Invisible energy policy in Higher Education

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Abstract
As the Steering Panel discussion paper states, *"…what is seen by policymakers to be 'energy policy' in fact covers a very small area of the terrain relating to the evolution of demand".* Non-energy policies can have major implications for energy demand, and the Invisible Energy Policy project takes on the challenge of identifying these unintended policy consequences in the UK public sector. This paper introduces the project and presents early findings from the first fieldwork phase on higher education, one of the UK's largest non-commercial consumers of energy. It outlines the project's research questions and context, and gives a brief overview of the methodology (including detailed investigation of two case-study universities). It then explores some emergent themes, considering how energy demand is governed and integrated within higher education; what is excluded from this; and how non-energy policies at the national and institutional scales interact to steer energy demand.

1. Introduction

1.1. What is invisible energy policy?

Energy demand is in part the unintended consequence of 'non-energy' policies and priorities, relating, for example, to consumer choice, health and safety, growth, security, or decentralisation. The impact of these non-energy policies on energy demand is often overlooked; they are 'invisible energy policies'. The Invisible Energy Policy project within the DEMAND centre focuses on how these invisible policies steer energy demand in the UK public sector.

One phase of the research (the focus of this paper) focuses on the higher education (HE) sector. Education is the second largest consumer of energy in the UK service sector, with HE being especially energy intensive. In line with the 2008 Climate Change Act, the sector has committed to reducing carbon emissions by 34% by 2020, against a 1990 baseline. This represents an enormous challenge, given that the sector's emissions increased by 33% between 1990 and 2005 (Prosser, 2014). To date, progress in reducing emissions has been slow, and it is unlikely the target will be met (BriteGreen, 2015).

The Invisible Energy Policy project seeks to understand how energy demand in this sector is governed, intentionally and unintentionally, by policy agendas at institutional and national scales. It addresses the following questions:

- How do non-energy policies affect energy demand?
- How are matters of energy demand integrated into non-energy policymaking and planning?
- How might issues of energy demand be better integrated into non-energy policymaking and planning?

Answering these questions will provide evidence and ideas which can inform future policy innovations, and generate informed debate about the relation between energy demand and non-energy policy.

1.2. Aims and structure

This paper introduces the Invisible Energy Policy project and presents emerging findings regarding invisible energy policy in HE, in response to some issues raised in the Steering Panel discussion paper. The discussion paper sums up a fundamental principle of our project: *"…what is seen by policymakers to be 'energy policy' in fact covers a very small area of the terrain relating to the evolution of demand".* The discussion paper also suggests we attend to "*the interactions of multiple policies, their layering and interaction over time",* the shifting importance of policies as external circumstances change, and how different levels of steering interact to create/stifle change. Our project responds to these challenges by exploring how energy and non-energy policies interact over time, on institutional and national scales, to steer energy demand. It addresses (at least) three questions raised in the discussion paper:

- *When we study explicit demand reduction interventions what gets included and what of importance is missed or excluded?*
- *When we study non-energy or implicit interventions or influences what space exists for raising or changing the terms of the debate in that process?*
- *Institutions are always on the move. What can we understand from the evolution of institutions and their changing relation to demand reduction as a topic?*

This paper focuses predominantly on the first of these questions, but also speaks to issues of institutional change, and lays foundations for our later work on how energy and non-energy policy-making could be more effectively integrated in future.

I first explain the research design (section two), before outlining the context of energy policies in UK HE, including carbon targets, carbon management plans, and progress to date (section three). I then present some initial findings on energy demand in HE, drawing on two case studies of UK universities. Section four uses interview data to discuss how energy demand is integrated into policy and practice within the institutions, and section five explores how energy demand may be steered by wider agendas in non-energy policy in UK HE.

2. Research design and methods

To understand energy demand in the HE sector, the research design addresses local as well as national patterns and processes. At the local level, we focus on two case study universities, exploring how energy is managed, and how non-energy priorities affect energy demand within each institution. This case study analysis is complemented by additional research which explores the same questions at the national level.

For each of the case study sites, the research involves documentary analysis together with interviews with a wide range of stakeholders who play a role (explicitly or implicitly) in governing energy use. These include energy managers, facilities managers, academics, managers of professional and information services, and other senior administrators. Future interviews will also be conducted with national-level policymakers and regulators in BIS, DECC and elsewhere. Alongside this, quantitative research is being undertaken on patterns of energy consumption within the sector, and at the case study sites. Fieldwork and analysis are currently on-going, so this paper presents early findings based on qualitative data from two case study universities. To preserve participant anonymity, all identifying information has been removed or changed.

3. Context: Energy and carbon policy in the HE sector

3.1. Policy frameworks

In recent years, the main lever for energy demand reduction across the English HE sector has been through the Higher Education Funding Council for England (HEFCE). Each year HEFCE receives a grant letter from its funder, the Department for Business, Innovation and Skills (BIS). Following the passage of the Climate Change Act in 2008, the 2009 grant letter[1] stated that HEFCE should pursue a strategy for sustainable development, with a target to reduce the sector's carbon emissions by 80% against 1990 levels by 2050. HEFCE adopted this 80% cut as a key performance target, alongside an interim target of 34% by 2020. This is often expressed relative to 2005 levels, as a target of 43% by 2020.

The next year, HEFCE's Carbon Reduction Strategy (HEFCE, Universities UK, & GuildHE, 2010) required Higher Education Institutions (HEIs) to set carbon reduction targets for 2020 and implement carbon management plans to achieve them[2]. Having a carbon management plan was made a condition of receiving HEFCE capital funding from 2010. HEFCE's carbon targets draw on the World Resources Institute classification of emissions within three 'scopes':

- **Scope 1**: direct emissions from sources that are owned or controlled by the organisation, for example emissions from combustion in owned or controlled boilers, furnaces, vehicles.
- **Scope 2**: emissions from the generation of purchased electricity consumed by the organisation.
- **Scope 3**: all other indirect emissions that are a consequence of the activities of the organisation, but occur from sources not owned or controlled by the organisation – for example, commuting and procurement. See Figure 1 below.

[1] See www.hefce.ac.uk under Finance & assurance/Finance and funding/Grant letter from Secretary of State.

[2] Although this strategy applies only to English institutions, similar requirements are in place for institutions in Northern Ireland, Scotland and Wales through devolved government and funding council targets.

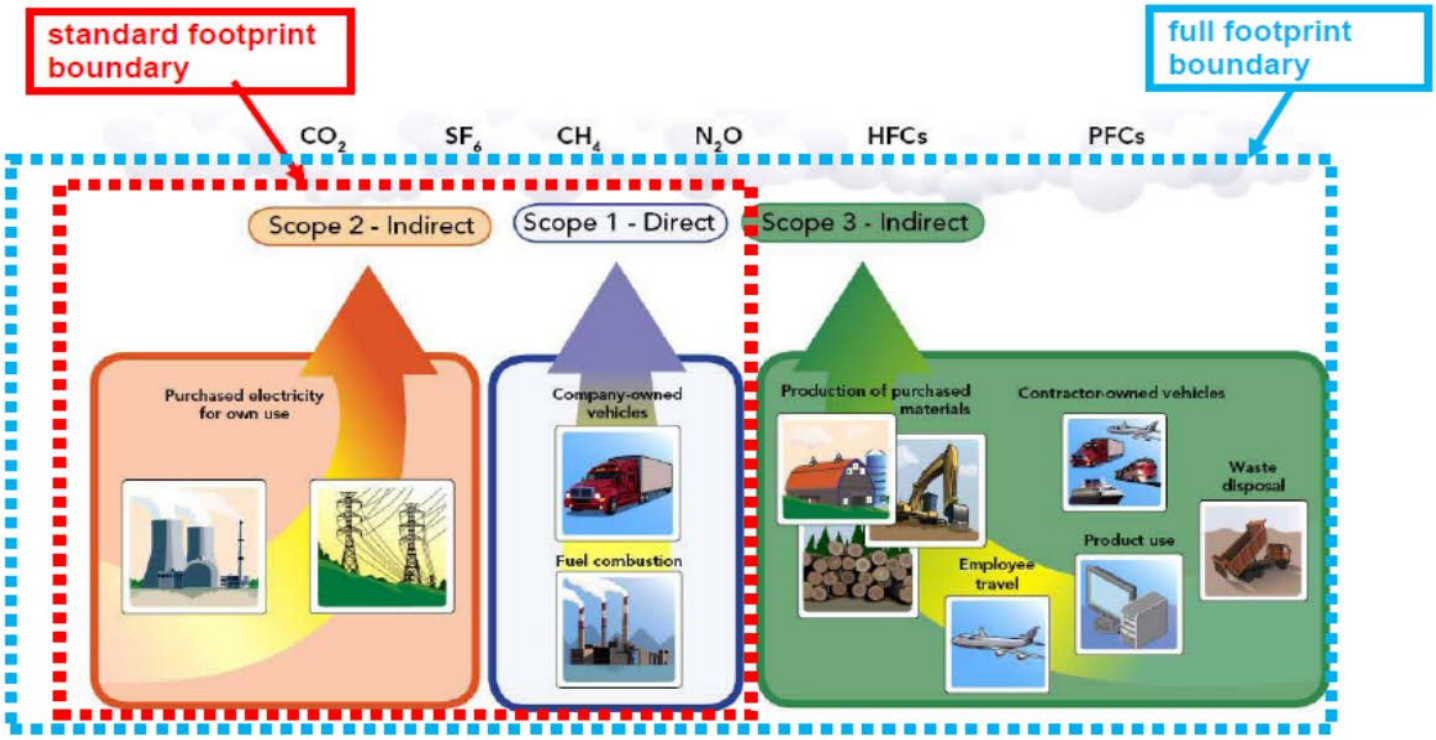

Figure 1: Scopes of carbon emissions (Arup, CenSA, & De Montfort, 2012)

The overall sector target covered only Scope 1 and 2 emissions. Institutions' targets equally only had to cover Scopes 1 and 2, although HEFCE stated that carbon plans should include measures addressing all three scopes.

Individual institutions were able to set their own targets, which vary greatly. HEFCE published the comments[3] that institutions provided when reporting their targets. Reasons given for low targets include:

- Having historic or listed buildings, or buildings that are difficult to renovate
- Having modern, efficient or recently renovated buildings, and so little scope for improvement
- Being a research-intensive or science-focused institution, and so requiring significant energy use (e.g. for labs or computing)
- Being an arts-focused institution and so requiring significant energy use (e.g. for 1:1 teaching and concert spaces, and museum collections)
- Expansion of the university

HEFCE reported that the self-allocated institutional targets were not adequate to meet the sector total target of 43% by 2020, adding up to only 38%[4], but took no action to change this. Regarding enforcement more generally, HEFCE state on their website that, *"There are currently no financial penalties planned for institutions who do not meet their 2020 target"*[5].

[3] http://www.hefce.ac.uk/media/hefce/content/What,we,do/Leadership,governance,and,management/Sustainable,development/Reducing,carbon,emissions/carbon_data_and_target_comments.pdf
[4] http://www.hefce.ac.uk/workprovide/carbon/
[5] http://www.hefce.ac.uk/workprovide/carbon/carbonfaq/

3.2. Progress to date

UK universities used a total of 7,371,000 MWh in 2013/14 (HESA, 2015), around 5% lower than in 2010/11. The consultancy Brite Green argues that the sector is increasingly falling behind its carbon target, and total emissions reductions by 2020 are only forecast to be 12%, far below the 43% target (figure 2). Over 75% of universities are set to miss their own 2020 targets (BriteGreen, 2015).

Figure 2: University sector emissions and projections against targets. Source: (BriteGreen, 2015)

HEFCE has hinted that growth in the sector could be used as a justification for missing targets (HEFCE, 2014). However, the role and influence of HEFCE have themselves changed drastically since the launch of the carbon initiatives in 2010, raising more fundamental questions about the status and relevance of this policy framework (discussed below).

Though worrying in themselves, statistics on HE energy and emissions mask a complex picture about what energy in universities is for, how this is changing and why. To gain a richer understanding of the reasons for the observed trends, the next sections look in detail at how energy demand is governed in universities, and how it is steered by agendas outside the realm of energy policy.

4. Integration and governance of energy in universities

This section presents emerging findings from two case studies of English universities, both in the top 40 for energy consumption. One is a pre-1945 institution in a city; the other is a "plateglass" university (1945-1970) outside an urban area. Both institutions are expanding, and neither is currently on track to meet its 2020 carbon target (based on past performance), though in one case the staff responsible for carbon management say that new initiatives will ensure the target is met.

This section explores perceptions within the institutions of why energy demand is to be reduced; who is responsible for this; and crucially; what types, sites and spaces of energy demand are seen as “negotiable” and which as “off-limits”. The answers to these questions shed light on how energy is governed within universities, how it is integrated into institutional policy and practice, and the boundaries between the energy and non-energy spheres.

Rationales: Why is energy demand to be reduced?

In brief, the rationales expressed for reducing energy demand were:

- Financial incentives, including energy bills (and Triad peak-time pricing), the Carbon Reduction Commitment (as was), and feed-in-tariffs
- HEFCE carbon targets (which were linked to grant allocation)
- Legislation; e.g. building regulations and Display Energy Certificates (with potential financial penalties for non-compliance)
- Reputational concerns (linked to student recruitment and "market" position)
- Ethical meanings and identities

This list shows that all but the last have a financial component. The measures implemented in the universities so far have had little or no upfront cost, or short payback periods. Financial goals often supersede energy saving if the two conflict; e.g. in the "value engineering" of new projects, in which energy efficiency measures are seen as an add-on that can be scrapped. This list of rationales also highlights the fact that energy is made visible, and constructed as a subject for intervention, mainly through policies that originate outside the universities.

Roles: who is involved in reducing demand, and how?

The key role in energy governance at these universities (and many others) is the Energy and Environment manager (E&EM). As Goulden and Spence (Goulden & Spence, 2015) note with reference to Facilities Managers, this can be a complex and conflicted role. Across both universities, energy and transport staff saw a tension within their roles between "keeping things working" and bringing about positive change for sustainability. A transport manager said:

> *"The actual job itself is keeping things running smoothly, with looking at aspects of change. I can only put ideas forward, I don't have a budget to change them*"

One E&EM suggested the "environment" part of their role was about pro-actively challenging practices, while the "energy manager" role was mainly about maintaining energy services. They stressed the importance of facilitating the core business of the university:

> "*A good Energy Manager does things so that people don't even realise that it's been done, if that makes sense? It's business as usual. Nothing is affected".*

Meanwhile, a former E&EM felt frustrated because they had been seen as "*just a support service*" by senior management, when they wanted to play a more pro-active role.

In both universities, a few other staff working in estate management and senior management played a role in monitoring and guiding energy initiatives. However, beyond this there was little knowledge of, or engagement with, energy issues among the staff interviewed. These are people responsible for governing practices that use energy, such as teaching, research, student recruitment, library and IT services and transport. However, they felt they knew little about the energy demand within their realms (even if they paid the bills, because usage was obscured through arcane charging processes), that it was not their responsibility to address this, and that they had not been involved in the development and implementation of energy/carbon plans. In both universities, energy is visible only to a small number of actors. This concentration of knowledge may have contributed to problems of institutional memory; for example, one energy manager did not know the method used by their predecessor to report carbon; and international travel had been mentioned in one old transport plan, but had dropped off the radar with a change in staff.

While each university has a committee that monitors performance on energy indicators as part of its wider remit, there are currently no institutional structures for promoting engagement with sustainability across either university (in both cases there had been such a group in the past but it ceased when a key individual left). Similarly, in one academic department, all energy-related activity

ceased when a voluntary sustainability champion left. This suggests structures of energy governance are relatively fragile.

Scope: what energy demand is negotiable?

The establishment of carbon targets and Scopes by HEFCE has largely defined what is to be reduced. Scopes 1 and 2, the subject of HEFCE's carbon target, remain the main focus of energy demand reduction activity in these universities. Meanwhile Scope 3 (procurement, waste and transport) is largely ignored[6]. A senior manager said, "*We haven't really given it any thought, to be honest*". But even within Scopes 1 and 2, the realm of negotiable emissions, or acceptable energy initiatives, is narrow. This is the case in both universities. One E&EM outlined the projects they were implementing to reduce energy demand: all were technical improvements with minimal cost and disruption:

> "*The next step is I'd say bog standard. I mean it sounds pretty crude but lighting, insulation, variable speed drives, improvements to the BMS, the building control management systems. We've got them, they can be improved upon.*"

A particularly notable area of invisibility is international travel. In one case, the energy manager, transport manager and senior manager with responsibility for international affairs all said they had never considered the energy impacts of international travel and had no targets or incentives to do so. The transport manager said this was due to a lack of data (the regular travel survey does not ask about international travel). The issue was equally neglected in the second case. This is important given the internationalisation of UK HE (discussed below).

More generally, attempting to steer practices in order to reduce energy demand was not a priority for energy managers. (In both cases, other staff also agreed there was little action on this). In one case, the E&EM's main rationale was that there is a greater "amount of carbon" (meaning, in fact, negotiable carbon) associated with technical improvements. Another issue was that there is little time for energy and facilities staff (such as building managers) to be *"pro-active"* because they are always "*fighting fires*" (i.e. equipment constantly needs fixing). This E&EM also said that the time isn't yet right: technical fixes need to be completed **before** challenging practices, for the sake of legitimacy. In the other university, a main barrier was the need to demonstrate a "*business case"* for any initiative.

Some energy and transport staff also saw challenging practices as dangerously close to harming the core functions of the university, such as the work of scientific researchers:

> *"Well, should they have to be [reducing energy demand]? It's… one of these things, activity has to happen. I can't say to someone who is working in [science building], they might be on the cusp of a cancer-curing drug, or practice, or medicine or something, and I turn around and say, "Right, come on then lads, off you go"…"* (E&EM)

One E&EM had found it better not to tinker with things outside their core competence, because the intervention might pose risks to on-going functions. Examples included air-conditioning controls, and also emergency generators (which could potentially be used as a demand response measure), as explained in this account:

[6] There are many implications of the design and definition of targets and scopes; e.g. measuring carbon rather than energy, and the role of renewable generation and grid decarbonisation – there is not room to discuss these here.

> *"... I've been told, "Don't even look at them." Because they're here for a purpose. If we had a power-cut right now, we've got experiments, we've got IT infrastructure that needs 24-hour electrical demands, fridges…that have to be on, so we have generators that come on in an emergency. They're not here to come in because it's turned 4 o'clock in the afternoon and there's going to be high demand on the National Grid… that's not what they're here for."*

Energy and transport managers were not able to intervene in anything they wished; a former E&EM said they had been told by their boss (within facilities management) that challenging the behaviour of students and staff was off-limits; this was "*kowtowing to lecturers because they bring in money*". In contrast, technical efficiency improvements enable energy and transport managers to fulfil both parts of their role: keeping things working **and** reducing environmental impacts, and are accepted by others as a legitimate remit.

At both universities, energy and transport staff had little involvement in decision-making around major campus developments, or the creation of strategies and plans. A transport manager said of a forthcoming environmental plan:

> *"…it will land on my desk when it is completed, yes, but I am not involved in it at all now...they will probably come along and tell me what they want: "So this is what we decided you are going to have to achieve and you are going to have to find a way of achieving it.""*

In particular, growth and expansion plans are non-negotiable aspects of both universities' business. Growth is widely seen as essential to research and teaching excellence, and also to financial survival. While there were efforts to make the design of new developments energy efficient (e.g. through building quality), the size and nature of developments were not up for negotiation at either site.

Student experience is another priority that generally trumps energy concerns. When asked if energy was considered when library opening hours were extended, a senior manager said:

> *"Not even thought about. The whole driver for that was an NSS [National Student Survey]. The students said, "We need more access to study space"… and it was immediately solved by opening the library… But there was no energy impact assessment done on that, or carbon impact assessment"*

Meeting students' demands for space, services and facilities, wherever and whenever they were needed, was a priority. Student feedback was heavily used in decision-making, including through formal targets. This may be linked to the recent funding shift in HE (discussed below).

Sites: Where can energy demand be reduced?

Off-campus energy use was largely invisible. The three Scopes do not include any buildings outside the university estate, and so the privately-owned or rented residences of students and staff are generally ignored by carbon plans, while hybrid forms of ownership/management of residences constitute "grey areas" in energy and carbon reporting[7]. Energy managers therefore perceived the scope for off-campus reductions as insignificant.

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[7] An extreme example of this was reported in the University of York's student newspaper: "*...the University has managed to withhold its overall emissions total, by refusing to give data on the impact of college nine on emissions. The records office maintains this secrecy on the grounds that the Heslington East accommodation is jointly owned in a venture with Evans Property Group...*" (Johnston, 2013)

Some of these grey areas even exist on campuses, where certain buildings have commercial involvement or are used by other third parties (e.g. independent research institutes). Many universities have shops and food outlets run or rented by commercial partners, and there seems to be a trend towards diversification and/or outsourcing of campus services. The resulting "grey spaces" are not only a problem for reporting, they can make it hard to implement demand reduction initiatives. One energy manager could not get solar panels installed on a "grey space" roof because there was not enough time to work through the complexities of ownership and finances.

In summary, in these cases, energy is not deeply-integrated into wider university policy and practice, but is a something of a niche concern. It is the responsibility of a small number of people, and knowledge about it is concentrated, as is engagement with demand reduction. This means that knowledge is at risk of being lost, and some structures are at risk of fizzling out. Demand reduction activity is seen as having a very limited scope: technical improvements that have little/no upfront cost and cause little change to "business as usual". To a large extent, only emissions defined as Scopes 1 or 2 are considered, and even within these only certain forms of demand reduction are used (e.g. staff/student practices are off-limits). However, it is apparent that many of the issues raised here are not related solely to internal, institutional governance, but also to non-energy policy changes at a wider scale; some of these are explored below.

5. Non-energy policies and agendas in HE

Many policies not conventionally seen as energy policies play a role in steering energy demand in universities. The most important "non-energy" change currently occurring in UK HE concerns an agenda of marketisation and liberalisation, as summed up in HEFCE's business plan for 2015-2020 (emphasis added):

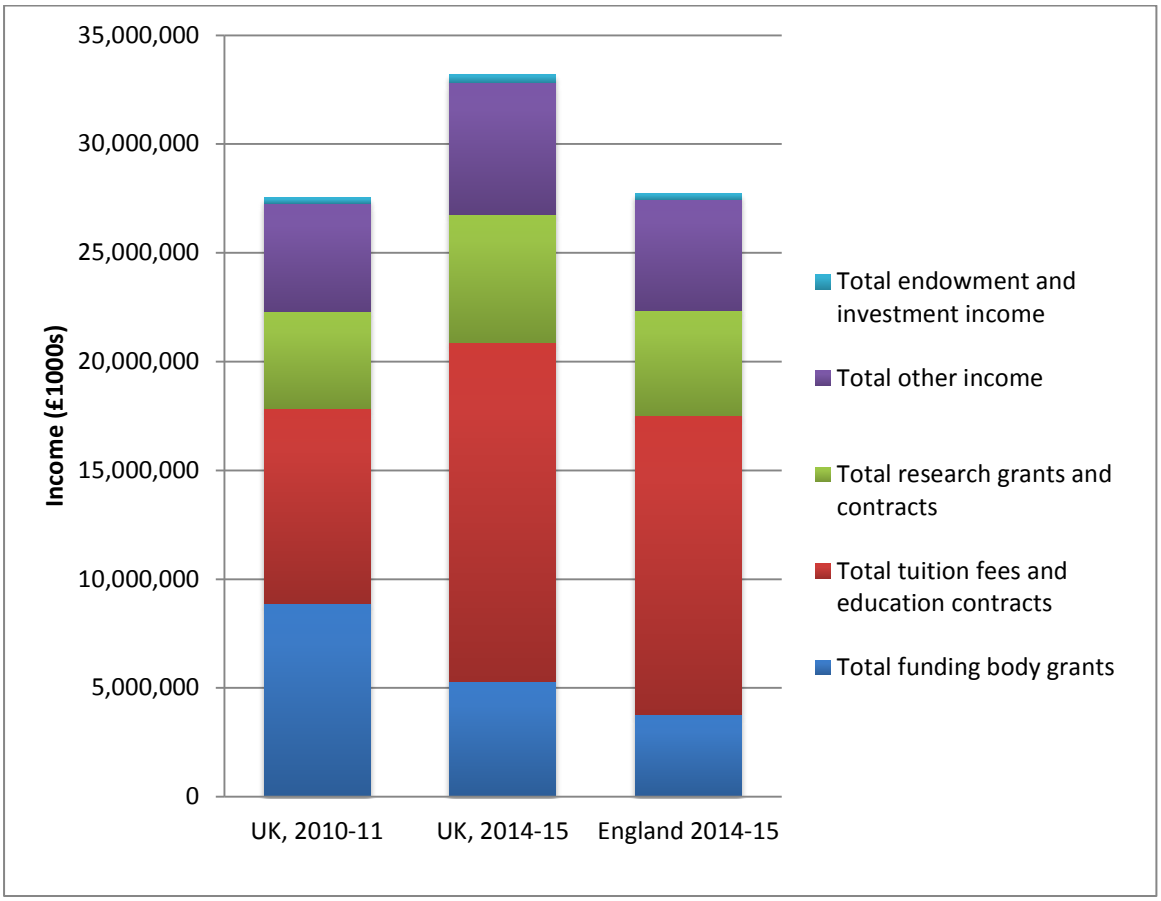
> *"Much has also changed in England in the last five years… the **higher education 'market'** has been opened to new providers, the Student Number Control cap on expansion has been removed for publicly funded higher education institutions, and a transition from block grant-based funding to student loan-based funding of teaching has taken place. Further, tough constraints on public funding are likely to continue... This means that higher education providers will need to be even more **agile and innovative**, increasingly **efficient**, and prepared to **collaborate with a range of (new) partners in the UK and overseas** if they are to achieve and sustain excellence, and if they are to ensure their own financial future"* (HEFCE, 2015, p2).

Major changes were also proposed in the BIS 2015 green paper on teaching excellence, which aimed to "*empower students, strengthen competition, drive quality, eliminate unnecessary bureaucracy and save taxpayer money*" (BIS, 2015, p57). The trend towards liberalisation in HE, both in the UK and internationally, has been extensively discussed (e.g. Deem & Brehony, 2005; Hemsley-Brown & Oplatka, 2006; Lynch, 2006; Molesworth, Scullion, & Nixon, 2011). This broad agenda encompasses many dimensions, including changes in governance; professionalisation and liberalisation within HEIs' internal services; marketisation and competition across the sector (and the student as consumer); metricisation; economic efficiency and austerity; growth; and internationalisation.

Here, I focus on one particularly important policy change to illustrate the diversity of its implications. This is the reduction in HEFCE grants to English universities, alongside the shift to higher (£9,000)

tuition fees in 2012. This change is illustrated by Figure 3, which contrasts the year 2010/11 with the most recent year's data (2014/15).

Figure 3: Sources of income for HE providers in the UK and in England (Source: HESA[8])



Tuition fees and education contracts now make up 50% of income for English HE providers, and 47% for the UK as a whole. This national-scale policy change has a range of ramifications for institutional policy and practice, many of which may have unrecognised implications for energy demand. These include:

The student experience agenda. Now that much of HEIs' income is from tuition fees, recruiting students is essential to their financial survival. This has made student experience a priority, guiding policy and planning across virtually all university functions, and creating new temporal patterns (e.g. the extension of opening hours for libraries, computer rooms, launderettes and help-desks). This agenda also governs the provision of spaces, facilities and equipment; e.g. accommodation is becoming larger, with more en-suite bathrooms, and internet connectivity is expected everywhere, all the time. A senior manager said student expectations have;

> *"Hugely changed… If you're paying £9,000 fees…you have a higher demand on what the facilities at the university are. We see it all the time… People complain… The demand on good facilities is really high"*

Another senior manager said,

[8] https://www.hesa.ac.uk/stats-finance

"IT … they want it probably faster than we can conceivably deliver it… And completely on wireless, you can't have a dead spot anywhere."

Students working in paid employment may also mean that services need to be open for longer.

The recruitment of international students. One staff member said, "… *the only really profitable thing we do is teach, because we have an awful lot of foreign students".* This is closely related to the above point regarding fees and student experience, but international students may also have particular patterns of energy demand. As well as their travel practices, some may need access to campus services for the whole year, which may be linked with a shift towards year-round opening of buildings, rather than holiday closures.

T**he research excellence agenda.** The need to pursue competitive research funding, judged against "international excellence" may be associated with international travel by academics. It might also contribute to the need for state-of-the-art facilities and equipment. Some natural scientists in this study suggested that cutting-edge science is becoming more equipment-intensive, with much equipment needing to be permanently on. However, equipment is generally becoming more efficient and some research is now "virtual". As a core function and income source for both universities, energy staff at both sites felt that research was off-limits to all but the most unobtrusive energy initiatives.

The growth agenda. Some universities perceive that to maintain financial stability (both through tuition fees and research income) they need to grow in size. A senior manager said,

"...the university strategy is growth. The reason for that growth is that as an institution we feel that that growth will give us a certain economy of scale".

A staff member at the other university went further:

"growth is a way of avoiding being swallowed up. It is a way of generating extra revenue. Our student numbers will go up because we need to generate more revenue".

Inevitably, more staff and students require more energy, and growth often means constructing new buildings. These new buildings may be more "efficient" than older buildings, but may also reflect new expectations about spaces and services (e.g. provision of power sockets).

Commercial partnerships on campus. As the HE sector becomes increasingly commercial in outlook, universities are working with a range of companies, including in the provision of accommodation, shops, campus services and outsourced functions. In specific contexts, this could be positive or negative for energy demand (e.g. commercial approaches could drive efficiency). However, it does tend to create complexity; as noted above, "grey areas" on campus pose challenges to the monitoring and reporting of energy use, and also to the co-ordinated implementation of cross-partner energy-saving initiatives.

HEFCE's role: A final ramification of the funding shift is not related to practices that use energy, but directly to the governance of energy demand reduction. As explained above, in 2010 HEFCE required all universities to implement carbon plans, a requirement backed up by the potential of grant sanctions. However, the decline in HEFCE's funding to universities has been paralleled by a decline in its influence: it is now described by senior managers as a "*paper tiger", "busted flush*" or as having "*lost its teeth*", and as a result, some universities have quietly shelved their carbon targets or moved from absolute to relative ones. Increasingly, universities are becoming private sector, not public sector institutions, with a corollary shift in the nature of their governance, and the forms of

steering that are available.

This highlights some of the complex and interconnected implications of invisible energy policy within the HE sector. At present these are initial suggestions; our further research will explore these impacts in greater detail.

6. Concluding reflections

A drive to reduce carbon (and energy demand) in the HE sector originated with the Climate Change Act 2008, and "cascaded" down through BIS and HEFCE, resulting in HEIs producing carbon plans and targets in around 2010. However, the sector is not on track to meet its 2020 targets, and energy and carbon issues now appear to have slipped down institutions' agendas. To understand these changes, it is necessary to consider how policies outside the realm of "energy policy" have changed the landscape of HE on a national scale, and how this has affected energy demand, and energy governance, within institutions.

Our initial analysis of two institutions suggests that, in these cases, energy demand reduction is not deeply-integrated into university policy and practice. This means that knowledge is at risk of being lost, and some structures are fragile. Demand reduction activity is seen as having a limited scope: technical improvements that pose no threat to "business as usual". Meanwhile, a range of "invisible" policies are steering practices, often in ways that are seen as non-negotiable (such as through the growth and student experience agendas), and which are likely to have implications for energy demand. As the case of HE funding shows, these influences can be indirect, complex and unpredictable. They are also bound up with other policy agendas and social transitions, such as the pervasiveness of IT in everyday life, and shifting norms around living spaces and bathrooms.

Understanding invisible energy policy is not alone sufficient to reverse trends in energy demand. The underlying policy agendas may be long-term, large-scale and deeply integrated into dominant socio-technical systems. However, if the policies that actually steer energy demand remain unacknowledged and unrecognised, efforts to reduce demand will inevitably fail, regardless of the targets and plans that may be in place. As the Invisible Energy Policy project progresses, it will aim to identify policy influences that are significant; as-yet-unrecognised; and crucially, that may be tractable and provide opportunities for change. In this way, it will support a more informed and realistic approach to energy demand reduction in the UK public sector.

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