

## Hybrid Heat Pumps

### What is a hybrid heat pump?

A hybrid heat pump is a combination of an electric heat pump and a conventional gas or oil boiler. Hybrid heat pumps can be operated in different ways, but the most common is for the heat pump to be the first choice to provide heating, with the boiler providing supplementary heating the heat pump cannot satisfy demand. Depending on the design, the boiler may then top-up to the heat pump output or temporarily satisfy the full demand. The boiler may also provide instantaneous hot water.

For some types of building they potentially provide a more manageable interim pathway towards a low-carbon energy system than an “all heat pump” approach. Products have been on the UK market since 2011 but the number of installations is small

Roger Hitchin, Consultant and former Technical Director of BRE, May 2018

### Key Issues

- Allows the use of heat pumps in existing fossil fuel-heated buildings that have substantial heat losses and a single-phase electricity supply
- Can be used with existing radiator systems
- Can provide a hot water service without need space for hot water storage
- Lower carbon emissions than gas-only systems, especially as electricity decarbonises
- More expensive than gas-only systems.
- Can have smart controls to optimise running cost or carbon emissions, or provide demand-side management
- Delays the full impact of a heat-pump only heating scenario on the electricity (and gas) grids
- Several products on the market
- A few UK field trials so far

### LINKS

- Hybrid Heat Pumps. Final report Element Energy for Department for Business, Energy & Industrial Strategy December 2017, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/700572/Hybrid\\_heat\\_pumps\\_Final\\_report-.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700572/Hybrid_heat_pumps_Final_report-.pdf)
- E Carter, O Lancaster, F Chandra, Early results from the FREEDOM project: fully-optimised hybrid heat pumps providing demand flexibility: <http://hpc2017.org/wp-content/uploads/2017/05/O.2.2.3-Early-results-from-the-FREEDOM-project-fully-optimised-hybrid-heat-pumps-providing-demand-flexibility.pdf>
- Evidence gathering - High temperature heat pumps, hybrid heat pumps and gas driven heat pumps: <https://www.gov.uk/government/collections/heat-pump-research>
- Hybrid Systems BSRIA (2011) <https://www.bsria.co.uk/file-depot/download/29886-5DE25B87>

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