Midlands Nuclear

Midlands Nuclear Siting

Regional Transformation through New Nuclear

July 2025

Delivered by: equilibrion.

Commissioned by MIDLANDS NET ZERO HUB

Contents

Introduction

This document has been produced as part of the Midlands Nuclear Siting Study, commissioned and funded by Midlands Net Zero Hub on behalf of Midlands Nuclear, and delivered by Equilibrion in partnership with Portinscale Consulting.

The study provides insights into where and for what purpose nuclear energy could be deployed in the Midlands, underpinned by criteria previously applied to UK Government national site assessment activities,

The potential for Midlands-based new build nuclear power stations opens up new possibilities for large-scale regional economic growth and jobs creation provided by attracting major investment in the power station and local industrial clusters.

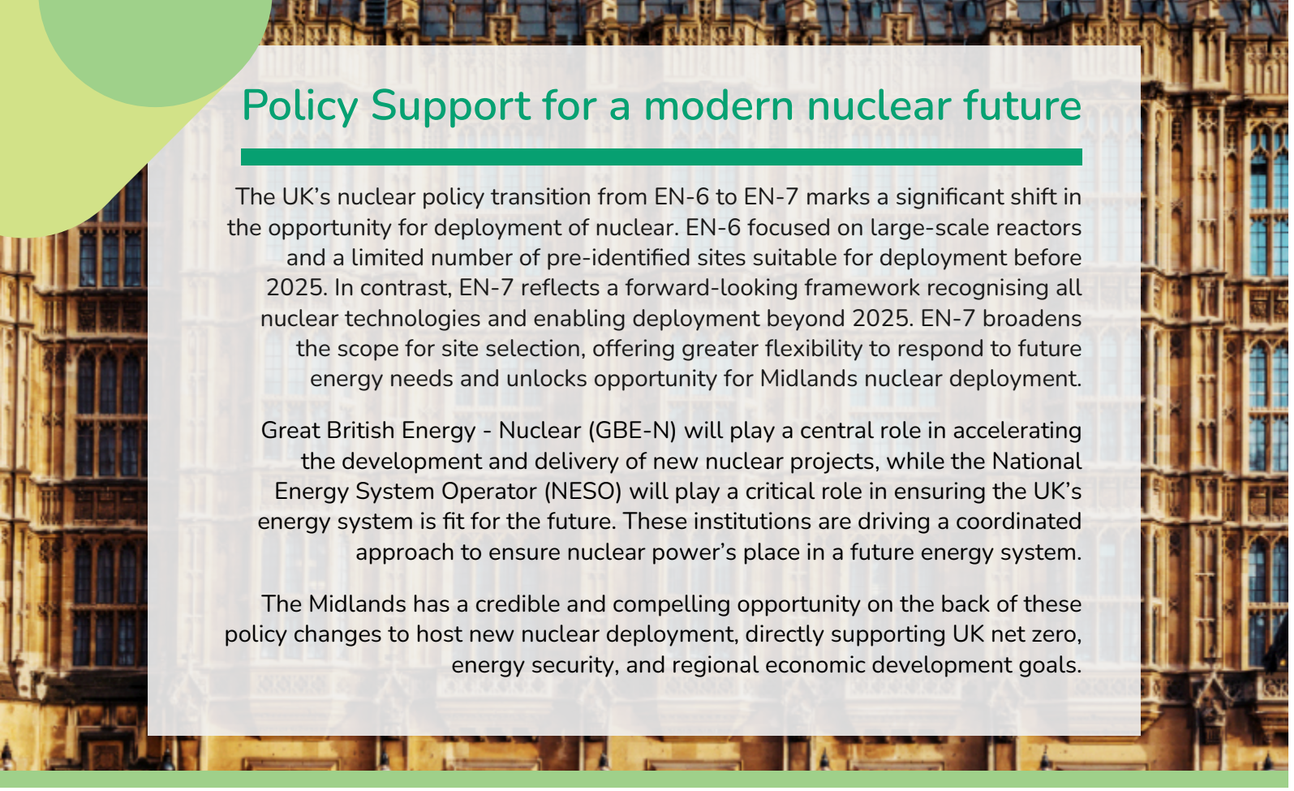
The Midlands Nuclear Siting Study enables regional authorities, Midlands Nuclear, and other stakeholders to proactively engage with UK Government, developers and investors, presenting credible, evidence-based nuclear investment opportunities at a critical time for national energy transition planning

Further information on the study can be obtained from:

Project and outcome matters: midlandsnetzerohub@nottinghamcity.gov.uk

Technical matters: phil.rogers@equilibrion.co.uk

Cover Image: Torness Advanced Gas-cooled Nuclear Power Station, UK



Policy Support for a modern nuclear future

The UK's nuclear policy transition from EN-6 to EN-7 marks a significant shift in the opportunity for deployment of nuclear. EN-6 focused on large-scale reactors and a limited number of pre-identified sites suitable for deployment before 2025. In contrast, EN-7 reflects a forward-looking framework recognising all nuclear technologies and enabling deployment beyond 2025. EN-7 broadens the scope for site selection, offering greater flexibility to respond to future energy needs and unlocks opportunity for Midlands nuclear deployment.

Great British Energy - Nuclear (GBE-N) will play a central role in accelerating the development and delivery of new nuclear projects, while the National Energy System Operator (NESO) will play a critical role in ensuring the UK's energy system is fit for the future. These institutions are driving a coordinated approach to ensure nuclear power's place in a future energy system.

The Midlands has a credible and compelling opportunity on the back of these policy changes to host new nuclear deployment, directly supporting UK net zero, energy security, and regional economic development goals.

EN-6	EN-7
Based around large scale reactors	Recognises all, including newer technologies
For projects deploying up to 2025	For projects deploying beyond 2025
Exclusionary and discretionary criteria split	Exclusionary and discretionary criteria distinction removed
Identifies eight locations/sites in the UK where new build nuclear would be considered suitable by UK Government	Moves away from the limitation on eight sites and opens options for government to consider a wider range of sites

New Technologies, New Investment

SMRs and AMRs are reshaping the investment landscape. Leveraging modular construction, these reactors significantly reduce upfront capital costs compared to large-scale GigaWatt reactor projects and can shorten build times, bringing earlier returns and reduce risk profiles. Repeatable, factory manufacture of more components and systems can reduce the risk of construction delays.

Modern nuclear technology presents a highly attractive investment proposition

The Midlands, historically a driver of the UK's industrial economy, now faces a strategic opportunity to host new nuclear development, enabling the delivery of clean electricity, industrial heat, hydrogen and sustainable fuels.

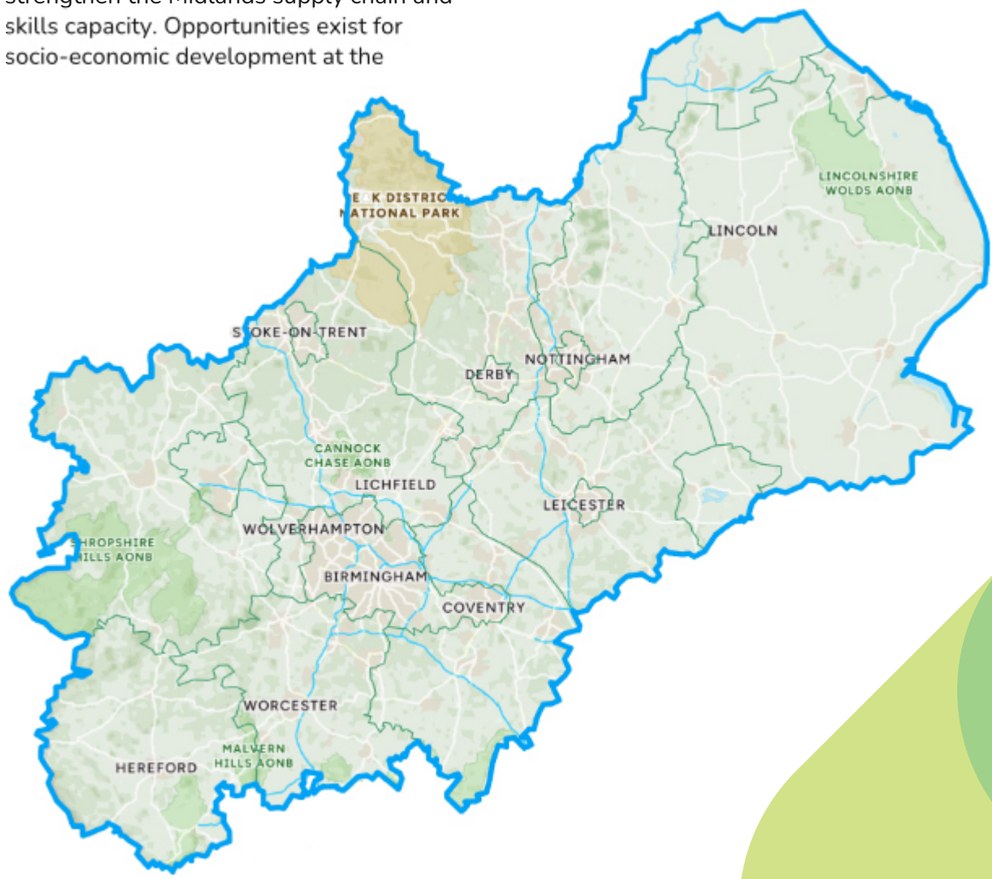
Strong regional benefits for local businesses

In the context of the UK's nuclear new build fleet strategy, GBE-N is currently tasked with delivering new nuclear capacity as a highly attractive long-term investment. Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs) are considered more investable due to expected lower upfront capital requirements and shorter construction timelines.

Deployment could unlock thousands of jobs, billions of pounds of investment and strengthen the Midlands supply chain and skills capacity. Opportunities exist for socio-economic development at the location of the build and at factory sites for SMRs and AMRs, which are designed for a greater proportion of factory-built modules.

The region previously hosted almost **20 GW** of electricity generation, it now hosts less than 12 GW.

There is a prime opportunity for the Midlands to utilise the region's assets to rebuild and support the energy transition.



Assessing Sites for Nuclear Deployment

Midlands Nuclear commissioned and funded a study, supported by Midlands Nuclear to investigate the opportunities for the Midlands to host new nuclear facilities, including SMRs and AMRs. The study offers a robust evidence base that can be used to encourage public, private, and governmental stakeholders to engage on the opportunity for new nuclear in the Midlands.

Power Plant Siting Study (PPSS) Dataset

The study was based on a credible set of nuclear-ready locations. The Power Plant Siting Study (PPSS) dataset was developed through assessment of opportunities and constraints using established criteria from EN-6. The PPSS identified a long list of potential sites.

The PPSS provided early indicators of site-specific challenges that may require developer-led investment or mitigation. Assessing true economic viability depends on developers with deep expertise in nuclear technologies, market dynamics, and policy frameworks. By combining insights from the PPSS dataset with updated, location-specific intelligence, this study equips the Midlands to offer credible, investor-ready opportunities at a time of rising global nuclear interest. This is the foundation for potential future deployment, creating an evidence base that regional authorities and industry partners can build on.

Siting Criteria for Nuclear Deployment

Site features and characteristics are assessed against exclusionary and discretionary criteria, economic indicators and additional factors.

- **5** Exclusionary Criteria
- **10** Discretionary Criteria
- Economic Indicators
- Additional Factors

Siting Nuclear Facilities in the Midlands

The site selection process examined potential sites through applying a nationally-consistent criteria-led approach applied as part of existing nuclear siting policy EN-6 and as indicated in future nuclear siting policy draft EN-7.

The approach assesses sites that have the potential to be technically feasible for nuclear deployment while also addressing economic and other factors. For a site to be developed it must also be socially acceptable.

Midlands Nuclear reviewed over 80 candidate sites and identified 21 sites across 7 counties in the Midlands

Brownfield sites are likely to provide the nearer-term siting opportunities.

Greenfield sites that pass the siting criteria could also be considered where there is a local need for energy and no suitable nearby brownfield sites.

All sites require further investigation as part of project development to establish the required economic investment, engineering mitigations and other compensatory measures that may be required for each site.

6 Brownfield Sites	**10** Greenfield Sites
3 Brownfield Sites with known mitigations	**2** Greenfield Sites with known mitigations
9 Brownfield Sites in total	**12** Greenfield Sites in total

Applications of Nuclear Energy

New nuclear is not only essential to decarbonise electricity but also industry and heat networks, and to deliver low carbon hydrogen and transport fuels. Its versatility across these sectors significantly expands the impact and value of nuclear energy in the Midlands.

Electricity System

Nuclear power is a proven source of low-carbon, reliable electricity, forming a stable backbone for the UK's future electricity grid. AMRs and SMRs also offer flexible generation capabilities with the ability to ramp output up or down in response to demand fluctuations or renewable intermittency.

Industrial Applications

Nuclear energy offers potential for industrial decarbonisation through direct heat and production of low-carbon hydrogen, and synthetic fuels. Nuclear energy can also enable creation of low-carbon fuels for applications such as aviation and shipping.

Data Centres and AI

As AI and data centre demand accelerates, so too does the need for resilient, low-carbon power. Nuclear delivers 24/7 clean power at scale. Co-locating nuclear energy with digital infrastructure can improve security of supply and reduce system costs.

UK policy across energy, industry, transport, and heat increasingly recognises nuclear as a primary low-carbon energy source supporting its integration into the broader decarbonisation strategy.

Understanding the development of national energy policy is key to identifying how Midlands projects can align with existing plans while offering national opportunities to contribute to the energy transition.

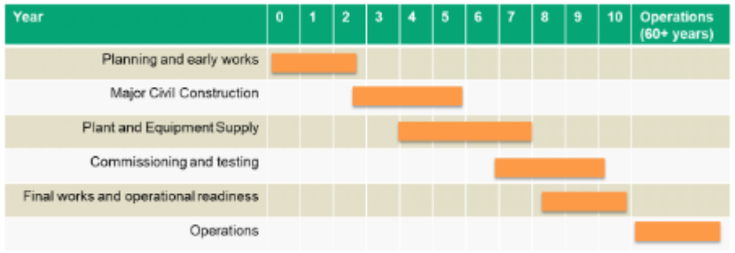
Philippsburg Pressurised Water Nuclear Power Station, Germany

Many applications for nuclear energy are emerging, with revenue certainty and market mechanisms in place that provide nuclear projects with routes to multiple energy markets including electricity, hydrogen and sustainable fuels.

Delivering Regional Economic Growth

New nuclear deployment represents a multi-billion-pound opportunity to transform the Midlands' industrial base. The modular nature of SMRs and AMRs, with a greater proportion of factory-built components, creates clear demand for regional manufacturing sites and logistics capabilities, benefiting both large firms and smaller businesses. This investment can deliver long-term economic resilience. The Midlands is centrally located, economically diverse and rich in technical expertise. The region is therefore ideally positioned to host new nuclear generation and associated infrastructure.

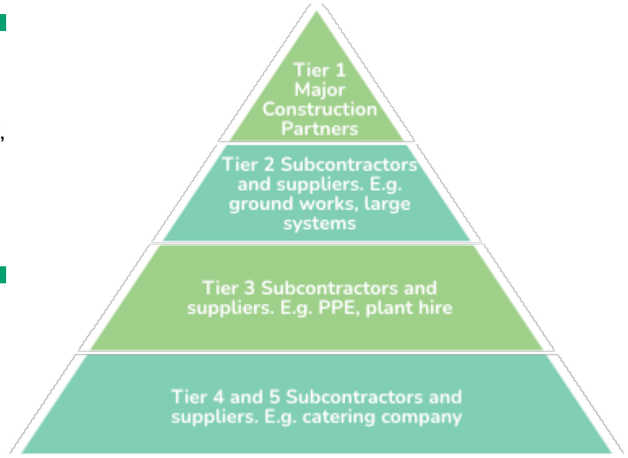
New nuclear deployment would unlock significant regional supply chain participation, stimulate high-value job creation, attract inward investment, and support long-term skills development across the Midlands.



This 10-year delivery timeline shows how nuclear projects create supply chain opportunities at every stage from planning to operations. With 60+ years of lifespan, they offer not just contracts, but lasting economic impact across all tiers and skill levels.

Nuclear projects generate value across the entire supply chain, from major contractors to local service providers. With the right strategy, the Midlands can enable businesses of all sizes to access, contribute to, and benefit from nuclear investment.

Based on the economic value generated from current nuclear new build programmes, the local gross value added to the region from a twin-unit deployment could be £500-660m [1].



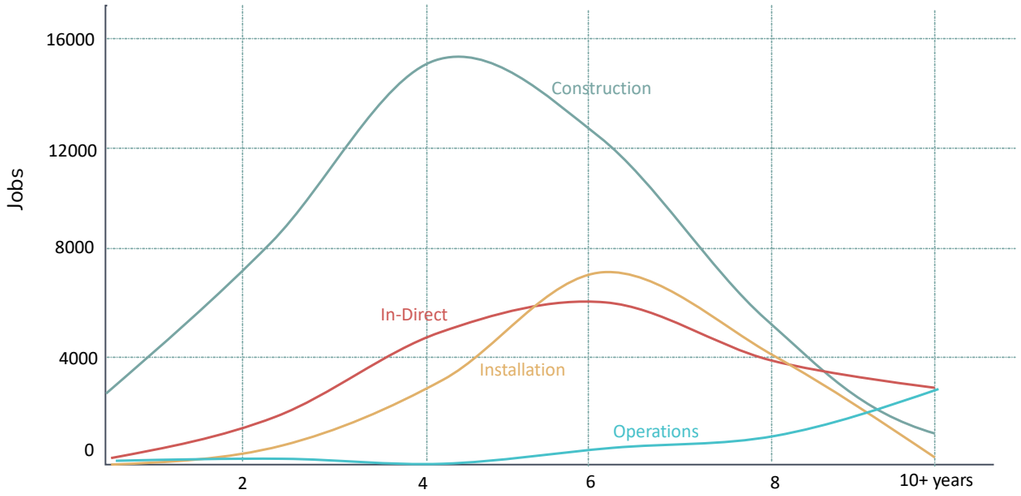
1. Hinkley Point C reported as adding £1.5-2Bn GVA to the South West economy based on more than 8,500 jobs at peak construction and a 3.2GW total electricity output. Figure quoted is based on this GVA figure scaled to a deployment of 1GW new nuclear, which is roughly equivalent to two Rolls-Royce SMR.

Driving Regional Jobs and Prosperity

Nuclear deployment in the Midlands has the potential to unlock thousands of high-quality jobs across construction, engineering, and manufacturing through planned developments at the two identified locations. Significant investment will be needed in apprenticeships, technical education, retraining programmes and specialist skills academies aligned to nuclear sector needs. Partnerships with universities, colleges, and industry bodies can be expanded to build a resilient and future-ready workforce.

With long lead times and multi-decade operations, nuclear offers stable, long-term career pathways, helping to retain and upskill talent in the region. In a region where many face financial insecurity in retirement the creation of secure, future-oriented employment can help address systemic challenges in income, opportunity, and social mobility.

For the Midlands, investing in nuclear is not only about energy security, but also a powerful driver of inclusive, place-based economic renewal.



Nuclear deployment in the Midlands presents a transformative economic opportunity, unlocking thousands of skilled jobs, attracting billions in regional investment, and stimulating growth across local supply chains and manufacturing hubs.

With two potential deployment sites, the region is positioned to become a national leader in clean energy infrastructure. From civil construction to long-term operations, nuclear projects will drive inclusive, high-value employment, support local business and anchor the Midlands at the heart of the UK's low-carbon industrial future.

3000

Estimated jobs supported by a Small Modular Reactor project

Jobs based on UK Government announcement of Rolls-Royce SMR as the preferred Technology Partner from the SMR competition

About Midlands Net Zero Hub

The Midlands Net Zero Hub is at the centre of the region's ambitious efforts to reach a low-carbon, clean-growth future.

Funded by the Department for Energy Security and Net Zero the Hub is one of five Local Net Zero Hubs across England that focus on helping the UK to reach net zero by 2050.

The Midlands Net Zero Hub supports local authorities, public sector organisations, and community groups to deliver decarbonisation strategies and projects. The Hub provides practical assistance to organisations in the region to:

- Attract commercial investment and help local authorities and other public sector bodies to develop investment models that accelerate progress to net zero.
- Increase the number, quality, and scale of local net zero projects being delivered in the region, including early-stage development and delivery of projects.
- Support net zero elements in wider programmes and initiatives, for example Levelling Up agenda.
- Support a national knowledge transfer programme to improve information sharing, training, and evaluation to strengthen and teach others.
- Raise local awareness of opportunities for and benefits of local net zero investment.

The Hub also supports the net zero agenda through project delivery of schemes including Social Housing Decarbonisation Fund, Home Decarbonisation Skills Training Competition, and Local Energy Advice Demonstrator.

For more information on the Hub please see www.midlandsnetzerohub.co.uk

About Midlands Nuclear

Midlands Nuclear is a collaborative initiative established to ensure that the Midlands is well positioned to potentially benefit from future nuclear developments.

Originally founded by the Energy Research Accelerator and the Midlands Engine, the programme is now managed by the newly formed East Midlands Combined County Authority (EMCCA).

Midlands Nuclear brings together 25 partners with regional strengths in advanced manufacturing, engineering, and nuclear innovation, along with specialists in research and development, to support the introduction of both large-scale and small modular reactor (SMR) technologies.

Midlands Nuclear acts as a strategic hub for investment, policy engagement, skills development, and supply chain coordination, helping the region play a central role in the UK's transition to low-carbon energy.

With globally recognised research institutions, a highly skilled workforce, and industrial capabilities aligned to the needs of the nuclear sector, the Midlands is uniquely placed to contribute to the UK's energy security and net zero ambitions.

For more information, visit: www.midlandsnuclear.co.uk

About Equilibrion

Equilibrion is a nuclear strategic and technical consultancy and project development company with a growing footprint across the UK energy sector. Formed in 2022 to realise the potential of nuclear energy and mitigate the worst effects of climate change.

With a diverse and ever-growing range of partners and customers in the nuclear and non-nuclear sectors, Equilibrion provides services to support organisations deliver on their nuclear deployment and decarbonisation ambitions.

In particular, in relation to nuclear siting, Equilibrion continues to undertake a range of site assessment activities, of which Midlands Nuclear Siting is one.

For more information, visit: www.equilibrion.co.uk

The Power Plant Siting Study

Confidentiality and Intellectual Property Statement

This document includes findings drawn from the Energy Technologies Institute's (ETI) Power Plant Siting Study (PPSS) which is utilised under licence to Portinscale Consulting Limited through kind permission from the Energy Systems Catapult (ESC).

The ability to use ETI research and information under licence from the ESC was granted to Portinscale Consulting Ltd to enable its Director (Mike Middleton) to consult using the nuclear portfolio projects and reports from the ETI and ESC following his retirement from the ESC. This was granted because otherwise this knowledge would be lost and unavailable to the industry and associated stakeholders. The licence does not permit him to transfer the PPSS reports in whole or in part, because this would be a step towards sublicensing which is not permitted.

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