

Bringing a more robust theory of consumption to the sustainable energy agenda

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Introduction

The specters of climate change and resource depletion create an urgent need for deep reductions in energy consumption in the rich countries of the world. This is a huge task given the global track record of the past century, at the end of which we find a small fraction of the global population enjoying enormous wealth (in terms of both economic and environmental capital), but where the majority are still living without access to adequate basic services (for example electricity, health and education) and in degraded environments. One way to illustrate the dilemma is the concept ecological footprint: a rough indicator how much we are consuming of the earth's resources and emitting in the form of pollutants. According to WWF (2008), the global ecological footprint surpassed the earth's carrying capacity in the mid-1980s. We are now consuming and emitting as if we had access to 1,5 worlds of biosphere. To put it another way, our global society is in deep ecological debt, and since there aren't any more worlds of biosphere available, the debt will have to be repaid.

The 31 OECD countries account for 40% of the footprint, while Asia and Africa account for only 11%. In terms of carbon emissions, OECD countries emit 3 to 4 times more per capita than Asia and Africa. The necessity to allow developing countries to increase their carbon footprint in order to reduce poverty and to extend basic services such as health and schooling implies that the rich countries will have to invest massively in renewable energies, but this will not be sufficient to bring down carbon emissions fast enough. This must be accompanied by deep reductions in energy consumption. The need for radical change is disheartening given the deeply anchored associations between more energy, more consumption and development. Reduction in anything has a negative bias in the hegemonic political discourses and practices of the last half century. At the macro economic level, growth-oriented economic thinking is viewed as a panacea for employment, commercial competitiveness and market expansion. The few efforts to reduce energy consumption within a neo-liberal, capitalist discourse have fostered perplexing anomalies in the theory and policies of energy reduction, including the euphemistic substitution of reduction for terms such as energy management, energy savings,

energy efficiency and energy sustainability (see Shove and Wilhite 1999; Wilhite et al. 2000; Wilhite and Norgard 2001).

In this paper, I will make a case for a new line of thinking which recasts energy consumption as home practices, and which addresses energy reduction through the fostering of less energy intensive practices. ‘Practice theory’ has the potential to take account of the missing social, cultural and material contributions to energy use. Several of the important bedrock concepts in practice theory will be discussed and critically assessed in the paper, including agency, routine, behavior, reflexivity and habit. I will examine the ways that culturally-grounded social structures, things and knowledge are bound up in energy practices (such as mobility, cooling, lighting and preparing food), drawing on research on consumption from several national/cultural settings around the world in order to illustrate how practices form and change. I will argue that in practice theory, as well as in the more general body of research on energy, the contribution of material contexts to energy practices is under-theorized. Finally, thought will be given to how practice-theory perspectives can contribute to the development of innovative policies aimed at reducing household energy consumption.

Embedding energy consumption in practice

A number of social scientists from differing academic disciplines have recently contributed to the development and application of practice theory to an understanding of everyday energy consumption (Shove 2003; Warde 2005; Wilhite 2008a; Røpke 2009). The general thrust of this work has moved the theory of energy consumption from its focus on individuals and devices to a focus on routines, things and their social contexts. These efforts draw on newer refinements in the theory of practice, such as those of Reckwitz (2002). He defines a practice as ‘a routinized type of behavior which consists 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 (2002:249, cited in Warde 2005).’ From this perspective, individuals do not direct practices, but rather are participants in practices. The knowledge (or know-how) about practice is distributed between socio-cultural contexts around practices, the individuals who perform them, the routines which develop in them, and the technologies deployed. This is very different from the conceptualization in the individual and device focused world of energy research and policy. As Seyfang et al. (2010:8) put it, from a practice perspective:

Individuals...are no longer either passive dupes beholden to broader social structures, or free and sovereign agents revealing their preferences through market decisions, but instead become knowledgeable and skilled ‘carriers’ of practice who at once follow the rules, norms and regulations that hold practice together, but also, through their active and always localised performance of practices, improvise and creatively reproduce and transform them.

The practice perspective sets up a new agenda for study of energy consumption, locating consumption in practices, both ontologically and theoretically. The focus moves from the usual individual centered or technology centered view of consumption to a theoretical agenda which examines the contributions of the social and material contexts on consumption. It opens for a new basis for the set of policies which aim to reduce the intensity of energy use in everyday practices.

Agency

Then main source of theory on agency in the social sciences stems from the work of Anthony Giddens and his structuration theory. Giddens used the concept of agency to capture the relative power, or influence of social structures and individual agents in social transformation (1979). Agency for Giddens stands for a potential or capacity: the potential for both individuals, on the one hand, with their own life experiences, attitudes and beliefs; and for social structures on the other, in the form of norms rules and regulations, to influence social practices. Anthropologist Sherry Ortner (1994 1999) has used a similar conceptualization of agency in her work (1984; 1999; 2006a; 2006b). She defined agency as ‘the potential to influence acts’. Linguistic anthropologist Ahern, referring to Ortner, used the wording ‘the socio-culturally mediated capacity to act’ (2001:18). Ortner and Ahearn add to the contributors to agency socio-cultural contexts such as language, perception, ideology and material culture. An important point is that agents do not “possess” agency and that ““agent” is *not* (original emphasis) synonymous with the individual’ (Dobres 2000:132). Agency is distributed between reflexive individuals and their socio-material contexts. Over time, routines develop which weaken reflexivity – the agency of reflexive, purposive thought – and give agency to tacit knowledge.

Routines

The focus in energy theory and policy on rational choice theory and on reflexive behavior has diverted attention from the importance of tacit knowledge and routines, unfortunate because so many of the ways we consume are routinized. As an example, consider the routines around

eating. When I sit down to a meal I take the fork in my left hand and the knife in my right (revealing my USA origins). I cut the food, transfer the fork to my right hand, and then move it to my mouth.. This action happens below the threshold of conscious thought. I do not have to think through the choices as I make them (right/left, transfer) in order to accomplish the action. I can even occasionally have an intelligent thought while performing these routinized tasks. Anthropologist Rick Wilk has written that he has had some of his most insightful thoughts while running on the automatic of routine. He writes about the routines around walking his dog and how: “the pace of a habit seems to carry me along, like a jostling crowd (2009:148)”. Many home energy practices are routinized. The ways we light, heat, clean, cook, commute and even shop are steeped in tacit knowledge. Concerning shopping, Dewey makes the distinction between how we shop for everyday goods, which is routinized, and how we shop for big purchases (capital goods such as home appliances, cars and so on), which involves conscious (reflexive) deliberation (cited in Ihlonen 2001:20). Practice theory provides a template for theorizing the power of routines in consumption and the tacit-reflexive distinction in types of knowledge embedded in consumption practices.

The example of routines around getting food from plate to mouth shows how culture is agentive in practice. A Norwegian starts with the fork in the left hand and knife in the right, but never makes the exchange on the way to the mouth. An Indian does not use a fork at all, employing the simple technology of right hand to mouth. Confrontation between differing cultural-based routines is one way that the tacit knowledge in routines gets moved into the realm of reflection and opens the possibility for change. In my book on changing consumption in South Asia (Wilhite 2008a), I showed how work migration has been a catalyst for changing consumption. Work migrants from South India live dual lives, with one residence in India and another at their place of work, which include countries such as the Oman Gulf countries (such as Kuwait, Arab Emirates) as well as Saudi Arabia, Singapore, several European countries and Australia. In Trivandrum, Kerala in south India, 40% of all families have at least one family member working abroad. Work migration is not viewed by the migrants as temporary or short term, but rather as a semi-permanent existence involving a dual residence. In their places of work abroad, migrants encounter routines and goods which are not available in India or are used in very different ways than in their Kerala homes. They find that many of the goods viewed as luxuries in India, such as cars, washing machines and air conditioners are routine aspects of everyday life in the migrant’s workplace abroad.

The work migrant's confrontation with new ways of living disrupts their classifications of luxury and necessities. It lifts tacit knowledge into what Wilk calls the 'discursive sphere of heterodoxy...where, eventually, through the exercise of power, they (needs and wants or luxuries and necessities) can become re-established as orthodoxy, and eventually sink back into the accepted daily practice... (1999:10).' Living themselves into a new set of routines in their country of work leads to a reorganizing of practices in their Kerala homes. These new practices, and the goods which circulate in them, are brought back to India, where they replace taken-for-granted aspects of life in the home.

Another example of how routines get disrupted is when people move from one home to another. In a study of middle class consumption in California, Wilk and I found that a move into a new home initiated a period of intense reflection by the family over household routines and often initiated a flurry of home improvements (Wilk and Wilhite 1985). Further disruptions occurred in conjunction with the birth of children, and later in the life cycle when children moved out of the home. During these periods of disruption and reflection, people were more likely to purchase energy efficiency retrofits for their home such as wall insulation and thermally efficient windows. I will return to the policy implications of 'routine busting' below.

Material contexts

While Reckwitz and other practice theorists identify things as one of the important bearers of knowledge in practice, to my knowledge, the role of material contexts has not been fully developed in any of the various strands of practice theory. Dobres writes that "theories of practice...can do much to historicize and humanize our understanding of technology. At the same time, theories of agency are practically mute on the active role of material culture and technological endeavors in everyday expressions of self-and group-interest (1999:8)." The agency in things has been undertheorized in all of the research domains which are ostensibly concerned with understanding or influencing home practices. In my experience, those social or cultural anthropologists who are interested in modern technology tend to have a background in archeology, material culture or in environmental anthropology with its emphasis on landscapes and nature (examples: Rick Wilk, Daniel Miller, Maria Dobres, Tim Ingold). Many anthropologists blot out modern technology because of intimations of technological determinism, anthropomorphism or perhaps simply because objects don't talk.

As Ingold wrote, in anthropology, “technology tends to be associated with the mechanical replication of the given rather than the creative production of novelty, and hence with what is objective and determined rather than what is subjective and spontaneous (1999:ix).” He goes on: anthropologists are “more or less wedded to the cognitivist paradigm, which, by regarding technical action as the mechanical implementation of preconceived design, effectively forces a division between cognitive knowledge and practice (1999:xi).” According to Peter-Paul Verbeek (2005: 2), this lack of coming to grips with the material is characteristic of social science in general: “Despite all the recent talk about the ‘material world’ and ‘modern materialism’, we have managed to expunge artifacts of their materiality both in our thinking about them and in our design of them.” Archeology is an exception. Archeologists have acknowledged the importance of material agency, because things are all that archeologists have to work with in their efforts to construct past practices. Archeologists understand the subtle ways in which objects express not only cultural practices but also influence them. Dobres expresses it this way: “Because technology is an ever unfolding *process* (original emphasis), a ‘becoming,’ as it were, it necessarily interweaves the experiential making and use of material culture with the making and remaking of culture, and both with the making of social agents (Dobres 1999:3). Many social scientists treat technologies and other products of Western materialism as somehow exogenous to social worlds, but modern technologies are everywhere and when taken into use are significant change agents. In other words, social life everywhere is saturated with complex technologies. A challenge for 21st century social science is to acknowledge the importance of material agency in consumption.

Looking at the mainstream energy savings research agenda, it been overwhelmingly focused on technologies (plural) but perspectives on material agency are distressingly absent. Technology agency has been stripped down to efficiency; change is conflated to a technical equation involving the difference between the technical energy efficiency of the device in use and the efficiency of the device which will replace it. In Wilhite (2008b), I have argued that perspectives from actor network theory (for example Latour 2000; Achrich 2000) are sorely absent from household energy consumption agendas. While there has been lots of work on how technologies are ‘domesticated’ or ‘appropriated’ (see for example Lie and Sørensen 1996), i.e. how people misuse technologies or use them in surprising ways (for example, how people use room thermostats like on-off switches; override movement sensitive or natural-light sensitive lighting systems by manually manipulating lighting; open windows in

thermostatically controlled buildings to regulate heat and so on), but little attention has been given to the capacity of technologies, once in use, to reshape practices. Expressing this in a vocabulary familiar to energy analysts, technology agency has the potential to engender a kind of ‘rebound effect’. The usual meaning of the rebound effect in energy research is that money acquired from the direct energy saving associated with a more efficient technology will simply be used to increase energy use (for example increase living room temperatures from 21 to 22 C), or to buy new energy using things, thus increasing consumption and negating the net reductions in energy use made possible by the original efficiency purchase (see Herring 1999; Moezzi 1998; Wilhite and Niggard 2004). Adapting an SST approach, technologies, no matter how much more efficient they are than the ones they replace, bring with them embedded potentials for changing energy consuming routines and for encouraging purchases of new energy using devices, the result of which can potentially contribute to another form for ‘rebound’ in energy use.

There are many examples of this technology rebound, the most striking of which can be associated with refrigeration. Refrigerators have the potential to drastically change not only food preparation and cooking in the home, but also to pave the way for other complementary technologies such as the microwave oven and the freezer, as well as to increase the need for refrigeration in production and distribution systems (Garnett 2007; Wilhite 2008a). An example of a slower but more comprehensive change in practices concerns home cooling. Elsewhere, I have written about how changes in building technologies, material and the social organization of work has paved the way for air conditioning in India, echoing a pattern from the USA (Cooper 1998), Japan (Wilhite et al. 1997), Australia (Stengers 2008), and now being repeated in places like China and Africa. These changes bring with them the material embedding of airconditioned energy demand. In parts of the United States, Australia and Japan, the increase in electricity consumption and excessive peak power loads are the source of a new regime of practices designed to relieve energy utilities from peak electricity shortages. Households, company employees and public servants are being asked to agree to shut off their air conditioners during the hottest periods of the day in return for a rebate or reduction in electricity price (Stengers 2008). People ‘suffer’ through several hours a day in hot buildings made of concrete, glass and steel that no one imagined would ever be used without air conditioning (Wilhite 2009).

The cluster of practices involving air conditioning is creeping into many parts of the developing world, and into southern Europe as well. Paraphrasing Dobres, a theory and policy of energy reduction will need to stress “the dynamic, ongoing, and socially constituted nature of sociotechnical activities. In this sense, we prefer to think of technology as a verb of action and interaction, rather than a noun of possession (1999:3).” In the many parts of the temperate world where passive cooling still dominates (for example Southern Europe, North Africa, India, China), a practice perspective would acknowledge the energy rebound associated with air conditioned comfort and encourage efforts to reinforce existing natural cooling practices involving the use of porous building materials, passive home designs and urban landscapes conducive to non-air conditioned comfort.

Insights for energy policy

Today’s energy efficiency research and policy suffers from reductive and superficial portrayals of the social world, socio-technical change and of how to make change happen. Practice theory provides a way to refresh those agendas. It would mean that the conventional, hegemonic view of energy consumption which assigns all agency to the individual consumer would be replaced by a view of agency in which things, people, routines and contexts contribute to both stability and change in consumption. This view broadens the focus of a residential energy savings policy from individuals and individual devices to clusters of home practices associated with energy using practices such as those involved in heating, lighting, cooling, preparing food and so on. For example, efforts to reduce automobility would not begin with the car or the driver, but with transport practices and how cars, public transport systems, bicycles, walking and automobiles can be developed and provide options for the developments of new, less energy intensive routines which remain convenient and practical. Since the automobile is equated to household transport in many parts of the world, there would be a need to not only develop these alternatives, but to shake up entrenched mobility patterns by exposure to new ones, such as closing off city centers at certain times, offering free or cheap tickets on rail and bus during certain periods, and other innovative programs encouraging people to experiment with different ways of doing things.

Information is also important, but experience shows that general cheerleading about the importance of a clean environment and the need for changing behavior has had only modest success in some few places. However, because energy is invisible, many of the routines around energy use are doubly stubborn to change, first because the knowledge in routines is

tacit and second because of the lack of transparency about how much energy is used in a given practice (such as that of heating, lighting cooking, and so on). Information which has the purpose of making energy consumption and costs visible can have a routine shaking effect and stimulate less energy intensive practices (Fisher 2007). Promising work is being done on smart meters, which allows two way communication between users and providers of energy, and a two way flow of electricity in the cases where energy conservation is combined with distributed energy power generation.

A typical energy efficiency policy is the manipulation of prices through the use of taxes and surcharges. Experience shows that many of the energy intensive, established household practices are virtually immune to small changes in price. Norwegian lighting is an example. Lighting habits are highly energy intensive and deeply anchored in cultural notions of how to create a cultural aesthetic. In Norwegian living rooms, the favored aesthetic consists of many points of light and shadow, created by placing many table and standing lights around the room (Wilhite et al. 2001). It could be argued that the most important factor behind the formation of this energy intensive energy service is a long history of relatively cheap electricity. However, regardless of economic forming, Norwegian lighting practices and their associations with a cozy aesthetic have become so routinized that a change will require much more than a marginal increase in prices.

A promising routine-busting approach that was popular in the 1970s, but has waned in the face of the deregulation of energy markets in the 1990s is the use of demonstration projects. These highlight low energy intensive practices, showing for example how life in zero energy homes or home service sharing (for example car sharing and laundering) do not really involve radical changes in convenience and life quality (Attali and Wilhite 2001; Jelpa and Knot 2002). Along the same lines, there needs to be a better circulation of information on successful energy service transformations, such as the successful efforts in many European cities to encourage bicycle commuting. Copenhagen, Amsterdam and more recently Paris have developed infrastructures for safe and efficient bike paths, with concomitant increases in cycling. Marketing in all of these cases has emphasized the health benefits of biking and how it can kill two birds with one stone: commuting and physical training.

To conclude, the sustainable energy agenda is in desperate need of renewal. Practice theory provides a way to break through the individualistic, techno-centered and market-oriented agendas which dominate energy consumption research and policy.

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