# Convergence and divergence in energy-related practices: Understanding demand in the Global South

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## Background

Rapidly growing energy demand underpins many current global environmental, social and political problems, including climate change. The DEMAND Centre is known for its progressive and original approach to the conceptualisation and analysis of energy practices and is distinctive in that it asks about 'what energy is for'. This project builds on DEMAND's empirical and theoretical approach through an international comparative study. The research recognises that energy-related practices in the UK are connected to social, technological and political developments on a global scale. It also recognises that cross-cultural comparison is critical for learning about how relevant social practices develop between as well as within contemporary societies. The DEMAND Centre's work currently concentrates on trends and changes in energy-related practices in the Global North. This project extends the UK-based study of energy-related practices to countries in the Global South, doing so as a means of capturing and potentially influencing global trends.

## Rationale

The aim is to identify and account for differences and similarities in the circulation of elements and practices relating to comfort, lighting and refrigeration between the Global North and South. Shove et al. (2003; 2012) argue that energy-related practices like those associated with air-conditioning, lighting and refrigeration depend on the integration and circulation of constitutive elements, such as conventions of comfort, standardised products, and mediated images of wellbeing. This project will analyse and compare trends and differences in the materials, images and forms of competence (Hand & Shove, 2007; Shove &

Pantzar, 2005) that make up a selection of energy-related practices within and between the Global North and South. It will explore the proposition that these elements 'circulate' in systematically different ways and that the processes involved are relevant for the persistence and emergence of local differences in energy demand.

In the Global South, primary energy demand is rising rapidly, leading to increased greenhouse gas emissions, local social and environmental impact, and (geo-political) conflicts. As energy demand in the Global North is slowing or sometimes even falling, the result is a seemingly converging trend. Some metropolitan cities in the Global South, such as Bangkok, already have higher greenhouse gas emissions per capita than London (Kennedy et al., 2009).[1] The trends are clear, but we do not know how global convergence works, nor how this process is shaped by local, national and international differences. These issues require us to look beyond the figures and ask again, and in detail: what is energy used for?

Tackling these questions calls for a novel theoretical approach capable of conceptualising crucial processes of international circulation and convergence, and the necessarily localised reproduction of energy-related practices. A systematic integration of concepts from political ecology and practice theory promises to be of value in understanding the geographically uneven circulation of elements (and practices) which underpin differences in energy demand between and within the Global North and South. This work, along with a carefully crafted programme of comparative empirical research, will enhance academic understanding of international trends in energy demand and will help identify opportunities for national and international business and policy to reduce end use energy demand.

## Objectives

The overall objectives of the project are to:

- Situate energy demand in international context to better understand global trends of energy practices
- Contribute to theory development at the intersection of energy demand, practices and socio-economic development
- Develop a methodology for the careful and critical cross-cultural comparison of energy practices
- Engage international policy makers and identify and communicate new opportunities for demand reduction

## Research design

This research views trends in domestic energy demand as outcomes of the complex intersection of local traditions; the international circulation of materials (including appliances); forms of competence and meaning and emerging habits, for instance of comfort, lighting and refrigeration. Practice theory, as co-developed at the DEMAND centre, has been especially powerful in analysing the 'horizontal diffusion' of energy-related practices across scales and national borders (Gibson, Farbotko, Gill, Head, & Waitt, 2013;

[1] Measured in emissions from end-use activities (tCO2e/cap)

Shove, 2003; Shove et al., 2012; Spaargaren, 2011). By contrast, political ecology focuses on human-environment interactions and power relations across scales using neo-Marxist approaches in combination with discourse analysis (Neumann, 2005; Peet, Robbins, & Watts, 2011). Through its roots in multi-scale thinking – e.g. the chains of causation (Blaikie & Brookfield, 1987) and World Systems Theory (Mauro, 2009) – political ecology helps understand the circulation of elements. Meanwhile, practice theories remind us that while government and multinational companies influence the circulation of discourses (and materials) demand is constructed through the day-to-day performance of energy related practices. To date, synergies between practice theory and political ecology are not especially well developed (exceptions are Bulkeley, Castán Broto, & Maassen, 2013; Lawhon & Murphy, 2011; Monstadt, 2009).

Building on insights from both traditions, we a comparative approach to the problem of analysing relevant processes of change, persistence and convergence both in energy demand and in the practices on which this depends.

In detail, the strategy is to compare domestic practices relating to comfort, lighting and refrigeration in different countries in a completely different region (Southeast Asia), specifically Thailand and Vietnam. These countries have been selected because they exhibit different levels and rates of change in energy demand, but are nonetheless starting to converge. As illustrated in Figure 1, of the three countries, household electricity demand is the highest but reducing in the UK; in Thailand it is growing steadily; while in Vietnam it is the lowest, but growing fast. A comparative approach allows us to examine between countries with similar and contrasting cultural, political, economic and climatic conditions. Within these countries, we focus on three areas of energy demand: comfort, lighting and refrigeration.

*Comfort:* Cooling is not as well established but expectations are changing fast and in many countries in Southeast Asia, air-conditioners already account for 50% or more of total household energy consumption (Economist, 2013). A 2012 survey in Vietnam showed that only 8% owned an air-conditioner, but that 70%

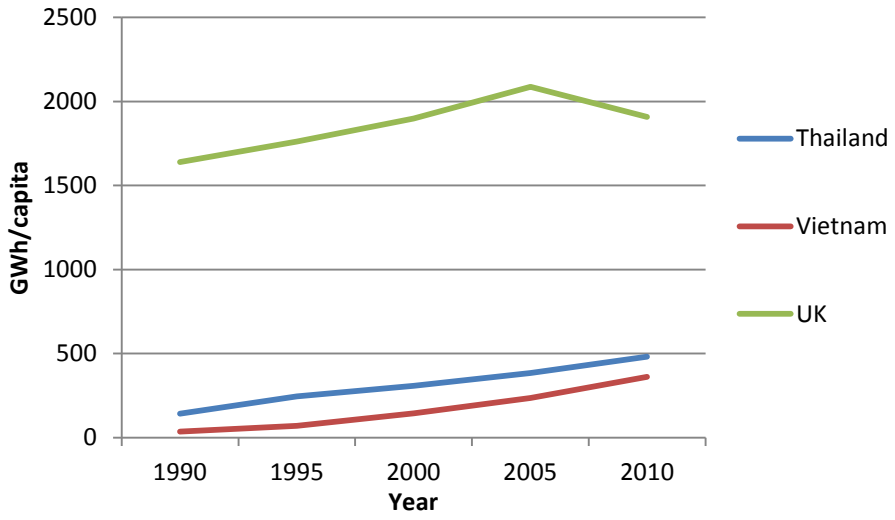


**Figure 1. Development of residential electricity demand in the four target countries. Figures from IEA (2014)**

of the highest income groups have mechanical cooling (DCCEE, 2012). Meanwhile 80% of the middle class urban households in Bangkok own an air-conditioner (METI, 2010). By focusing on these trends in parallel, we analyse pathways towards standard, energy demanding conventions from situations with very different climatic conditions, histories and cultures. What drives international standardisation, where is it resisted and what part do policy and business play?

*Lighting:* Lighting represents 15-20% in Thailand (EGAT, 2011) and 19% in Vietnam (DCCEE, 2012). Despite this share, surprisingly little is known about what lighting is used for in these countries, how multinational lighting companies are involved, and thus what future trends in demand to expect, and how to influence these. These are central topics of enquiry.

*Refrigeration:* The third example has to do with refrigeration. As with lighting, refrigeration is firmly embedded in household practices. It has virtually reached saturation in Thailand (98% in the METI (2010) urban household survey) and has 60% penetration in Vietnam (DCCEE, 2012). Unlike lighting, fridge technology has not changed drastically over the last few decades. What has changed, however, are the ways in which people are using fridges and freezers. The refrigerator has changed – and continues to change – methods of food preservation and ideas about how this should be done, along with issues of convenience, time management (Shove & Southerton, 2000), and gender roles (Watkins, 2006). Widespread reliance on refrigeration has resulted in a near doubling of the electricity consumption of this appliance in the UK from 1970 to 2012 (DECC, 2013). Wilhite (2008) shows that similar changes are occurring in South India, leading to an increasing number and size of fridges in the Global South. Again we focus on how refrigeration (and energy demand) becomes 'normal' and how it is in daily practice (and in international systems of food provisioning).

Comparative analysis of detailed empirical material (including national and international statistics, combined with interviews with households, manufacturers and promoters, standards bodies, etc.) on each of these topics allows us to examine different configurations of technological development, social practices, geographical conditions and socio-economic context. In combination, these cases allow us to address broader issues about how standardisation (of equipment, of ideals) intersects with traditional ways of cooling/lighting, how this relates to amounts of disposable income and with what impact on energy demand.

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