

# Public health air pollution impacts of pathway options to meet the 2050 UK Climate Change Act target: a modelling study

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## Plain English summary

### Impacts of pathway options to meet the 2050 UK Climate Change Act target

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## Plain English summary

There are many pathways to meeting the UK's *Climate Change Act 2008* (CCA; Great Britain. *Climate Change Act 2008*. Chapter 27. London: The Stationery Office; 2008) commitment to an 80% reduction in emissions of greenhouse gases by 2050. Some pathways emit more harmful air pollution than others, leading to larger adverse health impacts. This project has investigated some of these pathways using a model of Great Britain's (GB's) energy system and a model of air pollution to calculate the health impact of the GB population in 2035 and 2050. We have analysed four future scenarios, two of which achieved the CCA target and two that did not.

The results of this work show that all future scenarios reduce the life-years lost from the harmful gas nitrogen dioxide (NO<sub>2</sub>), attributable in part to a high degree of road transport electrification by 2050. The largest reductions in NO<sub>2</sub> are in scenarios that use more nuclear energy than the scenario phasing out nuclear power. In the two scenarios that meet the greenhouse gas targets, levels of harmful particles fall by 2050, but by less than would be the case if there was not also expected to be an increase in wood burning. They also have a bigger impact on premature deaths than the scenarios that do not meet the climate targets. Exposures to air pollutants in more deprived populations are higher in 2011 and remain so in 2050, even though overall levels of pollution decrease. Not including the health impact of air pollution in decisions to reduce greenhouse gases may subject the British population to unnecessary health risks.

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