Driving the Electric Revolution
Industrialisation Centres

UK Research and Innovation

DER Industrialisation Centre North East and 5G

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Chief Operating Officer

Building UK capability in Power Electronics, Machines & Drives

Driving the Electric Revolution is a UKRI funded cross sector Challenge in transport, energy and industrial

Power Electronics, Machines & Drives (PEMD) are essential to next generation technologies:

- All UK cars to be zero carbon by 2035 (no 100% ICE from 2030)
- New aircraft to be electric/hybrid to meet next phase emissions and noise legislation by 2040
- Renewables (Wind, Wave, Tidal) to form and increasing percentage of energy generation (80% CO_2 reduction by 2050)
- High speed rail network to grow, no new diesels after 2040
- Marine transport target 50% CO_2 reduction by 2050
- PEMD supports the realisation of the industrial digital technology (IDT) revolution – Industry 4.0

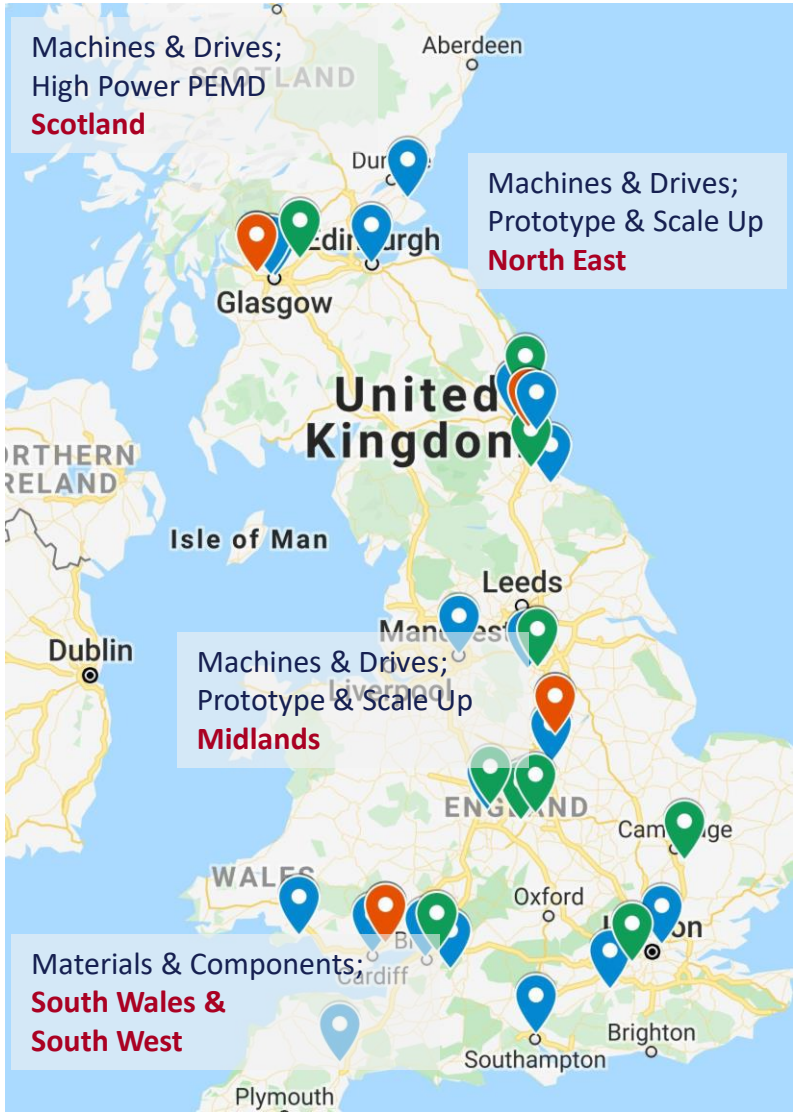
DER Driving the Electric Revolution Industrialisation Centres
North East | South West & Wales | Midlands | Scotland

UKRI UK Research and Innovation

DER-IC network partners

National reach through four regional centres (Scotland, North East, Midlands and South West & Wales);

- Access to £300m+ of existing capability across more than 30 partner organisations
- Regional centres facilitate access to industry clusters and support from SME to large OEM
- To deploy recognised PEMD industrialisation expertise
- To leverage regional and devolved funding for industry



DER-IC North East

The DER-IC North East centre has received **c£6m** of investment of an Innovative, Scalable, **Machine** and **Power Electronics Assembly line**, which is a critical enabler for PEMD growth in the UK.

DER-IC activities

- Bringing industry to network partners, including industry and supply chain partners, across multiple sectors
- Demonstrating partner capability to the broader PEMD community
- Creating and developing more collaboration opportunities with the DER-IC business development team
- Working more closely with UK funding bodies to grow PEMD CR&D project activity
- Attending and hosting DER-IC webinars and knowledge transfer events

Building UK capability in Power Electronics, Machines & Drives

DER-IC North East Equipment

- **The Power Electronics assembly line** is designed to assist companies in developing, prototyping, and scaling up power electronic products such as converters, inverters etc..
- **The Flexible Electric Machine Assembly Line** automated and reconfigurable prototyping and scale-up cells which includes stator assembly, rotor assembly, chemical dispensing, automated machine assembly and high-performance testing.
- The structure of the equipment supports both 'end to end' manufacturing and individual manufacturing process innovation.
- The assembly will also be supported through digital and data analytics, from **digital simulation** through to **digital twin** to allow for virtual configuration.

DER-IC North East using 5G technologies

- The centre will also provide **5G wireless infrastructure**. Providing an industrial grade mobile network which will;
  - Support new innovative services in our manufacturing process;
  - Develop flexibility to rapidly reconfigure and retool assembly lines for quickly responding to changing demands.
  - Enable and support seamless collaboration between humans, and robots helping to increase productivity and efficiency
  - support the continual drive for operational efficiency - a key focus for the sectors we work with.

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