



Department for
Business, Energy
& Industrial Strategy

DESIGNING THE INDUSTRIAL ENERGY TRANSFORMATION FUND

Informal consultation

Closing date: 31 May 2019

March 2019



OGL

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

Executive summary

Our modern Industrial Strategy is a long-term plan to boost the productivity of the UK economy. An important part of our approach is putting the UK at the forefront of tackling four global Grand Challenges where we can build on our strengths and lead the industries of the future. One of these Grand Challenges is maximising the advantages for UK industry from the global shift to clean growth.

Moving to a low carbon economy and cutting energy use is vital both to saving households and businesses money on their energy costs and to reducing carbon emissions. Whole new industries will be created and existing industries transformed as we move towards a low carbon, more resource-efficient economy.

The Industrial Energy Transformation Fund (IETF) was announced in the autumn Budget in 2018. The Fund will support businesses with high energy use, such as energy intensive industries, to transition to a low carbon future. It will help companies cut their energy bills and carbon emissions through investing in energy efficiency and low-carbon technologies. The IETF has a UK-wide budget of £315m over five years to 2024.

The Government's current view on the Fund is that it will support both energy efficiency and decarbonisation projects as this will lead to carbon emission reductions and lower energy bills. As well as supporting projects that are ready for deployment, decarbonisation projects in particular may need support at an early stage, therefore we propose to support feasibility and capacity building. To ensure fair assessment, we may have differentiated criteria to assess different types of projects.

The IETF will look to complement the recently announced Industrial Clusters Mission¹ by supporting short-term projects across the UK, while the Clusters focus will be longer-term and place-based. IETF support will provide a proportion of the funding for projects, with the rest match-funded by industry. To maximise value for money, we propose a competitive bidding process.

The IETF is only one part of the Government's support for decarbonising the energy intensive sector. Our Industrial Clusters Mission will deliver on our Grand Challenge ambitions, set out a new Carbon Capture Use and Storage action plan and commit to investing up to £170m in industrial decarbonisation through the Industrial Strategy Challenge Fund. The IETF is a vital part of transforming industrial energy use, reducing business energy costs, and seizing the opportunities of clean growth, it is at the heart of our modern Industrial Strategy².

¹ <https://www.gov.uk/government/publications/industrial-strategy-the-grand-challenges/missions>

² <https://www.gov.uk/government/topical-events/the-uks-industrial-strategy>

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General information

Why we are holding an informal consultation

The Government is seeking views on how we design the Fund to maximise its benefits, while ensuring value for money.

Previous stakeholder engagement, such as last year's call for evidence on business and industrial energy efficiency³ and the ongoing 2050 Roadmaps Project⁴, has improved our understanding of the potential for energy efficiency in industry and the barriers to take up. This consultation will help us to understand these issues better for industrial decarbonisation projects.

We invite your views and seek evidence in response to the questions below. Responses will help inform the design of the Fund ahead of a formal consultation later this year.

Details

Issued: 25/03/2019

Respond by: 31/05/2019

Enquiries to:

Industrial Energy Transformation Fund Team
Department for Business, Energy & Industrial Strategy,
2nd Floor, Victoria 2,
1 Victoria Street,
London, SW1H 0ET

Tel: 020 7215 5000

Email: IETF@beis.gov.uk

Consultation reference: Designing the Industrial Energy Transformation Fund

Territorial extent: UK-Wide

³ <https://www.gov.uk/government/consultations/helping-businesses-to-improve-the-way-they-use-energy-call-for-evidence>

⁴ <https://www.gov.uk/government/publications/industrial-decarbonisation-and-energy-efficiency-roadmaps-to-2050>

How to respond

Your response will be 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.

We will also hold stakeholder events during May, to discuss the questions raised in this document. If you would like to be involved, please email IETF@beis.gov.uk

Respond online at: <https://beisgovuk.citizenspace.com/heat/industrial-energy-transformation-fund> or

Email to: IETF@beis.gov.uk

Write to:

Industrial Energy Transformation Fund Team,
Department for Business, Energy & Industrial Strategy,
Victoria 2, 2nd Floor, 1 Victoria Street, London, SW1H 0ET

A response form is available on the GOV.UK consultation page:

<https://www.gov.uk/government/consultations/designing-the-industrial-energy-transformation-fund>

When responding, please state whether you are responding as an individual or representing the views of an organisation.

Confidentiality and data protection

Information you provide in response to this consultation, including personal information, may be disclosed in accordance with UK legislation (the Freedom of Information Act 2000, the Data Protection Act 2018 and the Environmental Information Regulations 2004).

If you want the 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 confidentiality request.

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

Quality assurance

This informal consultation has been carried out in accordance with the government's [consultation principles](#).

If you have any complaints about the way this informal consultation has been conducted, please email: beis.bru@beis.gov.uk.

Government support for energy efficiency and decarbonisation

Industrial sectors are of vital importance for the UK economy. Energy intensive industries employ approximately 1.7 million people, contribute £160 billion in gross value added and export goods and services worth around £320 billion⁵. They often act as the economic engine of regions in which they are situated.

Cutting energy use is a key issue for our industries – both because reducing energy use helps to cut carbon emissions, and because it can help to lower their energy bills. The Government has provided a range of support to businesses in reducing their energy costs, including a package of relief for energy intensive industries worth over £855 million since 2013.

While support for energy bills can provide important assistance to businesses, reducing their overall energy use and carbon emissions is essential for the longer term. Recognising the challenge to decarbonise the UK economy and minimise energy costs, the Government has worked in close partnership with each energy intensive industrial sector to agree decarbonisation and energy efficiency 2050 roadmaps⁶, and action plans that were published alongside the Clean Growth Strategy⁷. The Government recognises there is scope to go further and has also announced several policies summarised in the box below and Table 1.

Energy efficiency – measures that primarily reduce the amount of energy consumed per unit of production, through more effective use of energy, with an example being heat recovery. These are usually implemented with the dual intention of reducing energy bills and also offering a reduction in carbon emissions.

Decarbonisation – measures that primarily reduce the amount of carbon emitted per unit of production, with some examples being fuel switching and Carbon Capture, Use and Storage. Although these may add an additional cost, they can result in greater CO₂ abatement than energy efficiency alone.

The measures in Table 1 show the Government’s commitment to helping industry decarbonise in a sustainable way that allows it to thrive in the low-carbon economy of the future.

CCUS Action Plan

“We are aiming to tackle the commercial challenges facing Carbon Capture, Utilisation and Storage (CCUS) in the UK, working in close partnership with industry.” CCUS is potentially an important technology for decarbonising energy intensive industries (EIs), including iron and steel, cement, chemicals, and oil refining. CCUS could provide 37 per cent of the total abatement potential in EIs by 2050.

Some of these industries produce volumes of emissions from chemical processes, in addition to combustion of fossil fuels, for example, up to 70 per cent of emissions from cement production are from the process of producing cement, rather than from energy use. These emissions cannot be abated by fuel switching or electrification.



⁵ BEIS analysis of ONS Annual Business Survey - <https://www.ons.gov.uk/businessindustryandtrade/business/businessservices/methodologies/annualbusinesssurveyabs>

⁶ <https://www.gov.uk/government/publications/industrial-decarbonisation-and-energy-efficiency-roadmaps-to-2050>

⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf

Table 1: Policies to support energy efficiency and decarbonisation

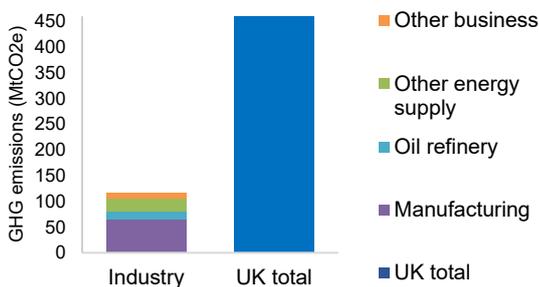
Policy	Summary
Industrial Strategy Clusters Mission	A new Mission under the Industrial Strategy to achieve the world's first net-zero carbon industrial cluster by 2040, backed by £170 million Industrial Strategy Challenge Fund in the near-term.
Industrial Heat Recovery Support (IHRS)	Capital support via the £18 million live Industrial Heat Recovery Support Programme. The IHRS is covering both feasibility studies and preliminary engineering studies (Phase 1) and more detailed design, construction, commissioning and operation costs (Phase 2).
Carbon Capture Use and Storage (CCUS) UK CCUS deployment pathway CCUS Action Plan	<p>Our ambition is that the UK should have the option to deploy CCUS at scale during the 2030s, subject to the costs coming down sufficiently. The UK sees an opportunity to be a global leader on CCUS.</p> <p>Our Action Plan is designed to enable the UK's first CCUS facility to be commissioned from the mid-2020s, as we move to a deployment phase for CCUS and as an important first step to meeting our 2030s ambition.</p>
Energy Innovation Programme (EIP)	We are investing £100m+ through our EIP. The programme is focused on reducing costs and accelerating innovation to market, strengthening UK leadership. It supports Carbon Capture and Utilisation Demonstration and Storage, Hydrogen Supply Competition, Industrial Energy Efficiency Accelerator, industrial fuel switching to low carbon alternatives and Accelerating Carbon Technologies.
Climate Change Agreements Scheme (CCA)	The current CCA Scheme is worth an estimated £200m per year to March 2023 across 53 industrial sectors. An evaluation of the scheme is underway to inform decisions on any future CCA Scheme.
The Industrial Energy Transformation Fund (IETF)	Announced in Budget 2018, the IETF is a new Fund worth up to £315 million to support businesses with high energy use to transition to a low carbon future and to cut their bills through increased energy efficiency.
Energy White Paper	To be published this summer which will set out a new approach to energy policy driving forward measures to reduce costs across the system through a greater role for markets, more agile and flexible regulation, a new framework for strategic intervention and a commitment to ensure that system costs are distributed in a fair way.

Designing the IETF

Why is the IETF needed?

Industry represents a quarter of UK emissions, with around two-thirds of this coming from a small number of Energy Intensive Industry sectors (including cement, iron and steel and the chemical sectors). Achieving our emission reduction targets requires progress to be made across all parts of the UK economy, including (energy intensive) industry.

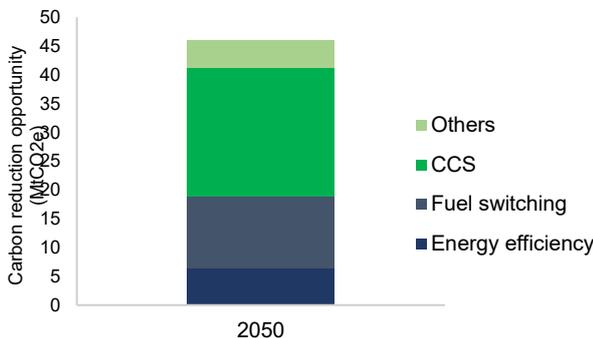
Chart 1: Total industrial source emissions (MtCO₂e, 2017)



Source: BEIS analysis of Greenhouse Gas Emissions National Statistics⁸, excludes electricity emissions.

Our Industrial and Clean Growth Strategies set out that energy efficiency is a vital element of reducing carbon emissions from industry. Our goal is to enable businesses and industry to improve energy efficiency by at least 20 per cent from 2015 by 2030. However, energy efficiency alone will not deliver our 2050 emission reduction targets and as such, deep decarbonisation of industry is needed.

Chart 2: A possible decarbonisation pathway for Industry



Source: Clean Growth Strategy⁹

⁸ <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2017>.

⁹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf.

Opportunities from industrial decarbonisation

The transition to a low carbon economy offers a very important industrial opportunity. The Industrial Strategy sets out the Clean Growth Grand Challenge to put the UK at the forefront of the industries of the future. It seizes leadership opportunities for UK businesses offered by the global low carbon economy¹⁰ while aiming to equip industry better to tackle climate change now and in the future.

The IETF will help UK industry accelerate their efforts to decarbonise while embracing opportunities to lead in the development of a low carbon economy, with associated benefits in terms of jobs, skills, productivity and exports. It will help industrial sectors become more sustainable in the long-term, both economically and environmentally. It will do so by fostering investments in energy efficiency and low-carbon technologies.

What wider benefits could the IETF deliver, such as local growth and low-carbon leadership opportunities?

Challenges to industrial decarbonisation

Decarbonisation is a complex challenge for industry. Many UK businesses operate in a highly competitive international environment with differential carbon costs. Industrial electricity prices are currently higher than those in other European countries¹¹, but the Government is committed to minimising energy costs for businesses¹², to ensure our economy remains strong and competitive.

The IETF will support investment in industrial energy efficiency by helping businesses install measures that will cut their energy use and bills, as well as improving their competitiveness. As such it will support the manifesto commitment for competitive and affordable energy and the Government's response to the Cost of Energy review¹³.

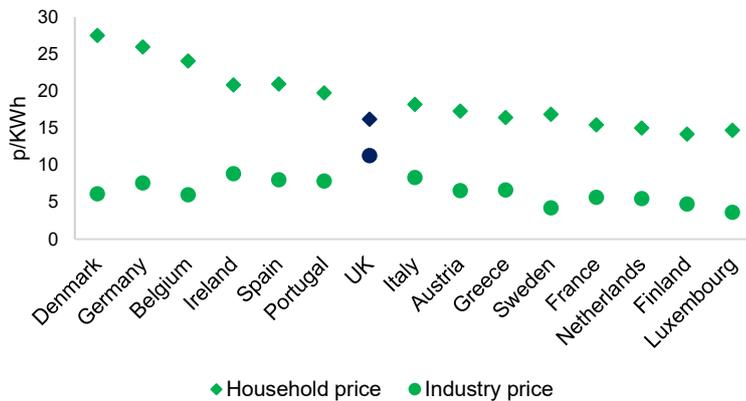
¹⁰ The IEA estimates there will be a global CCUS market worth over £100bn – with even a modest share of this global market, UK GVA could increase to between £5bn and £9bn per year by 2030¹⁰. The IEA reports that global spending in RD&D for low-carbon energy technologies reached \$17.3bn in 2017, while RD&D in non-low carbon fell for the first time under £1bn.

¹¹ Note that industrial users in the UK have some of the lowest gas prices.

¹² <https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future>

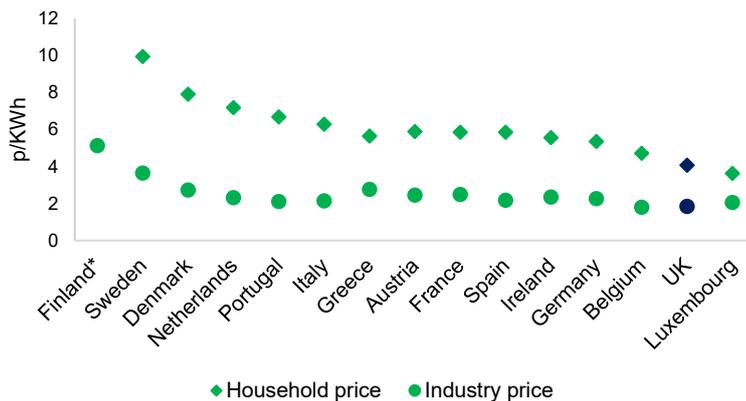
¹³ <https://www.gov.uk/government/publications/cost-of-energy-independent-review>.

Chart 3: Industrial and household electricity prices in selected EU member states in 2018, including taxes¹⁴



Source: BEIS international industrial energy prices¹⁵

Chart 4: Industrial and household gas prices in selected EU member states in 2018, including taxes¹⁶



* Data for household gas prices in Finland are currently unavailable.

Source: BEIS international industrial energy prices¹⁷

Charts 3 and 4 show the household and industrial energy prices across the EU15. Though the UK has the highest industrial electricity prices in the EU15, industrial gas prices are amongst the lowest, second only to Belgium. Furthermore, the UK is also in the lower range of household electricity prices.

¹⁴ Note that the chart is ordered by the median of household and industry prices for each country, this does not imply a weighted-average price for each country.

¹⁵ <https://www.gov.uk/government/statistical-data-sets/international-industrial-energy-prices>.

¹⁶ Note that the chart is ordered by the median of household and industry prices for each country, this does not imply a weighted-average price for each country.

¹⁷ <https://www.gov.uk/government/statistical-data-sets/international-industrial-energy-prices>.

What are the barriers to investment?

For industrial energy efficiency, there are mature technologies across a range of industries ready for deployment. We are aware of potential energy efficiency investments where payback periods are longer than company defined thresholds¹⁸. Due to capital constraints, this means that, although cost effective in the longer term, energy efficiency investment may not go ahead. Chart 2 shows 6 million tonnes of carbon dioxide equivalent (MtCO₂e) of cost-effective abatement opportunities from energy efficiency in 2050.

In comparison, industrial decarbonisation technologies are at different stages of maturity. There are a limited number of mature technologies available for deployment (e.g. small-scale electrification, biomass). Many of the technologies have not yet reached the market readiness stage or are currently too expensive and/or perceived as too risky to reduce carbon emissions in a cost-effective way.

The IETF aims to tackle barriers not addressed by the existing government support for a range of technologies, set out in Table 1.

Table 2: Overview of barriers to investment in industrial energy efficiency and decarbonisation^{19,20}

Barriers to industrial energy efficiency	Barriers to industrial decarbonisation	Common barriers
Payback periods are longer than company defined thresholds	Costs and risks of many technologies are too high	Short investment horizons
Internal competition for corporate finance, including from parts of the firm outside the UK	First-mover disadvantage	Shortage of technical and managerial resources and (perceived) technical and commercial risks to manufacturing process
	High capital costs of (some) projects	Policy uncertainty and carbon price is not yet high enough to enable private investment by its own
	Some technologies impose additional operational costs	Long investment cycles
	Private sector funding typically unavailable	High (international) competition resulting in low profit margins

¹⁸ <https://www.gov.uk/government/publications/industrial-decarbonisation-and-energy-efficiency-roadmaps-to-2050>.

¹⁹ <https://www.eef.org.uk/resources-and-knowledge/research-and-intelligence/industry-reports/investment-monitor-2016-investing-through-brexite>.

²⁰ <https://www.gov.uk/government/publications/industrial-decarbonisation-and-energy-efficiency-roadmaps-to-2050>.

Are these barriers the ones that prevent you from investing in industrial energy efficiency and decarbonisation projects or are there other barriers? If so, what are they?

How would you raise funding for a decarbonisation project? Would you consider third party financing? If not, why not?

What evidence is needed in your organisation in order to make investment decisions, or to spend resources on exploring energy efficiency and industrial decarbonisation projects?

What were the payback periods of some of your recent investments? Are there any additional/alternative quantitative factors that heavily influence your investment decisions? Which of these could be an effective test of additionality for the IETF, and why?

Industrial Heat Recovery Support programme

With up to £18 million in grants from October 2018, the Industrial Heat Recovery Support programme aims to increase the deployment of heat recovery technologies in England and Wales.

Industrial heat recovery is a process by which waste heat is recovered and reused. Waste heat can be reused within the same industrial facility, by another end-user or by converting the waste heat to power. It will allow businesses to save money on their energy bills and reduce carbon emissions.

In February 2019, we awarded Iggesund Paperboard funding to carry out a Feasibility Study and Preliminary Engineering activities for their on-site heat recovery project.



© Iggesund Paperboard Ltd 1

Choices for IETF objectives

The IETF is aiming to support businesses in their transition towards a low carbon future and to cut their bills and emissions through increased energy efficiency. In designing the scheme, we need to consider how best to balance our two objectives.

This could include design features such as differentiated criteria for different types of project, budget or sectoral ring fencing, phasing of the energy efficiency and industrial decarbonisation elements or even creating two separate schemes.

Do you have views on what design features might best support achieving an appropriate balance of both IETF objectives?

How can we best target the IETF to maximise value for money?

For the industrial decarbonisation objective, there is a range of choices in how the IETF could support the transformation of industries in preparation for a low carbon future. This would complement the Industrial Clusters Mission which covers many of the UK's world-leading industries.

In particular, some options for IETF's decarbonisation focus include:

- Near-term carbon emission reductions as IETF covers the next few years while the Industrial Clusters Mission will support long-term decarbonisation;
- Promoting investment in particular technologies:
 - Supporting technologies that are strategically important to long-term emissions reductions such as hydrogen and CCUS;
 - Supporting demonstration at scale of particular technologies (e.g. electric arc furnaces);
 - Mature deployable technologies, such as heat pumps, biomass steam boilers, biomass, combined heat and power;
 - Uptake of low carbon industrial processes, such as low carbon steel or cement production.

Industrial Clusters Mission

"We will establish the world's first net-zero carbon industrial cluster by 2040 and at least one low-carbon cluster by 2030."

This ambition is a world first and will help us to position UK clusters as top areas for global inward investment, boosting the UK economy through place based action and reducing emissions at the same time.



How do you think we should focus the IETF's decarbonisation element? What is your evidence for this view?

Scope of what the IETF supports

Stakeholders have told us they would like us to build on the opportunities generated by Government policies on auditing (Energy Savings Opportunity Scheme), reporting (Streamlined Energy and Carbon Reporting) and energy efficiency (Industrial Heat Recovery Scheme). Moreover, they indicated that there is a need to support feasibility studies and capacity building in order to develop investable business cases.

The IETF has scope to support projects from the feasibility study stage through to deployment, with the overall end-goal being to deliver projects on sites across the UK. As such, support could be given to the feasibility and front-end engineering design stages of projects as part of a multi-phase programme. This could facilitate a pipeline of projects that could be for example internally financed, attract third party finance or supported through the IETF.

What stages of development are most in need of IETF funding, to enable projects to reach deployment?

Are there any additional complementary policies that the Government could consider to maximise the impact of the IETF funding?

Can you provide evidence for the type of support (such as regulation, grants, loans, equity) that could enable industrial decarbonisation projects to go ahead?

Consultation questions

- 1. What wider benefits could the IETF deliver, such as local growth and low-carbon leadership opportunities?**
- 2. Are these barriers the ones that prevent you from investing in industrial energy efficiency and decarbonisation projects or are there other barriers? If so, what are they?**
- 3. How would you raise funding for a decarbonisation project? Would you consider third party financing? If not, why not?**
- 4. What evidence is needed in your organisation in order to make investment decisions, or to spend resources on exploring energy efficiency and industrial decarbonisation projects?**
- 5. What were the payback periods of some of your recent investments? Are there any additional/alternative quantitative factors that heavily influence your investment decisions? Which of these could be an effective test of additionality for the IETF, and why?**
- 6. Do you have views on what design features might best support achieving an appropriate balance of both IETF objectives?**
- 7. How can we best target the IETF to maximise value for money?**
- 8. How do you think we should focus the IETF's decarbonisation element? What is your evidence for this view?**
- 9. Are there any additional complementary policies that the Government could consider to maximise the impact of the IETF funding?**
- 10. What stages of development are most in need of IETF funding, to enable projects to reach deployment?**
- 11. Can you provide evidence for the type of support (such as regulation, grants, loans, equity) that could enable industrial decarbonisation projects to go ahead?**
- 12. Do you have any additional suggestions of how you could engage with us as we design the scheme?**

Next steps

We are committed to ongoing dialogue with stakeholders as we review responses to this consultation, and we will seek feedback through the lifetime of the IETF.

In the coming months, we will conduct extensive stakeholder engagement to inform IETF policy development, including through stakeholder events associated with this consultation, and a further programme of events.

We also plan to launch an exercise to gather detailed information on the potential pipeline of energy efficiency and decarbonisation projects, to inform our analysis and scheme design.

This will be followed by a formal consultation on the detailed scheme design and plans for implementation later this year. We will publish a summary of responses to this informal consultation by this point.

Do you have any additional suggestions of how you could engage with us as we design the scheme?

Action to date and Forward Look

Action to date and Forward Look									
	2017	Summer 2018	Autumn 2018	Winter 2018	Spring 2019	Summer 2019	Autumn 2019	Winter 2019	
Announcements	<ul style="list-style-type: none"> Published Clean Growth Strategy Published Industrial Decarbonisation and Energy Efficiency Action Plans 	<ul style="list-style-type: none"> Published consultation on helping businesses to improve the way they use energy 		<ul style="list-style-type: none"> New Industrial Strategy Clean Growth Mission launched 	<ul style="list-style-type: none"> Call for Evidence on introducing a new Business Energy Efficiency Scheme to help smaller businesses reduce their energy bills and carbon emissions. Announced consultation on accelerating the decarbonisation of our gas supplies 	<ul style="list-style-type: none"> Publish Energy White Paper 			
Heat			<ul style="list-style-type: none"> Industrial Heat Recovery Support (IHRS) programme opens 	<ul style="list-style-type: none"> Published "Heat decarbonisation: overview of current evidence base" 					
£170m ISCF Industrial Decarbonisation Challenge				<ul style="list-style-type: none"> ISCF decarbonisation challenge announced 		<ul style="list-style-type: none"> ISCF decarbonisation challenge opens 			
£315m Industrial Energy Transformation Fund			<ul style="list-style-type: none"> IETF Fund announced 		<ul style="list-style-type: none"> Informal consultation 	<ul style="list-style-type: none"> Market intelligence exercise 	<ul style="list-style-type: none"> Consultation opens 		
Carbon Capture Utilisation and Storage				<ul style="list-style-type: none"> Published "The UK carbon capture, usage and storage (CCUS) deployment pathway: an action plan" 		<ul style="list-style-type: none"> Publish CCUS Investment Framework Consultation 			

This informal consultation is available from: <https://www.gov.uk/government/consultations/designing-the-industrial-energy-transformation-fund>

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