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Britain is more energy efficient today than in Shakespeare's time, but only curbs on consumption will combat climate change, says historian

Restricting energy use is the only way to tackle climate change, according to a new History & Policy paper, published today.

In [*Facing the challenge of climate change: energy efficiency and energy consumption*](#), Dr Paul Warde of the University of East Anglia, argues that policies focused on energy efficiency are unlikely to produce the cuts in consumption needed to control carbon emissions.

Politicians have hailed energy-saving technology as a solution to climate change and current EU environmental policy aims to cut energy use by 20 per cent by improving energy efficiency. Dr Warde's research shows that energy efficiency improvements of this order are easily achievable, having occurred in the 1920s, 1950s, and again in the 1980s, but on their own have had little impact on climate change.

He argues that even if energy efficiency is improved it will not offset the overall dynamic of economic growth; carbon emissions will still increase. Increasing energy efficiency will only make energy-intensive development even more attractive.

Dr Warde said;

“Since the late 19th century Britain’s energy efficiency has improved considerably; we are more energy efficient now than we were in Shakespeare's time, and far more efficient than during the industrial revolution. Although we are over three times more energy efficient than we were in the 1880s, we each consume about a third more energy, so carbon emissions keep rising.

“History suggests that we cannot rely on the transition to biofuels and renewable energy sources to cut our carbon footprint. To return to an ‘organic economy’ and supply our total energy needs from biofuels, each hectare of European land would have to be 30 times more productive than it was 200 years ago. While the history of our transition from coal to oil-dependency suggests that a significant shift to renewable energy sources would require an extraordinary and unprecedented growth in their use, driven by huge incentives and political willpower.

“The bottom line is that technology can’t contend with the realities of climate change; the only effective solution is to curb consumption. To stand a chance of meeting emissions targets, politicians need to switch their attention from energy efficiency to controls on consumption.”

Dr Warde’s analysis of four centuries of energy consumption and economic growth in England and Wales, reveals that:

- Per capita energy consumption in Europe is about 10 times higher than it was under the wood-fuelled ‘organic economy’, although the population is only three times larger than it was 200 years ago. This suggests that a return to an organic economy through the widespread use of biofuels is not feasible.
- From the early 17th century, coal began replacing wood as the primary source of fuel, but even at this early stage pamphleteers warned that coal could not be relied upon in the long-term because, unlike wood, it was non-renewable.
- By 1700 coal was providing the majority of England and Wales’ energy. This led to periodic fears about its exhaustion and, in the early 1870s, a Royal Commission, which reported there were centuries of stocks remaining – a considerable under-estimate.
- From the 1890s, economic growth was driven by the use of electricity, but oil did not begin to take up a significant share of national consumption until the 1960s.

- Since the late 19th century, there have been frequent and significant energy efficiency improvements, but with growing prosperity and an increasingly energy-reliant economy, consumption has consistently outstripped any efficiency savings.
- Most historic efficiency gains have been in industry, but well over half of final energy consumption is now in homes and transport, where efficiency gains have been minimal and outpaced by the expansion of travel and the increasing number of households.
- There would have to be an extraordinary and unprecedented growth in the use of renewable energy sources to keep up with the continued expansion of energy use – even the transition from coal to oil took more than 50 years, shifting from 2% of total energy supply in 1920 to 50% in 1972.

Notes to editors:

1. You can read Paul Warde's History & Policy paper, [Facing the challenge of climate change: energy efficiency and energy consumption](#) in full on the History & Policy website. Dr Warde is a reader in Early Modern History at the University of East Anglia and Research Associate at the Centre for History and Economics, University of Cambridge.
2. [History & Policy](#) is an independent initiative working for better public policy through an understanding of history. It was founded by historians at the Universities of Cambridge and London and is based in the [Centre for Contemporary British History](#), at the [Institute of Historical Research](#), University of London. History & Policy is funded through a charitable grant from the Philanthropic Collaborative.
3. For further information or to request an interview with a historian, please contact: Ruth Evans, External Relations Assistant, History & Policy, tel: 020 7862 8781, email: ruth.evans@sas.ac.uk or Mel Porter, tel: 07979 867765, email: mel.porter@sas.ac.uk.