

Britain must act now or face power shortages within a decade, report says

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The capacity margin of the GB electricity system could continue to fall over the next five years as old generating plants close, presenting an increasing risk of power cuts, according to a report published last week by the Royal Academy of Engineering.

The Academy study, *GB electricity capacity margin*, was undertaken at the request of the Prime Minister's Council for Science and Technology (CST) to explore whether the capacity margin of the GB electricity system could reach unacceptably low levels within this decade.

The Academy working group concluded that although the [electricity supply](#) is expected to be sufficient to cover predicted levels of demand, it is likely to stretch the system close to its limits, notably during the winter of 2014-15, increasing the chances of power outages if several adverse events (low wind, cold weather, unplanned plant outages) were to happen at the same time.

Dr John Roberts FREng, chair of the study working group, says:

"National Grid publishes regular probability-based forecasts of the capacity margin and the risk of [power outages](#), so we did a stress test to see how the system might cope with real sets of challenging conditions that have happened before and can be expected again in the future.

"In the next decade, several coal- and oil-fired power stations will be forced to close if they do not invest to comply with European regulation

on pollution emissions.

"In addition to this, four nuclear plants are scheduled to close by 2019, further reducing the available capacity.

"Although the combined closures are not expected to bring the total available electricity capacity below the predicted peak demand, a reduced margin in the power available at any given time would reduce the flexibility of the system and increase the chances that otherwise manageable failures could jeopardise the country's [power](#) supply.

"The longer a low capacity margin persists, the greater the chance of experiencing a combination of challenging events during that time."

While the demand for [energy](#) is expected to remain fairly constant over the next five years, the generating capacity is likely to fall if energy firms do not reinvest in the UK to modernise or build new plants. There is currently a hiatus in investment, a result mainly of uncertainties over the reform of the electricity market and the current low profitability of gas plant.

The report makes five immediate recommendations to avoid a blackout scenario by 2020:

Undertake interim measures to maintain capacity in the period before the Electricity Market Reform (EMR) takes effect

- Resolve the EMR process as quickly as possible
- Resolve uncertainties regarding the carbon price floor
- Work together with industry to foster a constructive dialogue with the public on energy policy
- Develop a holistic energy system strategy - EMR is focused on electricity generation but this is only one part of a complex and

interconnected system.

Up to 2015, interim measures will be needed to prevent the further withdrawal and mothballing of gas-fired plant, and to bring forward more demand-side response, both of which could be critical to maintaining an adequate capacity margin. Recent proposals by government to introduce such measures are welcomed.

From 2016 to the end of the decade, it will be essential to attract new investment to maintain a secure electricity supply. Vital for this will be the completion of the pending EMR and clarifying its details to allow long-term planning.

Dr Roberts concludes that:

"Major investment is needed in the UK's [electricity system](#) to achieve a modern, sustainable and secure service that will be the foundation of economic growth. Government will set the market conditions but it is private industry that will invest the necessary money.

"Most of the energy companies operating in this country are international organisations that will invest in the UK only if it proves to be an attractive market. There is much to commend government for on the work they have done on EMR which, once completed, should help attract the required investment.

"Modernising and decarbonising the system will come at a cost, with likely rises in the unit price of [electricity](#) and difficult decisions will need to be made. This will only be achievable with the consent of the public and it is vital that government and industry work together to foster a constructive dialogue with the public about the challenges we face in achieving a low carbon, secure and affordable energy system for the future."

More information: [www.raeng.org.uk/news/publicat ...
ty_margin_report.pdf](http://www.raeng.org.uk/news/publication_margin_report.pdf)

Provided by Royal Academy of Engineering

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