

S5-1 Behavioural change in society

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The aim of this presentation is to give a brief overview of dominating theoretical approaches to energy consumption and conservation; to assess the strengths and weaknesses of conventional conceptualizations of behaviour and demand; and to draw attention to innovative approaches to accommodating the socio-material contributors to energy. A new approach to conceptualizing behaviour and change will be sketched out, drawing on practice theory and on insights from the social science of technology. This approach will be exemplified with cases from Europe, Japan and India. Implications for the theory and policy of behavioural change will be drawn.

A transition towards a low carbon society will involve a significant global reduction in the use of carbon-based energy. One important strategy in this transition will be the substitution of fossil fuel-based energy production with renewable based fuels; however, since coal, oil and gas are plentiful and cheap, the phasing in of renewables over the next half century will not happen fast enough to meet the needed pace of reductions in carbon emissions. Thus the focus on energy production and the replacement of problematic energy fuels is important but insufficient as a stand alone low-carbon policy focus. Attention must be directed at the reduction of energy used in consumption. Moreover, given the necessity for increases in energy consumption in developing countries for human development reasons (poverty reduction and the provision of basic energy services such as health care and schools), the onus is on the rich countries of the world to make deep changes in the ways they use energy.

The research and policy arenas of what has variously been called 'energy conservation', 'demand side management' and 'energy efficiency' since their inception after the oil shocks in the 1970s, now have a 40 year history behind them. While there is evidence that technical efficiency has improved significantly, energy consumption has grown over the period, with the strongest growth in homes and residences. One reason for this growth is a lack of political

commitment to the reduction of consumption. While advantages of reducing energy use to consumers and to the environment are significant, public policy and commercial actors have been reluctant to engage with consumption due to scepticism about the consequences for employment, profits and economic growth (though there is evidence that a restructuring to a low carbon society can contribute positively to all of these).

The spectre of climate change has finally contributed to a sense of urgency about the need to increase energy efficiency and to reduce energy consumption; however, there is a growing frustration and critique of conventional approaches to the theory and policy of energy efficiency, which have been fragmented and reductive. The complex social arena in which energy is used has been reduced to 1) individuals and their behaviour 2) technical devices and their efficiency and/or 3) markets and rational actors. The reality is that energy is the ultimate social good, bound up with virtually every aspect of everyday life. Neither the theorizing of energy use, nor the development of robust policies for energy reduction will be possible unless social and material contributions to energy practices are adequately addressed.

Practice theory provides a useful theoretical approach to understanding consumption and underpinning innovative policies. Bourdieu articulated his theory of practice in his *An Outline of a Theory of Practice*, published in 1977. He later built and modified his ideas in his book, *Practical Reason: On the theory of action* (1998). More recent theorists such as Reckwitz have developed and articulated practice theory. For Reckwitz, practices consist of several elements, interconnected to one another: 'forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge.' Thus, practices involve the interaction of people, their social contexts, things and routines. They encompass people's reflexivity and intentionality, but also the tacit knowledge that is embedded in routines. Much of the theorizing about

energy consumption places virtually all of the focus on reflexive knowledge. The agency in tacit knowledge is largely ignored. Many energy intensive practices are deeply routinized and often cultural specific. Their tacit knowledge makes them resistant to change and poses a challenge for a policy aiming at changing energy behaviour. Practice theory provides a template for theorizing this power of routines, the tacit-reflexive distinction in types of knowledge, and provides a template for understanding how energy practices change (or might be changed).

An important element of practices which has been largely undertheorized in energy and climate debates is the role of technologies. In what ways do technologies structure behaviour and routines? Technologies, once inserted into practices, bring with them embedded potentials for changed energy using behaviours, the sum of which could also contribute to form for 'rebound' in energy use (a different kind of rebound than the much discussed economic rebound which occurs when people used money saved from energy efficiency to invest in other energy using activities). As applied to energy using technologies, the essence is that household technologies such as refrigerators, cooking appliances, washing machines and air conditioners, once in place and running in a home, are not passive, but rather have an active influence on practices. In other words, technologies bear with them a form for tacit knowledge which influences both routines and behaviours. In the practice-grounded theory I have outlined, the individual consumers, the technologies and the socio-cultural practices into which they fit are viewed as agentive. From a policy perspective, the targets of policy would expand to include not only individual attitudes and motivational information, but also socio-cultural practices, the fabric of the material environment and the technology (product) choices which people face. For example, concerning personal mobility, efforts to reduce automobility would begin with people's transport needs and routines and work through the ways which public transport systems, bicycles, walking and automobiles can contribute to satisfying them. It would imply not only a technology-efficiency focus on the promotion of more fuel efficient cars, but consideration of investments in fast and convenient alternatives to automobility in the form of coordinated

and comprehensive public transport systems, fast inter-city trains and walking/biking infrastructures.

In conclusion, in a practice-service perspective, the old distinctions between 'upstream' and 'downstream' policy instruments dissolve. Since the former is intended to move the behavioural choices and the latter the choosers, both are about behaviour. From this perspective, standards, regulations, and bans on energy wasting technologies (such as the recent ban on the incandescent bulb) are behavioural instruments on a par with motivational instruments such as information and pricing. While the policy frame is expanded and emphasis realigned, many of the types of policy instruments used today remain valid. Information remains important, in the form of prices, labels, incentives and so on, but as we have seen its effect is blunted because of intransigence of tacit knowledge bound up in both energy routines and technological landscapes. I have discussed how tacit knowledge can be disrupted through the introduction to, or confrontation with new practices. A promising policy approach that deserves wider application is the exposure of people to new routines through the use of demonstration projects and in situ experiments which highlight low energy intensive practices, for example demonstration zero energy homes, and apartment-building concepts which emphasize sharing of services such as car use and clothes washing.

My experience is that in Europe and other parts of the developed world there is a widespread willingness to change energy behaviour, but people want political leadership and new rules of the game. Individuals want to be assured that they are participating in a common effort in which everyone is moving forward together. My argument in this paper is that agency for change is distributed among people, technologies and social contexts. I would also argue that responsibility for change is distributed among consumers and the framers of the social, technical and public policies around energy. In other words, the acknowledgement that behaviour is an important research and policy domain ought not to be equated with placing all responsibility for change on the individual householder. Politicians and public policy makers need to take on their share by framing energy use with strong incentives which premier low-energy intensive products and practices.