



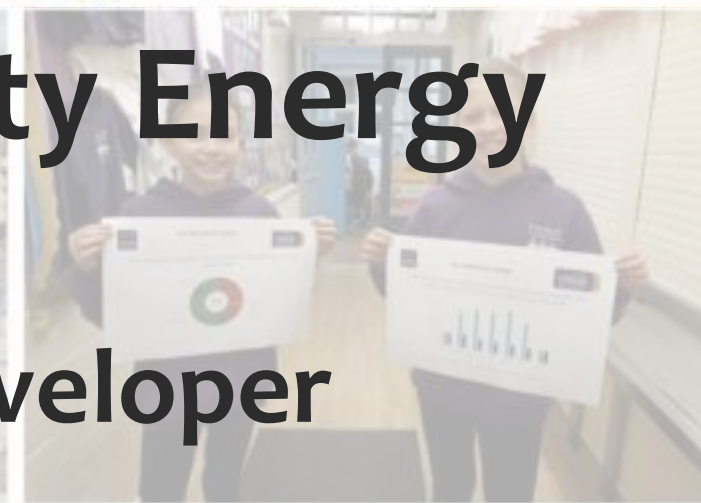
**Bath & West
Community Energy**
Generating local energy



Bath & West Community Energy

Energy Efficiency

Alex Lockton, Project Developer





Agenda

Introduction

How can you tell if your home is inefficient

Things you can do

How much will it cost and how much will it save

Where you can get help

Introduction to BWCE

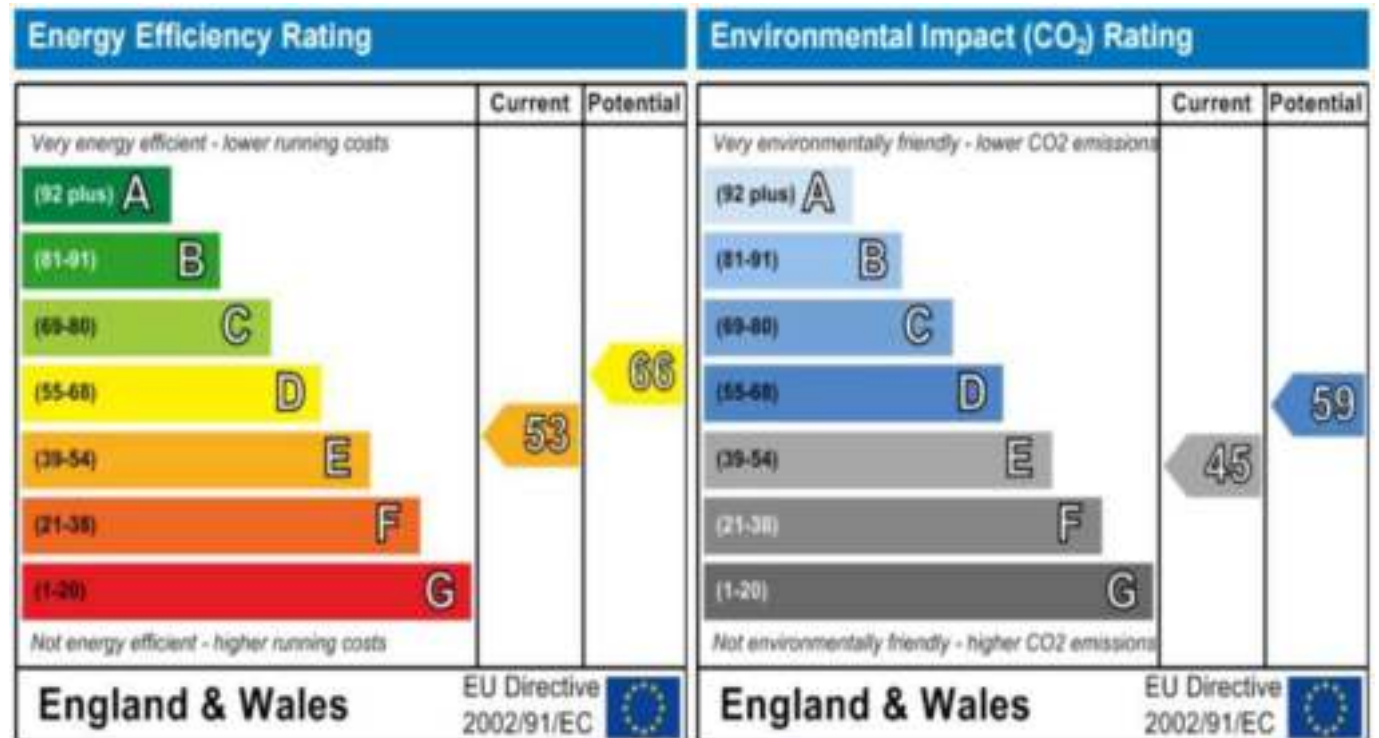
Questions



Introduction – Energy Efficiency In Homes

Energy efficiency of homes

- Energy Performance Certificates
- Find them on epcregister.com



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

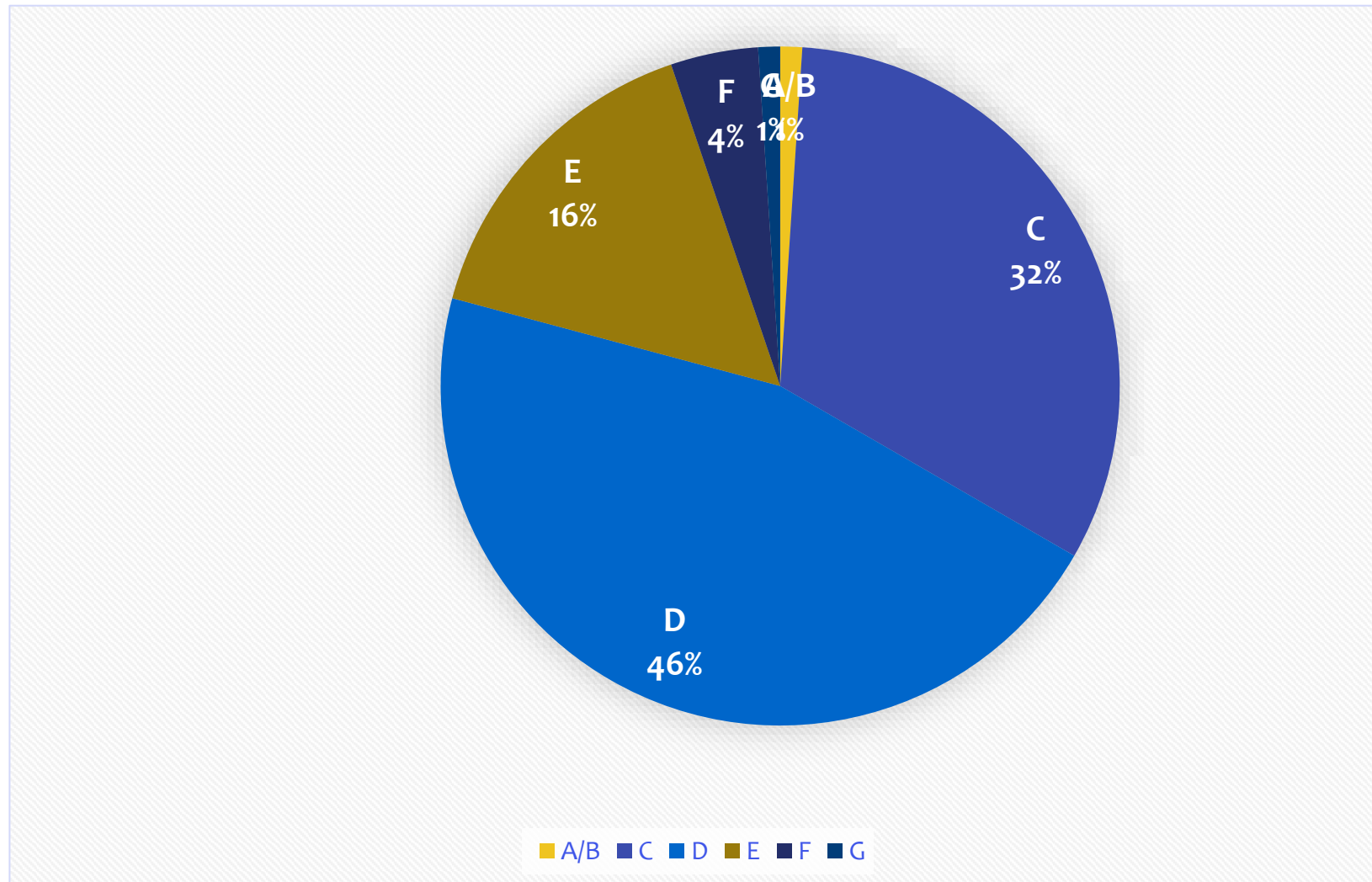


Introduction – Energy Efficiency In Homes

		South West %
Energy Efficiency Rating Band EHCS 2008	A	0%
	B	<1%
	C	8%
	D	31%
	E	38%
	F	15%
	G	7%

- Average band 'B' bill is **£530** – band 'G' is **£2200**
- 91% of the properties in the south west are band 'D' or below

Energy Efficiency of properties in the South-West



How Can You Tell If Your Home Is Inefficient?



Material	U-value W/(m ² °C)
single brick wall	3.6
double wall with air cavity	1.7
double wall with foam filled cavity	0.5
single layer of glass	5.7
double glazed glass	2.7

Building regulations has a big impact
 Lots of houses have old characteristics
 House on the right likely to be more efficient
 due to age

Historic U Values for UK buildings Source Building Regs 2010							
	1965	1974	1990	2002	2006	2013	2018
Roof	1.42	0.6	0.25	0.16	0.25	0.18	0.18
External Wall	1.7	1	0.45	0.35	0.35	0.26	0.2
Floor			0.45	0.25	0.25	0.25	0.25
Windows	5.7	5.7	5.7	3.3	2	1.6	WER Band C or 1.4

How Can You Tell If Your Home Is Inefficient?



Draughts from doors, windows

Damp and condensation

High energy bills

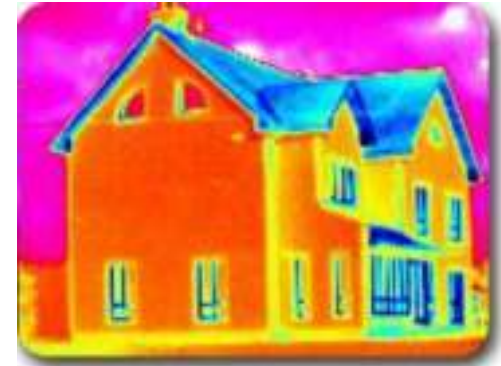
Single glazed windows

Cold rooms

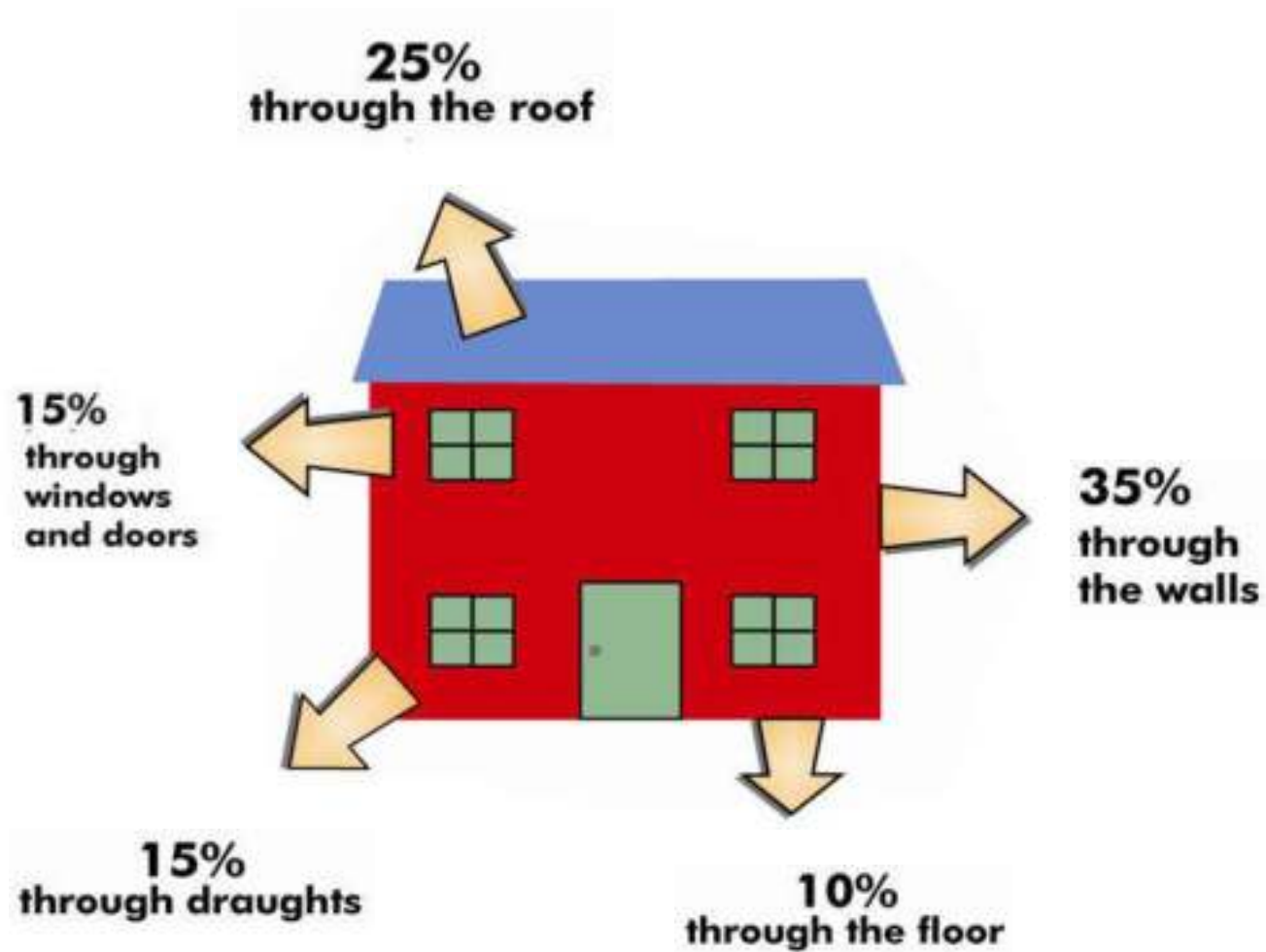
Health issues

Never seem to warm up / always have the heating on

Forever replacing light bulbs



Home heat loss



Insulation & draught proofing



Heating



Smart Meters

- Free to install



See what you are using and spending

- In-home display shows how much energy you're using
- ... including how much it's costing per hour/week/month

Good energy habits

- Identify opportunities to save energy
- Set energy saving goals/budgets



Smart Meters



Building a Smart Energy Britain

Existing energy grid is outdated

- Can't map demand from homes/businesses accurately

Smart meters help create a smart grid

- ✓ Would facilitate accurate prediction of national energy demand

Environmental benefits

- ✓ Energy efficiency and less infrastructure





Four Smart meter Myths:

You can't switch supplier. 2nd generation meters allow uninterrupted switching between suppliers.

Smart meters can spy on you. Smart meters can't spy, they can only measure energy use and share the readings with your supplier.

Renters can't get a smart meter. If you pay the bills and the meter belongs to your supplier, then you have the right to request a smart meter.

Smart meters are dangerous. The government watchdog on public health says that smart meters do not pose a risk to health in installation or infrequent radio wave bursts, they emit a lower EMF reading than your mobile phone or microwave.





More things You Can Do - Lighting

Switch to LED lighting

Up to 75% saving vs traditional bulbs

5 x estimated lifespan compared to Halogen*

Average £40/yr. saving compared to traditional bulbs*



Introduce occupancy sensors

Sensors switch lights off automatically when unoccupied



Invest in smart lighting

Mix of LED and occupancy sensors but with additional functions linked to efficiency as well. E.g. Loxone



*Source: Energy Saving Trust <https://energysavingtrust.org.uk/getting-best-out-your-led-lighting/>

More things You Can Do - Glazing



Replacing single glazing with
double or secondary glazing

Up to 75% improvement for double
glazing

25-50% for secondary glazing



Historic U Values for UK buildings Source Building Regs 2010

	1965	1974	1990	2002	2006	2013	2018
Windows	5.7	5.7	5.7	3.3	2	1.6	WER Band C or 1.4

More things You Can Do

- Switch things off and turn them down



Switch off appliances when not used

Invest in timers

Turn down your heating thermostat

18-21 is standard, 24 for vulnerable people. Min 16degrees for health

Every 1 degree could save you £60*

Lag your hot water tank and pipes

Replace your appliances with A++ devices **

Eco kettle 20% saving,



https://energysavingtrust.org.uk/advice/home-appliances/**

[*https://energysavingtrust.org.uk/advice/thermostats-and-heating-controls/](https://energysavingtrust.org.uk/advice/thermostats-and-heating-controls/)

More things You Can Do - Extra Insulation ideas



Draught exclusion to doors and windows

Chimney balloons

Letter box

Door and window seals

Carpentry

Door curtains



More things You Can Do

- Insulation ideas for Listed properties



- Breathable internal wall insulation, ecologically friendly and reduces heat loss
- For more ideas:
 - Check out Bath Preservation Society suggested links on their website
 - Check our B&NES council links on their website for heritage properties advice



**steico Therm Woodfibre Internal Insulation Board -
1350 x 600 x 100mm | Insulation Superstore®**

**Multi-purpose Airtight Sealing Tape to Suit Any
Building Project | Ecological Building Systems**

**Farmhouse Renovation Cumbria | Ecological
Building Systems**



Things You Can Do



Replace your old gas boiler

- Over 25 years old: 60-70% efficient
- 20 years old: 75% efficient
- 15 years old 80-85% efficient
- 10+ years old 80-85% efficient

Consider heat pumps (up to 400% efficient)





**How much does it cost and how
much can it save**

How Much Will It Cost and How Much Will It Save?



	Cost
Switch off appliances	Nothing
Use timers on appliances	Nothing
Hold a home energy saving competition at home	Nothing
Switch off lights in unoccupied rooms	Nothing
Turn down your thermostat*	Nothing
Wear another layer	Nothing



Using timers can save you money with low tariffs



1 degrees can save £60 a year (Energy Saving Trust)

*Do not let your thermostat go below 15 degrees for health reasons

How Much Will It Cost and How Much Will It Save? Walls and Loft Insulation



<u>Measure</u>	<u>Cost Range</u>
Loft top up	Detached £290, Semi £240, Mid Terr £230, Bungalow £280
Loft insulation New	Detached £395, Semi £300, Mid Terr £285, Bungalow £375
Loft insulation hard to treat	Fixed £986.82+variable £22.79/m ²
Roof insulation - natural boards	£30 - 57/m ²
Roof insulation - loose fill	£14 - £30/m ²
External wall insulation	£100-184/m ²
EWI Rigid	£161/m ² (£63-288/mw)
EWI Natural boards	£150/m ² (or £143-156/m ²)
Internal wall insulation	£40-140/m ²
IWI Rigid	£123 (or £56-177/m ²)
IWI Natural boards	£368 (or £134-602/m ²)
IWI hi tech	£359 (or £128-£602/m ²)
Cavity Wall insulation	£5-15/m ²
Cavity wall easy to treat	£250fixed plus £5/m ²
Cavity wall hard to treat	£2240.42fixed + 4.76/m ² variable

Houses vary in shape and size

Guide based on recent surveys and reports and some anecdotal project feedback

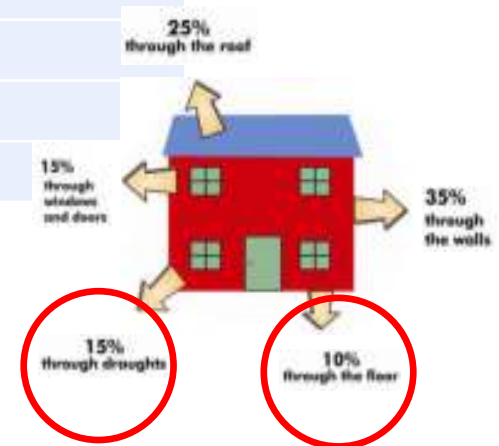
Includes installation

How Much Will It Cost and How Much Will It Save?



<u>Measure</u>	<u>Guide cost</u>	<u>Average 3 Bed Example Home 88m2 (Source: RIBA)</u>
Draught proofing - Window film	£7-9/m2	£180 /20m2
Draught proofing - Door seal	£7-10/door	£20 (2 doors)
Draught proofing - letter box	£5-20/door	£20
Draught proofing - general budget	£85-580 per property	£300 est
Floor insulation (Overlay)	£77.3/m2	£3,401.20
Floor insulation (suspended timber)	£61.2-70/m2	£3,080
Floor insulation (Sus timber existing exposed boards)	£59.2/m2	£2,604.80
Solid Floor insulation	£29.27/m2	£1,287
Floor insulation rigid	£65/m2 (£12-131)	£2,860
Floor insulation natural boards	£93/m2	£4,092
Floor insulation high tech	£130/m2 (or £39-133/m2)	£5,720
Hot water cylinder jacket	£12-45/jacket	£45

Lots of different options from basic to space age, soft and hard, floor, wall and ceiling..



How Much Will It Cost and How Much Will It Save?



Measure	Cost
LED	£4.2-9.8/bulb or £50/fitting
PIR	£35+fitting
Double Glazing	£261/m ² (or £150-£413/m ²)
Triple Glazing	£567/m ² (or £223 - 1022/m ²)
Secondary Glazing	£1,700 - £5,900
Heating controls upgrade	£451
TRV	£41/TRV
Traditional boiler replacement	£3500-6500
Draught exclusion film	£3.72/m
Draught exclusion tape	£1.30/m
Chimney Balloon	£20





Recognising signs of fuel poverty

Things to look out for:

- Home feels cold or draughty
- Smells of damp and/or has signs of mould/condensation
- No signs of any heating or the only heating is an open fire, portable electric radiators or bottled gas
- Curtains closed during the day to keep heat in
- Signs that householder only lives in (and heats) one room

Where you can get help



Sustainable Energy Info for Households page of BWCE website
<https://www.bwce.coop/sustainable-energy-information-for-households/>

Bright Green Homes energy efficiency funding for households not on gas heating, a household income of under £30,000 and a low energy efficiency rating
<https://www.bwce.coop/bright-green-homes-funding-available-for-energy-efficiency-measures/>

Transition Bath Home Energy Survey (hosted by BWCE) to help assess the demand for energy efficiency work in Bath.
<https://www.surveymonkey.co.uk/r/bathhomeenergysurvey>

B&NES Council **Energy at Home** website
<https://www.energyathome.org.uk/>

B&NES Council's **Energy efficiency, retrofitting, and sustainable construction supplementary planning document**.
<https://beta.bathnes.gov.uk/sustainable-construction-and-retrofitting-supplementary-planning-document>

Bath Preservation Trust climate emergency resources
<https://www.bath-preservation-trust.org.uk/advice-and-publications/publications-and-statements/climate-emergency/>

More help



Futureproof

<https://www.futureproof.uk.net/>

We help homeowners and builders in the South West of England to carry out energy saving home improvements and refurbishments with confidence.

Futureproof services

<https://www.futureproof.uk.net/im-a-homeowner/future-proof-paid-for-service/>

Contact

futureproof@cse.org.uk

0800 038 5007



Established 2010 to deliver ...

**“Clean Local Energy, Community
Owned for the Common Good”**

A Community Benefit Society

One member one vote

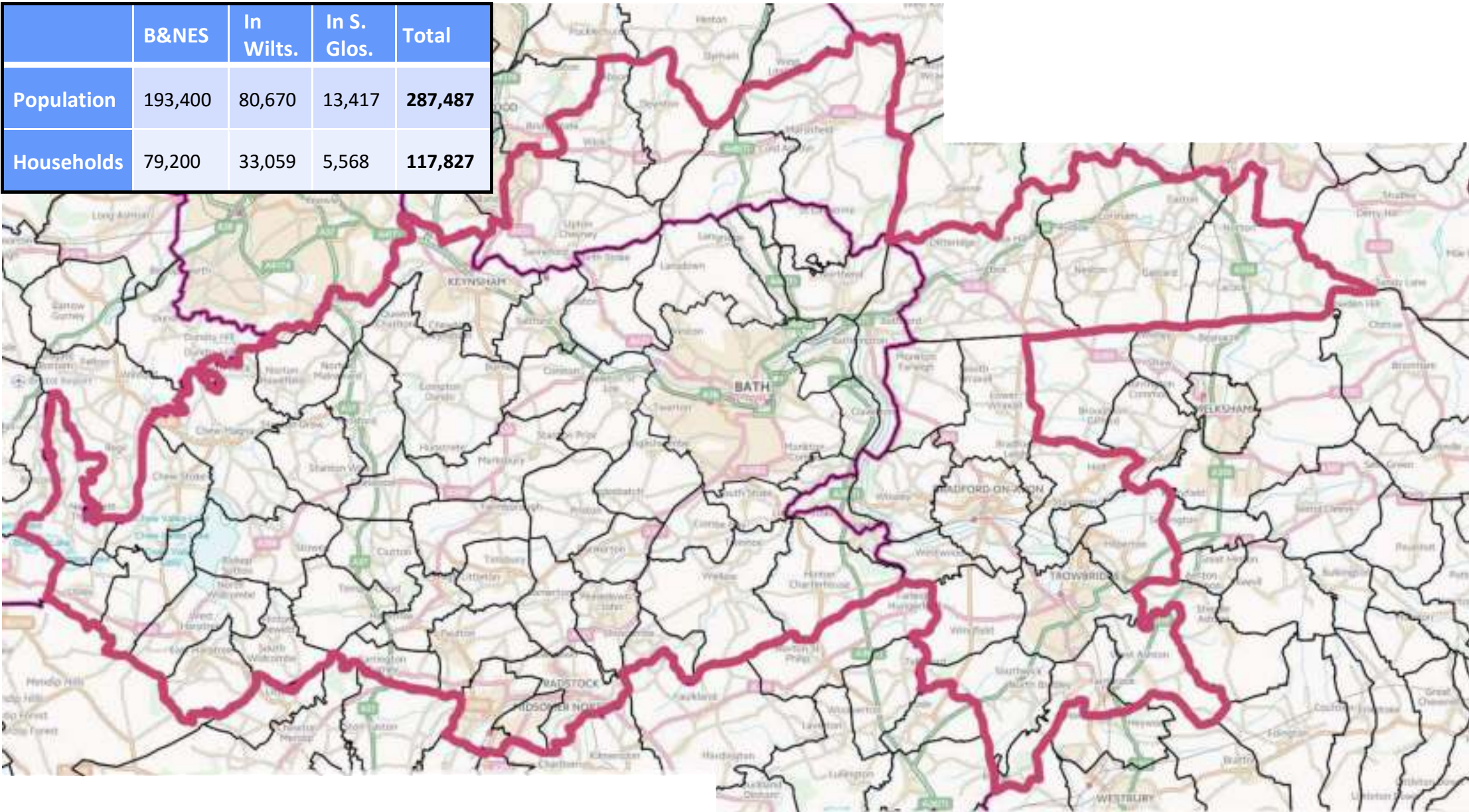
Asset lock

Not for profit

BWCE's area of interest



	B&NES	In Wilts.	In S. Glos.	Total
Population	193,400	80,670	13,417	287,487
Households	79,200	33,059	5,568	117,827



Since 2010 BWCE has raised £21.5 million to build 13.2 MW of Community Renewables



Enough capacity to match the annual demand from 4,500 typical homes

Ground mount solar

- 5 ground mount systems ranging from 250kW to 5MW



Roof top solar & hydro

- 21 roof top systems on schools and community buildings ranging from 10 to 260kW

Hydro

- 1 small modern water wheel

Wind turbines

- Currently seeking sites

Cooperation Agreement



Project Development in 2022



	KW	Capital Cost
Built out in early 2022 – rooftop solar		
Lansdown Golf Club	41	£33,825
Ralph Allen School 3	25	£19,250
Writhlington School	170	£114,750
Sub total	236	£167,825



Developed ethical site selection guidelines

A different way of doing business ...



Who Owns?

Community enterprise



Who Controls?

Members



Who Benefits?

Community

Surplus recycled back into the community

BWCE - £300,000



Community Partnership



Outreach & Engagement

Working with existing community groups & Parish Councils, carrying out site searches, community energy surveys, building links, attending community events, running information stalls



Supporters Network

Reaching beyond membership to people who want to get involved, running meet ups, insight sessions, encouraging volunteering



Workshops & Events

Topics (e.g. heat pumps, community wind), climate conversations, funding, promoting services (e.g. solar roofs)



Share Offer



- **Our latest share offer provides an opportunity for:**
 - Local people to become members of BWCE and
 - Help us raise the investment required to install more community owned solar
 - Solar on the roofs of local schools and other buildings.
- So far this year we have installed five new rooftop solar systems on schools in Bath, Midsomer Norton and Radstock
- A further school installations planned in the half-term and Christmas holidays 2022.
- These installations enable carbon savings of 165 tonnes per year across the five schools.
- **For more details see <https://www.bwce.coop/bwce-enables-school-carbon-reduction/>**

Share Offer Continued



- We install for free – so no upfront costs to schools.
- We manage the system – taking the hassle away from the school.
- We sell the solar electricity to them at a discount – thereby lowering their energy bills.
- Reducing carbon emissions directly from the schools

- All surplus income from these systems goes into our BWCE Fund for distribution to community projects further reducing carbon emissions and addressing fuel poverty.

Share Offer Continued



To keep this good work going we need to raise:

- **£500,000 by Christmas 2022**
- **and £1 million by April 2023**

Minimum investment is £100 with a target interest rate of 5% per year (subject to performance).

All members get a vote in the organisation.

We are running a series of online information sessions about the community share offer between 26th October and 3rd November.

To find out more and to book go <https://www.bwce.coop/community-share-offer-online-information-sessions/>, where you will also find a link to more detailed information on the share offer

Q&A



ANY QUESTIONS?

Contact Details

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Alex Lockton – alex.Lockton@bwce.coop – 07771 865115

BWCE Website – www.bwce.coop