

NSW Network Infrastructure Strategy

A 20-year strategy to transform the NSW electricity network

The Network Infrastructure Strategy

The Network Infrastructure Strategy is a strategy for the practical coordination of NSW network infrastructure to connect new generation, firming and storage in NSW's five Renewable Energy Zones (REZs), and meet the *Electricity Infrastructure Investment Act 2020* (EII Act) objectives.

The Strategy proposes Network Infrastructure Options with a total capacity of 14 gigawatts (GW) to be delivered as soon as practicable over the next decade (by 2033), and further options to be considered beyond that to bolster the State's energy resilience and plan for a net zero future.

The Consumer Trustee independently considers these options in preparing its Infrastructure Investment Objectives Report (IIO Report), where it sets a 20-year development pathway for NSW's generation, firming and long-duration storage infrastructure.

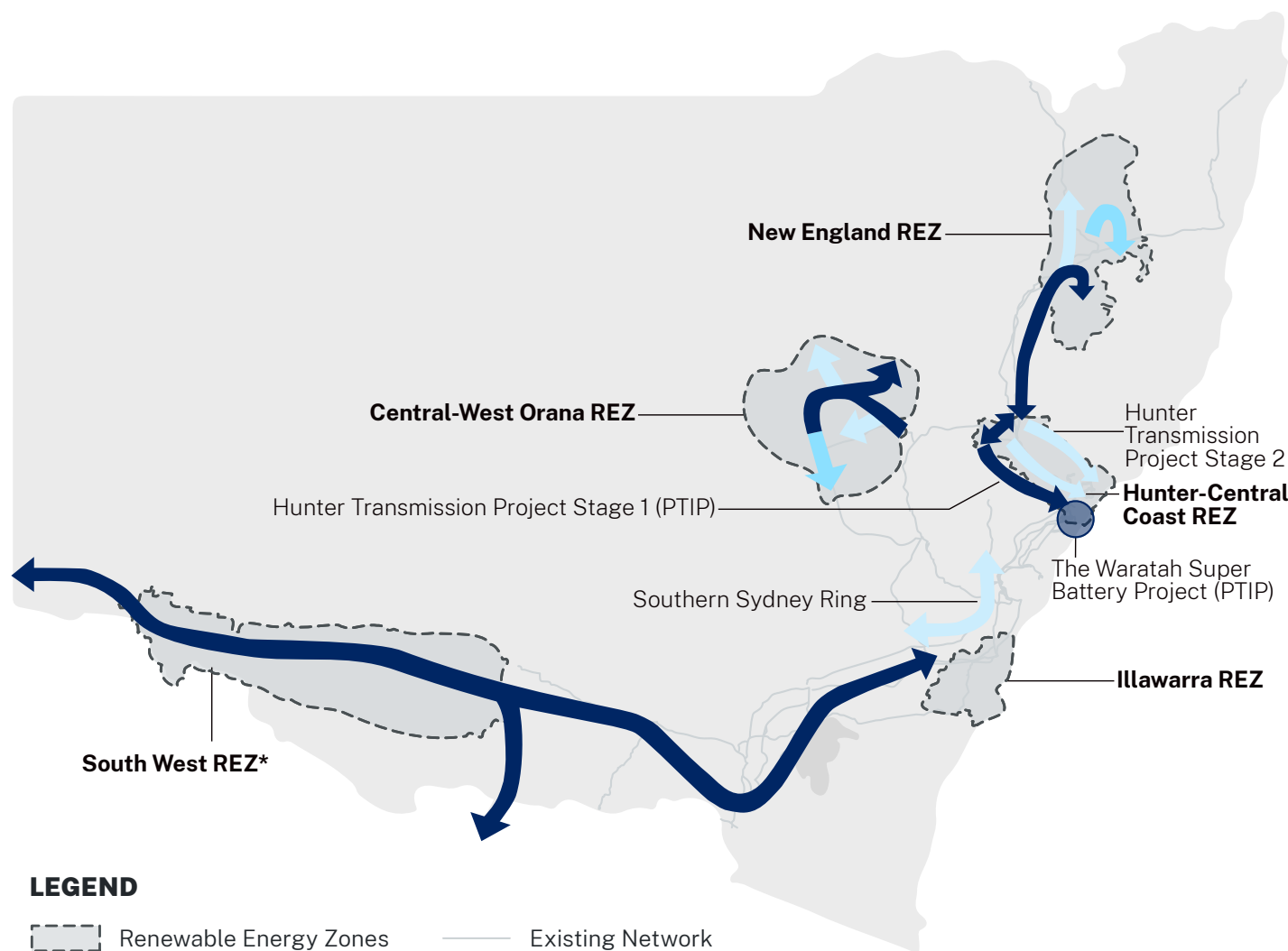
In this way, the Strategy and the IIO Report complement each other in the coordinated development of electricity infrastructure in the long-term interests of NSW's electricity consumers, quality of life and competitive industry.

The Network Infrastructure Options in the Strategy are designed to support new renewable energy generation and storage capacity in NSW's REZs.



Bodangora Wind Farm near Wellington, NSW.

Reference map of NSW network infrastructure and REZs



Deliver Now
Secure Now
Plan for the Future

*Network infrastructure delivered through Transgrid's ISP projects EnergyConnect, HumeLink and VNI West

The Strategy and IIO Report help future-proof NSW’s energy needs

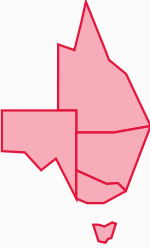
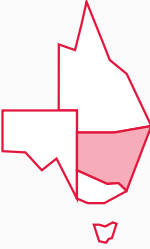
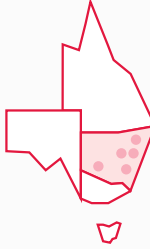
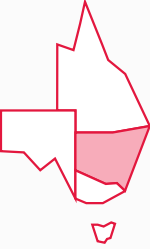
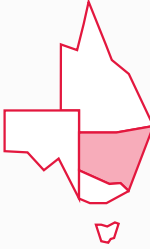
- Together, the IIO Report and the Strategy are intended to:
-  co-optimize and coordinate the development of all NSW electricity infrastructure in the long-term interests of NSW consumers and communities
 -  add to guidance, confidence and certainty for investors, consumers and communities on coordinated electricity infrastructure delivery, and
 -  facilitate meaningful engagement with industry, consumer and community stakeholders on all elements of the pathway.

The Strategy is for the practical coordination of NSW network infrastructure, identifying new network options to support the benefits anticipated by the NSW Electricity Infrastructure Roadmap. As Infrastructure Planner, the Energy Corporation of NSW (EnergyCo) will further assess and refine these and potentially other options before recommending any network project for authorisation.

The Consumer Trustee considers these options in preparing the IIO Report, with a development pathway and tender plan to guide investment in NSW *generation*, *firming* and *long-duration storage* infrastructure.

These roles are part of the coordinated planning and delivery of NSW’s electricity infrastructure.

Coordinated, iterative planning for NSW transmission projects

Entity	AEMO	AEMO Services Limited	EnergyCo	Transgrid	Ausgrid, Endeavour Energy, Essential Energy
Document	Integrated System Plan	Infrastructure Investment Objectives Report	Network Infrastructure Strategy	Transmission Annual Planning Report	Distribution Annual Planning Reports
Coverage	 NEM	 NSW	 NSW REZs and PTIPs	 NSW	 NSW
Level of detail	National	Generation and storage in NSW	REZ design and downstream augmentation	Existing transmission network and other projects	Existing distribution network and other projects
Time horizon	20 years and beyond	20 years	20 years	10+ years	10 years

The Strategy proposes options to Deliver Now and, in the future

The electricity generation projected for NSW over the next 20 years would far exceed NSW's existing network capacity. In response, the Strategy proposes options that add between 14 GW and 24 GW of network capacity over the next 20 years, depending on the modelled scenario.

These are set out below as:

- the network capacity to be added in each REZ, in the three categories of (Table 1):
 - *Deliver Now*
 - *Secure Now*, and
 - *Plan for the Future*
- downstream projects to support the NSW network (Table 2), and
- a timeline for the delivery of both sets of projects over the next 20 years.

As Infrastructure Planner, EnergyCo will further develop the design of each option, through detailed stakeholder engagement, before recommending a network solution to the Consumer Trustee for authorisation. All major network projects are subject to the NSW planning and environmental assessment process.

Investment in the options would support a secure and well-managed energy transformation for NSW, maximising benefits to electricity consumers and minimising community and landholder impacts. They would represent about 5% of wholesale electricity costs over the next 20 years, which could unlock up to four times the value in generation, storage and firming infrastructure.



A distribution line in Wollongong.

Table 1: REZ network capacity increases to be delivered by Network Infrastructure Options

	Deliver Now for secure and affordable energy	Secure Now for resilience against early coal closures	Plan for the Future to enable strong future electrification
Total REZ network capacity added	14 GW	3.6 GW	6.4 GW
Central-West Orana	4.5 GW	2.3 GW	3.5 GW
New England	6 GW	0.8 GW	1.5 GW
South West ^a	2.5 GW	-	-
Hunter-Central Coast	1 GW	0.5 GW	1.5 GW
Illawarra	Not modelled ^b		
Construction cost preliminary estimates^c	\$7.8 billion	\$1.5 billion	\$3.0 billion

- a. South West REZ transfer capacity is delivered through ISP projects. The cost has not been included here as this capacity will be delivered through Project EnergyConnect, HumeLink and the Wagga Wagga to Dinawan section of VNI West.
- b. Not modelled due to early-stage development of Illawarra REZ at the time of modelling for the Strategy. The Illawarra REZ has an intended network capacity of 1 GW and Network Infrastructure Options will be considered in the next Strategy.
- c. Estimates are Class 5b accuracy (i.e. +/- 50%) and for development and construction costs only (excluding finance, generator connection and system strength costs). This provides a comparable basis with estimates for projects under the National Electricity Rules. The total cost for a REZ also includes finance, generator connection and system strength costs at typically an additional 70% to 110% of development and construction costs. Generator and storage proponents that hold access rights will contribute connection and system strength costs. All values are in real 2021 Australian dollars.

Table 2: Key downstream network augmentations to meet Energy Security Targets and to support REZ development

	Deliver Now for secure and affordable energy	Secure Now for resilience against early coal closures	Plan for the Future to enable strong future electrification
Total downstream network capacity added	5.9 GW	-	10.5 GW
Hunter Transmission Project (PTIP)	5 GW	-	6 GW ^a
The Waratah Super Battery Project (PTIP)	0.9 GW ^c	-	-
Southern Sydney Ring ^d (TBC)	-	-	4.5 GW ^e
Construction cost preliminary estimates^b	\$1.9 billion	-	\$4 billion

- a. This is an indicative capacity that has been derived from early power system analysis studies. More detailed investigation is required to determine scope and timing.
- b. Estimates are Class 5b accuracy (i.e. +/- 50%) and for development and construction costs only (excluding finance, generator connection and system strength costs). This provides a comparable basis with estimates for projects under the National Electricity Rules. The total cost for a REZ also includes finance, generator connection and system strength costs at typically an additional 70% to 110% of development and construction costs. Generator and storage proponents that hold access rights will contribute connection and system strength costs. All values are in real 2021 Australian dollars.
- c. The Waratah Super Battery Project refer to the BESS component (0.85GW/1.68GWh), a 700MW SIPS scheme and minor upgrades to Transgrid's existing network.
- d. The Southern Sydney Ring may be delivered under the National Electricity Rules or under the EII Act.
- e. Cost estimates taken from AEMO ISP 2022 – Appendix A5 – A5.4.3 for the Southern Sydney Ring.

Engagement with communities and industry

EnergyCo leads engagement with community and industry to support the delivery of REZs and Priority Transmission Infrastructure Projects (PTIPs) across NSW. Working with communities and industry helps ensure that new transmission infrastructure is developed in the right place, at the right time, to deliver clean, reliable and affordable energy to the households and businesses of NSW.

Effective community engagement helps deliver better energy system outcomes, maximise benefits for regional and First Nations communities that host new energy infrastructure and minimise the impacts of network development as far as practicable.

Effective industry engagement helps ensure the delivery of new NSW transmission in a supply-constrained world, maintaining security and reliability through the power system's modernisation.

Feedback and responses on the Draft Strategy

In the Draft Strategy consultation, EnergyCo received 43 submissions from industry, network businesses, community associations, individuals, advocacy groups, local councils, and government bodies. The Final Strategy incorporates this feedback and foreshadows future iterations to continue working to address the issues raised.



Farmers with laptop in field examining crops.

Image credits:
EnergyCo, iStock

Contact us

Website: energyco.nsw.gov.au

Email: contact@energyco.nsw.gov.au

EnergyCo wants to hear what you think about our plans. For more information or to subscribe to our EnergyCo mailing list for regular updates, please scan the QR code or visit energyco.nsw.gov.au

