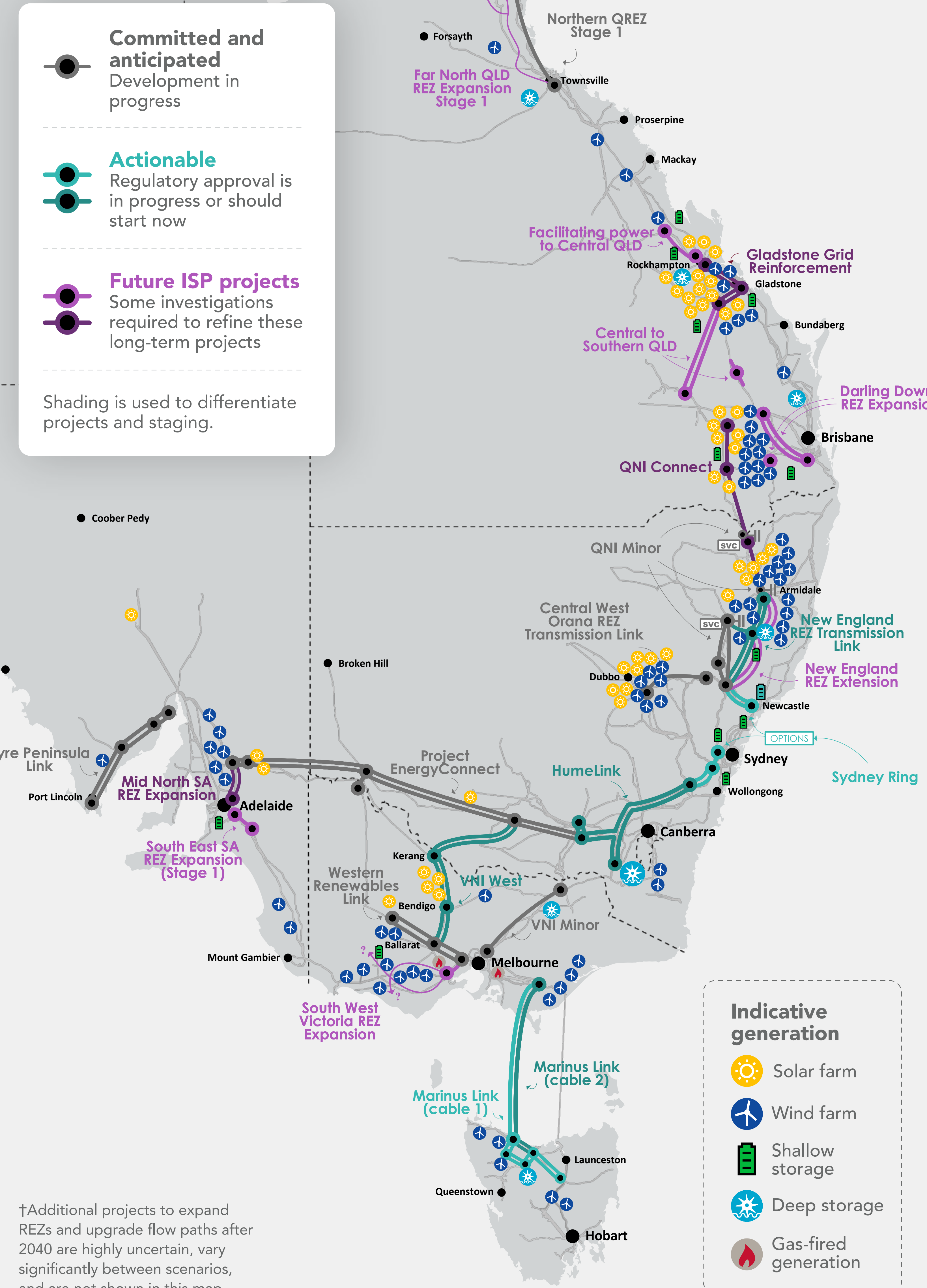


2022 Integrated System Plan (ISP)

The Australian Energy Market Operator (AEMO) has published the 2022 ISP, a 30-year roadmap for essential and efficient investment in the National Electricity Market (NEM).

The 2022 ISP supports Australia's highly complex and rapid energy transformation, switching from higher-cost, high-emission energy to lower-cost renewable energy, doubling capacity to power transport and industry, and at all times providing consumers with reliable, secure and affordable power.

Network projects in the optimal development path



†Additional projects to expand REZs and upgrade flow paths after 2040 are highly uncertain, vary significantly between scenarios, and are not shown in this map.

1 Consultation

The 2022 ISP is based on rigorous economic and engineering analysis, and almost two years' in-depth stakeholder engagement with energy consumers and providers, State and the federal governments, and energy regulators and analysts.

- Over **1,500** individual stakeholders
- Discussions convened through **31** webinars and **39** reports
- Detailed feedback received through **198** submissions

2 Considerations

- Market reforms
- Government policies
- Economic growth
- Emission targets
- Grid technologies and services
- Consumer investment in DER

3 Expected energy transition to 2050 ('Step Change' scenario)

<p>Storage capacity to increase by a factor of 30 (Batteries, virtual power plants, pumped hydro.)</p> <table border="1"> <tr><th>NOW</th><th>2030</th><th>2050</th></tr> <tr><td>2 GW</td><td>15 GW</td><td>61 GW</td></tr> </table>	NOW	2030	2050	2 GW	15 GW	61 GW	<p>Grid-scale wind and solar to increase 9-fold</p> <table border="1"> <tr><th>NOW</th><th>2030</th><th>2050</th></tr> <tr><td>16 GW</td><td>44 GW</td><td>141 GW</td></tr> </table>	NOW	2030	2050	16 GW	44 GW	141 GW
NOW	2030	2050											
2 GW	15 GW	61 GW											
NOW	2030	2050											
16 GW	44 GW	141 GW											
<p>Distributed solar PV to increase 5-fold</p> <table border="1"> <tr><th>NOW</th><th>2030</th><th>2050</th></tr> <tr><td>15 GW</td><td>35 GW</td><td>69 GW</td></tr> </table>	NOW	2030	2050	15 GW	35 GW	69 GW	<p>Electricity usage from the grid to nearly double</p> <table border="1"> <tr><th>NOW</th><th>2030</th><th>2050</th></tr> <tr><td>180 TWh</td><td>184 TWh</td><td>320 TWh</td></tr> </table>	NOW	2030	2050	180 TWh	184 TWh	320 TWh
NOW	2030	2050											
15 GW	35 GW	69 GW											
NOW	2030	2050											
180 TWh	184 TWh	320 TWh											
<p>Gas-fired peaking plants to increase While current mid-merit plants will all retire within that period.</p> <table border="1"> <tr><th>NOW</th><th>2050</th></tr> <tr><td>7 GW</td><td>10 GW</td></tr> </table>	NOW	2050	7 GW	10 GW	<p>Coal generation to be withdrawn Capacity to be retired by:</p> <table border="1"> <tr><th>2030</th><th>2043</th></tr> <tr><td>60%</td><td>100%</td></tr> </table>	2030	2043	60%	100%				
NOW	2050												
7 GW	10 GW												
2030	2043												
60%	100%												

4 Optimal development path (ODP)

The ODP identifies five projects as immediately actionable which should progress as urgently as possible – HumeLink, VNI West, Marinus Link, Sydney Ring and New England REZ Transmission Link.

While delivery dates are as advised by project proponents, earlier delivery would provide valuable insurance for any faster transition or additional benefits to consumers. Supporting policies and mechanisms from the Commonwealth and jurisdictional governments may be able to assist in earlier delivery.

Net benefits

The transmission projects within the ODP are forecast to deliver scenario-weighted net market benefits of \$28 billion, returning 2.2 times their cost of approximately \$12.7 billion.

Although they represent just 7% of the total generation, storage and network investment in the NEM, they will provide investment certainty, optimise consumer benefits, and embed flexibility to reduce emissions faster if needed.