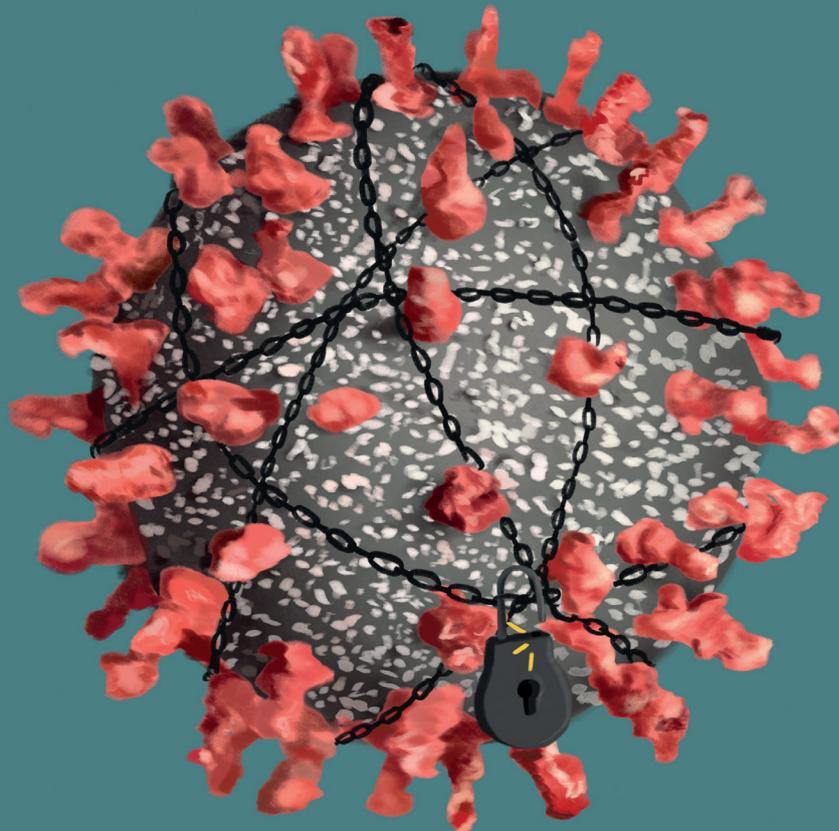


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**Unlocking Flexibility for Net Zero – Dr Paul Troughton, Enel x; Alastair Martin, Flexitricity;  
Mark Bygraves, Elexon**  
**Regulations for Net Zero – Neil Kenward, Ofgem**  
**Recover to Net Zero – Dr Keith Bell, Committee on Climate Change**  
**PGES response to Select Committee for BEIS Super Inquiry**

# ENERGY FOCUS



**unlockedown...**



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The journal of



**PGES**  
All-Party Parliamentary Group  
for Energy Studies



## The All-Party Parliamentary Group for Energy Studies

Established in 1980, the Parliamentary Group for Energy Studies remains the only All-Party Parliamentary Group representing the entire energy industry. PGES aims to advise the Government of the day of the energy issues of the day. The Group's membership is comprised of over 100 parliamentarians, 100 associate bodies from the private, public and charity sectors and a range of individual members.

Published three times a year, Energy Focus records the Group's activities, tracks key energy and environmental developments through parliament, presents articles from leading industry contributors and provides insight into the views and interests of both parliamentarians and officials.

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"Politics is the ability to foretell what is going to happen tomorrow, next week, next month and next year. And to have the ability afterwards to explain why it didn't happen."  
Winston Spencer Churchill

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# CHAIRMAN'S FOREWORD



This is the second edition of *Energy Focus* that comes to you from under lockdown. Although restrictions are being eased, the virus keeps reminding us repeatedly of its presence. CoVid-19 undoubtedly presents a huge social and economic challenge to us all, as I said previously, I suspect that our lives will never be quite the same again. So many new ways of conducting ourselves at work, at home and at leisure that we have adopted will continue for month or years to come.

Parliament will return after the Summer recess, but all business will continue to be conducted at social distance. The number of people circulating in the Palace of Westminster will continue to be restricted, so remote meetings will be our new norm, with little chance of holding our Annual Reception or Dinner.

Parliamentary work continues on the fundamental issue of energy. It is even more important now that we focus on our objective of advising the Government of the day on the energy issues of the day. The delayed CoP26 in Glasgow continues to be a landmark for the UK to demonstrate its leadership in the new industrial revolution and a new Energy Bill is expected this Autumn.

I look forward to hearing from you during the remote period and to seeing you again once we are able to meet in one place together. Personally, I live in hope, as although we are going through some difficult times, to quote Martin Luther King, "*We must accept finite disappointment, but we must never lose infinite hope*".

**Ian Liddell-Grainger MP**

**Chairman**

**All-Party Parliamentary Group for Energy Studies**

# UNLOCKING FLEXIBILITY FOR NET ZERO

## MAY SPEAKER MEETING (BY ZOOM)

### Dr Alastair Martin, CEO, Flexitricity Limited



**The name 'Flexitricity' means flexible electricity. As the energy system has transformed over the company's history, the interpretation of this name has likewise developed.**

#### Origins

Unlike any other commodity, supply and demand for electricity must match one another in real time. This makes the balancing of electricity systems the most critical task in supply security, and a major factor in the economy and environmental performance of the electricity industry.

Flexitricity's approach – using flexibility on the customer side of the electricity industry to balance supply and demand – grew from a recognition that, in large-scale power generation, flexibility and efficiency are often enemies. In fossil power, this is seen in the efficiency penalty associated with running a power station at partial output. In combined cycle gas turbines (CCGTs), per-unit emissions increase by approximately 20% when a station is operated at 50% load.<sup>1</sup> High-efficiency (ultra-supercritical) coal stations have limited ability to follow variations in electricity demand, due to thermal cycling limits of the advanced materials required compared to traditional

coal.<sup>2</sup> Meanwhile, nuclear asset lifetimes are protected by minimising output variations, as shown by the reported £50m cost of turning off one half of Sizewell B during the Covid-19 lockdown.<sup>3</sup>

However, if electricity customers are flexible, large power stations can be more efficient. Since launching live operations in 2008, Flexitricity has used flexible customer demand and small generation to help National Grid keep the lights on, dispatching over 13,000 demand response events from its 24-hour control room in Edinburgh. These have been delivered by cold stores, greenhouses, district heating schemes, hospitals, batteries, chemicals plants, datacentres, commercial buildings and small hydro generators. This virtual power station, now close to 500MW in size, responds to events from quotidian 'trimming' of demand to major events like the blackout on the 9<sup>th</sup> of August 2019. The vast majority of the resources making up this capability today are industrial, commercial or public sector premises.

#### Green revolution

The recent explosion in renewable energy generation surpassed all expectations. The UK's solar resource is now larger than its

<sup>1</sup> Structure and Performance of Six European Wholesale Electricity Markets in 2003, 2004 and 2005, Appendix I. Presented to DG Comp, 26<sup>th</sup> February 2007

<sup>2</sup> Thermie 700 – <https://cordis.europa.eu/project/id/SF.-01001-97>

<sup>3</sup> <https://www.thetimes.co.uk/article/big-is-not-so-beautiful-in-grid-talks-to-power-down-8w0qxbtgg>

nuclear fleet, while wind capacity is likely to exceed that of gas within the next few years.<sup>4</sup> The ambient nature of these resources creates a new balancing task and increases the role of customer-side flexibility. Nevertheless, the need to cater for large-scale events, such as interconnectors or nuclear failures, remains.

Today, customer-side flexibility is required to answer many needs, individually and collectively, and each resource has a different role.

- **Speed** – A green electricity system runs with low inertia, hence large failures must be dealt with very quickly. Flexitricity has deployed batteries, manufacturing load, pumping and wastewater treatment processes in this context.
- **Reliability** – Certain industrial and commercial processes are highly predictable and can be relied upon to offer an interruptibility service. Many such processes also offer high speed. Participants may prefer infrequent interruptions, and are paid mainly for being available.
- **Activity** – District heating, horticulture and pumping can tolerate modulation of their electricity consumption several times a day. The same is true to a varying extent of retail buildings and emerging domestic consumers, such as electric vehicle charging and storage heating. Such resources are suitable for active market trading, including the real-time Balancing Mechanism, where long-term commitments are not required but economic advantage can be gained by accessing rapidly changing electricity prices on an ad-hoc basis.
- **Location** – Some resources can answer specific, local needs, such as distribution network constraints. Others can respond to

north-south wind power flows, or solar power flowing from south west England and south Wales to major conurbations.

- **Green motivation** – Within both business and domestic customer groups is a growing body of consumers wishing to go beyond green certificate schemes (e.g. ROCs, REGOs) as a means of reducing their carbon footprint. Such consumers will, generally with technological help, adapt their consumption to use electricity when it is at its greenest.

We believe that a combination of inherent green motivation and strengthening market forces is able to deliver the flexibility required to achieve net zero.

### Moving to net zero

The net zero target became UK law in June 2019. We will see a net zero update of National Grid's Future Energy Scenarios (FES) this summer, but in the meantime, it is instructive to consider the numbers projected for 80% emissions reduction from 1990 levels.<sup>5</sup>

To a system delivering 300TWh to consumers annually, some 150TWh of new demand in electric vehicles (EVs) and home heating will be added. Wind and solar generation will more than treble to over 300TWh, and nuclear generation will rise by half to over 90TWh. Industrial and commercial demand response capability will multiply by six – but even this does not keep pace with the growing requirement for flexibility.

A smart, flexible power system – one which minimises cost and puts green energy to work – must therefore embrace domestic flexible energy consumption. This is not an obstacle but an opportunity. The near-complete

<sup>4</sup> [https://en.wikipedia.org/wiki/Wind\\_power\\_in\\_the\\_United\\_Kingdom](https://en.wikipedia.org/wiki/Wind_power_in_the_United_Kingdom)

<sup>5</sup> National Grid ESO Future Energy Scenarios 2019, Two Degrees. <http://fes.nationalgrid.com/fes-document/>

electrification of heat and transport is not only an essential part of net zero; it also creates a resource with the capability to balance itself. This is true provided a small number of conditions are met:

1. **Smart** – BEIS has already stated that future domestic EV chargers must be smart; this is equally required in home heating. Smart means able to respond when needed and – crucially – to be rewarded for doing so. The key role of the smart meter is to make customers’ elective responses to price and to green signals visible, so that value can accrue to those customers. Smart meters need not have a role in dispatch.

2. **Customer-centric** – Flexitricity has never seen any place for obligation in flexible electricity. Our experience has been that the customer who is able to opt out rarely does so. In sufficiently large populations, outcomes are reliable. The security of the electricity industry has always been based on this: in the UK, the capacity of electric kettles alone is likely to exceed the highest electricity demand ever seen; a clear demonstration of the power of diversity.<sup>6</sup>

3. **Open markets** – It was to open the Balancing Mechanism and other near-real-time electricity markets to flexible consumers that Flexitricity became a business energy supplier and, more recently, the first to deliver customer flexibility as a Virtual Lead Party under new market rules known as BM Wider Access.<sup>7</sup> BM Wider Access is one of the main routes by which we expect domestic electricity customers to earn value from their flexibility.

4. **Efficiency** – After 12 years of live operations, Flexitricity has never encountered a conflict between energy efficiency and flexibility. Rather, an efficient consumer is a more flexible consumer. For example, it is the relative thermal efficiency of large-scale cold stores that makes them ideal sources of demand response, and the (until recently) relative inefficiency of retail refrigeration that has held back this potential resource.

5. **Consistency** – We do not argue for regulated prices or long-term contracts: given the speed at which technology develops, such mechanisms risk locking in a solution which becomes outdated.<sup>8</sup> Persistence with open markets, a progressive removal of barriers and a consistent forward direction deliver better outcomes.

We do not argue that flexible electricity will provide all of the optionality required for net zero. Some is likely to come from hydrogen, green gas, biomass and carbon sequestration. However, flexibility is the prime low opex, low capex resource. Flexibility in electricity will enable the UK to electrify heat and transport, put green energy to work in British businesses and keep the lights on in a net zero future.

<sup>6</sup> 25m homes in UK; typical kettle 2.5kW to 3kW; cf Digest of UK Energy Statistics, ONS

<sup>7</sup> <https://www.flexitricity.com/blog/another-flexitricity-first-balancing-mechanism/>

<sup>8</sup> Diesel farms in the Capacity Market: <https://www.bbc.co.uk/news/business-35035717>

# UNLOCKING FLEXIBILITY FOR NET ZERO

MAY SPEAKER MEETING (BY ZOOM)

**Mark Bygraves**  
Chief Executive of Elexon



**ELEXON manages the wholesale electricity arrangements in GB, ensuring that all electricity suppliers and generators pay for any imbalances in their electricity demand and generation for every half hour, every day of the year. ELEXON also calculates, collects and distributes payments under the Government's Contracts for Difference and Capacity Market regimes.**

We cannot continue our historic approach of matching electricity generation to customer demand. With fewer controllable assets making up the generation mix and faced with increasing costs for balancing the system including paying renewables not to generate, there is increasing value in flexibility. Similarly, flexible assets can reduce or even avoid network investment as peaks are smoothed and local flexible assets take some of the strain.

That flexibility (the ability to both turn up and turn down, or shift, demand) comprises several emerging technologies, but all require the market arrangements, or commercial rules, to recognise and reward them. At ELEXON, where we are responsible for managing and ensuring compliance with those rules, we are already delivering the necessary changes to enable and sustain flexible assets and work continues to deliver platforms on which these products can be traded and made as widely available as possible.

For the consumer the principle benefits are not a fractional payment for allowing their car battery to discharge to the grid if the need arises or heating their water tank at midnight rather than 7am, but instead avoiding more expensive products to balance the system (the System Operator spent over £280m in Q1 this year on balancing services) or avoiding paying for infrastructure reinforcement (worth an estimated £17-40bn of value for consumers by 2050).

The technologies are arriving, the market arrangements are enabling them and the consumer can achieve these benefits without changing their behaviours as automation takes the place of human intervention. In fact, evidence shows more localised flexible services, often based in the community, are having a positive engagement effect on consumers, raising awareness of energy issues and the goal of achieving net zero.

# UNLOCKING FLEXIBILITY FOR NET ZERO

## MAY SPEAKER MEETING (BY ZOOM)

### Dr Paul Troughton Senior Director, Regulatory Affairs; Enel x



Demand side flexibility - Reducing demand is equivalent to increasing generation

If we can persuade the customer to reduce their demand for a while, then that is just as useful in managing the balance of supply and demand as increasing generation by the same amount for the same period.

However, it can be a lot more cost effective to use the demand-side resource, as it is making additional use of the customer's existing assets, rather than having to build and maintain an additional dedicated generation asset.

It has always been a "no brainer" to use demand-side flexibility. But moreso now, because as we decarbonise, we will need a lot more flexibility, to manage variability in supply as well as in demand.

Doing this without making good use of demand side flexibility would be ruinously expensive.

How much demand side flexibility do you need?

National Grid's projections of industrial & commercial DSR capacity suggest that the more you decarbonise, the more demand-side flexibility they expect to need: To meet the net zero scenario, 13x more than now is needed.

Some customers offer their flexibility through their retail energy supplier. But it is clear from the figures in many markets that this is a minority choice: most of the flexibility is offered independently of the supplier - either by an independent aggregator or (less commonly) directly by the customer.

A possible explanation is that the skill set required to discover and develop flexibility in customers' operations is quite different from that of a retail energy supplier. Specialists do it better.

For this to work, the market needs some mechanism to allow for different parties to be involved with a single customer connection point. Fortunately, this is quite straightforward.

Physically, the customer can reduce their demand for a finite period.

The normal demand would be bought from the supplier as usual, but the demand reduction can be sold as if it were generation. They add up to the same overall demand, but this split allows two different parties to be involved, doing two quite different things.

The wholesale markets are interesting because they are genuine markets, with multiple buyers and sellers making offers and bids and discovering price between them. They also work over a wide range of timeframes, up to the 1-hour gate closure, and they are where much of the value of additional flexibility that is needed is expected to appear. But they currently lack a mechanism to allow flexibility to be offered independently of supply.

A customer can only offer their flexibility in the wholesale markets via their supplier. So there is a lot less demand-side flexibility offered than there could be.

Allowing independent access to wholesale markets - this is a natural extension of the Virtual Lead Party role introduced in P344.

P344 seeks to align the Balancing & Settlement Code (BSC) with the European Balancing Project (TERRE (Trans European Replacement Reserves Exchange) requirements. This will implement the TERRE balancing product with the obligations stemming from the European Electricity Balancing Guide (EB GL).

Most of the hard work has already been done through the P344 wider access modification, or is in being done, through other modifications to introduce submetering and baseline methodologies.

The extra step to apply the same mechanism to the wholesale markets is comparatively simple and will at last allow demand side flexibility to play its part in the road to net zero.

# REGULATING FOR NET ZERO

## JUNE SPEAKER MEETING (BY ZOOM)

### Neil Kenward Director for Strategy and Decarbonisation, Ofgem



**The UK has made good progress to date, especially in decarbonising power. Net zero represents a step change in ambition and challenge.** The UK has reduced its emissions faster than any other major economy and has made significant progress in decarbonising power. With the net zero target, the UK must now accelerate the decarbonisation of other sectors, including heat and transport.

To reach net zero, the UK needs to:

#### POWER

Quadrupling total low carbon generating capacity, adding 6-10 GW/year, mostly wind and solar.  
Double investment to £20 billion pa by 2050.

#### BUILDINGS

Increase low carbon heat from less than 5% of homes to c.90%, c.1 million pa, with annual investment rising to £20 billion by 2050.

#### TRANSPORT

From 230,000 EVs now to 46 million by 2050.

#### NEGATIVE EMISSIONS

Needed at scale, from BECCs (bio-CCS) DACCS (direct air capture) and land use change.

**Decarbonisation presents a range of challenges.** Ofgem has a key role to play enabling decarbonisation at least cost.

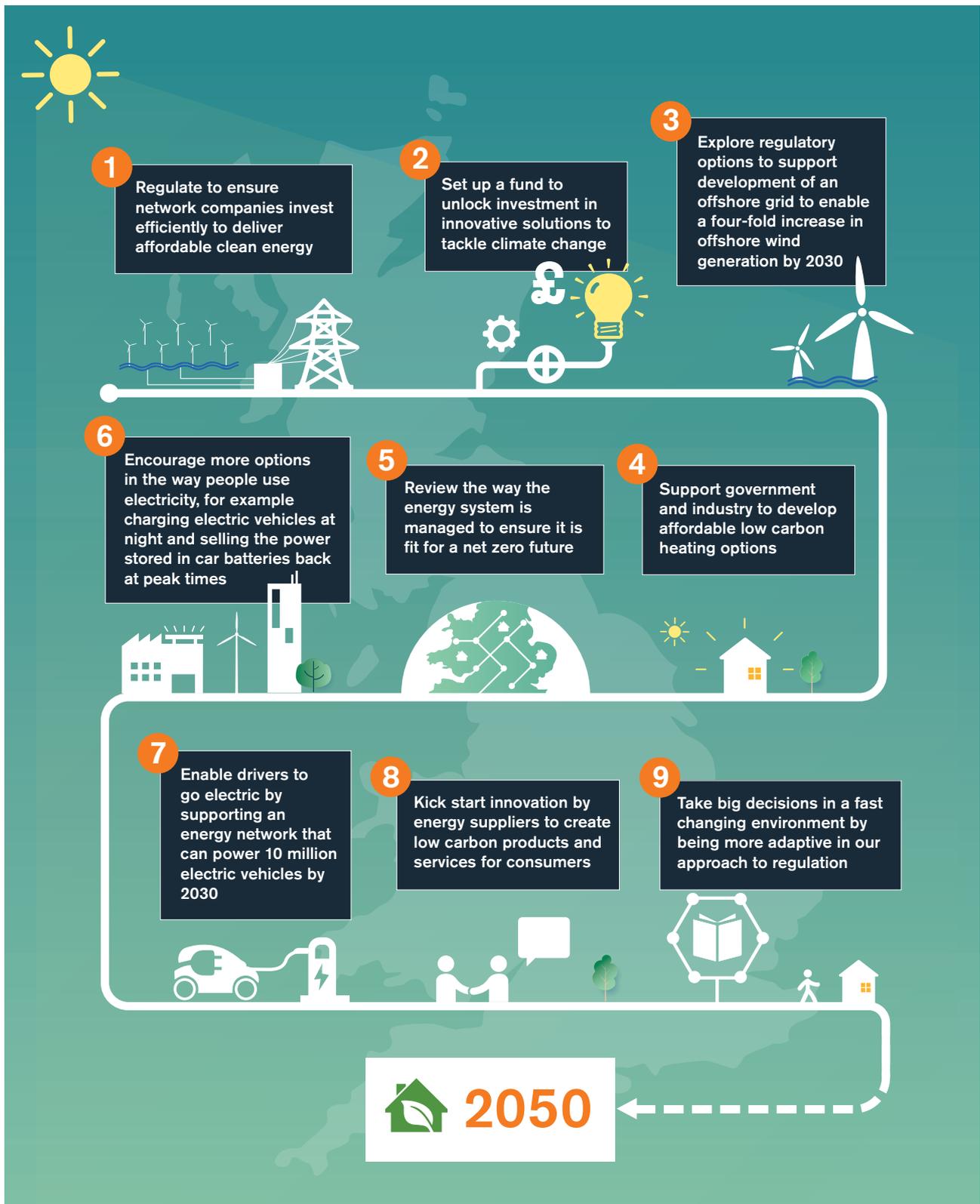
Reaching net zero will require a transformation of the UK's energy sector, which comes with numerous challenges, including:

- sectoral convergence with the electrification of transport and at least some heat.
- massive new investments required.
- a requirement for major market interventions (climate change is a massive market failure).
- rapid change, and uncertainty about which technologies are optimal.
- increased participation by non-energy actors (heat as service, local flexibility markets).

Government sets the direction of policy, including decisions on taxation and public spending. But Ofgem has a key role to play and has made decarbonisation a top priority:

- In July 2019, Ofgem published a **Strategic Narrative**, identifying “*decarbonising at lowest cost*” as one of three core strategic objectives.
- Our **Decarbonisation Action Plan**, published February 2020, set out nine key actions Ofgem is taking to enable the transition to net zero.

# How we'll decarbonise energy to deliver a net zero future at the lowest cost to consumers



Decarbonisation Action Plan

## ENERGY INFRASTRUCTURE

### Network regulation

- Ofgem sets price controls for network companies, and will ensure their investment plans support decarbonisation.

### Supporting offshore wind

- Ofgem is supporting plans to develop an offshore grid, which would connect offshore wind farms: minimising costs, increasing flexibility, and reducing the number of new coastal connections required.

### Managing the system

- The energy system needs to become much more flexible to efficiently enable increased renewable generation. We are increasing flexibility in energy markets, and undertaking a review of how the system is managed by the System Operator (currently National Grid).

## CONSUMERS

### Smart and flexible markets

- Households can save money by using electricity when it is cheaper and more plentiful. For example, smart charging can save drivers money by charging their electric vehicle when electricity prices are cheapest.
- And we are working with the Government and the sector to roll out smart meters.

### Retail markets

- Ofgem supports energy firms to create low carbon products and services for consumers for example by expanding our regulatory 'sandbox' service, and conducting trials on consumer uptake of Time-of-Use tariffs.

### Scheme delivery

- Ofgem also delivers government decarbonisation programmes such as the Renewable Heat Incentive.

### There will be costs, but also opportunities

- In the short term, making the transition to net zero is likely to incur additional costs as new investment is required and new technologies are rolled out.
- Ofgem will work to ensure that the costs of decarbonisation are as low as possible – much of the cost can be gradually recouped from energy bills over decades.
- Net zero is massive challenge but also massive opportunity – getting it right will result in a cleaner, more efficient and user-friendly energy system and create new, sustainable jobs and industries.

# **THE BUSINESS, ENERGY AND INDUSTRIAL STRATEGY (BEIS) COMMITTEE SUPER INQUIRY ON POST-PANDEMIC ECONOMIC GROWTH**

**LAUNCHED 03 JUNE 2020**

**This wide-ranging and ambitious inquiry will look at the options available to Government to secure our economic recovery from the impact of Covid-19; covering investment, industrial strategy, jobs, skills, exports and sustainable growth.**

This over-arching inquiry is likely to run through the Parliament and will include a series of sub-inquiries examining issues such as devolution and the 'levelling-up' agenda, the role Government might play as a shareholder or investor in businesses in the future, and the measures needed to rebuild consumer confidence and stimulate economically and environmentally sustainable growth. Further terms of reference for these sub-inquiries will be published during the course of the Parliament.

## **Chair's comments**

Darren Jones, Chair of the Business, Energy and Industrial Strategy Committee, said:

"We must build a new, modern Britain that has a stronger, more sustainable and more productive economy where every nation and region shares the opportunities created by economic growth. This new super inquiry is wide ranging and illustrates our ambition as a committee to be at the forefront of Parliament's contribution to the future shaping of our country.

"As a Committee, we want to investigate whether the post-pandemic world presents an opportunity for a resetting of the UK economy – from delivering 'green' growth and jobs and levelling up regional economies so that communities and individuals no longer feel left behind, to solving old problems such as poor productivity, declining exports and disorganised devolution and embracing new opportunities to modernise the UK economy.

"The Government has a big job to do in helping businesses survive, stimulating economic growth and encouraging the creation of well-paid meaningful jobs. Levelling up the UK economy and meeting our climate change targets should be at the heart of the Government's economic vision. As a Committee, we will look to the future and see what government, at local, regional and national level, needs to do to help businesses and the economy thrive in the future."

While looking at how to map a path to future growth, the Committee will also explore how the Government can mitigate against the risk of a resurgence of problems that existed before the pandemic, including issues such as inequality, regional imbalances, poor productivity, declining manufacturing and slow progress on delivering net zero.

The Committee is likely to begin evidence hearings at the end of June and, over the course of this super inquiry, will be looking to hear evidence from a wide range of businesses, workers, entrepreneurs, and investment bodies as well as local and national government and institutions. The BEIS Committee is currently undertaking a separate inquiry on the impact of coronavirus on businesses and workers which initially looked at the immediate impact and support offered to workers and businesses during the coronavirus crisis and will continue to keep a close eye on Government policy during the transition from economic emergency to economic recovery.

### Terms of reference

The Committee is inviting initial written submissions for this super inquiry which will focus on the following key questions, covering immediate and longer-term issues:

- **What core/guiding principles should the Government adopt/prioritise in its recovery package, and why?**
- How can the Government borrow and/or invest to help the UK deliver on these principles?
- What measures and support will businesses need to rebuild consumer confidence and stimulate growth that is sustainable, both economically and environmentally?
- **Whether the government should give a higher priority to environmental goals in future support?**
- Whether the Government should prioritise certain sectors within its recovery package, and if so, what criteria should it use when making such decisions? What conditions, if any, should it attach to future support?
- **How can the Government best retain key skills and reskill and upskill the UK workforce to support the recovery and sustainable growth?**
- **Is the Industrial Strategy still a relevant and appropriate vehicle through which to deliver post pandemic growth?**
- How should regional and local government in England, (including the role of powerhouses, LEPs and growth hubs, mayoralities, and councils) be reformed and better equipped to deliver growth locally?
- **What opportunities does this provide to reset the economy to drive forward progress on broader Government priorities, including (but not limited to) Net Zero, the UK outside of the EU and the 'levelling up' agenda? What should the Government do to ensure that delivering on these priorities does not exacerbate the vulnerability of businesses, consumers and communities/workers that have been impacted by COVID-19?**
- What lessons should the Government learn from the pandemic about actions required to improve the UK's resilience to future external shocks (including – but not limited to – health, financial, domestic and global supply chains and climate crises)?
- **What opportunities exist for the UK economy post Brexit and the pandemic for export growth?**
- What role might Government play as a shareholder or investor in businesses post-pandemic and how this should be governed, actioned and held to account?

The closing date for submissions on these initial terms of reference is **Wednesday 15 July**.

Further terms of reference will be published during the course of the Parliament on the various areas the Committee will cover during this inquiry.

# **SELECT COMMITTEE FOR BUSINESS, ENERGY & INDUSTRIAL STRATEGY SUPER INQUIRY**

## **POST-PANDEMIC ECONOMIC GROWTH INQUIRY – SUBMISSION REFERENCE VGD874489**

### **All-party parliamentary group for energy studies (pges) response: Chairman: Ian Liddell-Grainger MP**

The All-Party Parliamentary Group for Energy Studies was established in 1980 to inform the Government of the day of the energy issues of the day. Therefore, we submit straightforward suggestions, with clear benefits of creating a path to net zero and job creation. This response document has been prepared following a remote consultation with our Associate Members in industry and academia.

The time to act is now. Reports in recent days from national and international bodies all see this moment as an opportunity to make a change from the “business as usual” approach.

Immediate measures proposed include:

- 2020 review of Building Regs, Parts L & F. Introduce higher standards for both new build AND ALTERATION OF EXISTING, TO BE APPLIED AT CHANGE OF OCCUPANCY OR USE (impacts house sales and annual rental changes).
- 2020 consider changing the planning regulations for all developments to require them to fit smart meters and install solar panels on all rooves, or justify their omission.
- 2020 increase (or double) tax credit for R&D for carbon/energy reduction developments.
- 2020 bring out the Energy White Paper. Delay just makes effective actions more difficult and drastic.
- 2020 set out milestones for action to achieve Net Zero by 2050. DO NOT specify technologies to achieve it, but goals for industry to meet.
- 2020 (all) government incentives to restart economy should be focussed on activities that have a lower carbon impact than before the pandemic. (Incentives should be “earned”)
- 2020 ensure RHI is extended and focussed on decarbonisation of heat and includes off gas grid buildings.
- 2021 (January, or after Brexit) amend VAT on energy waste reduction (energy efficiency) and building refurbishment measures. At least reduce it to the same VAT rate as on energy, if not to zero.
- 2021 ensure Energy Bill is passed.
- 2021 CoP26

Following consultation with our Members, answers to the specific questions in the Inquiry are offered below. As part of this consultation, we have reviewed and updated PGES Energy Policy Priorities, a copy of which is also attached as Appendix 1.

PGES stands ready to give further evidence to the Select Committee as necessary.

Yours sincerely

Ian Liddell-Grainger MP - Chair

Matthew Gordon - Administrator

## Appendix 1: PGES Energy Policy Priorities for Net Zero

The COVID-19 pandemic led to a rapid change in consumer interaction with energy, some of which will endure. Energy Policy needs a major shift to focus on distributed resources, flexible networks and the consumer, engendering continued behaviour change, transparency, trust and consumer confidence. This will deliver a clean, just recovery, that creates quality employment and helps build a sustainable, inclusive and resilient UK economy.

A clear plan to build back better must be set with ambition, goals and milestones to show an overarching route towards meeting our carbon targets as well as how consumers can impact their own bill.

### 1. Reduce wasted energy (Energy Efficiency)

Demand reduction needs to be separated from fuel poverty. Behavioural change and system end goal need focus. Commercial & Industrial sector is an easy win, ongoing building performance checks needed. Standards for new and existing buildings must drive change in owned and rented premises.

### 2. Heat

Very large energy consumption with key challenges for peak heat demand in winter and certain times of day. Decarbonisation by all means to support carbon targets. Retrospective and progressive Building Regulations needed to improve building stock in both owned and rented sectors, new build and existing.

### 3. Future of gas

Gas will form part of the future energy system, however decarbonisation must begin immediately. Using the existing infrastructure means easy consumer acceptance.

### 4. Market design whole system and operation

The tax system undermines the move to a low carbon future. Policy harmony is required, unlike now when it suppresses important elements. Very important as policy is slower to change than either markets or technology.

### 5. Flexibility

Broad acceptability, essential elements for energy policy. includes demand side response, energy management and storage, smart grid and micro grid, enabling least cost routes to decarbonisation. Storage is not just batteries.

With the interweaving strands being:

#### a) Energy as National Infrastructure

National level approach is vital, but market led solutions must be encouraged. These need different approaches, not one size fits all. Set targets to avoid picking winners. Reward regional initiatives.

#### b) Transport

Bring forward the phase out date of petrol, diesel and hybrid cars to 2030, but the alternative is not just electric vehicles. Focus on decarbonisation to help drive consumer understanding.

#### c) Energy in Brexit

Industry needs clear ambition led by Government for energy, efficiency and interconnecting.

#### d) Fuels

A coherent policy landscape, reflecting the interweaving relationship between fuel sources and uses. All forms of gas, wind (onshore and off), solar, nuclear, (abated) coal used for all forms of heat, light and movement and their interactions with water, food and other demands.

#### e) Investment

Investment finance is available, but UK must show itself to be investable and ambitious, with investment steered by legislation and incentive towards carbon/climate change reducing measures and R&D for these.

PGES would like to see a clear ambitious target set for de-carbonisation and reduction of consumption, with landmarks and milestones, thus giving industry the clear opportunity to innovate to achieve those targets.

# BUILDING A RESILIENT RECOVERY FROM THE COVID-19 CRISIS

## JULY SPEAKER MEETING

By Professor Keith Bell  
Committee on Climate Change  
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COVID-19 has confronted us with a public health crisis at a time when action to adapt to climate change and mitigate the threat of a climate crisis has been increasingly urgent. Choices in the coming months must drive vital new economic activity, accelerate our transition to Net Zero emissions and strengthen our resilience to the impacts of climate change. UK domestic climate action can be the basis for UK international leadership in 2021, as we take on the Presidency of the delayed UN climate summit in Glasgow (COP26), the G7 and the G20.

Reducing greenhouse gas emissions and adapting to climate change must be integral to any recovery package. These remain scientific, economic and social imperatives. Compliance with net-zero legislation, effectively stopping the UK's contribution to global warming by 2050, will only be possible if ambitious steps are taken during this Parliament. However, there are also clear economic, social, and environmental benefits from doing so in both the short and long-term. That will require the near immediate expansion of the following measures:

- investments in low-carbon and climate-resilient infrastructure;
- support for reskilling, retraining and research for a net-zero, climate-resilient economy;
- upgrades to new and existing homes and other buildings to ensure they are fit for the future;
- action to make it easy for people to work remotely and to walk and cycle instead of using cars for short journeys; and
- tree planting, peatland restoration, green spaces and other green infrastructure

More broadly, the Committee on Climate Change (CCC) recommends that the Government prioritises actions according to six principles for a resilient recovery:

**1. Use climate investments to support the economic recovery and jobs.** Our previous work has identified a detailed set of investments to reduce emissions and manage the social, environmental and economic impacts of climate change. Many are labour-intensive, spread geographically across the UK and will have high multiplier effects. Government can act to bring these investments forward, often without direct public funding or by co-financing to accelerate private investment, as part of a targeted and timely stimulus package with lasting, positive impacts.

### **The CCC recommends six principles to build a resilient recovery from Covid-19...**

1. Use climate investments to support the economic recovery and jobs.
2. Lead a shift towards positive long-term behaviours.
3. Tackle the wider 'resilience deficit' on climate change.
4. Embed fairness as a core principle.
5. Ensure the recovery does not 'lock-in' greenhouse gas emissions or increased climate risk.
6. Strengthen incentives to reduce emissions when considering fiscal changes.

### **...and five immediate actions that Governments can take today:**

- Invest in low-carbon and climate-resilient infrastructure.
- Support reskilling, retraining and research for a net-zero, climate-resilient economy.
- Upgrade new and homes and other buildings to ensure they are fit for the future.
- Make it easy for people to work remotely and to walk and cycle instead of using cars for short journeys.
- Plant trees, restore peatland, invest in green spaces and other green infrastructure.

Read the Committee's latest progress report to Parliament.

**2. Lead a shift towards positive long-term behaviours.** There is an opportunity to embed new social norms, especially for travel, that benefit well-being, improve productivity, and reduce emissions. Government can lead the way through its own operations (e.g. encouraging home working and remote medical consultations), through public communications and through infrastructure provision (e.g. prioritising broadband investments over those in the road network, improving safety for cyclists).

**3. Tackle the wider 'resilience deficit' on climate change.** This crisis has emphasised the importance of timely, evidence-led preparations for the key risks facing the country. Comprehensive plans to reduce emissions and to prepare for climate change are not yet in place. Strong policies from across UK, devolved and local government are needed to reduce our vulnerability to the destructive risks of climate change and to avoid a disorderly transition to Net Zero. Business must also play its part, including through full disclosure of climate risks. Plans must be implemented alongside the medium-term response to COVID-19 and will bring benefits to health, well-being and national security.

**4. Embed fairness as a core principle.** The crisis has exacerbated existing inequalities and created new risks to employment in many sectors and regions, placing even greater priority on the fair distribution of policy costs and benefits. The response to the pandemic has disproportionately affected the same lower-income groups and younger people who face the largest long-term impacts of climate change. The benefits of acting on climate change will be huge but must be shared widely, and the costs must not burden those who are least able to pay or whose livelihoods are most at risk as the economy changes. It is important that the lost or threatened jobs of today are replaced by those created by the new, resilient economy.

## **5. Ensure the recovery does not ‘lock-in’ greenhouse gas emissions or increased climate risk.**

It is right that actions are taken to protect jobs and industries in this immediate crisis, but the Government must avoid ‘lock-in’ to higher emissions or increased vulnerability to climate change impacts over the long term. Support for carbon-intensive sectors should be contingent on them taking real and lasting action on climate change, and new investments should be resilient to climate change.

**6. Strengthen incentives to reduce emissions when considering fiscal changes.** Changes in tax policy can aid the transition to net-zero emissions. Many sectors of the UK economy do not currently bear the full costs of emitting greenhouse gases. Revenue could be raised by setting or raising carbon prices for these sectors, and low global oil prices provide an opportunity to offset changes in relative prices without hurting consumers. The UK’s future carbon pricing mechanism should be designed to ensure that an appropriate price for carbon is maintained even in times of external shocks, for example through a well-designed floor price.

The delay of COP26 to November 2021 provides a window of opportunity to address the current policy deficit and establish a credible internationally-leading position in domestic policy:

- The Buildings and Heat Strategy, due later this year, must take low-carbon heating from a niche market in the UK to the dominant form of new heating installation by the early-2030s. It should be supported by a national effort to improve the energy efficiency of UK buildings along with ensuring their safety and comfort as the climate warms.
- The Government’s recently expressed ambitions to change patterns of transport demand and decarbonise surface transport require strong policies to deliver them, especially in the context of protection against COVID-19 and the need to rebuild confidence in public transport.
- The goal to substantially expand supplies of low-carbon power must be accompanied by steps in the Energy White Paper to encourage a resilient and flexible energy system.
- Enduring market mechanisms are needed to drive investment in a much wider set of low-carbon industrial technologies and industrial sectors than the piecemeal schemes announced so far.
- The unique opportunity to reform agricultural support and encourage transformational land-use change will be missed unless the Environment and Agriculture Bills are strengthened. They should be backed by a strategic mechanism to fund tree planting and natural carbon storage at a much larger scale while improving the productivity and resilience of our food supply, strengthening flood protection and protecting biodiversity.
- UK leadership also depends on building resilience to climate change, a resilience which no UK sector has yet demonstrated for even a 2°C rise in global temperature. We will publish our updated assessment of the risks and a review of the UK’s progress in improving its resilience next June, by which time much better plans must be in place.

Our credibility as an international climate leader rests on taking action at home. The pandemic is a sharp reminder that the world’s most challenging crises do not respect borders and require strong collaborative global action. In the coming 18 months, the UK, together with Italy as co-hosts of the COP, can help to steer a positive global response. Our climate programme on both mitigation and adaptation and international leadership is now more important than ever.

# PARLIAMENTARY RECORD

## SELECT COMMITTEE STATEMENTS, REPORTS AND INQUIRIES

23<sup>rd</sup> April 2020 – 22<sup>nd</sup> July 2020

### House of Commons

#### Business, Energy and Industrial Strategy Committee

**Post-pandemic economic growth inquiry.** Opened 3<sup>rd</sup> June 2020.

This Inquiry is open and is receiving written submissions until 1<sup>st</sup> September.

The Post-Pandemic Economic Growth inquiry will look at the options available to Government to secure our economic recovery from the impact of the coronavirus pandemic; covering investment, industrial strategy, jobs, skills, exports and sustainable growth. This inquiry is likely to run through the Parliament

**Post-pandemic economic growth: Industrial Strategy inquiry.** Opened 23<sup>rd</sup> July 2020

The 'levelling up' inquiry will look at how local and regional government structures (including the role of powerhouses, local enterprise partnerships and growth hubs, city and regional mayoralities, and councils) could be reformed or better equipped to deliver growth locally. This Inquiry is open and is receiving written submissions until 1<sup>st</sup> September.

**Post-pandemic economic growth inquiry: Levelling up - local and regional structures and the delivery of economic growth.** Opened 24<sup>th</sup> June 2020

To examine whether the Government's current industrial strategy is fit for purpose, whether it is genuinely strategic, and whether it is focused on the right sectors, issues and policy areas. We want to look at whether the Government's Industrial Strategy is properly designed and implemented to encourage the growth of a more productive, inclusive and sustainable economy which generates wealth, innovation and high-quality jobs. This Inquiry is open and is receiving written submissions until 1<sup>st</sup> September.

#### Science and Technology Committee

##### **The role of technology, research and innovation in the CoVid-19 recovery**

In addition to its health impacts, the COVID-19 pandemic has disrupted economic activity, with the OECD estimating that the initial impact on the UK has been a reduction in GDP of more than 25% since the end of March. Research and innovation activity has been affected, with the Campaign for Science and Engineering reporting financial and logistical difficulties for academic institutes, medical research charities and businesses.

This is particularly important given the ability of research and innovation to drive economic growth as the UK seeks to recover from the pandemic, with UKRI having previously estimated that every £1 spent on research and development delivers £7 in economic and social benefit. This Inquiry is open and is receiving written submissions by Friday 11<sup>th</sup> September.

# PARLIAMENTARY RECORD

## ORAL QUESTIONS 23<sup>rd</sup> April 2020 – 22<sup>nd</sup> July 2020

### HOUSE OF COMMONS

#### Support for

##### Clean Energy Suppliers

Laura Farris (Newbury) (Con)  
4<sup>th</sup> May Column 407

##### Oil and Gas Sector Deal

Andrew Bowie  
(West Aberdeenshire and  
Kincardine)(Con)  
6<sup>th</sup> May Column 552

#### Investment in

##### low carbon infrastructure

Ruth Edwards (Rushcliffe) (Con)  
13<sup>th</sup> May Column 239

#### Global emissions

Philip Dunne (Ludlow) (Con) [V]  
13<sup>th</sup> May Column 243

#### Robust Climate Goals

Caroline Lucas  
(Brighton, Pavilion) (Green) [V]  
13<sup>th</sup> May Column 248

#### Hydrogen Technology

Jacob Young (Redcar) (Con)  
18<sup>th</sup> May Column 368

#### Hydrogen Powered Buses

Daniel Zeichner  
(Cambridge) (Lab)  
18<sup>th</sup> May Column 376

#### Commitment to Climate Change

Gareth Davies  
(Grantham and Stamford) (Con)  
18<sup>th</sup> May Column 365

#### Oil and Gas Industry

Jacob Young (Redcar) (Con)  
20<sup>th</sup> May Column 562

#### Rescheduling of COP26

Barry Gardiner  
(Brent North) (Lab)  
20<sup>th</sup> May Column 561

#### Low Carbon

##### Manufacturing and Research

Mark Fletcher (Bolsover) (Con)  
3<sup>rd</sup> June Column 842

##### Durham University's

##### Transforming Energy

##### Access Initiative

Dehenna Davison  
(Bishop Auckland) (Con)  
10<sup>th</sup> June Column 277

#### Business, Energy and Industrial Strategy – 16<sup>th</sup> June

#### Hydrogen Technology

Ian Paisley  
(North Antrim) (DUP)  
Column 625

#### Climate Change

Virginia Crosbie  
(Ynys Môn) (Con)  
Matthew Pennycook  
(Greenwich and Woolwich) (Lab)  
Column 625

#### Low-carbon Engines

Edward Miliband  
(Doncaster North) (Lab)  
Column 629

#### Topical Questions

Alexander Stafford  
(Rother Valley) (Con)  
Mark Jenkinson  
(Workington) (Con)  
David Mundell  
(Dumfriesshire, Clydesdale  
and Tweeddale) (Con)  
Kenny MacAskill  
(East Lothian) (SNP)  
Column 638 - 643

#### Free trade Agreements: Environmental Protection Standards

Cat Smith  
(Lancaster and Fleetwood) (Lab)  
Stephen Morgan  
(Portsmouth South) (Lab)  
Bill Esterson  
(Sefton Central) (Lab)  
18<sup>th</sup> June Column 925 - 926

#### Investment in Green Aviation Recovery

Dr Philippa Whitford  
(Central Ayrshire) (SNP) [V]  
24<sup>th</sup> June Column 1308

#### Invest in Hydrogen

Ian Paisley  
(North Antrim) (DUP)  
1<sup>st</sup> July Column 325

### **Climate Change Targets and Recovery**

Brendan O’Hara  
(Argyll and Bute) (SNP)  
Patrick Grady  
(Glasgow North) (SNP)  
Gavin Newlands  
(Paisley and Renfrewshire North) (SNP)  
2<sup>nd</sup> July Column 495 - 498

### **Aviation - Decarbonisation**

Henry Smith  
(Crawley) (Con)  
Saqib Bhatti  
(Meriden) (Con)  
2<sup>nd</sup> July Column 502 - 503

### **Hydrogen Vehicles**

Greg Smith  
(Buckingham) (Con)  
George Freeman  
(Mid Norfolk) (Con)  
2<sup>nd</sup> July Column 505

### **Decarbonisation**

Marco Longhi  
(Dudley North) (Con)  
2<sup>nd</sup> July Column 507

### **Promotion of a Green Aviation Recovery**

Dr Philippa Whitford  
(Central Ayrshire) (SNP) [V]  
2<sup>nd</sup> July Column 514

### **House Building and Regeneration: Domestic Supply Chains**

Grahame Morris  
(Easington) (Lab)  
Wes Streeting  
(Ilford North) (Lab)  
7<sup>th</sup> July Column 811 – 812

### **Support for the Oil and Gas Sector**

Andrew Bowie  
(West Aberdeenshire and Kincardine) (Con)  
7<sup>th</sup> July Column 817

### **Hydrogen Infrastructure**

Chris Grayling  
(Epsom and Ewell) (Con)  
7<sup>th</sup> July Column 826

### **Offshore Wind Technology**

Stephen Crabb  
(Preseli Pembrokeshire) (Con)  
8<sup>th</sup> July Column 959

### **Tidal Barrage**

Simon Fell  
(Barrow and Furness) (Con)  
8<sup>th</sup> July Column 969

### **Zero Emission Transport**

Mrs Heather Wheeler  
(South Derbyshire) (Con)  
15<sup>th</sup> July Column 1517

### **Nuclear Power Generation Facilities in Cumbria**

John Stevenson (Carlisle) (Con)  
15<sup>th</sup> July Column 1518

### **Planning reforms – Environmental Standards**

Ruth Cadbury  
(Brentford and Isleworth) (Lab)  
20<sup>th</sup> July Column 1823

### **Covid-19: Green Economic Recovery**

Tom Randall  
(Gedling) (Con)  
Janet Daby  
(Lewisham East) (Lab)  
Rachael Maskell  
(York Central) (Lab/Co-op)  
Tonia Antoniazzi  
(Gower) (Lab)  
Dr Alan Whitehead  
(Southampton, Test) (Lab)  
21<sup>st</sup> July Column 1985 – 1987

### **Oil and Gas sector Deal**

Stephen Flynn  
(Aberdeen South) (SNP)  
21<sup>st</sup> July Column 1988

### **Research and Development**

Daniel Zeichner  
(Cambridge) (Lab)  
21<sup>st</sup> July Column 1991

### **Offshore Wind Hub**

Paul Howell  
(Sedgefield) (Con)  
21<sup>st</sup> July Column 1994

# PARLIAMENTARY RECORD

## LEGISLATION 23<sup>rd</sup> April 2020 – 22<sup>nd</sup> July 2020

### **Clean Air (Human Rights) Bill**

A Bill to establish the right to breathe clean air; to require the Secretary of State to achieve and maintain clean air in England and Wales. A Private Members' Bill (Starting in the House of Lords) sponsored by Baroness Jones of Moulsecoomb. First reading was on 13<sup>th</sup> January 2020, second reading is yet to be scheduled.

### **Decarbonisation of Road Transport (Audit) Bill 2019-21**

A Bill to make provision for independent audits of the costs and benefits of the decarbonisation of road transport, and of the regulation of the sale and production of petrol, diesel and hybrid cars. This is a Private Members' Bill and was presented to Parliament on 10<sup>th</sup> February 2020 by Sir Christopher Chope MP.

### **Decarbonisation and Economic Strategy Bill 2019-21**

A Bill to place duties on the Secretary of State to decarbonise the United Kingdom economy and to reverse inequality; and for connected purposes. This is a Private Members' Bill and was presented to Parliament on 7<sup>th</sup> July 2020 by Caroline Lucas MP. The next stage for this Bill, Second reading, is scheduled to take place on 23<sup>rd</sup> October 2020.

### **Domestic Energy (Value Added Tax) Bill**

A Bill to reduce Value Added Tax on domestic energy bills; and for connected purposes. This is a Private Members' Bill and was presented to Parliament on 10<sup>th</sup> February 2020 by Sir Christopher Chope MP. The next stage for this Bill, Second reading, is scheduled to take place on 27<sup>th</sup> November 2020.

### **Domestic Premises**

### **(Minimum Energy Performance) Bill (Nos. 1 & 2)**

A Bill to require the Secretary of State to ensure that domestic properties have a minimum energy performance rating of C on an Energy Performance Certificate; to make provision regarding performance and insulation of new heating systems in existing properties; and for connected purposes.

Originally presented by Sir David Amess in the previous Parliament, this was presented in the House of Lords by Lord Foster of Bath. 2<sup>nd</sup> reading took place on 7<sup>th</sup> February. Committee stage, line by line examination of the Bill is yet to be scheduled.

### **Environment Bill (2019-21)**

A Bill to make provision about targets, plans and policies for improving the natural environment; for statements and reports about environmental protection; for the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet environmental standards; about water; about nature and biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes.

This is a Government Bill, introduced by Sir George Eustace, Department for Environment and Rural Affairs. The Bill was being considered by a Public Bill Committee, which is now scheduled to report by Tuesday 29<sup>th</sup> September 2020.

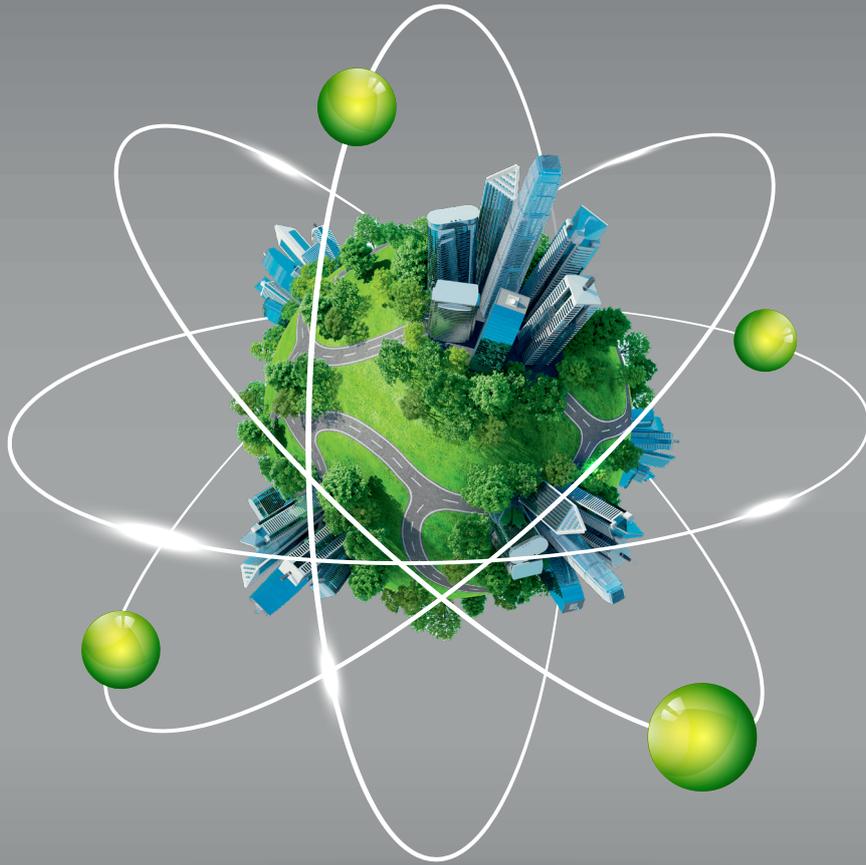
### **Local Electricity Bill 2019-21**

A Bill to make provision for an independent audit of the costs and benefits of meeting the requirement under A Bill to enable electricity generators to become local electricity suppliers; and for connected purposes. This is a Private Members' Bill and was presented to Parliament on 10<sup>th</sup> June 2020 by Peter Aldous MP. Second reading is scheduled to take place on 11<sup>th</sup> September 2020

### **Net Zero Carbon Emissions (Audit) Bill 2019-21**

A Bill to make provision for an independent audit of the costs and benefits of meeting the requirement under the Climate Change Act 2008 for net United Kingdom carbon emissions to be zero by 2050; and for connected purposes.

This is a Private Members' Bill and was presented to Parliament by Sir Christopher Chope on 10<sup>th</sup> February 2020. The Second reading is scheduled to take place on 10<sup>th</sup> July 2020.



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