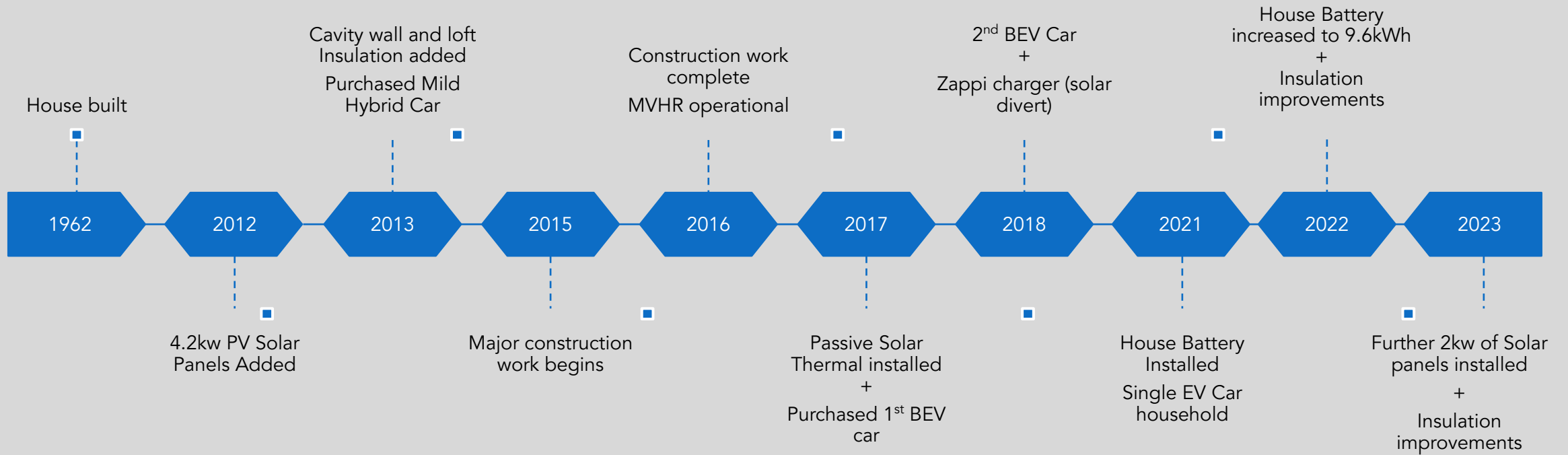


# 1960s Whole House Retrofit

An accidental Eco journey

- Solar Thermal
- Solar PV (PhotoVoltaics)
- House Battery
- Electric Vehicles
- MVHR
- Insulation
- Solar Gain
- Electricity Usage

# Eco Journey Timeline



# SOLAR

PV and Thermal tubes

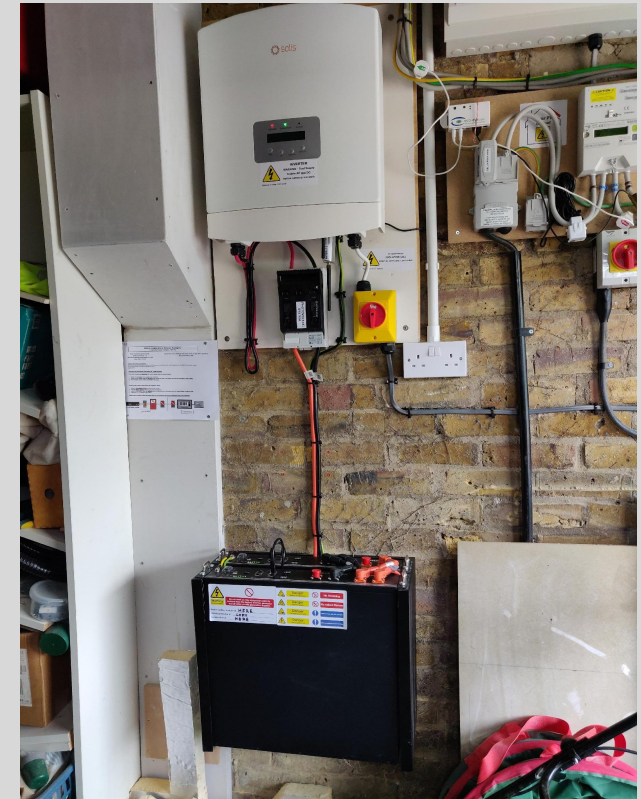


This made a simple, immediate, and direct reduction to bills with little to no effort from the property owner.

# Ventilation



- Mechanical Ventilation and Heat Recovery (MVHR).
- Singly the best improvement to our property.
- The impact on quality of life is massive
- We would not except another property without this.
- No condensation, No mould, No smells
- Can dry clothes indoors
- Filtered air – allergens and dust removed



# Power and Battery

- Minimise Exported electricity
- Zappi EV charger can divert spare into the EV.
- House battery added to take further spare power.
- Small low wattage heaters also added.

# INSULATION

- First thing done.
- Important to consider ventilation on every item
- Considered thermal bridges
- Considered radiated and conducted heat

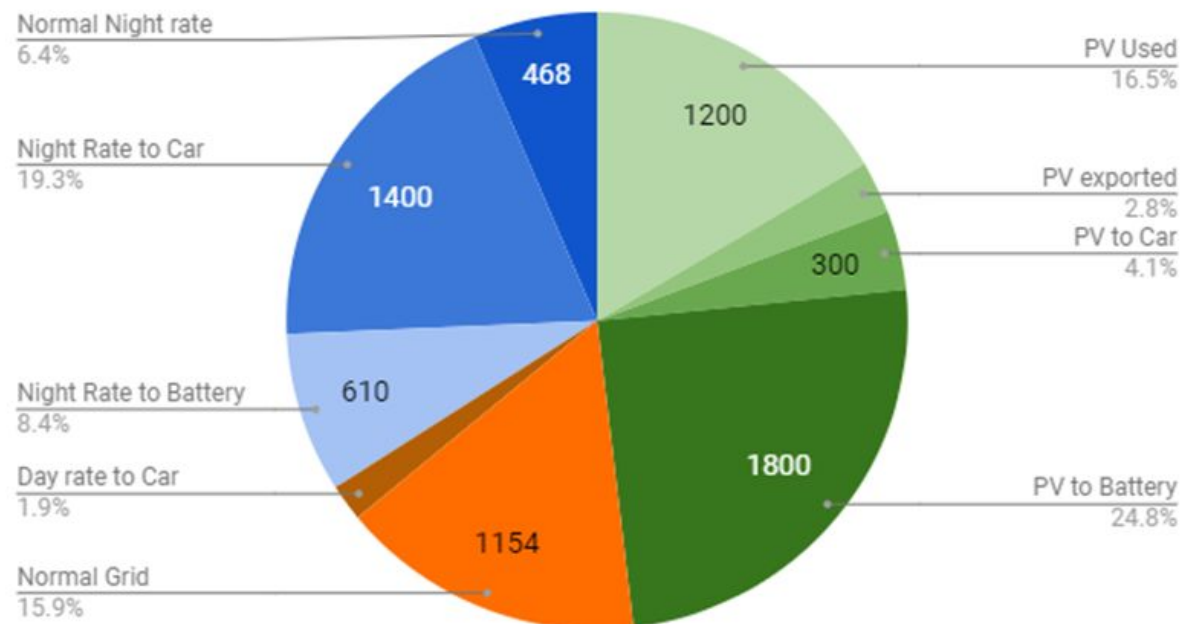


## GLAZING

- Think about location
- Think about plants, trees
- Reduce solar gain in summer.
- Increase insulation

# How Does Our Home and Life now Compare

Annual Electric Usage Breakdown



House Grade	Energy Usage (kWh/m2)	Gov.UK	Our Property	EPC
Leaky	300	Victorian House (<1930)	n/a	G
Old	200	Poorly insulated home	In 2011 (~180)	E, F
Modern	150	Avg 1935-95 = 150	In 2014 (~150)	C, D
New	100	Avg New Builds = 120	In 2017 (~75)	B, C
Low (Eco)	50	n/a	In 2023 (~55)	A
Enerphit (Eco)	25	n/a		A
Passive (Eco)	15	n/a		A

- The home is more comfortable with even Temperatures
- There is less maintenance and cleaning in the home.
- Running costs are significantly reduced. (We are about £80 a month combined bills at Oct23 rates, excluding the EV charging, in a 5 bed detached property)

Note: The House Grade/Energy on the table to the left is taken from a PassivHaus document. I have approximately mapped that to the UK Gov EPC guidelines. This shows how poor current UK standard new builds perform (UK Gov figures).

# Going forward

- Further Window shading (Trees, shades, external blinds etc)
- MVHR Pre-Heat / Pre-Cool
- ASHP (AirSource Heat Pump)
- Insulation improvements
- House Cooling (AC)