MCS Performance Estimate

Under the terms of the Microgeneration Certification Scheme we are required to give you an estimate of your heat pump system's energy consumption using a standardised procedure based on values from your Energy Performance Certificate (EPC).

Your Energy Requirements

Energy required for space heating	**12986 kWh**
Demand to be supplied by the heat pump	**12986 kWh**
Energy required for hot water	**3028 kWh**
Demand to be supplied by the heat pump	**3028 kWh**

Your Property

Your postcode prefix	**SY**
Total property floorspace (not property footprint)	**92.74 m²**
Average watts per square metre	**70 W / m²**

Note: W/m² is a measure of your property's thermal efficiency.
0-30W/m² is very low heat loss and 120-150W/m² is very high heat loss.

Proposed System

Heat pump capacity	**6.54 kW**

Note: unless a full heat loss calculation has been undertaken, this figure is indicative only and may change.

Heat pump type	**Air source heat pump**
System is proposed to provide	**Space heat and hot water**
Proposed heating system will be	**Mostly upgraded radiators**
The proposed flow temperature will be	**51 °C**

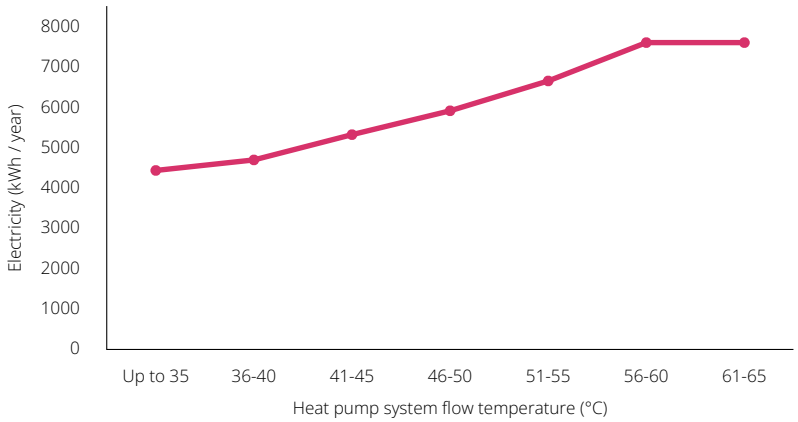
Performance

The seasonal performance factor is calculated to be:	**2.8**

	High estimate	Low estimate
Estimate of energy consumption of the proposed heat pump	**7228 kWh**	**5914 kWh**

Note: you can convert these figures to approximate running costs.

Graph of system performance



Important note

This is not a detailed system design. It offers a reasonable estimate of likely performance and a description of the likely design.

Applicable warning notes

Success

There are no notes from your performance calculations. Everything is good.

MCS Key Information

The heat demand of a building, and therefore the performance and running costs of heating systems, is difficult to predict with certainty due to the variables discussed here. These variables apply to all types of heating systems, although the efficiency of heat pumps is more sensitive to good system design and installation. For these reasons your estimate is given as guidance only and should not be considered as a guarantee.

Seasonal Performance Factor

Seasonal performance factor (SPF) is a measure of the operating performance of a heating system incorporating an electric heat pump over a season, typically a year. It is the ratio of heat delivered to the total electrical energy consumed by the unit over the same period. As a guide, a heat pump system achieving an SPF of 3 would have delivered 3 kWh of heat energy for every 1 kWh of electrical energy it consumed over a 'standard' annual cycle.

Energy Performance Certificate

An energy performance certificate (EPC) is produced in accordance with a methodology approved by the government. As with all such calculations, it relies on the accuracy of the information input. Some of this information, such as the insulation and air tightness properties of the building may have to be assumed and this can affect the final figures significantly leading to uncertainty especially with irregular or unusual buildings.

Identifying the uncertainties of energy predictions for heating systems

We have identified 3 key types of factor that can affect how much energy a heating system will consume and how much energy it will deliver into a home. These are 'Fixed', 'Variable' and 'Random'. Most factors are common to ALL heating systems regardless of the type (e.g. oil, gas, solid fuel, heat pump etc.) although the degree of effect varies between different types of heating system as given in the following table.

The combined effect of these factors on energy consumption and the running costs makes overall predictions difficult however an accuracy ±25-30% would not be unreasonable in many instances. Under some conditions even this could be exceeded (e.g. considerable opening of windows). Therefore it is advised that when making choices based on mainly financial criteria (e.g. payback based on capital cost verses net benefits such as fuel savings and financial incentives) this variability is taken into account as it could extend paybacks well beyond the period of any incentives received, intended occupancy, finance agreement etc.

Further Information

The Microgeneration Certification Scheme (MCS) is the UK's quality assurance program for certifying renewable energy products and installations.

MCS certifies both products (such as solar panels, wind turbines, and heat pumps) and the companies that install them, ensuring that products meet specific quality standards and that installations are performed by qualified and experienced professionals. They also provide a mechanism for handling complaints or disputes related to certified installations. MCS certification is a requirement for many incentive schemes, including the Boiler Upgrade Scheme grant for heat pump installations.

Factor	Impact
'Fixed' which include:	
Equipment selection performance figures (SCoP) from ErP data	System Efficiency
Energy assessment via the EPC (e.g. assumptions as to fabric construction and levels of insulation; the variation in knowledge and experience of Energy Assessors)	Energy Required
'Variable' which are affected by the system design and include:	
Accuracy of sizing of heat pump - i.e. closeness of unit output selection (kW) to demand heat requirement (kW)	System Efficiency
Design space and ambient (external) temperatures	Energy Required
Design flow / return water temperatures, and weather compensation	System Efficiency
Type of Heat emitter (e.g. Under-floor; natural convector (e.g. 'radiator'), fan convector etc.)	System Efficiency
'Random' which cannot be anticipated and include:	
User behaviour:	
• Room temperature settings	Energy Required
• Hot water usage and temperature settings	Energy Required
• Occupancy patterns/times	Energy Required
• Changing the design HP flow temperatures	System Efficiency
• Ventilation (i.e. opening windows)	Energy Required
Annual climatic variations (i.e. warmer and colder years than average)	Energy Required

The statement at the end of each item indicates the major factor affected as follows:

Energy Required

The heat energy output requirement of the system which directly impacts on running costs. This requirement exists regardless of the heating system chosen as it is the heat required to keep the space comfortable. Opening windows or increasing room temperatures will demand more heat output, which means more energy input but this would NOT directly affect the efficiency. Thus increased energy demand does NOT automatically mean reduced efficiency.

System Efficiency

The efficiency of the system has been directly affected and will therefore demand more input energy to achieve the same heat output thus increasing running costs. However, increased energy input does NOT necessarily mean lower system efficiency (see above).