

**“JOULE – PEM”: PEM Fuel Cell Test Stand for Low Carbon Technologies** – Grant awarded £41,362

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**Summary**

The hydrogen economy, and the manner in which the UK and other countries might adopt such an economy, is currently the subject of much discussion. A key technology for the hydrogen economy is the hydrogen powered fuel cell, and it is widely believed that the polymer electrolyte membrane (PEM) fuel cell will be used for automotive applications. *The aim of this project is to establish a PEM fuel cell test system which will be used for a wide range of related research projects.* Fuel cell tests are an essential step not only in the development of materials and components for fuel cells, but also in the evaluation of technologies that are intended to interact with the fuel cell, such as hydrogen carrier systems. Currently new fuel cell materials are being developed in Manchester, including membranes, electrocatalysts, and bipolar plate materials, but there are no facilities for evaluation of these new materials in a hydrogen PEM fuel cell. Furthermore, the use of organic hydrides as a hydrogen carrier has been evaluated at Manchester with a solid oxide fuel cell system, and testing with a PEM system is needed to determine whether this system can be integrated with a range of fuel cell technologies.