Insulate*Innerwick*
Warm and healthy homes… together!

Run through Sustaining Dunbar
Funding support from;
Dunbar and East Linton Area Partnership,
Fred Olsen Renewables
Crown Estates (Coastal Communities Fund)
SSE Renewables
EastCoastGridServices Ltd
Neart na Gaoithe Offshore Wind Ltd.

InsulateInnerwick Meet The Experts, March 2024

Who we are

Jo McNamara – Chair of Sustaining Dunbar

Wilson – Innerwick Parish Welfare Assoc SCIO Board

Sarah McLeary – Architect and Innerwick Parish Welfare Assoc SCIO Board

Ruth Rodger – Architect and Retrofit Coordinator

InsulateInnerwick Meet The Experts, March 2024

We are an **INDEPENDENT LOCAL** project Our only agenda is to listen, and get the best possible advice out there.

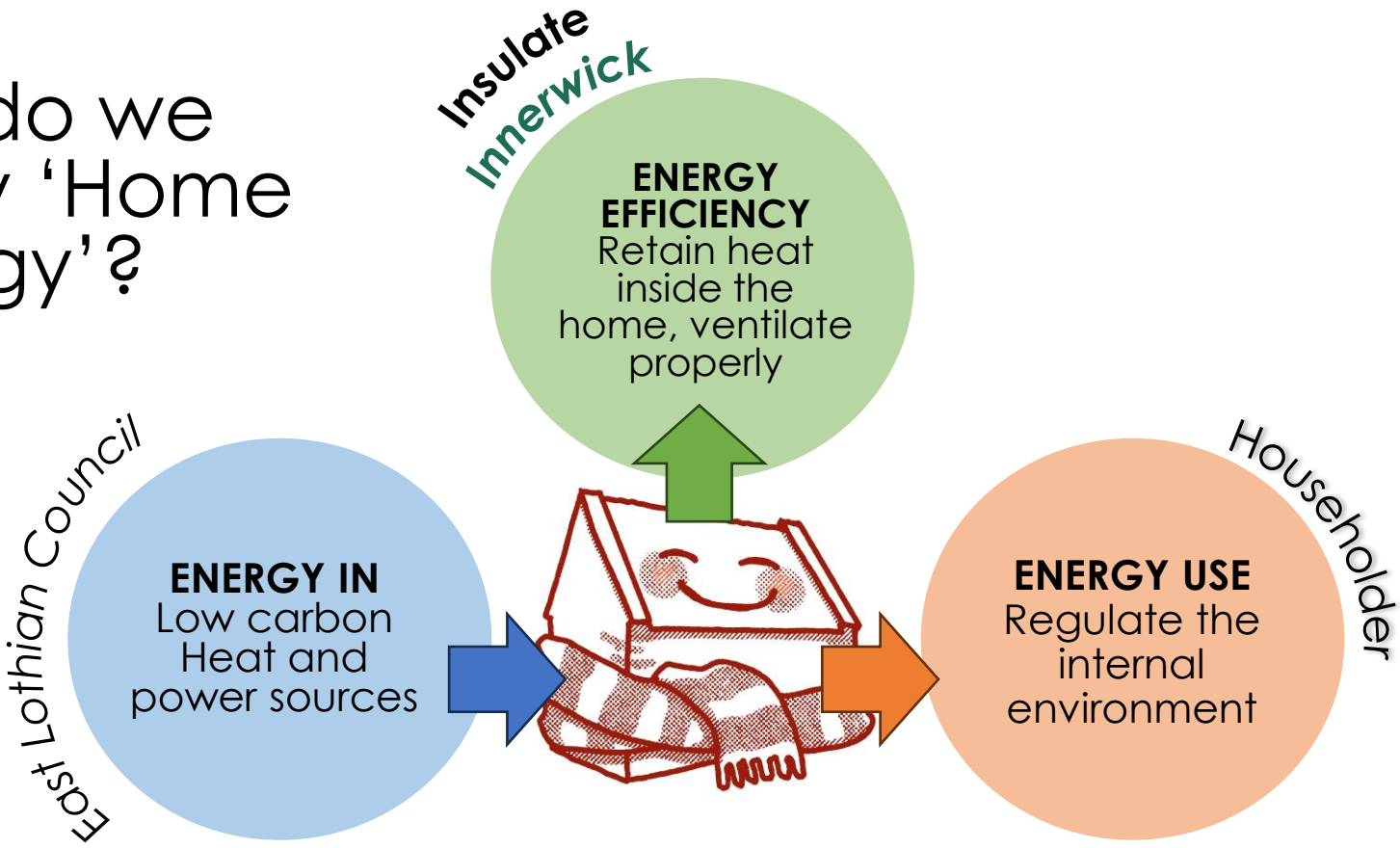
We are **PASSIONATE** about reducing fuel poverty and helping people be warm and comfortable in their homes

We believe in working **TOGETHER**

to lighten the load
to share knowledge
to succeed and raise each other up

InsulateInnerwick Meet The Experts, March 2024

What do we mean by 'Home Energy'?



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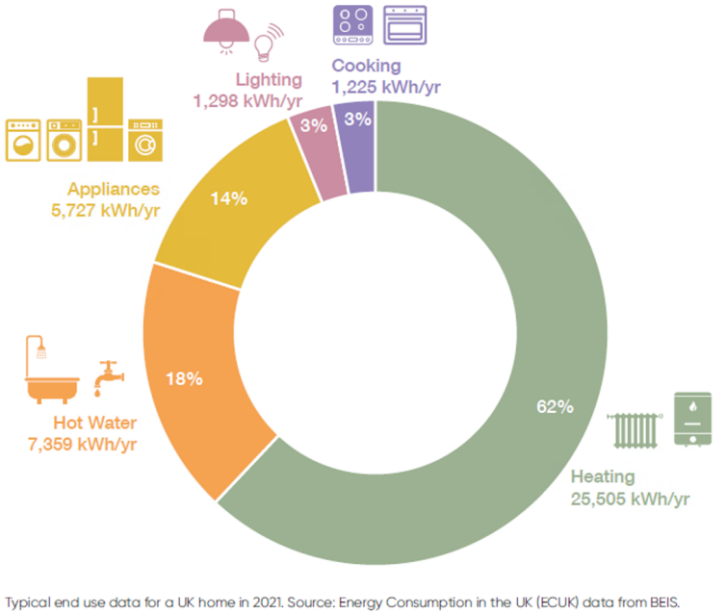
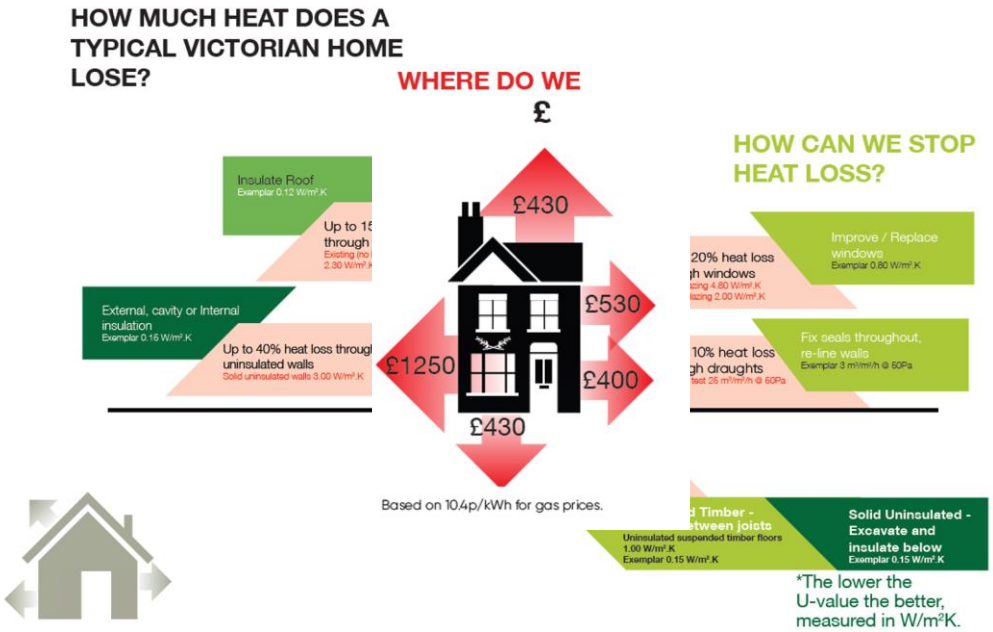


Typical end use data for a UK home in 2021. Source: Energy Consumption in the UK (ECUK) data from BEIS.



from the DEVON RETROFIT GUIDE by Energy Saving Devon

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Let's plan for success together!

What to do	Collect information on your home - Your current energy usage - Measure your home	Install small measures - Get your small measures kit FREE from Changeworks	Plan for larger measures and greater benefits, make a plan for home upgrades	Price it up and look for funding	Find tradespeople	Get it done!
Potential benefit of working together	Together we can paint a picture of energy use in the village, and plan for the future. We can measure what benefits we can reap, and what's the best way to move forward.	We can share stories of what works, in Innerwick and throughout East Lothian.	There are benefits of looking at types of housing together – economies of scale.	Together we can get better prices for materials, shipping, and trades Learn from each other about funding opportunities	If we have a 'bundle' of work to do, tradespeople will be interested in ongoing work. If we use the same installers, we know who to call for maintenance.	We can learn from each other, and pool our experience and knowledge. You can measure the success of your project and share your story!

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What funding could you be eligible for?

- Great British Insulation Scheme
- Home Energy Scotland Grants and Loan
- Warmer Homes Scotland
- Private Rented Sector Landlord Loan
- ECO4
- BeGreen – up to £850 plus assessment

… and more…

ECO4 –
To qualify for the Govt. funding the household net income should be less than £31k.

Net income is household income less –

- mortgage payments
- energy bills
- childcare costs
- Council tax

ECO4 can fund;
Solar PV & battery (incl. bird blockers)
External Wall Insulation
Cavity Wall Insulation (extract & refill)
Loft top ups
Air Source Heat Pump

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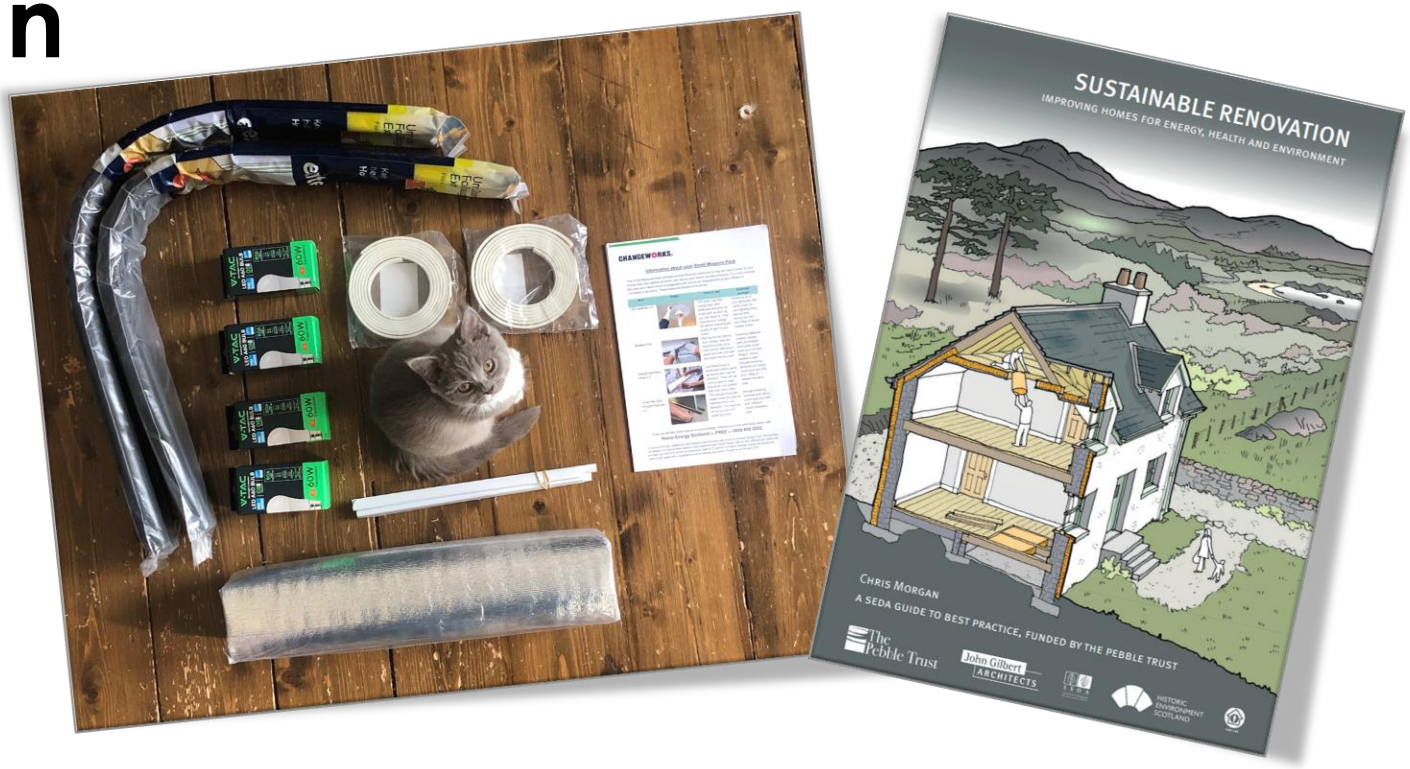
What can you do next?



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Meet The Experts, March 2024

The friends we've made…

LOCAL ENERGY SCOTLAND

HOME ENERGY SCOTLAND

East Lothian Council

CHANGEWORKS.

BeGreen

InsulateInnerwick

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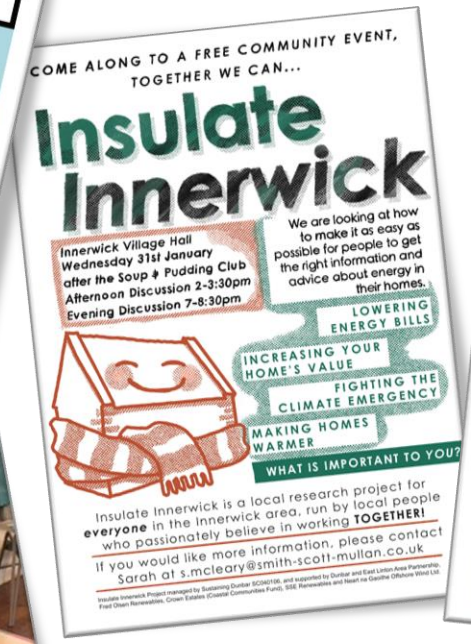

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Please get involved!

Talk to your neighbours

Tell us about your home!

Help at future events

Door knocking to help gather data

Would you like to train to use a thermal camera?

InsulateInnerwick: Meet the Experts

Yordan Popov
Technical Officer

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0808 808 2282
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- Who we are
- Fabric first approach
  - Typical heat loss
  - Traditional buildings
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- Case studies
- Planning & Permissions
- Tools and Support
- Funding Support
- Further Advice & Useful Links
- Get in touch
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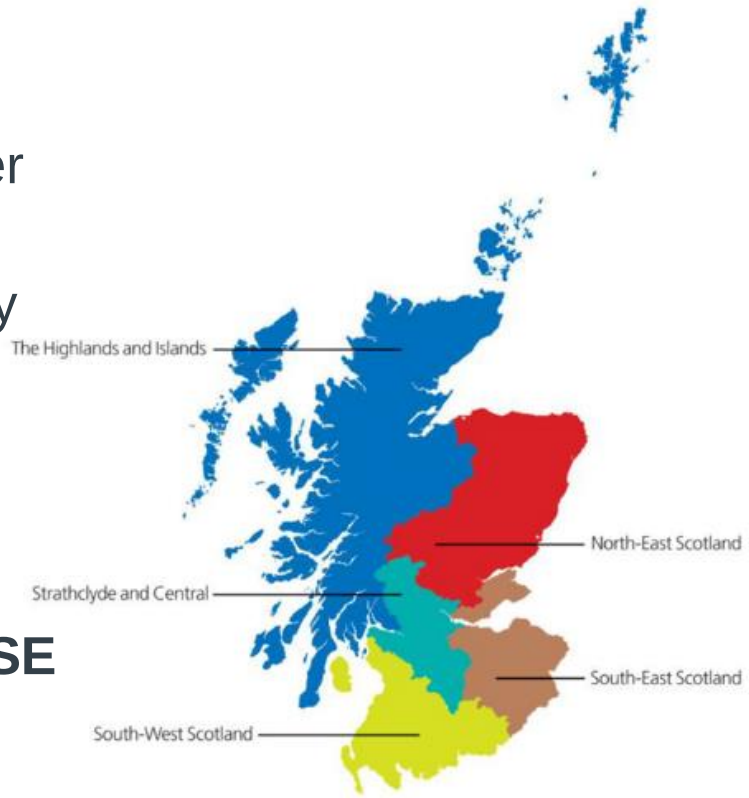
Home Energy Scotland

- **Free and impartial advice** on energy efficiency, renewables, transport and water efficiency.
- Help people stay warm and reduce bills by providing advice and funding.
- Funded by the **Scottish Government**, managed by **Energy Saving Trust.**
- Delivered by regional advice centres.
- **38,000 households supported by HES SE alone last year.**
- Available by phone, email, in person.
- **Specialist landlord service also available**



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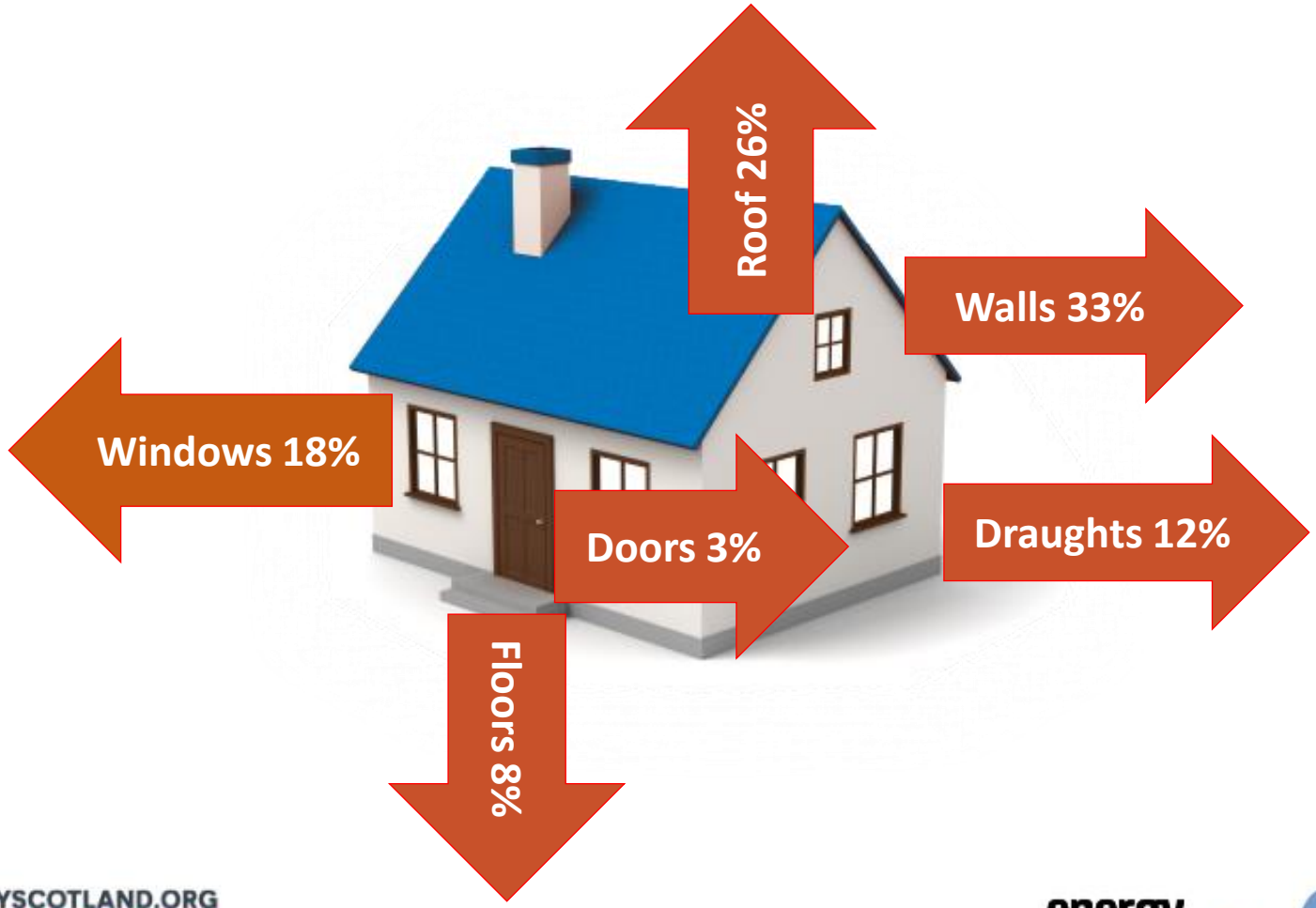
Fabric first approach

Typical heat loss



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Traditional buildings

Building Standards define a **‘traditional building’** as:

- “a building or part of a building of a type constructed before or around 1919:
- a) using construction techniques that were commonly in use before 1919; and
- b) with permeable components, in a way that promotes the dissipation of moisture from the *building fabric.”*

Internal wall insulation

- A layer of insulating material that is fixed directly to the wall or attached via timber battens
- Insulating material can also be applied onto plaster
- Insulating material can also be sprayed on damp or injected behind an existing wall lining
- **Historic Environment Scotland** recommends that natural, breathable insulating fabrics are used in historic properties. This is to maintain the moisture permeability of the structure which is a key consideration in any traditional building
- Materials like wood and hemp fibre, sheep wool, cellulose and others preferred

Internal wall insulation

100mm hemp board applied to solid wall – achieved U-value of 0.22 (improvement of 80%)

80mm wood fibre board applied to solid wall – achieved U-value of 0.19 (improvement of 83%)

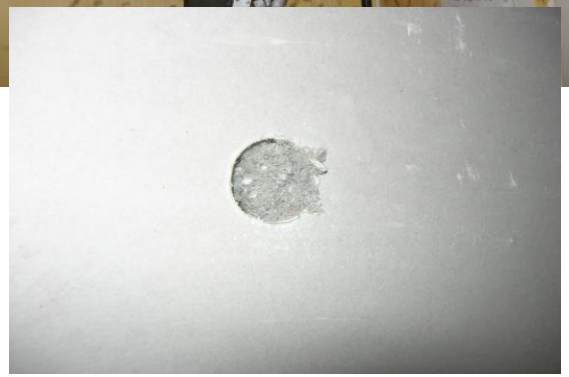
Images: Historic Environment Scotland

Internal wall insulation

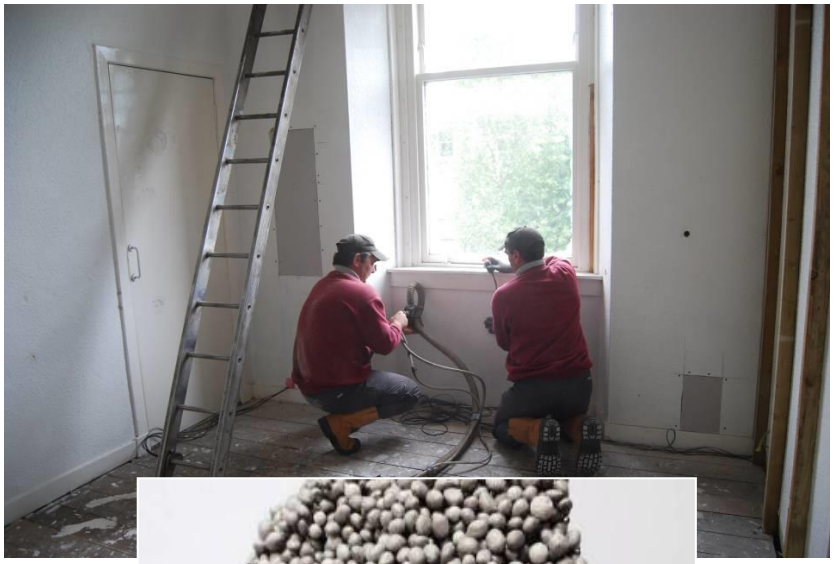
13mm aerogel wall liner applied on existing wall lining – u-Value ~0.6 (54% improvement)

Image: Green Homes Network

Internal wall insulation



Cellulose fibre – u-Value 0.7
(48% improvement)



Bonded polystyrene – u-Value 0.7
(50% improvement)

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Images: Historic Environment Scotland

Room-in-roof insulation

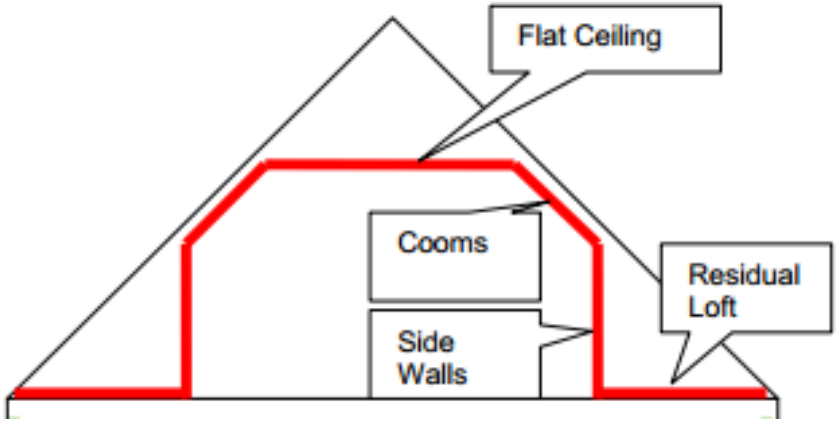


Image: Energy Saving Trust

- Usually, uninsulated
- Access can pose a problem
- Insulation can also be blown or attached to existing wall lining
- (Again) Ideally breathable materials should be used, and ventilation of the roof structure must be maintained!
- Additional venting through the roof may be required

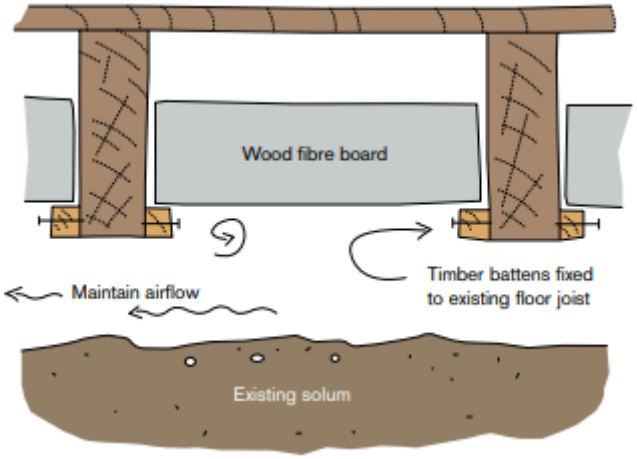
Room-in-roof insulation

Image: Historic Environment Scotland

Room-in-roof insulation with wood fibre boards

Suspended floor insulation

- Suspended floors typically lie 300-500mm above the solum, carried by timber joists
- Access can be a problem and can be disruptive
- Can be insulated from the top or with enough clearance to the solum can be insulated from underneath
- Breathable materials preferable
- 80mm wood fibre board between joists can achieve improvement of 71%



Images: Historic Environment Scotland

Solid floor insulation

- Insulation is typically added on top of original floors (e.g. flag stones or older concrete floors)
- Usually, a high-performance thermal board and comes in various thicknesses (e.g. aerogel can achieve 79% improvement)
- Flooring is then added on top of the insulation
- Can be very disruptive and additional work may be required
- **An alternative approach** is to replace older concrete floor with an insulated lime concrete floor (improvement of 87%)

Image: Changeworks

Secondary glazing

- Significantly cheaper than double glazing
- Can be almost equally effective (~63% improvement with U-value of about 1.7)
- Various styles and techniques
- Can be installed on hinges to allow for opening or using magnetic strips for seasonal use.
- Other options available (e.g., fitting double glazing panes within the existing sash or even closing your shutters!)

Images: Historic Environment Scotland

Easy energy saving fixes

- Draught-proof windows, doors, floors & chimneys.
- Insulate your hot water cylinder
- Insulate hot water pipes
- Reflective panels behind radiators
- Consider thermal wallpapers, curtain and blinds
- Low Emissivity film for windows
- Upgrade heating controls (e.g. thermostatic radiator valves, thermostat, zonal controls)
- Replace old light bulbs with energy-efficient alternatives

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Insulation improvements - summary

- Insulation often the first step to a renewable heating system
- Traditional buildings work differently to modern buildings – we need to think differently when insulating them
- There are almost always options available – even in a listed building
- Some options can be disruptive or uneconomical in themselves – **consider them when doing other work around the house** (e.g. kitchen renovation, extensions, new flooring, pipe work, etc.)
- There is financial support and expert advice available for those looking to make improvements or to calculate potential savings – find more on estimated savings here
- Consulting accredited installers or architects also a good idea
- This is **not an exhaustive list** of all options. We will tailor our advice to your property and circumstances.

Case studies

More on Richard's journey and how to contact him, and other Green Homes Network members, you can find here: Energy Saving Trust | Green Homes Network

Mr Luxmoore's deep retrofit, and heat pump install. More on his journey you can find here: https://greenhomesnetwork.energysavingtrust.org.uk/CaseStudy.aspx?cid=1662&cindex=54

Historic Environment Scotland's publications provide more insight in retrofitting energy efficiency measures and micro-renewables in traditional buildings: Publications | Leading Public Body for Scotland's Historic Environment

Planning & Permissions

- Typically, renewable technologies and energy efficiency measures are classed (for the most part) as permitted developments. Exceptions do apply for properties in conservation area and/or listed buildings

- Conditions will apply as per Permitted Development Rights and there may be specific local guidance.

- Permitted Development Rights are currently under review with plans to introduce further flexibility for developments like renewable systems and glazing

- ELC's Duty Planner is the most appropriate place to direct initial enquiries questions: environment@eastlothian.gov.uk

Tools and Support

In-Home Specialists Service

- Provide tailored advice regarding your property and specific needs
- Technical Officer can provide **remote support** or **visit** you at your property if necessary
- Free and impartial home visit service with on-site advice on **renewable technologies** and **fabric improvements for traditional buildings**
- Provide required reports to support funding applications for renewables on self-build projects
- Our team has in-house specialist support available to **Landlords,** and to vulnerable customers by our **Energy Carers**

Home Energy Improvement Report

Recommended improvement	Indicative cost	Annual savings	
	£	kWh	$kgCO_2e$
Extension roof - Insulation for flat roofing (250 mm)	£1,800	206	26
Room-in-roof flat ceiling and residual loft space - Room in roof, flat ceiling and/or residual loft space insulation (300 mm)	£2,400	2,923	376
Bathroom - Room-in-roof flat ceiling and residual loft space - Room in roof, flat ceiling and/or residual loft space insulation (300 mm)	£1,400	115	15
Room in roof wall - Room in roof walls and sloping parts, 100mm insulation	£5,400	4,919	633
Extension wall - Cavity wall insulation	£500	906	117
Main walls - Internal wall insulation	£6,700	3,576	459
Main floor - Standard insulation (e.g. mineral wool) between floor joists (150mm)	£3,100	2,437	313
Extension floor - Solid floor with 150 mm insulation	£3,100	1,070	137
Single glazed windows - Secondary glazing	£2,200	718	91

Potential improvement of your home's energy efficiency

Estimated annual savings and payments with this package of improvements

£1,315	30,756 kWh	5,279 $kgCO_2e$
Fuel bill savings	Energy savings	Carbon dioxide savings

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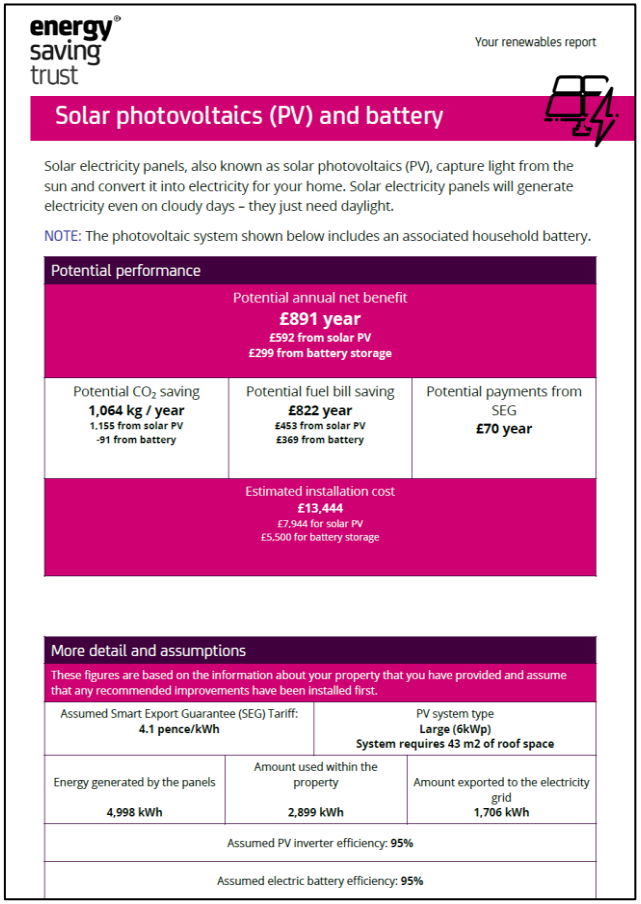
Home Renewables Selector Report



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Your renewables report

Solar photovoltaics (PV) and battery

Solar electricity panels, also known as solar photovoltaics (PV), capture light from the sun and convert it into electricity for your home. Solar electricity panels will generate electricity even on cloudy days – they just need daylight.

NOTE: The photovoltaic system shown below includes an associated household battery.

Potential performance

Potential annual net benefit
£891 year
£592 from solar PV
£299 from battery storage

Potential CO_2 saving	Potential fuel bill saving	Potential payments from SEG
1,064 kg / year 1,155 from solar PV -91 from battery	**£822 year** £453 from solar PV £369 from battery	**£70 year**

Estimated installation cost
£13,444
£7,944 for solar PV
£5,500 for battery storage

More detail and assumptions

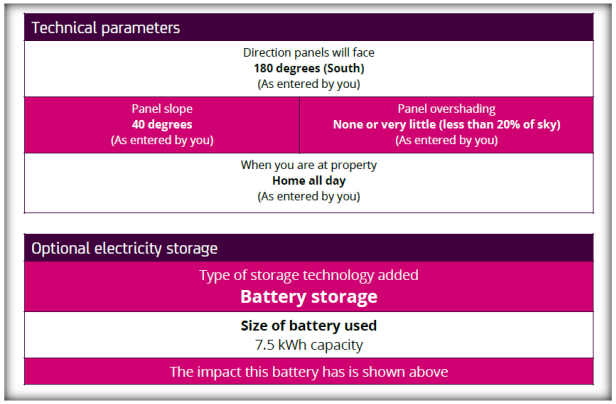
These figures are based on the information about your property that you have provided and assume that any recommended improvements have been installed first.

Assumed Smart Export Guarantee (SEG) Tariff:	PV system type
4.1 pence/kWh	**Large (6kWp)** **System requires 43 m2 of roof space**

Energy generated by the panels	Amount used within the property	Amount exported to the electricity grid
4,998 kWh	**2,899 kWh**	**1,706 kWh**

Assumed PV inverter efficiency: **95%**

Assumed electric battery efficiency: **95%**



Technical parameters

Direction panels will face
180 degrees (South)
(As entered by you)

Panel slope	Panel overshading
40 degrees (As entered by you)	**None or very little (less than 20% of sky)** (As entered by you)

When you are at property
Home all day
(As entered by you)

Optional electricity storage

Type of storage technology added
Battery storage

Size of battery used
7.5 kWh capacity

The impact this battery has is shown above

Try the tool at:
homerenewableselector.est.org.uk/

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Finding installers

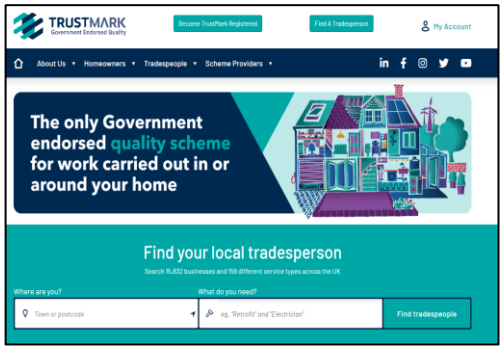
Insulation and glazing

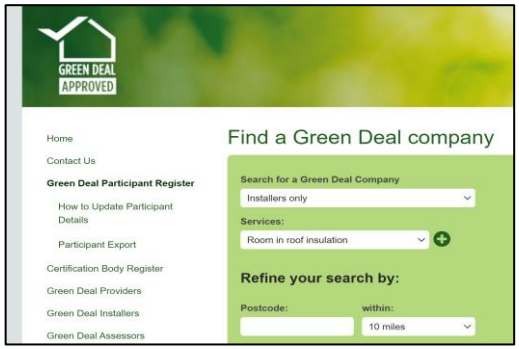
- Trustmark
- Green Deal Orb
- National Insulation Association
- Glass and Glazing Federation

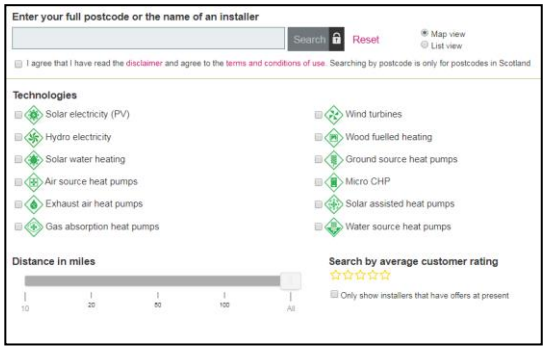
Renewables

- Renewable Installer Finder Tool
- Microgeneration Certification Scheme (MCS)

Always seek more than one quote







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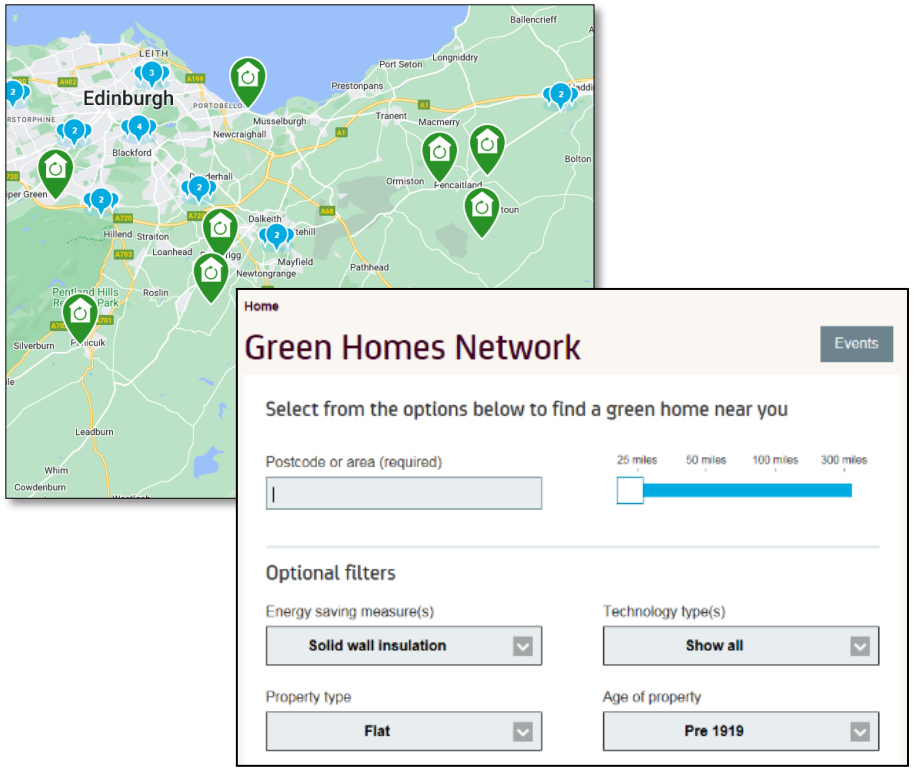
The Green Homes Network

- A network of over 300 households in Scotland who have made energy efficiency and renewable technology improvements to their homes
- Managed by the Energy Saving Trust
- Read variety of case studies from across Scotland
- You can call, email or visit GHN members to learn more about their tech and experience, or even attend one of their events



Try the tool at:
greenhomesnetwork.energysavingtrust.org.uk/

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Funding Support

Home Energy Scotland Grant and Loan

- **Air/ground source heat pump/biomass** - £7,500 grant (£9,000 for some rural postcodes) and £7,500 loan
- **Solar** - £1,250 grant and £4,750 loan
- **Battery** - £1,250 grant and £4,750 loan
- Solar and battery storage must be installed alongside renewable heating system or high heat retention storage heaters
- **Internal/external wall insulation**- £10,000 (with 75% cashback) - £7,500 grant and £2,500 loan
- **Double/secondary glazing** (for existing single glazing only) £8,000 loan
- **Loft/cavity/floor insulation** - £1,500 grant with £500 loan
- **Room in roof/flat roof insulation** - £3,000 £1,000 loan
- **Up to £9,000** of combined grant across energy efficiency measures available with 'rural uplift'

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Approval needed before installation

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Private Sector Landlord Loan

- Registered private landlords
- Can fund measures recommended on EPC **or** our reports
- Can borrow up to **£38,500** per property and up to **£250,000** across portfolio
- Interest-free for portfolios of up to 5 properties
- Repayable over 8 years
- Other support may be available

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Other Funding Schemes

HOME ENERGY SCOTLAND

Warmer Homes Scotland

- A range of energy saving improvements available
- Homeowners and private sector tenants
- Eligibility criteria
- Costs usually met by the Scottish Government

Area Based Schemes

- Area specific
- Delivered by councils with local delivery partners (e.g. Changeworks)
- Free or heavily subsidised measures (e.g. from solar PV systems, to insulation and glazing)

Further Advice & Useful Links

Guide to Energy Retrofit of Traditional Buildings | Hist Env Scotland (historicenvironment.scot)

Measures to help reduce home heat loss - Energy Saving Trust

A guide to air source heat pumps - Energy Saving Trust

Find Funding, Grants and Loans· Home Energy Scotland

Warmer Homes Scotland

Area Based Schemes & ECO funding

HES Funding Finder tool

Private Sector Landlord Loan

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Get in touch

Call our freephone number:
0808 808 2282

Email us:
technicalteam@se.homeenergyscotland.org

Thanks for listening!

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Q&A