



Meeting system strength requirements in NSW

Non-network proponent briefing on commercial EOI

30 August 2024



Acknowledgement of Country

In the spirit of reconciliation, Transgrid acknowledges the Traditional Custodians of the lands where we work, the lands we travel through and the places we live.

We pay our respects to the people and the Elders past, present and emerging. And we celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to the land and water.



Agenda

⏮️⏪️⏩️⏭️ Please note that today's workshop will be recorded (available for 60 days)

#	Agenda	Time
1	Welcome	11:00am
2	Recap	11:05am
3	Information for non-network proponents	11:10am
4	Commercial response questionnaire	11:25am
5	Q&A	11:40am

Please submit your questions via Menti (www.menti.com),
with the unique code 465 2791

Information available from Transgrid's website

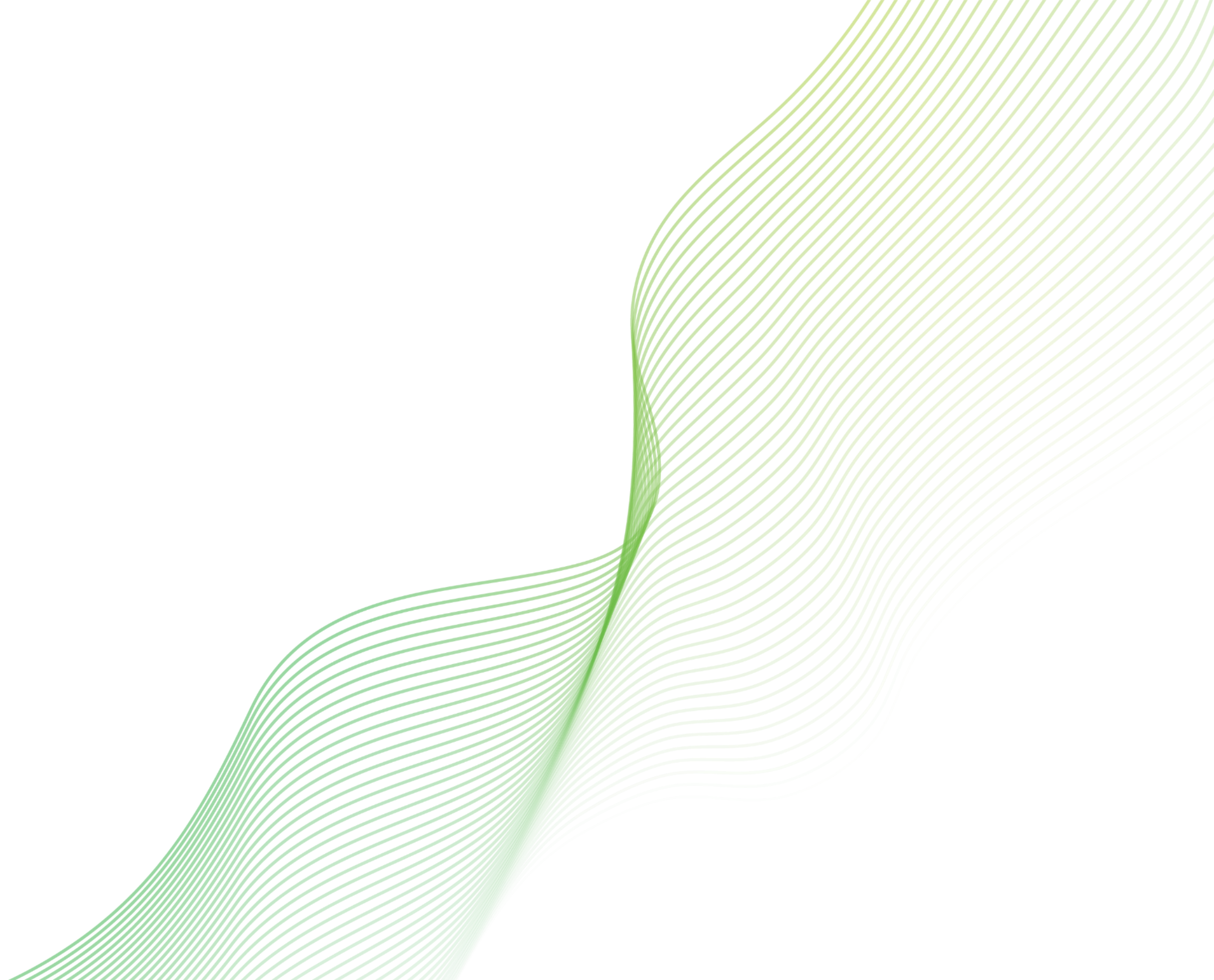
For proponent information

<https://www.transgrid.com.au/projects-innovation/meeting-system-strength-requirements-in-nsw>

	Document	Description
	Information for system strength non-network option proponents	An explanation of the RIT-T, procurement and contracting process, areas of interest for new EOIs and high-level technical guidance for system strength services
New!	Information for system strength non-network option proponents - EOI commercial addendum	An explanation of the purpose and structure of the request for non-network proponents to update the commercial component of their EOI
New!	EOI response questionnaire (commercial component)	An Excel workbook that gives proponents the opportunity to update or submit new EOIs (commercial component)
	EOI response questionnaire (technical and economic cost information)	An Excel workbook that gives proponents the opportunity to update or submit new EOIs (on technical and economic cost information). Submissions closed 20 August 2024.
	Technical performance and power system modelling requirements for synchronous machines	Detailed technical performance and power system modelling requirements for synchronous machines (for consultation)
	Technical performance and power system modelling requirements for grid-forming BESS	Detailed technical performance and power system modelling requirements for grid-forming inverters (for consultation)
	Effectiveness Factors	An Excel workbook that indicates the effectiveness of different locations for system strength provision

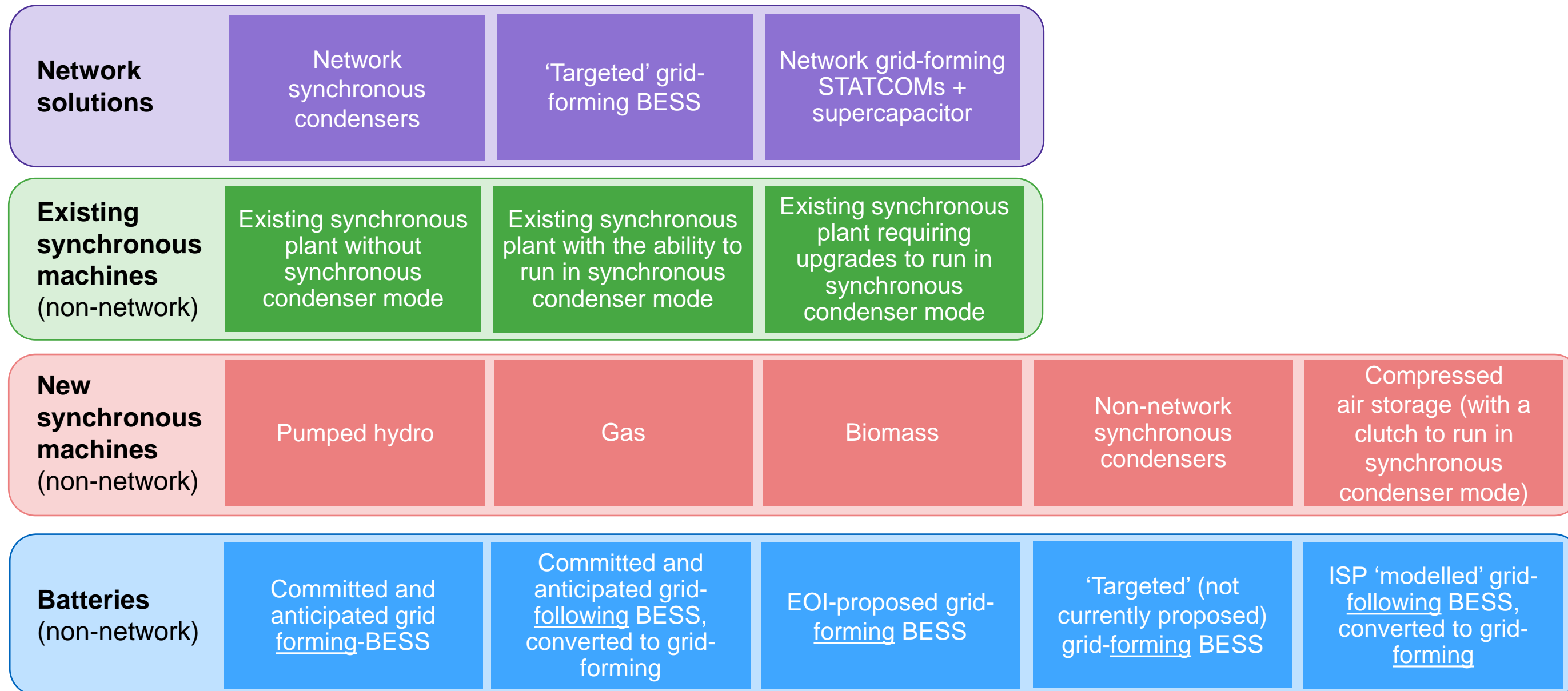
Recap

Jesse Steinfeld
Energy Transition Manager



System strength obligations

The growing need for system strength requires a new approach; over 100 solutions have been assessed



Portfolio of system strength solutions

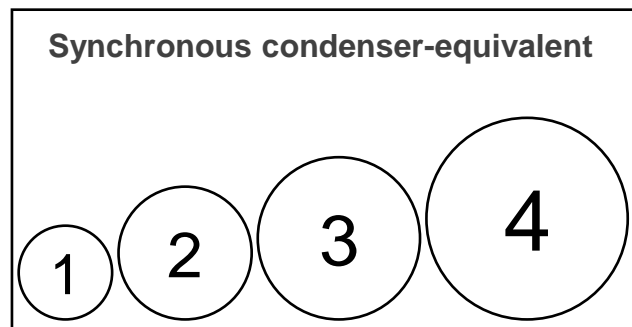
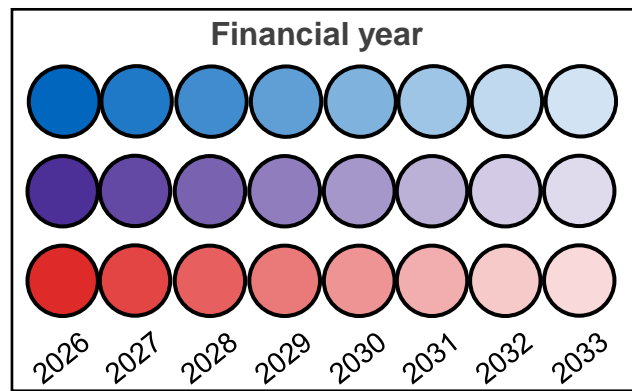
The PADR options all identify a combination of network and non-network solutions

14 synchronous condensers *

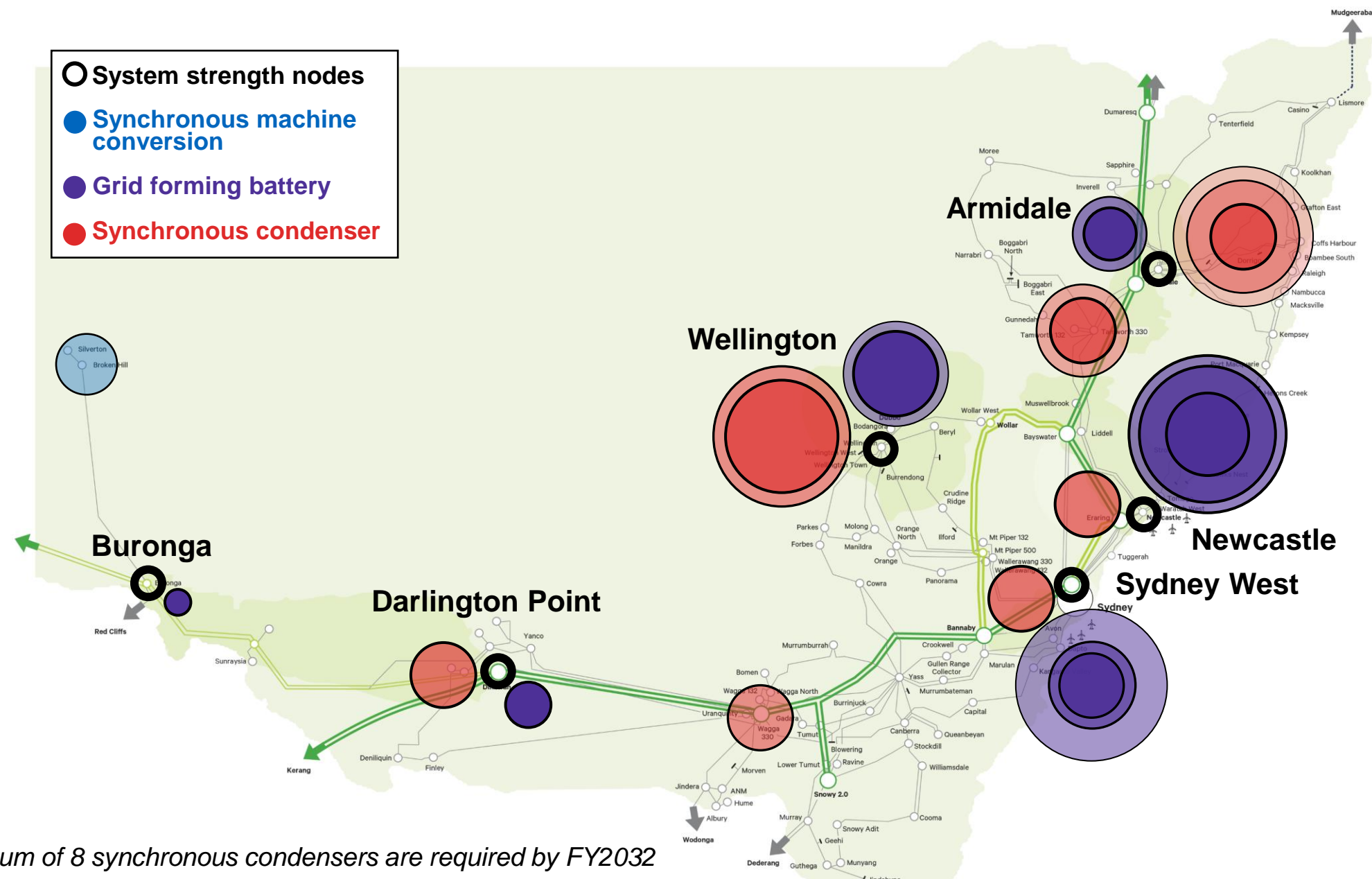
>550MW of synchronous machine modifications

4.8GW of grid-forming batteries

By 2032/33 (under Portfolio option 1)



Note: This figure does not show the redispach of existing machines, and some new solutions are not displayed for confidentiality.



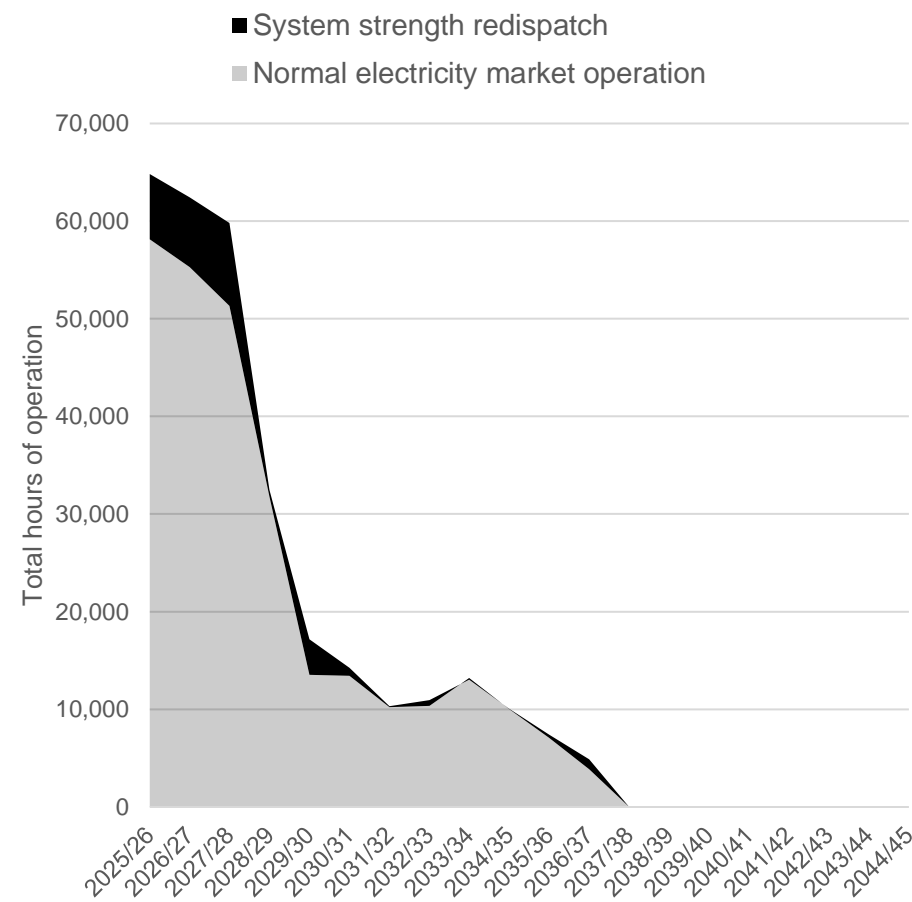
* Across all scenarios and sensitivities, a minimum of 8 synchronous condensers are required by FY2032

Re-dispatch of existing generators

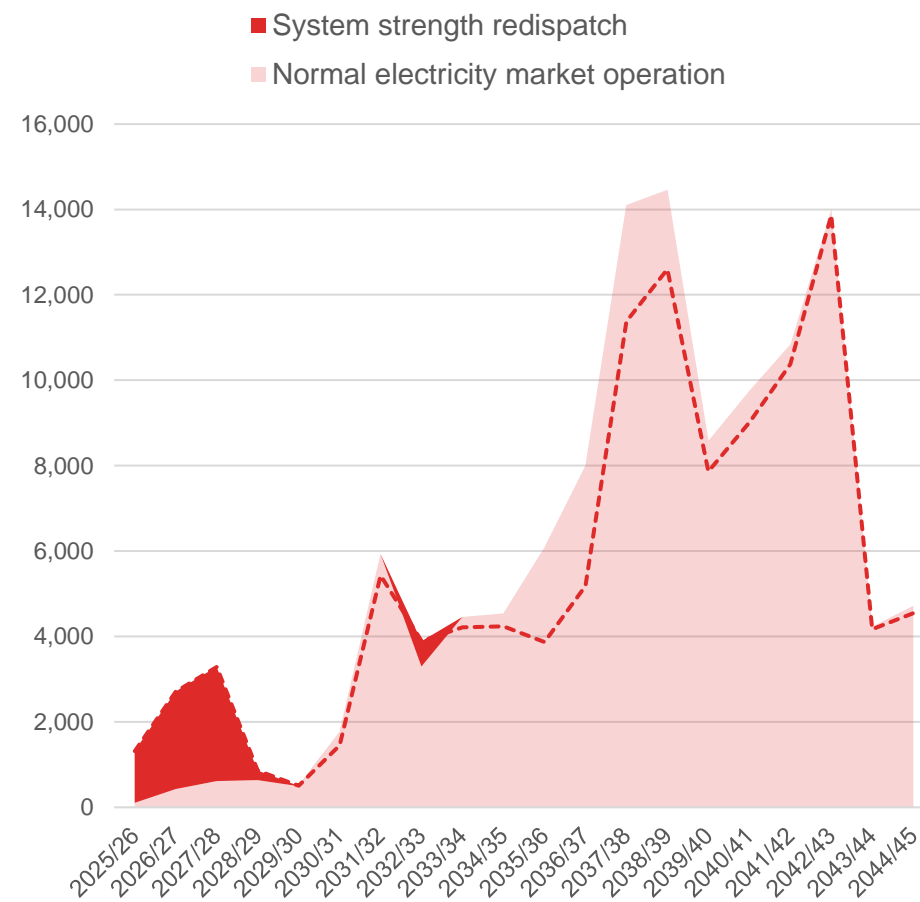
Synchronous generators are needed to switch on to fill gaps in system strength

Projected hours of operation for synchronous machines in NSW, portfolio option 1
 (in normal market operations + co-optimised with system strength constraints)

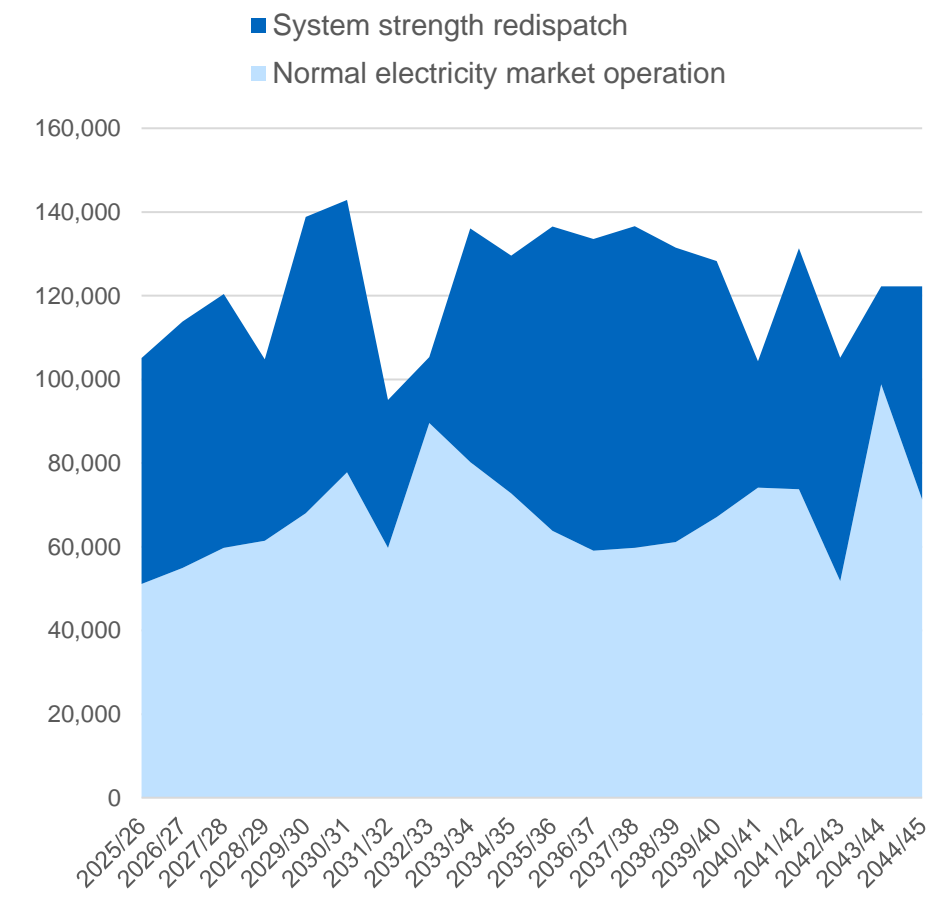
Coal



Gas

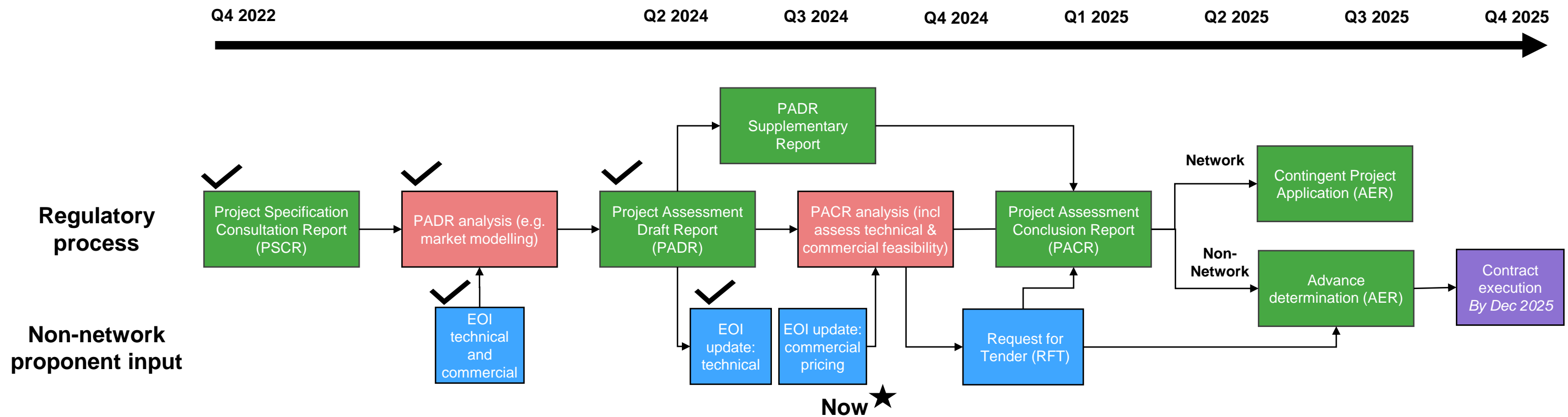


Hydro



RIT-T and procurement process

The EOI allows for a technical and commercial feasibility assessment of non-network solutions



✓ Activity complete

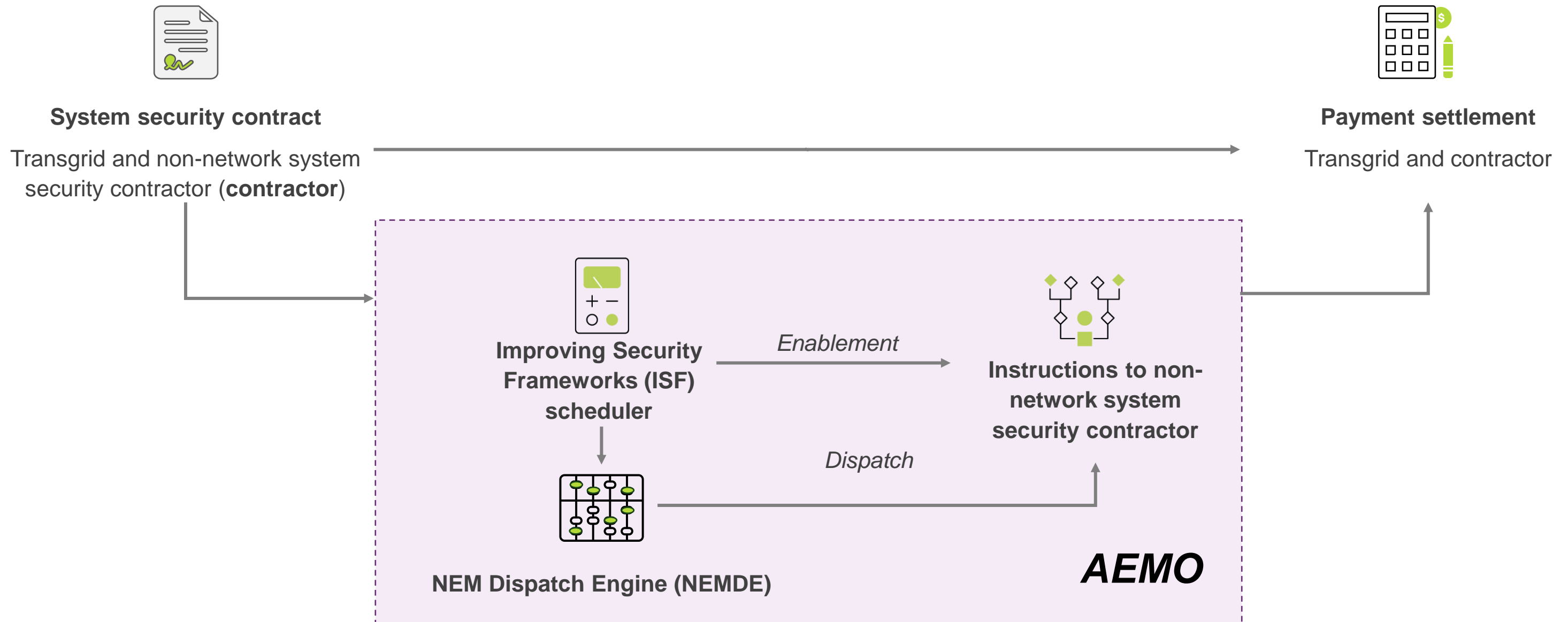
Information for non-network proponents

Jesse Steinfeld
Energy Transition Manager



Contracts and enablement

System security contracts with Transgrid are enabled by AEMO in operational timeframe, as determined by AEMC’s “Improving Security Frameworks” (ISF) rule change



Provisional security enablement procedure

AEMO has released its minimum and recommended requirements for inclusion in Transgrid's contracts

- The Improving Security Frameworks (ISF) rule change did not introduce a market. Instead, AEMO will schedule and enable services that have been contracted between a system security contractor and Transgrid.
- AEMO's requirements include technical and commercial requirements. Transgrid's EOI requests (technical and commercial) are designed to address these.
- AEMO's minimum requirements are a subset of Transgrid's expected commercial terms with each system security contractor.
- Energy revenue (if any) will continue to be settled via the energy market settlements.
- Transgrid will make payments to system security contractors according to their agreed contract terms.
- AEMO has limited provisions to update contract values in its scheduling mechanism; contracted payment values can be updated once every 30 days (each with 5 business days' notice).
- ISF Rule prevents AEMO from enabling an ISF asset where the Activation Lead time is more than 12 hours.



[SO_OP_3720 Security Enablement Procedure \(Provisional\)](#)

Transgrid



ISF enablement and spot market operation

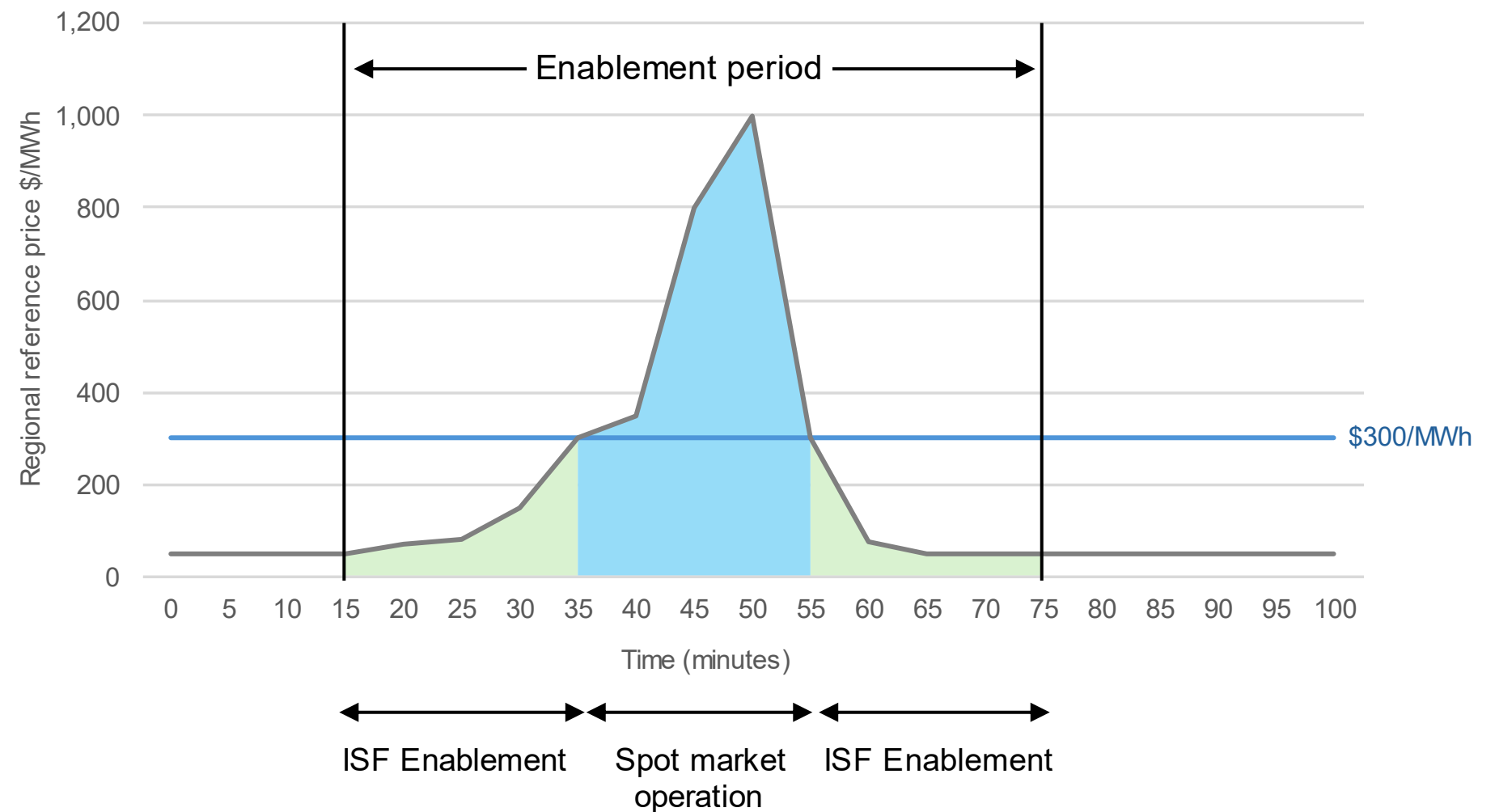
Contracts with synchronous generators will include additional terms for dispatch in the energy market

AEMO's Provisional Procedures outline the operational arrangements for ISF assets that are capable of and registered for spot market operation.

Contracted availability requirements with Transgrid would be satisfied by ISF Enablement or spot market operation.

The settlement of payments during the ISF Enablement and spot market operation would depend on the commercial arrangements between Transgrid and the system security contractor.

Illustrative example of ISF and spot market operation

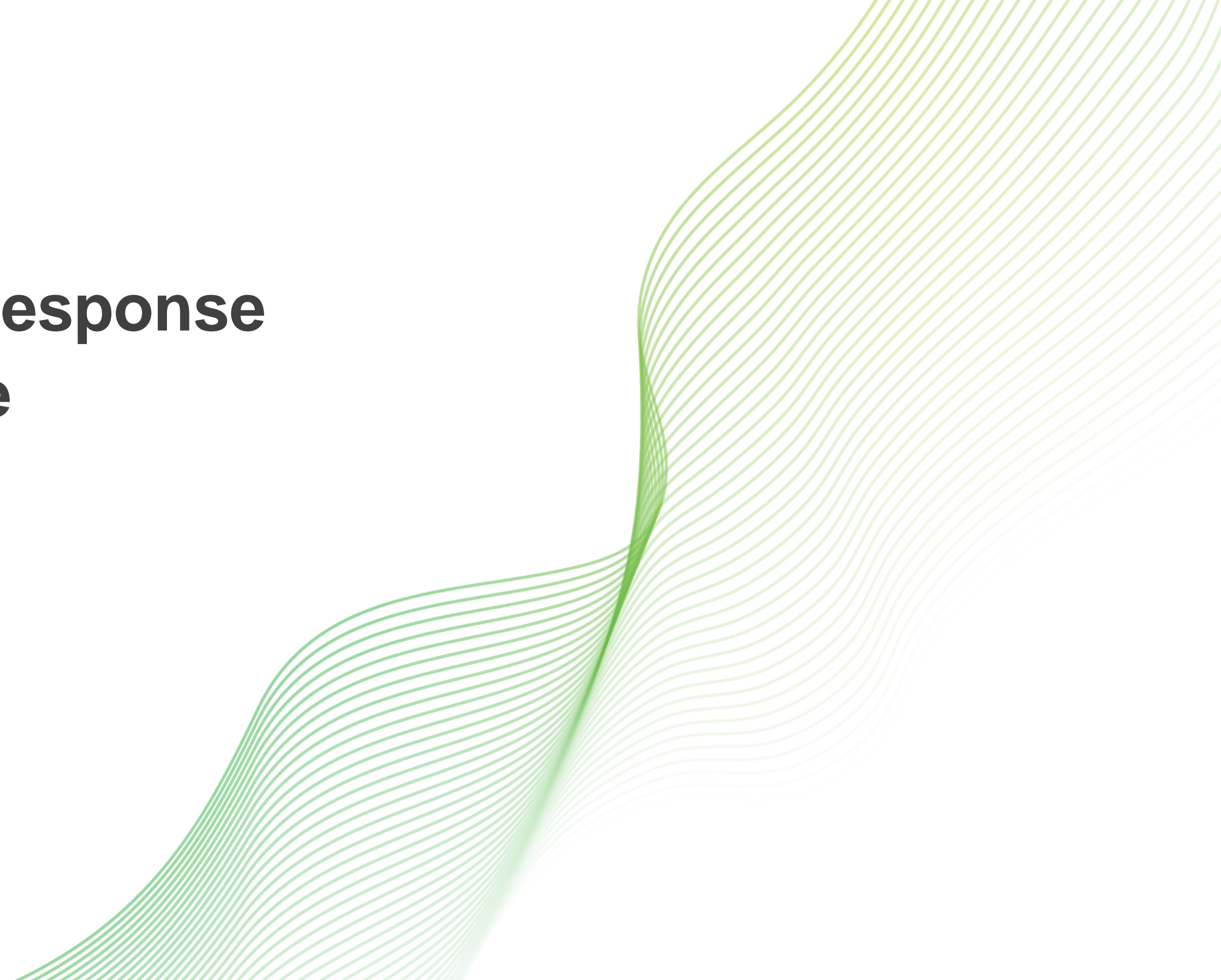


Note:

- Unit is limited to Minimum Dispatch during ISF Enablement.
- Unit is not limited to Minimum Dispatch during spot market operation

Commercial response questionnaire

Jesse Steinfeld
Energy Transition Manager

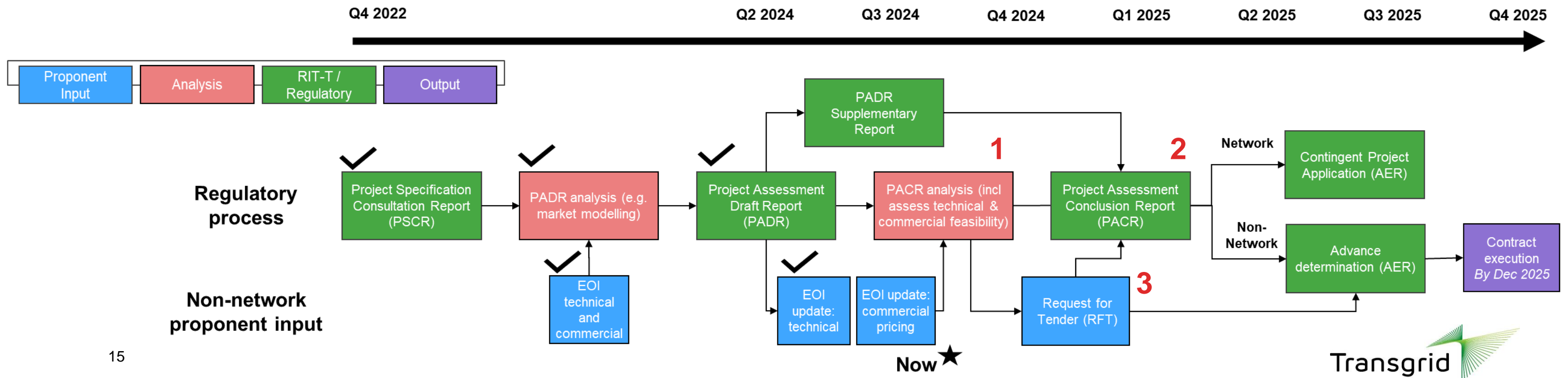


Objectives

EOI commercial responses provide input to the RIT-T and formal tender process

EOI responses will:

- 1** • allow for an assessment of the commercial feasibility of non-network solutions (in parallel with the technical feasibility assessment) to identify credible options
- 2** • provide input to the Project Assessment Conclusions Report (PACR) which identifies the final preferred portfolio option
- 3** • provide input to the development of contract terms as part of a formal procurement process.



Pricing structure

The pricing options seek to reflect the cost drivers for delivering system security services

Pricing structure

The following table provides a menu list of pricing options.

Not all pricing mechanisms are relevant to each non-network solution.

Field	Units	Description
Establishment fee	\$ per unit	A one-off setup cost, if applicable.
Availability payment	\$/month per unit	To cover fixed costs for providing the service.
Activation payment <i>(AEMO minimum requirement)</i>	\$/activation per unit	To cover the cost of the service being enabled/activated. This is intended to cover startup costs (if any).
Usage payment <i>(AEMO minimum requirement)</i>	\$/hr per unit	To cover costs of operating in the manner required to provide the relevant system security services.
Energy revenue <i>(AEMO minimum requirement)</i>	n/a	This refers to the transfer of revenue from the sale of electricity on the spot market (positive or negative) as a result of activation. It could involve no passthrough, 100% passthrough, or an alternate arrangement.

Responses

EOI responses should include:

- methodology/calculations
- pricing for three contract durations (1-year, 3-years, 10-years)

Input to commercial terms

The commercial intent is to manage cost and risk exposure in the interest of consumers

Input to commercial terms

We recognise that EOI proponents are best placed to assess the risks and opportunities of the pricing structure, including any risk premiums for fixed costs.

Input	Description
Cost and risk management strategies within pricing structure	We welcome feedback on cost and risk management strategies within the constraints of AEMO's minimum and recommended requirements.
Contracting constraints	Please can you advise if there are any agreements or arrangements in place that may impact your ability to deliver system security services or the terms on which you can carry out those services within your nominated timeframes?

Responses

EOI responses should include:

- feedback on how to manage cost and risk exposure in the interest of consumers
- confirmation of any contracting constraints.

Fixed price contract

A fully fixed price should cover the proponent's fixed and variable costs to be available and perform

Fixed price contract

We request that proponents provide a fixed price option for a 1-year contract and clarify the assumptions applied.

The EOI provides detail of the starting assumptions that proponents should apply.

Methodology/calculation/assumptions	Month	\$/month per unit
[response]	Dec-2025	[value]
	Jan-2026	[value]
	Feb-2026	[value]
	Mar-2026	[value]
	Apr-2026	[value]
	May-2026	[value]
	Jun-2026	[value]
	Jul-2026	[value]
	Aug-2026	[value]
	Sep-2026	[value]
	Oct-2026	[value]
	Nov-2026	[value]

Responses

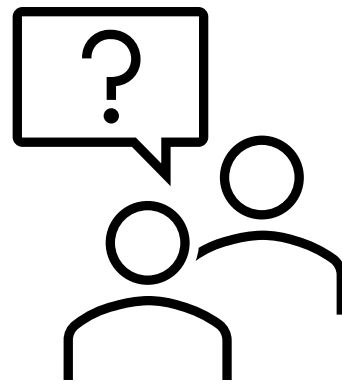
EOI responses should include:

- a breakdown of payments on a monthly basis
- confirmation of the methodology, calculation and assumptions applied
- explanation of any information requirements to enable this contract type

Next steps for non-network proponents

- ❑ Review the [EOI - Addendum for commercial component](#) document.
- ❑ Populate the [EOI - commercial response questionnaire](#) including your response to the pricing structure, inputs to the commercial terms and fixed price contract
- ❑ Please submit your EOI commercial update by **6pm 26 September 2024** (five-week period), to systemstrength@transgrid.com.au.

Q&A



Please submit your questions via Menti (www.menti.com), with our unique code 465 2791.

Jesse Steinfeld

Energy Transition Manager

Li-Wen Yip

Energy Transition Specialist

Maddie Clancy

Senior Engineer – Energy Transition

Corinne Ong

Commercial Advisor to Transgrid