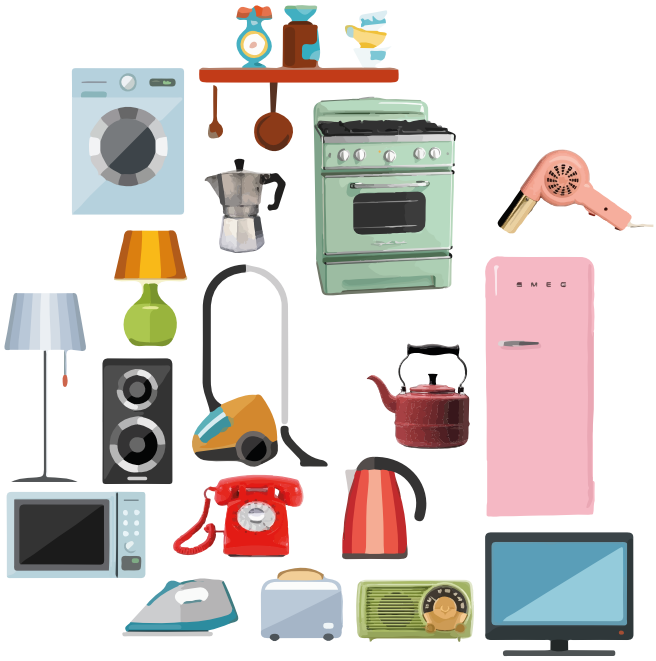
RESEARCH INSIGHT

THE TIMING OF DOMESTIC ENERGY DEMAND

INSIGHTS FROM THE 1920s – 2000s

DEMAND
DYNAMICS OF ENERGY, MOBILITY AND DEMAND



Key points

- The evolution of household energy infrastructures, domestic appliances and daily routines helps explain the timing of energy demand in the home today.
- Institutions beyond the home have an impact on patterns of occupancy and on daily and weekly household energy demand. The increase in women's participation in paid work, the decrease in jobs with highly structured working hours, and more time spent commuting has had massive implications for the scheduling of domestic activities.
- The design and use of domestic appliances has also influenced the sequence and duration of domestic tasks and the timing of demand.

Introduction

The timing of domestic energy demand – especially the demand for electricity – is important for energy policy and for the goal of reducing carbon emissions. The hours when people are at home, and the scheduling of energy-demanding activities are outcomes of social and technological arrangements that are always in flux. To understand contemporary patterns of energy demand we need to understand how daily and weekly rhythms have come about.

The aim of our research was to track related developments in home infrastructure, occupancy and activity on weekdays. To do this we examined archive material from Stocksbridge (from the 1920s) and Stevenage New Town (from the 1950s) which showed how the provision for heating, hot water and electrical power in council houses changed from the 1920s to 2000s. We also conducted oral histories with 30 residents who had lived in selected council houses in different decades, and who had therefore lived with different types of energy and domestic technology. The research revealed some of the institutional and infrastructural reasons why daily activities and energy use are currently patterned as they are.

Questions

- How have temporal patterns in energy demand been established? To which practices and technologies do they relate?
- How are domestic temporal rhythms formed and how do they change?
- What can looking at change in the past tell us about the fixity or flexibility of routines in the future?

Findings

There have been significant changes in when and how different rooms in the home are occupied and used (see figure 1). From 1940-1980 heat spread out from the living room and circulated upstairs. Heated bedrooms were used during the day (for children, for leisure activities), more parts of the home were used simultaneously (the kitchen and the lounge), and more activities depended on the use of electricity.

Changes in daily routines over the period studied were significantly influenced by shifts in the nature of work and institutional timetables. In 1961 in the UK just 30% of women were in paid work during the day.[1] Manufacturing jobs and short journeys to work meant that a sizeable proportion of working men returned home for lunch, and families often ate cooked meals together at lunchtime.

From 1970, the increase in women's paid employment, the move away from local manufacturing jobs, and the tendency to work further away meant that homes in Stevenage, and elsewhere, were often empty during the day and that energy-dependent activities, including cooking, were concentrated into the evening.

The timing of such activities was also influenced by the energy infrastructure in place and by the availability and use of different kinds of domestic appliance. In 1950 the 'Ideal' domestic boiler which ran on solid fuel, was the source of hot water in Stevenage homes. These were replaced by immersion heaters in the mid-1960s, gas boilers in the

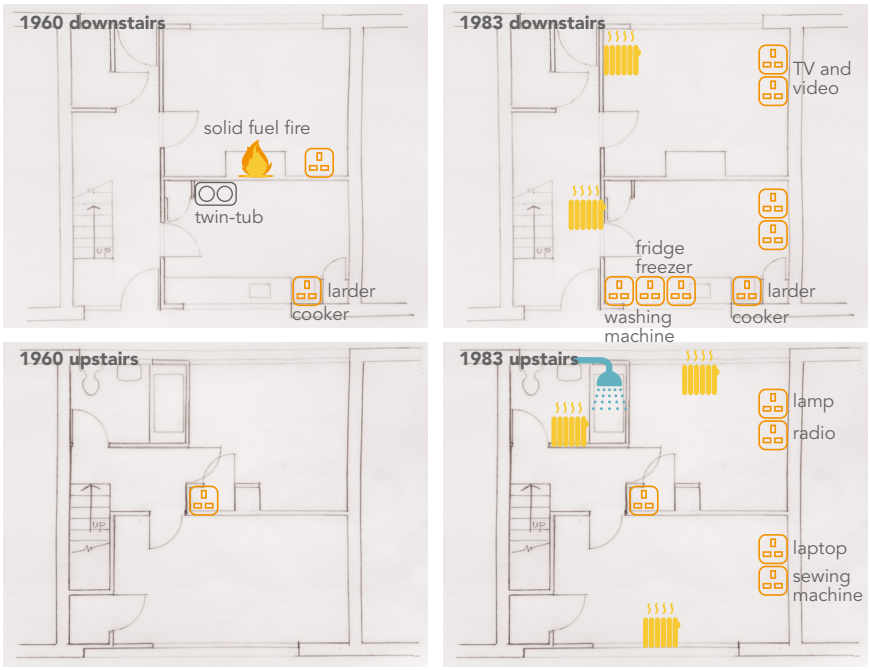


Figure 1
Changing infrastructures
Figure 1 shows the layout of a council house in Stevenage in 1960 and in 1983. It illustrates the spread of heating and electricity provision throughout the home, and shows how the use of space has changed.

1970s and more recently combi boilers. These technologies made different routines of bathing and showering possible. For example, interviewees reported changing from a daily 'campers wash' to a daily shower between 1970 and 1980 as instant hot water became more widely available.

Home appliances also had implications for weekly schedules. Figure 2 shows the steps involved in doing laundry with a twin-tub washing machine. As our interviewees explained, this took several hours. Since it was more efficient to do all the washing at once, working couples usually saved this task for the weekend.

Many working households still do laundry at the weekend, but since the arrival of automatic washing machines this is now something that can be slotted in alongside other tasks.

Significance

As our research shows, institutions, energy infrastructures and domestic technologies combine to shape daily patterns of household occupancy and routine. Present arrangements are no exception. This is significant on two counts. First, the scheduling of home energy use is not something that can be changed by act of will: households are caught up in temporal rhythms and routines that extend beyond the home and that are also outcomes of how houses are designed and of the appliances and infrastructures they contain. Second, these arrangements are always changing. As a result, future domestic routines – and the details of when energy is used in the home – are unlikely to be the same as those of today.

[1] Gershuny, J. 2011, *Time Use Surverys and the Measurement of National Well Being*, Centre for Time Use Research, University of Oxford, http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/rel/environmental/time-use-surveys-and-the-measurement-of-national-well-being/article-by-jonathan-gershuny/index.html

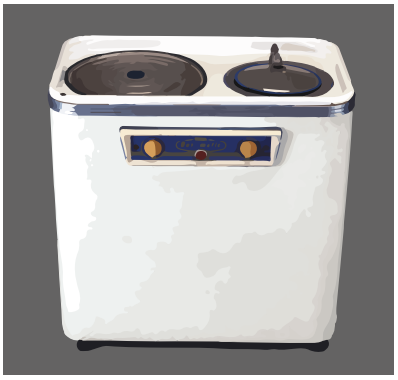


Figure 2
Washing with a twintub
Turning on the immersion heater
Wheeling out the twintub
Washing: filling with water – load 1, load 2 etc.
Emptying the water
Rinsing: filling with water – load 1, load 2 etc.
Emptying
Spin-drying: load 1, load 2 etc.
Hanging out to dry.

Implications

In the past, policies that have had a bearing on the opening hours and location of shops, schools and workplaces have directly influenced daily schedules, and the timing of energy consumption in the home. By implication there is scope for re-scheduling patterns of home and working life as part of broader strategies to reduce peak load or to improve the match between demand and supply, especially of renewable energy.

Energy policy tends to focus on the efficiency of domestic buildings and appliances. Our research shows that efficiency is not the only issue, and that homes, infrastructures and appliances (heating systems, washing machines, etc.) also have an impact on daily routines and therefore on when energy is used in the home. By implication, domestic technologies could be designed to re-configure the timing of energy demand through their impact on the scheduling of household practices.

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Further reading: http://www.demand.ac.uk
Researchers: Anna Carlsson-Hyslop, Lenneke Kuijer, Elizabeth Shove, Nicola Spurling (n.spurling@lancaster.ac.uk), Frank Trentmann and Matt Watson

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