



BRITISH ENERGY SECURITY STRATEGY AND WORKING WITH OUR REGULATORS

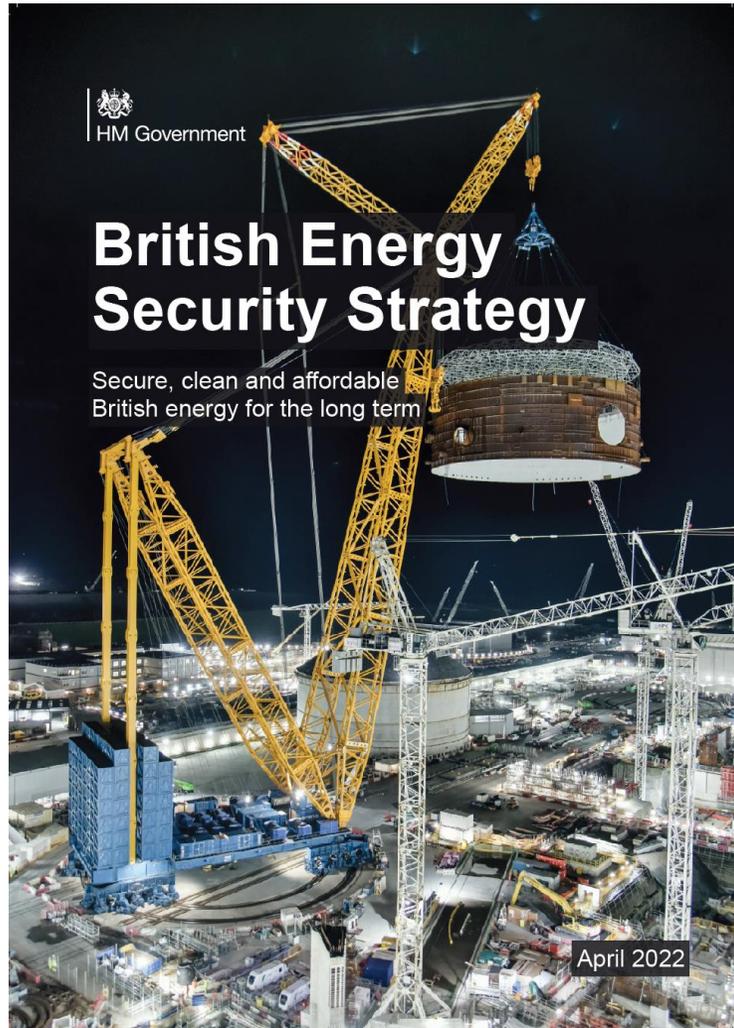
ENERGY TRANSITION FORUM

September 2022

Summary

- UK Energy Security Strategy
- Key sectors and challenges going forward
- Working with the grid – BEIS, National Grid and Ofgem
- Coal to clean energy transition – Powering Past Coal Alliance

Overview



- On April 7, government published the Energy Security Strategy in response to high and rising fossil fuel prices, exacerbated by the Russian invasion of Ukraine
- Whilst government has stepped in to provide immediate support to families and businesses with rising bills, this cannot be relied on indefinitely – a longer term strategy was needed to bring the bills down and keep them down
- The Strategy sets out a package of measures to increase our energy independence and provide secure, affordable and clean energy into the future
- It focuses in the short term on improving energy efficiency and exploiting domestic oil and gas reserves as we transition to net zero with a longer term plan to see accelerated deployment of renewable and low carbon technologies

Oil & Gas

- UK gas has <50% carbon footprint of imported gas
- Currently ~half of demand for gas met by domestic supplies
- To meet our net zero goals, we may still need a quarter of the gas we use today
- North Sea is key to energy security, and development of technologies for carbon capture and storage (CCUS) and hydrogen
- Offshore expertise can be utilised to support offshore wind

 Oil & Gas Low carbon UK gas, and zero Russian imports						
Key measures	End 2022 ambition	2023 ambition	2024 ambition	2025 ambition	2030 ambition	2050 ambition
<ul style="list-style-type: none"> • Regulatory Accelerators for new oil & gas • Planned new oil & gas licensing, mindful of delivered Climate Checkpoint & energy security • Review of the science on shale gas • Clean electricity for offshore platforms • CCUS clusters to futureproof North Sea • Phase out Russian oil and coal by end 2022 and Russian LNG gas imports as soon as possible thereafter 	<ul style="list-style-type: none"> • Climate Checkpoint launched • Planned new licensing round for oil & gas • Oil & Gas New Project Regulatory Accelerators • 0% Russian oil and coal 	<ul style="list-style-type: none"> • Potential new projects merge from licensing round 			<ul style="list-style-type: none"> • Domestic gas production remains a core part of UK energy security • Large scale electrification to provide clean power to offshore platforms • 20-30MT CCUS target • Over 40% reduction in gas consumption 	<ul style="list-style-type: none"> • Net zero compatible oil and gas sector, supplying the UK economy

Nuclear

- Nuclear currently supplies ~15% of demand
- But 5 of our 6 existing plants going offline within this decade and only 1 more in construction
- Ambition for 8 more reactors, the equivalent of one a year – each supporting up to 10,000 jobs at peak construction
- Total 24GW by 2050, ~25% of projected demand

 Nuclear Deliver Great British nuclear with high ambition, expertise and backed to support projects						
Key measures	End 2022 ambition	2023 ambition	2024 ambition	2025 ambition	2030 ambition	2050 ambition
<ul style="list-style-type: none"> • Up to 8 reactors progressed across the next series of projects • Reaching up to 24GW by 2050 (up to 25% of demand) • Starting scoping out the Great British Nuclear Development Vehicle next month 	<ul style="list-style-type: none"> • Great British Nuclear (GBN) Vehicle being set up • Future Nuclear Enabling Fund funding awarded 	<ul style="list-style-type: none"> • Initiate the selection process for further nuclear projects 	<ul style="list-style-type: none"> • By 2024, FID on one nuclear project (i.e. this parliament) 		<ul style="list-style-type: none"> • Up to 8 new reactors progressed across the next series of projects 	<ul style="list-style-type: none"> • Up to 24GW nuclear installed (up to 25% of total GB demand)

Solar

- Solar capacity expected to increase 5x by 2035 to ~70GW
- Looking at facilitating low-cost finance from retail lenders, alongside removing VAT on solar panels installed in residential accommodation
- Simplifying planning processes for rooftop solar, and consult on amending planning rules to strengthen policy in favour of development of ground-mounted solar on non-protected land

 Solar Ramp up deployment, on both roofs and ground						
Key measures	End 2022 ambition	2023 ambition	2024 ambition	2025 ambition	2030 ambition	2050 ambition
<ul style="list-style-type: none"> • Consult on amending planning rules to strengthen policy in favour of solar development • Consult on reviewing permitted development rights to support solar deployment • Explore low-cost finance options with retail lenders to help households install rooftop solar • Design performance standards to further encourage renewables, including solar PV, in new homes and buildings 	<ul style="list-style-type: none"> • Publish updated planning documents to support solar deployment • Bring the Part L Homes Standards interim uplift into force, enabling solar deployment as a route to compliance 	<ul style="list-style-type: none"> • Contracts for Difference auction 	<ul style="list-style-type: none"> • Enable improvements in network infrastructure and connectivity; streamline network charging rules • Contracts for Difference auction 	<ul style="list-style-type: none"> • Future Home Standard and Future Buildings Standard in force, further uplifting energy performance in new homes and buildings • Contracts for Difference auction 	<ul style="list-style-type: none"> • This could be up to 70GW of solar by 2035 	<ul style="list-style-type: none"> • A low-cost, net zero consistent electricity system, most likely to be composed predominantly of wind and solar generation

Offshore and Onshore Wind

- Ambition for up to 50GW offshore wind by 2030, including 5GW floating
- Wind will make up over half of our renewable generation capacity
- Improve national network infrastructure and put communities in control
- Cut offshore process time in half

 Wind Cheaper power for local areas by cutting planning and delivering better connections						
Key measures	End 2022 ambition	2023 ambition	2024 ambition	2025 ambition	2030 ambition	2050 ambition
<ul style="list-style-type: none"> • Halving planning and regulation time for new offshore wind projects • Consult on developing partnerships for a number of onshore wind projects for supportive communities, with associated benefits for local population • Improving community benefits for areas with strategic network infrastructure • By next year, have blueprint for strategic network infrastructure • Networks Commissioner and Future System Operator to help plan ahead • Launch an Offshore Coordination Support Scheme 	<ul style="list-style-type: none"> • Publish Electricity Networks Strategic Framework • Publish Holistic Network Design, identifying critical reinforcements required to support wind ambition and helping to speed up delivery timelines including planning and regulatory approvals • Improving Community Benefits consultations for strategic network infrastructure and onshore projects for supportive communities • Launch an Offshore Coordination Support Scheme • Updated English planning policy to support repowering 	<ul style="list-style-type: none"> • Contracts for Difference auction • Amend National Policy Statements • Introduce environment strategic compensation measures • Amend Habitat Regulations Assessment • Introduce Offshore Wind Environmental Improvement Package • Establish a fast track consenting route for priority cases where quality standards are met 	<ul style="list-style-type: none"> • Contracts for Difference auction • Develop appropriate policy to enable investment in long-duration energy storage • Future System Operator established 	<ul style="list-style-type: none"> • Contracts for Difference auction 	<ul style="list-style-type: none"> • Up to 50GW offshore • Including up to 5GW floating offshore wind capacity 	<ul style="list-style-type: none"> • A low-cost, net zero consistent electricity system, most likely to be composed predominantly of wind and solar generation

Hydrogen

- Virtually no low-carbon hydrogen in our system today
- Technology developing quickly with vast applications
- Electrolytic hydrogen particularly valuable for flexibility and storage

 Hydrogen Boost our commitment to green H ₂ , accelerating our H ₂ economy						
Key measures	End 2022 ambition	2023 ambition	2024 ambition	2025 ambition	2030 ambition	2050 ambition
<ul style="list-style-type: none"> • Double our ambition to up to 10GW hydrogen production capacity, at least 50% from electrolytic projects • Aim to run annual allocation rounds for the hydrogen business model, moving to price-competitive allocation by 2025 as soon as legislation and market conditions allow • Aim that up to 1GW of electrolytic hydrogen is in operation or construction by 2025, alongside our existing commitment up to 1GW of CCUS-enabled hydrogen • Design Transport & Storage business models by 2025 	<ul style="list-style-type: none"> • Complete final hydrogen business model • Net Zero Hydrogen Fund open and funding allocated • Launch UK Low Carbon Hydrogen Standard 	<ul style="list-style-type: none"> • Decision on blending up to 20% hydrogen into natural gas grid • Award first business model contracts to electrolytic and CCUS-enabled hydrogen projects • Hydrogen heating neighbourhood trial begins 	<ul style="list-style-type: none"> • Allocate second round of business model contracts to electrolytic hydrogen projects 	<ul style="list-style-type: none"> • Up to 1GW electrolytic 'green' hydrogen and up to 1GW of CCUS-enabled 'blue' operational or in construction by 2025 • Hydrogen Transport & Storage business models designed • Hydrogen heating village trial begins and plan for town pilot • Hydrogen certification scheme set up 	<ul style="list-style-type: none"> • Up to 10GW low carbon hydrogen production capacity, double previous 5GW ambition • Hydrogen Transport & Storage business models in place 	<ul style="list-style-type: none"> • There could be 240-500TWh low carbon hydrogen supply by 2050



Demand

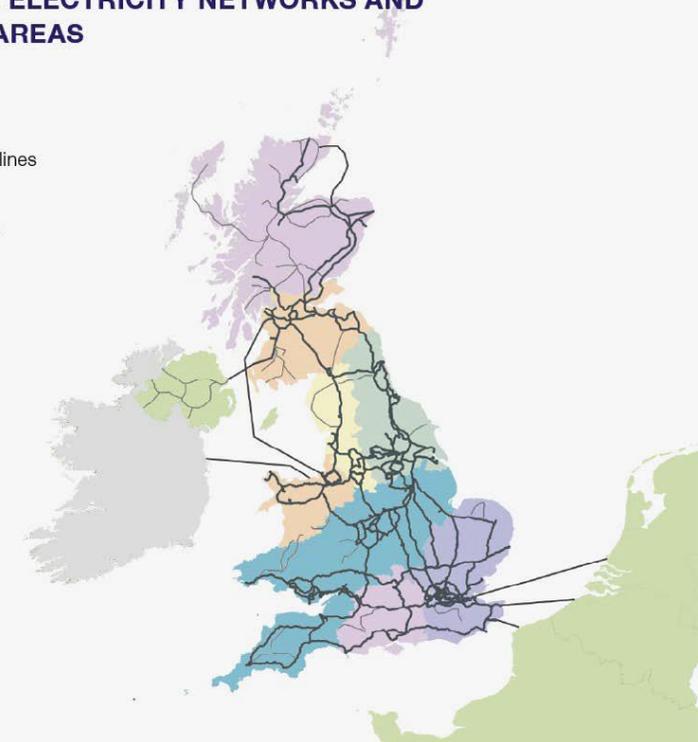
- Majority of homes are energy inefficient – improving efficiency could reduce heating bills by 20%
- By 2050, all buildings will be energy efficient with low carbon heating

 Demand Accelerate energy efficiency deployment and phase out fossil fuel use						
Key measures	End 2022 ambition	2023 ambition	2024 ambition	2025 ambition	2030 ambition	2050 ambition
<ul style="list-style-type: none"> • VAT cut for insulation & heat pumps • Facilitating low-cost finance from retail lenders to catalyse green finance market • Heat Pump Investment Accelerator of up to £30m • Better labelling and product standards so consumers can purchase more efficient products including for heating, lighting, and cooking • Setting clear energy performance standards varying by building type • Launching our new national digital support tool on GOV.UK Energy Advice Service to help consumers improve the energy performance of their homes • Establishing a dedicated energy advice offering for smaller businesses • Extend the EII Compensation Scheme for a further three years, and intend to increase the aid intensity to up to 100% (1.5% of GVA) • Consider other measures to support business including increasing the renewable obligation exemption to 100% 	<ul style="list-style-type: none"> • Continue to deliver energy efficiency upgrades through existing public sector, social housing and supplier-led schemes • Launch the Boiler Upgrade Scheme and the Green Heat Network Fund • Upgrade around 2,000 social homes in 2022 through the Social Housing Decarbonisation Fund demonstrator • Begin ECO4 which will upgrade 450,000 homes over four years • Publish proposals to rebalance energy costs 		<ul style="list-style-type: none"> • Consulted on phasing out fossil fuel heating off the gas grid from this date • Ensure all new homes are designed so that smart meters can be fitted from the outset, in advance of the Future Homes and Buildings Standards • Launch Clean Heat Market Mechanism 	<ul style="list-style-type: none"> • Ensuring all new buildings in England are ready for Net Zero from 2025 • Begin designating heat network zones 	<ul style="list-style-type: none"> • 600,000 heat pump installations per year by 2028 • As many fuel poor homes as reasonably practicable to Band C by 2030 • As many homes to reach EPC B and C as possible by 2035 	<ul style="list-style-type: none"> • All heating systems used in 2050 are compatible with Net Zero with an ambition to end the installation of gas boilers by 2035 at the latest

Electricity Networks

- Government's ambitious electrification aims across technologies, requiring system changes.
- Need to ensure networks are an enabler to delivery, not a barrier
- Our modern system will prioritise 2 key areas:
 - Anticipating the need for infrastructure, to help minimise cost and public disruption
 - Hyper-flexibility in matching supply and demand to minimise wasted energy
- A more efficient, responsive system could bring costs down by up to £10bn a year by 2050
- The energy security strategy sets out the aim to halve the time it takes to get network infrastructure built

FIGURE 5.1 - UK ELECTRICITY NETWORKS AND DISTRIBUTION AREAS



International delivery

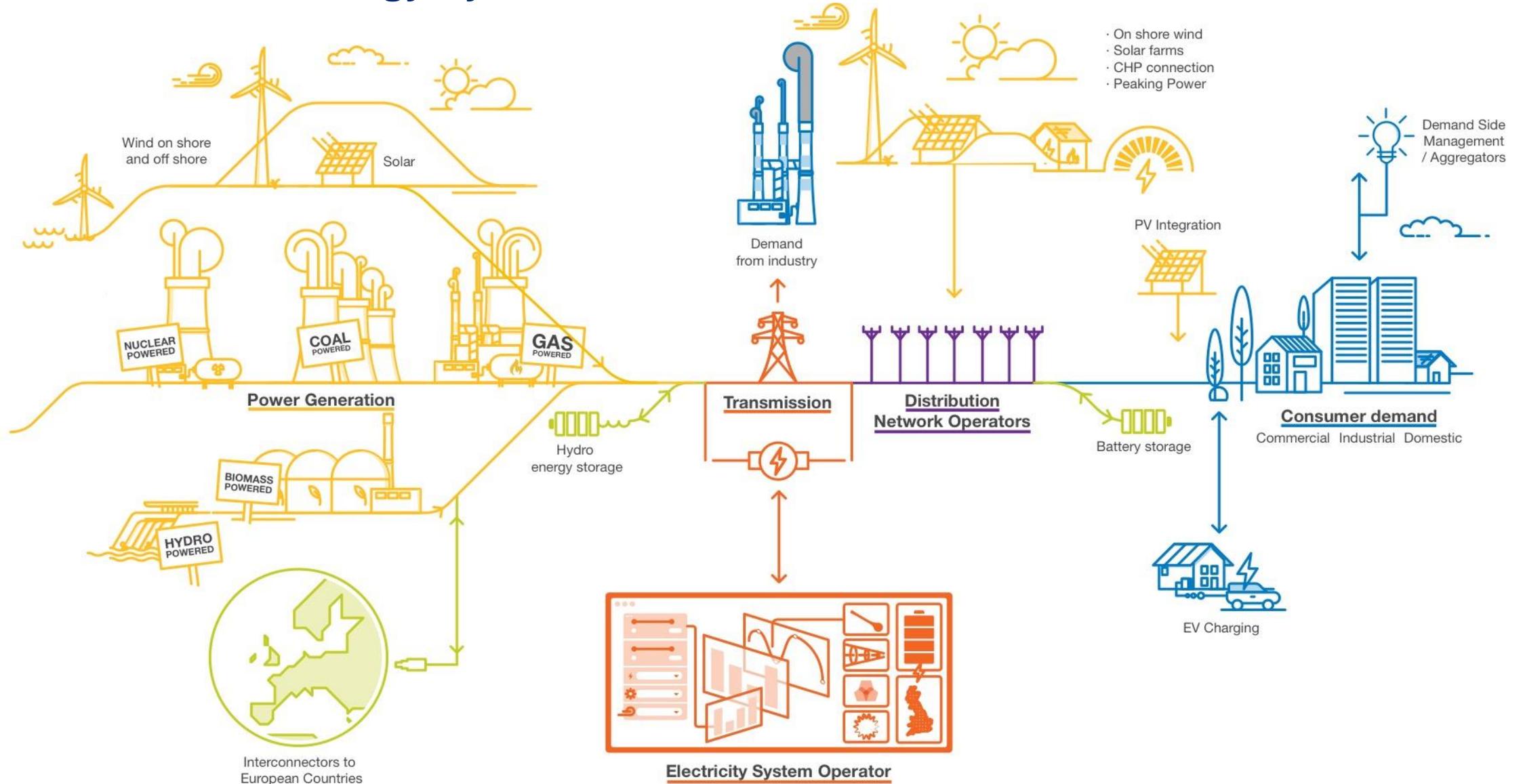
- It is vital that we continue to work with our international partners to maintain stable energy markets and prices
- We have a dual approach to reduce global reliance on Russian fossil fuels whilst pivoting towards clean, affordable energy.
 - Reducing global reliance on Russian fossil fuels
 - Supporting other countries to make the same transition to clean, affordable, secure energy
- We have committed to phase out Russian oil and coal by the end of 2022, and end imports of Russian LNG as soon as possible thereafter.
- We continue to engage internationally, for example, through the G7 and in other fora



Next Steps

- Focus on delivery
- Policy development
- Continued engagement with industry and stakeholders

How does the UK Energy System work?



The UK Energy Market



Department for
Business, Energy
& Industrial Strategy

ofgem

nationalgrid



National Grid – the system operator

- Owns current electricity and gas supply networks
- Balances the system and ensures supply meets demand

nationalgrid

BEIS - UK Government

- Sets UK government energy policy and regulatory framework
- Ensures security of supply
- Align with wider climate/net zero goals



Department for
Business, Energy
& Industrial Strategy



OFGEM – the regulator

- Independent regulator of gas and electricity systems
- Role is to protect consumers
- Sets rules within government's policy framework - e.g. balancing supply and demand

ofgem

Future Challenges

- Review of Electricity Market Arrangements (REMA)
- Future System Operator for a net-zero future

