

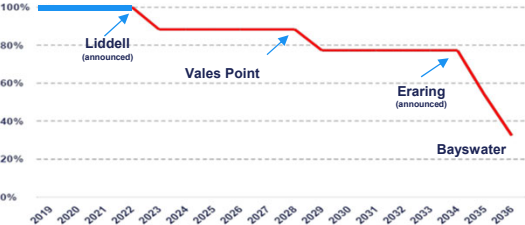
NSW Emerging Energy Program

Overview of the \$75 million program designed to bring forward dispatchable electricity projects in NSW

Energy Infrastructure and Emerging Technologies Branch
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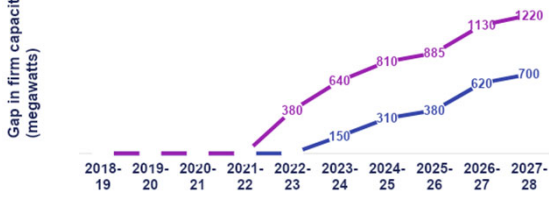
Generators are retiring over the next two decades and new energy needs are emerging

Almost 70% of existing production fleet to retire by 2035 starting with Liddell in 2022



Year	Percentage of Fleet Remaining	Event
2019	100%	
2020	100%	
2021	100%	
2022	~95%	Liddell (announced)
2023	~90%	
2024	~90%	
2025	~90%	
2026	~90%	
2027	~90%	
2028	~85%	Vales Point
2029	~80%	
2030	~80%	
2031	~80%	
2032	~80%	
2033	~80%	
2034	~75%	Eraring (announced)
2035	~70%	
2036	~35%	Bayswater

There may be energy supply shortfalls on the hottest days from 2022




Year	Gap in Firm Capacity (MW)
2018-19	0
2019-20	0
2020-21	0
2021-22	0
2022-23	380
2023-24	640
2024-25	810
2025-26	885
2026-27	1130
2027-28	1220

Source: AEMO 2018 ESOO

Diverse technology will be needed to ensure secure and reliable supply

- Short term storage (< 6 hours)
- Medium to long term energy storage (6 hours+)
- Technology to deliver system security services



Dispatchable energy faces multiple financial barriers to uptake

Whilst the need for new dispatchable energy is recognised, there are multiple barriers to investment which must be overcome.

Not always cost competitive

Not all services are valued or value shared with asset owners (FFR, emissions reduction, grid support)

Investor risk associated with emerging technology and lack of reference projects

Energy policy uncertainty increases investor IRR hurdle

Behind the meter storage and demand response business models are still emerging

A \$75 million program to bring forward construction of large-scale, dispatchable electricity projects in NSW

Emerging Energy Program objectives

01

Enhance electricity system reliability and security in NSW

02

Promote competition in the National Electricity Market to place downward pressure on wholesale electricity prices to promote affordability for NSW electricity users

03

Promote diversification of electricity supply through the development of new, dispatchable technologies at utility scale

04

Reduce greenhouse gas emissions


Two grant funding streams are available

Pre-investment studies

- Funding for activities that will lead to development of a dispatchable electricity project
- Anticipated grant funding of up to \$500,000 per project, as a guide
- Project contributions are expected to at least match grant funding

Capital projects

- Funding to assist with the construction of a dispatchable electricity project
- Anticipated grant funding of up to \$10 million per project, as a guide
- Project contributions are expected to at least match grant funding




Four key eligibility criteria for program applications


Connect to the NSW region of the National Electricity Market

Lower emissions

Generation projects – emissions intensity maximum limit is 0.5 tonnes CO₂-e/MWh.

Non-generation projects – demonstrate how the project will assist in the operation of a lower-emissions NSW system.






Minimum capacity of 5 megawatts

Emerging, dispatchable technology

Emerging – Technology Readiness Level of 9, Commercial Readiness Index of 2-5.

Dispatchable – ability/intention to manipulate output or load in response to market signals.

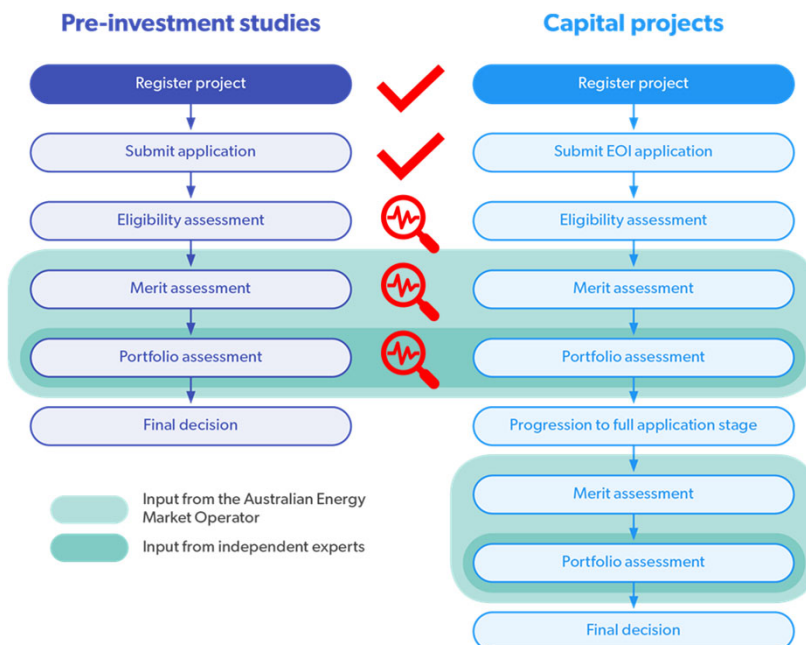


Each eligible project will be scored against the merit criteria below to produce a ranked project list

Objectives	Approvals	Financials	Delivery
Enhance electricity system reliability and system security in NSW	Engagement with network service provider and AEMO	Viability of project business case	Applicant's track record of delivery
Promote competition in the NEM	Planning and environmental approvals	Need for grant funding	Understanding of the technology and delivery risks
Promote diversification of electricity supply	Strategy to secure local community support	Proposed level of private sector contributions	Comprehensive application for knowledge sharing
Reduce greenhouse gas emissions	Other approvals required	Value for money for the NSW Government	Level of change required to the funding agreement or commercial principles
		Time to financial close and commercial operations	
		Likelihood of reaching final investment decision (pre-investment studies)	



Current process for awarding grants



Current issues being considered as part of the assessment

- Diversity of services and technologies
- Geographical diversity
- Network constraints and limitations
- Anticipating regulatory changes and their effect on applicants' projects
- How best to return to market for the full application stage for capital projects

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