

HEAT PUMP ENERGY REPORT

Pre-1920s house + PV + Heat pump

Workspace

 Site location

UK-Gloucester (51.89, -2.19) · UTC

 Heat pump heat pump

Design flow temperature (°C)	55.0
Minimum flow temperature (°C)	40.0
Weather compensation control	True
SCOP	4.13
SCOP reference temperature (°C)	45.0
Max heat pump power at design (W)	9450.0
Hysteresis (°C)	0.25

 Hot water tank

Hot water volume (L)	200.0
Hot water set temperature (°C)	55.0
Hot water hysteresis (°C)	10.0
Hot water charge delta T (°C)	7.0
Hot water litres per person per day	50.0
Cold water temperature (°C)	10.0
Hot water loss (W/°C)	2.0

 House

Heat loss at design temperature (W)	9450.0
Design outside air temperature (°C)	-3.0
Design inside temperature (°C)	21.0
Thermal mass (kJ/°C/m²)	160.0
Property floor area (m²)	120.0
Solar glazing g-factor	0.6
Number of occupants	3
Standby power contribution (W)	100.0

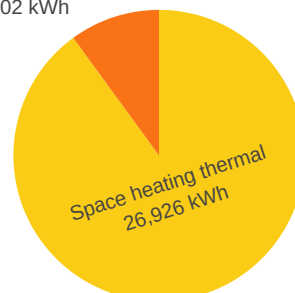
Summary

 Space heating electricity	6,816 kWh
 Hot water electricity	976 kWh
 Total heat pump electricity	7,792 kWh
 Space heating thermal output	26,926 kWh
 Hot water thermal output	3,002 kWh
 Total thermal output	29,928 kWh
 Average COP (space heating)	3.95
 Average COP (hot water)	3.08
 Average COP (combined)	3.84

Thermal output mix

Share of thermal output between space heating and hot water.

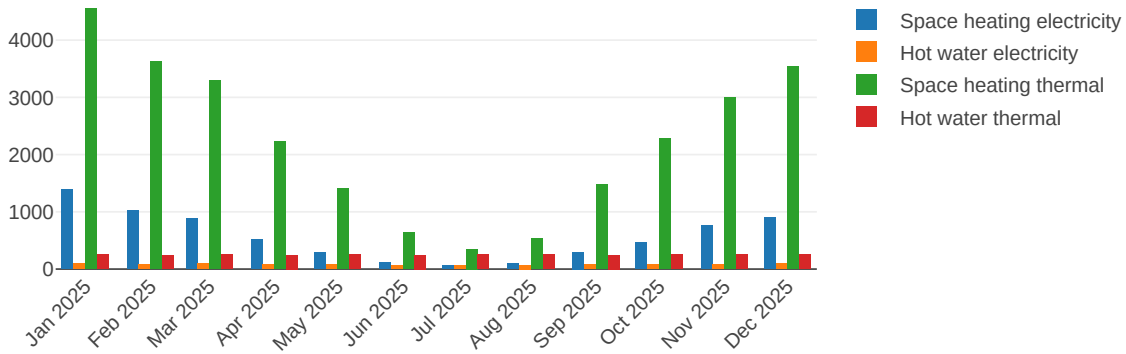
Hot water thermal  
3,002 kWh



# Yearly summary

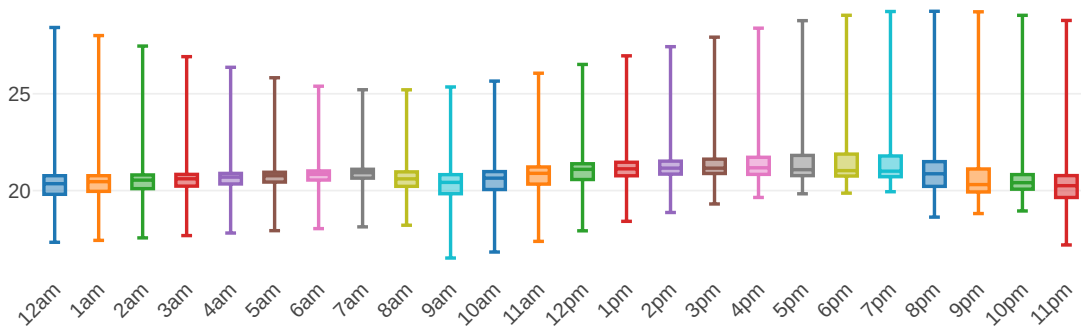
## Monthly heat pump energy

Electricity and thermal output by month: space heating and hot water.



## House temperature distribution by hour

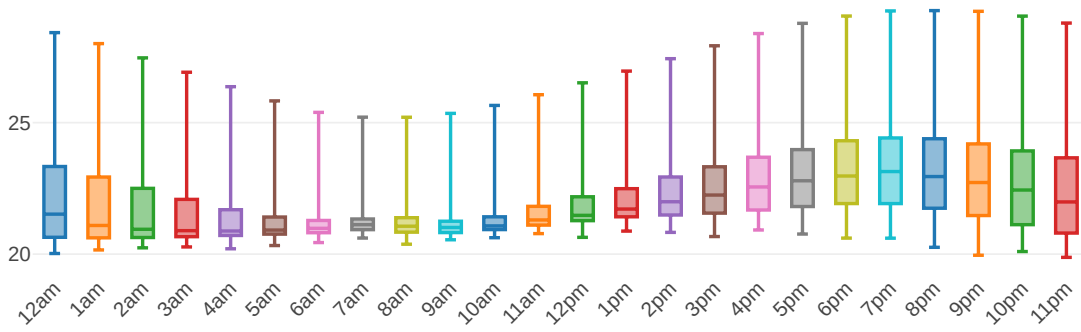
Spread of indoor air temperature by hour of day (box plot).



# Summer monthly summary

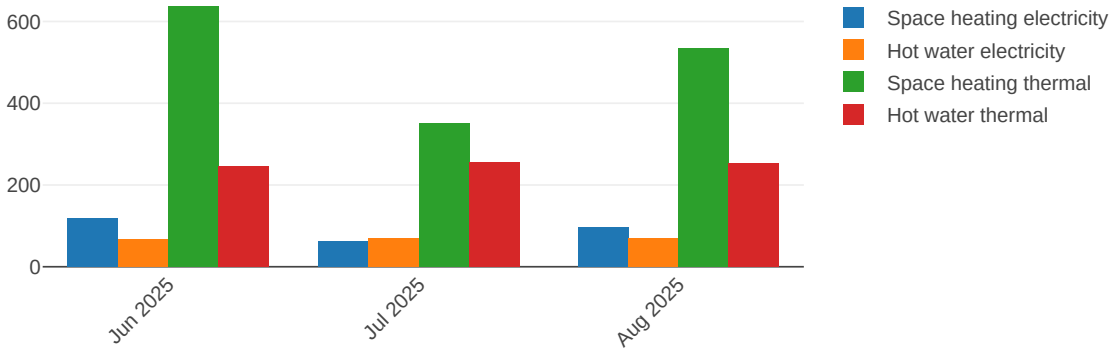
## Summer house temperature by hour

June, July, August: indoor temperature distribution by hour.



## Summer heat pump totals by month

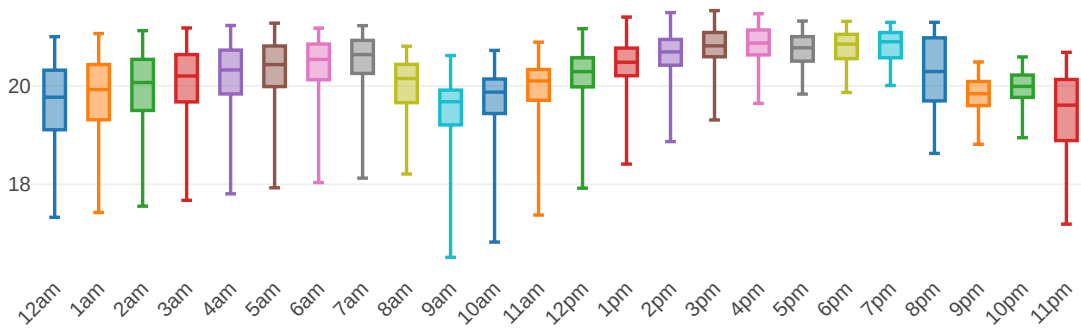
Electricity and thermal energy for June, July, August.



# Winter monthly summary

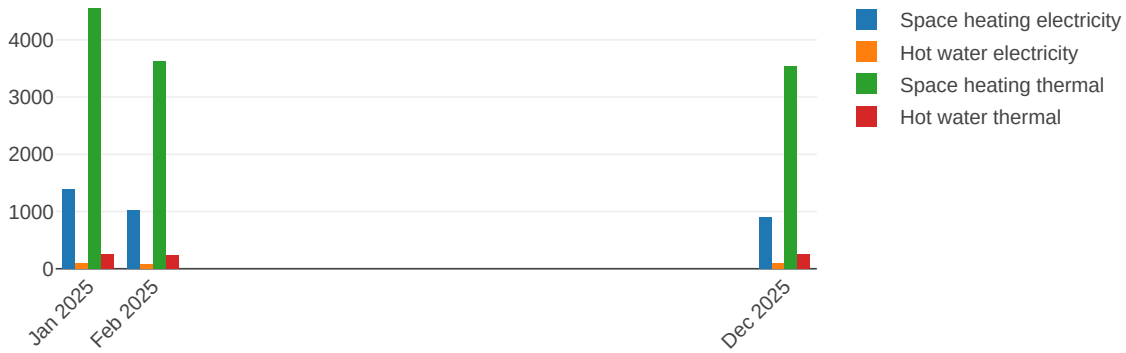
## Winter house temperature by hour

December, January, February: indoor temperature by hour.



## Winter heat pump totals by month

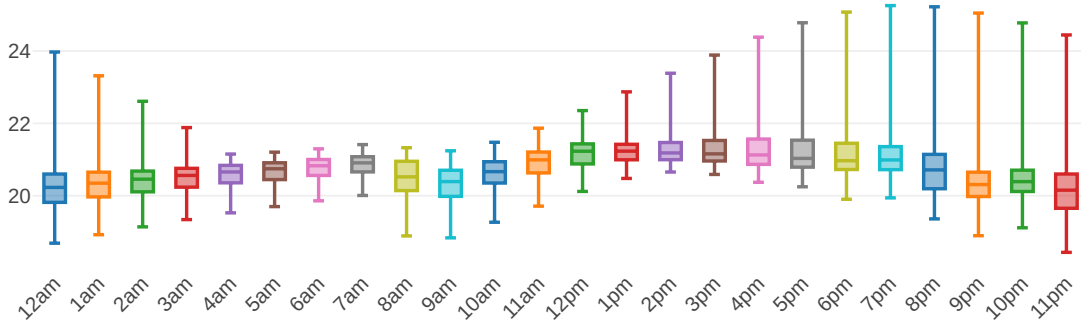
Electricity and thermal energy for December, January, February.



# Spring monthly summary

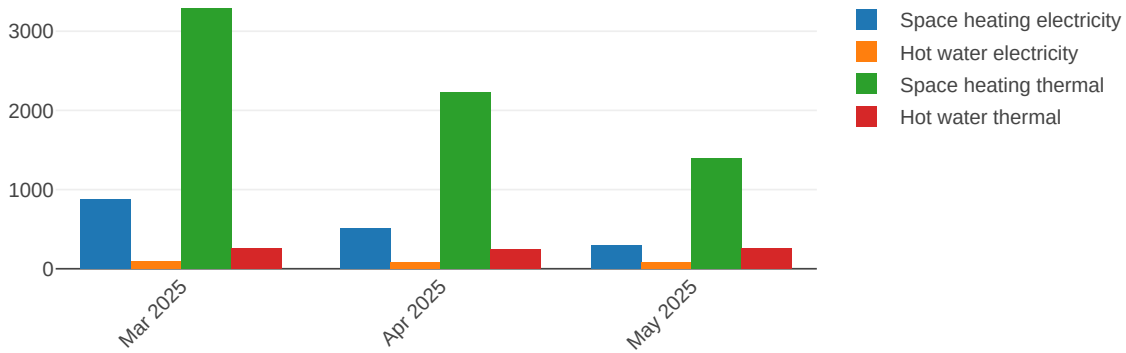
## Spring house temperature by hour

March, April, May: indoor temperature by hour.



## Spring heat pump totals by month

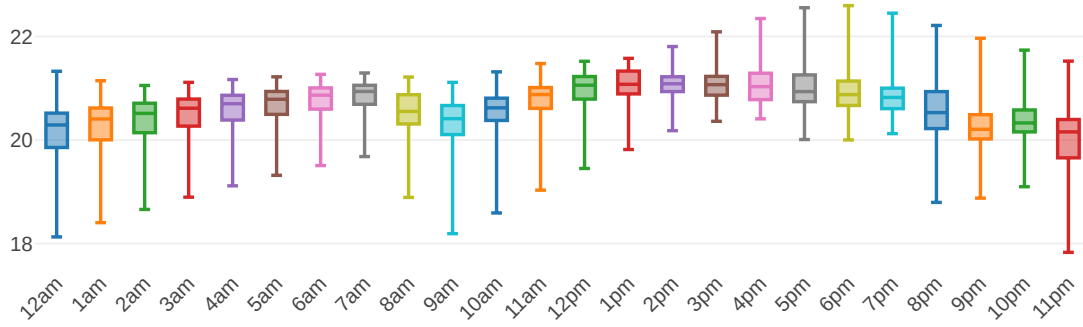
Electricity and thermal energy for March, April, May.



# Autumn monthly summary

## Autumn house temperature by hour

September, October, November: indoor temperature by hour.



## Autumn heat pump totals by month

Electricity and thermal energy for September, October, November.

