

# The Role of Behavioural Economics in Energy and Climate Policy

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**Michael G. Pollitt and Irina Shaorshadze**

While energy efficiency and conservation have been important tenets of energy policy for decades, concerns about climate change have put these issues at the forefront of policy dialogue. International Energy Association (IEA 2010) estimates that by 2020, about 34% of the global decrease in carbon emissions in a “450 scenario” (limiting the long-term concentration of greenhouse gases in the atmosphere to 450 ppm CO<sub>2</sub>-eq) compared to the reference scenario should stem from direct end-use energy-efficiency measures. This goal calls for a step change in how individuals consume energy and make energy-efficiency purchases. Energy consumption, energy-efficient investment, and pro-environmental actions involve consumer decision making and behaviour. These aspects have generated increased interest in designing policy interventions that target energy demand, and interest in assessing the responsiveness of consumer behaviour to these interventions. Behavioural economics can provide new perspectives that can inform policy design on how individuals evaluate options, make decisions, and change behaviour.

Traditionally, economics has focused on how changes in prices affect behaviour. Research in behavioural economics and psychology has demonstrated that non-pecuniary interventions compare favourably to monetary interventions in changing consumer behaviour. It was also shown that judiciously applied pecuniary interventions increase the impact of monetary interventions if used in combination. This has increased interest in research in behavioural economics as a guide for policy making in areas as diverse as public health, finance, and law. That behavioural economics can inform decision making in energy policy has increasingly been recognized by policy makers and researchers (e.g. Thaler and Sunstein's 'nudge' theory).

In order to realize energy savings and emissions reductions necessary to address climate change, decision makers have to consider tapping into behavioural transformation strategies. In this paper we discuss how Behavioural Economics provides insights that can inform this effort. Behaviours that are relevant to household energy consumption encompass three broad areas (1) energy consumption, curtailment, and habits; (2) energy efficiency investments; and (3) contribution to public goods (i.e. green energy) and pro-environmental behaviour. These three aspects of energy consumption are interrelated; for example, pro-environmental attitudes may make efficiency investments more likely, and these investments may reduce energy consumption in the long run. However, these topics differ in terms of the decision making and behaviours involved, and warrant separate reviews.

We conclude that behavioural economics can provide valuable insights on how individuals make their decisions. These insights can be used to increase effectiveness of traditional interventions in energy policy. However, it is important that behavioural interventions do not crowd out more effective traditional interventions (Loewenstein and Ubel 2010). Behavioural economics should complement, not substitute for, more substantive economic interventions, such as those based on influencing energy pricing (e.g. via taxation) or energy investment (e.g. via subsidy schemes).

However the evidence, that we present, suggests that behavioural economics seems unlikely to provide the magic bullet to reduce energy consumption by the magnitude required by the IEA (2010) recommended 450 climate policy scenario. However it does offer exciting new suggestions as to where to start looking for potentially sustainable changes in energy consumption. It also may be that its most useful role within climate policy is in addressing issues of public perception of the affordability of climate policy and in facilitating the creation of a more responsive energy demand, better capable of responding to weather-induced changes in renewable electricity supply.

Contact                      m.pollitt@jbs.cam.ac.uk  
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