

Open Home Profile

### Homeowner Information

* **Name:** Frances Robertson
* **Contact (optional):** frances\_robertson@yahoo.co.uk
* **Location:** 5 Cherington Road, BS10 5BH

### Home Overview

* **Home Type:** Semi detached house
* **Size:** 3 bedrooms, one bathroom
* **Renovation History:**

### **Green Features**

#### **Energy Efficiency**

* **Insulation:**

Internal solid wall insulation to most external walls, underfloor insulation to most of the ground floor of the house, and loft insulation.

* **Windows and Doors:**

Replaced older double glazing and front door – new 2019

Garden Room bifold and external door – new 2023

* **Heating System:**

Air Source Heat Pump mostly using existing radiators – installed 2021

* **Cooling System:** (Type, efficiency, and control system)

None

* **Lighting:**

All internal and external lights are LEDs

* **Appliances:**

All white goods were A or A\* rated (previous rating system) when installed

All gas removed from house and Induction Hob installed in 2021

* **Smart technologies**:

Smart meter

Zappi EV charger

#### **Renewable Energy**

* **Solar Panels:**

2.1 kW system on side roof installed in 2010

2.27 kW system on rear roof added in 2021

* **Battery Storage:**

None

* **Other Renewable Sources:** (Specify any additional renewable energy systems)

Solar water heating system installed in 2007.

#### **Indoor Environmental Quality**

* **Air Quality:**

All paints used were Green paints. Now most paints are low VOC easier to source environmentally better paints.

Wool carpets throughout to reduce plastics and chemicals.

Marmoleum used for hard flooring areas.

* **Ventilation systems**

Extractor fans in kitchen and bathroom are heat exchanging with on/off override

Tile Vents in roof to reduce loft condensation

All rooms have opening windows

Velux automation determines temperature and CO2 levels to decide if Garden Room needs ventilation. Can be manually operated through the electronic system.

Garden Room has bifold doors to enable the whole room to be opened to the rear garden.

* **Natural Lighting:**

Old lean to conservatory replaced by insulated Garden Room.

Garden room constructed in 2023 with green roof and automatic Velux windows.

Garden Room replacement with Velux windows has increased natural light into house.

#### Other useful information:

* Water from our roofs is captured in a number of different sized water butts and pumped to pond and greenhouse and used for pot watering as needed.
* Bike shed and garden room have green roofs. Green roofs slow down water runoff.
* All timber used for raised beds and pergola in garden is FSC and UK or European grown
* EV charger on side of house is Zappi charger which has eco modes and can charge solely on surplus energy from our solar pv system
* All battery powered items use either rechargeable batteries or solar charging (e.g. for security lighting)

#### Performance and Savings

* **Energy Savings:** (Annual kWh saved, percentage reduction compared to previous years)

Insulation, solar hot water and replacement gas boiler reduced gas consumption by 36% - 16,000 to 10,000 kwh.

Air Source Heat Pump and induction hob have reduced this gas use to zero but increased electricity import by 2,300 kwh on average.

Solar PV Panels generate some 4,000 kwh of energy which is used in the following ways:

* House – 1,000 kwh
* Car – 1,000 kwh
* Export at 15p/kwh – 2,000 kwh
* **Carbon Footprint Reduction:** (Estimate of CO2 reduction - this can be a useful tool to use <https://www.carbonfootprint.com/calculator.aspx>)

Carbon footprint of house originally c.4 tonnes if electricity was not renewable.

Use of Renewable electricity initially reduced by c.1 tonne.

Insulation, solar hot water and replacement boiler reduced it by a further c.1 tonne.

ASHP and Induction hob reduced CO2 emissions by c.2 tonnes to zero using renewable electricity, or by 1 tonne if grid average electricity carbon emissions are used.

Solar export of 2,000 kwh could be considered some offset of the emissions if grid average values used.

* **Financial Savings:** (Utility bill reductions, payback period for green investments)

Overall, at today’s prices, the house is costing significantly less than the baseline.

Insulation, solar hot water and replacement boiler reduced gas bill by 40% at the time.

ASHP has not reduced costs

Solar panels save about £850 per year - £700 by reducing our import of electricity and £150 payment for export of electricity.

#### Challenges and Solutions

* **Challenges Faced:** (Issues encountered during the renovation/work)

Unable to find external wall insulation contractors in 2007 so had to insulate internally.

#### Future Plans

* **Upcoming Projects:**

More solid wall insulation

* Add external wall insulation to front wall that has no internal insulation.
* Finish internal wall insulation in hallway.
* Insulate rear bedroom
* **Long-Term Goals:** (Goals for further reducing environmental impact)