Information Resource

Investing in and providing system strength services in Central Queensland

Customer Panel – 26 March 2026

Acknowledgement

Powerlink acknowledges the Traditional Owners and their custodianship of the lands and waters of Queensland and in particular the lands on which we operate.

We pay our respect to their Ancestors, Elders and knowledge holders and recognise their deep history and ongoing connection to Country.

What this resource covers

Introduction

This information resource outlines key concepts and provides an overview of what contingent projects are.

Part 1

Provides descriptions of key concepts relevant to Powerlink's responsibilities as Queensland's system strength service provider and the role system strength plays in the network.

Part 2

Summarises activities completed to-date and introduces the Contingent Project Application (CPA) investment process. Powerlink is planning to lodge a CPA for synchronous condensers with the Australian Energy Regulator (AER) in 2026.

Introduction

Meeting system strength requirements is an important investment area to maintain reliability of the grid.

System strength is essential for a stable and secure power system — especially as Queensland incorporates higher levels of inverter-based renewable generation. As Queensland's System Strength Service Provider (SSSP), Powerlink must ensure enough system strength is available across key parts of the network as forecast by the Australian Energy Market Operator (AEMO).

To meet these requirements, Powerlink is progressing contracts with non-network providers and progressing Contingent Project Applications (CPAs) for investments in synchronous condensers, a technology that provides system strength.

These applications follow on from Powerlink completing a system strength Regulatory Investment Test for Transmission (RIT-T), which confirmed that a portfolio of solutions centred on synchronous condensers was the most cost-effective approach in the short to medium term.

Powerlink's CPAs will be lodged with the Australian Energy Regulator (AER) for assessment. In turn, approved investments will be included in Powerlink's regulated revenue and the investments completed to address system strength requirements.

Engaging customers and stakeholders in these processes is essential. This information resource outlines key concepts, provides an overview of what contingent projects are, and details the application process.

Part 1 - Key Concepts

- Overview
- System strength – network role, and regulations
- Synchronous condensers
- Powerlink's system strength obligations

Section Overview

This section provides descriptions of key concepts relevant to Powerlink's responsibilities as Queensland's system strength service provider and the role system strength plays in the network.

A new rule made by the Australian Energy Market Commission (AEMC) in late 2021 has led to new regulatory and system requirements.

These seek to ensure that the system strength required is delivered to keep the power system secure and reliable.

The rule introduced new system strength obligations for Powerlink.

This section answers:

- What is system strength?
- What role do synchronous condensers play?
- What are Powerlink's responsibilities?

System Strength and the electricity network

What is system strength?

System strength is the ability of an electrical power grid to stay stable and recover quickly from disturbances like faults (e.g. tower outage, component failure) or sudden changes in generation or demand.

Low system strength in a location can affect the security of the broader power system, such as through reducing the ability of generators to operate stably. System strength is different to, but interacts with, inertia, frequency and voltage control.

Synchronous Condensers provide system strength

Synchronous Condensers (also referred to as ‘SynCons’) are rotating electrical machines that help keep the power system stable by supporting voltage and providing system strength.

They do this by balancing the fluctuations of the electricity flow (AC voltage).

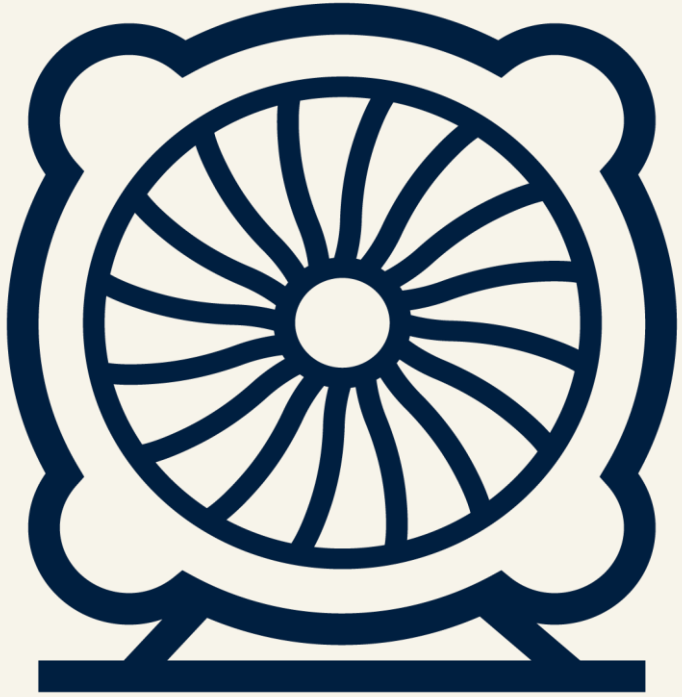

Image: Conceptual representation of a ‘SynCon’

System Strength and the regulatory framework

How is it defined and valued in the National Electricity Rules and market?

System strength is a system service valued within the national electricity market and regulated by the Australian Energy Regulator (AER). There are two “types” of system strength in the rules framework:

- **Minimum system strength** – the minimum level needed to keep the system secure, set by Australian Energy Market Operator (AEMO) at key locations on the grid (system strength nodes).
- **Efficient system strength** – Achieving stable voltage waveforms to support new generation connections.

Who pays?

- New connecting generators either bring their own (self-remediate) or pay Powerlink a system strength charge.
- Broader investments required are recovered through energy bills via regulated transmission charges.

Who benefits?

- Reliability and resilience of electricity supply benefits all energy consumers.

Powerlink's role

As Queensland's System Strength Service Provider, Powerlink must ensure enough system strength is available across key parts of the network as forecast by the Australian Energy Market Operator (AEMO).

Powerlink plays a key role in ensuring Queensland's network has sufficient system strength.

Powerlink is Queensland's designated System Strength Service Provider.

We must:

- Identify and plan for the amount of system strength that is needed in Queensland, and
- complete investment tests and secure investment approval to provide enough system strength to meet minimum and efficient standards over time.

Provision of system strength involves Powerlink procuring and installing equipment (like synchronous condensers) or contracting system strength services from others.

Part 2 - Activities completed and next steps

- Overview
- Introduction to the Contingent Project Application

Section Overview

This section summarises activities completed to-date and introduces the Contingent Project Application (CPA) investment process.

Powerlink is planning to lodge a synchronous condenser CPA with the AER in 2026.

The investment process for meeting system strength requirements in Queensland has been progressing over multiple years, focused first on a system strength Regulatory Investment Test for Transmission (RIT-T).

Over the coming years Powerlink is entering into contracts with suitable system strength service providers.

Powerlink is now also beginning preparations to lodge a CPA for proposed synchronous condensers in Central Queensland.

The completed RIT-T identified that synchronous condensers are currently the most cost-effective solution to deliver the required system strength.

Powerlink's CPAs will be lodged with the Australian Energy Regulator (AER) for assessment.

In turn, approved network investments will be included in Powerlink's regulated revenue and the investments completed to deliver Queensland's required system strength.

Introduction to Contingent Projects

Powerlink's next step is a Contingent Project Application (CPA)

A Contingent Project is a network investment above a threshold that is either:

a) *Identified by a network in advance* but excluded from their approved revenue allowance due to it being reasonably foreseeable but insufficiently certain at the time of its Revenue Determination, or

b) *Identified by AEMO* as an 'actionable' project in the Integrated System Plan (ISP) and remains aligned to the ISP Optimal Development Path^ following completion of a RIT-T.

Contingent Projects must be assigned credible trigger(s).

If the AER accepts the proposed contingent project in a Revenue Determination, the network can seek approval through the CPA process to amend its Revenue Determination, if the approved trigger(s) occur.

A CPA is a targeted amendment to a Revenue Determination with a defined statutory test.

While further requirements must be met for a CPA to be successfully lodged and assessed, if the AER ultimately approves the costs proposed, the network may recover them through energy bills via regulated transmission charges.

The AER can also approve a different amount of costs to be recovered.

^ The least-cost, whole-of-system roadmap for developing generation, storage, and transmission infrastructure in the National Electricity Market (NEM).

Contingent Project Applications for Synchronous Condensers

Powerlink will progress a CPA for synchronous condensers to provide system strength as the investment meets the eligibility criteria and triggers.

Eligibility for lodgement of a CPA:

- Must exceed $30 million, or 5% of the Maximum Allowed Revenue (MAR) for the first year of the relevant regulatory control period, whichever is greater.
- Typically, must be approved by the AER in a Revenue Determination as a Contingent Project. For system strength, transitional rules are currently in place (see section “Supplementary material” for more information).

In the current regulatory period, the system strength need must be objectively established and sufficiently certain, typically evidenced by:

- AEMO’s system strength assessments
- Completion of a system strength RIT-T^, and
- A Board decision to proceed.

Once triggered, Powerlink must apply as soon as practicable to amend the Revenue Determination through a CPA.

^ Read more about Powerlink’s System Strength RIT-T here: Addressing system strength requirements in Queensland from December 2025 | Powerlink

More resources

Learn more

On system strength

Australian Energy Regulator (AER) | Role in regulating system planning [webpage]

AEMO | System Strength Framework Overview [webinar]

AEMO | System Security Planning [webpage]

AEMO | System Strength Explained [PDF]

Powerlink | System Strength Overview [PDF]

Powerlink | Addressing system strength requirements in Queensland from December 2025 (RIT-T) [webpage]

Powerlink | Regulatory Investment Test for Transmission Overview [PDF]

On Contingent Project Applications

Australian Energy Regulator (AER) | Contingent projects [webpage]

Australian Energy Regulator (AER) | Process guideline for contingent project applications 2007 [PDF]

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