

tec the Environment Centre (tec)

Air Source Heat Pumps

What are Air Source Heat Pumps?

Air source heat pumps (ASHP) absorb heat from the outside air, using the same technology that is found in refrigerators. This heat can then be used to heat radiators, underfloor heating systems, or warm air convectors and hot water in your home. An ASHP extracts heat from the outside air, even in temperatures as low as -15°C .

How do they work?

Heat from the air is absorbed at a low temperature into a fluid. This fluid then passes through a compressor where its temperature is increased, and transfers its higher temperature heat to the heating and hot water systems of the house. There are two main types of ASHP systems: **Air-to-Water** and **Air-to-Air**. An Air-to-Water system distributes heat via the wet central heating system whereas an Air-to-Air system produces warm air which is circulated by fans to heat the home.

What are the costs and savings?

The cost of an ASHP unit can range from £5,000 to £10,000*, depending on the size of the property it needs to heat. There may be additional installation costs but maintenance costs are low. Air-to-water pumps are eligible for the Renewable Heat Incentive (RHI).

Existing System to be replaced	Fuel Bill Savings by replacing old system** (£ per year)	Carbon Dioxide Savings by replacing old system** (kg CO ₂ per year)
Gas older (non-condensing)	£80 - £165	1,700 – 2,700 kg
Electric (old storage heaters)	£635 - £1,250	6,300 – 11,100kg
Oil older (non-condensing)	-£160 to -£215 (note that this is a loss rather than a saving)	2,700 – 4,100kg
LPG older (non-condensing)	£985 - £1,545	2,500 – 3,900kg
Coal	£370 - £670	7,200 – 11,500kg



Sources:

*The Centre for Sustainable Energy (2013)

**The Energy Saving Trust (Figures are based on fuel prices as of March 2016)

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