



Department for
Business, Energy
& Industrial Strategy

HELPING BUSINESSES TO IMPROVE THE WAY THEY USE ENERGY

CALL FOR EVIDENCE



July 2018

HELPING BUSINESSES TO IMPROVE THE WAY THEY USE ENERGY

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The call for evidence can be found on the BEIS section of GOV.UK:

<https://www.gov.uk/government/consultations/helping-businesses-to-improve-the-way-they-use-energy-call-for-evidence>

HELPING BUSINESSES TO IMPROVE THE WAY THEY USE ENERGY

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

Contents

General information	4
Purpose of this call for evidence	4
How to respond	4
Confidentiality and data protection	5
Quality assurance	5
Executive Summary	6
Chapter 1: Introduction	8
Context	8
Chapter 2: Vision	10
Market failures and barriers	12
Consultation Question	13
Energy trends	13
How can we deliver a 20% reduction in business energy use?	14
Chapter 3: Buildings	19
Introduction	19
Segmenting business buildings	19
Consultation Question	20
Current building standards	21
Potential options	21
Consultation Question	23
Consultation Question	26
Chapter 4: Market Enabling	27
Introduction	27
Energy efficiency business models	27
Standardisation of the energy efficiency market	29
Digital tools and the availability of data	32
Consultation Question	35
Stimulating lenders into the energy efficiency market	36

Consultation Question _____	38
Consultation Question _____	39
The Energy Technology List (ETL) and Enhanced Capital Allowances (ECAs)_____	40
Consultation Questions _____	41
Chapter 5: Small and medium sized enterprises (SMEs)_____	42
Introduction _____	42
Access to information_____	43
Increasing salience _____	44
Consultation Question _____	46
Chapter 6: Improving Energy Efficiency of Industrial Processes _____	48
Introduction _____	48
Current policies _____	49
Potential future interventions _____	50
Consultation Question _____	51
Catalogue of call for evidence questions _____	52
Vision _____	52
Buildings _____	52
Market Building _____	53
SMEs _____	54
Industrial processes _____	55

General information

Purpose of this call for evidence

The Clean Growth Strategy (CGS), published in October 2017, committed the Government to consult on a package of measures to support business to improve how productively they use energy. This call for evidence sets out possible approaches to improving energy efficiency in business and industry by 20% by 2030 and seeks views on the level of ambition and how we plan to measure our progress. It also seeks views on the actions Government could take to support business to take up energy efficiency across buildings and industrial processes.

Evidence provided and responses received will be used to inform policy development ahead of announcements of specific policy instruments or more detailed consultation.

Issued: 18 July 2018

Respond by: 26 September 2018

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Consultation reference: Helping Businesses to Improve the Way they Use Energy

Territorial extent:

If a decision is taken in due course to act on any proposed areas outlined in this call for evidence, the coverage may be England only (though any proposals on the Private Rented Sector Regulations would be expected to cover England and Wales). The promotion of energy efficiency is devolved in Scotland and Wales when done other than by prohibition or regulation. Energy efficiency is devolved in Northern Ireland.

How to respond

Your response will most useful if it is framed in direct response to the questions posed, though further comments and evidence are also welcome.

Electronic responses are preferred and should be submitted through the consultation hub (<https://beisgovuk.citizenspace.com/heat/improving-use-of-energy-by-business>), emailed to businessenergyuse@beis.gov.uk or sent to the address on page 4.

Additional copies:

You may make copies of this document without seeking permission. An electronic version can be found at <https://www.gov.uk/government/consultations/helping-businesses-to-improve-the-way-they-use-energy-call-for-evidence>

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 2018 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please tell us, but be aware that we cannot guarantee confidentiality in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not be regarded by us as a confidential request.

We will process your personal data in accordance with all applicable UK and EU data protection laws. See our [privacy policy](#).

Quality assurance

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.

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 Clean Growth Strategy (CGS) sets out our proposals for decarbonising all sectors of the UK economy through the 2020s. It explains how the whole country can benefit from low carbon opportunities, while meeting national and international commitments to tackle climate change. The Industrial Strategy sets out how we are building a Britain fit for the future – how we will help businesses create better, higher-paying jobs with investment in the skills, industries and infrastructure of the future. Improving the way in which our businesses use energy will help to deliver both these goals. We have set a stretching ambition to reduce business energy use by 20% by 2030. This is one of the single largest carbon saving measures in the whole CGS. By 2030, we want businesses to be significantly more energy efficient, helping to minimise their energy costs and raising productivity.

To achieve the 20% ambition will require action across all businesses. We estimate that up to an additional £23 billion in private sector investment will be needed to deliver this level of ambition. Our modelling suggests that the majority of these improvements could come from improving the efficiency of how energy is used in commercial and industrial buildings, in both the private rented sector and owner-occupied sectors. There are also further improvements that can be made in the energy efficiency of manufacturing processes. Existing policies will contribute towards delivering this level of ambition, but new policies will also be needed.

In this document we set out our proposed overall approach to delivering our ambition on business energy efficiency and set out potential options for taking this forward.

The barriers to business taking up energy efficiency measures are well understood. Our approach, as set out in the CGS, could involve strengthening building standards over time supported by enabling measures to facilitate the growth of energy efficiency market. This call for evidence seeks views on this approach and considers options for engaging with SMEs and strengthening our evidence base on the way energy is used in light industry.

Improving the energy efficiency of commercial and industrial buildings presents significant challenges for policy not least because of business heterogeneity in terms of their size and what they do and how they do it. We will be delivering on the CGS commitment to consult on PRS standards later this year. This document seeks further evidence on how stakeholders are responding to current requirements and the impact of moving to higher building standards. It also explores the role of voluntary standards to improve business building performance. We recognise the important leadership role that government and the wider public sector can make in this are, reinforced by key new ambitions such as the Buildings Mission and the Construction Sector Deal.

We are currently evaluating the effectiveness of the current Climate Change Agreements scheme that incentivises energy efficiency across 53 sectors, to inform decision on any future scheme. We are also conducting further research on the effectiveness of energy audits and reporting, including the Energy Savings Opportunity Schemes, and expect to report on these in 2019.

Delivering our ambition will present opportunities for green finance. We are seeking views on the potential role for government in setting standards for the energy efficiency market; increasing the use of digital tools and the availability of data; encouraging more lenders into the market; and simplifying the Energy Technology List and increasing awareness of it.

SMEs represent a significant proportion of business activity, and we want to improve the provision of information and advice to them to encourage them to engage and take action. We want to understand more about the most effective way to engage with SMEs.

Industrial processes also have a contribution to make towards our ambition. Although UK manufacturing has been effective in reducing energy use, further progress is required to meet our ambition. We want to understand what more can be done to improve energy efficiency in our manufacturing sector, and particularly in light industry, where our evidence base is not as strong.

We will use the evidence received in response to this document to inform future policy developments to deliver on our ambition.

Chapter 1: Introduction

The Clean Growth Strategy sets us on a path to improve business and industry energy efficiency and to support clean growth.

Context

- 1.1. Business and industry are responsible for around 25% of UK emissions. In the Clean Growth Strategy (CGS), we set a stretching ambition to support businesses to improve their energy efficiency by at least 20% by 2030. This could deliver up to £6bn in cost savings by 2030 and contribute up to 22MtCO_{2e} of non-traded carbon savings towards the fifth carbon budget¹. This is one of the single largest carbon-saving measures in the whole CGS. It would also mean that businesses could reduce the amount they spend on energy improving their energy productivity and increasing their competitiveness. This will help to create the conditions to help boost the productivity and earning power of people throughout the UK in line with our long-term plans set out in the Industrial Strategy.
- 1.2. Building the energy efficiency market also creates opportunities for UK business to develop innovative products and services. The energy efficiency market already turns over £20.3bn, employs 144,000 people and exports £1bn² per annum. Increased investment will support business to improve energy efficiency in the UK, but also access the growing worldwide green building market, which has doubled every three years for over a decade³.
- 1.3. In the CGS, we committed to consult in 2018 on a package of measures to support this ambition. Meeting this ambition will require improvements in the way in which industrial and commercial buildings are built, refurbished and operated. It will also require further improvements to the efficiency of manufacturing processes.
- 1.4. There are over 5.7 million businesses in the UK⁴. These businesses are highly diverse both in terms of type of business and how they use energy. They range from high energy intensive steel production to an independently owned corner

¹ BEIS, 'The Clean Growth Strategy', 2017 <https://www.gov.uk/government/publications/clean-growth-strategy>

² ONS, 'Low Carbon and Renewable Energy Economy Survey, final estimates: 2015', 2017 <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2015results>

³ Green building activity has been doubling every three years for over a decade (SOURCE: Dodge Data & Analytics, 'World Green Building Trends 2016: Developing Markets Accelerate Global Green Growth'. Bedford, USA <https://www.construction.com/toolkit/reports/world-green-building>)

⁴ BEIS, Business Population Estimates , November 2018

shop. In 2015, business used 422TWh⁵ energy of which nearly half was used in buildings.

- 1.5. There are multiple and interlocking barriers that limit investment in energy efficiency. Most businesses report barriers related to cost, staff and time which are preventing deployment of energy efficiency⁶. For the majority of businesses, energy is only around 3%⁷ of their overall expenditure, so it is not seen as a core activity and consequently they often do not expend time and effort in managing energy effectively.
- 1.6. This call for evidence seeks views on possible approaches to delivering the 20% ambition, and on the level of our ambition and how we can measure our progress. Delivering the ambition will require businesses to take action and the call for evidence sets out the role government could take to support business to increase take up of energy efficiency across buildings and industrial processes.
- 1.7. We are also seeking additional evidence to inform the further development of policy in the manufacturing sector.

Business Energy Efficiency across the UK

- 1.8. This call for evidence applies predominantly to England, though any proposals on the Private Rented Sector Regulations would be expected to cover England and Wales. The promotion of energy efficiency is devolved in Scotland and Wales when done other than by prohibition or regulation. Energy efficiency is devolved in Northern Ireland.
- 1.9. The Scottish Government has set out its ambitions to improve the energy efficiency of all buildings in Scotland in the Climate Change Plan ([The Scottish Government's Climate Change Plan, Third Report on Proposals and Policies 2018-2032 \(RPP3\)](#)) and the Route Map for Energy Efficient Scotland ([Energy Efficient Scotland: Route Map](#)). As part of the Route Map the Scottish Government is committed to aligning its support for improving the energy efficiency of buildings with support to reduce energy used in industrial process.

⁵ Business Energy Statistical Summary, July 2018 <https://www.gov.uk/government/publications/business-energy-statistical-summary>

⁶ BEIS, 'Building Energy Efficiency Survey', November 2016 <https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

⁷ Business Energy Statistical Summary, July 2018 <https://www.gov.uk/government/publications/business-energy-statistical-summary>

Chapter 2: Vision

We want businesses to be significantly more energy efficient. This will reduce carbon emissions, and help to make them more competitive.

Introduction

- 2.1. The UK has a good track record in energy efficiency and in the latest ACEEE scorecard⁸, the UK is ranked 4th in the world and scores very highly for industry and buildings. It uses 36 metrics to evaluate each country's national commitment to saving energy as well as its efficiency policies and performance in the buildings, industry, and transportation sectors, and highlights best practices implemented by a country. Germany tied with Italy for the top spot in its rankings this year. France came in 3rd, followed by the United Kingdom and Japan. The International Energy Agency (IEA)⁹ reported that building envelope policy has been the key driver for policy progress in countries like Denmark and Germany, while HVAC equipment has been the key driver in countries like Japan and Korea.
- 2.2. The IEA recognises energy efficiency practices are a key part of the global energy market but that there remains vast untapped potential. Its Energy Efficiency Market Report, published in October 2017¹⁰, tracks the core indicators of energy efficiency providing insights on the latest trends, drivers and market prospects.
- 2.3. The cost of energy for business was £21bn (2015 prices) in 2015 and for some businesses makes up a significant proportion of their total running costs. Unlocking up to £23bn of additional investment in energy efficiency over the next decade could deliver the ambition in the CGS to improve business energy efficiency by at least 20% by 2030.
- 2.4. Our analysis shows that this investment could unlock cost savings of around £6bn by 2030 and reduce carbon emissions by 22 MtCO_{2e} over the fifth carbon budget (2028 - 2032).
- 2.5. Improving the energy efficiency of UK businesses will deliver significant benefits:

⁸ ACEE, 'The 2018 International Energy Efficiency Scorecard', 2018 <https://aceee.org/research-report/i1801>

⁹ IEA, Energy Efficiency, 2017 <https://www.iea.org/efficiency/>

¹⁰ IEA, Energy Efficiency, 2017 <https://www.iea.org/efficiency/>

- **Improved energy productivity:** Reducing the amount of energy required per unit of output and enabling UK business to compete in a global economy.
 - **Greater international opportunities:** The UK is already a successful exporter of construction products. Developing the domestic market will support innovation and help to open up new markets overseas. Global investment in energy efficiency increased to \$231bn with buildings accounting for 58% of this, specifically building envelopes, appliances and lighting¹¹.
 - **Capturing the multiple benefits of energy efficiency:** Wider benefits beyond cost savings, productivity and carbon reduction including economic growth and energy system security (see paragraph 2.12).
- 2.6. The Industrial Strategy recognised these wider benefits through supporting investment in industrial energy efficiency and incentivising greater private investment in commercial buildings to help grow the market. This can enable UK businesses to develop world leading capabilities in integrating construction, digital and energy efficiency technologies.
- 2.7. By 2030 we want businesses to be significantly more energy efficient, minimising business energy costs and raising productivity. Our modelling shows that meeting our ambition would result in a reduction of energy use overall by 84TWh by 2030 and an increase in business energy productivity¹².
- 2.8. This step change will need to be delivered against the background of an energy system that is rapidly changing and becoming smarter and more flexible. In response to this, many businesses will need to change the way that they interact with energy.
- 2.9. For example there will be many options for businesses including generating their own energy and managing their energy use in ever smarter ways. As part of the [Smart Systems and Flexibility Plan](#), the Government is supporting National Grid’s “Power Responsive” campaign to increase the participation of non-domestic consumers in “demand side response”. This sits alongside ongoing work to make markets work for flexibility and industry-led initiatives to support the role of energy aggregators in unlocking the value of flexibility for businesses. We will publish our evaluation of the Electricity Demand Reduction (EDR) pilot by end 2018.
- 2.10. This presents businesses with an opportunity to control their energy use, but also a challenge for businesses to understand and decide what the best approach is for them. We want businesses to be able to make these choices, either by themselves or with the support of innovative firms offering new energy services.

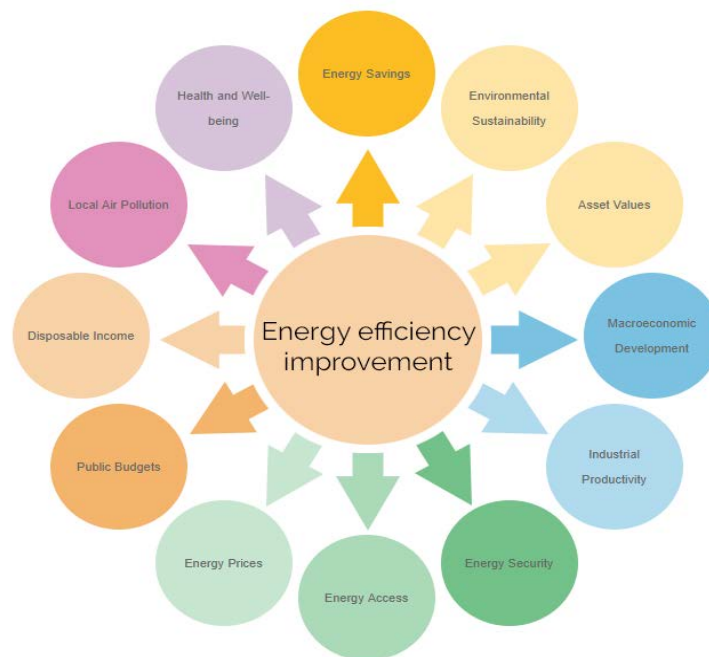
¹¹ IEA, Energy Efficiency, 2017 <https://www.iea.org/efficiency/>

¹² BEIS, ‘The Clean Growth Strategy’, 2017 <https://www.gov.uk/government/publications/clean-growth-strategy>

Market failures and barriers

- 2.11. Market failures and multiple and interlocking barriers are well documented and include cost, staff and time. These impact differently according to the size and type of business and are limiting deployment of energy efficiency measures¹³.
- 2.12. The wider benefits and opportunities from energy efficiency are not acknowledged by the majority of business. These include economic benefits such as job creation and the creation of new services; energy systems benefits from reduced demand such as greater energy security, lower generation costs and reduced network reinforcement costs, see figure 1¹⁴. Sustainable buildings can command a higher rental and/or sale value. Sales premium of over 8.5% and rent premiums of over 2.5%¹⁵ have been reported, and lower energy use means greater resilience of buildings. Energy efficiency also contributes to improvements in health through improved air quality.

Figure 1: Multiple Benefits of Energy Efficiency¹⁶



¹³ BEIS, 'Building Energy Efficiency Survey', November 2016

<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

¹⁴ IEA, 'Capturing the Multiple Benefits of Energy Efficiency', 2014

https://www.iea.org/media/training/presentations/latinamerica2014/Capturing_the_Multiple_Benefits_of_Energy_Efficiency_2014_Executive_Summary.pdf

¹⁵ Ibid

¹⁶ Ibid

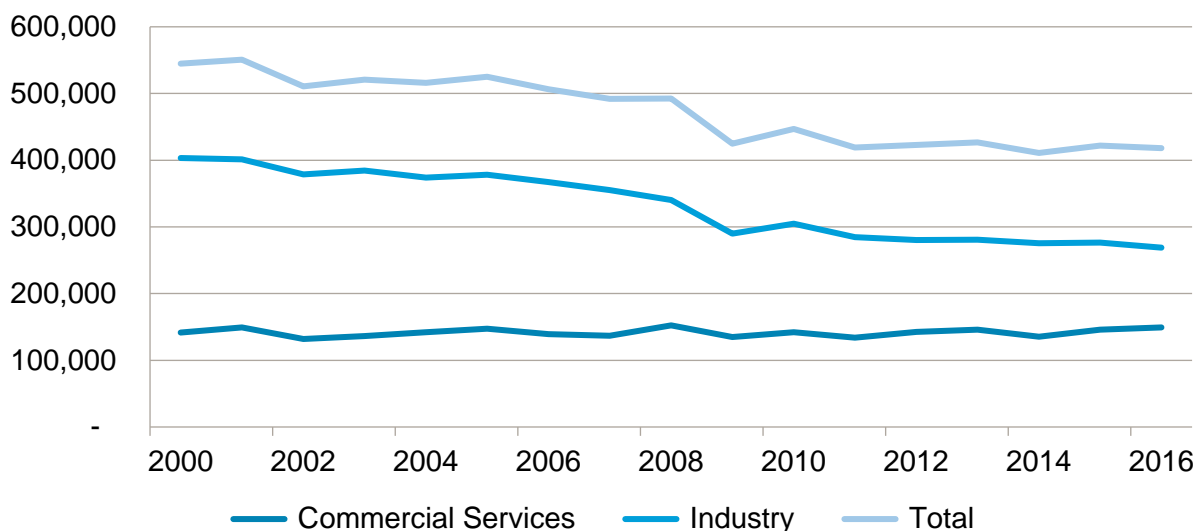
Consultation Question

1. What do you see as the key developments and trends that will impact on the energy efficiency market over the next 10 years?

Energy trends

- 2.13. Energy use in the business and industry sector has been steadily decreasing since 2000, and UK industry is overall one of the most efficient in Europe¹⁷. This decrease is due to a variety of reasons but over 90% has been delivered through increased energy efficiency within sectors like the chemical sector. There have also been some significant shifts in composition of the industrial sector since 2000¹⁸.

Chart 1: Final energy demand for businesses and industry (GWh per year)



Source: *Energy and Emissions Projections 2017*

- 2.14. The majority of energy use in the Commercial Service sector is for the heating and cooling of buildings. This sector is highly diverse with over 50% of energy use coming from small and medium sized enterprises (SMEs) with under 250 employees. Additionally, for the vast majority of UK businesses, energy

¹⁷ ODYSSEE European energy efficiency indicators project 2015

¹⁸ BEIS, Energy Consumption in the UK (Table 4.07), 2017

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633503/ECUK_2017.pdf

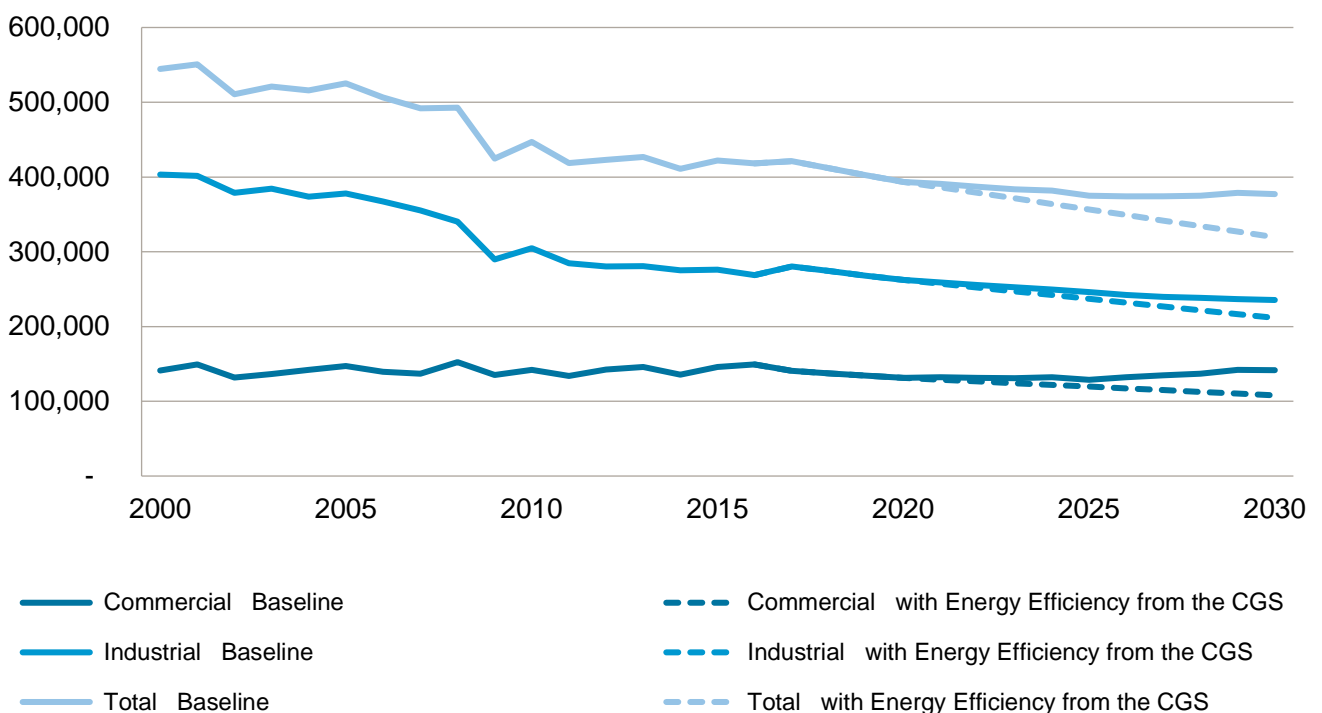
represents a relatively small proportion of running costs. The largest sectors in terms of building energy consumption are industrial, offices, retail, and hospitality¹⁹.

- 2.15. The accompanying Business Energy Statistics Summary²⁰ consolidates available evidence, including further information on how and why businesses use energy.

How can we deliver a 20% reduction in business energy use?

- 2.16. Business energy demand is expected to continue to reduce due to continuing improvements in energy efficiency in response to existing policies such as energy taxes and trading schemes (including the Climate Change Levy (CCL), Climate Change Agreements and EU Emissions Trading System and any successor scheme following EU Exit), product standards and labelling, building regulations, the roll-out of smart meters, and audit schemes such as the Energy Savings Opportunity Scheme (ESOS). We are also introducing a new and more streamlined energy and carbon reporting framework from April 2019. We estimate that demand could fall by 45TWh as a result of existing policies and schemes between 2015 and 2030 (solid lines in Chart 2).
- 2.17. The CGS outlines the potential for further energy efficiency improvement out to 2032. We assess that if this potential is achieved then a further 58TWh of energy savings could be delivered over this period (dotted lines in Chart 2).

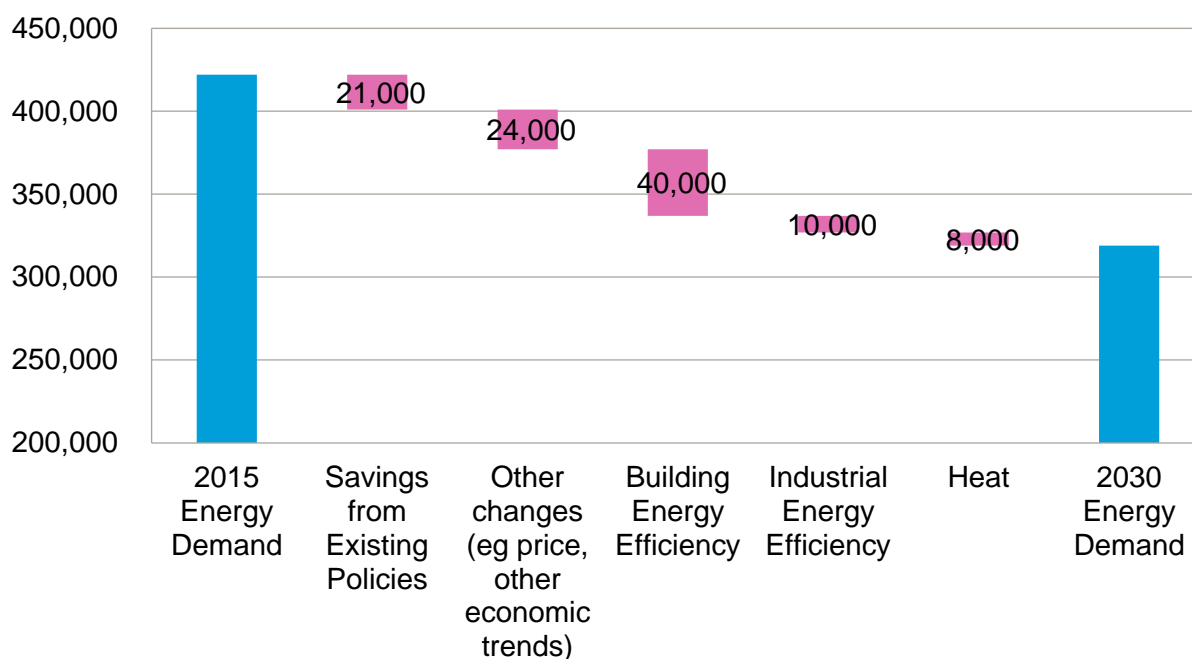
Chart 2: Baseline and CGS Final Energy Demand for Industry and Commercial Services (GWh)



Source: *Energy and Emissions Projections and Clean Growth Strategy*

2.18. To achieve the 20% ambition, we need action to be taken by large businesses, by SMEs, and by manufacturing firms. Our analysis suggests that the majority of the savings (after forecast demand reduction) could come from commercial and industrial buildings, split broadly equally across the private rented and owner occupier sectors, with the remaining savings being delivered by more efficient industrial processes. The largest sectors in terms of energy consumption are industrial, offices, retail, and hospitality²¹.

Chart 3: Changes in Business and Industry Energy Demand 2015 to 2030, with the CGS Pathway (GWh)²²



Source: *Clean Growth Strategy and Energy and Emissions Projections 2017*

2.19. Chart 3 provides a breakdown of our analysis of how these savings could be delivered:

- **Buildings** – we have identified, from buildings, the potential to deliver 40TWh of savings, with a capital cost of up to £20bn to 2030, delivering up to £5bn of bill savings in 2030. These measures could include better insulation, improved

²¹ BEIS, 'Building Energy Efficiency Survey: 2014-15', 2016

<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

²²The Chart represents the total potential energy savings in the business and Industry sector, some of these savings are from measures which are not energy efficiency based, total energy efficiency potential could deliver 22% savings with a total saving of 24%, with heat measures.

lighting and control, and installation of building management systems in commercial and industrial buildings.

- **Industrial Processes** – within the manufacturing sector we have identified potential to deliver a further 10TWh of process savings, with an additional capital cost of up to £3bn, saving up to £1bn in energy bills in 2030. These measures include heat recovery systems, and more efficient motors and high and low temperature processes.
- **Heat and energy efficiency** – we are exploring how heat decarbonisation measures impact on energy efficiency. We are currently looking at ways to phase out the installation of high carbon forms of fossil fuel heating in new and existing businesses off the gas grid during the 2020s, starting with new build. This will seek both to decarbonise and cut energy use in these buildings. Government recently published a call for evidence on a Future Framework for Heat in Buildings²³, which closed on 11 June and responses are being analysed. Government is also exploring the plausible potential pathways to 2050 on how best to decarbonise heat. The Construction Sector Deal²⁴ will also drive the use and adoption of innovative technologies, transitioning to smart, low carbon and distributed energy generation systems. This will create opportunities for new renewable energy generation and energy storage technologies in buildings.

2.20. Innovation will also be important in delivering this level of ambition by helping to reduce costs. Our analysis is based on the deployment of existing technologies²⁵ but further technological innovations to develop better performing technologies and to reduce their costs will help to achieve the ambition. The government is investing in research and innovation in both the built environment and industry, see below.

²³ BEIS, 'A Future Framework for Heat in Buildings: Call for Evidence' 2018

<https://www.gov.uk/government/consultations/a-future-framework-for-heat-in-buildings-call-for-evidence>

²⁴ BEIS, Construction Sector Deal <https://www.gov.uk/government/publications/construction-sector-deal>

²⁵ BEIS, 'Building Energy Efficiency Survey: 2014-15', 2016

<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

Innovation

The government is investing in research and innovation in both the built environment and industry. Across government, Innovate UK, Research Councils, and BEIS expect to invest around £184 million of public money in research and innovation in the built environment (by 20/21). As part of this commitment, within the BEIS Energy Innovation Programme, BEIS expects to invest around £90 million in low carbon heating and energy efficiency options for UK homes and businesses.

In industry around £162 million of public money has been allocated to industrial research and innovation, including Carbon Capture, Use and Storage (CCUS). As part of this commitment, within the BEIS Energy Innovation Programme, BEIS expects to invest around £100 million in low carbon industrial innovation to reduce the risks and costs of accelerating the roll out of low carbon technologies which will enable UK industry to remain competitive. This includes the £9.2m industrial energy efficiency accelerator which aims to broaden the range of energy efficiency technologies that are available to industry.

- 2.21. Product specific standards, under the Ecodesign Directive and the Energy Labelling Framework Regulation, are also expected to contribute to reducing business energy use. A range of non-domestic products are already covered, for example, motors, drives and lighting. Further work is underway to assess the potential to extend standards to new areas such as building automation. The CGS committed to continuing support for these policies by stating that the UK will *“keep step with equivalent standards wherever possible and appropriate, or even exceed them where it is in the UK’s interest to do so”*.
- 2.22. Government also has a role in raising awareness and advocating the benefits of energy efficiency (see [public sector leadership and experience](#)).
- 2.23. In the CGS we said we would seek views on the level of our ambition and measures for monitoring progress as well as consult on a package of measures to deliver the 20% ambition.
- 2.24. We assess that our ambition to reduce energy use represents a credible challenge to businesses requiring action beyond what existing policies can deliver. This document sets out how we might create demand for energy efficiency and help to build capacity and capability in the energy market.
- 2.25. Business and Industry energy use statistics are published as part of the Digest of UK Energy Statistics²⁶ and the Energy and Emissions Projections²⁷ on a

²⁶ BEIS, Digest of UK Energy Statistics <https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes>

yearly basis. We will monitor progress towards our ambition as we develop more detailed policy options and assess their impact and then monitor success through monitoring and evaluation of the policies as they are delivered. We would welcome further evidence about the energy efficiency sector and business activity to further refine our knowledge of developments in the sector.

Consultation Question

2.	What are your views on the level of ambition and how we could measure our progress?
3.	What other measures and energy efficiency potential might be available to businesses to reduce energy demand?

²⁷BEIS, Energy and Emissions Projections, <https://www.gov.uk/government/collections/energy-and-emissions-projections>

Chapter 3: Buildings

We need action to be taken to make commercial and industrial buildings more energy efficient.

Introduction

- 3.1. Our evidence shows that business energy use in the UK has fallen since 2000, largely delivered by a fall in industrial process energy use. However, business buildings energy use has remained broadly flat (see [Chart 1](#)).
- 3.2. The diversity of the non-domestic building stock is a key challenge to deploying energy efficiency. Building size and type, what energy, heat and cooling requirements a building needs and the different purposes for the use of a building mean that improving energy efficiency is likely to require different measures and approaches. The data in the [Energy Trends](#) section highlights the segmentation considerations.
- 3.3. Historic experience and international comparison suggest that strengthening regulations would give most confidence in delivering the level of ambition set out in the Clean Growth Strategy (CGS). Research acknowledges that new build standards have driven improvements in energy efficiency for new buildings. However, research has identified that progress on existing buildings has been significantly slower. International research indicates that improving the efficiency of existing buildings often requires a combination of policy interventions including performance-based energy **targets**, building energy **codes and standards**, mandatory energy performance **disclosure** and voluntary standards that become mandatory **supported by finance or other incentives**²⁸.

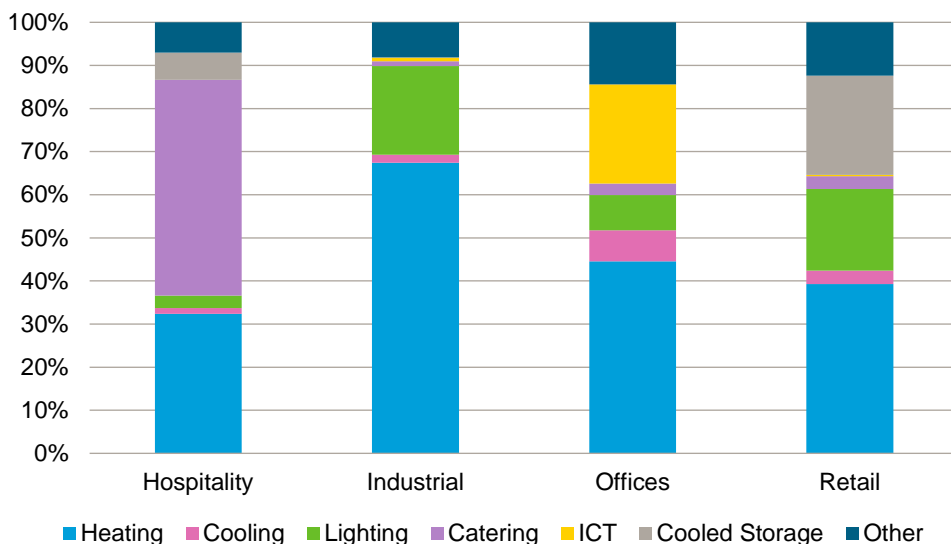
Segmenting business buildings

- 3.4. Businesses use energy in buildings in different ways for a variety of different purposes. Four sectors make up approximately three quarters of energy demand in buildings, industry, retail, offices and hospitality.
- 3.5. The energy used in these sectors does have similarities, for example the use of energy in heating is a major part of each of these key sectors. But there are

²⁸ IPEEC, 'Existing Building Energy Efficiency Renovation; International Review of Regulatory Policies', September 2017 <https://ipeec.org/newsroom/256-new-beet-report-on-building-energy-efficiency-renovations-.html>

also significant sector specific energy uses, for example catering in the hospitality sector, cooled storage in the retail sector and Information Technology in the office sector.

Chart 4: What energy is used for in four main building sectors²⁹³⁰



Source BEES 2016 and DUKES 2017

Consultation Question

4. What evidence do you have on how increasing building standards could drive improved energy efficiency, or how energy efficiency improvements in buildings have resulted in wider benefits? Is there any evidence that increasing building standards would not drive improved energy efficiency?
5. Are there certain sectors that might respond to different approaches and what might they be?

²⁹ BEIS, 'Building Energy Efficiency Survey: 2014-15', November 2016
<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

³⁰ Industry excludes energy used for industrial processes

Current building standards

- 3.6. On 1 April 2018, BEIS implemented energy performance standards for the rented sector through the Energy Efficiency (Private Rented Sector) (England and Wales) Regulations 2015. These regulations (PRS Regulations) set a minimum energy performance building standard. They were introduced to drive improved energy efficiency in business buildings and overcome barriers to resolve the inertia to invest in energy efficiency among landlords or tenants. From April 2018, landlords of newly leased non-domestic premises, in scope of the regulations, are required to upgrade their buildings to an Energy Performance Certificate (EPC) E rating. From 2023, all leased buildings within scope will be required to comply with the E rating.
- 3.7. Building Regulations, through the Part L requirements, set minimum energy efficiency requirements for new buildings and when work is carried out to existing buildings, including heating and cooling system upgrades or replacements.
- 3.8. There are also a number of voluntary standards, sustainability assessment tools, and environmental certification standards used in the design and construction of buildings.

Potential options

Targeted building approaches

- 3.9. We have made commitments in the CGS, the Industrial Strategy Grand Challenge on Clean Growth, and the announcement of a Buildings Mission by the Prime Minister on 21 May 2018, to support and drive actions that will result in more energy efficient commercial and industrial buildings. The Buildings Mission has an ambition to at least halve the energy use of new buildings by 2030. This will be achieved by:
 - making sure every new building in Britain is safe, high quality, much more efficient and uses clean heating,
 - innovating to make low energy, low carbon buildings cheaper to build,
 - driving lower carbon, lower cost and higher quality construction through innovative techniques,
 - giving consumers more control over how they use energy through smart technologies, and
 - halving the cost of renovating existing buildings to a similar standard as new buildings while increasing quality and safety
- 3.10. On 5 July 2018 the government announced the Construction Sector Deal. Within its wider ambitions for the construction industry, it aims to deliver better performing buildings and lower energy use. The key areas for delivering these aims include:

- the adoption of digital and manufacturing technologies and new information management measures to drive better construction and operation of buildings; optimising both performance and improved safety and quality
 - the use of offsite manufacturing technologies
 - consideration of whole life asset performance, including improving the lifetime performance of buildings through better procurement and performance benchmarking of assets
- 3.11. As stated in the CGS, and following the outcome of the independent review of Building Regulations and fire safety, and its conclusions, government intends to consult on improving the energy efficiency of new and existing commercial buildings.
- 3.12. We have also committed to consulting on raising minimum standards of energy efficiency for rented commercial buildings. We are engaging with stakeholders to understand how they are adapting to the current requirements. Your feedback through this call for evidence will help us further understand the impact of minimum standards. We are currently analysing the potential costs and impacts of moving to higher EPC ratings, and what that means for different types of businesses and their buildings. We intend to fully consult on options for raising minimum standards later this year.
- 3.13. The Green Finance Taskforce (GFT)³¹ indicated that there should be tighter energy performance regulations for commercial properties, building on the existing minimum energy efficiency standards introduced on 1 April 2018 through the PRS Regulations. They proposed two recommendations focussed on government boosting the demand for energy efficiency by:
- Recommending the adoption of a trajectory and minimum energy standard for commercial properties of EPC B by 2035; and introducing a requirement for operational energy ratings from 2020.
 - Introducing Green Building Passports for commercial properties by 2020. These passports would provide detailed guidance on the actions required – and already undertaken – to improve the building, based on building fabric and operational data helping building owners and occupiers make decisions to improve the buildings.
- 3.14. For the recommended use of mandatory operational energy ratings, the Taskforce indicated there should also be an appropriate public reporting mechanism to help improve energy efficiency in commercial buildings. Suggestions included building on the Display Energy Certificate methodology and the Bigger, Better Data project, as proposed by the UK Green Building Council.

³¹ Green Finance Taskforce, 'Accelerating Green Finance', 2018
<https://www.gov.uk/government/publications/accelerating-green-finance-green-finance-taskforce-report>

- 3.15. BEIS are planning to publish a call for evidence on Energy Performance Certificates and Measuring Building Performance. This will include ideas to improve energy performance certificates to further encourage action on energy efficiency. We encourage stakeholders to respond to this to provide evidence of particular relevance for the non-domestic sector; and in light of the GFT recommendations.

Consultation Question

6.	What level of minimum standards and supporting trajectories could work for the wide range of business buildings? What are the key risks?
7.	We would welcome your further views on how we can address the challenges of moving to higher building standards across the diversity of businesses and their buildings.
8.	What type of data is important to you for measuring operational energy ratings of business buildings to help support or drive any future minimum standards?

Public sector leadership and experience

- 3.16. The public sector uses significant amounts of energy, since they have a large number of buildings and extensive landholdings. There are opportunities 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, this can encourage the UK's growing low carbon and environmental sector, supporting innovative and transformational technologies, strengthening supply chains and generating high value jobs in new industries.
- 3.17. Some sectors have already taken positive steps to reduce their energy consumption. For example, higher education institutions 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 (BEES)³², however, shows that there is potential to reduce emissions and costs even further.

³² BEIS, 'Building Energy Efficiency Survey: 2014-15', 2016
<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

- 3.18. Public sector leadership can have wider positive effects. For example:
- set high performance standards for their own procurement, helping to reduce costs and catalyse low carbon markets,
 - act as an ‘anchor’ in energy infrastructure projects, such as heat networks, given its significant energy demands,
 - 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, and
 - bring together public and private stakeholders on specific low carbon opportunities.
- 3.19. Central government has set Greenhouse Gas targets for its own estate through the Greening Government Commitments and, to date, has made good progress in cutting emissions. Government as a whole reported a 33% reduction in emissions in the 2016/2017 reporting year. This exceeds the 2020 target of a 32% reduction and has saved an estimated £104 million through reduced energy bills.
- 3.20. In the CGS, the government introduced a voluntary target for the wider public and higher education sectors in England. This target aims to reduce greenhouse gas emissions across these sectors by 30% by 2020/21, compared to a 2009/10 baseline. The introduction of the voluntary target and reporting framework is intended to standardise public and higher education sectors reporting, engage sector leaders and encourage future action on decarbonisation.
- 3.21. We will set out the next steps for the public sector in due course.

Role of voluntary standards

- 3.22. We also committed to explore how voluntary building standards can support future improvements in business building performance. We know there are a number of industry-led standards and tools. For example, the use of sustainability assessment methods such as the Building Research Establishment Environmental Assessment Method (BREEAM) to achieve better performing buildings. Additionally, there is an increased interest in environmental and green building certifications such as Leadership in Energy and Environmental Design (LEED) and the National Australian Built Environment Rating System (NABERS). These schemes measure the environmental performance of buildings, monitor the energy efficiency, water usage, waste management and indoor environment quality of a building, and its impact on the environment. We are also aware of the use of voluntary Display Energy Certificates and tools such as Building Information Modelling (BIM) and Soft Landings as approaches to manage expectations from design to construction and incorporating post occupancy evaluation to assess the performance of a building. We are interested to understand how the use of

voluntary standards, driven by business and industry, can drive action to improve building energy efficiency and sustainability.

- 3.23. The role of green leases³³ has the potential to align the relationship between landlords and tenants on the sustainability of buildings. We would be interested in your feedback on how green leases work in practice as a driver to help support or improve building performance.

Sustainability and benchmarking standards

BREEAM

A UK developed method of assessing, rating, and certifying the sustainability of buildings. It raises awareness for owners, occupiers, designers and operators of the benefits of taking a sustainability approach, and to cost effectively adopt sustainable solutions.

BREEAM assesses a range of issues in categories that evaluate energy and water use, health and wellbeing, pollution, transport, materials, waste, ecology and management processes.

Buildings are rated and certified on a scale (**Pass, Good, Very Good, Excellent, Outstanding**) by setting sustainability benchmarks and targets that continue to stay ahead of regulatory requirements.

NABERS

NABERS was developed in Australia and measures the energy efficiency of office buildings, based on the operational use of the whole building. It started as a voluntary scheme but is now a federal requirement for tenants to only occupy office buildings of a certain operational performance. Its fundamental tenet is the distinction it draws between utility use which is the responsibility of the landlord (base building energy use which covers heating, ventilation and air-conditioning requirements) and the separate utility requirements for tenant's use of lighting and small power.

- 3.24. We have been working with and following the progress of the Design for Performance pilot, an industry led initiative supported by the Better Buildings Partnership. The initiative aims to change the way new office buildings are designed. The pilot has explored the applicability of the principles of NABERS performance in use rating scheme, providing the opportunity to test and develop the framework in the UK.

³³A green lease is a standard form lease with additional clauses included which provide for the management and improvement of the Environmental Performance of a building by both owner and occupier(s).

Consultation Question

9.	What evidence is there to support the effective use of voluntary standards within the UK? What opportunities exist for expanding voluntary standards?
10.	How can government support more widespread voluntary standards and other mechanisms including green leases? What are the barriers to development of such standards and products?

- 3.25. We look forward to your feedback and responses to help us set out our approach to setting standards to improve all buildings to help drive demand for energy efficiency products and services.

Chapter 4: Market Enabling

We want to work with stakeholders to enable a sustainable, private sector led, energy efficiency market, building confidence across commercial and industrial customers.

Introduction

- 4.1. Employing over 141,000 people with a turnover of over £20 billion³⁴, the UK energy efficiency sector is already making a significant contribution to the economy. However, the current market is significantly smaller than its potential size. It predominantly services projects in the business sector with shorter paybacks of up to 4 years³⁵, or lower for small and medium enterprises³⁶. Delivering our ambition would mean delivering energy efficiency potential with a payback of up to 7 years. This creates an opportunity for the market to grow.
- 4.2. The private sector is best placed to develop business models that attract businesses to take up energy efficiency measures. We are interested in whether there is a role for government in facilitating their development. For example in:
 - standardisation of the energy efficiency market;
 - increased use of digital tools, and the availability of data;
 - encouraging more lenders into the energy efficiency market; and
 - improving the Energy Technology List (ETL) and Enhanced Capital Allowances (ECAs) including by raising awareness.

Energy efficiency business models

- 4.3. The energy efficiency supply chain includes not only manufacturers and installers of energy efficiency technologies but companies in related fields such

³⁴ ONS, 'Low Carbon and Renewable Energy Economy Survey, 2016 final estimates', 2018
<https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/finalestimates/2016>

³⁵ EEVS/Bloomberg New Energy Finance Energy Efficiency Trends survey on non-domestic energy efficiency shows that expected payback for energy efficiency projects has averaged 4 years since the survey began <http://www.eevs.co.uk/media/trendsq118.pdf>

³⁶ FSB found that 39% of SMEs said they would need a payback of 1 year or less to invest in energy efficiency, and 55% said they would need a return of 2 years or less. Source: Federation for Small Businesses, The Price of Power: Energising Small Businesses in the Next UK Carbon Plan, 2017
<https://www.fsb.org.uk/docs/default-source/fsb-org-uk/energy-report--jan-04-2017.pdf?sfvrsn=1>

as energy supply. For example, many energy suppliers are considering how they can widen their offer to their customers into other services and some are already offering energy services solutions to their large business customers. Some energy brokers also offer services to improve energy efficiency. Some facilities management also offer energy efficiency solutions alongside other services including supply of energy, buildings maintenance, and demand side response, sometimes sub-contracting to energy services companies (ESCOs).

- 4.4. There is significant market potential in the non-domestic energy services market³⁷. BEIS has published a review of this sector³⁸ alongside this call for evidence. It found that whilst the public sector makes up the majority of the current market, supported by programmes such as RE:FIT³⁹, there is also activity amongst large businesses in the commercial and industrial sector, for example in the retail sector⁴⁰. Navigant estimated that in 2017 the market size was £349 million, which they estimated to roughly double by 2026.⁴¹
- 4.5. The research found the strongest driver for businesses taking up energy services contracts is cost reduction. It identified the major barriers to further growth in the energy efficiency services market as:
 - a lack of trust in the quality of service amongst potential clients hampering take up, driven partly by little publicly available data on performance of projects;
 - a lack of salience of energy efficiency for many businesses, as energy consumption is not a core issue, so decision makers frequently pay little attention to savings opportunities; and
 - low financial returns and high transaction costs in agreeing a contract, which leads to the supply chain targeting large projects.
- 4.6. The Green Finance Taskforce⁴² made a number of recommendations on how the government could support the green lending market to improve the energy efficiency of buildings. These include setting tighter energy efficiency standards and introducing a requirement for operational energy use ratings, which would be publicly reported (as set out in the previous chapter). It also recommended

³⁷ The energy services market can help address many of the barriers to businesses undertaking energy efficiency projects for example high upfront costs and lack of technical expertise. Types of contract include energy performance contracts, where energy services providers install energy efficiency measures and guarantee the energy savings to clients, and shared savings models, where third-party finance is used to pay for the project and the contractor is repaid through the energy savings.

³⁸ IPA Advisory Ltd, 'The Non-domestic Energy Efficiency Services Market', 2018

<https://www.gov.uk/government/publications/non-domestic-energy-efficiency-services-market>

³⁹ Re:Fit is available in London <https://www.london.gov.uk/what-we-do/environment/energy/energy-buildings/refit>, the rest of England <http://localpartnerships.org.uk/our-expertise/refit/>, Wales <https://gov.wales/topics/environmentcountryside/energy/efficiency/re-fit-cymru/?lang=en>

⁴⁰ IPA Advisory Ltd, 'The Non-domestic Energy Efficiency Services Market', 2018

<https://www.gov.uk/government/publications/non-domestic-energy-efficiency-services-market>

⁴¹ Navigant, Energy as a Service, Q3 2017, subscriber access

⁴² Green Finance Taskforce, 'Accelerating Green Finance, 2018

<https://www.gov.uk/government/publications/accelerating-green-finance-green-finance-taskforce-report>

government considers fiscal incentives for businesses to invest in energy efficiency and that lenders should work towards mainstreaming “green factors” into their lending decisions.

- 4.7. Future business models could go beyond selling energy efficiency as a way to reduce energy costs and take account of the wider benefits of energy efficiency such as improved buildings and better comfort. They could also integrate energy efficiency with other technologies including low carbon heat, and potentially smart systems, decentralised generation and electric vehicles. In the longer term, network operators could choose to install energy efficiency over network reinforcement if the cost savings were favourable⁴³. We are interested in hearing more about innovative business models that market energy efficiency to businesses.

Consultation Question

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| 11. | How can the barriers to the development of the energy services market be overcome? Does this differ between sectors? Is there a role for government? |
| 12. | What innovative business models for energy efficiency could be developed or are already operating in other countries? How are they helping to overcome barriers to energy efficiency? What more needs to be done to accelerate their development? |

Standardisation of the energy efficiency market

- 4.8. Businesses need to have trust in the market before making decisions to invest in energy efficiency. Evidence shows that currently this is not widespread and, together with energy management being a relatively low priority for many businesses, results in projects taking a long time to be agreed from start of engagement to closing a contract, especially for corporate customers with complex decision making. This limits the capacity of contractors such as ESCOs in the number of projects they can take on given the resources involved.
- 4.9. Standardisation of the market, by establishing harmonised and, where possible, simple practices that allows them to be easily replicable, could make

⁴³ Ofgem, ‘Upgrading our Energy System: Smart Systems and Flexibility Plan’, 2017
<https://www.ofgem.gov.uk/publications-and-updates/upgrading-our-energy-system-smart-systems-and-flexibility-plan>

transactions simpler and cut costs. It could also increase the likelihood of more lenders moving into this market. In the long term, it could also help facilitate energy efficiency being treated as an asset alongside storage and demand side response in a future decentralised electricity system. However, standardisation is challenging given the breadth of technologies available and the heterogeneity of businesses, sectors, and building types, and so a one-size fits all approach is not appropriate.

- 4.10. For example the measurement and verification (M&V) of energy savings, commonly uses the International Performance Measurement and Verification Protocol (IPMVP). This is a key step in contractual mechanisms like energy performance contracts with guaranteed savings. However complying with IMPVP can be complicated and costly and so disproportionate for some projects that are for example single technology or small projects. We are interested in views on whether M&V can be a barrier to implementing projects, given the costs, and whether different standards are needed in some situations.
- 4.11. Industry initiatives already on offer or being developed include:
 - The Investor Confidence Project Europe⁴⁴ - this offers standardised project development, documentation and monitoring, using the IPMVP, for energy efficiency investments. It has introduced third party verification of the documentation to give greater confidence to investors. This approach has been piloted in Europe for buildings and is now on offer in the market. So far this has been taken up by large building energy efficiency projects, for example the Carbon and Energy Fund projects in NHS Trust.
 - QualitEE⁴⁵ - this is an EU Horizon 2020 funded project in development that aims to address the reported lack of trust in the energy services market by developing quality assurance schemes in member states including the UK. The aim is for schemes to be operational by 2020.
 - The De-risking Energy Efficiency Platform (DEEP) - an Energy Efficiency Financial Institutions Group (EEFIG) open-source initiative that allows the improved sharing and transparent analysis of existing projects in buildings and industry⁴⁶. The data can then be used as a reference by businesses and lenders when developing projects.
- 4.12. In 2015, the government has published a model contract and best practise guidance for energy performance contracts in the public sector⁴⁷, although recent evidence suggest that this is not being widely used⁴⁸. We are interested

⁴⁴ Investor Confidence Project webpage, <http://europe.eeperformance.org/>

⁴⁵ QualitEE webpage <https://qualitee.eu/>

⁴⁶ EEFIG, De-risking Energy Efficiency Platform <https://deep.eefig.eu/>

⁴⁷ DECC, 'Energy Performance Contract (EPC) Contract Guidance Note and Model Contract and Guide to Energy Performance Contracting Best Practices', 2015 <https://www.gov.uk/government/publications/energy-performance-contract-epc>

⁴⁸ IPA Advisory Ltd, 'The Non-domestic Energy Efficiency Services Market', 2018 <https://www.gov.uk/government/publications/non-domestic-energy-efficiency-services-market>

in what more could be done to promote initiatives and drive standardisation in the market.

Consultation Question

13.	What more needs to be done to improve standardisation to drive investment in energy efficiency? What role could government usefully have, if any?
14.	Are the costs of M&V a barrier to implementing projects? What could be done to overcome this?

Facilitating aggregation in smaller projects

- 4.13. Lack of scale is a well-recognised barrier to energy efficiency services projects getting external financing. Evidence suggests⁴⁹ that projects need to be a minimum of £1m to attract third party finance, due to the high transaction costs involved in developing an energy efficiency project, as explained in the previous section. There are several ways to achieve scale and reduce transaction costs including standardisation, as set out above, assuming the costs of following a standard process is proportionate to the size of the project. Project development assistance to businesses can also reduce the costs borne by businesses in developing a project, as currently offered by some local bodies, for example the Greater Manchester Business Growth Hub.
- 4.14. Aggregation, by bundling of projects using standardised contracts and ways of calculating savings, could make smaller energy efficiency projects more attractive to suppliers such as ESCOs and other lenders. It could also potentially reduce the cost of technologies through economies of scale. It could particularly benefit lower energy users, for example small and medium sized companies (SMEs).
- 4.15. Aggregation could be done in several ways, for example by lenders offering funding to technology providers which then offer a standard service to their customers, or through local coordination areas such as improvements to a business park. Horizon 2020 has supported the development of technological platforms to match projects to financing through the Sustainable Energy Asset

⁴⁹ IPA Advisory Ltd, 'The Non-domestic Energy Efficiency Services Market', 2018
<https://www.gov.uk/government/publications/non-domestic-energy-efficiency-services-market>

Evaluation and Optimisation Framework Project (SEAF) project, which is available in other countries (see box below).

- 4.16. We would be interested in views on how government could support the development of innovative business models that bundle projects and so cater to smaller businesses. One option that we are considering is funding pilot projects.

Sustainable Energy Asset Evaluation and Optimisation Framework Project

SEAF⁵⁰ was a 2 year project funded by Horizon 2020 to enable investment in small to medium sized projects in energy efficiency through a holistic online platform designed to function across Europe.

SEAF aimed to bridge the finance gap between project developers and investors in the majority of EU member states through the combination of three elements: (1) third-party project valuation by Joule Assets Europe, (2) internationally recognized standardized project protocols by the Investor Confidence Project (ICP), and (3) energy efficiency insurance from HSB Engineering Insurance Ltd. It established the SEAF Investor Network, representing €1.2 billion of potential project finance. The SEAF team also provided assistance with due diligence and additional support to contractors, as needed, throughout the process.

Following completion of the project, it has now launched as eQuad⁵¹.

Consultation Question

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| 15. | Would aggregation help businesses, particularly SMEs, access more services offering energy efficiency and finance? What are the main challenges facing aggregation of energy efficiency? |
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Digital tools and the availability of data

- 4.17. Digitalisation describes the growing application of information and computer technology (ICT) across the economy, including energy systems.⁵² It is estimated that between 2018 and 2040, digitalisation, including smart thermostats and smart lighting, could cut total energy use in residential and
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⁵⁰ Sustainable Energy Asset Evaluation and Optimisation Framework (SEAF) webpage <https://www.seaf-h2020.eu/>

⁵¹ Joule Assets, EQuad webpage <https://www.eu.jouleassets.com/about-equad/>

⁵² International Energy Agency, Digitalization and Energy, 2017 <http://www.iea.org/digital/>

commercial buildings by as much as 10% (this assumes limited rebound effects in consumer energy demand). For example, businesses could make use of smart controls and flexibility when they use energy, to benefit from cheaper rates at off-peak times, as is set out in BEIS' Smart Systems and Flexibility Plan⁵³. We are interested in how this could assist energy efficiency investment decisions.

- 4.18. The previous chapter on “Buildings” looked at how better data can be used to improve understanding of the energy efficiency performance gap in buildings. In this section we are interested in how data and digitalisation can be used to help business to:
- understand their energy use by providing tailored, real time information;
 - manage their energy use; and
 - compare energy use against other businesses, and access information about performance of energy efficiency measures.

Access to data for businesses

- 4.19. There are already some methods and tools available to businesses for understanding their energy use, mainly through their energy bills, smart or advanced meters, or energy performance certificates. However, these methods are often not timely, do not contain sufficient granularity to understand how energy is being used, and are not easily comparable to similar buildings/businesses. Further, it is not easy to separate energy use by landlord and tenant so responsibility for action is not clear.
- 4.20. For large businesses and their corporate groups, audits are required by the Energy Savings Opportunity Scheme (ESOS)⁵⁴. We are also progressing with the new Streamlined Energy and Carbon Reporting Framework, following the consultation which closed in January⁵⁵.

Data Analytics

- 4.21. Energy data analytics services offer a means for businesses to understand and view their energy consumption. They can offer valuable insight about a businesses' management of energy use. These can be used to provide tailored, actionable advice to businesses, which can be particularly useful for those businesses not mandated under ESOS.

⁵³ Ofgem, 'Upgrading our Energy System: Smart Systems and Flexibility Plan', 2017

<https://www.gov.uk/government/publications/upgrading-our-energy-system-smart-systems-and-flexibility-plan>

⁵⁴ BEIS is currently undertaking a comprehensive assessment of the effectiveness of ESOS and considering how to ensure businesses are incentivised to deliver energy efficiency improvements post-audit.

⁵⁵ BEIS, 'Streamlined Energy and Carbon Reporting consultation', 2017

<https://www.gov.uk/government/consultations/streamlined-energy-and-carbon-reporting>

- 4.22. Some energy suppliers⁵⁶ are already offering data analytic tools for their customers using smart meter data that offer different types of services. These range from providing reports, setting comparisons across sites, and targeting setting for example.
- 4.23. Integral to the success of data analytics is the quality of the data being used. Research undertaken by BEIS suggests the lack of granularity of energy data is one of the factors currently limiting businesses from understanding how they are using energy and how they can reduce their use^{57,58}. Sub-meters can provide a detailed breakdown of energy use however they are typically expensive to retrofit, especially for smaller organisations⁵⁹.
- 4.24. Although energy data analytics services are available on the market we understand they are largely being developed for larger and more energy intensive businesses rather than SMEs. BEIS is already supporting the development of innovative and user-friendly tools for smaller non-domestic sites through its Non-Domestic Smart Energy Management Innovation Competition (NDSEMIC)⁶⁰, which is aimed at single site and chain retail and hospitality businesses and schools.

Comparing performance

- 4.25. Increased digitalisation can allow businesses and their landlords to share and compare energy data. For example, accessing data from a large pool of buildings and businesses can create benchmarks of energy use within specific building types or sectors. These benchmarks can be used to compare performance of similar buildings/sectors, raise awareness of the opportunities available and encourage the consumers to take action on energy efficiency. Making the information available can also make building performance more visible in the marketplace, empowering consumers to more easily understand how buildings are performing and reward owners of efficient buildings⁶¹. Benchmarking initiatives have been adopted internationally, particularly in some U.S states (see case study below). Chapter 3 of this call for evidence includes questions on data for measuring building performance.

⁵⁶ Examples of energy supplier data analytic tools are Npower's '[Intelligent Analytics](#)' tool and Eon's '[Energy Toolkit](#)'

⁵⁷ BEIS, 'Forward look: Smart Metering-enabled Innovation in Energy Management in the Non-domestic Sector', 2015
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/397692/Smart_meter_enabled_innovation_for_non_domestic_customers.pdf

⁵⁸ The Green Construction Board, 'Operational Energy Use and the Role of Bigger, Better Data', 2015

⁵⁹ DECC, 'Forward Look: Smart Meter Enabled Innovation in Energy Management in the Non-domestic Sector', 2015
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/397692/Smart_meter_enabled_innovation_for_non_domestic_customers.pdf

⁶⁰ BEIS, 'Non-domestic Smart Energy Management Innovation Competition', 2017
<https://www.gov.uk/government/publications/non-domestic-smart-energy-management-innovation-competition>

⁶¹ The Institute of Market Transformation, 'The Benefits of Benchmarking', 2015
http://www.imt.org/uploads/resources/files/PCC_Benefits_of_Benchmarking.pdf

Case study on Benchmarking in the US

The US commercial property market contains what are referred to as “Benchmarking and transparency policies”⁶². In several states and cities, asset owners are required to disclose the actual energy consumption of buildings. Reporting may be transactional (on rental or sale), or annual, such as in Seattle’s Energy Benchmarking Programme. Surveys have shown good energy savings, consistent uplifts in occupancy, rental values and asset values for more efficient buildings⁶³. The “Energy Star Portfolio Manager”⁶⁴ is a specific tool used for benchmarking commercial buildings energy performance.

- 4.26. We are looking for views on how digitalisation and data analytics can help take up of energy efficiency, particularly for use by SMEs. We are also seeking to understand what benchmarks are already in use in different sectors, or in different countries, and their impact.

Consultation Question

16.	Would digitalisation and data analytics offer opportunities to improve the way businesses manage their energy use and make investment decisions? Please provide any evidence of whether this is already having an impact on the market for energy efficiency.
17.	Would the ability to benchmark against similar businesses in the same sector be an effective means of spurring businesses to take action? Please provide evidence you have from industry initiatives or international examples.
18.	What more could be done to facilitate the availability of better data on energy use for businesses?

⁶² Lawrence Berkeley National Laboratory, ‘Evaluation of U.S. Building Energy Benchmarking and Transparency Programs: Attributes, Impacts, and Best Practices’, 2017
https://emp.lbl.gov/sites/default/files/lbnl_benchmarking_final_050417_0.pdf

⁶³ The Institute of Market Transformation, ‘The Benefits of Benchmarking’, 2015
http://www.imt.org/uploads/resources/files/PCC_Benefits_of_Benchmarking.pdf

⁶⁴ Energy Star Portfolio Manager Webpage <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager>

Stimulating lenders into the energy efficiency market

- 4.27. There are commercial benefits available from improving energy efficiency. The Green Finance Taskforce recognised the opportunity for lenders to develop products that promote investment in improving the energy efficiency of residential and commercial buildings. Tapping into this potential could lead to lenders offering new products, such as energy efficiency loans, mortgages or funds. Lenders may also be motivated to develop this market to reduce the risk of their lending to future stranded assets as energy efficiency standards⁶⁵ are gradually tightened. ESCOs may also act as lenders and offer finance as part of a package to businesses.
- 4.28. A survey of lenders conducted by EEFIG, found that a lack of confidence and quality assurance are prominent issues among energy efficiency investments in the commercial sector. It found the top drivers were increased investor confidence; better measurement; reporting and verification; quality assurance; and availability of data⁶⁶.
- 4.29. There are some existing initiatives that are designed to address these issues. The EEFIG underwriting toolkit, for example, is designed to assist financial institutions to scale up their deployment of capital into energy efficiency. The DEEP database (see standardisation section) also provides online information on energy efficiency investments.

Creation of bespoke products

- 4.30. The high upfront costs of energy efficiency combined with few finance offers are also a barrier for many businesses, though particularly prevalent among SMEs⁶⁷. There are few bespoke energy efficiency lending products on the market or products which recognise the value from energy efficiency offered by commercial lenders (see case study below). Those that are available are for domestic customers or for large investments and so are not applicable for the majority of SME's. SME's can access general business lending such as debt lending and hire purchase, subject to credit checks, which do not take into account the benefits of energy efficiency from reduced energy bills when assessing the loan.

⁶⁵ EEFIG, EEFIG Underwriting Toolkit, <http://www.eefig.com/index.php/underwriting-toolkit>

⁶⁶ EEFIG, 'Energy Efficiency – The First Fuel for the EU Economy – How to Drive New Finance for Energy Efficiency Investments', 2014
<http://www.unepfi.org/fileadmin/documents/EnergyEfficiencyInvestment.pdf>

⁶⁷ Federation for Small Businesses, 'The Price of Power: Energising Small Businesses in the Next UK Carbon Plan', 2017

UK Lenders introducing products targeting sustainability improvements

In the domestic sector, Barclays is offering lower interest rates for some mortgage products on new build homes with an A or B energy performance certificate rating⁶⁸. Barclays has also introduced products to support corporate customers improve their sustainability including Green Asset Finance product and Green Loans offering financing for projects worth £3m upwards⁶⁹.

Lloyds' Green Lending Initiative offers lower interest rates to large scale investments in commercial real estate which meet green covenants which can include making energy efficiency improvements.⁷⁰

The Green Investment Group's Energy Solutions offers businesses and public sector clients who are developing large scale projects a package of support including investment⁷¹.

- 4.31. Some have called for public funding to support energy efficiency and blend with private sector finance. EEFIG⁷² recommended risk-sharing facilities would help reduce the risk of transactions which arise from factors such as uncertainty around energy efficiency asset performance. For example, other countries including Germany offer guarantees to incentivise lenders to offer bespoke products.⁷³ New financial products could be piloted so that lenders could develop an evidence base on loan performance and understand the extent of consumer demand.
- 4.32. Alternatively, lenders such as banks could look to partner with ESCOs as a potential route to market, particularly as SMEs have been increasingly reluctant to access external finance (13% of SMEs in 2016 and 2017)⁷⁴. This could add

⁶⁸ Barclays, Green Home Mortgages Webpage <https://www.barclays.co.uk/mortgages/green-home-mortgage/>

⁶⁹ Barclays, Green Loans Webpage <https://www.barclayscorporate.com/products-and-solutions/financing/corporate-lending/green-loans.html>

⁷⁰ Better Building Partnership, 'Beyond Risk Management: How sustainability is driving innovation in commercial real estate finance' Webpage http://www.betterbuildingspartnership.co.uk/beyond-risk-management-how-sustainability-driving-innovation-commercial-real-estate-finance_sustainability-driving-innovation-commercial-real-estate-finance

⁷¹ Green Investment Group Webpage <http://greeninvestmentgroup.com/investment-sectors/energy-solutions/>

⁷² EEFIG, 'Energy Efficiency – The First Fuel for the EU Economy – How to Drive New Finance for Energy Efficiency Investments', 2014
<http://www.unepfi.org/fileadmin/documents/EnergyEfficiencyInvestment.pdf>
<http://ec.europa.eu/energy/sites/ener/files/documents/Final%20Report%20EEFIG%20v%209.1%2024022015%20clean%20FINAL%20sent.pdf>

⁷³ In Germany, KfW offers three different types of loans within its corporate schemes with varying levels of loan guarantee. OECD, 'Climate and Energy Policy in Germany - Mechanisms to Encourage Private Sector Investment/Participation in Low-carbon Development', 2012
<https://www.oecd.org/env/cc/Case%20study%20Germany.pdf>

⁷⁴ BEIS, 'Longitudinal Small Business Survey 2017: SME Employers – Cross-sectional Report, 2018
<https://www.gov.uk/government/statistics/small-business-survey-2017-businesses-with-employees>

further value where SMEs lack the expertise to identify cost effective opportunities and rarely have a good understanding of the availability of financial instruments

- 4.33. We are looking for views on whether uncertainty and lack of confidence in energy efficiency savings are key barriers to the development of energy efficiency lending products, and what the options are to address this.

Consultation Question

19.	Is uncertainty over the realisation of energy efficiency savings a barrier to lenders offering energy efficiency tailored products?
20.	What types of incentive might help de-risk energy efficiency financing and stimulate lenders to provide commercially viable and attractive energy efficiency financing? Do you have evidence of where it has worked in other countries or other sectors? Please provide details.

Green tagging

- 4.34. Green tagging is one way to enable the expansion of financing investments with positive environmental attributes. It refers to a systematic process where banks identify the environmental attributes of their loans and underlying asset collateral. For example, in relation to commercial buildings, lenders could record the EPC rating of the building for which they are providing finance. The Green Finance Taskforce recommended that “UK lenders should work towards promoting awareness and mainstreaming a consideration of green factors into all their mortgage lending decisions”. They emphasised the role of disclosure by banks of their green lending and how green tagging can be used to do this. Some countries have already introduced reporting initiatives (see case study below).
- 4.35. This tagging can enable banks and investors to strengthen the resilience of their loan portfolios by better identifying their exposure to green regulations. For example, this would allow banks to identify commercial buildings in their portfolios with EPC F and G ratings, following introduction of the PRS regulations. This can also unlock opportunities to aggregate and refinance existing loan portfolios to create green loan portfolios. The role that secondary markets can play in bringing energy efficiency to scale is largely untested so far. We are interested in views from lenders on green tagging and disclosing data on their lending portfolio and whether they need access to a greater range of data to enable it.

Case Study

China has introduced standardised mandatory reporting on green loans for its largest banks⁷⁵. Under China's Green Credit Banking Guidelines banks are meant to make sure that environmental assessments have been done for all company lending and that projects financed by loans remain in compliance with environmental laws.

The role of property funds in investing in energy efficient buildings

- 4.36. Commercial property funds could play a role in improving energy efficiency of commercial buildings by investing in energy efficient buildings or requiring improvement of their buildings energy performance. There is evidence that assumes that sustainable buildings can command a higher rental and/or sale value⁷⁶.
- 4.37. The Carbon Trust for example established the Low Carbon Workplace Fund⁷⁷ and has seen an average improvement of the buildings' EPCs from E to B, and targets a profit on cost from developments of 15%.

Consultation Question

21.	What could be done by lenders and the supply chain to “green tag” their portfolios and/or their energy efficiency products and services?
22.	Are lenders and the supply chain already utilising existing datasets (for example the energy performance certificates database) in the development of products and services? If so, is this data sufficient? What more is needed?
23.	Could property fund managers and their investors be encouraged to deliver energy efficiency improvements in their buildings? What are the opportunities and barriers to

⁷⁵ World Bank Group, 'Green Finance: A bottom-up approach to track existing flows', International Finance Corporation, 2016 https://www.ifc.org/wps/wcm/connect/70725d70-b14a-4ffd-8360-cb020258d40a/Green+Finance_Bottom+up+approach_ConsultDraft.pdf?MOD=AJPERES

⁷⁶ IEA, 'Capturing the Multiple Benefits of Energy Efficiency', 2014 https://www.iea.org/media/training/presentations/latinamerica2014/Capturing_the_Multiple_Benefits_of_Energy_Efficiency_2014_Executive_Summary.pdf

⁷⁷ Carbon Trust, Low Carbon Workplace, webpage <https://www.carbontrust.com/client-services/programmes/low-carbon-workplace/>

this model developing?

The Energy Technology List (ETL) and Enhanced Capital Allowances (ECAs)

- 4.38. BEIS' Energy Technology List (ETL) lists around 16,000 products that comprises many of the most energy efficient products on the market. The ETL aims to address information barriers to improve the uptake of energy-efficient plant and machinery; overcome barriers relating to procurement; provide energy efficient information that is verified by product testing; and reduce transaction costs for business and government.
- 4.39. Businesses that invest in technologies on the ETL are entitled to Enhanced Capital Allowances (ECAs). These can be claimed by both profit and loss-making companies. Organisations not paying corporation tax (e.g. charities, public sector) can still use the ETL for the identification of equipment which will have reduced running costs compared to non-compliant products.
- 4.40. The ETL is one of the largest and long-standing policies promoting business energy efficiency and has been running since 2001. We are keen to understand what opportunities there may be to improve the scheme to better serve both manufacturers and end-users. With this in mind, BEIS has recently undertaken research to gain greater insight into the ETL.
- 4.41. Emerging findings from this research suggest:
- Some manufacturers value the ETL as an important tool in promoting products, however there is limited access to product sales data to understand what difference it makes;
 - There is relatively low awareness of the ETL amongst businesses and only around a third of manufacturers who have products listed on the ETL advertise the scheme;
 - There can also be a lack of incentive for supply chains intermediaries, such as architects, designers and outsourced project managers, to use or specify products on the ETL;
 - The use of the ETL seems to be more attractive to large companies, as SMEs generally use other unconditional tax allowances available to them (e.g. Annual Investment Allowance⁷⁸);
 - Searching for and claiming relief on ETL criteria compliant products which, due to the sheer number and product variations available, are not listed on the ETL

⁷⁸ HMRC, Annual Investment Allowance Policy Paper, 2015
<https://www.gov.uk/government/publications/annual-investment-allowance-permanent-increase-to-200000/annual-investment-allowance-permanent-increase-to-200000>

(e.g. Automatic Monitoring and Targeting (AMT) systems, CHP, lighting and pipework insulation products) can be more challenging than for listed products; and

- New products that fall outside pre-existing ETL product categories may not benefit from the scheme, potentially limiting innovation.

4.42. The following consultation questions are based on findings from this research, and we aim to use feedback from this call for evidence to decide on next steps.

Consultation Questions

24.	How can government deliver a step-change in ETL promotion and awareness raising to increase the number and diversity of actively engaged stakeholders, including manufacturers, suppliers, distributors, specifiers, advisers and end-users?
25.	How can BEIS incentivise intermediary stakeholders (e.g. specifiers in the buildings sector) to use the ETL to encourage specification of ETL technologies and drive up take of ECAs claims?
26.	How could the ETL better drive market innovation and better reward new high performing products?

Chapter 5: Small and medium sized enterprises (SMEs)

SMEs represent a significant proportion of business activity in England and we want to improve the provision of information and advice to business

Introduction

- 5.1. There are over 5.7 million businesses in the UK and over 99% are SMEs. They are critical to the economy as they make up three-fifths of the total employment in the private sector and almost half the financial turnover. SMEs are often dynamic, and a source of innovation. For example, the turnover of technology businesses in 'Future Sectors' reached £184 billion in 2016 and growth was 2.6 faster and job growth 5 times faster than the rest of the economy over the past year⁷⁹.
- 5.2. SMEs account for over 50% of business energy use³⁵ and action will be needed to deliver our ambition for improving business energy efficiency. Of the estimated £23bn investment approximately half will be needed to finance energy efficiency improvements in SMEs with associated annual bill savings amounting to approximately half of the estimated £6bn annual bill savings potential⁸⁰.
- 5.3. The Federation of Small Business (FSB) have highlighted energy efficiency as the single best way for smaller businesses to reduce energy bills and have acknowledged the difficulty of persuading small businesses to invest in significant energy performance improvements⁸¹. FSB research shows that many small businesses do not feel empowered to make these savings because of practical constraints, a lack of information and available cash to suitable motivation.

⁷⁹ Tech City UK, Tech Nation 2018.

⁸⁰ BEIS, 'Building Energy Efficiency Survey: 2014-15', November 2016
<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

⁸¹ Federation of Small Business, 'The Price of Power: Energising Small Business in the next UK Carbon Plan', 2017

- 5.4. SMEs are diverse, operating in all sectors and every region. The provision of advice and information is a specific barrier to their members. This diversity means that engaging with SMEs is complex as there is no single route of communication; what will resonate with a medium sized industrial business will be very different from a small shop owner.
- 5.5. Energy use is often less salient for SMEs than for large businesses as SMEs are far more likely to prioritise other activities over energy efficiency. For example, the BEES Report⁸² cites a small shop owner that chose not to install LED lighting due to concerns that it would have a detrimental effect on the 'look and feel' of the shop.

Access to information

- 5.6. In the Clean Growth Strategy (CGS), we committed to exploring how we could improve the provision of information and advice on energy efficiency to help SMEs.
- 5.7. There are a range of sources of information already available to businesses and some specific to SMEs. The majority of SMEs have fewer than 10 employees and many of these operate from their homes and will benefit from policies targeting domestic premises. Most other micro businesses will operate from smaller premises and will benefit from the current smart meter roll out to non-domestic premises. As part of this deployment, energy providers are required to provide advice to micro businesses on energy efficiency.
- 5.8. Information on energy efficiency is also available from Local Authorities, energy companies, trade bodies and other organisations. Many energy providers offer advice on energy efficiency to their small business customer, often responding to the diversity of their customer base and providing advice on a sectoral basis. Some of the trade bodies offer advice on energy efficiency, the Federation of Small Business provides a good example, as it offers an energy service to members which includes advice on energy, a bill checking service, energy procurement advice etc.
- 5.9. There are several established projects at the local level offering free energy audits and advice to locally based SMEs across England, often accompanied by grants to help with the cost of implementing measures. This provides an important service to businesses, who can gain advice from an expert team within their local area. In many cases, the energy efficiency advice service is promoted alongside other locally offered services to support business, offering an important channel to raise awareness of energy efficiency.

⁸² BEIS, 'Building Energy Efficiency Survey', November 2016
<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

Case Study

The Scottish Government provides substantial support to SMEs to encourage the uptake of energy efficiency measures. Their Resource Efficient Scotland programme is a one-stop shop, offering free specialist advice and technical support, on-site visits, online tools, bespoke energy audits and financial assistance. Scottish SMEs also have access to the Green Network for Business for information on low and zero carbon technologies, and opportunities to visit green businesses within their local area. Scottish supply chain businesses can attend awareness-raising networking events, seminars and workshops to prepare them to effectively participate in the supply chain for energy efficiency and renewables installations.

Consultation Question

- | | |
|-----|--|
| 27. | What are your views on the availability and quality of information and advice on energy, and its appropriateness for SMEs? |
|-----|--|

Increasing salience

- 5.10. BEES⁸³ identified the low priority that SMEs placed on deployment of energy efficiency and discussions with SMEs has also confirmed that many SMEs do not consider that energy efficiency is a high priority for their business. This suggests we might need to tackle more fundamental issues around awareness, and how to bring energy efficiency to the attention of the key decision makers in SMEs and take steps to make it relevant at key points in their business cycle.
- 5.11. The rollout of smart metering offers an opportunity to engage SMEs and other small organisations (such as schools). Our research⁸⁴ has shown that smart meter data has the potential to prompt organisations into taking action, provided they know how to interpret it and cost-effective solutions are available. The NDSEMIC⁸⁵ competition builds on this evidence, by funding a series of nine projects⁸⁶ which will develop new and intuitive solutions to turn energy data into

⁸³ BEIS, 'Building Energy Efficiency Survey', November 2016

<https://www.gov.uk/government/publications/building-energy-efficiency-survey-bees>

⁸⁴ BEIS, 'Smart Metering in Non-domestic Premises: Early Research findings', 2017

<https://www.gov.uk/government/publications/smart-metering-in-non-domestic-premises-early-research-findings>

⁸⁵ Ibid

⁸⁶ BEIS, NDSEMIC Phase 1 Projects

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/716654/180503_NDSEMIC_phase_1_project_summaries_REP_v03a_rq.pdf

energy saving actions; pilot them using packages of support tailored for the target sectors (retail, hospitality and schools); and take them to the market.

- 5.12. We recognise that SMEs operate in a complex and fast-moving environment so look to a range of trusted partners for advice and help. These existing relationships may offer an effective route to engage with SMEs on energy efficiency. The following are organisations who engage regularly with SMEs through their day to day business.

Local authorities/LEPS

- 5.13. Businesses engage with their Local Authorities and Local Economic Partnerships (LEPs) for a range of reasons, some of which are mandatory (ranging from business rates and planning) but also to take advantage of their advice services, for example many Local Authorities offer advice to small businesses and start-ups. Many regions in England offer innovation grants and business support targeting SMEs operating in their region (see case study from Durham County Council's Business Energy Efficiency Project below).

Case Study

Durham County Council's Business Energy Efficiency Project (BEEP) supports SMEs across County Durham generate financial and greenhouse gas savings. BEEP provides SMEs with a fully (zero cost to the SME) in-depth energy audit which includes using smart monitoring equipment and data analysis to provide informed recommendations as to the most cost-effective energy investments available. SMEs that undertake an audit may be offered a grant fund which can be used to support the purchase of energy efficiency equipment.

Trade bodies

- 5.14. Trade bodies are trusted by their membership and offer advice on a range of sector specific issues. A sector specific approach to energy efficiency might be more closely directed towards how energy is used in that sector, increasing the relevance, and providing opportunities for benchmarking. We would like to understand the range of advice and potential role that trade bodies could play in engaging with their memberships on energy efficiency.

Business to business

- 5.15. Many large companies in the UK have valuable experience of implementing energy efficiency including through their involvement in the Energy Savings Opportunity Scheme (ESOS) and Enhanced Capital Allowance (ECAs). We would like to understand what larger companies have done to encourage their business partners and supply chain to implement energy efficiency measures;

whether there are examples of large companies providing advice or having shared the results of their own experiences.

Energy suppliers

- 5.16. SMEs largely engage with their energy suppliers through fixed-term, fixed-price contracts at time of contract renewal. We are interested in understanding what advice energy suppliers give their customers at this point, and subsequently through the contractual period, and its impact and effectiveness.

Case Study

Scottish Power have teamed with Carbon Trust to create an online energy efficiency toolkit for their business customers. Once information about energy use, such as heating source, lighting type is input by the business, it will receive sector specific energy efficiency recommendations.⁸⁷

Financial providers

- 5.17. The previous chapter outlined the potential role for banks set out by the Green Financial Task Force. In line with this, we are interested in your views on the potential of banks to link advice on energy efficiency to their commercial offer to SMEs.

Case Study

NatWest offer their business customers the opportunity to sign up to the Independent Energy Saving Audit Scheme. Business customers are helped to access independent energy management companies for an energy audit designed to identify potential savings as if the customer agrees, implement energy efficiency measures.

Consultation Question

28. How do you think SMEs could be encouraged to take action on energy efficiency?
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⁸⁷ Scottish Power, Energy Efficiency Toolkit webpage <https://www.scottishpower.co.uk/small-business/saving-energy/energy-efficiency-toolkit/>

29.	To what extent are large businesses able to influence the energy efficiency performance of their supply chain? Please provide examples of where this is working well.
30.	What advice from trusted partners (e.g. banks, trade bodies etc) is available to SMEs on energy efficiency? Please provide examples of where this is working well.

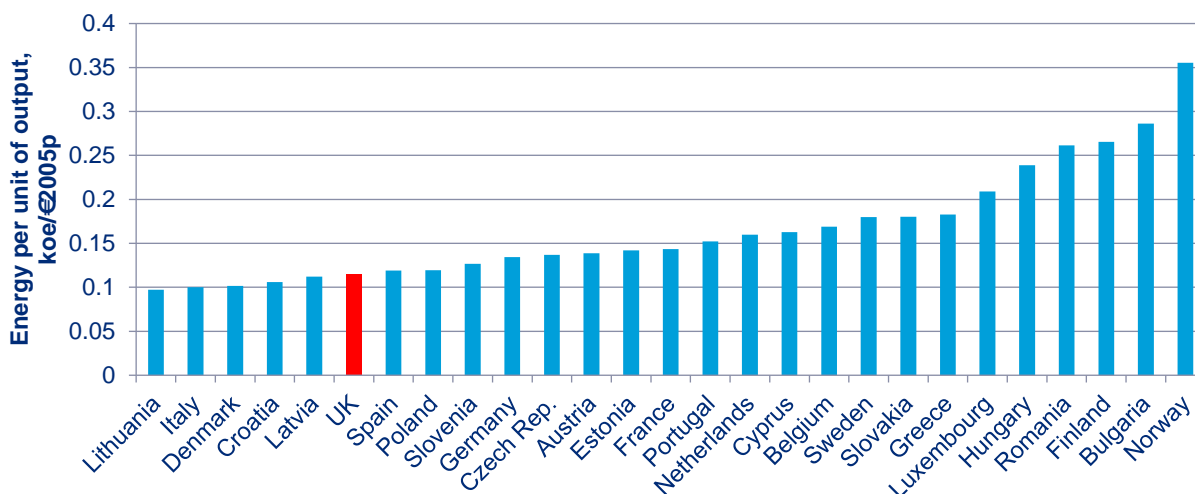
Chapter 6: Improving Energy Efficiency of Industrial Processes

More energy efficient industrial processes will help manufacturing firms to reduce costs, cut carbon emissions and improve competitiveness.

Introduction

- 6.1. Industrial processes comprise a large part of energy expenditure for the manufacturing sector. Industry spends approximately £9.7bn a year on industrial processes with heat processes making up almost **40%** of bills ~**£4bn**⁸⁸.
- 6.2. UK manufacturing has amongst the lowest energy intensity in Europe per unit of output.

Chart 5 Manufacturing energy consumption per unit of GVA: 2015⁸⁹



Source: ODYSSEE European energy efficiency indicators project 2015

⁸⁸ Business Energy Statistical Summary, July 2018

⁸⁹ Countries have been compared using purchasing power parity (PPP). It is an alternative to using market exchange rates. The purchasing power of a currency refers to the quantity of the currency needed to purchase a given unit of a good, or common basket of goods and services.

- 6.3. Despite this good relative starting point, further progress is required to enable the UK to meet our 20% ambition. Industrial energy efficiency also has strong links to the Industrial Strategy given the importance of energy efficiency in driving productivity and competitiveness, in particular in energy intensive industries. In addition, the 2017 Made Smarter Review suggested that future digitisation / automation of manufacturing processes could produce radical improvements in cost efficiency.

Current policies

- 6.4. The government is already doing a lot to support industry to cut their energy use and their bills, and to keep costs as low as possible for them over the coming decades. The government has delivered a number of targeted schemes to encourage energy efficiency in business and industry. These include:
- The Climate Change Agreements scheme, which allows energy intensive participants to pay significantly reduced rates of Climate Change Levy – a tax on the supply of energy - in exchange for signing up to energy efficiency or carbon reduction targets agreed with government. The current phase of the scheme has been in place since 2013 and covers 53 energy intensive sectors who have energy and/or carbon reduction targets until the end of 2020, which if delivered will allow them to benefit from reduced CCL worth an estimated £200-300m a year⁹⁰ until the end of March 2023.
 - The Energy Savings Opportunity Scheme (ESOS), a mandatory energy assessment scheme. Organisations that qualify for ESOS must carry out an energy audit at least every 4 years, unless their energy consumption is fully covered by an energy management system certified as in compliance with ISO 50001, a Display Energy Certificate or a Green Deal Assessment.
 - The CRC Energy Efficiency Scheme, a mandatory emissions trading scheme covering 2,000 large users of energy across the business and public sector. CRC uses three drivers: information, reputation – organisations' aggregated emissions data are published annually; and, financial – organisations must buy allowances for the emissions from their energy use. The scheme works alongside the European Union Emission Trading System.
 - A new and streamlined energy and carbon reporting (SECR) framework to make it easier for businesses to identify where they can save energy. This follows the announcement of the Government's decision to close the CRC scheme after the 2018/2019 CRC compliance year and the end of the current phase. The price signal from the CRC will be absorbed into the Climate Change Levy. Government has published the consultation response which

⁹⁰ Analysis of Climate Change Levy and Climate Change Agreement data

confirms the CRC Scheme will close after the current phase and the SECR framework will come into force from April 2019.

- A new £18m Industrial Heat Recovery Support (IHRS) programme to recover and use heat from industrial processes that would otherwise be wasted. The programme aims to:
 - overcome barriers to help increase the deployment of industrial heat recovery technologies; and
 - boost industry confidence in identifying and investing in heat recovery opportunities.

The IHRS Programme, which will open for applications in Autumn 2018 has the potential to reduce total industrial energy bills by over £500m over its lifetime. IHRS will lead to more efficient and productive use of industrial energy, lower fuel bills for industry and a reduction in carbon emissions. Our analysis suggests that 5 TWh/yr of commercially viable industrial heat could have been recovered from industrial processes in 2014 from eight key energy intensive sectors, having the potential to save up to 1.75 MtCO_{2e} per year by 2050⁹¹.

- A £9.2 million Industrial Energy Efficiency Accelerator (IEEA), which aims to lower the cost of near-market energy efficient technologies for a range of industrial sectors through demonstration projects. Open to all UK manufacturing sectors, the IEEA is a technology neutral competition, targeting innovations that can have the largest cross-sectoral impact on energy and carbon reduction. The programme will target partnerships between developers of energy efficient technologies and industrial companies willing to test these technologies on-site. This will allow promising innovators to demonstrate technology in an operational environment, while providing forward-looking industrial companies with an opportunity to implement pioneering technologies at reduced risk and capital cost.

6.5. In addition to the above interventions, the government also published the Industrial Decarbonisation and Energy Efficiency Roadmap Action Plans in October 2017 alongside the CGS. As part of the Industrial Strategy, the government has put in place sector deals and the Industrial Strategy Challenge Fund to stimulate innovation in industry and build on the 2050 Decarbonisation Action Plans.

Potential future interventions

6.6. We have started the evaluation of the existing Climate Change Agreements Scheme to understand the effectiveness of the current scheme to inform decision on any potential future similar scheme.

⁹¹ BEIS, Industrial Heat Recovery Programme, Programme design and evidence collection, October 2017

- 6.7. We are considering how best to deliver the government's commitment to an Industrial Energy Efficiency Scheme (IEES), that is effective and appropriately targeted.
- 6.8. We also sought the views of industry, businesses, academics and consumer groups on Professor Helm's review of the cost of energy, and are carefully assessing the findings, including the evidence on high electricity prices, We are currently considering how any further intervention could make the most impact and complement the significant existing support set out above. This is a complex area and there are a variety of scales and types of organisation across industry. We are therefore looking at where an IEES could add most value for any government intervention.
- 6.9. We are already taking steps through the CCA evaluation and further research on ESOS, audits and reporting to improve it.

Consultation Question

31.	What more can be done? What are the key barriers for industry (and how do they compare to those in wider businesses)?
32.	What further energy efficiency potential is there in the diverse light industry sector? Please provide specific evidence and examples.

Catalogue of call for evidence questions

Vision

1.	What do you see as the key developments and trends that will impact on the energy efficiency market over next 10 years?
2.	What are your views on the level of ambition and how we could measure our progress?
3.	What other measures and energy efficiency potential might be available to businesses to reduce energy demand?

Buildings

4.	What evidence do you have on how increasing building standards could drive improved energy efficiency, or how energy efficiency improvements in buildings have resulted in wider benefits? Is there any evidence that increasing building standards would not drive improved energy efficiency?
5.	Are there certain sectors that might respond to different approaches and what might they be?
6.	What level of minimum standards and supporting trajectories could work for the wide range of business buildings? What are the key risks?
7.	We would welcome your further views on how we can address the challenges of moving to higher building standards across the diversity of businesses and their buildings?
8.	What type of data is important to you for measuring operational energy ratings of business buildings to help support or drive any future minimum standards?

9.	What evidence is there to support the effective use of voluntary standards within the UK? What opportunities exist for expanding voluntary standards?
10.	How can government support more widespread voluntary standards and other mechanisms including green leases? What are the barriers to development of such standards and products?

Market Building

11.	How can the barriers to the development of the energy services market be overcome? Does this differ between sectors? Is there a role for government?
12.	What innovative business models for energy efficiency could be developed or are already operating in other countries? How are they are helping to overcome barriers to energy efficiency? What more needs to be done to accelerate their development?
13.	What more needs to be done to improve standardisation to drive investment in energy efficiency? What role could government usefully have, if any?
14.	Are the costs of M&V a barrier to implementing projects? What could be done to overcome this?
15.	Would aggregation help businesses, particularly SMEs, access more services offering energy efficiency and finance? What are the main challenges facing aggregation of energy efficiency?
16.	Would digitalisation and data analytics offer opportunities to improve the way businesses manage their energy use and make investment decisions? Please provide any evidence of whether this is already having an impact on the market for energy efficiency.
17.	Would the ability to benchmark against similar businesses in the same sector be an effective means of spurring businesses to take action? Please provide evidence you have from industry initiatives or international examples.
18.	What more could be done to facilitate the availability of better data on energy use

	for businesses?
19.	Is uncertainty over the realisation of energy efficiency savings a barrier to lenders offering energy efficiency tailored products?
20.	What types of incentive might help de-risk energy efficiency financing and stimulate lenders to provide commercially viable and attractive energy efficiency financing? Do you have evidence of where it has worked in other countries or other sectors? Please provide details.
21.	What could be done by lenders and the supply chain to “green tag” their portfolios and/or their energy efficiency products and services?
22.	Are lenders and the supply chain already utilising existing datasets (for example the energy performance certificate database) in the development of products and services? If so, is this data sufficient? What more is needed?
23.	Could property fund managers and their investors be encouraged to deliver energy efficiency in their buildings? What are the opportunities and barriers to this model developing?
24.	How can government deliver a step-change in ETL promotion and awareness raising to increase the number and diversity of actively engaged stakeholders, including manufacturers, suppliers, distributors, specifiers, advisers and end-users?
25.	How can BEIS incentivise intermediary stakeholders (e.g. specifiers in the buildings sector) to use the ETL to encourage specification of ETL technologies and drive up take of ECAs claims?
26.	How could the ETL better drive market innovation and better reward new high performing products?

SMEs

27.	What are your views on the availability and quality of information and advice on energy, and its appropriateness for SMEs?
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28.	How do you think SMEs could be encouraged to take action on energy efficiency?
29.	To what extent are large companies able to influence the energy efficiency performance of their supply chain? Please provide examples of where this is working well.
30.	What advice from trusted partners (e.g. banks, trade bodies etc) is available to SMEs on energy efficiency? Please provide examples of where this is working well.

Industrial processes

31.	What more can be done? What are the key barriers for industry (and how do they compare to those in wider businesses)?
32.	What further energy efficiency potential is there in the diverse light industry sector? Please provide specific evidence and examples.



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