



Project FORTE - Nuclear Thermal Hydraulics R&D for BEIS

Nuclear Thermal Hydraulics Facility Specification

BENEFITS - A facility specification that bounds a wide range of technologies and research areas

Funded by BEIS through the Nuclear Innovation Programme, the facility specification is flexible and bounds all possible test rigs, and has developed a vision for the population of the facility with specific test rigs and interaction with other nationally-funded activities.

This leaves BEIS well placed to take the next step of commissioning the design and delivery of the facility with confidence, and the assurance that investment in the facility will be instrumental in securing a position for the UK as a leading provider of thermal hydraulics innovation and qualification for new nuclear power plant designs.

THE CHALLENGE - Meeting the needs of current, near term and longer term technologies

Thermal hydraulics is key to the overall system integration and design of reactor plants and it is important to build this capability now to position the UK to take advantage of nuclear new build, SMR deployment and Gen-IV reactor development. New nuclear plant designs all have novel thermal hydraulic processes which must be qualified before they can be accepted. The UK must develop experimental facilities, from a low existing base, if it is to leverage its existing thermal hydraulics knowledge and modelling capability, and reputation for nuclear safety best practice, to be key players in the international market for qualification of new and innovative designs.

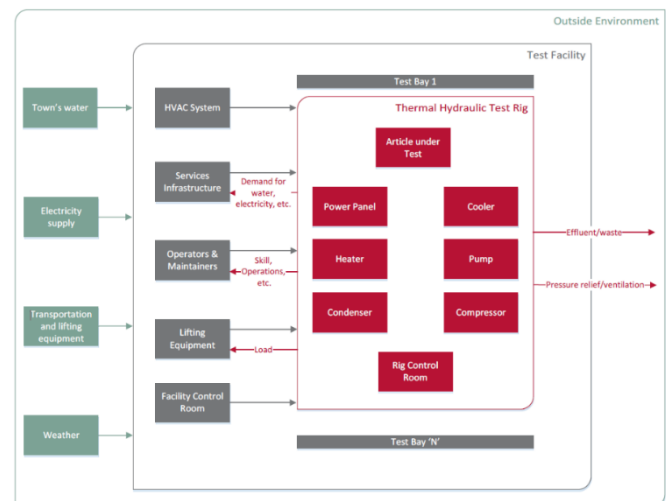
OUR SOLUTION - Gain the best possible input from academia and industry

Our vision is to support development of an integrated experimental and modelling capability in nuclear thermal hydraulics across industry and academia in order to enable the UK to be a significant partner in the global deployment of advanced reactor technologies. To accomplish this, Frazer-Nash Consultancy has formed and led a team of partners (The University of Manchester, The University of Sheffield, Westinghouse, EDF Energy and the Science and Technology Facilities Council).



The technical approach to specifying the facility is summarised as:

- ▶ A critical review of the state-of-the-art in thermal hydraulic test facilities worldwide.
- ▶ A test facility option study to identify potential test rigs for the facility.
- ▶ A bounding specification for a UK thermal hydraulics test facility - space, power, and shared service requirements.
- ▶ An assessment of the Menai Science Park site.
- ▶ An initial exploitation plan for the test facility to plan the next steps in order to realise the benefits from the facility.
- ▶ Identification of opportunities to use the facility to benefit other 'NIRAB' programmes.



Contact

Richard Underhill, Frazer-Nash Consultancy, r.underhill@fnc.co.uk

