'Fit is Retrofit?'

'Home improvement for energy efficiency'- Udny householder

Insulation Ventilation

Heat pumps air circulation

Greenhouse gas emissions

Grants and loans

Triple glazing

Heat loss

Make an Udny Home an Eco Home

Udny Climate Action thanks
Aberdeenshire Council and Udny Community Trust for funding 'Fit is Retrofit?'
Udny Climate Action is part of PUT Community SCIO (Scottish Charity SC045547)

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This booklet is available here- wwwclimateaction.udny.org

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UDNY CLIMATE ACTION
A PUT Community SCIO Member

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Why this project?

What does it take to turn an Udny home into an Eco Home?
By exploring what retrofit might mean in practice for local people, Udny Climate Action aims to provide information and stimulate debate within the parish and more widely.

The background

Many of Scotland's homes are hard to keep warm, costing a lot in terms of money and carbon to stop them being cold and damp. Some have poor ventilation, which can contribute to health problems. The Scottish Government estimates that 25% of households experience fuel poverty and that housing contributes:

- 13% of our greenhouse gas emissions.
- 30% of our total energy consumption.

Improving housing is critical to reducing greenhouse gas emissions but work to improve insulation and heating systems, called Retrofit, can be complicated and expensive.
People in Udny are concerned about this

- The community consultation which informed Udny Climate Action's plan for 2023-6 identified home retrofitting and renewable energy systems as a priority.
- 90.6% of respondents to the Imagine Udny Update 2024, organised by Udny Community Trust, 'agreed strongly or agreed' that improving home energy with energy saving and renewable energy and heating is important.

What Udny Climate Action has done so far in this area

Udny Climate Action has organised visits to homes with renewable energy heating systems.With Zero Carbon Daviot, it published a booklet Our Future Homes: A Guide to Retrofit and Heat Pumps (weblink on page 11). This explores best practice in retrofitting and how heat pumps work. Through these projects it's become clear that many people are put off making home improvements because they find it complicated and don't know where to begin. What are the barriers to starting? Are some upgrades more cost-effective than others? To date, both Westminster and Holyrood have failed to provide clear information about what needs to be done.

It is hoped that Fit is Retrofit? fills this gap locally.

The Fit is Retrofit? Initiative

To obtain the views of a sample of local people on upgrading their properties and installing renewable energy heating systems, Udny Climate Action invited people to apply for a whole house retrofit assessment, which included a series of options with notional costs, free of charge. Five houses across the parish were chosen to include a range of construction types and heating systems. This booklet outlines the householders' views on the assessment and the options for upgrading their homes.

Retrofit Assessments, Assessors and Co-ordinators

What is a whole house retrofit assessment?

The current Energy Performance Certificate (EPC) shows generic recommendations for energy efficiency improvement measures: it is not intended to be used as a retrofit design tool and should not be relied upon for retrofit projects. A retrofit assessment is a much more thorough survey of the dwelling, which records the current energy performance, condition, and ventilation provision. It provides a more accurate picture for the Retrofit Designer, who provides bespoke recommendations for the dwelling.

"The assessment survey is not intrusive"
– Udny Householder.

What is a Retrofit Assessor?

It is a person trained to carry out whole house assessments. They are trained to a higher level than a Domestic Energy Assessor who is qualified to carry out EPCs.

What is a Retrofit Co-ordinator?

Trained to a higher standard than Assessors, Coordinators help householders develop a retrofit plan specific to their dwelling. They support them through the process of obtaining contractors and ensuring that the work is co-ordinated and carried out properly. They take the worry out of a complex process and reduce the potential risks associated with retrofitting existing buildings.

How do I find Retrofit Assessors, Co-ordinators and trades people?

Access www.trustmark.org.uk/homeowner and enter the role you are looking for in the "What do you need?" search box.

(Trustmark is the Government Endorsed Quality Scheme that covers home improvements. Registered businesses must meet certain requirements including professionals trained to PAS2035 and trades people to PAS2030, the official frameworks for retrofit).

TRUSTMARK
Government Endorsed Quality

Where do I find renewables installers (heat pumps, solar panels etc)?
Energy Saving Trust https://installerfinder.energysavingtrust.org.uk/

If the householder is applying for a grant, an installer of renewable technologies who is MCS-certified must be used
www.mcscertified.com/find-an-installer/

Assessors and Co-ordinators charge fees for their work.

What is the Scottish Government's doing?

Substantial grants and loans are available through Home Energy Scotland (see page 9). The Scottish Government intends to introduce further initiatives to reduce heat loss from homes and increase the uptake of renewable energy heating systems following the withdrawal of its Heat in Buildings Bill, aspects of which were proving problematic.

If heat pumps work in Norway (where there are 60 per 100 households)--- **they will work in Udny,** so stories that heat pumps won't heat Scotland's homes are simply untrue. However, because they run at lower temperatures than fossil fuel systems, they will not be effective:

- In some larger, traditional stone buildings.
- If the insulation is inadequate.
- If they are not correctly sized for the property.

A great many houses are, as of now, 'heat pump ready'. A heat pump will use much less energy than a fossil fuel system and emits no greenhouses gases at point of use but whether it will be cheaper to run depends on the current type of fuel used and the comparative cost of this versus electricity in the future.

Internal kit for air source heat pump

There are still not enough heat pump installers which means there are waiting lists. It's best to put one in before an LPG or oil boiler needs replaced.

The Householders' Views

Why did I want a retrofit assessment?

You don't know what you don't know. I wanted suggestions I hadn't considered.

I use oil and I wanted to know more about energy efficiency.

I was aware of new heatings systems and wanted to know what is available.

The house is a converted steading and parts of it are cold and difficult to heat.

On sunny days, upstairs is roasting; I wanted to find out why.

The comfort of my home is important to me, so is being green.

How has the assessment helped me?

The assessment highlighted options along with the energy reduction benefits and potential costs of each.

I now know what would or would not be suitable for my house.

I now know about air circulation; this will be invaluable when considering future work.

I didn't realize the impact of some improvements. I'm now more likely to do these.

I'm now better informed which will help when speaking to contractors.

The assessment broke down possible improvements into packages, each with notional costings- this was very helpful.

Doing improvements in the right order is important; the assessor suggested considering a heat pump but only after improving the insulation and ventilation.

I now know that undertaking work in a piecemeal way, based on an EPC, may lead to problems- a full assessment is needed. ***(continued on page 8)***

HOUSE ONE

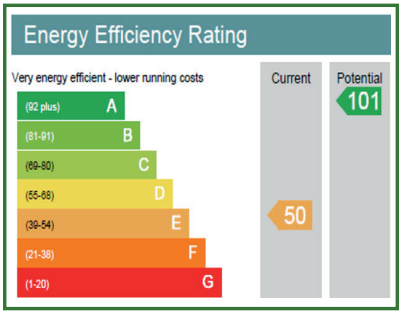
Characteristics of house

- Semi detached; 1952
- Two storey
- Solid concrete floor
- Cavity walls- some insulation

Heating

- Space- wood burning stove, back boiler, radiators
- Water- back boiler and immersion

EPC - not known



Retrofit Assessment Energy Efficiency Rating

This rating is calculated from an Energy Report using the same software as that employed to create EPCs, however it allows greater flexibility in inputting data: it is more accurate.
The improved rating is based on all measures recommended being installed, but some may not be technically feasible.

Householder's reasons for retrofit assessment

- Greenhouse gas reduction
- House cold
- Reliance on free wood becoming hard work
- Interested in options

Upgrading being considered following assessment

1. Replacement windows (double or triple glazing)
2. Increase in loft insulation
3. Eaves and rafter insulation
4. PV solar panels and battery
5. Ventilation - air extraction systems

Notional reduced annual energy consumption of 1,2,3, and 5 combined = 5388 kWh
Notional annual fuel cost saving of 1,2 and 3 combined = £574

Householder will also consider-

1. A heat pump once other work is completed (notional reduced annual energy consumption = 16895 kWh)
2. Engaging a retrofit co-ordinator to ensure no unexpected consequences to upgrading

HOUSE TWO

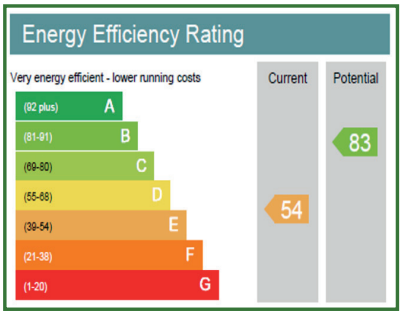
Characteristics of house

- Detached; 1910
- Two storey
- Floor - part suspended - part solid
- Traditional stone (non-cavity)
- PV solar panels and battery storage

Heating

- Oil
- Wood burning stove in sitting room

- **EPC** - E



Retrofit Assessment Energy Efficiency Rating

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Householder's reasons for retrofit assessment

- Lower the house's energy requirements
- Intending to stay for a long time and willing to invest
- Assessment to help inform decision making

Upgrading being considered following assessment

1. Installation of insulated external doors and internal doors leading to cold zones
2. Increase in loft insulation
3. dMEV fans in appropriate areas: one already installed following the assessment

Notional reduced annual energy consumption of 1 and 2 combined = 1446 kWh
Notional annual fuel cost saving of 1 and 2 combined = £109

In the future the householder will consider-

- Flat roof insulation during future renovations
- The importance of addressing air circulation if making other changes
- An alternative heating system when the current boiler needs replaced
- Using a Retrofit Co-ordinator prior to any future energy saving or cosmetic upgrades, tying energy improvements in with the latter.

The Householders' Views *(continued from page 5)*

Am I going to undertake any upgrading following the assessment?

Following the assessment, the householders were still mulling over options:

I will probably install triple glazing, along with more insulation in the roof space. Solar PV with a battery is an option or solar water heating (solar thermal).

I'm going to consider a heat pump after other work is done.

There are easy options which will improve heat retention with minimal disruption.

I'm going to investigate raising the floor level to add insulation.

I'm more likely to do certain improvements as I didn't realise the impact they will have.

I'm now thinking of insulating above the garage to make the room above warmer.

Air to air heat pumps aren't promoted in the UK: I'm thinking of these as a solution to part of the house.

What challenges did the assessment highlight for me?

I'm concerned about finding contractors I can trust.

There's a paucity of trades people taking a whole house approach.

I'm going to make some changes but not others due to the costs.

Some retrofit options are disruptive.

The energy savings of large scale improvements are unlikely to pay back the capital costs.

A heat pump would mean fitting pipes and radiators which my current heating doesn't have.

Some Home Energy Scotland grants are tied to undertaking a number of improvements together.

Financial Support for insulation etc. and renewable technologies

(including heating systems)

I now know where to look for funding - Udny resident

The following does not include everything which may be funded.
N.B. It covers what is available in January 2025. Government schemes change.
There are two avenues of financial support:

- Funding for homeowners generally.
- Funding for homeowners or tenants of private landlords who are on low incomes or certain benefits.

Funding for homeowners generally

Home Energy Scotland provides grants, interest free loans or a combination of both to install energy efficiency measures and renewable energy heating systems.
With Home Energy Scotland funding, householders are responsible for arranging the work, however trades people/installers used must have particular registration or certification.

Who is this scheme for?

Homeowners who do not qualify under the Warmer Homes Scotland, ECO4 or ECO4 Flex schemes (see below).
What is available?

- For renewable energy heating systems, such as heat pumps and wood fuelled biomass boilers, grant funding of up to £7,500 is available, with up to an additional £7,500 available as an optional interest free loan.
- For energy efficiency measures such as wall, roof and under floor insulation, grant funding is available up to 75% of the combined cost of measures with a maximum grant amount of £7,500. The remainder of funding requested can be taken up as an optional interest-free loan up to a maximum funding limit per improvement.
- An additional £1,500 grant is available in certain rural areas, including Udny, for both renewable energy heating systems and energy efficiency measures. The uplift is a grant additional to the other grants. In means that people in Udny can claim up to £18,000 in grant funding alone.
- Loans, but not grants, are available for some items such as solar hot water, insulated doors and replacing single glazed windows.
- At present, Home Energy Scotland doesn't fund solar PV which doesn't heat water and energy storage systems, including electric and heat batteries, but this could change. However, if you install solar PV, some energy companies will pay for electricity you export to the grid. ***(continued on page 10)***

(continued from page 9)

How do I apply?

Home Energy Scotland. Its staff will take you through the process.
Telephone - 0808 808 2282 or fill in the form on their website-
www.homeenergyscotland.org/home-energy-scotland-grant-loan

Funding for homeowners or tenants of private landlords who are on low incomes or certain benefits

There are three schemes (Warmer Homes Scotland; ECO4; ECO4 Flex). Warmer Homes Scotland is funded by the Scottish Government and the ECO4 schemes by the energy companies. ECO4 schemes are due to end in March 2026.

Who are these schemes for?

The rules for each are quite detailed but, broadly speaking, the schemes are available to homeowners and tenants of private landlords (with their agreement) where:

- People are on certain benefits.
  or
- Households have a gross income of less than £31,000 per year.

What is available?

The schemes differ but include extensive insulation upgrading and the installation of renewable energy heating systems.

Winter in Udny: heat pump keeping a four bed bungalow warm

Notes about these schemes

• Normally there is no cost to homeowners/tenants.
• The houses must have a low EPC (Energy Performance Certificate) rating and require energy efficiency upgrading. EPC ratings can be found here- www.scottishepcregister.org.uk/CustomerFacingPortal/TermsAndConditions

How do I apply?

• Householders may be approached directly by approved installation businesses which can check whether you are eligible, undertake the assessment, help with the grant application and carry out the installation.

• SCARF is a charity which is commissioned by statutory authorities to provide free, impartial energy saving advice across the North East. SCARF is involved in the ECO4 and ECO4 Flex programmes and can advise on eligibility. SCARF's staff can arrange home visits to discuss eligibility, provide information about these three schemes and help with referral to delivery partners.

Contacts for advice on all schemes

HOME ENERGY SCOTLAND
• Phone - 0808 808 2282
• Email - complete the contact form on the website
• Website - www.homeenergyscotland.org

SCARF
• Phone - 01224-213005
• Email - info@scarf.org.uk
• Website - www.scarf.org.uk.

Further information

• **Our Future Homes: A Guide to Retrofit and Heat Pumps (Udny Climate Action and Zero Carbon Daviot, 2022) www.climateaction.udny.org/2022/02/27/booklet-on-retrofit-and-heat-pumps/)**
• **Heat Pumps; a users' survey www.nesta.org.uk/report/heat-pumps-a-user-survey/**
• **Trustmark's Guide to Retrofit www.trustmark.org.uk/homeowner/discover/retrofit-your-home**

KEY TAKEAWAYS from the project

- **Every house is unique but houses come in categories - detached or terraced, timber framed, cavity wall or granite etc. - which helps when getting an idea of what retrofit may involve.**
- **A whole house retrofit assessment provides a comprehensive evaluation of a building's fabric and the options for reducing heat loss and installing renewable energy heating systems.**
- **A 'fabric first' approach is best- improve insulation and ventilation, then decide on the heating system.**
- **If significant alterations are planned, then a whole house approach, in accordance with a standard such as PAS 2035, should always be adopted. Ventilation must be considered when considering any improvements to the fabric of the building (e.g. increased insulation) to reduce the risk of unintended consequences. 'Insulate tight, ventilate right'.**
- **A retrofit co-ordinator can support householders through the process of planning, contracting the work and ensuring that it is done properly.**
- **Any improvements which reduce heat loss will reduce energy bills and some will pay back the financial outlay quite quickly. Small 'wins' are well worth considering.**
- **A whole house retrofit will radically reduce the running costs of a house, and its carbon footprint, but it is unlikely that the savings made will cover the capital outlay.**
- **Work can be carried out over time in a staged way. When building an extension or undertaking major repairs can be a good time to retrofit.**
- **A retrofit may increase the value of a property.**
- **Significant grants and loans are available.**