

Energy Matters

People | Power | Prosperity



A proposal for partnership
to unlock investment,
transform the economy
and deliver change.

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As we emerge from an energy crisis that has touched every home and business in the country, there is a clear recognition that energy matters. Affordable energy matters. Clean, secure, homegrown power that brings down bills and emissions matters. Winning the global race for clean energy and reaping the benefits of jobs and investments matters. But we need to act urgently and fix the system.

Our country is creaking; delays over decades, lost investment in vital infrastructure and outdated planning rules have ultimately held us hostage to volatile international energy prices. We see a future where a prosperous United Kingdom is powered by clean, innovative technology, delivered by resilient and modern systems and no-one is left behind. **There is a big task ahead, the sooner we start – the better.**

Three priorities for partnership to unlock investment, transform the economy and deliver change:



People

A practical and fair Net Zero transition that improves lives and livelihoods

Power

Building the clean energy infrastructure to power our economy

Prosperity

Reaping the economic rewards of a globally leading energy sector



The voice of the energy industry

Energy UK is the UK's largest and most diverse energy trade association, representing companies leading on modernising and decarbonising the whole system to those focused on developing better products and services for consumers. The range of expertise within our company and across our membership means we're able to take a holistic view across the whole energy system when advising on policy and advocating for change.

We are a source of expert advice on industry matters to key stakeholders and decision-makers, and bring together specialists from across the sector to support policy-makers develop ambitious and considered changes towards Net Zero that are grounded in real world experience.

An effective, principled trade association is essential for a successful sector. We work to ensure a broad and powerful membership body to ensure our views are not narrowed or sectional.

Our members deliver nearly 80% of the UK's power generation and over 95% of the energy supply for the 28 million UK homes and many businesses, and include established FTSE 100 companies as well as growing start-ups across the energy, heat, transport and technology sectors.

Foreword

We are on the cusp of a global economic and climate transformation, and the energy industry is crucial to the UK's success. A strong, collaborative partnership between the public and private sectors will maximise opportunities for people, power and prosperity.

Over the last decade, clean energy and increased electrification have smashed expectations on price, scale, and utility to become the assumed incumbents in diverse global energy systems. At the same time, these very technologies are also critical to reducing carbon emissions from polluting fossil fuels.

Just as the introduction of coal and oil shaped the industrial revolution, and then oil and gas underpinned both the economic liberalisation and globalisation of the last forty years, we are now entering another energy transition; transforming the way we live, work and travel, powered by low-carbon sources and smarter technology. The difference with this transition, is that it also must happen at the speed necessary to tackle climate change.

Our planet is getting warmer, and at a global average temperature increase of 1.1°C from pre-industrial levels today,¹ we are witnessing severe consequences including extreme weather events and rising sea levels, as well as secondary impacts from the displacement of populations, the disruption of supply chains and health issues associated with pollution. Global heating is already costing lives, destroying biodiversity, and destabilising countries and businesses.

In the energy sector, one factor in the volatility of global wholesale markets has been the unpredictability of demand worldwide, in part influenced by less predictable weather patterns. This adds to a geopolitical environment, and to a global market for oil and gas that has been further destabilised by Russia's invasion of Ukraine. If the UK remains as dependent on gas as we currently are and there are recurrent gas price spikes, public debt could be larger by around 13% of GDP by 2050.²

A Net Zero economy is the solution to the climate crisis. As with past energy transitions though, the clean energy transition also offers the hope of a different and more prosperous country. It will bring billions of pounds in inward investment, new jobs, and new services as we build infrastructure fit for a modern economy.

The UK has been a world leader in slashing emissions through clean power generation. We can be world leaders in delivering changes across the country that will benefit individuals, businesses and the wider growth of the UK. We could be the first developed economy to transition away from methane for heat. We could be the first developed economy to demonstrate how variable power generation can work as the incumbent in a system. We could develop the smartest energy system in the world. We could build on our expertise to lead in the development of emerging technologies such as floating offshore wind, hydrogen and Carbon Capture Usage and Storage (CCUS).

The next government has an opportunity to be bold – to overhaul the policy and regulations that hold back industry's ability to invest, innovate and deliver lasting, real change. A fair and just energy transition will deliver energy security and affordability, as well as improve lives and livelihoods across the UK.

Affordable, stable energy bills for people, low-carbon electricity powering our country, and a prosperous, strong economy are the linked outcomes of a successful energy transition.

The private sector will deliver most of the investment required to reach Net Zero, and a strong partnership between industry and government will unlock it.

Billions of pounds of global investment are there for the taking, but capital has a choice of location and so the UK must remain attractive on the global market. At a time of constrained public finances, maximising the private sector's contribution is essential, and the actions of the next government will influence this proportion. With an ambitious approach, private investment in UK clean technology is £165 billion greater in 2050 than our current trajectory.³

Stable policy and regulation attract competition and investment – allowing industry to deliver better social, environmental and economic outcomes for the UK. It is a partnership, where government creates the framework which empowers investors, and industries can plan to train workers, build supply chains, and develop innovative technologies.

This challenge spans decades and parliaments. The next government must consider its legacy and think beyond political cycles to face the barriers that are preventing the energy transition head-on, with a plan to deliver green upgrades to homes and businesses around the country, to unblock the planning and grid connection delays and to set out a clear investment pathway for industry. In return the industry will take action to support people and businesses, to navigate the journey to Net Zero, invest billions of pounds in clean energy infrastructure and create hundreds of thousands of jobs and economic opportunities that reach every corner of the UK.

As the rest of the world transitions to cleaner power, the UK has had a head start. Already over half of our electricity is generated by low-carbon sources, at times reaching over 70% of generation.⁴ We have a good position to lead from, but that position is being increasingly called into question by competition from other key markets for clean technology such as the US and EU. Countries that do not keep pace with the energy transition are at the mercy of those that control technologies, supply chains, and markets – as the last couple of years have illustrated. The energy industry operates in a world of globally connected finances, where investment moves across borders to where it can be put to best use. The direction of these flows is shaped by the decisions of governments around the world. Other countries are developing ambitious clean growth strategies that are leapfrogging ahead of the UK.

The UK energy industry's vision is for our economy to be powered by clean, innovative technologies, delivered by resilient and modern systems, with nobody left behind.

We have led industrial transformations before; from coal and steel to textiles and steam trains, the UK has a long tradition of engineering change. However, this transition needs pace.

The urgency is not just being driven by the climate emergency; acting swiftly unlocks significantly more economic value; long-term stability encourages early investment, gives confidence to the supply chain and lowers the cost of capital; subsequent growth reduces cost through economies of scale and improves the investment case further - and so on in a virtuous cycle.

A quicker transition delivers the most cost-effective route to success. Delaying action on Net Zero even just by 10 years would double the cost of achieving Net Zero.⁵

This requires an honest conversation with people across the country about both the challenges of the transition, and the huge benefits. Reaching our targets will involve a step change in the build out of clean infrastructure; from wind farms to pylons, and heat pumps to Electric Vehicles (EVs). The scale of change means that we have to bring the public with us on this journey, and by giving them the right tools and information, allow everyone to play their part in a cleaner future.

We are a small country, but a great one. The UK is still leading the world in key elements of the energy transition. From our world-leading Contracts for Difference (CfD) scheme – spurring the burgeoning development of our offshore wind industry, to the Demand Flexibility Service – a world-first demonstration of using customer demand to help balance the grid – strong collaboration between government and industry has been key to our success, and innovation has driven our industries.

Working together, building on our unique expertise in innovative market design, policy and governance frameworks, our unrivalled experience in rapidly rolling out low-carbon technologies and reducing emissions from power – there are exciting opportunities ahead to lead in decarbonising heat, transport and industry.

Energy matters; improving people's lives and livelihoods, investing in clean power that doesn't destroy our planet, and growing our country's prosperity. Let's get to work.

Emma Pinchbeck
CEO, Energy UK



An ambitious transition to Net Zero by 2050 could mean...

...an economy **£240 billion** larger in 2050, compared to current trajectory⁶...

...equivalent to the UK's **entire manufacturing sector** today.



Net Zero will require **£1.4 trillion** in investment...

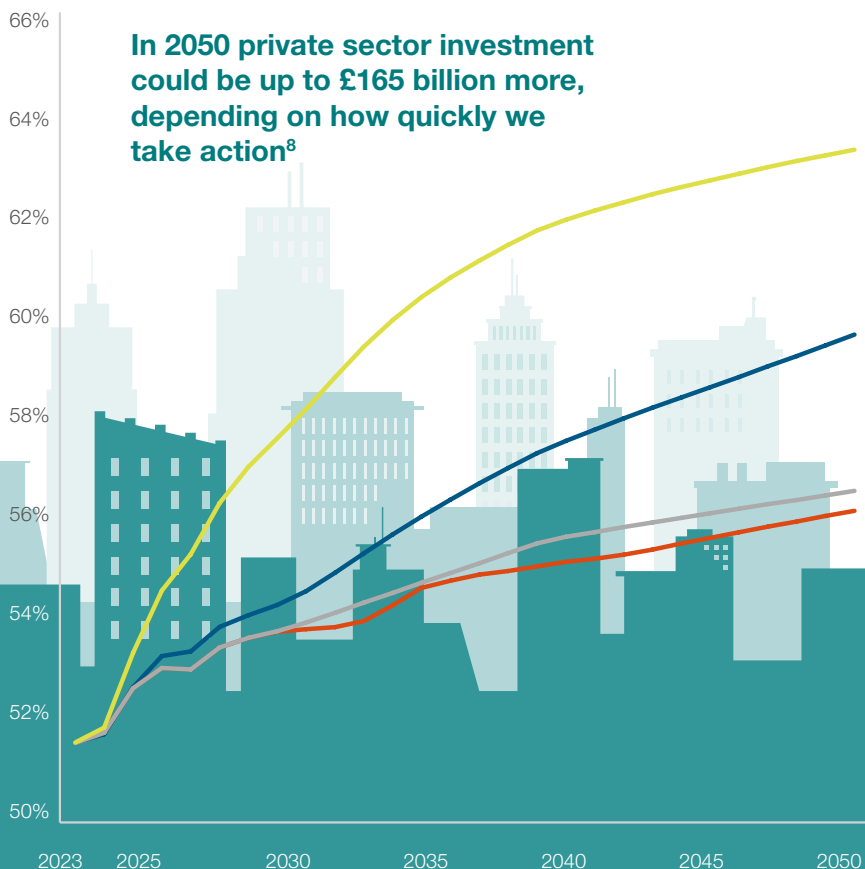
...with **the majority** expected to come from the private sector.⁷

Making bold decisions now....

...unlocks **more private sector investment**

— Baseline — Net Zero — Delayed Transition — Net Zero Transformation

Share of investment from the private sector

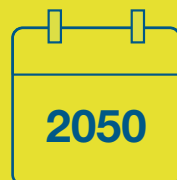


All regions and nations of the UK will benefit from Net Zero...

...with areas outside of London and the South East potentially growing by **£141 billion** more by 2050 than the current trajectory...

...which is more than the current contribution to UK GDP made by Northern Ireland and Wales combined.⁹

88%



Up to **1.2 million** green jobs by 2050, with **88%** based outside of London.¹⁰

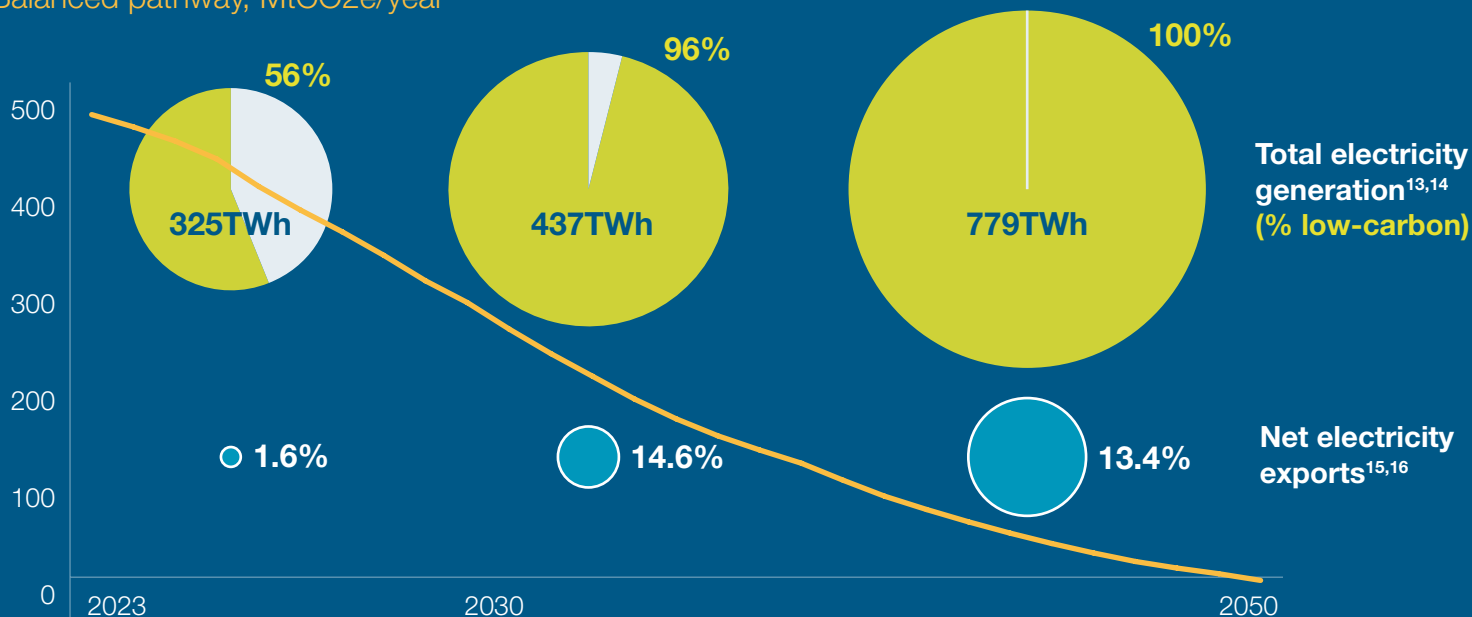


Average wages within the Net Zero economy are **28% higher than the UK average.**¹¹



UK carbon emissions over time¹²

Balanced pathway, MtCO₂e/year



47%

of homes currently meet EPC C.¹⁷

Upgrading 13 million homes to EPC C could save customers

£24 billion on bills by 2030...

...and unlock almost

£40 billion

in cumulative economic and societal benefits.¹⁸

To reach Net Zero, **49 million**

energy efficiency measures need to be installed by 2050.¹⁹

Energy efficiency could save

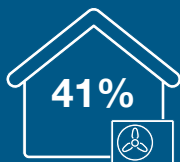
100TWh of energy

per year,²⁰ which is equivalent to around a third of the UK's current electricity generation.

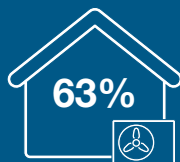
Homes with heat pumps²¹



2023



2030



2050

Flexible demand technologies like EV charging and heat pump operation means we could

avoid over 3GW

of peak demand on the network in 2030...

Flexibility from demand²²



2023



2030

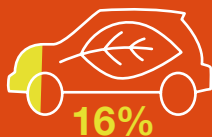


2050

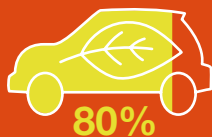
...the equivalent of **four new gas-fired power stations...**



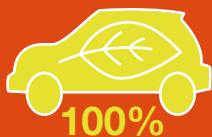
Share of new cars that are Battery Electric Vehicles^{23,24}



2023



2030



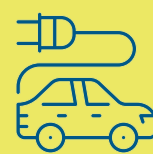
2050

...saving almost

£1 billion

in spending on the electricity network.²⁵

Smart charging of EVs could contribute towards a **60% reduction** in peak demand in 2050.²⁶





People: a practical and fair Net Zero transition that improves lives and livelihoods

The potential benefits from transforming the way we generate and use energy are huge and will have a tangible, positive impact on people's daily lives. From more stable energy bills to improved homes and buildings that are warm, safe and comfortable, to responsive in-home energy technologies and services that better match peoples' needs.

Reducing the nation's energy use through smarter energy management, improving the fabric of our buildings and building home-grown clean energy will not only improve energy security – it will reduce our dependency on importing volatile gas, bring price stability, and more affordable bills in the long term.

The customer journey

People want government to take action to tackle climate change, with 63% of voters saying they would support parties including a policy of standing by existing Net Zero targets in their manifestos.²⁷ Voters of all parties, right across the UK want to be part of the solution. But right now, it's too difficult for them to understand how to make the changes needed to get their homes and businesses ready for Net Zero, and crucially how to get help and support if things go wrong.

Without independent advice and support it is impossible for people to make decisions about the right energy options to suit their needs and their lifestyles. It shouldn't be this way – the complexity is slowing down the transition, putting people off and causing disengagement. Government and industry should prioritise developing a customer journey that makes it as easy as possible for people to make the choices that are right for them.

The next government must simplify the overlapping protection and support schemes that add to customer confusion, and reduce the barriers that people face when they actively engage in upgrading their homes or businesses to Net Zero standards.

This must be accompanied by action to tackle the complexity across different government departments. From unravelling the myriad of building regulations to modernising the market rules so customers can effortlessly store or sell energy back to the grid, industry has been innovating but regulations have not kept up with the pace. It should be easy for people to charge their car at the cheapest time, install a heat pump, retrofit their homes or simply know they're getting the best possible deal. Everyone should be able to benefit from these options, regardless of their housing tenure or circumstances.

Burdensome processes

Installation of Electric Vehicle charging points and heat pumps often requires disconnecting the mains fuse, which can legally only be performed by the Distribution Network Operator or energy company supplying that property, with no way for installers to be certified to perform this role. This can put people off, slow down installation and make alignment with grant programmes more challenging.

The role of the energy supplier

Energy suppliers have a connection with almost every building in the country and are already improving customers' lives from insulating the homes for the most vulnerable to installing battery technology and Electric Vehicle (EV) infrastructure.

Innovative low-carbon technologies have the potential to transform the relationship energy companies have with their customers. Digital systems will help industry better serve and identify customers that need extra support. Smart meters hold the key: completing the smart meter rollout will deliver savings, products and protections for everyone, including people in vulnerable circumstances.

This vision is entirely reachable, but will not be achieved without a renewed, revived and reformed energy supply market. After years of under investment, burdensome restrictions and an ad-hoc approach to encouraging innovation, the energy crisis has shone a spotlight on a market structure that is desperately in need of urgent reform. Energy suppliers have the potential to deliver products and services to get homes and businesses across the UK ready for Net Zero; if the next government works with industry to address the challenges faced today, it has the opportunity to leave a legacy of having improved the lives of millions of people, both now and in future generations.

Around 80% of UK homes are heated with gas, and the UK has the leakiest housing stock in Western Europe, losing heat over three times faster than some European homes.²⁸

Homes

Heating our homes with gas is burning a hole in people's pockets as well as our planet. Homes across the UK are responsible for around a fifth of the country's emissions,²⁹ because they are poorly insulated and are mostly reliant on gas or other fossil fuels for heating. Reducing waste and moving to electrified heating are obvious solutions – but will require a significant amount of change, and this will not be easy. Tackling these

emissions is one of the biggest challenges facing the next government – but is worth doing to transform lives for the better with homes that are safer and more comfortable, with affordable, intuitive heating systems that are warmer in the winter and cooler in the summer.

The next government should continue to work with industry so that across the country people can expect to live and work in buildings that are well insulated and have low-carbon heating. This strong collaboration has already delivered exciting new services for buildings with smart meters, and options for flexible tariffs, so people can choose to use energy when it is cheapest and most plentiful. This benefits customers and the wider energy system as well as our energy security, but there is much more to be done to ensure **all** homes and buildings, from social housing to listed properties, can meet the minimum Net Zero standard.

Flexibility on demand

The Demand Flexibility Service (DFS) was introduced in winter 2022-23 to access additional flexibility by paying customers to shift demand away from peak times. It was the first time that domestic demand has been used to balance a national grid anywhere in the world and was developed in just over four months in collaboration with industry. Around 1.6 million homes and businesses with smart meters took part,³⁰ meaning that instead of paying fossil fuel generation to ramp up, or down, customers benefitted instead.

The speed and success of the initiative shows both industry's appetite for innovation and customers' willingness to engage.

Household flexibility offers an exciting opportunity for customers that take part, as well as those that don't as a more efficient system lowers overall costs. Cornwall Insight analysis shows that without household flexibility, the UK would need to build the equivalent of four new gas-fired power stations in 2030 to meet peak demand, at a burden of more than £3.5 billion including network upgrades, alongside the associated carbon emissions.³¹

Supporting businesses

The businesses that power our economy should also be supported in their journey to Net Zero. From hairdressers to manufacturing plants, companies of all sizes across the country see the value of lowering their carbon footprint as ultimately that means lower bills, whether that's from generating electricity on site, better insulated buildings, improved efficiency to reduce demand or even getting paid to shift demand.

With lower energy costs for businesses, customers will benefit from cheaper products and services, while UK companies can ramp up their global competitive edge.

But again, the regulations need updating. Businesses need to be able to easily access the opportunities to help them invest to reduce energy, and the crisis has exposed the need for reform and stricter regulations on brokers.

A fair, just energy transition

Everyone uses energy, and a fair energy transition means leaving no one behind. Not everyone will be able to change how and when they use energy, nor will everyone will be able to afford to upgrade their homes or buy an EV. There will always be some people who even with support – will not be able to afford their bills.

Neither the government, nor the energy industry, can provide all the support needed alone, and the question of who pays must be addressed with fairness in mind. Government support schemes at the height of the energy crisis were a lifeline for many but are not sustainable in the long term. Energy suppliers [already provide millions of pounds in additional support for customers](#), but with a fragile retail market cannot feasibly provide more. Whether additional support is through public spending, or recouped from bills - fairness must be top of mind.

Achieving Net Zero and improving lives and livelihoods across the UK are two sides of the same coin. A fair, just energy transition will tackle inequalities and provide tailored support where it's needed most.

Decarbonising heat and transport will improve people's homes and their health. A smarter, digitised system will help people and businesses use more energy when it is cheapest and most plentiful. The next government can lead this transformation in partnership with the energy industry, improving the lives of every person in the country, whilst reducing emissions and strengthening our energy resilience.

Read more about the industry's vision for a customer-centric energy retail market in Energy UK's report:



People are central to the energy system of the future and, as the market changes, everyone will have different wants and needs from their energy supplier. Some will want help working out what improvements to make to their homes, others help to finance them. Some will want full control, while others will want things to be automated. Many people will want to minimise their bills, others to minimise emissions, or to receive an enhanced quality of service. And, of course, some will want to carry on much as they have done before.

Energy suppliers are in the middle of all this change, offering customers a single point of contact which connects them with an increasingly complex energy system, and competing to discover what works for different groups of consumers in a new world. Suppliers will have the potential to change how and when we use energy through smart, dynamic tariffs, products, assets and services. They will play a key role in delivering a secure, green future for the UK through decarbonising our heating and transport, and by improving our energy efficiency.

Suppliers are already demonstrating leadership and vision, bringing innovative products and services to market: from market-leading offers on heat pumps to agile tariffs; from insulating homes to providing smart-enabled care and support for vulnerable customers.

It recommends actions that will need to be taken to achieve a future retail market which works for customers, and addresses the challenges and opportunities industry and Government will have to face together on this journey, under three principles:

- 1. Customers must be supported and protected as the market evolves**
- 2. Regulation must balance supplier obligation with incentives for competition, investment and innovation**
- 3. Customers must benefit from smart flexibility**

While this report seeks to provide a common view on the necessary changes that can drive innovation further and faster, individual suppliers have their own distinct perspective on the future market, reflective of their own customers. The second half of this report includes vision essays from Energy UK members.



If the next government...

Delivers retail market reform that includes:

- An enduring, targeted, taxpayer-funded solution to energy affordability for customers who cannot afford it;
- A new approach to regulation and price protection in energy to protect consumers but enable effective competition and innovation in energy services;
- Efficient and effective price signals through action on policy costs and a revitalised approach to smart meter rollout.

Makes it easier to get homes and businesses ready for Net Zero by:

- Investing in programmes to improve energy efficiency, decarbonise heat and other low-carbon technologies;
- Committing to a plan that gives businesses in the supply chain the long-term certainty needed to invest;
- Standing by existing targets, including the Zero Emission Vehicle mandate, heat pump targets, and energy efficiency ambitions;
- Ensuring access to accurate and appropriate advice and information for businesses and individuals looking to reduce their carbon impact or their energy usage;
- Utilising regulation and taxation to incentivise decarbonisation, for example in the private rented sector.

Modernises retail energy market rules, mechanisms, and governance by:

- Reviewing the role of the regulator so that it is resourced and equipped to regulate this essential market;
- Delivering on key programmes including half hourly settlement, the Review of the Electricity Market Arrangements and smart meter roll-out;
- Reviewing the approach to “green” energy tariffs to ensure transparency, additionality and choice to customers;
- Extending regulation to Third-Party intermediates such as Price Comparison Websites and Brokers.

The private sector can...

Mobilise to attract investment and innovate, to:

- Target and tailor help and support for people - particularly to those who need it most;
- Reduce household bills through innovative business models that unlock system value and reward customers for flexibility;
- Improve standards and lower prices through competition based on reputation as well as cost.

Help to provide safety and comfort for homes and businesses across the country by:

- Investing for the long term, delivering more energy efficiency measures and smart low-carbon technologies, building supply chains and creating jobs across the country;
- Driving the rollout of EVs and heat pumps, and enable lower running costs through smart tariffs and services like Vehicle-to-Grid;
- Support the UK Government in delivering on the ambition of existing targets on power, transport, heat, and building emissions.

Take action to deliver modern, efficient energy services by:

- Investing in innovative products and service offers for domestic and business customers;
- Unlocking the potential for cost-effective balancing of our low-carbon energy system - by working with customers to reduce energy demand, using more energy when it is cheapest, lowest carbon, and most plentiful on the grid;
- Supporting businesses across the UK through easier access to PPAs for renewables and increased on-site and micro-generation options that will lower their energy bills.



Power: building the clean energy infrastructure of the future

The UK is soon becoming a victim of its victory. We have led the global shift to clean power with a burgeoning rollout of offshore wind, which proceeded at a pace that few in the industry or Government would have thought possible a decade ago. While this is a great success story, it in itself is not enough.

The industry's success in slashing costs means that projects now have to be delivered at a level which cannot absorb price shocks in the market. We need to upgrade the system to accommodate more generation from a diverse range of technologies. All of this can be done in the timescales required but needs Government and industry to work together to enable investment and unblock the regulatory barriers holding projects and customers back.

A resilient and flexible system

It is expected that by 2035 the UK will see a 50% increase in electricity demand.³² Meeting this will require more low-carbon generation, but also more grid and supporting infrastructure, so the energy system is resilient and more flexible.

The required rapid rollout of low-carbon generation means that infrastructure and regulations need to urgently adapt to accommodate a larger proportion of clean power, and move it around the country efficiently and effectively.

This means increasing our capabilities to store or utilise energy when there is surplus low-carbon generation, and release it when it is needed, whether that be through Long Duration Energy Storage like pumped-hydropower, grid-scale batteries or more flexibility on the demand side. Interconnectors will play an increasingly larger role in our system; as we build up more flexible domestic generation capacity we will export more electricity to neighbouring countries when we have excess, and import it back when generation is low.

These are exciting developments and will have a transformative impact; people and businesses will benefit from a more efficient and cheaper system.

Barriers and blockers

The UK faces a dual challenge – we need to urgently increase the build out of clean energy infrastructure, and operate our energy system in a smarter, more efficient way. This is not an insurmountable challenge; many of the changes could be amended using primary and secondary legislation, and most of the investment needed will come from the private sector.

The next five years are critical: not only must the UK attract this significant amount of investment from the private sector, we also need a fundamental change in how quickly we build our energy infrastructure.

Fortunately, developers have demonstrated that with effective policies and regulations, projects can be built quickly, reducing costs through economies of scale and fuelling additional investments in associated services and supply chains. However, bureaucracy, antiquated rules and regulations, and onerous processes that unnecessarily slow down the pace of change, are holding us back.

The next government has an exciting opportunity to modernise the energy system, and use the technologies available to generate clean electricity, whilst bringing down system costs to make it cheaper overall.

The UK's emissions have reduced by more than half since 1990, largely driven by the growth in clean power in the energy sector.³³

Working together, industry and Government have shown the UK can innovate, build infrastructure at a rapid pace and lead the way. The next stage is to remove the significant blockers that are preventing industry from delivering at the scale and speed required.

Planning – large scale infrastructure

The planning system is holding back investment in critical energy infrastructure. Protecting the environment and working with communities is crucial: but this must be alongside treating projects that are vital for our country's energy security as such.

Delivering public infrastructure at a local level rightly requires community engagement, but as we transition to Net Zero, Government has to carefully consider the balance between national and local needs. Whilst commitments have been made to review the regulations, as it stands – it takes just one person's opposition to block an onshore wind farm being built. Ukraine built more onshore wind than England in 2022.³⁴

An offshore wind farm can be built in a few years but take up to ten years to get through the planning process. Unclear guidance for planning authorities, means that no offshore wind project wind since 2017 has been recommended for approval by the Planning Inspectorate. Instead, all 6GW of these projects have been deferred to the Secretary of State for approval, and subsequently delayed.

Without clear planning policy support large quantities of existing offshore and onshore renewable capacity and energy storage technology could be lost or decommissioned. We cannot afford to delay shovel-ready projects, which represent the future backbone of our energy system, as well as billions of pounds of inward investment. Doing so will not only hamper any chances of meeting the UK's energy security targets, but also diminishes the economic benefits this investment in clean energy brings. This will only become more complex as emerging technologies like hydrogen and CCUS come forward in the UK.

Planning challenges at the demand-side (medium to small scale)

Planning frameworks at the local level are often complex, confusing, and a barrier to people and businesses eager to decarbonise. Different parts of the UK have different planning requirements that impact low-carbon technologies, from how close to a window you can affix a heat pump to what forms you need to fill in when making home improvements. These vary depending on the local planning framework, making it hard for companies installing measures to deliver the same outcomes on timelines and cost across the country.

One example is that modern heat pump units are quieter than the older models, which are deemed too noisy by some areas. This is not reflected in the planning process and results in many households having to progress to a planning application just to install a heat pump, which can lead to people dropping out due to hassle, cost, and delays.

It is not just single properties where planning issues act as a barrier. At present, those installing public EV charging and multi-property infrastructure like heat networks are seeing up to a year of delays while trying to gain access to other properties to connect pipes and wires. Greater efficiency and streamlining in the wayleaves and land rights application process could easily be delivered to enable public EV chargers and low-carbon heat networks to be rolled out more rapidly, allaying customer concerns about EV range and delivering a public good by enabling immediate air quality improvements and longer-term climate benefits. This is particularly important as businesses look to avoid the most constrained areas of the grid. Moving an installation even 100 meters down the

road could deliver vast savings in cost but, under current planning arrangements, could also increase complexity significantly and delay the project further.

Capacity in authorities and institutions

Regulators and planning departments also need to be fully resourced to reduce the time it takes to develop projects. Local authorities responsible for granting permissions face significant delays in processing applications. Regulatory bodies and market administrators across the sector are understaffed and under-equipped to deal with the mass change of process required to keep the UK at the forefront of the transition to Net Zero. The next government needs to take action to improve, streamline, and modernise permitting process across regulatory agencies.

By 2030, we will need to build five times as much transmission infrastructure as we have in the last 30 years.

Grid Infrastructure

To meet future electricity demand, National Grid estimates that five times as much transmission infrastructure will need to be constructed by 2030 than in the last three decades.³⁵ This will enable more projects to connect to the grid, but also improve our ability to move electricity around the country. Generating a substantial surplus of electricity in one region of the country serves little purpose if it cannot be efficiently transmitted to the areas of highest demand.

Connecting clean energy infrastructure

Electricity Distribution Networks have seen huge increases in demand for connections, whether it is large critical infrastructure, or homes and businesses decarbonising their energy, heating and transport. The

outdated connections framework and unprecedented growth in demand mean the pipeline for connections is heavily oversubscribed and the backlog is increasing. New applicants are quoted long timelines for connection, with some quoted as long as 15 years. Some change is already underway, but more fundamental reform is needed to deliver a quicker and more coordinated approach to connect clean energy generation and enable uptake of low-carbon technology.

With over 600 projects waiting to connect, Energy UK estimates that if uncertainty is not addressed, by 2030 the UK could lose around £60 billion in private investment in low-carbon generation alone.³⁶

By removing unnecessary bureaucracy and ensuring the system is fit for purpose, the government can enable the private sector to invest and deliver the infrastructure required to meet energy security targets, and reduce overall costs to consumers.

The opportunity is there

Despite the challenges outlined above, innovative UK policies and regulatory frameworks such as Contracts for Difference (CfDs) have turbocharged our renewables rollout and been adopted worldwide, demonstrating [the power of partnership between industry and Government](#). Our future energy system will rely on a mix of technologies, and the UK has an opportunity to build on existing expertise to lead in areas such as floating offshore wind, nuclear (including Small Modular Reactors (SMRs)), hydrogen, long-duration batteries, CCUS, and interconnectors. As we saw with offshore wind, clarity, stability and engagement with industry at an early stage is key to building the energy infrastructure that is needed to power our future.

The next five years will be the most important if we are to deliver our Net Zero targets and ambitions. If the next government can act quickly to incentivise new, clean technologies and recognise when rules are a blocker or an enabler for the private sector to deliver, industry can once again surpass expectations and deliver low-cost, clean energy made in the UK.

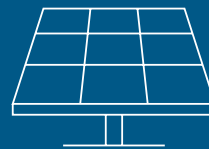
Meeting our future needs

UK electricity demand is expected to **increase by 50%** by 2035.³⁷

To meet this demand and decarbonise the system by 2035, the amount of **electricity generation connected to the grid will need to treble.³⁸**



Offshore wind
up to 6 times



Solar
up to 5 times



Interconnectors
up to 3 times



Battery storage
up to 10 times

If the next government...

Invests in UK energy system resilience by:

- Tackling issues with grid connections and network investment, addressing the connections backlog and enabling the significant investment required to deliver a modernised energy system;
- Reforming the role of the regulator to allow for anticipatory investment in the system to deliver the best overall value, rather than basing expenditure on what is lowest cost for the present day;
- Establishing an effective independent system operator which is adequately resourced and staffed to deliver a smart flexible energy system.

Simplifies the planning and consenting processes by:

- Prioritising investments in secure, homegrown power and energy storage assets, as well as repowering existing assets;
- Smoothing the regulatory journey for people and businesses who want to invest in green technologies locally and in their homes and businesses;
- Establishing a Net Zero duty for all regulatory and environmental bodies to ensure alignment with the 2050 timeline;
- Resourcing public and local government organisations responsible for planning to streamline and accelerate processes and decisions.

Is ambitious about the future for clean energy technology by:

- Setting out a clear plan for managing the orderly phaseout of unabated gas and phasing in low-carbon alternatives including CCUS, hydrogen, flexibility, and demand reduction;
- Improving the regulatory framework for nuclear power generation streamlining processes;
- Progressing decisions on the role of hydrogen to ensure production, transportation and storage capability keep pace with hydrogen generation aspirations.

The private sector can...

Invest with confidence to:

- Rapidly increase the build out of the grid and speed up connections to enable further carbon reductions in both supply and demand of energy;
- Build on existing innovation to offer options of how to engage and support local communities that host energy infrastructure;
- Reduce UK reliance on imported gas by accelerating the rollout of renewables and low-carbon technologies including CCUS, hydrogen, energy storage, decarbonised heating and transport measures, and demand-side response.

Build more physical assets that will accelerate the UK energy transition:

- Maximise domestic low-carbon capacity;
- Rollout efficient local infrastructure where appropriate – including heat networks, community energy and EV charging;
- More easily repower assets to upgrade the energy infrastructure already powering homes;
- Give people and businesses freedom and control over their energy usage and carbon footprint through new products, tariffs, and technologies.

Respond with investment propositions that will:

- Build on our world-leading experience in low-carbon technology policy to seize the opportunities in CCUS, nuclear including SMRs, hydrogen and floating offshore wind;
- Build manufacturing capabilities to deliver EVs and Heat pumps at affordable prices for customers;
- Ensure security of supply at every stage of the transition to a decarbonised power sector;
- Stimulate supply chain offers, including research, development, investment.



Prosperity: reaping the economic rewards of a globally leading energy sector

The next Government has an enormous and exciting opportunity to make the United Kingdom a world-leading example of a future energy market. But with other countries hot on our heels, we must move quickly to maximise the benefits and reap the rewards.

A prosperous nation is one in which all regions are thriving, all citizens have access to long-term jobs and opportunities to improve their lives, businesses are able to compete internationally and where our trajectory for growth is sustainable and future-facing. The Net Zero transition will deliver this. Acting quickly will grow our economy more, reduce the amount of public spending needed and propel us into a position of leadership creating a virtuous cycle where we will benefit further.

The UK's head start

Our economy has flourished thanks to the UK's strong global leadership in its commitment to tackling carbon emissions. We were the first country to enshrine Net Zero into law, sending a clear signal to investors and companies all over the world that the UK's clean economy is a stable, long-term investment.

Our actions have proven that growth, energy security and reducing emissions are all linked. Since 1990, when roughly 80% of the UK's electricity came from coal, total greenhouse gas emissions in the UK have been slashed in half, largely driven by the power sector which has built more domestic, clean generation. At the same time UK GDP has grown roughly 75%.³⁹

Companies involved in the Net Zero economy are already delivering around £70 billion (3.7%) Gross Value Added (GVA) to the wider UK.⁴⁰

While the UK saw the opportunities for a Net Zero economy early on, the rest of the world – particularly the US, China and EU - have now joined the global race and are leaping ahead quickly. For the country that wins, the economic opportunities are huge.

Providing capital goods and services to the global Net Zero transition could be worth £1 trillion in revenue to UK businesses between 2020 and 2030.⁴¹ The speed at which we transition will determine how much our country benefits; the difference in GDP between an accelerated transition and our current trajectory is £240 billion, equivalent to the size of the UK's current manufacturing sector.⁴²

The role of the private sector

The Climate Change Committee (CCC) estimates that to reach Net Zero, low-carbon investment must scale up to £50 billion each year from 2030, but most of this – around 70% - will be delivered by the private sector.⁴³ All government needs to do is create

the framework to develop burgeoning industries here – as it has with offshore wind – and enable the market conditions to attract the billions of pounds of global capital that is available, to unlock the potential benefits. The private sector is raring to deliver the rest.

The proportion of private and public sector funding will be determined by the speed in which action is taken. Decisiveness is key to unlocking the maximum potential, reducing the cost to taxpayers and freeing up public funds for other priorities.

Under an ambitious Net Zero transformation, in 2050 private investment in UK clean technology could be £165 billion greater than the current trajectory.⁴⁴

The cost of inaction

The case for action becomes even stronger when considering the economic cost of inaction. If the UK continues to rely on high gas consumption, the financial burden on the Treasury could be twice as much as the estimated cost to reach Net Zero.⁴⁵

Even a delay of ten years would mean UK debt could be 23% of GDP higher in 2050, doubling the fiscal cost of achieving Net Zero.⁴⁶

Delayed action has already cost customers; an Energy and Climate Intelligence Unit analysis found that some homes could have saved around £1750 on bills in 2022, had the UK not delayed in deploying renewables, insulation, rooftop solar panels, heat pumps and EVs. This is on top of an additional £400 a year in food costs, due to the impact of climate change, and fossil fuel processes, on global farming and food systems.⁴⁷

Global competition is intensifying

The Russian invasion of Ukraine demonstrated how foreign policy choices impact domestic energy prices, and the need to be self-sufficient has never been clearer. International economies are all facing the same increased need to protect domestic energy supply and diversify.

The global companies that will invest in the next generation of clean energy technology are looking for places to build new assets and projects now, so

resting on our laurels is not an option. Where these companies choose to base themselves will in turn attract more investment. As countries across the world rapidly ramp up to Net Zero to protect the climate, as well as their own economies and energy security, there is a limited window of opportunity.

We had a head start, but the UK is rapidly at risk of losing its position as one of the most desirable locations to invest. Global competition for investment has had a significant impact on the UK's growth potential: of the world's eight largest economies, the UK is forecast to have the slowest growth in low-carbon electricity generation between now and 2030.⁴⁸

The next government will need to urgently address this with the right policy, regulatory and governance frameworks that will incentivise international investment and get the UK back on track. This includes ensuring that incentives to invest in clean technologies in the UK are at least as compelling as incentives to invest in fossil fuel technologies, whether that be through tax credits, capital allowances, grants or loans.

Whilst we may not be able to compete on subsidies, the UK can double down on its success, and build on our existing position, processes and policies to ensure a smooth and streamlined offer for investors.

The UK's unique opportunity

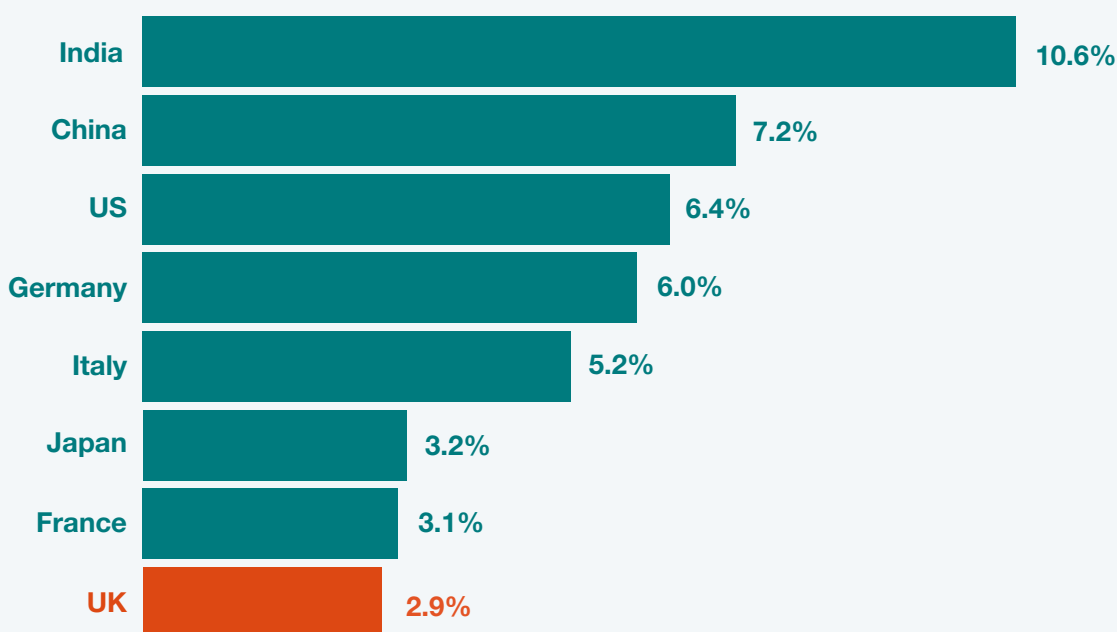
New technologies will bring new value in the economy – and with this comes opportunities to develop areas of strategic economic advantage for the UK.

Energy UK analysis shows that all regions and nations of the UK will benefit from the Net Zero transition.⁴⁹ Different areas will capitalise on their historical expertise and natural geography.

Our coastlines will continue to grow as the home of offshore wind whilst port-side industrial clusters such as the Humber will pioneer CCUS technology. Areas historically focused on oil and gas will use that expertise and infrastructure to transition to clean technologies like low-carbon hydrogen and floating offshore wind. Demand in the manufacturing sector will rise, benefiting established industrial areas such as the automotive sector in the West Midlands.

If we act fast, working in partnership with industry and government our world-leading universities and research facilities could lead the world in the development of new energy technologies enabling us to export, skills, knowledge and UK Intellectual Property.

Forecasts of average annual growth in low-carbon electricity output, 2023-2030



Source: Oxford Economics

People will deliver the transition Reaching every corner of the UK

But it is people, not technology, at the heart of developing and delivering the Net Zero economy. Policymakers, researchers, innovators, project managers, investors, technicians, analysts – all collaborating in jobs with purpose, jobs that enrich the economy, and jobs that are well paid.

Lawyers, engineers, health and safety professionals, accountants can all find their place in the Net Zero landscape, and countless opportunities exist for people already working in energy sector to pivot their skills: from offshore oil and gas technicians transitioning to offshore wind, to gas engineers retraining in decarbonised heating. Services that support this economic revolution, from facilities management to catering and cleaning, will all grow.

The energy industry is unique in its growth potential outside of London and the South East. Areas that have suffered from deindustrialisation are particularly well placed to benefit from these opportunities; the regions which are predicted to experience the greatest increase in GDP from an accelerated transition to Net Zero, all had below the average GDP per head (a simple measure of living standards) in 2022.⁵³

Already, Energy UK's members have brought investment and employment to diverse communities from the islands off North Scotland to the rural ex-mining towns of Cornwall. We support future gigafactories in the South West, power industrial clusters in the North East and heavy industry in South Wales, the North West and Scotland. With an ambitious, accelerated transition, areas outside of London and the South East could potentially grow by £141 billion more by 2050 than they are set to on the current trajectory, which is more than the current contribution to UK GDP made by Wales and Northern Ireland combined.⁵⁴

Jobs in the Net Zero economy



Around **250,000** people work in the Net Zero economy, each generating on average **£112,000** in GVA every year, **1.7 times** the national average.⁵⁰



Average wages within the Net Zero economy are **28% higher** than the UK average.⁵¹



Up to **725,000 more** jobs could be created by 2030.⁵²

The UK on a global stage

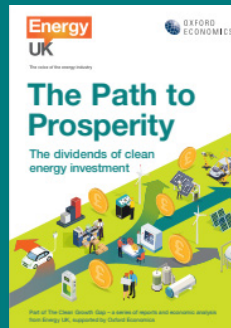
Inward investment creates jobs at home, but it also improves the UK's competitiveness on a global stage. High energy prices have the potential to hold back our innovative entrepreneurs, scuppering UK PLC, or causing businesses to move elsewhere.

The more cost-efficient our system is to run and the more customer-focussed flexibility services we have in place, the more our businesses will be able to compete internationally, and the more investment we will attract. More stable energy prices and an easier customer journey for businesses to decarbonise will help businesses to thrive, both here and internationally, benefitting UK customers as well as the economy.

Energy powers economies; it drives the price people pay for essential goods and services, it determines how competitive our businesses are globally, it attracts investment, creates export opportunities and revitalises communities and towns across the country.

As the global energy transition accelerates, we have a once in a generation opportunity to once again lead the world and reap the economic benefits. We have done it before, and we can do it again, but we must act now.

How low carbon investment can transform the UK



Energy UK's Clean Growth Gap series, in partnership with Oxford Economics, looks at how the UK can once again lead the world in attracting investment in clean energy and respond to the challenge posed by growing competition from the USA and Europe. Across five papers, the series considers how the UK compares with countries leading the way in supporting their clean technology sectors, and what we need to do to get back on track.

How low carbon energy investment can transform the UK: highlights the challenges in attracting the huge amount of private sector investment required to fund the energy transition but also the opportunity it offers to transform the UK's economy and bring jobs, skills and growth to the areas of the country that need them most.

Funding the Future – The UK's energy transition in a global context: examines in depth the scale of support that is available for clean investment around in the world, including in the US, EU and China and how it compares to the UK. It also sets out what strengths the UK should build on as it enters the next phase of the energy transition.

Path to Prosperity – The dividends of clean energy investment: explores how Government can set the UK on a path that will see the economy expand significantly, creating hundreds of thousands of additional jobs, as well as meeting our climate goals.

Community Capital – How winning Globally delivers Locally: reveals that all regions and nations of the UK will benefit from Net Zero, and explores how that will vary across different regions of the UK by building on existing strengths.

Accelerating Action – Closing the Green Growth Gap: highlights the investment opportunities in the UK for clean energy technologies, at a time when the UK Government is at a crossroads in its plans for green growth, and makes policy recommendations to help the UK achieve its Net Zero potential.

Find all the reports alongside webinar discussions with industry experts, analysts and politicians at www.bit.ly/CleanGrowthGap

If the next government....

Prioritises energy as a fundamental part of its economic strategy by:

- Increasing the size and ceiling in the annual Auction Round pots for renewable energy projects to reflect real time costs of projects;
- Encouraging clean investment through the tax system, such as by amending the Electricity Generator Levy or reducing loss-relief rules;
- Orienting economic growth policy around the 2050 Net Zero target and nearer-term incremental targets for heat, transport, and power, given the high potential shown in this sector.

Works closely with our international partners to:

- Increase cooperation across energy matters, including trading, carbon pricing, supply chain pressures and migration rules;
- Share information on innovation and research and development.

Commits to delivering economic growth across the UK by:

- Streamlining regulatory processes and simplifying the complexity of the energy sector;
- Using all available levers across legislation, regulation, taxation, and subsidy to show clear signals to the sector and to consumers about where and when to invest.

The private sector can...

Stimulate investment to become the cleanest economy in the G7 by:

- Attracting over £50 billion per year into the energy transition and keeping it at that level until 2050;
- Enabling the decarbonisation of the whole economy, so the UK's businesses can be more globally competitive;
- Securing and developing domestic supply chains, enabling the UK to export and increasing tax returns from the energy sector;
- Investing in robust, innovative, and competitive business models and technologies toward Net Zero;
- Developing and delivering training and upskilling across the UK.

Ensure the UK is well placed to compete globally for investment by:

- Creating up to 750,000 jobs and opportunities in the Net Zero economy;
- Building on our world-leading R&D to export British IP in emerging technologies that we know will be used worldwide.

Work with government to:

- Drive regional growth in the areas that need them most with jobs, new business opportunities and community investment;
- Grow an innovative domestic industry in key low-carbon technologies across the energy system: storage, hydrogen, heat pumps, renewables, etc.

Energy Matters: Putting the United Kingdom back in the lead.

We are at a crossroads. People across the country continue to worry about how to make ends meet, amidst increasing global upheaval and uncertainty. We have a limited window in which to act decisively, and take the necessary steps to attract the investment required to build a clean, prosperous future.

The next government has a choice to make: staying still is not an option. A revitalised, renewed partnership between government and the energy industry is crucial to:

- **Deliver stable, affordable energy bills and support people to make the changes necessary to homes and businesses that will transform lives and livelihoods.**
- **Modernise essential UK infrastructure and unlock the potential for low-carbon energy technologies, that will transform the way we access and use clean power.**
- **Signal a commitment to clean growth with policy certainty and clarity that will transform the investment landscape and result in a renewed commitment to investment in the UK from the private sector.**

The energy industry is ready. Together we can deliver the next great industrial revolution, secure our future and help to tackle climate change.

Endnotes:

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