



Background

Narec collaborated with Northumbria University to develop an air source heat pump system test platform.

Heat pumps are effectively used throughout the world for space heating, however, the Energy Saving Trust's recent heat pump trials have shown that installations in the UK do not perform well. This is due to a number of factors, including the installation, operating conditions and the type of properties they are used within.

This test platform is being used to enable a greater understanding of the problems encountered in typical UK properties. A test has been developed to give householders and industry a better measure of the Co-efficient of Performance (COP).

Project outline

The air source heat pump test system platform was designed to accurately measure the seasonal COP of an Air Source Heat Pump (ASHP) used for domestic space heating and hot water.

The test also incorporates the integration of a solar thermal domestic hot water pre-heat to evaluate the benefit of integrating renewables and also dumps hot water from the heat pump according to a programmed tapping.

Currently the testing of heat pumps is subject to BS EN14511 which was originally designed for air conditioning systems and does not look at the true dynamic weather conditions a heat pump system has to deal with. It differs significantly from the BS EN14511 test standard in that it presents the heat pump with a constantly varying thermal load determined by a real-time Matlab/Simulink thermal model of a notional house.

Project Outcomes

This test is unique in its approach and Narec believe it will yield useful results to inform policy makers.