



UNIVERSITY OF BIRMINGHAM

LAB TOURS, 13:30, Friday 2nd December

A member of the Birmingham team will accompany each group on the tour, which takes approximately 2 hours. The tours will start with an introductory presentation and visits to Chemical Engineering, Mechanical Engineering, and Metallurgy and Materials.

Cryogenic energy storage

The Birmingham Centre for Energy Storage (BCES) is the first in the UK to have a research facility for energy storage using cryogenic liquids, comprising new laboratories, state of the art equipment, and a major demonstration plant. Cryogenic energy storage systems use off-peak electricity to liquefy air. The cryogenic liquid that is formed is stored in a vessel then vapourised into a gas during an expansion process, driving a turbine. This system generates electricity when it is most needed.



Thermal energy storage

Thermal energy storage (TES) is a technology based on heating a storage medium so the thermal energy in the system can be used at a later time. TES response time is minutes for GWh scale applications. TES can help to provide balance between the energy demand and supply on the grid and utilise the waste heat generated by the different energy generation systems.

Four research areas:

- Novel materials for increased energy and power density, as well as improved operational stability during the discharge process.
- Thermodynamics and generation processes, focusing on a reduced footprint, increased discharge stability and reduced energy losses of the heat exchange processes.
- Systems integration, control and optimisation focuses on optimising the performance of CES and TES systems on the grid and in the energy market.
- Pilot-scale test bed facility to demonstrate CES and TES applications.

University of Birmingham lab tour