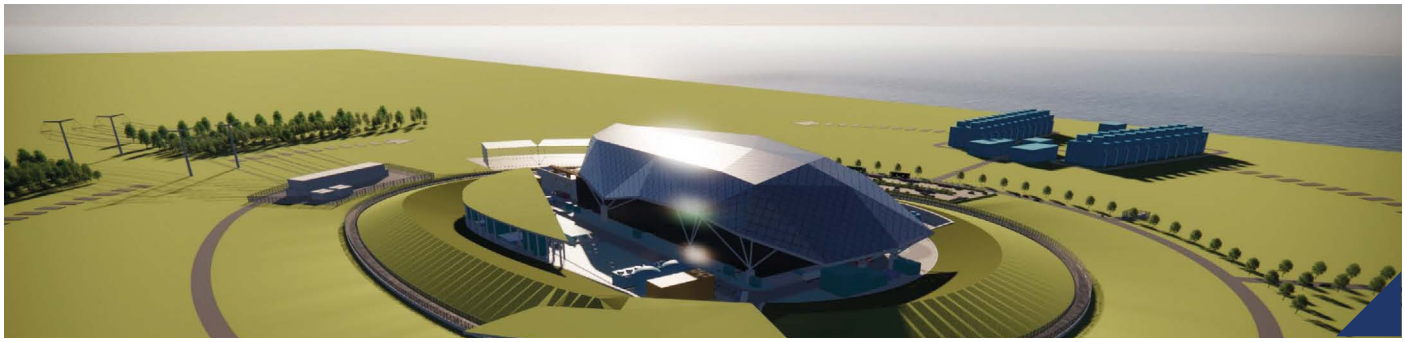
The Midlands: powering the UK's clean energy revolution



Rolls-Royce Small Modular Reactor (SMR)

CASE STUDY

The Midlands has been home to the globally renowned Rolls-Royce since 1906. The company is responsible for a myriad of leading innovations across aerospace and power systems, with its solutions used by both civil and defence companies, corporations and government agencies across the world. The latest of these innovations is the Rolls-Royce Small Modular Reactor (SMR), building on seven decades' worth of experience in designing and delivering nuclear solutions.

With the global demand for clean, baseload energy projected to expand exponentially, there is a significant market opportunity for Rolls-Royce SMR to capitalise on its lead in the nuclear regulatory domain.

The Rolls-Royce SMR is a factory-built nuclear power plant solution that will offer clean, affordable energy for all. It is a solution that can be constructed and made operational at a consistent and predictable rate - something that conventional nuclear design and build technology has struggled with - lowering costs, reducing uncertainty, and raising confidence for developers. This will allow countries around the world to more quickly access low-cost, low-carbon energy.

A Rolls-Royce SMR will have very high levels of availability, estimated at 92% for 60 years. This means it offers long-term stable clean energy that can support on-grid electricity, as well as a host of off-grid energy solutions.

The real innovation in this solution lies in the modularisation of what is already a reliable and proven technology. Around 90% of the plant is factory-fabricated, as Rolls-Royce SMR looks to move beyond the old model of nuclear new build being a major one-off infrastructure project, something it argues is "no longer fit for purpose".

By maximising the use of a factory environment for consistent and reliable construction, the majority of the plant can be delivered as modules by road or rail to an on-site factory. This on-site factory further leverages the predictable and stable factory environment to ensure the project is delivered on time and on budget. This approach reduces costs, lead times, and risks associated with developing a new, inexperienced supply chain and eliminates the need for a new engineering, procurement, and construction (EPC) contractor team for each plant.

This model is entirely scalable, meaning there is potential for international exports in excess of £250bn. With memorandums of understanding already in place with Estonia, Turkey and the Czech Republic, Rolls-Royce SMR is in a unique position to capitalise on this opportunity. Once the SMR programme is fully operational, Rolls-Royce SMR is expecting to create 40,000 regional UK jobs by 2050 and generate £52bn in regional economic benefits.

Credit: https://www.rolls-royce.com/innovation/small-modular-reactors.aspx

https://www.rolls-royce-smr.com/

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