

HOW WE'RE HELPING TO KEEP THE ELECTRICITY SYSTEM RELIABLE

ENHANCEMENT TO THE RELIABILITY AND EMERGENCY RESERVE TRADER FINAL DETERMINATION 2 MAY 2019

The reliability and emergency reserve trader (RERT) is an emergency mechanism that's used when the power system is under extreme pressure.

This can happen when the market is under pressure from extreme weather events, when there are sudden generation failures, or exceedance of AEMO's demand estimates. We have made new rules to boost this emergency safety-net so it has the flexibility to effectively promote electricity market reliability at the lowest possible cost to consumers.

The changes will also underpin the proposed retailer reliability obligation which aims to encourage the right amount of investment in the power system's long-term capacity so AEMO is not forced to intervene more than necessary with higher cost safety-net options.

CAUSES OF BLACKOUTS FY 2009 - FY 2018



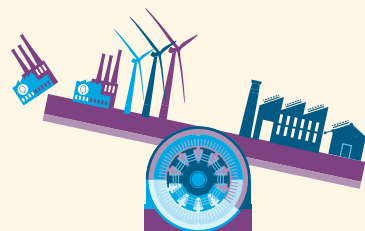
Networks
95.6%

of all blackouts are caused by sudden poles and wires breakdowns in the grid

Wholesale

Security events

When the system is shocked out of technical equilibrium



The system must be strengthened

Synchronous generators like coal, biomass, gas and hydro operate with large spinning turbines that help maintain consistent frequency and voltage, keeping the system stable. They inherently produce inertia – the energy momentum that lets the system ride through sudden disturbances and maintain its operating frequency of around 50 Hertz.

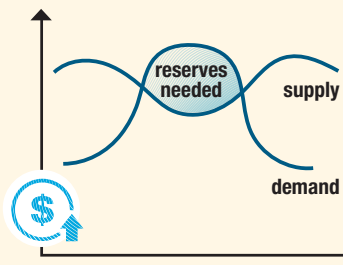
Non-synchronous generators like wind and solar have no or low inertia. Systems with lots of non-synchronous generation are weaker and harder to control. They have less time to recover from sudden equipment failures before frequency collapses and blackouts happen.

4.1%
of blackouts are caused by security events

0.3%
of blackouts are caused by reliability events

Reliability events

When there is not enough capacity built into the system



Investment confidence must be rebuilt

The power system needs integrated energy and emissions reduction policy so firm, dispatchable capacity is available in the right place at the right time. Investment in generation capacity and demand response includes a buffer called **market reserves**.



If there is not enough generation and demand response in the right place at the right time then **emergency reserves** are activated.



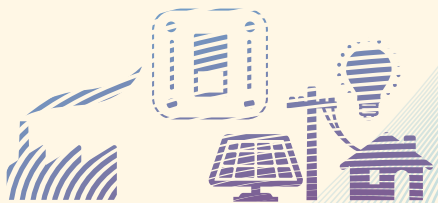
HOW WE'RE HELPING TO LOWER THE COSTS OF EMERGENCY RESERVES

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Emergency reserves have always been part of the national electricity market.

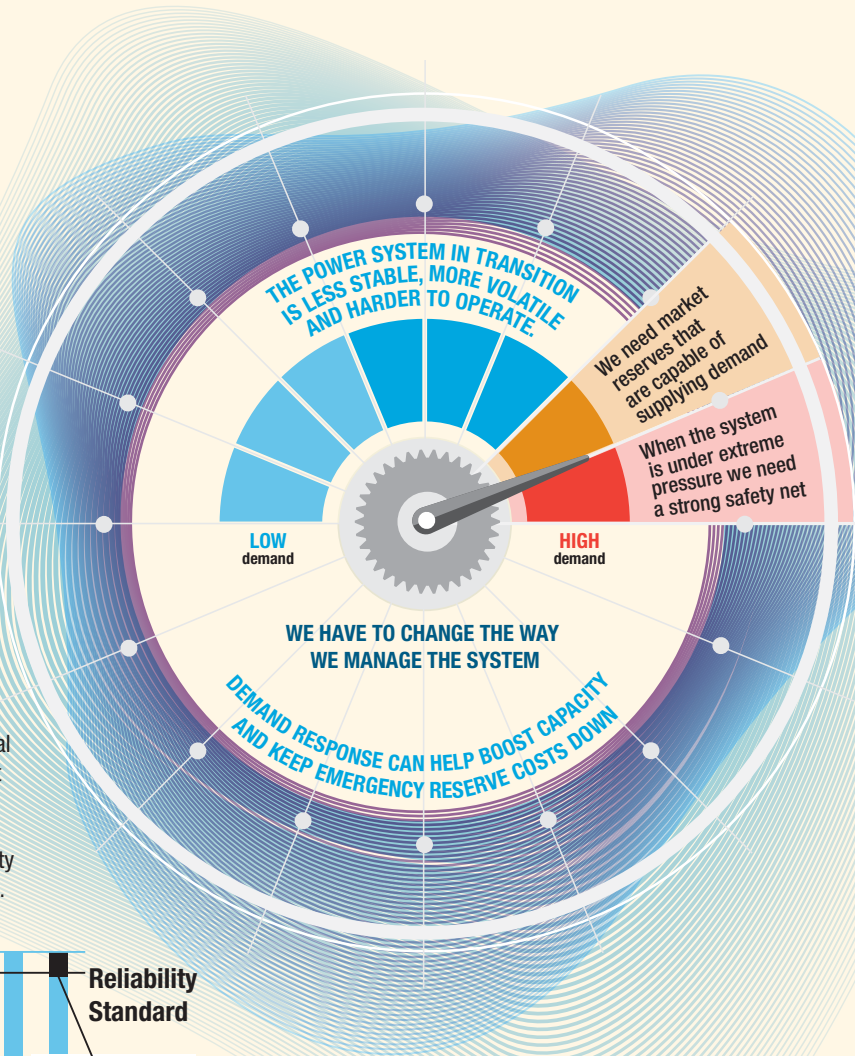
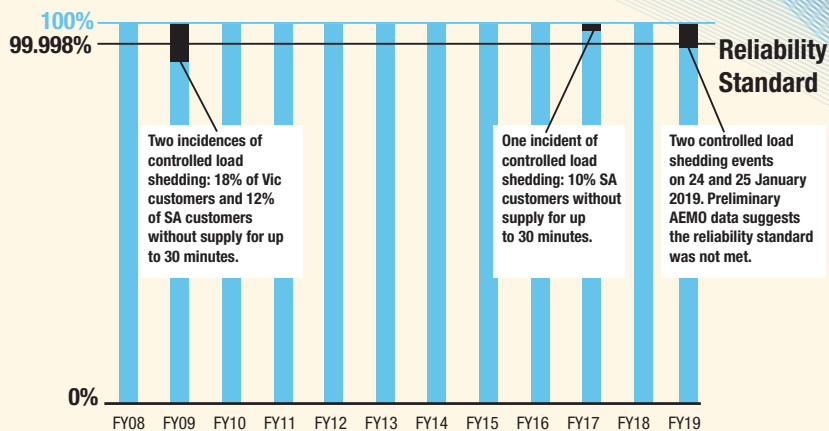
The reliability framework says AEMO should target zero load shedding in real time. Load shedding only happens after AEMO forecasts not enough market reserves; sees insufficient response from the market to step up reserves; and has no emergency reserves available.

Rotational load shedding is used in selected areas to maintain system balance and stop uncontrolled blackouts cascading across the system.



Percentage of consumer demand met by available generation

The market has historically operated well within the reliability standard but supply-demand conditions are tightening. Commercial investment is challenged by uncertainty over the mechanisms that will be used to implement government policies and increasing temperatures can drive demand to peak when power systems are already under strain. We have been working with AEMO as a priority so the operator can manage these changing operational dynamics.



NEW RERT for new times



improving incentives for customers to reduce demand to minimise the need for emergency reserves: We want incentives for more demand response so retailers and demand response providers can, for example, reward customers who reduce energy use during heatwaves. Costs of emergency reserves will be recovered, where possible, from customers who caused the need for the RERT.



increasing transparency: AEMO will provide regular updates on how the RERT is procured and used, and how much it costs.



clarifying the trigger: the RERT can be triggered if AEMO forecasts a breach of the reliability standard which requires enough generation to service 99.998% of consumer demand. This clarity helps the market plan operations and budgets.



increasing the lead time to buy reserves to 12 months: so the RERT can become part of the planned retailer reliability obligation (RRO). The RRO has two triggers. The three-year trigger requires retailers to bring dispatchable firm capacity to market if there is a supply gap three years out. If retailers have not filled the gap 12 months out then AEMO can use the RERT.



encouraging a lower-cost competitive market response: We want the market to deliver lower cost reliability so we can reduce the need for emergency reserves. There are new requirements for emergency reserve providers to enable this.



providing guidance to AEMO on costs: in relation to the appropriate costs of emergency reserve contracts, for it to consider when entering into emergency reserve contracts.



providing AEMO with flexibility: AEMO has flexibility and discretion as to how the reliability standard is incorporated in its day-to-day operations, particularly through its modelling and forecasting of power system risks.

HOW MARKET AND EMERGENCY RESERVES WORK TOGETHER

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We need a well-functioning market to deliver reliable generation and demand response, with clear price signals and information backed up by national policy certainty and targeted reliability tools like the retailer reliability obligation.

Market reserves buffer = is part of the market's every day operation

Emergency reserves (RERT) = used when extreme events affect electricity supply

The use of the RERT needs to balance reliability and affordability. Emergency reserves are more expensive than market reserves which is why they are used as a last resort.

10 Years

3 Years

2 Years

12 months

10 weeks

7 days

Your supply today

Under the planned retailer reliability obligation if a supply gap exists three years out then retailers must bring dispatchable firm capacity to the market

AEMO publishes medium term forecasts (the projected assessment of system adequacy) which provide more detailed information for demand response and generation investment and operation

Final rule extends the lead time for AEMO to buy emergency reserves from 9 to 12 months

Investment signals from clear government policies and financial incentives drive power system reliability

AEMO publishes long-term forecasts of demand and supply which help investors make decisions to build more generation and demand response capability

AEMO
operates the power system

Long-notice RERT

Medium-notice RERT

Short-notice RERT

