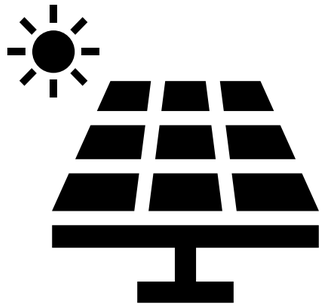
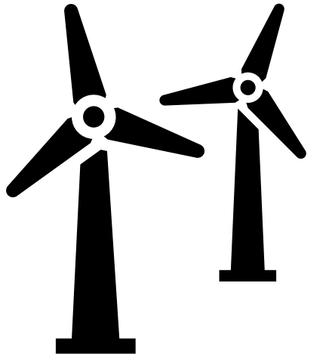
Transgrid Group

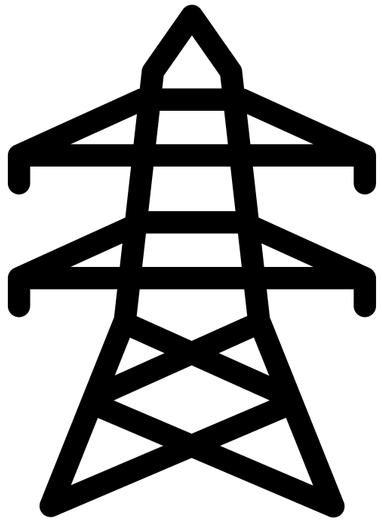
Energy storage: Indispensable to the energy transition

People. Power. Possibilities.





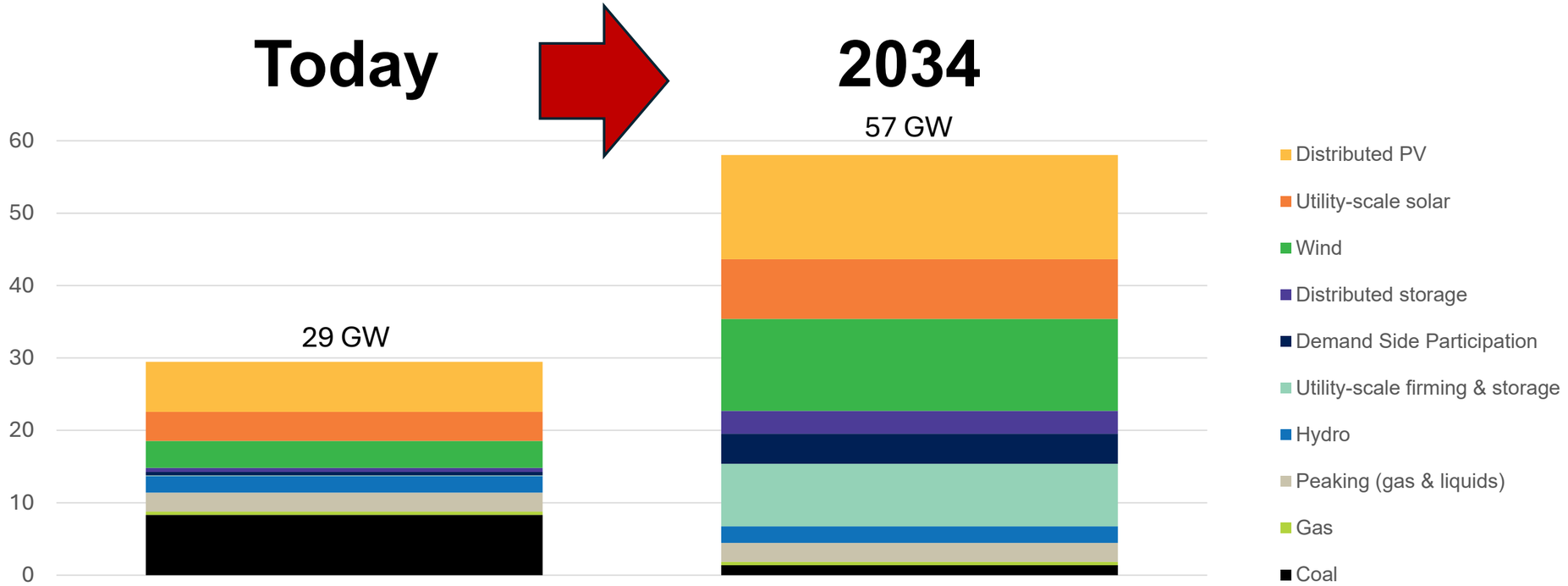
NSW Energy Transition



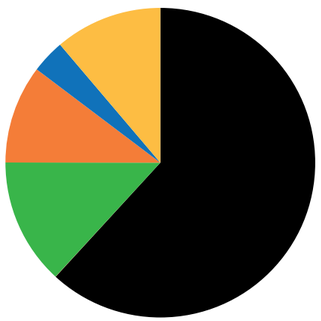
- In November 2020, the NSW Government released the NSW Electricity Infrastructure Roadmap
- The Roadmap is a 20-year plan to transform the electricity industry by supporting the delivery of:
  - ❑ 12 GW of new renewable electricity capacity, such as wind and solar
  - ❑ 2 GW of long-duration storage, such as pumped hydro and batteries
  - ❑ New network infrastructure to connect renewable energy sources to Transgrid’s transmission network

The evolving energy landscape

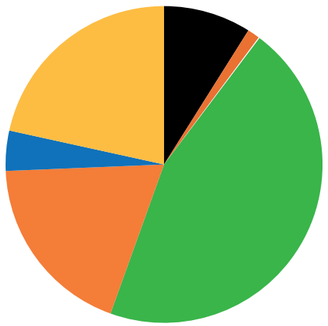
NSW Installed capacity (GW)



NSW Generation output (TWh)



Total – **75 TWh**



Total – **86 TWh**

By **2034:**

More than
23 GW
of extra large-scale renewable generation and storage capacity will be connected in NSW

Rooftop solar PV capacity will
more than double

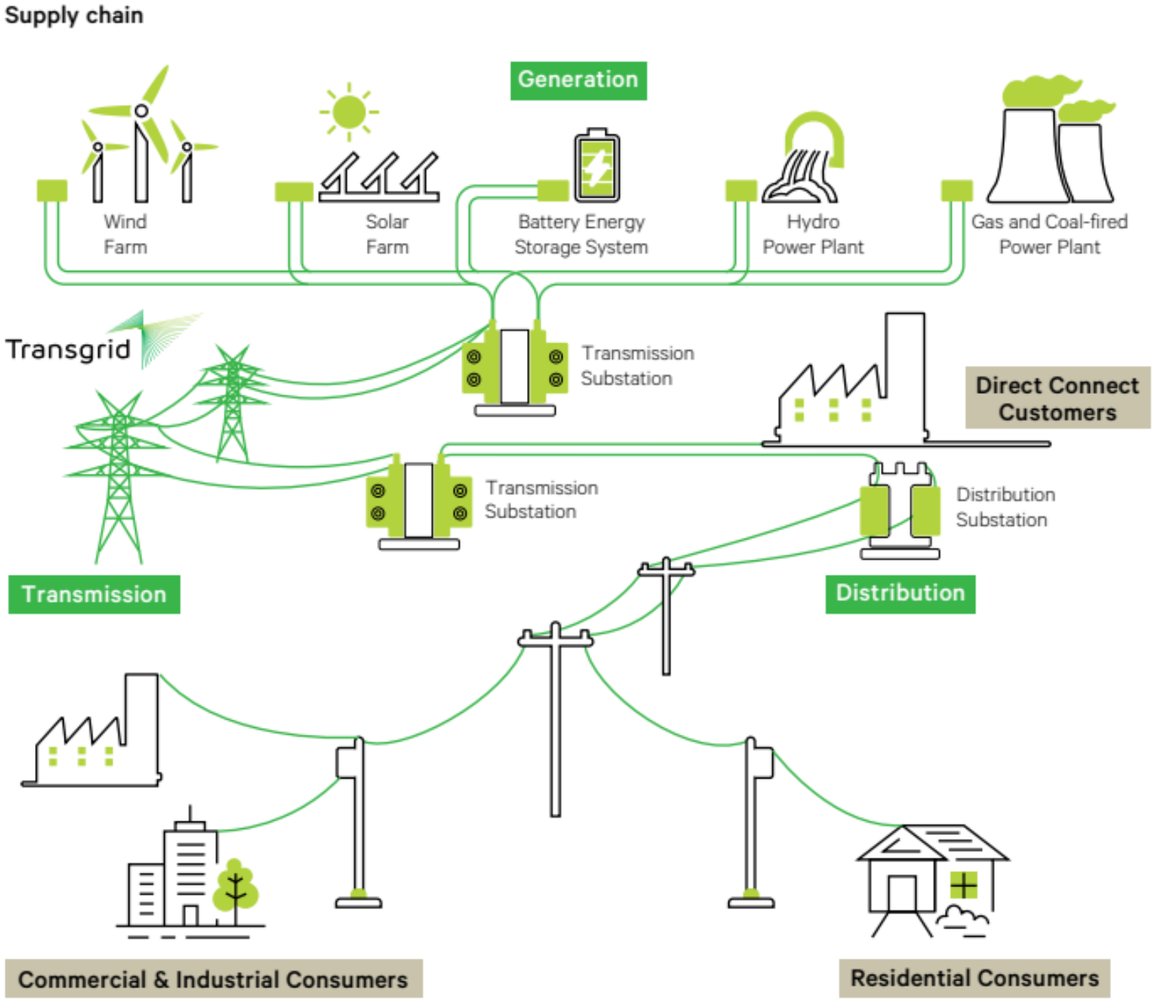
Minimum demand will fall by over
102%

Maximum demand will grow by about
20%

Expected retirement of
3 out of 4
Remaining coal power stations in NSW - Eraring, Bayswater & Vales Point

Transgrid

Who is the Transgrid Group?



Transgrid operates and manages the high voltage electricity transmission network in NSW and the ACT

Transgrid's network consists of:

- 109 kms of underground cables
- 122 substations
- 13,000 kms of high voltage transmission lines

Transgrid's System Security Roadmap

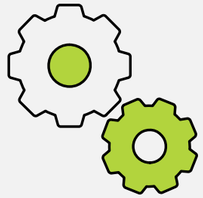
Securely operating the grid at 100% instantaneous renewable power

Energy Reliability

Deliver large-scale transmission infrastructure to connect and share new renewable generation and storage with customers as ageing coal generators retire

System Security

Deploy new power system technologies and services to maintain the secure operating envelope of the grid without the operation of thermal generation



Operability

Build capabilities and capacity to plan, manage and operate a complex power system capable of 100% instantaneous renewable generation

Connecting New Generation Sources

How Transgrid resolves network needs

	Network Solutions	Non-network Solutions
Characteristics	Involves the installation or upgrade of transmission infrastructure	Solution that defers, reduces or removes the need for network investment
Examples	• Transmission lines • Transformers • Towers • Substations	• Energy storage • Power flow controllers • Demand management
Challenges	• Capital intensive • Social license • Delivery time	• Customer value proposition • Technology maturity

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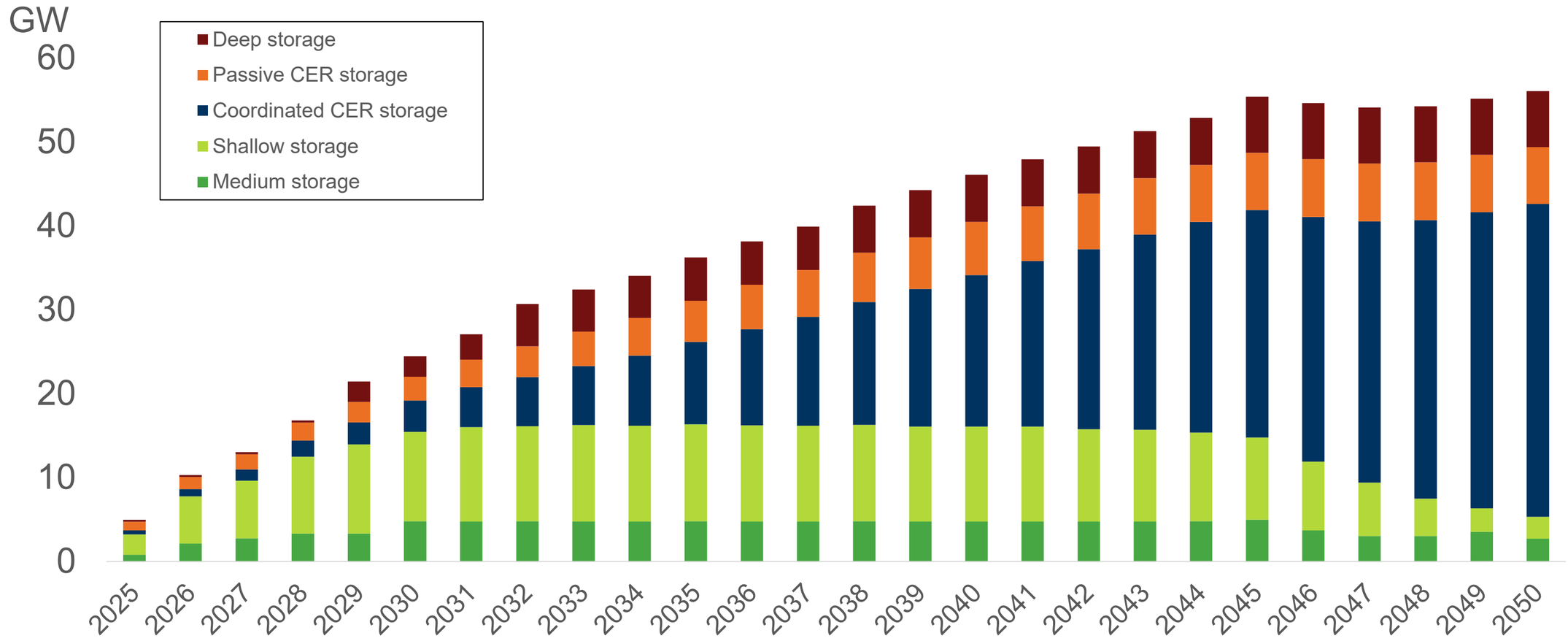
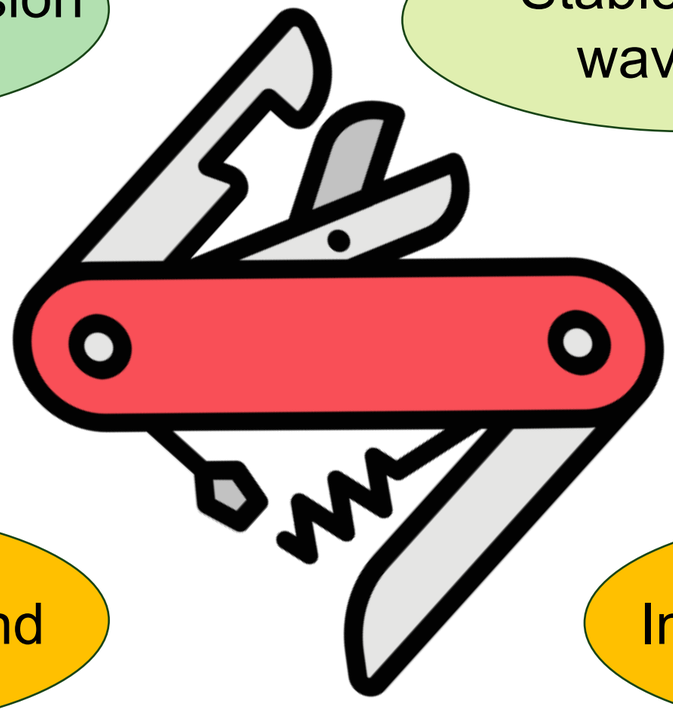
NEM energy storage capacity is expected to grow 5x in the coming decades



Energy Storage – The ‘Swiss army knife’

Virtual transmission line

Stable voltage waveform



Reactive power support

Synthetic inertia

Reduces demand

Increases demand

Transgrid

Synthetic inertia – Wallgrove Battery

Home > Projects

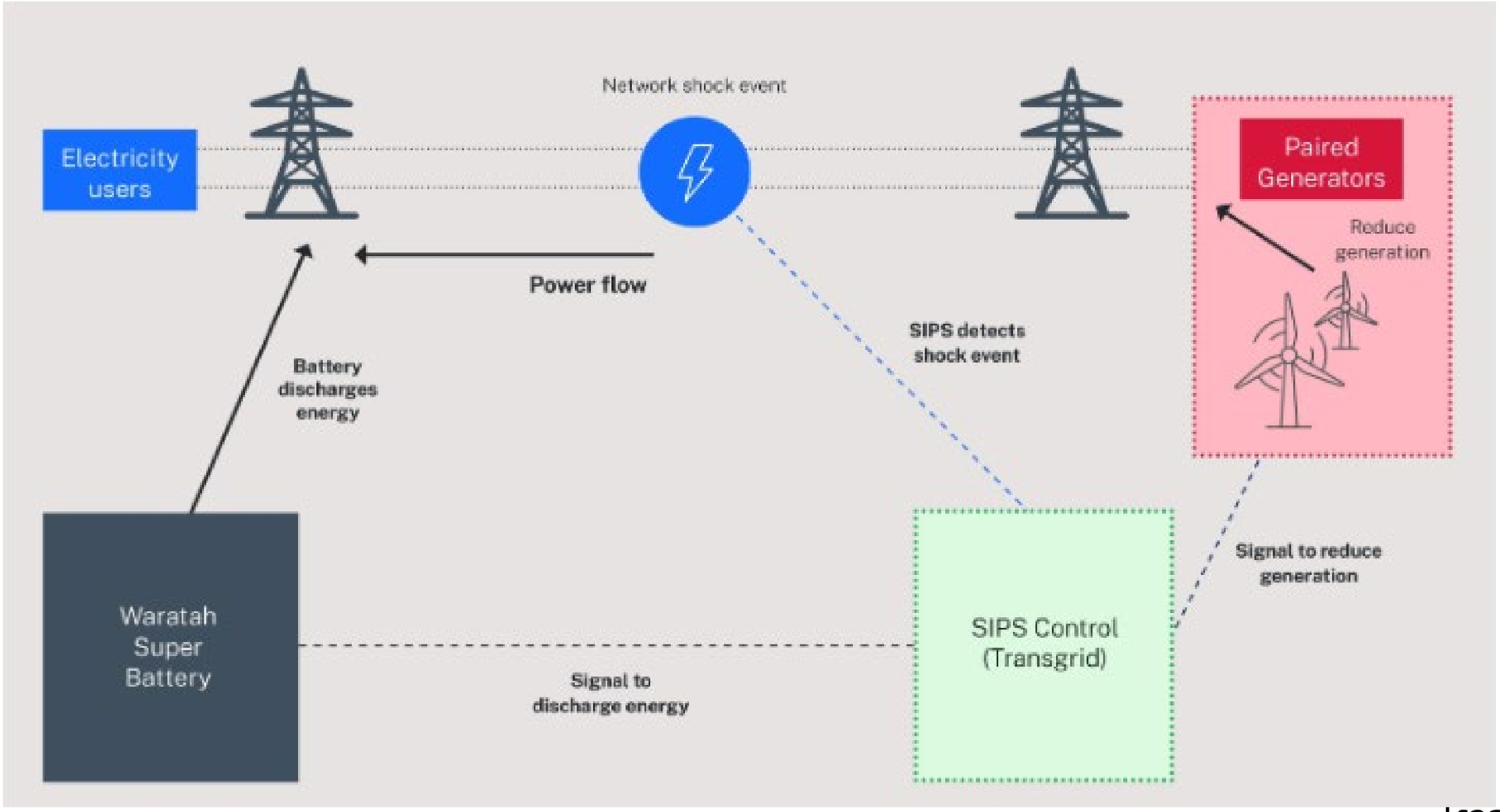
Storage

Wallgrove Grid Battery

The Wallgrove Grid Battery is one of a handful of batteries in the world trialling the use of synthetic inertia as a service.

Past project

Increasing the capacity of assets – Waratah Super Battery



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FLOW BATTERIES

Flexbase plans 500 MW redox flow storage project in Switzerland

The world's largest redox flow storage facility is to be built at Europe's oldest grid node.

By **Marian Willuhn** | Sep 23, 2024

Flow batteries Grid-scale Projects & Applications Technologies

The developer said it is also building a data center for artificial intelligence. The company's new technology center will be built on a 20,000 m^2 site. The energy storage facility will help the data center to use mainly green electricity and will also help stabilize the grid.

Transgrid

Transgrid's Demand Management Innovation Allowance

Objectives	**Funding for research and development in demand management projects that have the potential to reduce long-term network costs**
Program budget	**$4.7m over 2023-2028 regulatory period**
Target Launch	**2025**
Program website	**TBC** **Innovation@transgrid.com.au**