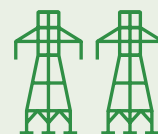


WHAT IS FREQUENCY CONTROL ANCILLARY SERVICES (FCAS)?



To be secure, an electricity network needs two things.

Firstly it needs enough power, supplied by electricity generators, to meet the needs of electricity users. That need, or 'demand', changes over the course of the day from the time we make our first coffee or toast in the morning, until we switch off the lights at bedtime.

Why balance keeps the grid secure

The second thing needed for a secure grid is not as obvious or well known. That secret ingredient is balance - at all times the amount of electricity being sent into the grid by generators must match the amount needed by electricity consumers. When the balance is right, electricity flows through the grid at a 'frequency' of 50 hertz or cycles per second. When the frequency moves away from 50 hertz because there is too much power being generated, or a sudden change in demand, the grid becomes unstable and will start to shut down to protect its equipment, leading to blackouts.

The Australian Energy Market Operator (AEMO) is responsible for adjusting the amount of power being generated or being used to make sure the grid always stays in balance. It is also AEMO's job to restore the balance when a blackout does occur.

Role of FCAS in achieving balance

AEMO uses Frequency Control Ancillary Services, or FCAS, to maintain or restore the balance in our electricity network's frequency. The market operator buys these services when it needs them from power generators, big electricity users, and other organisations.

FCAS providers that generate or store electricity help to rebalance the grid by rapidly injecting more power into the system, while others are energy-intensive businesses that can achieve the same effect by shutting down some or all of their operations for an agreed period.

Renewables can provide FCAS

While FCAS is already a critical part of our current electricity network, the importance of FCAS is growing with the rapid development of Australia's renewable energy sector. As increasing amounts of wind, solar and other variable forms of clean energy are fed into the grid, additional FCAS will be needed to stabilise it.

In Australia FCAS has traditionally been provided by mostly coal and gas electricity generators; however, overseas experience has shown that renewable energy providers can also supply FCAS to help keep the grid secure and stable. This is being done in Quebec, Ontario and some parts of Europe.