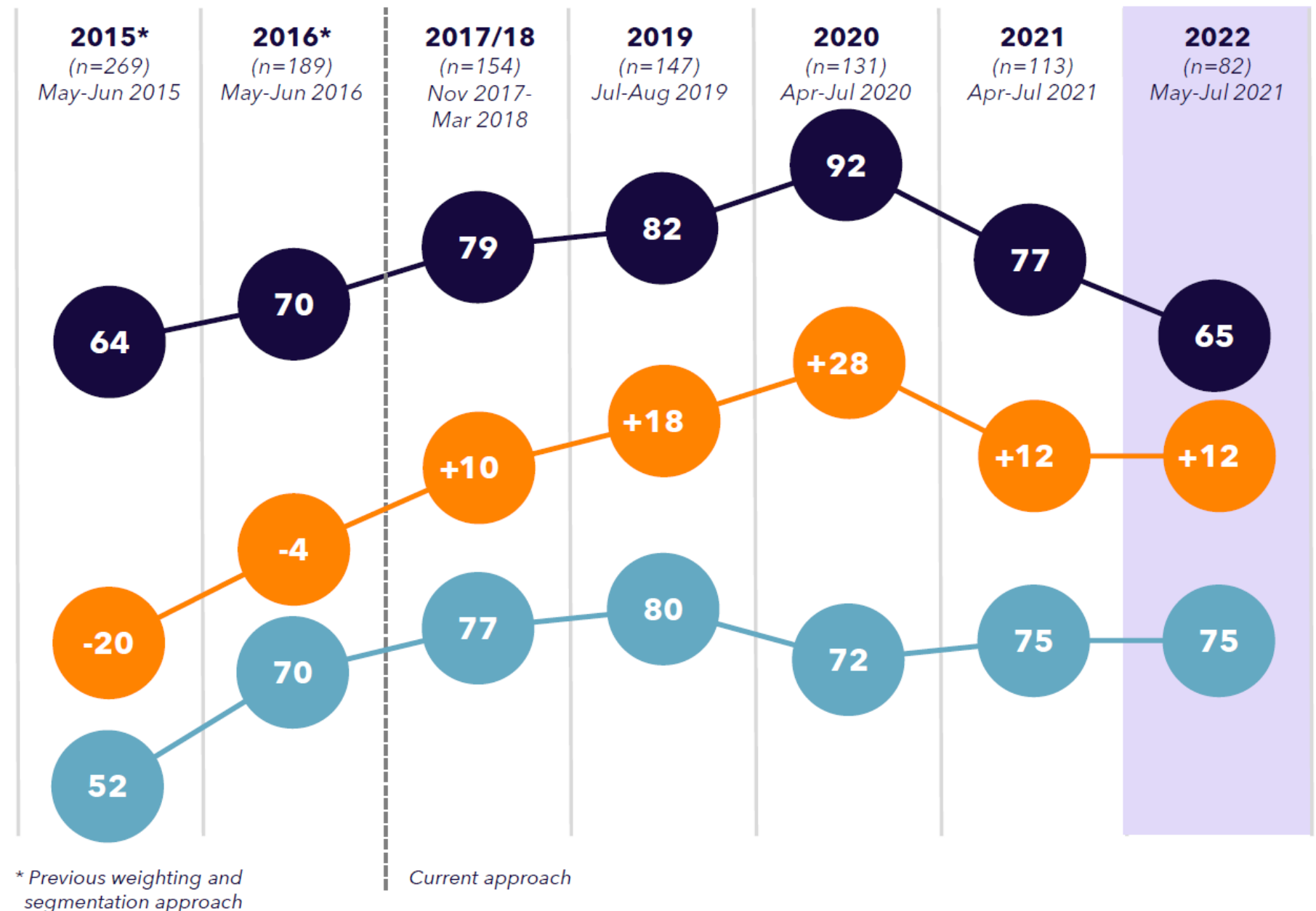
Proportion who gave a rating of 7 or more out of 10 based on personal interactions and what they've seen, read or heard about Transgrid.

Net Advocacy Score

How likely stakeholders would be to speak well of Transgrid to a colleague – taken as the difference between 'advocates' (those who gave a rating of 9 or 10 out of 10) and 'detractors' (those who gave ratings of 0-6). Any positive score indicates there are more advocates than detractors.

Trust Score

In effect, how much stakeholders trust Transgrid to do the right thing by them and their organisation [for Affected Landowners: household] – taken as those who gave a rating of 7 or more out of 10.



Progress since 2022 survey

Focus area	Examples of progress made
Sustained improvement in community engagement	<ul style="list-style-type: none"> • Integrated, program approach to community engagement • Comprehensive engagement strategies for all major projects • Building social licence and community investment initiatives into major projects • Established Community Consultative Groups
Renewed focus on key stakeholder relationships	<ul style="list-style-type: none"> • Internal restructure – Regulation Team integrated into the Community and Policy Group to place the customer at centre of decision-making processes • New talent onboard in the Community and Policy Group to strengthen stakeholder engagement approach • Review and refreshed approach to working with the TAC • Post-election roadshow for Government and Regulatory stakeholders
Innovation in planning and delivering major projects	<ul style="list-style-type: none"> • Powering Tomorrow Together – a new, integrated approach to planning and delivering major projects
Thought leadership on energy transition	<ul style="list-style-type: none"> • Key note speeches at industry events • Leveraging membership base to build an industry speaking schedule
Proactive media engagement and regular newsletters	<ul style="list-style-type: none"> • Significant uplift in positive, proactive media coverage • Oct 22- March 23 23824 neutral stories, 327 positive stories, 61 negative stories • As of 10 March 23, Advertising Space Rate for FYTD is \$13,517,301 • New monthly stakeholder newsletter and ongoing project newsletters
Demonstrating stakeholder feedback is being acted on	<ul style="list-style-type: none"> • Co-designed TAC engagement and meeting agendas • Restructure of Community and Policy Group to support improvements in this area



Regulatory Policy and Government Affairs update

David Feeney, General Manager of Regulatory Policy

Nicole Ryan, General Manager of Community,
Stakeholder and Government

Draft South West REZ Access Scheme

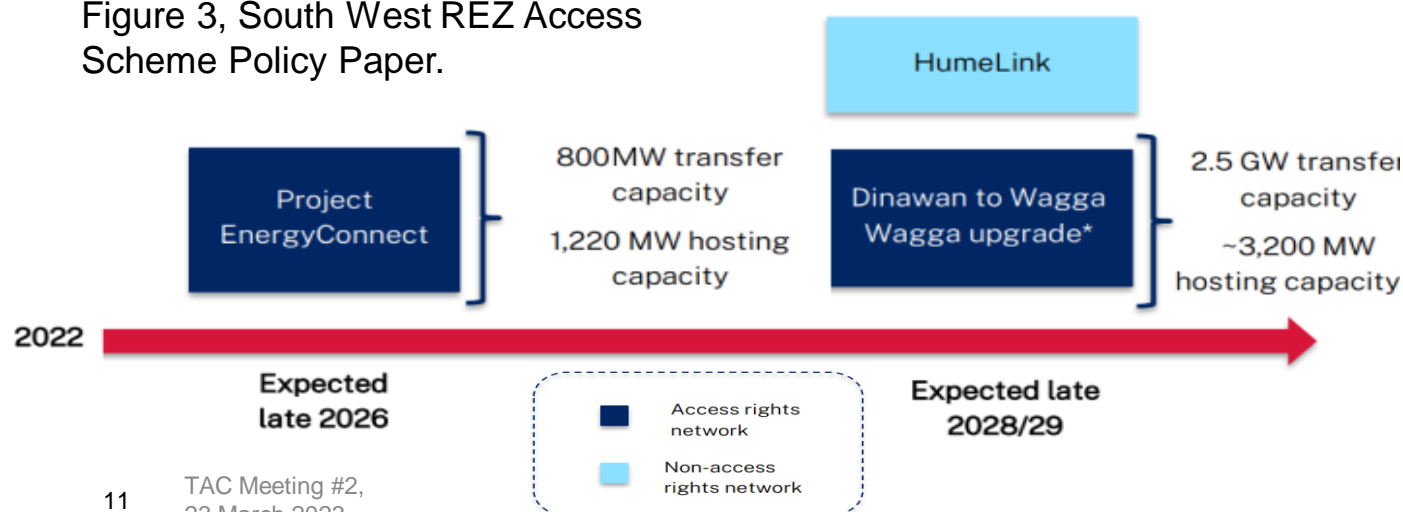
Draft South West REZ Access Scheme overview

- Draft access scheme published on 2 March by EnergyCo NSW. Objective is to optimize network utilisation, increase generator investment certainty and foster community support in SW REZ.
- Project Energy Connect and essentially all new network connecting to it are specified as *access right network*. Generators can only connect between Buronga and Dinawan and cannot connect between Dinawan and Wagga Wagga (to avoid prime agricultural land).
- Key features: Target curtailment level set at 0.54% (much lower than CWO REZ), generation capacity limited at 1.2GW and then 3.2GW following VNI West/Humelink upgrades, 20-year scheme duration, access fees to include community/employment fund components, access rights allocated through AEMO Services tenders.

Questions for the TAC

- Given 34GW of generation/storage interest in the SW REZ EOI process, is it in consumers long term interests to only allow 3.2GW to connect to the SW REZ?
- How critical will EnergyCo led community/employment benefit programs (access fee funded) be compared to equivalent generator led programs in maintaining social license in the SW REZ?
- What other feedback does the TAC have on EnergyCo's access schemes?

Figure 3, South West REZ Access Scheme Policy Paper.



Note:

- EnergyCo's consultation on the Draft South West REZ access scheme is open until 15 May.
- EnergyCo are aiming for a final SW REZ access scheme declaration in July.

Economic assessment process

(As part of the Transmission Investment and Planning Review)

The Commission outlines three options to support the timely delivery of transmission investment. These include:

Option 1 - Front loading early works: the TNSP would submit an early works CPA to seek an allowance for undertaking the efficient level of early works activities and the RIT-T concurrently.

Option 2 – RIT-T focusses on option development, AEMO responsible for net benefit assessment through ISP rather than TNSPs

Option 3 – No RIT-T process or feedback loop. AEMO would undertake centralised assessment of costs and benefits.

We understand the Commission is currently moving forward with option 1 and 2.

Our primary concerns with option 2

- Inability of component 2 to pick up local benefits
- Inability for AEMO to go into the detail
- Lack of flexibility to pick up benefits as the ISP can be out of date quickly -
- Social license and stakeholder management challenges

NSW Election – overview

Coalition Election Commitments

- Continued roll-out of the Electricity Infrastructure Roadmap
- NSW target to cut carbon emissions by 70% by 2035
- \$1.5 billion Clean Energy Superpower - fast tracking more rooftop solar, community batteries, big grid batteries and pumped hydro right across NSW.

Greens Election Commitments

- 100% renewable energy by 2030
- Public ownership of energy assets
- Energy Transition Authority.

Labor Election Commitments

Fresh Start Plan for energy is focusing on:

- legislating net zero by 2050, establishing a net zero commission
- NSW target of 50% renewable energy by 2030, and get as close as possible to 100% renewable energy by 2050
- no additional privatisation of state assets
- introduce the *NSW Energy Security Corporation* to be seeded with a \$1 billion investment from the existing Restart NSW Fund.
- \$250 rebate to \$1.6 million households

Independents

Member for Wagga Wagga:

- Six-month parliamentary inquiry examining the undergrounding of HumeLink.

Regulatory projects engagement

Stephanie McDougall, General Manager of Regulation

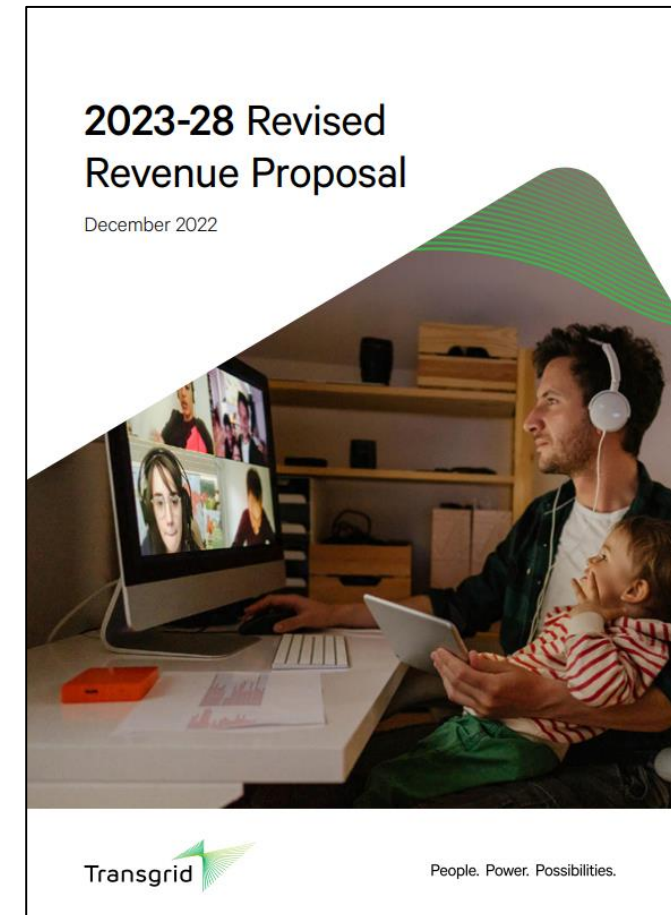


Revised Revenue Proposal



2023-28 Revised Revenue Proposal update

- Lodged Revised Revenue Proposal (RRP) on 2 December 2022
- RRP addressed:
 - Areas of difference between our IRP and the AER's Draft Decision including
 - New additional expenditure
 - Application of CESS to large transmission projects
- AER Board meetings in March to finalise key decisions
- AER final decision by 30 April 2023
- Implementation from 1 July 2023
- Work with TAC on implementation of AER's Final Decision



Waratah Super Battery (WSB) – non-contestable Revenue Proposal

Waratah Super Battery (WSB) project – recap

- On 14 October 2022, the Minister published an Order directing Transgrid as the Network Operator to carry out the WSB project.
- The WSB project comprises contestable and non-contestable work:
 - **Contestable components are:**
 - the battery service (SIPS) and
 - the paired generation services.

EnergyCo has managed the competitive tender process.

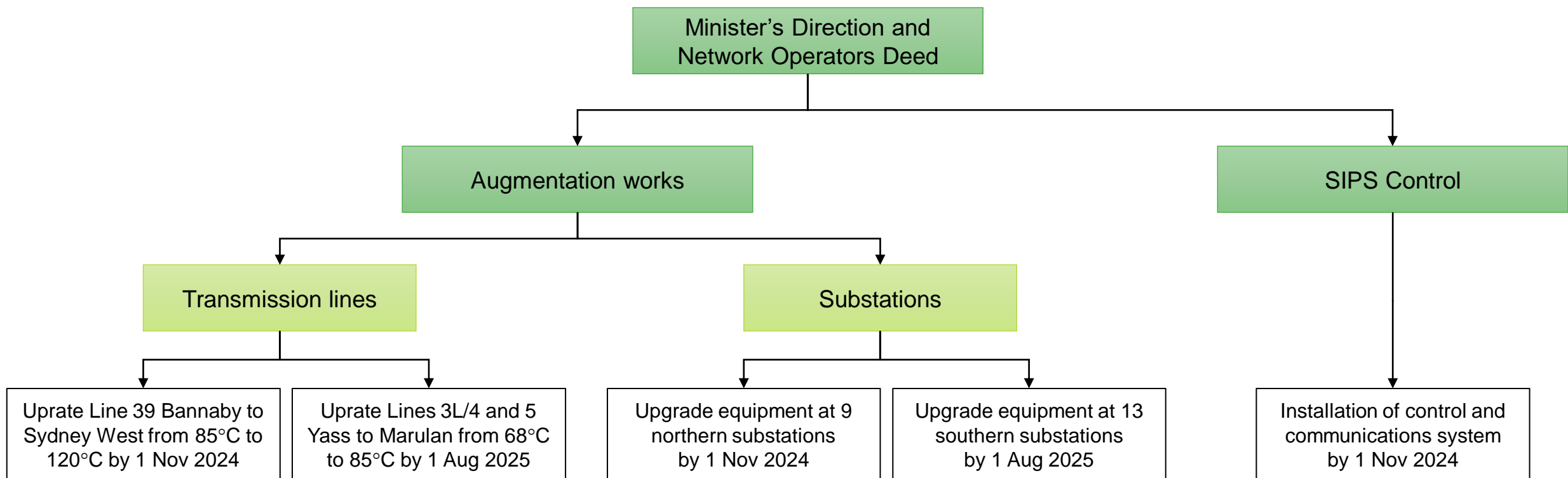
- **Non-contestable** investment comprises Augex and System Integrity Protection Scheme (SIPS) control
 - Transgrid will undertake the non-contestable work.
 - We are currently preparing our non-contestable Revenue Proposal, which is:
 - Subject to the NSW Regulatory framework (EII Act, Regulations and AER Guideline)
 - Due to the AER by 30 June 2023.



WSB non-contestable scope elements and drivers

The Augex and SIPS control works are driven by the need to:

1. Upgrade existing network to allow greater access to energy from existing generators
2. Monitor the network by sending control signals to the battery and paired generators, interface with our SCADA system and AEMO's dispatch engine

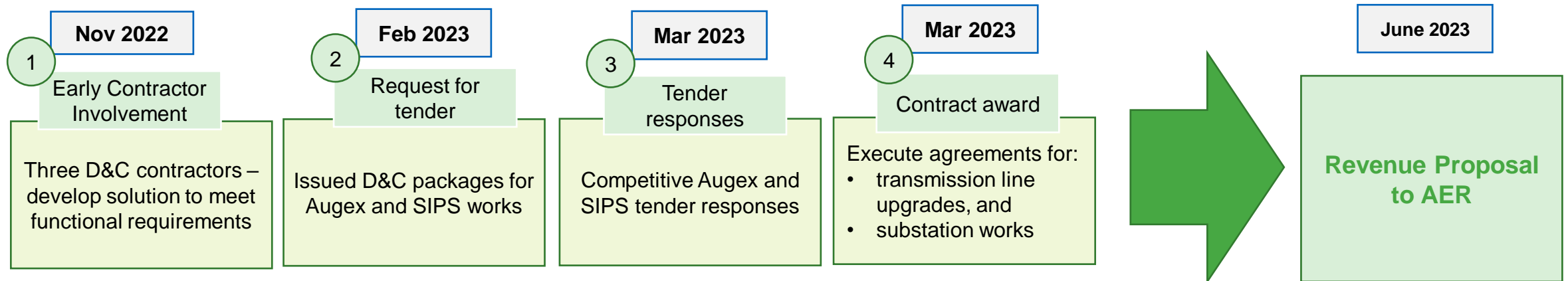


WSB non-contestable cost components

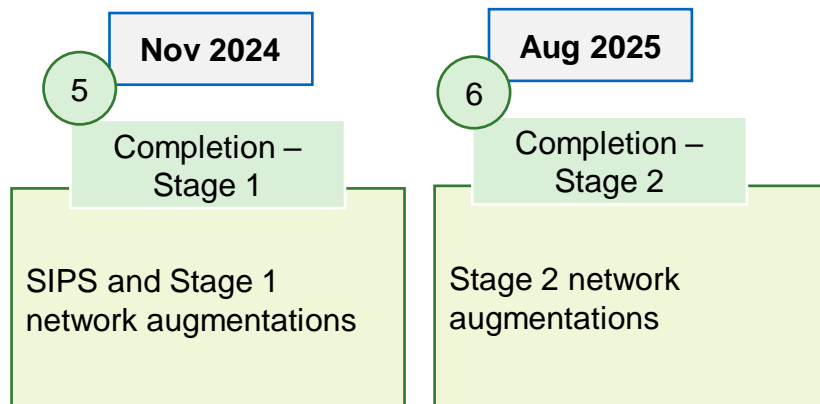
Cost category	Key elements	Bottom-up forecasting method
Capex	Augex - Transmission line	<ul style="list-style-type: none"> Design and construction (D&C) - Tender prices
	Augex - Substations	<ul style="list-style-type: none"> Key equipment - panel agreement rates
	(SIPS) control	<ul style="list-style-type: none"> Design - internal bottom-up estimate Construction - internal bottom-up estimate and construction services panel rates Key equipment - panel agreements rates
Labour & indirect costs	Labour (internal)	<ul style="list-style-type: none"> Internal bottom-up estimate of incremental FTEs
	Labour-related (training, recruitment and IT)	<ul style="list-style-type: none"> Internal estimate based on actual historical costs
	Indirect costs - External consultants & insurance	<ul style="list-style-type: none"> External consultants' fees Insurance premium forecast from our broker
Opex	Operational insurance	<ul style="list-style-type: none"> Broker report
	Maintenance costs - Augex	<ul style="list-style-type: none"> Existing maintenance plans and policies
	Maintenance costs - SIPS	<ul style="list-style-type: none"> Proposed maintenance plans and unit rates
	Operating costs - Labour & contract payments	<ul style="list-style-type: none"> Internal bottom-up estimate of incremental FTEs Contract with EnergyCo

Tender and delivery timeframes

Tender timeframes and Revenue Proposal



Project delivery timeframes



Managing cost uncertainty

Two key concerns with cost uncertainty:

1. Application of the Capital Expenditure Sharing Scheme (CESS)
2. Costs associated with future paired generators.

1. Application of the CESS

This gives rise to unfair allocation of risk – no provision in the NSW framework to deal with unforeseeable and unquantifiable costs in a way that is fair to all market participants, including customers and NSPs:

- We are being directed to undertake the investment by the NSW Government
- Single project – no scope to reprioritise within a portfolio of projects
- Tight timeframes to tender project costs to meet Revenue Proposal deadlines and NSW Government project delivery timeframes
- Inflationary environment, which means that costs are increasing, and we have no control over this
- Tight contract market – no fixed price – rise and fall contracts. This increases the risk of rising costs in the delivery phase
- Paired generation ongoing - number and location of all paired generators will not be known when we submit our Revenue Proposal

We do not support the CESS to this WSB project. Seeking TAC views and positions on this.

Managing cost uncertainty continued

2. Future paired generators

Paired generation services still subject to tender process that will not be completed when we submit our Revenue Proposal to the AER:

- Round 1 by April 2023 – 3 paired generators
- Round 2 by October 2023 – paired generators (number of generators is currently unknown)
- Potential future tender rounds – number and location unknown

We won't know the number and location of all paired generators in June 2023. The within period costs are uncertain for:

- managing the negotiation of the paired generation service agreement; and
- designing, implementing and testing and commissioning the changes to the SIPS control.

We are seeking TAC feedback on how to manage cost uncertainty:

- **Option 1** – Include cost forecast in Revenue Proposal (based on assumptions on the number and location of future paired generators)
- **Option 2** – Cost pass through event with no materiality threshold
- **Option 3** – Revenue adjustment mechanism:
 - > Option 3A – For entire cost (if no forecast capex included in allowance), or
 - > Option 3B – true-up the difference between forecast capex (i.e. option 1) and actual costs.

Re-cap on Revenue Proposal next steps and timeframes

The next steps and indicative timeframes in the Revenue Proposal are:

Timing - 2023	Timing requirement	Comment
30 Mar	Complete tender process	
26 May	Draft Revenue Proposal to EnergyCo	
23 Jun	EnergyCo notice of approval to submit	
30 Jun	Submit Initial Revenue Proposal (IRP) to AER	• Day 1 – lodge IRP
25 Jul	Stakeholder submissions on IRP	• 17 business days from IRP
By 5 Oct	AER publishes Draft Decision	• 67 business days from IRP
8 Nov	Submits Revised Revenue Proposal	• 91 business days from IRP
24 Nov	Stakeholder submissions on RRP	• 103 business days from IRP
22 Dec	AER publishes final determination	• 123 business days from IRP ¹

Notes: 1. The AER's determination timeframes (126 days from receiving the initial Revenue Proposal) can be extended to by a further 42 business days to address issues of complexity or difficulty, and or if some of the information is not based on a competitive procurement process.

Meeting system strength requirements in NSW

Marie Jordan, EGM of Networks

Fiona Orton, GM Innovation & Energy Transition

Jesse Steinfeld, Energy Transition Manager

Summary

Need

- Transgrid is required to resolve a system strength shortfall in NSW from 1 July 2025; and
- Transgrid is required to provide a portfolio of solutions to meet NSW system strength requirements in full under a new rule change from 2 December 2025, including to support the stable operation of new renewable generators.



Eligible technologies and assets that can provide system strength services include:

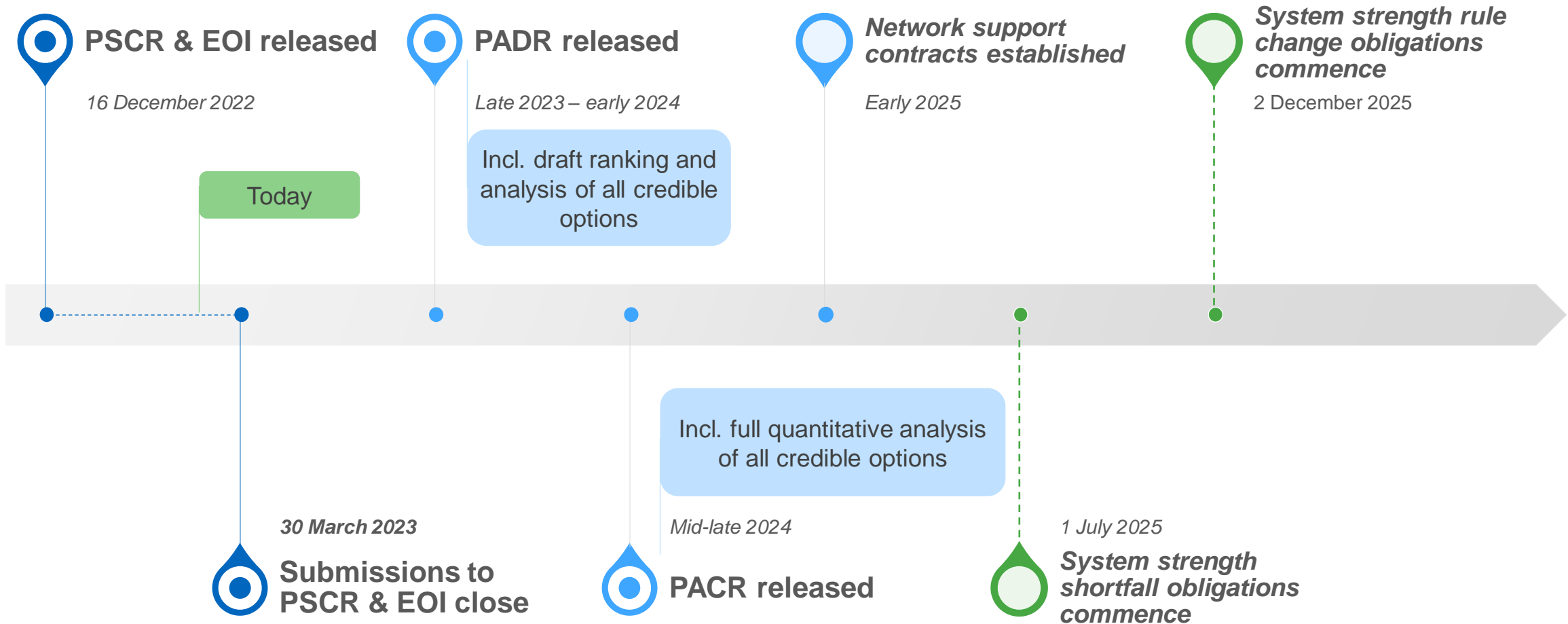
- Existing synchronous generators such as coal, gas and hydro
- Existing synchronous condensers, synchronous hydro units that can operate in 'synchronous condenser' mode and coal and gas units converted to synchronous condensers
- New synchronous generators or synchronous condensers
- Emerging technologies – such as batteries, STATCOMs or renewables with grid-forming inverters

Non-network opportunity

- We anticipate a new, sizeable and ongoing market for System Strength, which will grow over time.
- We believe non-network options will form a key part of the optimum portfolio of options required to meet the needs
- PSCR and EOI was published in December 2022

Timeline of key milestones

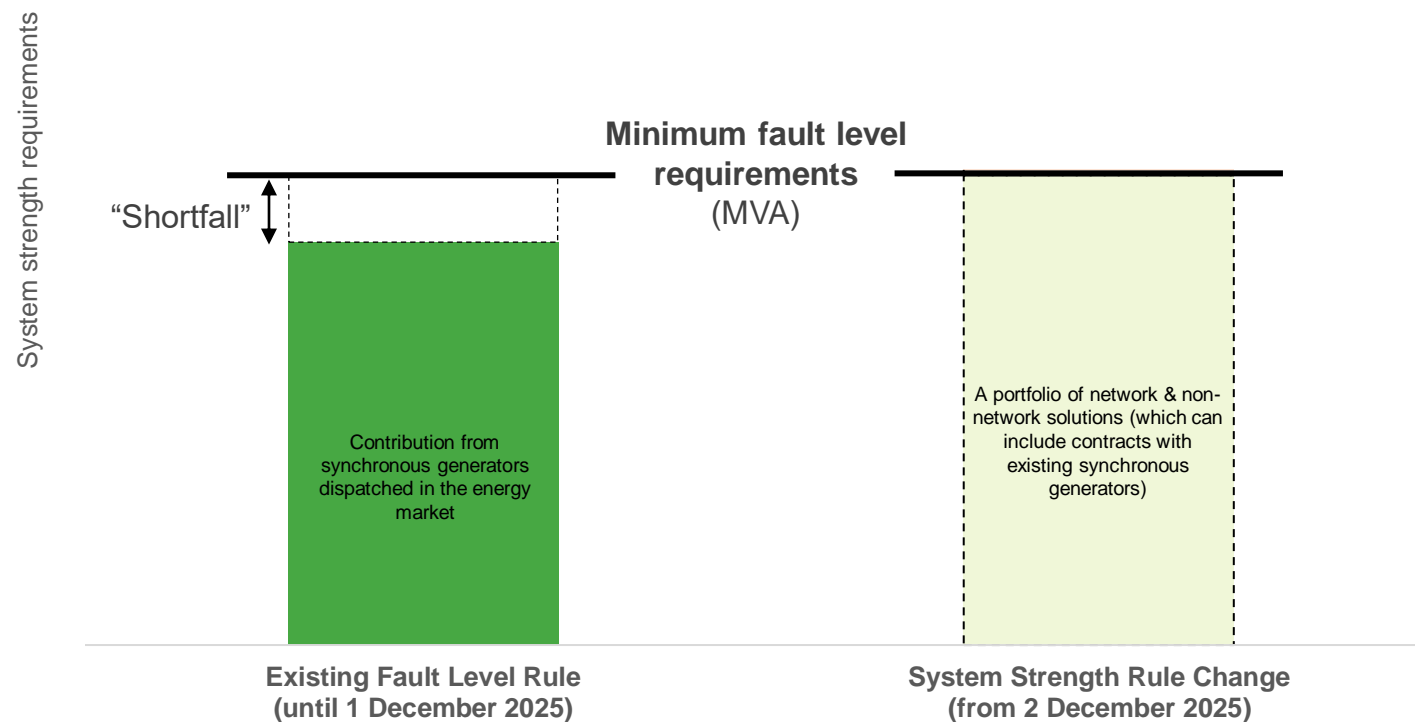
Transgrid will identify through a RIT-T the optimal portfolio of network and non-network solutions to meet system strength requirements and will run a competitive procurement process and/or commercial negotiations for non-network options as required



Evolving system strength obligations

AEMO has declared a system strength shortfall from 1 July 2025. From 2 December 2025, Transgrid must deliver system strength services for the secure operation of the power system (minimum level) and to support renewable generators (efficient level)

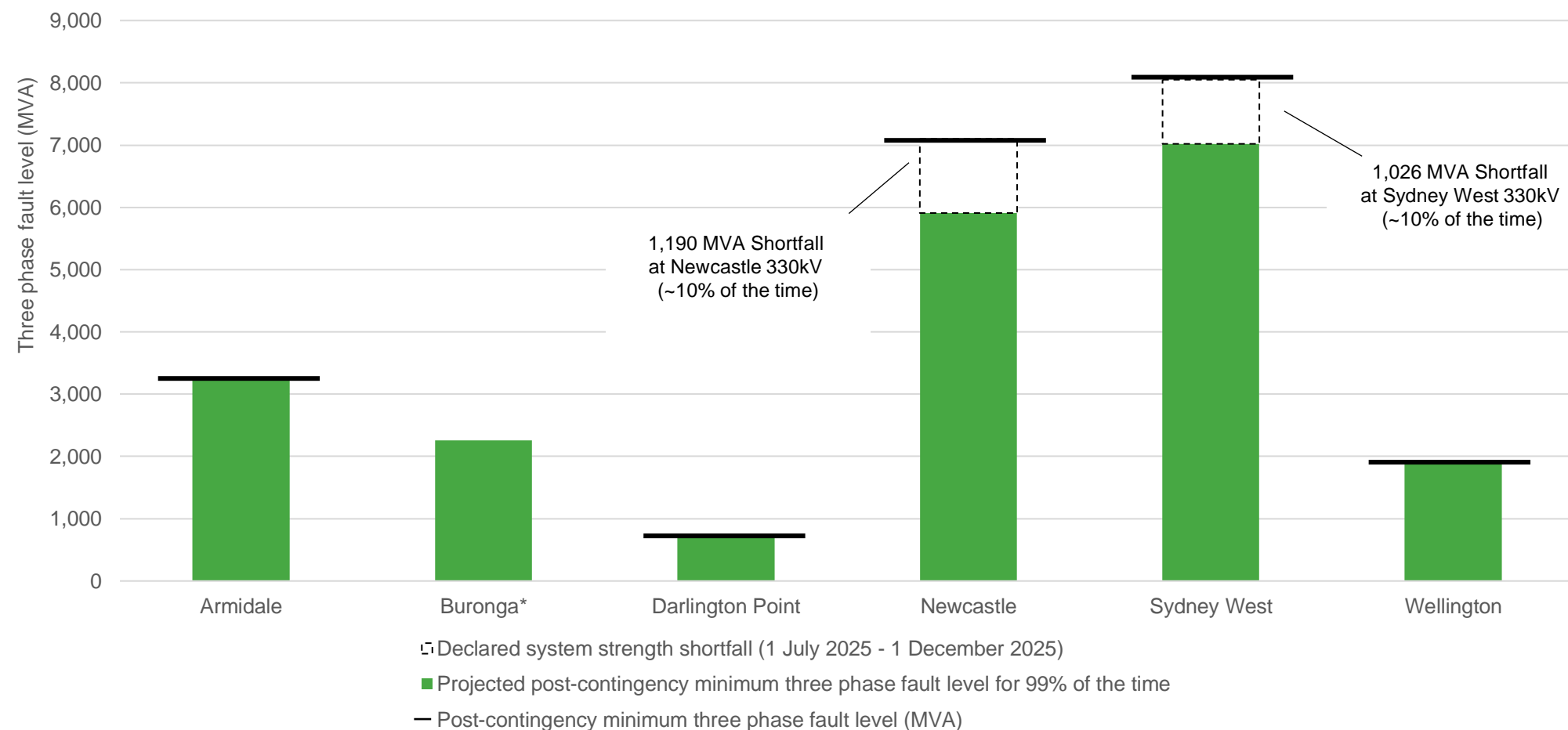
Conceptual representation of evolving system strength obligations



System strength Shortfall (1 July – 1 December 2025)

Transgrid is required to address the system strength Shortfall declared by AEMO in the transmission network at Newcastle and Sydney West 330kV nodes from 1 July 2025 and continue until the new system strength rules commence on 2 December 2025

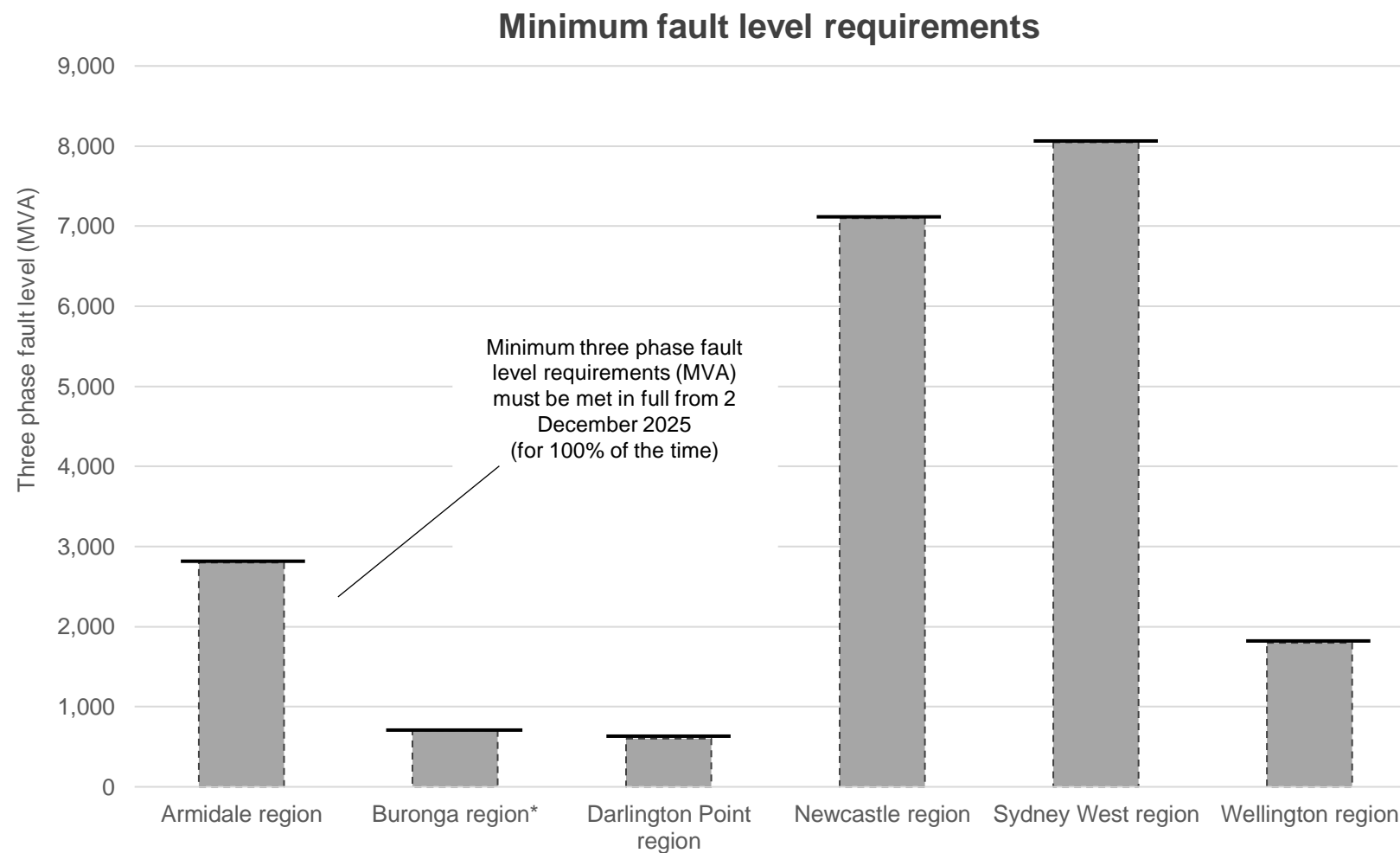
New South Wales fault level requirements, 2025-26 post contingency fault level projections and Shortfalls



System strength rule change (from 2 December 2025)

Minimum level

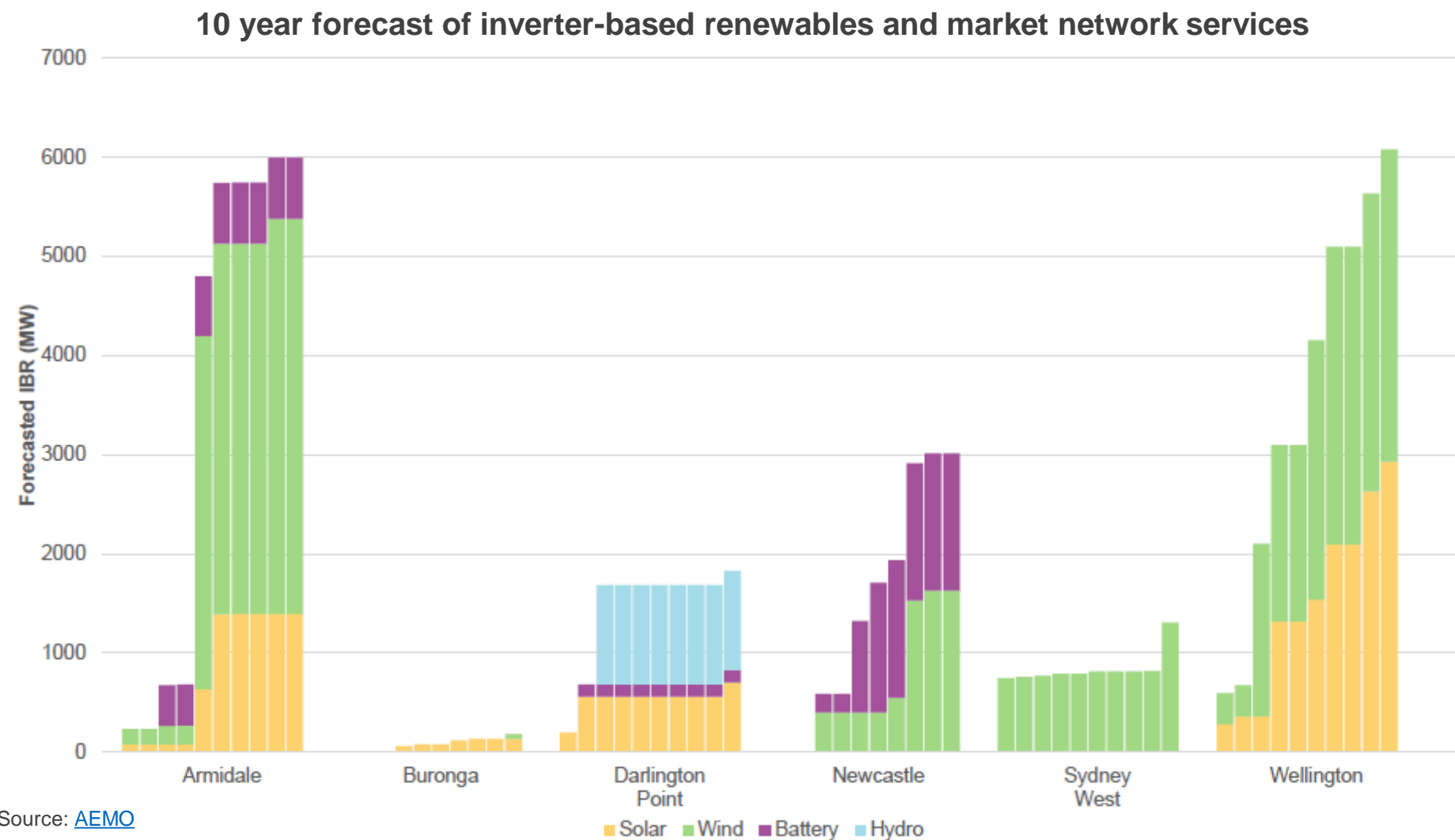
From 2 December 2025, Transgrid, as the System Strength Service Provider, must establish a portfolio of solutions to meet NSW's entire minimum fault level requirements (rather than just filling a declared Shortfall) at all times of the year



System strength rule change (from 2 December 2025)

Efficient level

Above and beyond minimum system strength levels, Transgrid must provide sufficient strength services to enable the stable operation (stable voltage waveforms) of new connecting generators



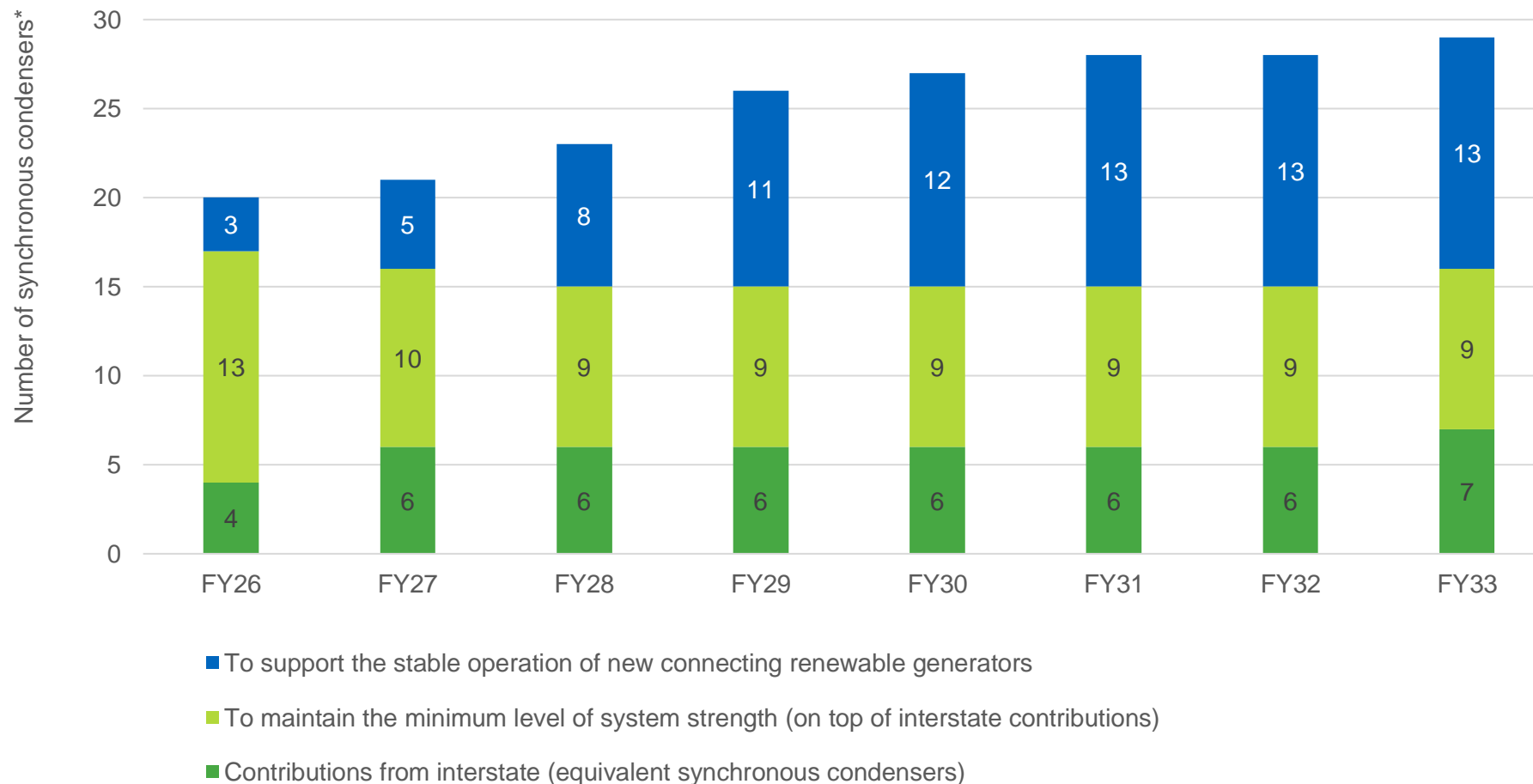
The 'Operational Security Mechanism' will dispatch services to ensure that sufficient system strength levels are always met and will co-optimize additional levels of system strength to enable the economically optimal level of renewable generation to operate stably in real-time.

Source: [AEMO](#)

System strength is a large and growing requirement

We estimate that a portfolio of solutions equivalent to approximately 29 synchronous condensers will be required by FY2033. Non-network solutions are likely to play a significant role, reducing the requirement for synchronous condensers.

Equivalent synchronous condensers needed to meet NSW system strength requirements in full



A portfolio of existing and new network and non-network solutions, including services from interstate, is likely to best meet the needs of the NSW power system and energy consumers throughout the energy transition

* Of the 29 synchronous condensers estimated for FY33, 25 are rated at 200MVA and 4 are rated at 125MVA

We propose ongoing TAC consultation throughout the project

System strength is likely to be one of the most complex RIT-Ts Transgrid has ever undertaken; we would welcome the opportunity to consult with the TAC throughout the project to ensure that stakeholder views are appropriately considered

Areas driving the complexity of this RIT-T:

- The need for system strength is large, and growing – providing all of NSW's system strength requirements (from '0' up, including for +15GW of VRE by FY33);
- System strength is non-linear and has complex interplays with the energy market requiring co-optimisation in the planning and operational time-horizons;
 - New tools and capabilities need to be developed to incorporate system strength into market modelling for the first time.
 - The Operational Security Mechanism rule change has not yet been finalised (and has been delayed by AEMC)
- There is strong potential for emerging grid-forming technologies, which haven't yet been proven at scale
- There are uncertainties with the application of new system strength rules, including interactions between states and with EnergyCo's plans within NSW REZs

Proposed TAC consultation topics (initially):

- Approach and criteria to develop and optimise portfolios of network and non-network solutions to meet Transgrid's system strength obligations
- The selection of scenarios and sensitivities to test within the RIT-T
- Proposed approach for identifying and assessing non-network solutions within the RIT-T, and approach and criteria to apply in subsequent procurement processes
- Consideration of greenhouse gas emissions, if proposed NEO changes have not yet flowed through to the NER and RIT-T guidelines

Subject to TAC feedback, we propose to provide regular updates to the TAC and/or host deep-dive workshops – option for deep-dive on 28 April to consult on System Strength and Broken Hill RIT-T

Questions and discussion





Break (10 minutes)



Major projects portfolio update

Nathan Rhodes, General Manager,
Powering Tomorrow Together

Rapid and streamlined programmatic build out of major projects

Objectives

Transgrid's Powering Tomorrow Together (PTT) program positioned to mitigate challenging market dynamics facing transmission build – inflationary environment, competition for D&C resources, securing LLE equipment – and deliver in a timely, cost-effective manner.



Secure resources in a hot market



Increasing social license long term benefits



Enable vertical take-off



Scaling efficiencies and consistencies



Access and harvest market expertise for TG



Drive consistency and efficiency across portfolio

Current Initiatives

Portfolio Management and Insights

1

- Establish Integrated Management Team (IMT) that will establish systems manage resources to drive consistency and efficiency across the program

Strategic Procurement Equipment

2

- established program for strategic procurement of LLE equipment for project portfolio, ensuring timely supply and cost savings

Secure Delivery Partners (D&C – Design and Construct) and other critical external providers (e.g. EIS, Engineering)

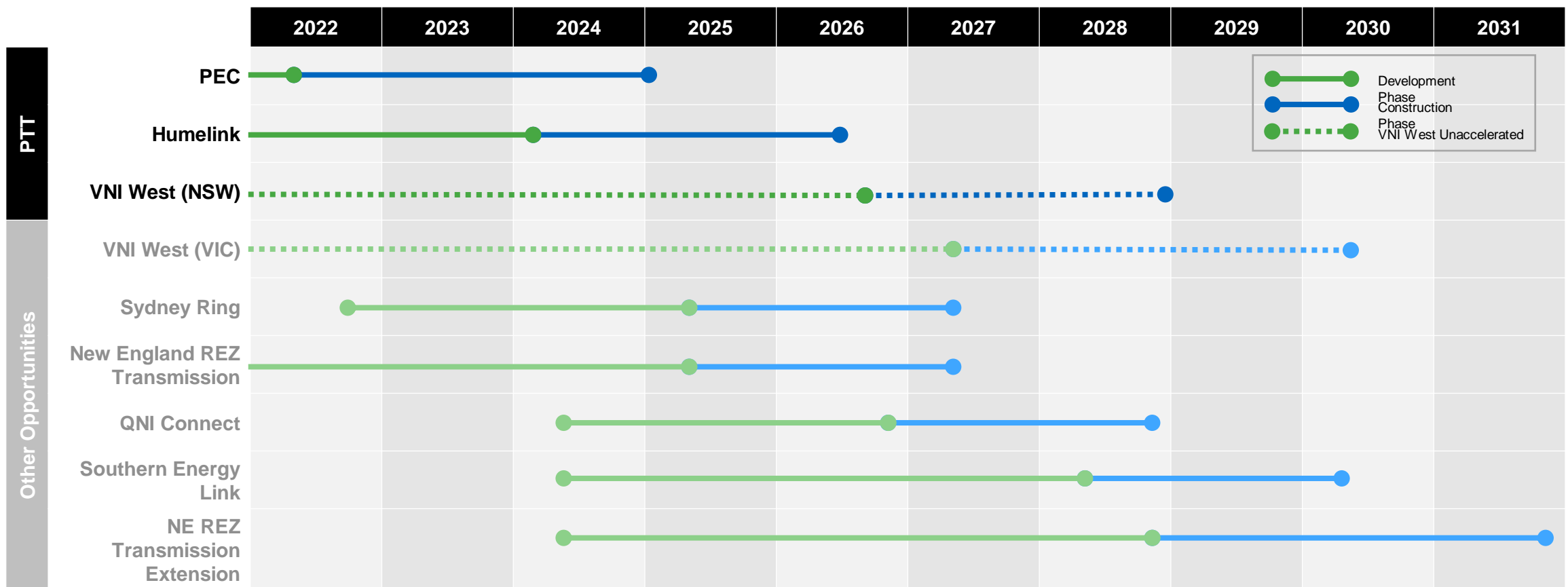
3

- Establish Integrated Management Team (IMT) that will establish systems manage resources to drive consistency and efficiency across the program

Design and Construction Innovation

4

Major projects portfolio **indicative** master program



Note: development and delivery timelines above have been extrapolated based on the 2022 ISP and does not take into account matters such as the acceleration of VNI West to 2028 completion. Completion dates for Future ISP Projects assume completion by the Earliest Delivery Date identified in the 2022 ISP.

Project EnergyConnect (PEC) overview

Australia's largest transmission project

Key Project Drivers



Time



Cost



**Performance
outcomes
for consumers**

Project Objectives

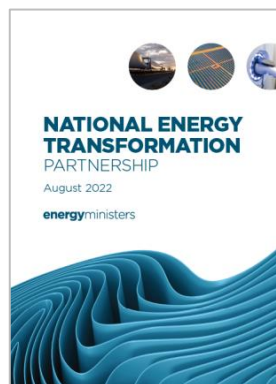
Completion Q3 FY24/25

Project delivery cost of \$1.8 billion
(Transgrid component)

Ensure completed asset performs as designed, providing increased reliability and security to network, deliver backbone infrastructure to support new renewable sources of generation, and realise key benefits for energy consumers

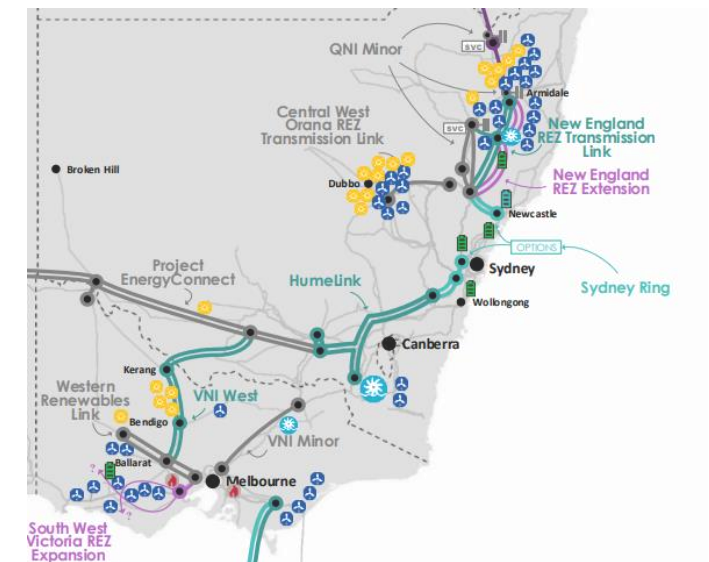
Key Benefits

- \$4 billion in economic activity to be generated, primarily in regional NSW
- Connecting power grids of NSW, SA and Victoria for the first time
- Lower electricity bills for NSW households
- Supports Australia's emissions reduction targets
- Capable of supplying 8.5 per cent of the total average maximum daily electricity demand in NSW



Scope

- 700km of new high voltage transmission lines connecting New South Wales, South Australia and Victoria.
- Additional 200km of transmission infrastructure being constructed in SA
- New or upgraded infrastructure at three substation locations: Wagga Wagga, Dinawan and Buronga



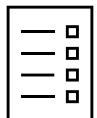
Project EnergyConnect (PEC) update

Where we are on Project Timeline

- ✓ Line 1 (Buronga to SA Border) works and surveying
 - tower foundations, tower assembly and erection
- ✓ Line 4 (Buronga to Red Cliffs) - tower foundations
- ✓ Lines 2 & 5 (Buronga to Wagga Wagga) - pre-construction, geotechnical
- ✓ Earthworks for Camp 7 – Renmark Rd
- ✓ Heritage salvage works on western alignment

Stakeholder Engagement

Key engagement activities in last month



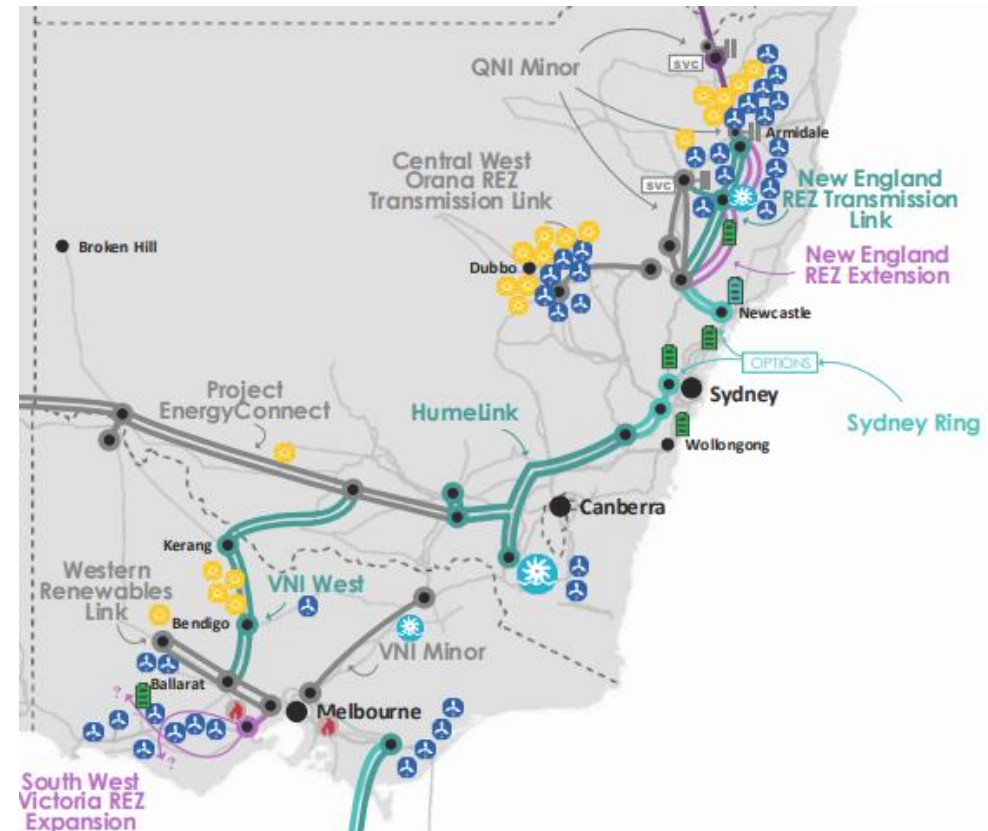
- ✓ 256 interactions for February with 14 incoming enquiries and mostly outgoing communications



- ✓ EnergyConnect Business and Employment Forum at Hay on 22 February

Upcoming

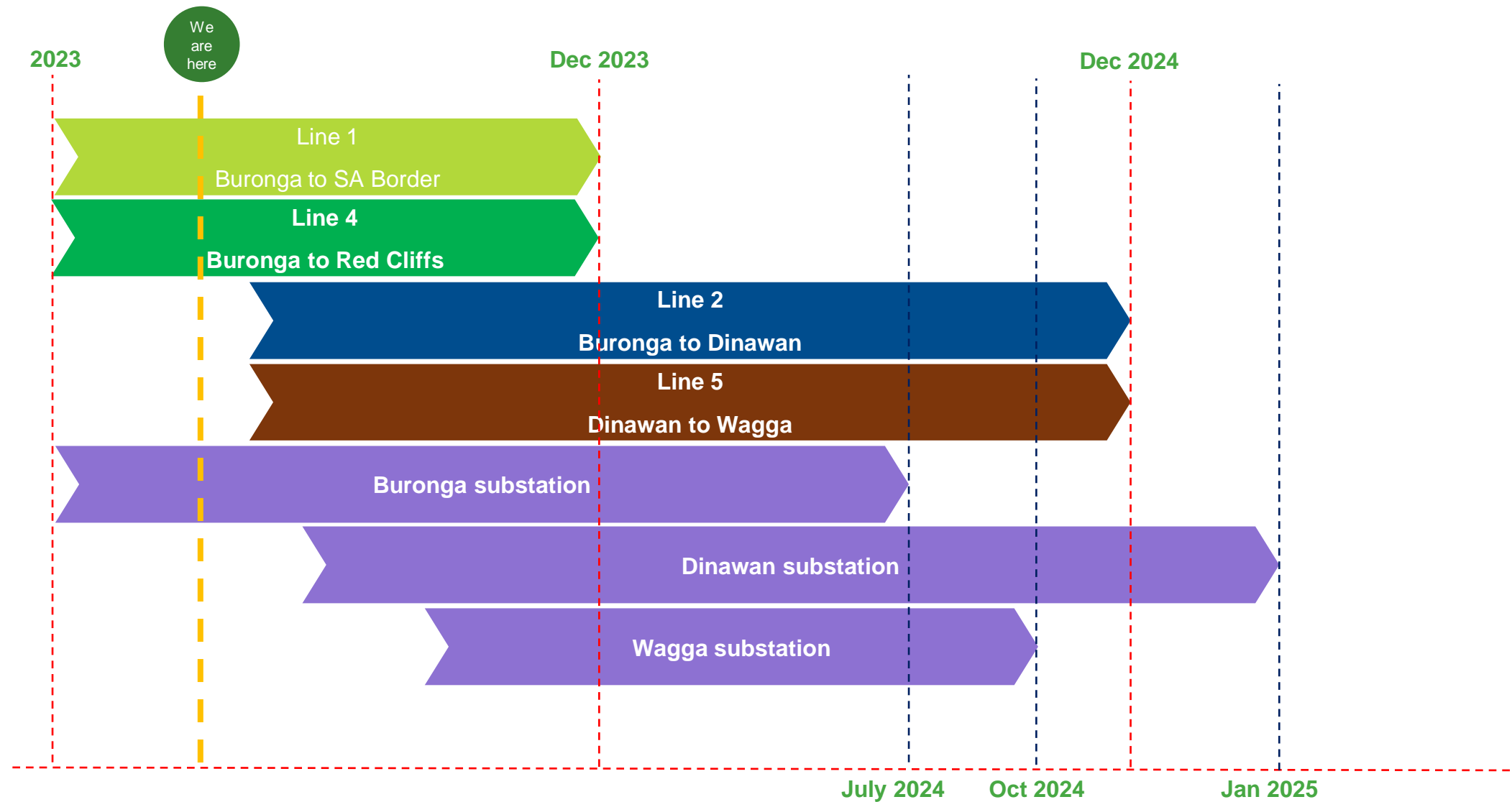
- ✓ EnergyConnect Business and Employment Forum in Hay on 30 March
- ✓ Pop-up engagements in EnergyConnect communities



Social Licence

- ✓ Additional six Transgrid Engineering Scholarships awarded to Charles Sturt University students. Final round of applications to close March
- ✓ RDA Riverina preparing to deliver first outcome of Strategic Workforce Development Partnership – expanded community employment platform Jobs Riverina-Murray

Project EnergyConnect (PEC) construction timeline



****Note:** Line 3 was renamed Line 5 when it was upgraded from 330 to 500kV

VNI West overview

Improving power flows between Victoria and NSW

Key Project Drivers



Time

Project Objectives

Meet Rewiring the Nation delivery target of end 2028



Cost

Project delivery cost of \$3.3 billion
(\$1.6 billion in NSW)



**Performance
outcomes
for consumers**

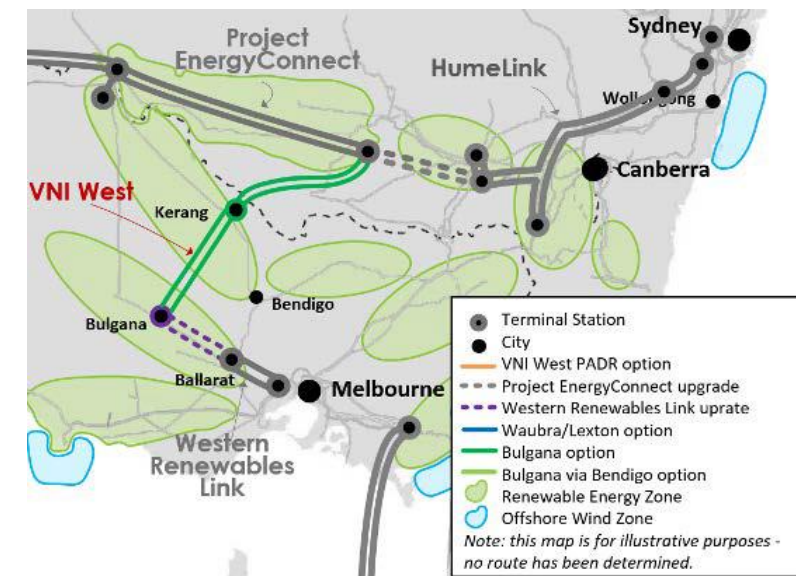
Preferred option:

- Additional 1,650 MW transfer capacity NSW to VIC
- Additional 1,930 MW transfer capacity VIC to NSW
- Additional 3,410 REZ transmission limit in NSW and VIC

Scope

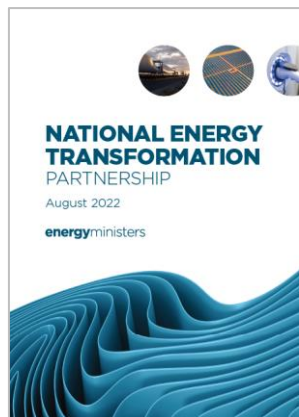
300km of new double circuit 500kV high voltage transmission lines linking EnergyConnect and Western Renewables Link

Preferred option



Key Benefits

- \$1,388 million in net economic benefits
- Reliable power supply across the eastern states
- Lower electricity bills for households
- Supports additional generation from Renewable Energy Zones in NSW and VIC



VNI West update

Where we are on Project Timeline

- Pre-PACR Consultation Report released for 6-week submission period
- Corridor development work underway
- Initial stakeholder engagement and scoping for reference group establishment

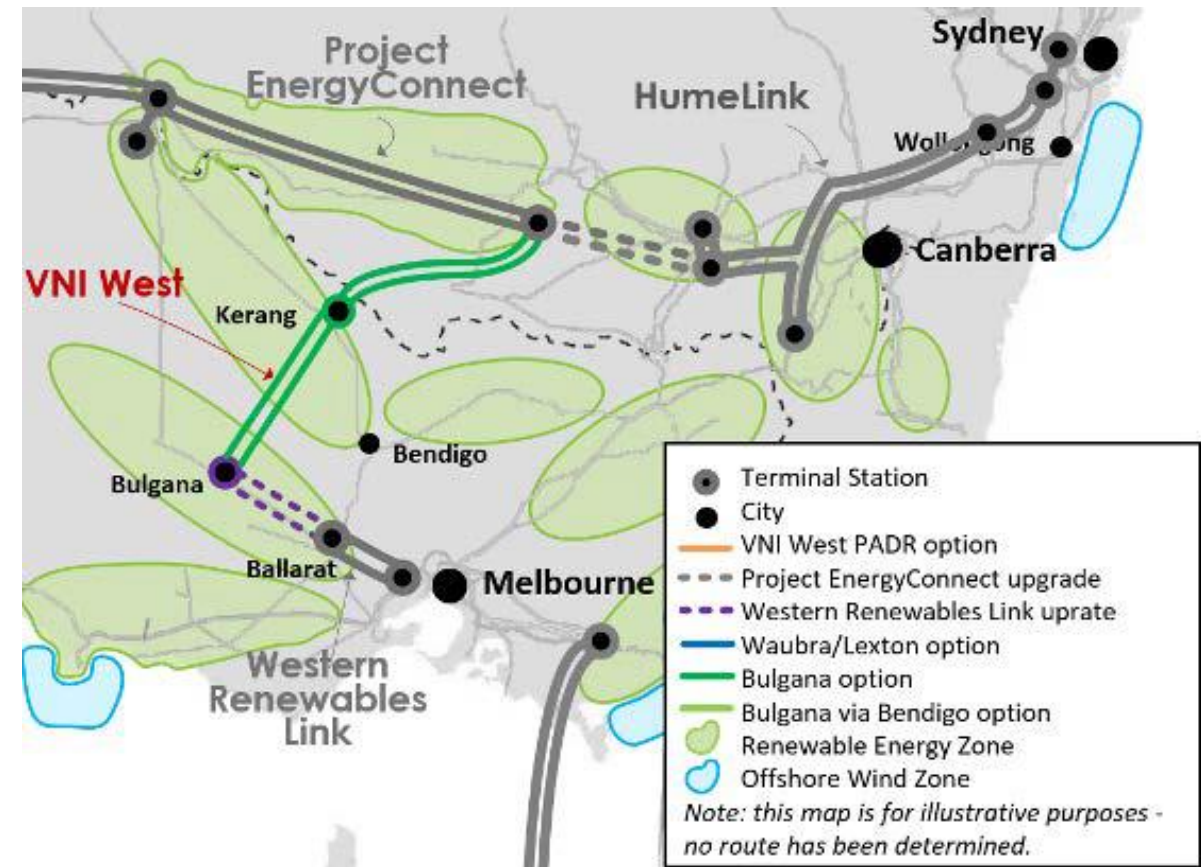
Stakeholder Engagement

Key engagement activities in last month

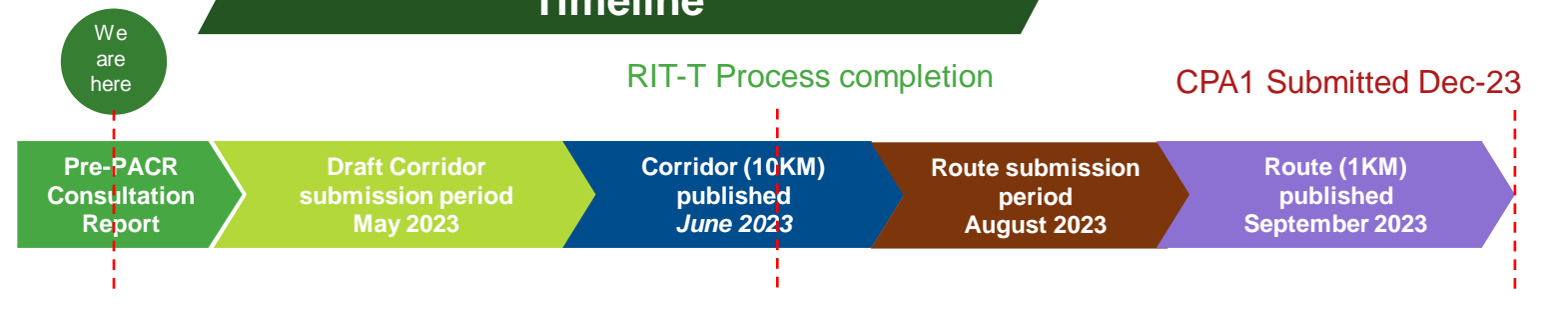
- ✓ 68 interactions across the project with 24 incoming enquiries and 44 outgoing communications.
- ✓ Stakeholder briefings: LALCs, MPs, Councils, agricultural organisations and associations

Upcoming

- ✓ Community Information Sessions on Pre-PACR Consultation Report
- ✓ Stakeholder deep-dive on Pre-PACR Consultation Report
- ✓ Establish Regional Reference Group
- ✓ Corridor workshops with RRG



Timeline



Social Licence

- ✓ Scoping and early engagement phase

Sydney Ring Projects overview

Reinforcing supply to Sydney, Newcastle and Wollongong load centres

Key Project Drivers



Time



Cost



Performance outcomes for consumers

Project Objectives

Hunter Transmission Project (HTP) Stage 1: by 2027/ 28

Estimates of \$0.9 billion $\pm 50\%$ for northern option (HTP), and \$2.25 billion $\pm 50\%$ for southern alternative option (Southern Sydney Ring)

HTP Stage 1: to provide additional 5,000 MW transmission capacity

Scope

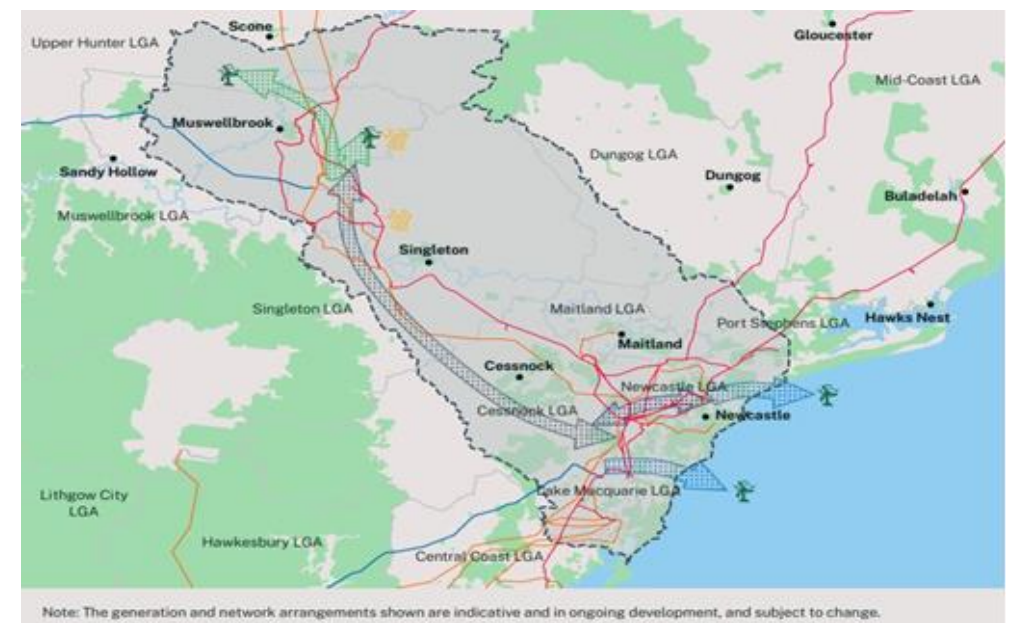
HTP:

- Up to four 500kV high voltage transmission lines between Eraring and Bayswater substations

Southern Sydney Ring:

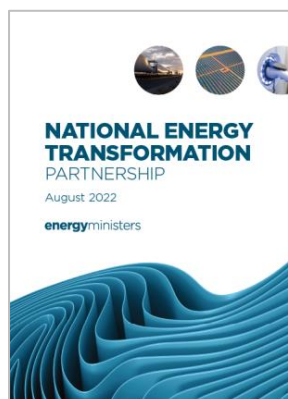
- 500 kV link between Bannaby and South West Sydney

Hunter Transmission indicative project location



Key Benefits

- Reliable power supply through sharing energy between Sydney, Newcastle and Wollongong
- Lower electricity bills for households
- Supports additional generation from Renewable Energy Zones in NSW



Hunter Transmission Project update

Where we are on Project Timeline

- Working closely with the Energy Corporation of NSW (EnergyCo) on network planning, overall future networks needs and early development activities.
- Draft Request For Proposal has been received from EnergyCo. Preparation of proposal now underway – to be submitted to EnergyCo in Q2 2023.
- Continue to work toward EnergyCo's target of Ministerial Direction of Transgrid as Network Operator to carry out the Priority Transmission Infrastructure Project (PTIP) by August 2023.

Stakeholder Engagement



Ongoing engagement with EnergyCo and AEMO to clarify the need and timing for further update in the draft ISP 2024, due for publication end 2023.

Timeline

We are here



Hunter Transmission indicative project location



Source: EnergyCo Network Infrastructure Strategy

Social Licence

✓ Awaiting direction from EnergyCo



HumeLink project update

Mayur Kulkarni, Acting Project Director HumeLink

HumeLink overview

Transmission project of national significance

Key Project Drivers

Project Objectives



Time

Meet ISP earliest delivery date of Q3 2026 (targeting 6 months early)



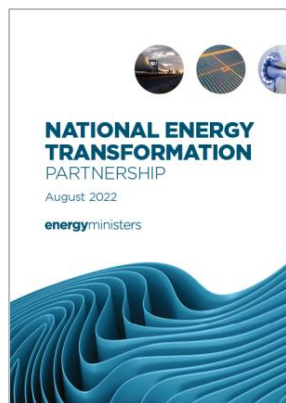
Cost

Project delivery cost of \$3.3 billion (in Real \$2020)



Performance Outcomes for Consumers

Ensure the completed asset performs at 500kV and 2,570MWh of additional capacity is opened up from Wagga, Maragle and Bannaby, so that the key benefits for energy consumers are realised

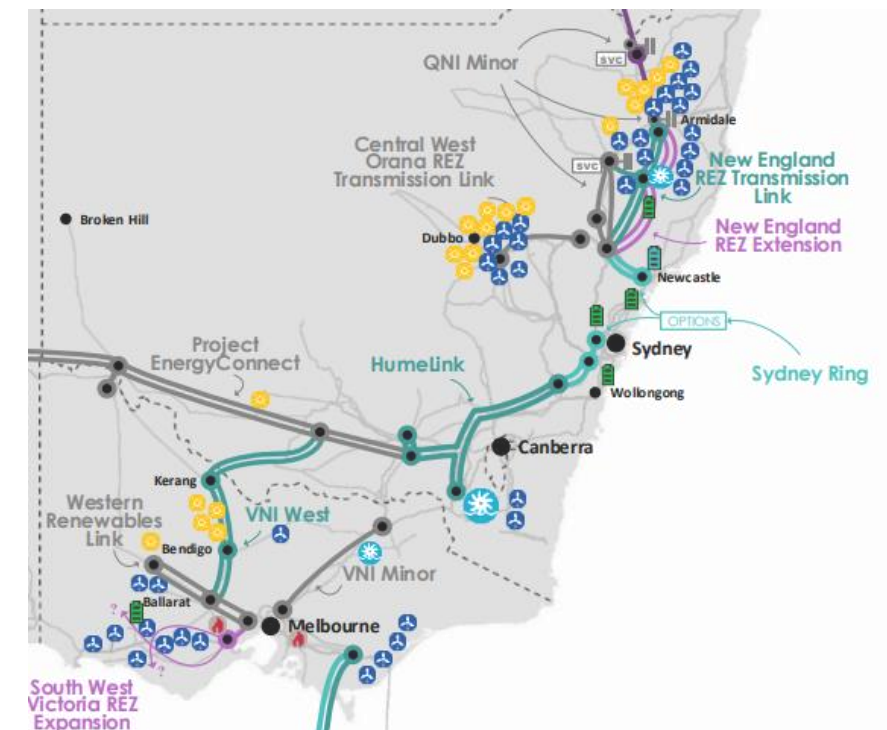


Key Benefits

- \$451 million in net benefits for energy consumers
- Reliable power supply across the eastern states
- Lower electricity bills for households
- Supports Australia's emissions reduction targets

Scope

- 356km of new 500kV high voltage transmission lines
- New or upgraded infrastructure at four substation locations: Wagga Wagga, Bannaby and Maragle



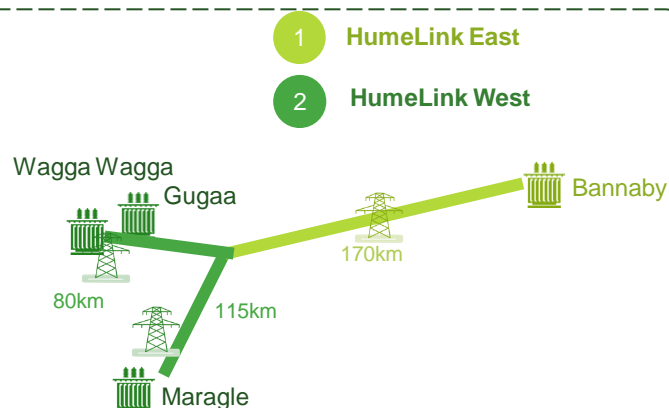
HumeLink update

Where we are on Project Timeline

- Phase 1 Early Contractor Involvement (ECI) tender evaluations concluded in February with CEO approval shortlist two bidders. ECI Phase 2 has now commenced.
- Finalising the EIS, route refinement and concept design
- Delivery Partner Framework
- Currently reviewing tenderer feedback

Technical

- Geotechnical and geophysics investigations continued to progress with almost 63% (222) of proposed (352) sites now completed. The completion of these investigations remains on track for April

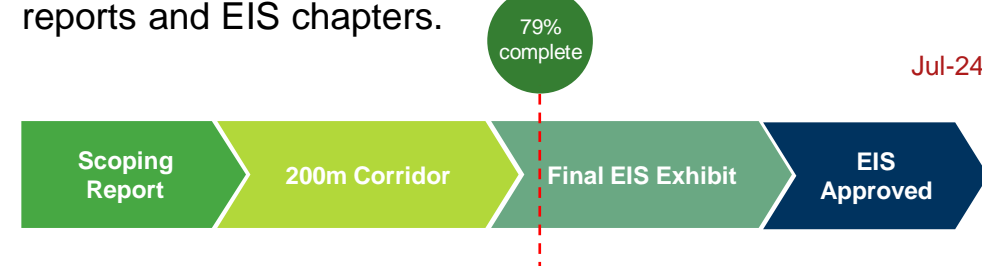


Social Licence

- Sponsorship and attendance to TumbaFest Tumbarumba February 2023
- \$509,546 = total project Community Investment expenditure March 2022 to March 2023

Environmental Approvals

- Transgrid are reviewing the second drafts of technical reports and EIS chapters.



CPA1 Funding Status

Actuals to end of Aug-22 (Pre-CPA1 Approval)	\$66.4M
Total (since CPA1 approval)	\$40.4m
Total cost to date as at end Feb 2023	\$106.8m



- Notice to Proceed payments for transformers and reactors expected to occur in March
- Potential for Delivery Contractors to request higher upfront cashflows in CPA1 than anticipated in order to secure resources, plant and materials in current high demand market

Stakeholder Engagement

- 223/ 343 (67%) consent to enter
- 93.8% of initial offer letters have been sent to private landholders
- 62 properties have agreed to option agreements (either in principal or already executed)
- Option agreements with 26% of landholders

Key engagement activities in last month



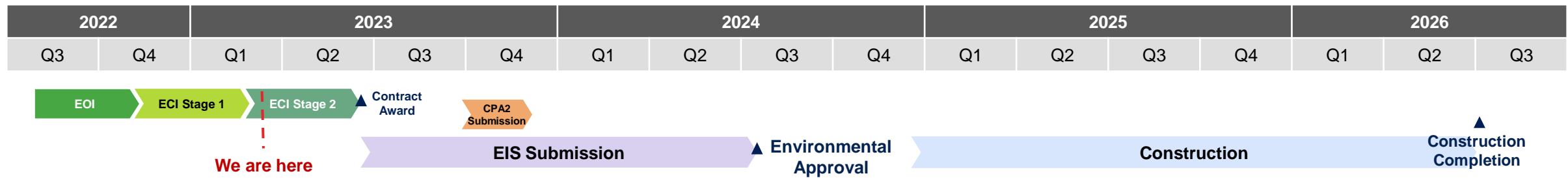
- Consultation with DPE and DCCEEW on the planning approval pathway.



- 3 CCGs held in Yass, Tumut and Wagga
- 15 Community Information Sessions held

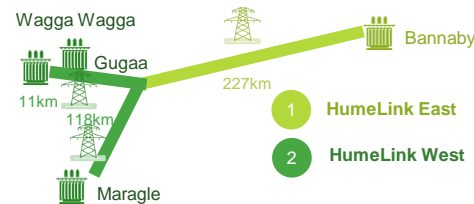
Project update – status of CPA1 activities and spend

Where we are on the Project Timeline



Technical

- ✓ 63% (222/352) geotechnical boreholes completed
- ✓ Detailed design progressing
- ✓ Centre line to be locked down by end of March



CPA1 Funding Status

Actuals to end of Aug-22 (Pre-CPA1 Approval)	\$66.4M
Total (since CPA1 approval)	\$40.4m
Total cost to date as at end Feb 2023	\$106.8m

29%	\$106.8m	CPA1 Funding Envelope \$365m
Feb 2023		Mid 2024

- ✓ Notice to Proceed payments for transformers and reactors expected to occur in March
- ✓ Potential for Delivery Contractors to request higher upfront cashflows in CPA1 than anticipated in order to secure resources, plant and materials in current high demand market

Land Acquisition

- ✓ Consent to Enter: 67% of line length
- ✓ 94% offers of compensation issued to land holdings
- ✓ 26% compensation agreed in principle (inclusive of below)
- ✓ 3% Option Deed fully executed

Environmental Approval

- ✓ Additional quality and technical review controls implemented
- ✓ Close out of EIS technical reports in progress
- ✓ Government agency engagement on Green Hills alternative route

Community & Stakeholder

- ✓ Kicked off Community Information Session roadshows to support EIS engagement. 15 information sessions held as of (9 March)
- ✓ Project updates delivered to 34,000 homes across the project alignment
- ✓ Media sentiment: 94% Neutral, 4% Negative, 2% Positive

Further Stage 1 CPA for HumeLink

Stephanie McDougall, General Manager of Regulation

Background

AEMO's 2022 ISP defined HumeLink as a staged actionable ISP project with a target delivery date of 2026-27:

- Stage 1 – complete the early works by 2024, and
- Stage 2 – implement the Project by 2026-27, subject to decision rules and a feedback loop.

AEMO's direction in its 2022 ISP to proceed now with Stage 1 (early works) to achieve the following benefits:

- **option value** – it will allow us to deliver the project as soon as possible or defer it if circumstances change
- **insurance value** – it will mitigate the risk of schedule slippage and the risk of coal exiting faster than anticipated, and
- **continual improvement value** – it will refine the project through innovation and cost effective design in order to identify, explore and manage project risks. This will result in more accurate cost estimation and ensure the Project's costs are prudent and efficient.

Early works will avoid \$200 million of 'regret costs'

Purpose of Early Works activities

Early works activities are intended to deliver the following outcomes:

1. determine the prudent and efficient construction cost for Stage 2 (project implementation) by refining the Project scope through innovation and cost effective design
2. identify, explore and manage key risks and external factors that will impact the Project's overall costs.
3. achieve AEMO's target delivery date of 2026-27 by ensuring that construction can commence as soon as possible following the approval of our Stage 2 CPA.

AEMO defines Stage 1 (early works) as pre-construction activities that can be undertaken now, while keeping open the option to continue, defer or cancel the project as new information becomes available. This could include:

- *detailed engineering design*
- *project initiation - planning and design activities, **procurement** and construction contracts such as obtaining binding bids*
- *cost estimation – finalisation, including quotes for primary and secondary plant*
- *land-use planning –, and*
- *stakeholder engagement – with local communities, landowners and other stakeholders.*

Initial Stage 1 CPA activities – Direct capex

In our initial Stage 1 CPA, our early works activities comprised direct capex activities and indirect and labour capex activities.

Direct capex

- Procurement activities, which will be undertaken by the successful contractors:
 - assembling, designing, erecting, and testing of nine standard steel towers
 - procuring production slots for equipment with long lead times, in particular substation transformers and reactors
 - pre-construction development, including for substations and transmission lines, equipment specifications and identifying quantities of plant and materials required.
- Acquiring land for a substation at Gugaa and transmission line easements. This includes binding options and compulsory acquisition costs for transmission line easements

Direct capex - (\$M, Real 2017-18, including overheads)

Capex	Description	Forecast capex	% of total capex
Direct capex			
Procurement	Steel tower assembly design and prototype testing	4.38	1.4%
	LLE – Substation transformers and reactors	18.42	5.7%
	Pre-construction – substation & transmission lines	81.79	25.4%
Land	Cultural heritage, valuation and acquisition costs	22.12	6.9%
Total direct capex		126.71	39.4%
Labour & indirect capex (Development & Approvals)			
Labour	Labour and corporate support procurement,	75.45	23.4%
Indirect costs	Project development, Land & environment, Procurement, Community & engagement,	119.71	37.2%
Total labour and indirect capex		195.16	60.6%
Total capex (excluding equity raising costs)		321.87	100.0%

Further Stage 1 CPA required (CPA-1 Part 2)

The delivery of Major Projects, including HumeLink, are subject to rapidly evolving external factors including

- inflationary pressure, and
- a heated construction market

Both driving up materials and labour costs.

In order to secure lowest price for LLE, in February 2023, we entered into agreements with suppliers to purchase LLE for our Powering Tomorrow Together Program (PTT), which includes HumeLink and VNI West.

We therefore require a further stage 1 CPA (i.e. CPA-1 Part 2) to enable us to recover the costs of purchasing LLE for:

- Substation transformers
- Reactors
- Conductor
- Steel towers

Our proposed CPA-1 (Part 2) will not increase the total cost of the project, but align our cost recovery with the purchase of LLE now, which is required to ensure the lowest sustainable overall cost for delivering the project.

What does the Regulatory Framework allow?

There are three key instruments that are relevant for Actionable Contingent Projects.

- The National Electricity Rules (NER)
- AEMO's ISP
- AER [Guidance Note Regulation of actionable ISP projects](#) (AER Guidance Note)

All of the above, contemplating project staging and do not limit the number of CPAs per project.

The AER's Guideline provides that:

- TNSPs can lodge more than one CPA with the AER for a single actionable ISP project
- CPA staging is usually two CPAs – one for early works and one for implementation – there are circumstances where appropriate CPA staging could look different from this.
- The AER cautions about the challenges of having too many CPA stages.

CPA-1 (Part 2) to purchase LLE

A further stage 1 CPA (CPA-1 Part 2) is required to enable us to recover the costs of purchasing LLE for:

- Substation transformers
- Reactors
- Conductor
- Steel towers

Purchasing these now as part of Early Works allows us to ensure supply chain security and realise cost savings associated with a 'program of work' (Powering Tomorrow Together) (PTT).

[Costs are not final and are subject to change pending outcome of negotiations with contractors]

Table 1: LLE required for Early Works (\$Million, Real 2022-23)

LLE	Initial CPA-1 \$M	CPA-1 (Part 2) \$M	Difference	Basis for CPA-1 capex forecast	Basis for CPA-1 (Part 2) capex forecast
Transformers and Reactors	21.8	79.4	57.5	20% of booking fee for total cost of transformers and reactors (based on quotations)	Contracts with suppliers to supply
Steel and Conductors	5.2	c.157.3	152.1	Prototype testing of towers only – no steel supply.	Contracts with suppliers to supply steel and conductors[TBC]
Total	27.0	236.7	209.6		

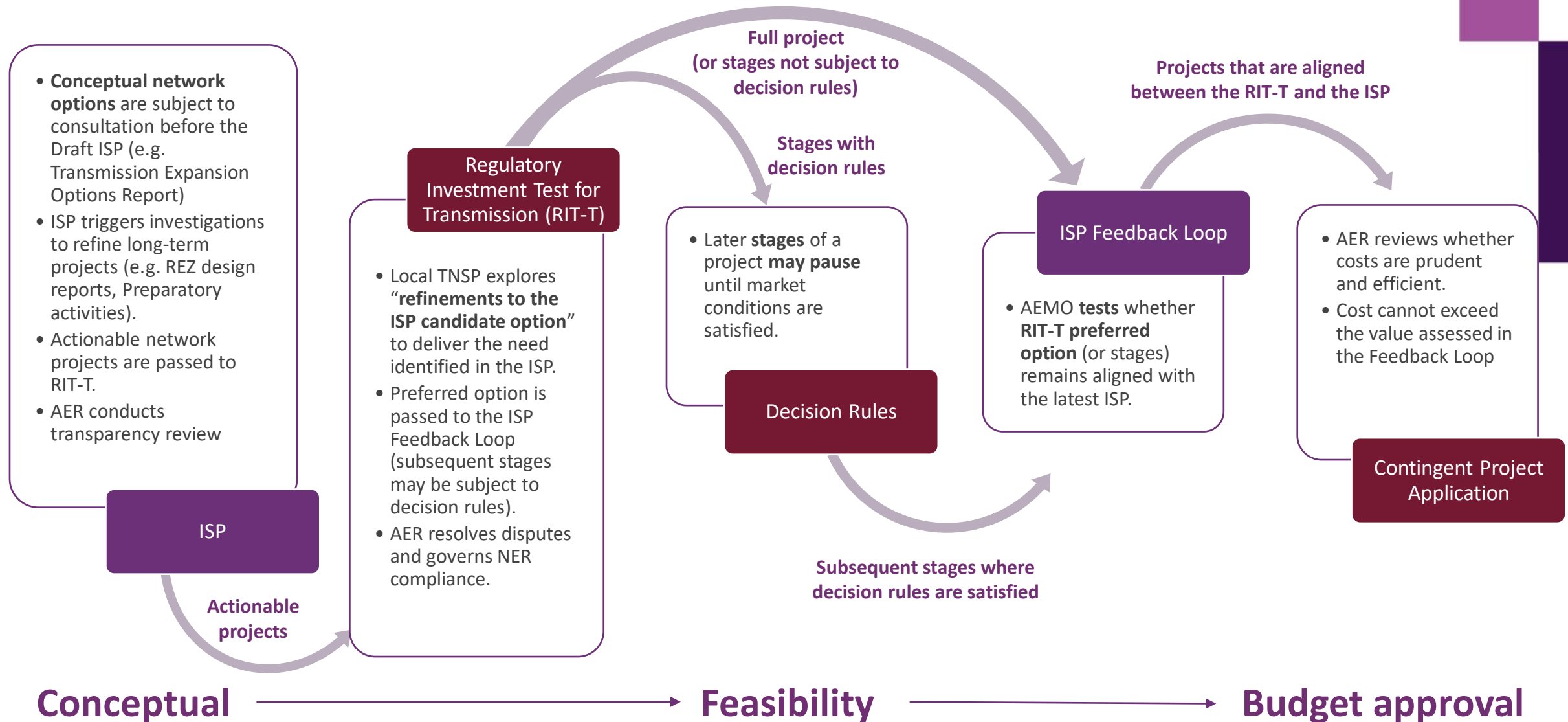
Next steps

Our next steps are:

- To seek feedback loop confirmation for our CPA-1 (Part 2)
- Subject to positive Feedback Loop confirmation from AEMO, lodge our CPA-1 (Part 2) with the AER.
- We are on track to submit our Stage CPA in September 2023

Our proposed CPA-1 (Part 2) will not increase the total cost of the project, but align our cost recovery with the purchase of LLE now, which is required to ensure the lowest sustainable overall cost for delivering the project.

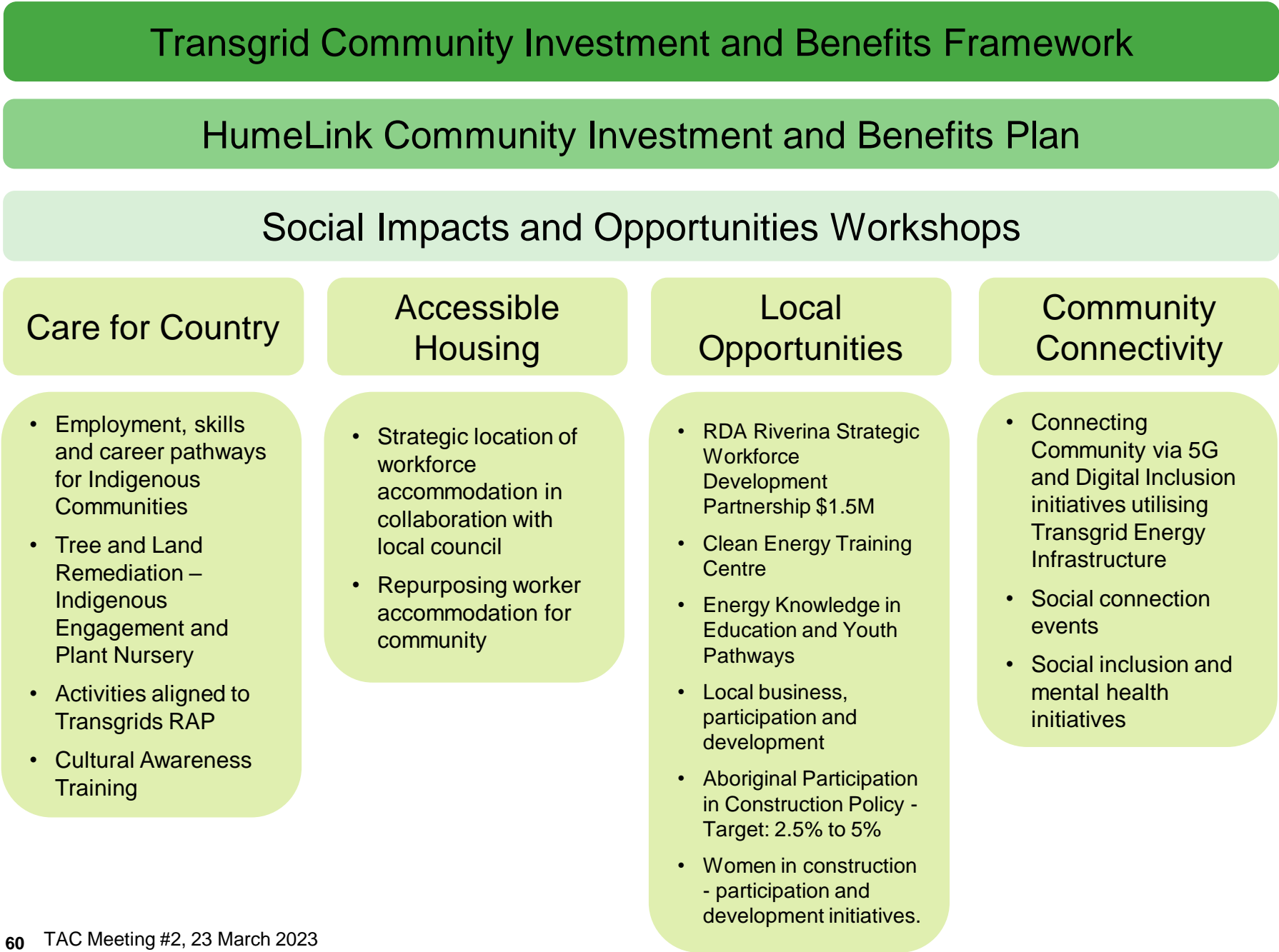
The ISP regulatory framework



HumeLink – social licence, community and stakeholder engagement

Michael Johnson, Program Director Stakeholder
Relations Major Projects

HumeLink Community Investment and Benefits



The Humelink Community Investment and Benefits Plan is informed by the Transgrid Framework and inputs from the community social impacts and opportunities workshops. These workshops helped establish the four key priority areas within the HumeLink Community Investment and Benefits Plan.

Transgrid retains responsibility for these initiatives and social licence – however contractors will play an important delivery role in community investment.

\$509,546 = total project Community Investment expenditure March 2022 to March 2023.

Community investment and benefits plan



Social Legacy and Investments

There are four initiatives that will comprise the Social Legacy Outcomes package of works with defined preparatory activities to be conducted during the Early Works.



Ongoing Community Engagement During Delivery

Transgrid retains responsibility for its social licence – however contractors will play an important delivery role in community investment & relations

Initiatives within the Social Legacy Outcomes package of works are implemented:

Community investment and benefits include a multitude of local and regional economic development opportunities. Preferred Tenderers to develop aligned Community Investment Plans during ECI Phase 2 - Linked to social impact performance and evaluation KPIs. Scope would include contributions, grants and sponsorships, and partnership initiatives targeted to improve or promote one or several of the following focus areas:

Workforce development and local opportunity

- RDA Riverina Strategic Workforce Development Partnership
- Upskilling, training Energy Industry
- Energy Knowledge in Education and Youth Pathways
- Local business, participation and development
- Aboriginal Participation in Construction Policy:
- (Target: 2.5% to 5%)
- Women in construction - participation and development initiatives

Social connectivity

- Connecting Community via 5G and Digital Inclusion initiatives utilising Transgrid Energy Infrastructure
- Social connection events
- Social inclusion and mental health initiatives

Care for Country

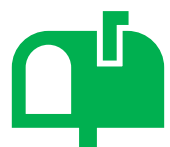
- Employment and Long-Term Jobs for Indigenous Communities
- Tree and Land Remediation – Indigenous Engagement and Plant Nursery
- Community Cultural Facilities and Programs
- Indigenous empowerment initiatives
- Cultural Heritage and Awareness Training
- Institutional Development.

Accessible Housing

- Repurposing worker accommodation for community housing/benefit in areas of unmet social need.

Community and stakeholder engagement

Over 50,000 engagements since March 2021



Letters/forms – 1,347



Phone calls, including 1800 number – over 3,900



Emails – 5,783



Stakeholder meetings – 777



CCG meetings – 27



Consent to enter – over 67% of line length



Online engagements – over 2,400



SMS – over 400



Community information sessions –
33 in person, 11 online



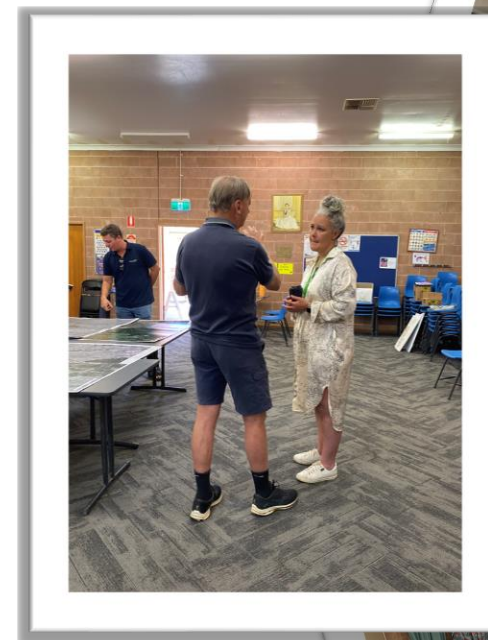
Newsletters
34k (hardcopy) 2,300 (electronic)

Community and stakeholder engagement

Look forward: April 2023

The team have kicked off the Community Information Session roadshows to support the EIS engagement.

- 8 information sessions held in February (28 attendees in total)
- more than 36 information sessions over the next five months
- online webinars
- 1 joint community consultative group meeting to be held 29 March
- pop-up visits across the alignment
- a new interactive map on the project website
- Production of Remote access community hub (RACH)
- First round of Community Grants will be launched for 2023 in March/April





Summary and next steps

David Feeney, General Manager of Regulatory Policy

People. Power. Possibilities.

TAC meeting program

TAC Meeting 1

1 March 2023

- CEO update and discussion
- 2023 TAC engagement approach
- Financeability update
- Major projects portfolio update
- HumeLink project update and CPA2 engagement
- Regulatory engagement:
 - Revised Revenue Proposal
 - Waratah Super Battery non-contestable Revenue Proposal

We are here!

TAC Meeting 2

23 March 2023

- 2023 TAC engagement program update & trust survey
- Regulatory Policy and Government Affairs update
- Regulatory engagement:
 - Revised Revenue Proposal
 - Waratah Super Battery non-contestable Revenue Proposal
- Major projects portfolio update
- HumeLink project update and CPA engagement
- HumeLink project social licence, community and stakeholder engagement

Optional

TAC Meeting 28 April

- Broken Hill RIT-T
- *Transmission "use of system" charges*
- System Strength Deep Dive

TAC Meeting 3

3 May 2023

- CEO update and discussion
- Transgrid stakeholder trust survey
- Regulatory Policy and Government Affairs update
- Regulatory engagement:
 - Revised Revenue Proposal
 - Waratah Super Battery non-contestable Revenue Proposal
- Major projects portfolio update
- HumeLink CPA1 activity update
- HumeLink procurement process and commercial framework – CPA-2

Thank you

Contact details

For further information or discussion, please contact:



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