Department for
Business, Energy
& Industrial Strategy

LEADING BY EXAMPLE: CUTTING ENERGY BILLS AND CARBON EMISSIONS IN THE WIDER PUBLIC AND HIGHER EDUCATION SECTORS

A Call for Evidence

October 2017

LEADING BY EXAMPLE: CUTTING ENERGY BILLS AND CARBON EMISSIONS IN THE WIDER PUBLIC AND HIGHER EDUCATION SECTORS

A Call for Evidence

The consultation can be found on the BEIS section of GOV.UK: https://www.gov.uk/government/consultations/leading-by-example-cutting-energy-bills-and-carbon-emissions-in-the-public-and-higher-education-sectors

Any enquiries regarding this publication should be sent to us at publicsector@beis.gov.uk

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General information

Purpose of this consultation

We are interested in evidence and views about the action required to realise carbon and energy savings across the wider public and higher education sectors in England over the next 10 years. We particularly welcome your comments on the introduction of a voluntary emissions target for the wider public and higher education sector estates in England. This would exclude central government departments and their agencies which already have their own targets.

Issued: 12 October 2017

Respond by: 7 December 2017

Enquiries to:

Public Sector Team, Home and Local Energy Directorate
Department for Business, Energy & Industrial Strategy
1 Victoria Street
London SW1H 0ET
Email: publicsector@beis.gov.uk
Consultation reference: Leading by Example: Cutting Energy Bills and Carbon Emissions in the Wider Public and Higher Education Sectors.

Territorial extent: England only

How to respond

All responses should be submitted using Citizen Space, our online consultation tool, which can be found here: https://beisgovuk.citizenspace.com/home-local-energy/voluntary-emissions-targets

This site will help you find, share and participate in consultations run by the Department for Business, Energy and Industrial Strategy.

Please note that the email address above is for general enquiries only. Please contact us if you are unable to use Citizen Space.

Confidentiality and data protection

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

We will summarise all responses and place this summary on the GOV.UK website. This summary will include a list of names or organisations that responded but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the Government's Consultation Principles.

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

Email: beis.bru@beis.gov.uk

Executive Summary

The public and higher education sectors use significant amounts of energy, since they have a large number of buildings and extensive landholdings. There are significant opportunities for them to invest in energy efficient products and services to cut energy bills, generate new sources of income and contribute towards reducing emissions. In doing so, they can encourage the UK's growing low carbon and environmental sector, supporting innovative and transformational technologies, and generating high value jobs in new industries.

The sectors have already taken positive steps to reduce their energy consumption. For example higher education institutions, which are outside the public sector, have their own targets in place. Taken as a whole, between 2010 and 2016, the public and higher education sectors cut their energy use by 10%, saving around £200 million and reducing emissions by 29%. The government's Building Energy Efficiency Survey, however, shows that there is potential to reduce emissions and costs even further.

In January 2017, the government published its green paper *'Building our Industrial Strategy'*, which highlighted affordable energy and clean growth as a priority for the UK. The public sector featured prominently as a catalyst for growth, given its significant purchasing power and ability to foster innovation.

The Clean Growth Strategy, which this document is being published alongside, sets out the government's plan for meeting the UK's fourth and fifth carbon budgets to 2032. While all sectors of the economy need to take action to meet our carbon budgets, there is a strong case for the public and higher education sectors to show leadership:

- The total public and higher education sectors spend over £2 billion a year on energy. By investing in cost effective energy efficiency measures, this could lead to savings of around £860 million a year across the UK[1]. These savings would help ease pressure on wider public finances.

- Public and higher education sector leadership can have wider positive effects.

  For example, the sectors can:
  - set high performance standards for their own procurement, helping to reduce costs and catalyse low carbon markets[2]
  - act as an 'anchor' in energy infrastructure projects, such as heat networks, given its significant energy demands

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[1] Building Energy Efficiency Survey (BEES, 2016): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/565748/BEES_overarching_report_FINAL.pdf adjusted for UK and wider public sector:

[2] https://beisgovuk.citizenspace.com/strategy/industrial-strategy/supporting_documents/buildingourindustrialstrategygreenpaper.pdf

  - pilot innovative low carbon products and services on their own estate to support their market development and commercialisation
  - use their landholdings and local powers creatively to support sustainable, low carbon developments
  - bring together public and private stakeholders on specific low carbon opportunities

- The public and higher education sectors account for nearly 3% of total UK emissions (traded and non-traded), and needs to play its part. By taking ambitious action, they can demonstrate that cutting carbon significantly is both achievable and desirable.

Central government has already set carbon targets for its own estate and, to date, has made good progress in cutting emissions through the Greening Government Commitments. By 2015/16, emissions from central government had been reduced by 27% against 2009, saving £118 million in energy costs that year alone.

Outside central government, energy efficiency - in both the wider public sector and the further and higher education sectors - has been supported by a revolving, interest-free loan scheme, managed by Salix Finance. To date, the loan scheme has funded over 16,000 projects, improving public sector and higher education buildings for its users and is projected to save the sector around £55 million on energy bills this year alone[3]. In addition the Re:Fit programme, managed by Local Partnerships, has helped organisations invest in energy efficiency and energy generation projects, by establishing energy service contracts

Some parts of the 'wider'[4] public and higher education sectors already have carbon targets in place and a number of larger organisations are also subject to mandatory reporting under the CRC Energy Efficiency Scheme (previously Carbon Reduction Commitment) which is coming to an end in 2019. There is however no common target that covers all organisations. The government therefore announced in the Clean Growth Strategy that it will introduce a voluntary wider public and higher education target of 30% reduction in greenhouse gases by 2020/21, against a 2009/10 baseline for their estates in England. The government has recently published a consultation on a streamlined energy and carbon reporting framework for business and is seeking views on the approach to be taken from 2019.

This Call for Evidence seeks views on:

- the scope of this voluntary target and a supporting framework for reporting greenhouse gas emissions
- other future options that would help to reduce emissions in the public, further and higher education sectors in line with the fifth carbon budget, as well as support wider positive effects across the economy

[3] Salix Finance: Public Sector Loan Scheme, https://www.salixfinance.co.uk/
[4] For the purposes of this document, the term 'wider public sector' excludes central government and its agencies. See Annex E for more details.

Evidence is sought particularly from organisations within the wider public sector and from the further and higher education sectors, but responses from any interested party are very welcome.

Chapter 1: The current situation

Energy Use in the Public and Higher Education Sectors

Taken as a whole, the public and higher education sectors spend more than £2 billion per year on energy. The central government estate accounts for only 13% of that energy spend. The wider public and higher education sectors are substantial users of energy for a wide variety of purposes, but principally for heating buildings, lighting and information and communication technology. A full breakdown of energy use across the wider public and higher education sectors can be found in Annex A.

The government's Buildings Energy and Efficiency Survey (BEES 2016) shows significant potential for further energy savings in the wider public and higher education sectors. The survey identified an estimated bill saving of £1.2 billion per year and a total potential reduction of 6 $MtCO_2e$ of carbon dioxide. Of this, measures with a payback of seven years would deliver an estimated £862 million of bill savings per year and 4.2 $MtCO_2e$ carbon dioxide savings. See Fig 1 below.

Figure 1: Wider Public and Higher Education Sectors Potential Energy Savings for Measures with Payback Periods up to 7 Years

Energy Consumption* (GWh/year)	Potential Energy Savings (GWh/year)	% Reduction	Capital Cost	Annual Bill Savings
60,000	19,000	32%	£3.2bn	£862m

*(2014/15)

Source: Buildings Energy Efficiency Survey (2016), Adjusted for the UK

The 3 measures which enable the greatest energy and bill savings in the shortest space of time, across all types of organisations within the public and higher education sectors, are:

- the installation of energy efficient LED lighting
- carbon and energy management measures (such as minimising simultaneous use of heating/cooling measures and improved metering)
- building instrumentation and control (which includes measures such as energy meters and time controls for hot water and heating)

There is also significant further potential for energy efficiency and carbon savings through initiatives such as decarbonising heat through the use of low carbon heating solutions (e.g. large scale heat pumps and heat networks). However these measures often involve significant upfront investment and longer payback periods.

The wider public and higher education sectors also have an important role to play in supporting local energy projects and energy generation. There are also opportunities to reduce costs collectively across sectors.

There is more detail on energy use and potential emissions savings in the wider public and higher education sectors in Annex A.

The Challenge

Despite the strong case for energy efficiency and other low carbon measures, there are a number of reasons that these investments are not made. Interviews held with public and private sector stakeholders for the Buildings Energy Efficiency Survey (BEES) highlighted barriers to action including:

- behavioural - lack of interest in energy efficiency, conflicting priorities and energy efficiency not been seen as a strategic priority
- economic - low capital availability, upfront investment costs and long pay-back periods for some investments
- organisational - complex decision chains, lack of decision making control, and the perceived low status of energy efficiency relative to other objectives

The government supports energy efficiency, with the intention of bringing improvements to the performance of public and higher education sector buildings through current regulation and policy (more detail in Annex B).

We welcome views about overcoming these barriers, where and how action could have most impact, and where responsibility should lie for taking action.

Energy efficiency is related to other public sector priorities, such as estate rationalisation and capital works programmes. As a result, the case for energy efficiency is often dependent on more than one organisational priority. Impact assessments, for example, may need to be undertaken for carbon emissions prior to estates rationalisation to ensure that emissions associated with transport do not increase significantly.

Decarbonising heat brings additional challenges as heat accounts for around half the energy used in the UK and a third of our emissions. Hitting the UK's 2050 carbon reduction target is likely to require eliminating nearly all the heat related emissions from buildings.

Chapter 1 Questions

1.	Please rank the TOP FIVE barriers that you think prevent organisations taking action from the following list: ○ lack of interest in energy efficiency ○ conflicting priorities ○ low capital availability ○ upfront investment costs ○ unseen/unexpected costs ○ complex decision chains ○ lack of time/resource ○ low status of energy efficiency ○ lack of knowledge ○ length of payback
2.	Tell us about any further barriers or issues not listed above.

Chapter 2: An emissions reduction target for the wider public and higher education sectors

Evidence from the government's BEES report shows that greater improvements in energy efficiency and more progress cutting emissions is held back by a number of barriers, in particular, low organisational priority and organisational inertia. With the introduction of greenhouse gas reduction targets under the Greening Government Commitments we have seen significant progress in reducing emissions across central government over the past 7 years. Discussions with representatives in both central government and the wider public sector have also confirmed the importance of targets in increasing organisational priority and overcoming inertia.

While many wider public and higher education organisations are already aiming to cut emissions significantly over the next few years - including through setting targets and developing strategies to meet these - we believe it is important to set a common benchmark. This will encourage all organisations to identify opportunities to reduce bills. As outlined in the Clean Growth Strategy, the government announced a voluntary emissions reduction target for the wider public and higher education sectors in England, not already covered by the Greening Government Commitments.

We welcome your views on this, including:

- How a voluntary greenhouse gas reduction target of 30% in 2020/21 against 2009/10 levels should work; and
- What a proportionate mechanism for capturing data and reporting on savings should involve.

Level and nature of the target

Our analysis shows that the proposed target of 30% for 2020/21 is within reach of most organisations. For example, the NHS has in place an emissions reduction target of 34% by 2020/21 against 2007/08 levels[5]. We think it is important to establish a common baseline and reporting practice before considering more challenging targets. In setting subsequent targets, we anticipate longer notice periods to enable organisations to properly plan and manage the improvements needed.

Previous stakeholder engagement has revealed a variety of views on the appropriate baseline year for a target. Existing reporting frameworks use a variety of baseline years.

[5] SDU Sustainable Development Strategy 2014-2020; http://www.sduhealth.org.uk/documents/publications/2014%20strategy%20and%20modulesNewFolder/Strategy_FINAL_Jan2014.pdf

We therefore propose to use 2009/10 as the baseline year, but accept that some organisations may have to estimate the relevant numbers.

We also propose a reporting period based on the financial year, with the first reporting period commencing in April 2018.

Once a reporting framework is in place we will review progress against a voluntary target by 2020, with a view to moving to a more ambitious voluntary target during the 2020s, such as a 50% reduction by 2030. Annex D sets out a potential route to delivering an extended voluntary target via energy efficiency measures only: alternatives such as heat measures are also available. When there is clear evidence of the impact of voluntary action, a mandatory target could also be considered.

Scope: Organisations covered by the target

We propose that public and higher education organisations in England, excluding central government bodies and their agencies, should be encouraged and supported to meet the voluntary target on their own estates in England. More detail on the definition of wider public and higher education sectors can be found in Annex E.

To minimise burdens on smaller organisations, we propose that institutions with fewer than 250 employees and schools would not be asked to report on their progress against the target though their participation, evidence and experience would be welcome.

In brief, the main organisations we suggest should be covered by a voluntary target and the associated reporting regime for England would be:

- Local Authorities
- National Health Service
- Further and higher education institutions (colleges, universities)
- Emergency services
- Cultural (museums, libraries) and leisure centres
- Non-residential premises for social housing (e.g. offices, storage)

At this stage, we think the target should cover non-domestic buildings. We do not think the target should cover residential buildings for social housing, given other proposals within the Clean Growth Strategy. We welcome your views on which organisations and buildings should be included in the target.

Scope: Emissions covered by the target

Under the Greenhouse Gas Protocol[6], emissions can be classified as:

- direct emissions (Scope 1): emissions from gas burned on site, fuel used in the organisation's vehicles
- indirect energy emissions (Scope 2): emissions from the organisation's consumption of energy produced elsewhere, such as electricity from the grid, or heat from steam or hot water generated outside the organisation
- and other indirect emissions (Scope 3): sources that are not owned by the organisation

In the interests of simplicity, minimising burdens and facilitating comparisons we suggest that the target covers Scope 1 and 2 emissions only. We encourage organisations to include Scope 3 emissions in their reporting only if they feel they are able, or already doing so. This would, for example, include: emissions associated with grey fleet, passenger travel on public transport, and procurement.

Given that Scope 1 emissions also include land based sources, we are interested in views on whether these should also be considered (e.g. emissions from waste and recycling sites, agricultural or forestry landholdings).

Reporting and incentives to support the target

We know that there are existing reporting mechanisms in place and others, such as the business energy reporting framework, are under development and we want to avoid duplicating these. In order to enable meaningful comparison of the data and measure progress against targets, a common methodology and guidance is required. Based on stakeholder engagement to date, it seems that most organisations are using the methodology set out in Defra's Environmental Reporting Guidelines (Annex F); therefore we propose that our guidance will complement this approach. We recognise that the higher and further education sectors are not part of the public sector and differences therefore may arise. However we propose that there is value is them aligning with this proposal. We would welcome views on this.

Discussions with the public and higher education sectors have generated a range of ideas about how to reward organisations which show leadership in reducing emissions. These include, for example, publication by the Department for Business, Energy and Industrial Strategy (BEIS) of figures by sector to highlight top achievers, or hosting annual awards to recognise outstanding performance.

[6] Set and published on http://www.ghgprotocol.org/

We would like more information on the current reporting approaches and welcome other evidence and views on an appropriate target, reporting mechanism and frequency.

Chapter 2 Questions

1.	If you work for a relevant organisation, would you support and report against a voluntary emissions target?
2.	Please explain why
3.	Would your organisation be able to meet a 30% emissions reduction target on 2009/10 levels by 2020/21?
4.	If you answered NO please specify what you think is achievable? [less than 10%] [10-19%] [20-25%] [26-29%] [more than 30%]
5.	Which organisations should be expected to meet a voluntary target. Please tick all boxes which apply: ○ Local authorities ○ Hospitals ○ Other NHS (i.e. GP surgeries, health centres) ○ Emergency services ○ Further education institutions i.e. Sixth Form colleges ○ Higher education institutions i.e. universities ○ Leisure services i.e. swimming pools or sports centres ○ Museums and libraries ○ Housing Associations
6.	Are there any other organisations that should be expected to meet a voluntary target?
7.	Which organisations should NOT be expected to meet a voluntary target?
8.	Please explain
9.	Which non-domestic buildings should be covered by the target? ○ Offices ○ Retail ○ Commercial ○ Community, cultural or leisure
10.	What transport arrangements used by wider public sector organisations should be covered by the target? ○ All domestic business related travel

	○ Domestic business related travel: Air ○ Domestic business related travel: Fleet vehicles
11.	Are there other emissions sources that should be covered by the target, and if so why?
12.	If you work for a relevant organisation, what do you already collect and report on? ○ Fuels combustion ○ Fugitive emissions e.g. air conditioning and refrigeration leaks ○ Owned transport ○ Land based emissions ○ Process emissions e.g. waste processing ○ Consumption of purchased electricity, heat, steam and cooling ○ Transport-related activities ○ Waste disposal ○ Purchased materials and fuels ○ Sold goods and services
13.	What data about your emissions would you be willing to provide to the Department for Business, Energy and Industrial Strategy (BEIS)?
14.	What data about your emissions would it be difficult to collect and report on?

Chapter 3: Capital finance support for the wider public and higher education sectors

Most energy efficiency investments require an up-front investment. The BEES report has identified that £3.4 billion of capital investment would be required to unlock the energy efficiency potential which pays back within 7 years and unlocks £860 million of annual bill savings in the wider public and higher education sectors.

Sources of capital finance for energy efficiency

The government provides the wider public and higher education sectors in England with finance for energy efficiency projects through a revolving, interest free loan scheme, delivered by Salix Finance Ltd. The aim of the scheme is to address financial barriers to the installation of energy efficiency measures. The resulting cost savings allow loans to be paid back and the fund is then recycled to support other projects. To date, the loan scheme has funded over 16,000 projects, significantly improving the energy performance of the wider public and higher education sectors. It is projected to save beneficiaries around £55 million on energy bills this year alone.

In 2015 the government announced £295 million of new funding for public sector energy efficiency across the UK. In England, this increased funding is invested in the energy efficiency loan scheme. The loan scheme administrator currently manages £210 million, and this will rise to some £385 million by 2020. This revolving loan scheme will continue to be recycled to at least 2025. Similar schemes operate in Scotland and Wales.

Other sources of funding also exist. Local authorities can access the Public Works Loan Board. Academies and sixth form colleges have access to the Condition Improvement Fund for the refurbishment of educational buildings. In addition, private investment could be accessed through Energy Performance Contracting, a contractual arrangement between a client and an Energy Services Company (ESCO) to design, deliver and monitor energy efficiency related measures and improvement works. This is explored further in the following chapter.

We welcome views and evidence on the barriers to accessing finance and how government can help overcome these barriers.

Chapter 3 Questions

1.	What barriers to accessing finance do organisations face? ○ Lack of capital finance ○ Upfront investment costs ○ Borrowing regulation or limitations ○ Complex decision chains ○ Capital expenditure limit ○ Estate rationalisation plans
2.	Are there any additional barriers to accessing capital finance for energy efficiency?
3.	How are public and higher education sector energy efficiency projects currently financed? ○ Capital funds ○ Invest to Save fund ○ Public Works Loan Board ○ Condition Improvement Fund ○ Salix finance ○ Private finance ○ Public/Private Funding Combination ○ Energy Performance Contracts ○ European funding
4.	What other sources of finance could be or are used in energy efficiency projects?
5.	How should we plan to support less cost effective measures in the future (e.g. low carbon heat/generation schemes), if at all?

Chapter 4: Capacity and capability support for the wider public and higher education sectors

From our previous engagement with stakeholders, and from the BEES report, we have identified common organisational barriers to energy efficiency and emissions reduction namely: limited internal capacity to manage and deliver energy efficiency projects, complex decision chains, lack of decision making control, and the perceived low status of energy efficiency relative to other objectives.

Investment decisions require a good understanding of the financial benefits likely to accrue from energy efficiency by those responsible for finance and estates. Some energy managers have also told us there is a lack of understanding regarding energy efficiency amongst colleagues which makes it difficult to obtain approval for projects. On top of this, there are also problems in accessing authoritative information and guidance to prove the effectiveness of measures and justify investment.

Energy Performance Contracts

As mentioned in the previous chapter, an Energy Performance Contract is a contractual arrangement between a client and an Energy Services Company (ESCO) to design, deliver and monitor energy efficiency related measures and improvement works. The key feature of this arrangement is that an ESCO guarantees the level of energy performance, including forecast reductions in energy usage, resulting in guaranteed financial savings over the period of the agreement.

The ESCO brings in technical expertise and, potentially, finance as a package and could cover multiple aspects of the client's use of energy. This could reduce the demands on in-house expertise, with management attention essentially covering contract management.

Energy Performance Contracts for the public sector in England have largely been developed through a programme of standardised framework contracts under the Re:Fit programme. This approach was initially developed by the Greater London Authority to support public sector organisations in London, through from business case to procurement. The programme was extended to cover the rest of England by Local Partnerships working in partnership with the Department for Business, Energy and Industrial Strategy (BEIS).

Accounting treatment of Energy Performance Contracts in the public sector can be a barrier to participation. To make it easier for public sector organisations to access Energy Performance Contracts, In light of requests from Member states Eurostat recently

reviewed its 2015 guidance note for Energy Performance Contracts in government accounts and issued a revised guidance[7] on the 19 September 2017 that applies from the day forward. Initial thoughts are that this will go some way to removing the barriers to public sector participation in Energy Performance Contracts.

We welcome views and evidence on resourcing barriers and Energy Performance Contracts. How can government help overcome the identified barriers?

Chapter 4 Questions

1.	What resource barriers do you think organisations face? ○ limited internal capacity to manage and deliver projects ○ lack of time/resource ○ lack of technical knowledge ○ lack of business case development experience ○ complex decision chains ○ accounting or governance rules
2.	What other resource barriers are there?
3.	If you work for a relevant organisation, do you use Energy Service Companies or Energy Performance Contracts?
4.	Please explain why.
5.	If you DO NOT use Energy Service Companies or Energy Performance Contracts, what would encourage you to use them?
6.	What else could support to overcome capacity and capability issues in the wider public and sector higher education sectors?
7.	What other non-monetary services could be offered which would encourage organisations to invest in energy efficiency measures? E.g. access to reliable information or skills training

[7] Revised Eurostat guidance note: http://ec.europa.eu/eurostat/documents/1015035/7959867/Eurostat-Guidance-Note-EPCs.pdf/fd240335-9ad0-4198-8ccb-16d1a1678e29

Chapter 5: Other future options to cut energy bills and carbon emissions

As described above, the UK is committed to a 57% reduction in emissions by 2032 and an 80% reduction before 2050. The government wants the public and higher education sectors to lead by example through reducing bills and driving decarbonisation across the UK economy. This can be done by both:

- demonstrating ambitious action on cutting bills and carbon on their own estate
- using their considerable influence to inform and shape wider economic, social and technological conditions for low carbon action

Demonstrating ambitious action on their own estate

To meet the fifth Carbon Budget, the public sector and higher and further education institutions will require a significant acceleration in the pace of decarbonisation. This could include installing all cost effective energy efficiency measures in the next 10 – 15 years, as well as implementing further low carbon measures, such as installing heat networks and low carbon heating technologies (e.g. large scale heat pumps).

Our analysis suggests that current and planned policies; including a voluntary target and reporting framework, as well as a continuation of our energy efficiency loan scheme, will not on their own deliver Carbon Budget 5 ambitions. We are likely to require further action.

We are therefore asking for evidence and views on how to go further, for example through new, or amendments to existing, policy and regulation. To stimulate ideas on further action to support emission reduction, we have set out a number of common enablers identified by respondents to the government's BEES to overcome barriers to energy efficiency:

- Knowledge: improved energy management knowledge for those involved in identifying and implementing energy efficiency projects
- Stakeholder engagement: Greater buy in from key internal and external stakeholders, making it easier to secure support for energy efficiency projects
- Resource: additional resource, in terms of team capacity, is made available to manage energy efficiently
- Internal control: greater ability to control energy usage and its management in their premises
- Improved communication: better communication on roles and responsibilities within the organisation

Additional enablers included reputational benefits, as well as target-setting, and increased availability of funding which have been covered in previous chapters.

Given the important role of targets and reporting, one idea would be to extend our voluntary greenhouse gas reduction target, building on our 2020/21 target (e.g. a 50% reduction by 2030/31 against 2009/10 levels). Further details and analysis on a range of potential target levels is set out at Annex D. Subject to a review of performance, the target and reporting could continue to be voluntary. Alternatively the target, or reporting against it, could be made mandatory. We would welcome your views on:

- the benefits of setting a voluntary target to 2030 to reduce emissions across the wider public sector and higher education
- the level of the target
- whether the target and reporting should continue to be voluntary, or could become mandatory, subject to a review of performance against a voluntary target

Encouraging change across the wider economy

As outlined above, the public sector and, higher and further education institutions can also use their considerable influence to bring about change beyond their own estate, and across the wider economy. We also welcome views and evidence on what the public and higher education sectors can do to facilitate this change, and how this leadership role can be supported further. To illustrate this, we have included some non-exhaustive examples:

- *set high performance standards for its own procurement, helping to reduce costs and catalyse low carbon markets*

  Example: Swindon council created their own procurement framework for renewables. Having developed this expertise for their own asset base, they developed Public Power Solutions (PPS). This procurement service can support any public sector organisation in delivering renewable energy projects quicker and more efficiently. Combining development, funding and management expertise in a simple package, local councils can maximise their renewable energy assets while PPS takes on all the development risk at no cost. In addition to sites for Swindon council, PPS has provided support to MoD and other local councils and community groups.

- *act as an 'anchor' in energy infrastructure projects, such as heat networks, given its significant energy demands*

  Example: The Gateshead District Energy Scheme is an £18 million scheme supplying heat and power wholly owned by the local council. The scheme provides energy to 8 public buildings, 200 homes, 2.5km of heat and private wire network, with 4MW of gas CHP plant, providing a 35% carbon saving. This is the initial phase of a wider network, which is planned to increase threefold over the next 10 years.

- *pilot innovative low carbon products and services on its own estate to support their market development and commercialisation*

  Example: Cornwall council has developed an innovative electric vehicle (EV) infrastructure programme to support the uptake and commercialisation of electric vehicles in the region. The initiative uses money from central Government and partnerships, including match funding from the private sector. The council has used its broader role, including as the owner of the road network and its own estate, to support the installation of 38 charging points across the county. This has supported the ownership of over 400 EVs locally.

- *use its landholdings and local powers creatively to support sustainable, low carbon developments*

  Example: Nottingham City Homes (NCH), the Arm's Length Management Organisation (ALMO) managing and maintaining Nottingham City council's (NCC) council housing stock, has become the first in the UK to adopt a ground-breaking approach to retrofitting housing solutions, known as Energiesprong. Ten homes in Sneinton, Nottingham have been selected as part of a pilot to radically improve older houses using energy saving and energy generation measures. Proposed improvements will make the residents of these homes ultra-low energy consumers, dramatically reducing household energy bills and making homes warmer.

- *use its convening power to bring together public and private stakeholders on specific low carbon opportunities*

  Example: Manchester has created a Low Carbon hub board made up of elected representatives from across the 10 local councils, businesses like Siemens and Media City, universities, NGOs, social housing providers and community groups. This board oversees the delivery of their ambitious carbon plan which has publicly consulted on and agreed a target of 100% carbon reduction by 2050. With an integrated approach across transport, buildings and community, the partnership has overseen the delivery of award winning programmes on healthy homes, on energy efficiency delivery and the development of a national procurement centre on district heating.

Chapter 5 Questions

1.	What further actions would support low carbon and energy efficiency investment in the public sector's own estate?
2.	If you work for a relevant organisation, would it support a voluntary 2030/31 emissions reduction target on 2009/10 levels for the wider public and higher

	education sectors on their own estates in England?
3.	Please explain why
4.	At what level should a future voluntary target be set? [less than 50%] [50-59%] [60-69%] [70-79%] [more than 80%]
5.	Please explain why
6.	Would you support a move to a mandatory target in due course?
7.	Please explain why
8.	What further actions could support the public sector to catalyse the wider low carbon transition?
9.	What national or international examples of best practice can we learn from?

Annex

Annex A: Energy use in the wider public and higher education sectors

Figure 2: Energy use in the wider public sector, 2014-15 (kWh/year). Source: BEIS Analysis of BEES (2016)

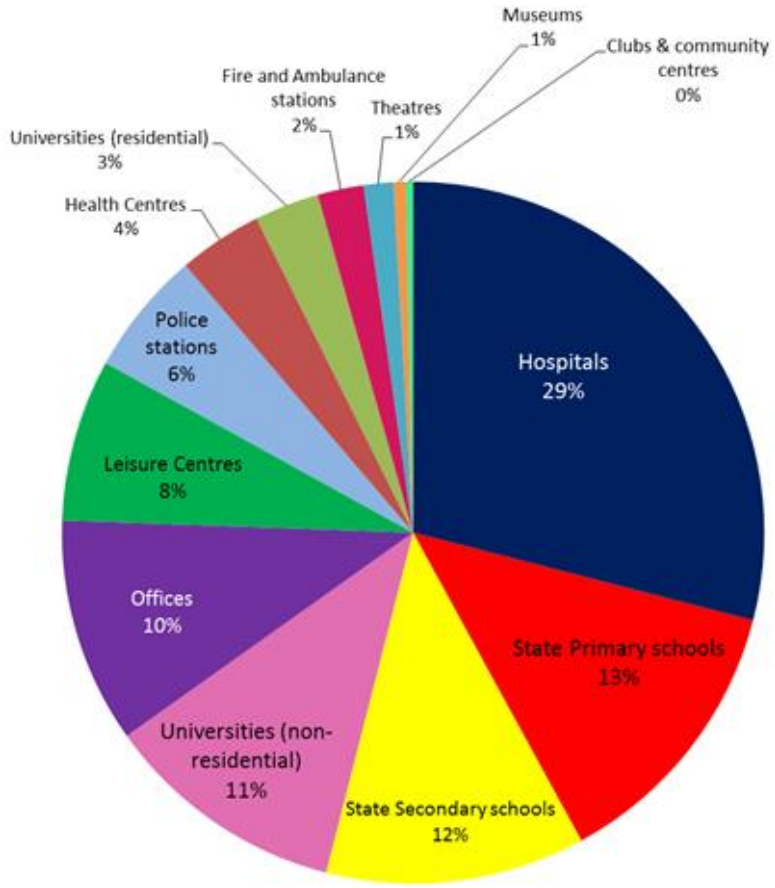
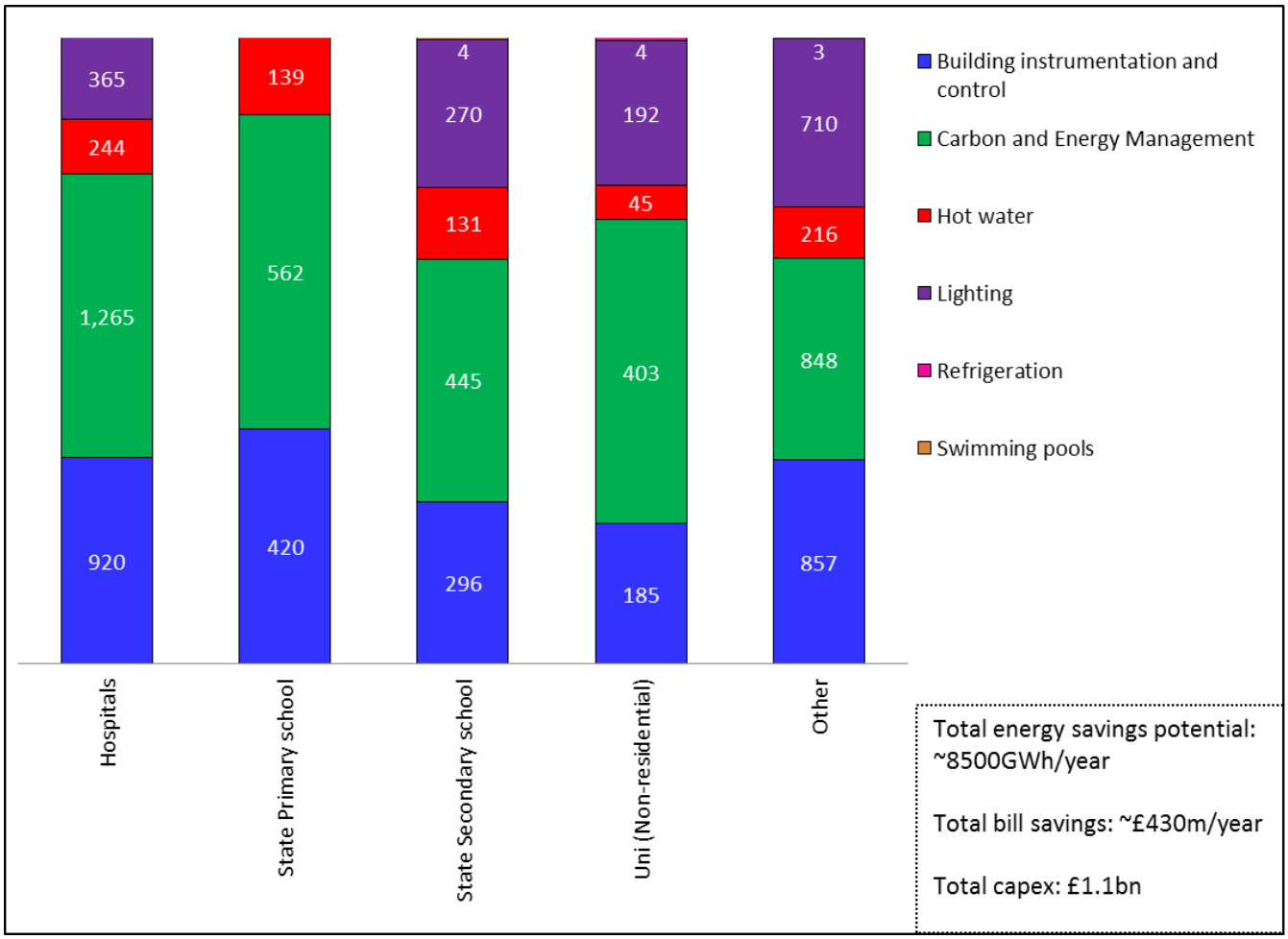


Figure 3: Potential annual energy savings (GWh/year) in the UK within the public sector, for cost effective measures with a payback period of up to 7 years. Source: BEIS Analysis of BEES (2016)

The table shows the breakdown of cost-effective measures listed by the Buildings Energy Efficiency Survey (BEES) having a maximum payback period of up to 7 years.

The majority of the measures shown have a payback of 5 years or less.

The measures are all cost effective meaning that both the private benefits, such as bill savings and social benefits, such as carbon and energy savings outweigh the capital expenditure and any societal costs.


365
244
1,265
920
139
562
420
4
270
131
445
296
4
192
45
403
185
3
710
216
848
857
Hospitals
State Primary school
State Secondary school
Uni (Non-residential)
Other
Building instrumentation and control
Carbon and Energy Management
Hot water
Lighting
Refrigeration
Swimming pools
Total energy savings potential: ~8500GWh/year
Total bill savings: ~£430m/year
Total capex: £1.1bn

Annex B: Wider Public and Higher Education Sectors 2020/21 Target

A voluntary wider public sector and higher education target of 30% by 2020/21 on the public and higher education estate in England was introduced based on emissions projections from the Energy & Emissions Projections and the potential identified by the Buildings Energy Efficiency Survey.

A target at this level was set as it:

- Seeks to encourage a broad range of organisations to participate on a voluntary basis, including some organisations that may be measuring and reporting for the first time. Where organisations are able to go further, we are supportive of this.
- Takes account of the limited 3 year window to identify, secure approval, and invest in new energy saving projects to achieve emissions reductions; and
- Sets an achievable goal for organisations, on which a more ambitious target can be set for the next period.

The table below illustrates the carbon savings under a 30% wider public sector emissions reduction target, compared to a 2009/10 baseline.

Implication of 30% target at UK wider public sector level	**$MtCO_2e$**
2009 Baseline	17.12
2020 30% Target	11.98
2016 performance	12.32
Further Reduction required on 2016 levels	0.34
Average per year required to meet 30% target (2017-2020)	0.11

By 2016, there was already a 28% reduction compared to 2009/10 levels.

The Building Energy Efficiency Survey identified significantly more cost effective emission savings that could be achieved than are required to meet this target level, for example, cost effective lighting replacement, building instrumentation and control measures such as timed heating and hot water. The impact of existing policies and grid decarbonisation will also help organisations to achieve this target.

Annex C: Government support for energy efficiency

Regulation

Display Energy Certificates (DECs): The purpose of DECs is to raise public awareness of energy use and to inform visitors to public buildings about the energy use of that building. Larger properties occupied by a public authority and where the building is frequently visited by the public must display a DEC in a prominent place. DEC's show the actual energy consumption of a building and are accompanied by reports which provide recommendations on potential energy saving measures.

Energy Using Products: Energy labels indicate relative performance in terms of efficiency, steering consumers towards the most efficient models, while minimum energy performance standards (MEPS) progressively remove the least efficient products from the market.

There is a wide and growing range of energy-using products covered by energy labels and/or minimum standards: heating, ventilation and cooling products for businesses are covered, as is lighting in buildings and in the street.

The government has estimated that by 2020, the annual net savings to the UK economy resulting from these standards and labels will be in excess of £850 million per year, with reductions in greenhouse gas emissions of more than 7 million tonnes per year[8].

Building regulations: The latest version (2013) of the Building Regulations sets out recommended minimum energy efficiency standards for components of building services systems. They are developed to drive improvements to a buildings performance through compliance with requirements for space heating and hot water systems, mechanical ventilation, comfort cooling, fixed internal and external lighting and renewable energy systems.

Planning Regulation Policies on planning and the environment are set out in the National Planning Policy Framework. The framework is an important part of the government's reforms to make the planning system less complex and easier to understand, and to promote sustainable growth. It replaced and simplified a series of earlier planning policy statements and guidance.

Private Rented Sector Regulation: The Energy Act 2011 places a duty on the Secretary of State to bring into force regulations to improve the energy efficiency of buildings in the domestic and non-domestic private rented sector in England and Wales. The government

[8] *DECC "Call for Evidence: Energy Efficiency" publication 12D/004*

launched a consultation on 22 July 2014, closing on 2 September 2014, on the non-domestic regulations. The regulations will require eligible properties in the sector to be improved to a specified minimum standard. These regulations must be in force by 1 April 2018.

Tax

Business Energy Tax:

The UK government announced in March 2016 that it will work to close the CRC Energy Efficiency Scheme after the end of the CRC compliance year 2018/2019 and introduce a single tax and simplified energy and carbon reporting framework. The government has recently published a consultation on a streamlined energy and carbon reporting framework for business and is seek views on the approach to be taken from 2019 – including whether the framework should apply to all large companies and whether reporting should be done as part of company annual reports.

Capital Funds

Heat Network Investment Fund: Heat accounts for around half the energy used in the UK and a third of our emissions. Our ambition is to phase out the installation of high carbon fossil fuel heating in new and existing buildings off the gas grid during the 2020s, starting with new buildings as these lend themselves more readily to other forms of low carbon heating.

Recognising the capacity and capability challenges which local authorities identified as barriers to heat network deployment in the UK, the Heat Network Delivery Unit (HNDU) was established by the Department of Energy and Climate Change (DECC), now the Department for Business, Energy and Industrial Strategy (BEIS), to provide grant funding and guidance to local councils in England and Wales.

The pilot phase of the Heat Networks Investment Project (HNIP), a £320 million capital fund to increase the volume of heat networks in England and Wales has now closed. The HNIP main scheme with eligibility will open in due course.

Energy Efficiency Loan Scheme: In the 2015 Spending Review, the government announced £295 million of new funding for public sector energy efficiency across the UK. In England, £255 million of this funding is invested in the existing zero interest public sector energy efficiency loan scheme, which is available to the wider public and higher education sectors. The loan scheme administrator Salix Finance Ltd currently manages £185 million in England, and this will rise to some £385 million by 2020. This revolving loan scheme will continue to be recycled to at least 2025. Similar schemes run in Scotland and Wales which receive £40 million of the 2015 spending review award.

Procurement

Government Buying Standards (GBS): The GBS are part of public procurement policy with individual standards developed with input from across government, industry and wider

stakeholders. They have been extensively reviewed with market research and analysis to establish criteria that take long-term cost effectiveness and market capacity into account.

Mandatory standards for all central government departments and their related organisations apply and must ensure that they meet the GBS when buying goods and services for those product groups covered. The mandatory standards are encouraged for the public sector to specify in tenders.

Best practices are voluntary standards for any organisation and have more or stricter criteria. They are for any organisation concerned about sustainable procurement to follow or to specify in tenders. Suppliers that are able to demonstrate that they can meet mandatory or best practice GBSs will be in a good position to meet requirements for public sector contracts.

ReFit: The Re:Fit programme, managed by Local Partnerships, has helped public sector organisations invest in energy efficiency and energy generation projects by helping them to establish energy service contracts.

Annex D: Potential Options for carbon reduction in the Public Sector to 2030

The emissions from public sector energy use come from a variety of sources - emissions associated with electricity and emissions associated with other fuels such as gas or oil.

a. Reducing emissions associated with electricity

Emission reductions from electricity use can come from two broad areas, firstly the continued decarbonisation of the electricity grid and secondly from more efficient use of electricity, for example from using more efficient products such as LED lighting.

b. Reducing emissions associated with other fuel uses

The carbon savings identified in the Clean Growth Strategy focus mainly on reductions in the heating and cooling. The majority of other fuel use in the public sector is used for this purpose. In order to deliver these savings energy efficiency measures like insulation and building energy management systems are vitally important, but also decarbonising the supply of heat itself.

Technologies such as heat networks, electrification of heat and/or decarbonised gas could play a key role in achieving the ambitious action set out in the Clean Growth Strategy.

The way heat could be decarbonised most cost effectively is still uncertain and would depend on a variety of factors. (See the Clean Growth Strategy for more details).

Total Emissions Reduction

Under a total carbon emissions target public sector organisations can choose to achieve reductions from either electricity use or from reducing uses of other fuels.

The emissions savings already achieved by the public sector and the potential identified by the Building Energy Efficiency Survey illustrates that if total energy use remained the same, total carbon emissions could be more than halved on 2009 levels through the use of energy efficiency only.

Contribution towards Carbon Budget 5

In order to achieve the reductions outlined in the Clean Growth Strategy, the public and higher education sectors will require a significant acceleration in the pace of decarbonisation from both energy efficiency and heat measures. This could include cost effective energy efficiency measures in the next 10 – 15 years, as well as implementing further low carbon measures, such as installing heat networks and low carbon heating technologies (e.g. large scale heat pumps).

Annex E: Definition of the 'wider public sector'

"The 'wider public sector' comprises any number of 'relevant public authorities' and/or companies wholly owned by one or more such authority. A "relevant public authority" is defined in amended section 6 (3) to be any body listed in Schedule 1 to the FOI Act, with the exception of government departments and bodies listed only in respect of particular information…Government departments are excluded from the definition of "relevant public authority"[9].

Schedule 1[10] sets out the bodies or holders of office that are public authorities under FOIA in the following broad categories

- Government departments, legislative bodies, and the armed forces
- Local government
- National Health Service (NHS)
- Maintained schools and further and higher education
- Police
- Other public bodies

These broad categories mean that, for example, reference to a government department includes all of its Executive Agencies. Further detail regarding the categories is provided within the Schedule. For example, for local government the Schedule lists a wide range of bodies including principal councils, parish councils, various joint authorities, as well as named bodies such as Transport for London. Public authorities in the NHS range from trusts to individual practitioners who provide services under contract to the NHS. Within the education sector it is the governing body of a school, further education institution or university that is the public authority.

Higher education

'Higher education' includes all universities which are independent, autonomous institutions and are variable in their status and corporate form. The Office of National Statistics classification of higher education institutions is as 'Non Profit Institutions Serving Households'. This is a non-market private sector classification.

[9] *Taken from response to Freedom of Information request – Legislative Scrutiny: Protection of Freedoms Bill, House of Lords Paper 195*

[10] *Source: Public Authorities Under the Freedom of Information Act – Information Commissioner's Office* *https://ico.org.uk/media/for-organisations/documents/1152/public_authorities_under_the_foia.pdf*

For the purposes of a voluntary target we would encourage both the higher and further education sector - which includes sixth form colleges - to support this policy.

Both higher and further education bodies in England are eligible for energy efficiency loans from Salix Finance Ltd.

Annex F: Extract from Greening Government Commitments Reporting Guidance 2016-2020

The overall target of 32% reduction in greenhouse gas emissions (GHGs) represents the sum total of the individual targets agreed between departments and the Department for Business, Energy and Industrial Strategy (BEIS). This means that each department will be working to a bespoke target of a different level, and must develop its own trajectory to meet this target by 2019-20.

Departments will continue to report detailed breakdowns of purchased and self-generated energy; fugitive emissions as well as emissions from transport including fleet, 'grey' fleet and public transport, using the same headings as were reported under the 2015 targets.

Additionally, in 2016-17, energy consumption in office buildings will be reported using the same breakdowns of fuel type for normalising against FTE numbers. This excludes emissions from travel.

In-year carbon conversion factors will be used, to ensure that reported GHG levels reflect actual emissions. Similarly weather adjustment is not to be used, to ensure transparency from reporting actual GHG levels.

This target includes a subsidiary target on reducing the number of business-related civilian domestic flights by 30%, against a 2009-10 baseline.

Definitions

For the purposes of measuring this outcome, the following definitions apply:

Carbon dioxide equivalent (CO2e)	A universal unit of measurement used to indicate the global warming potential of a greenhouse gas, expressed in terms of global warming potential of one unit of carbon dioxide.
Direct emissions	Greenhouse gas emissions from sources that are owned by the organisation, such as from vehicles owned or leased (fleet), or fuels consumed on-site. This includes fugitive greenhouse gas emissions that are not physically controlled (for example through fuels burnt on site) but result from the release of greenhouse gases from other activities such as refrigeration and air conditioning.
Greenhouse gases	The six greenhouse gases included in the Kyoto Protocol are: carbon dioxide (CO2), methane (CH4), Hydrofluorocarbons (HFCs), nitrous oxide (N20), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6).

Indirect emissions	These are greenhouse gas emissions from sources that are not owned by the organisation, such as the emissions created by the company which supplies the organisation's electricity.
Public transport	This includes all domestic business related travel (air, rail and other forms of public transport).

GHG Data Reporting Requirements 2016-2020

Cut greenhouse gas emissions by 32% from the whole estate and UK business related transport by 2019-20 compared to a 2009-10 baseline	Total GHG emissions in CO2e from fuel consumed on departmental office and non-office estate	Total kilowatt hours from fuel consumed on departmental estate
	Total GHG emissions in CO2e from grid supplied electricity, heat, steam and cooling on departmental office and non-office estate	Total kilowatt hours of purchased heat, cooling and power
	Total percentage of energy from renewable sources (This does not include energy purchased under "green" tariffs.)	Total kilowatt hours of energy from renewable sources
	Total GHG emissions per building in CO2e from fugitive emissions	Total number of air conditioning and refrigeration plant installed, running and disposed of
	Total GHG emissions per organisation in CO2e from owned transport	Total mileage travelled in vehicles owned or leased by the organisation by vehicle type
	Total GHG emissions in CO2e per organisation from business-related travel	Total mileage travelled in public transport or employee owned/leased vehicles (excluding staff commutes), broken down by transport type

Office estate GHG impacts normalised against office-based FTEs	GHG emissions from fuel consumed in buildings qualifying for SOFTE2 benchmarked office estate reporting	Total kilowatt hours from fuel consumed on office estate
	Total GHG emissions in CO2e from grid supplied electricity, heat, steam and cooling in buildings qualifying for SOFTE benchmarked office estate reporting	Total kilowatt hours of purchased heat, cooling and power on office estate
	Total percentage of energy from renewable sources in buildings qualifying for SOFTE benchmarked office estate reporting (This does not include energy purchased under “green” tariffs.)	Total kilowatt hours of energy from renewable sources on office estate
	Total GHG emissions per building in CO2e from fugitive emissions from buildings qualifying for SOFTE benchmarked office estate reporting	Total number of air conditioning and refrigeration plant installed, running and disposed of
Reduce business-related domestic flights (civilian only) by 30% government by 2019-20 compared to a 2009-10 baseline	Total number of domestic flights	Total number of individual (single) domestic flights - flights (return flight = 2 flights)

Catalogue of consultation questions

Chapter 1 Questions

1.	Please rank the TOP FIVE barriers that you think prevent organisations taking action from the following list: ○ lack of interest in energy efficiency ○ conflicting priorities ○ low capital availability ○ upfront investment costs ○ unseen/unexpected costs ○ complex decision chains ○ lack of time/resource ○ low status of energy efficiency ○ lack of knowledge ○ length of payback
2.	Tell us about any further barriers or issues not listed above.

Chapter 2 Questions

1.	If you work for a relevant organisation, would you to support and report against, a voluntary emissions target?
2.	Please explain why
3.	Would your organisation be able to meet a 30% emissions reduction target on 2009/10 levels by 2020/21?
4.	If you answered NO please specify what you think is achievable? [less than 10%] [10-19%] [20-25%] [26-29%] [more than 30%]
5.	Which organisations should be expected to meet a voluntary target. Please tick all boxes which apply: ○ Local authorities ○ Hospitals ○ Other NHS (i.e. GP surgeries, health centres) ○ Emergency services ○ Further education institutions i.e. Sixth Form colleges ○ Higher education institutions i.e. universities

	○ Leisure services i.e. swimming pools or sports centres ○ Museums and libraries ○ Housing Associations
6.	Are there any other organisations that should be expected to meet a voluntary target?
7.	Which organisations should NOT be expected to meet a voluntary target?
8.	Please explain
9.	Which non-domestic buildings should be covered by the target? ○ Offices ○ Retail ○ Commercial ○ Community, cultural or leisure
10.	What transport arrangements used by wider public sector organisations should be covered by the target? ○ All domestic business related travel ○ Domestic business related travel: Air ○ Domestic business related travel: Fleet vehicles
11.	Are there other emissions sources that should be covered by the target, and if so why?
12.	If you work for a relevant organisation, what do you already collect and report on? ○ Fuels combustion ○ Fugitive emissions e.g. air conditioning and refrigeration leaks ○ Owned transport ○ Land based emissions ○ Process emissions e.g. waste processing ○ Consumption of purchased electricity, heat, steam and cooling ○ Transport-related activities ○ Waste disposal ○ Purchased materials and fuels ○ Sold goods and services
13.	What data about your emissions would you be willing to provide to the Department for Business, Energy and Industrial Strategy (BEIS)?
14.	What data about your emissions would it be difficult to collect and report on?

Chapter 3 Questions

1.	What barriers to accessing finance do organisations face? ○ Lack of capital finance ○ Upfront investment costs ○ Borrowing regulation or limitations ○ Complex decision chains ○ Capital expenditure limit ○ Estate rationalisation plans
2.	Are there any additional barriers to accessing capital finance for energy efficiency?
3.	How are public and higher education sector energy efficiency projects currently financed? ○ Capital funds ○ Invest to Save fund ○ Public Works Loan Board ○ Condition Improvement Fund ○ Salix finance ○ Private finance ○ Public/Private Funding Combination ○ Energy Performance Contracts ○ European funding
4.	What other sources of finance could be or are used energy efficiency projects?
5.	How should we plan to support less cost effective measures in the future (e.g. low carbon heat/generation schemes), if at all?

Chapter 4 Questions

1.	What resource barriers do you think organisations face? ○ limited internal capacity to manage and deliver projects ○ lack of time/resource ○ lack of technical knowledge ○ lack of business case development experience ○ complex decision chains ○ accounting or governance rules
2.	What other resource barriers are there?

3.	If you work for a relevant organisation, do you use Energy Service Companies or Energy Performance Contracts?
4.	Please explain why
5.	If you DO NOT use Energy Service Companies or Energy Performance Contracts, what would encourage you to use them?
6.	What else could support to overcome capacity and capability issues in the wider public and sector higher education sectors?
7.	What other non-monetary services could be offered which would encourage organisations to invest in energy efficiency measures? E.g. access to reliable information or skills training

Chapter 5 Questions

1.	What further actions would support low carbon and energy efficiency investment in the public sector's own estate?
2.	If you work for a relevant organisation, would it support a voluntary 2030/31 emissions reduction target on 2009/10 levels for the wider public and higher education sectors on their own estates in England?
3.	Please explain why
4.	At what level should a future voluntary target be set? [less than 50%] [50-59%] [60-69%] [70-79%] [more than 80%]
5.	Please explain why.
6.	Would you support a move to a mandatory target in due course?
7.	Please explain why
8.	What further actions could support the public sector to catalyse the wider low carbon transition?
9.	What national or international examples of best practice can we learn from?

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