

Future of gas in a low carbon U.K. is 'limited'

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New research highlights the "lack of a clear vision of the future role for gas" in the U.K.'s energy system and cautions that without Carbon Capture and Storage (CCS), a second 'dash for gas' could compromise decarbonisation ambitions.

Gas has only a limited role as a 'bridging fuel' to a low carbon future according to new research launched today at WBS London at The Shard and co-authored by Michael Bradshaw, Professor of Global Energy at WBS, for the U.K. Energy Research Centre (U.K.ERC).

The research also finds that without CCS, the scope for [gas](#) use in 2050 is little more than 10 per cent of the 2010 level.

Previous research by U.K.ERC published in 2014 found that gas did have a role as a bridge, but only in some countries (mostly those that use a lot of coal). Today's research confirms that the scope for a gas bridge in the U.K. is very limited.

The authors caution that any new gas-fired power stations using Combined Cycle Gas Turbine (CCGT) technology and built to replace coal plants will have to operate at very low load factors in the 2030s and beyond unless they are retrofitted with CCS. It is unlikely investors will be willing to build this capacity without strong policy incentives in place.

The U.K. has legally binding greenhouse gas emissions reduction targets in place, requiring an 80 per cent reduction by 2050 from the level in 1990. But until more low and zero-carbon energy sources come on

stream, the report argues the U.K. needs to consider options for keeping emissions at a manageable level.

The report asks how much gas use is compatible with meeting emissions reduction targets? How this will be affected by the availability (or lack) of CCS technologies? And how long the timeframe for the use of gas might be?

It also explores the potential role of natural gas in the U.K. through to 2050, looking at the historical role of coal-to-gas substitution in decarbonising the U.K. [energy system](#), asking what potential remains, and considering how the role of gas in the energy system might change in the future.

Professor Bradshaw, who teaches Energy in Global Politics and Strategic Advantage on the Global Energy MBA, said: "A second 'dash for gas' may provide some short-term gains in reducing emissions, but may not be the most cost-effective way forward and may even compromise the U.K.'s decarbonisation ambitions.

"If all coal-fired power generation is to be removed by 2025, and we are no longer supporting the development of CCS, policymakers must think carefully about how best to replace that capacity.

"Gas can play only a modest role between now and 2020, and in the medium to long-term has no role as a bridging fuel because the U.K. has already exploited a large amount of the decarbonisation potential in the power sector."

Professor Jim Watson, Director of the U.K. Energy Research Centre, added: "Without CCS, there is little scope for gas use in power generation beyond 2030 and it will need to be steadily phased out over the next 35 years, and almost entirely removed by 2050.

"This represents a major challenge in relation to the decarbonisation of domestic heat, and undermines the economic logic of investing in new CCGT gas plants rather than low or zero-carbon generation in the first place."

Paul Ekins, Professor of Energy and Environment Policy, UCL Energy Institute, said: "A key challenge will be managing a 'soft landing' for the gas industry that keeps sufficient capacity in the energy mix as its role changes.

"Alternatives to the use of gas outside the power sector, particularly in heating homes, need to be explored urgently. It's not clear that current policies will achieve this, and we need a much clearer vision of the future role for gas in the U.K.'s low carbon energy system."

More information: The future role of natural gas in the UK:
www.wbs.ac.uk/wbs2012/assets/P...press/gas-report.pdf

Provided by University of Warwick

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