FACTSHEET

MIDLANDS ENGINE

OBSERVATORY

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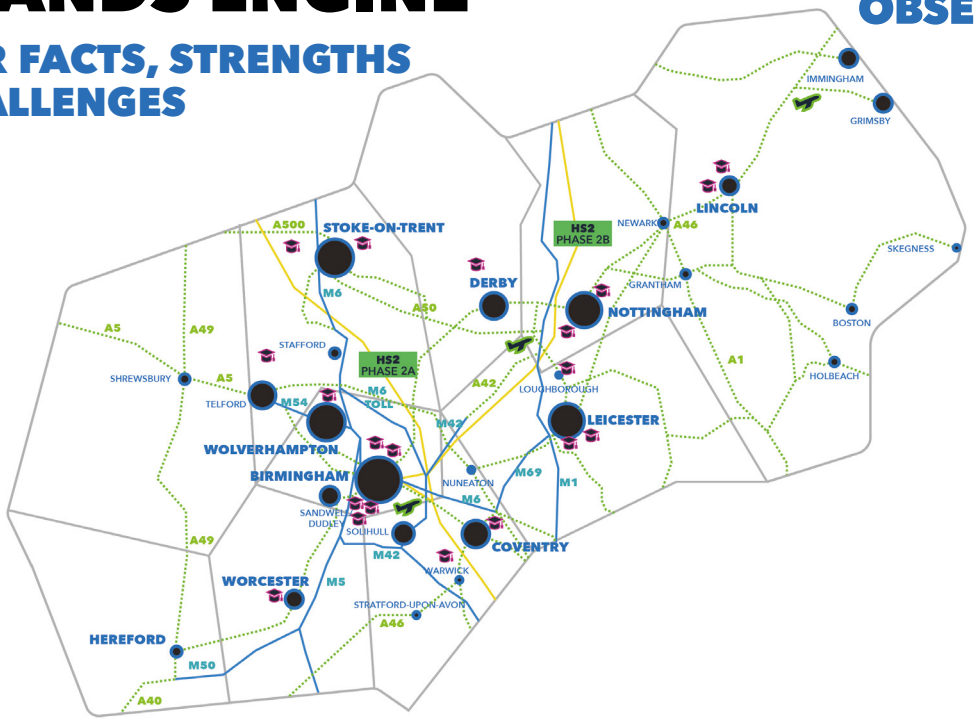
NUCLEAR FACTS, STRENGTHS AND CHALLENGES



THE NUCLEAR PICTURE

- Research shows from the UK Civil Nuclear Industry that **7.7% of the UK's total nuclear workforce** (64,509) is in the Midlands. Almost **5,000 people** (4,947) are **employed in the civil nuclear sector** in the Midlands according to the Nuclear Industry Association. The majority of these are in the East Midlands (3,967), with a further 980 located in the West Midlands.
- Further research from the UK Civil Nuclear Industry shows the majority of Midlands' employment in nuclear is within **Rolls-Royce**, with more than **3,000 jobs** at their Derby base. Other key employers including Assystem (over 200 employees across Derbyshire), Cavendish Nuclear (over 300 employees across Leicestershire), Goodwin International (over 300 jobs in Stoke-on-Trent), Ansaldo Nuclear (over 200 jobs in Wolverhampton) , and Kuka Systems UK (nearly 150 jobs in Greater Birmingham).
- The **value and investment of nuclear grew** in the Midlands Engine by 29% from 2017/18 to 2019/20. This is **much faster than across the UK** as a whole. Total regional investment in 2019/20 was £2.5bn.
- The Midlands hosts important components of the UK's nuclear skills based. Rolls-Royce in Derby is the project lead for the Small Modual Reactor (SMR) programme and recently committed to taking on 200 apprentices a year for ten years at its **new Nuclear Skills Academy** there. Infinity Park, Derby also hosts Nuclear Advanced Manufacturing Research Centre (AMRC) Midlands. Meanwhile, Midlands Universities like Birmingham host degree programs in nuclear-related skills.
- **16% of the UK's electricity** came from nuclear power plants in 2020, second only to gas in the electricity mix.

However...

- The **amount of the UK's electricity coming from nuclear has declined since the 1990s.** Several power plants have been permanently shut down since that time
- Nuclear power capacity in the UK is likely to **decline in the short to medium term**, as the capacity of reactors scheduled for decommissioning in the near future is greater than that of approved new reactors
- The **UK's nuclear capacity in 2050 will be a third of what it is today** if no other new nuclear power stations are built
- The All-Party Parliamentary Group (APPG) on Nuclear Energy has said that the **UK will lose critical capabilities** and **its position as an international leader** in nuclear technology without new nuclear investment
- ECITB report that the nuclear workforce is ageing and not enough young people are being recruited – **39% of the workforce are over the age of 50 while only 15% are under 30.**

OPPORTUNITIES, AMBITIONS AND FUTURE PLANS

- The government's **Energy Security Strategy** details plans to significantly **accelerate nuclear by up to 24GW by 2050.** This represents 25% of projected electricity demand
- There are opportunities for the Midlands to play a more significant role in this through the development and deployment of **Small Modular Reactors (SMRs)**, **Advanced Modular Reactors (AMRs)** as well as within nuclear fusion with the **Spherical Tokamak for Energy Production (STEP) programme**
- **Great British Nuclear** is a new government body set up to bring forward new projects backed by substantial funding. This includes the **£120m Future Nuclear Enabling Fund**, which could help deliver up to 8 reactors by 2030
- The **Advanced Nuclear Fund** includes up to **£210m** (announced in November 2021) for Rolls-Royce to develop the design for one of the world's first SMRs. This could be deployed in the UK in the early 2030s to turbocharge UK nuclear capacity
- The **world's first nuclear fusion power plant** could be built in the Midlands: maximising levelling up in the East Midlands and across the Midlands Engine region.

However...

- Russia's invasion of Ukraine has accelerated the need for **greater self-sufficiency in energy supply**. This is an opportunity for nuclear but the long timescale for production and operation means there are concerns for short- and medium-term supply. **Rising costs and prices** continue to be a major issue, particularly for utilities, wages and materials
- Employer surveys suggest hard-to-fill vacancies already account for almost 6% of the nuclear industry workforce. This is mainly due to a lack of suitably qualified candidates
- **Only 14% of employees in the nuclear sector are women.** The **Nuclear Sector Deal** set a target of achieving a workforce of 40% women by 2030, so it's clear the sector has a long way to go to achieve this
- **Safety concerns** continue to dampen nuclear's prospects. These include the danger of nuclear weaponry as well as difficulties in the long-term disposal of nuclear waste
- **The East Midlands has the lowest level of government R&D investment per capita** (£89 per person), despite a relatively high business R&D (£352 per person). There is also underinvestment in the West Midlands. R&D investment through nuclear would provide a much-needed boost and leveller in terms of innovation.

KEY ASSETS AND CENTRES OF EXCELLENCE

- **The Nuclear Advanced Manufacturing Research Centre (AMRC) Midlands** is a new industrial R&D centre in Derby where partners are developing a **£20m bespoke research facility** for the UK's nuclear supply chain. It adds value by developing the industrial and academic pipeline through supply chain development and by engaging with academic organisations and the 'skills pipeline' – including roll out of Science, Technology, Engineering and Mathematics (STEM) and nuclear apprenticeships
- **Rolls-Royce** is based in the region and has been awarded a four-year full-service engineering design framework contract by the UK Atomic Energy Authority (UKAEA). The contract means Rolls-Royce will help deliver multi-disciplinary projects for the UKAEA
- **The Energy Research Accelerator** collaboration (based in Nottingham) has significant expertise in nuclear energy technology, operational performance and decommissioning
- **The National Centre for Nuclear Robotics** is home to a consortium of universities (led by the University of Birmingham) developing cutting-edge technologies to solve the problem of nuclear waste.