MIDLANDS ENGINE

ENERGY SECURITY WHITE PAPER

The Midlands: Powering the UK's clean energy revolution

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The Midlands is at the forefront of the UK's clean energy transformation, driving innovation, energy security and resilience. As a leader in clean energy, the region is well-positioned to support the Government's ambition of making the UK a clean energy superpower, enhancing energy resilience, and boosting productivity across industries. With its industrial strength, advanced manufacturing base, and a thriving ecosystem of innovators, the Midlands plays a critical role in ensuring affordable, sustainable energy for the UK's future.

Energy security in the UK

Energy security is critical to the UK's national security and economic growth. High-cost imported energy poses an existential threat to many industrial firms and national ambitions in advanced manufacturing. It could also derail the opportunity to rapidly scale domestic clean energy and technology, providing new high-value jobs.

The Midlands is at the forefront of the UK's clean energy transformation, driving innovation, energy security and resilience

The 2022 energy crisis has had a lasting effect on businesses and communities. It has highlighted that the clean energy transition required to achieve net zero must set the UK on a path to greater energy independence, with reliable and resilient energy supplies, more affordable energy costs and industry supported to transition away from fossil fuels.

Energy security and the Midlands

Energy security and the clean energy transition has a particular significance for the Midlands – the UK's largest regional economy outside London and the South East, and its industrial heartland.

- Energy-intensive sectors, including advanced manufacturing, and transport and distribution, account for nearly a third of economic output in the Midlands
- Midlands communities experience the highest regional rate of fuel poverty – nearly a fifth of households in the West Midlands and the third highest rate in the East Midlands
- The Midlands is the UK's hub for energy generation and transmission infrastructure, with 21% of UK electricity generation capacity – 25% of UK fossil fuel generation capacity and 13% of installed renewable energy generation capacity, including 27% of offshore wind production.

Delivering energy security and the clean energy growth opportunity

The Government is progressing its mission to make Britain a clean energy "superpower" with the launch of Great British Energy – a publicly-owned energy company with an explicit purpose to enable UK energy independence by investing in, accelerating and scaling domestic energy generation. In addition, a National Wealth Fund will have a mandate to invest in and catalyse private finance for clean energy, including green hydrogen, carbon capture and gigafactories.

EXECUTIVE SUMMARY

National policies are also beginning to shape a more coordinated national, regional and local approach to delivering an energy-secure system, including Regional Energy Strategic Plans (RESPs) that consider national goals and local needs. However, to resolve the uncertainty that has prevented an at-scale market response to date, these functions must be rapidly implemented and tasked with creating a detailed routemap for individual energy vectors, or carriers, and the energy system as a whole.

Furthermore, there is a need for targeted action, at pace, on a number of barriers to the energy transition and energy security:

- Upgrades to grid infrastructure – both transmission and distribution infrastructure
- Resolution of planning and licensing delays
- Repurposing of pipeline infrastructure for new fuels
- Integrated infrastructure planning – including with supporting utilities, particularly water
- Action to unlock the major capital investment required – both public and private – with an estimated capital investment requirement of around £900 billion by 2050
- Workforce development – with an estimate of 54,000 new net zero workforce roles in the Midlands alone
- Community and business engagement including action to resolve local barriers such as weaknesses in digital connectivity
- More substantial energy efficiency and demand-side management policy measures and investment to support energy-intensive sectors, along with local decarbonisation solutions for dispersed industrial clusters for which solutions such as carbon capture and storage are not commercially viable
- Supply chain development measures built around specific clusters and opportunities in the Midlands.

The Midlands' ambition, offer and 'ask' of Government

Through this White Paper, Midlands industry, local Government and wider public sector and academic partners are focused on a strengthened and accelerated approach to energy security and the clean energy transition growth opportunity.

The White Paper highlights to national policymakers the importance of a Midlands perspective in national energy security policy and the particular assets that the Midlands brings to strengthen the national approach:

- Energy system leadership and collaboration across industry, local Government and wider public and academic sectors, driving integrated energy and industrial planning
- Leading energy sector, skills and technical expertise
- Renewable and low-carbon generation, and battery and storage assets and opportunities
- Strategic industrial clusters committed to decarbonisation and clean technologies
- Leading R&D assets and a large-scale, diverse testbed for a range of solutions - urban and rural
- New investment vehicles including a Midlands Green Bond.

EXECUTIVE SUMMARY

Midlands partners invite Government and its agencies to work with them to accelerate the delivery of an integrated, place-based approach to energy security and the clean energy transition opportunity – an approach that unlocks economic growth and high-value job opportunities, benefitting communities and businesses across the region and UK.

A roadmap for collaborative partnership action

The White Paper sets out a detailed roadmap for collaborative action over the next 24 months for short, medium and longer-term impact - by 2030, 2040 and 2050 - which is designed to complement and inform the early priorities and investments of GB Energy. This is focused on two main areas of action:

1. **Scaling clean energy projects in the Midlands, across a range of mature and new energy vectors**

2. **Establishing six 'critical enablers' of the clean energy transition opportunity:**
   - Integrated regional energy system governance and planning
   - Planning regulation
   - Finance and investment
   - Skills and workforce
   - Supply chain development
   - Grid infrastructure

By pursuing this roadmap together, and with Government and its agencies, the Midlands can:

1. **Be an 'early adopter' region of the new Regional Energy Strategic Plan (RESP) function** to develop integrated regional energy system governance that is bottom-up, placed-based and vision-led – based on principles of:
   - Voice, insight and input from all energy-intensive industries, the energy sector and supporting utilities, including water
   - Bottom-up input from Local Area Energy Plans (LAEPs), where these are in place, and Local Growth Plans
   - Greater consistency in the LAEP method to enable a robust local evidence base
   - Ability to manage inter-dependencies and opportunities between regions
   - Appropriate representation from local and combined authorities
   - Financial and technical support for local and regional energy planning.

2. **Scale and invest in clean energy – including by:**
   - **Accelerating leasing and planning approvals for new offshore wind development**
   - **Using insights from Local Area Energy Plans to develop a pipeline of viable sites for renewables and low-carbon generation** that have community support
   - **Prioritising sites for grid upgrades and investments in transmission and pipeline infrastructure**, including integration of battery and energy storage systems
   - **Prioritising large and small projects and sites requiring accelerated planning and exploring spatial models of delivery** with planning powers, incentives and community-representative governance
   - **Bringing forward community-led small to medium and larger-scale solar projects** on viable sites that do not conflict with wider strategic objectives
   - **Accelerating the Midlands' two Gigafactory propositions** - at Greenpower Park in Coventry and the East Midlands Freeport - to build a next-generation battery cluster
   - **Designing and mobilising large-scale energy efficiency and demand-side management programmes** across industrial, commercial and residential sectors, with robust financial incentives industrial, commercial and residential sectors, with robust financial incentives
   - **Accelerating the development of local heat networks** in urban areas and large housing developments
   - **Developing a pipeline of future nuclear licensable sites** for Small and Advanced Modular Reactors
   - **Identifying potential sites for longer-term fusion energy development**
   - **Accelerating financing mechanisms and innovative energy business models,** including a Midlands Green Bond and a public-private investment consortium for behind-the-meter solutions for industrial and commercial sites
   - **Bringing forward feasibility studies, trials and demonstrators** including for transitioning fossil fuel-powered plants using carbon capture, co-firing and other innovative solutions; energy storage solutions including long-duration at salt strata sites; smart grid solutions; alternative fuel transmission networks; next generation wind; and hydrogen-derived sustainable transport fuels with carbon capture

3. **Ensure a skilled workforce – including by developing and scaling new models of skills provision** that address the technical gap in clean energy and manufacturing sectors such as skills hubs, based on collaboration between education (schools, FE and HE), industry and local communities

4. **Develop supply chains around specific clusters and generation opportunities** in the Midlands – including manufacture of nuclear components, smart energy systems and next generation wind.

By delivering this roadmap together, with Government and its agencies, the Midlands can fulfil its potential in ensuring the integrated, independent and resilient energy system needed to realise the region and UK's ambitions for net zero carbon growth.

Defining energy security – the smooth transition to abundant low carbon energy, setting the UK on a path to greater energy independence, enhancing national security through reliable and resilient energy supplies.

Consumer security

reducing energy bills, maintaining affordability, and achieving as low as possible wholesale electricity prices.

Climate security

supporting industry in transitioning away from costly and polluting fossil fuels towards sustainable and clean energy technologies.

Physical security

transitioning to a more diverse energy system with greater co-location with high energy demand centres and reduced transmission required. This system will be less exposed to external threats and more resilient to cyber-attacks that are increasing in today's geopolitical context.

Economic security

driving down inflation, boosting productivity and economic growth, creating highly skilled jobs, and ensuring the equitable benefits from clean growth across all sectors, including avoiding and mitigating for job losses in the transition.

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The Midlands' economy and energy

£277.2bn GVA

Toyota

32%
GVA in energy intensive sectors

13%
of total UK planned renewable pipeline

>25%
of England's manufacturing jobs

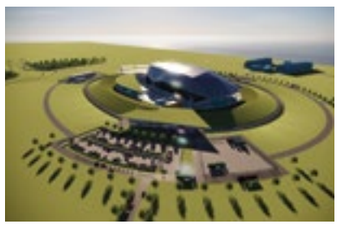
1 in 5
of England's energy and low-carbon jobs

Midlands energy innovation

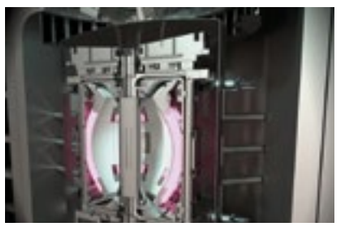
The UK's largest concentration of energy R&D infrastructures

1,500
academics and researchers working in energy-related fields across Midlands universities

Smart Energy Network Demonstrator, Keele



Rolls-Royce Small Modular Reactor



Spherical Tokamak for Energy Production (STEP)

Nationally-significant demonstrators for:

localised and integrated energy systems planning
CCUS
smart energy and local heat networks
H2
fusion
nuclear
industrial decarbonisation
community energy
alternative fuels
fossil fuel transition
batteries and storage
clean heat networks

UK energy generation capacity in the Midlands

19%
of England's installed renewable energy capacity

21%
of total UK electricity generation capacity

27%
of UK offshore wind production

25%
of UK fossil fuel generation

Hornsea One

Killingholme

Strategic industrial clusters committed to decarbonisation and clean energy technologies

Repowering the Black Country

Keadby Hydrogen, Humber 2030 Vision

Decarbonising the Midlands Aerospace Cluster

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