Pathway to Net Zero

DIOCESE OF COVENTRY

Net Zero Guidance for Church Members[1]

Net Zero Carbon 2030

THE CHURCH OF ENGLAND

Working together to care for God's creation.

[1] It should be noted that this guidance is NOT a substitute for seeking PROFESSIONAL ADVICE and is intended as encouragement/ personal experience.

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Introduction

Welcome to the Net Zero Resource Document for Church members. This document is intended as a helpful reference paper for households wishing to engage and play their part in caring for God's creation in their homes.

Many of our churches in the Diocese are registered or have an award from their engagement with A Rocha's, Eco Church programme.

As more churches progress through the awards – Bronze, Silver, Gold – this key part of our Net Zero ambitions, the challenge to us all is to transfer the principles of what can be done by churches, across to choices and habits that we develop in our homes.

This pack includes lots of helpful tips and tricks, drawn from personal experiences, on how we can reduce the size of our household Carbon Footprints[2]. It is **not** intended to substitute industry professionals' advice on such matters.

Organisations such *Act on Energy* are an organisation where you can find professional advice and access help to manage your energy costs.

Acknowledgement

The idea that led to us producing this booklet came from work by members of the congregation at Holy Trinity Church, Coventry.

Whilst working through the Eco Church survey questionnaire, they realised how helpful it might be to compile a handy hints document.

Our thanks go particularly to Bill Johnson for his help and close involvement in producing this resource.

[2] https://footprint.wwf.org.uk

1) Smart Meters for Church and Home[3]

a) Smart Meter Display Unit

i) Background

In 2008 the UK government developed a programme to install smart meters in every home and small business by 2019. There are now 34 million smart meters in the UK and a new target to reach 80% coverage by the end of 2025. Your gas and electricity suppliers are obliged to offer a free, non-compulsory smart meter installation if you request it or if you change supplier.

Figure 1 – Illustration of a smart meter

The first model of smart meter (SMETS 1) tended to loose its 'smart' function when the customer changed supplier, though the current model (SMETS 2) has overcome this problem and older meters are gradually being upgraded or replaced.

ii) Benefits of Smart Meters

Energy suppliers are beginning to develop 'time of use' tariffs and a smart meter will enable you to benefit from these new tariffs as they become more widely available.

Each smart meter (electricity and gas) should come with a monitoring device that displays your immediate and historical energy use. This data can help you to reduce consumption and so reduce your energy bills and your carbon emissions.

Your smart meters will be set up to send reading data to your supplier and so eliminate the problems associated with estimated bills. The meters use the mobile phone network, so there is no need for an internet connection.

[3] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

Real time data on consumption is an essential element in the development of a ‘smart grid’ system that is better able to deal with peaks in demand and variations in renewable power generation.

2) Energy Saving Boiler Challenge[4]

The Money Saving Boiler Challenge was launched in October 2022 by NESTA[5] and has now closed after a quarter of a million households took part. It is easy to do and is guaranteed to reduce your gas use and help you to be more environmentally friendly. You can still participate and save carbon emissions and money by looking at the details on Moneysavingboilerchallenge.com.

Figure 2 – image of a boiler

You will probably already have taken the easy steps to carbon savings in your church buildings and further savings will be harder to achieve, especially if your buildings are listed. As congregation members, we collectively have the potential to save many times more than our worship buildings and this is a simple and effective measure that we all can take.

The boiler challenge only addresses combi boilers, though if you have a hot water storage cylinder you can still lower the boiler flow temperature but not below 65°C.

[4] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

[5] NESTA (National Endowment for Science, Technology and the Arts) was founded by the UK Government in 1998 and became an independent charity in 2012. Its focus is on sustainability and health and education inequalities.

3) Boiler Controls and Building Regulations[6]

Heating and hot water production accounts for over 80% of energy use in UK homes, so it is important for your finances and for the environment to ensure that your heating system operates at its highest efficiency possible.

The Government has mandated minimum standards for controls on boilers and heat emitters, in a drive to reach net zero carbon emissions by 2050[7].

*Figure 3 - Example of a person adjusting the **boiler flow temperature***

If you install or replace a 'combi' boiler (a boiler that provides heating **and** hot water without a hot water storage cylinder), you must now incorporate:

- Thermostatic radiator valves (TRVs) on all radiators except in the area where the room thermostat is installed (see figure 4).
- An automatic bypass (not a manual valve) where the boiler manufacturer requires such a valve.
- A boiler interlock to stop boiler dry cycling (frequent on/off switching) under no load conditions.
- For properties over 150m^2 (4/5 bed detached house), the heating system must be divided into 2 zones.
- Also at least one of the following options:
    - Flue gas heat recovery
    - Weather compensation
    - Load compensation
    - Smart controls

[6] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

[7] https://assets.publishing.service.gov.uk/media/63e25c96e90e076266ed429c/Improving_boiler_standards_and_efficiency_consultation.pdf

There is also now a requirement for new heating systems to be designed for a boiler flow temperature of 55ºC. This will mean larger radiators, though it will ensure that your system can cope with the lower flow temperatures produced by any future heat pump system and will give you much higher efficiency potential from your current condensing boiler, because in operating at a lower flow temperature, the boiler efficiency will be greatly enhanced – see Figure 5.

When replacing or installing a new heating system it is obviously important that a competent contractor is chosen who is familiar with the legislation and can advise on the most suitable form of controls.

4) Thermostatic Radiator Valves (TRVs)[8]

Thermostatic radiator valves are one of the most effective ways to control temperatures in your home.

They control the air temperature in your rooms by automatically adjusting the flow of hot water entering your radiators.

The numbers on a TRV do not represent specific room temperatures, as the temperature at which the valve operates will depend on the water temperature flowing through the radiator, airflow around the TRV and the room size. If you have a room thermometer that is a good way to measure the room temperature and then you can assess how to set the correct number on the TRV.

Figure 4 - Example of a TRV in situ

Always try to keep the area around the TRV clear so that it has good air flow around the head and can sense the right temperature. Use a vacuum cleaner to remove any dust from the head of the TRV.

Large rooms may be heated by two separate radiators and there will be an interaction between the two TRVs, so using the same setting on each TRV is a good way to start adjusting the room temperature, then increase or decrease the TRV in the hottest or coldest part of the room.

Surveys have shown that there are approximately 8 million homes in the UK that still do not have TRVs on their heating systems. Tests carried in 2018

[8] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

by the University of Salford in their energy test house facility, found that average savings of 18% were achievable with the installation of TRVs[9].

a) Test Results

Outside Temperature	**Energy Saving from TRVs**
-4	Baseline
5	14%
7	19%
9	18%
12	28%
15	41%

Table 1

The average UK temperature during the heating season is 7.6ºC, so therefore the average energy saving from TRVs has been calculated as about 18%. If any radiators in your property are wider, then savings from adding TRVs to your system will be considerably greater.

[9] https://www.beama.org.uk/static/uploaded/a5d0902f-aef3-4794-9bab50bf9cf97b20.pdf

5) Weather Compensation Control and Load Compensation Control[10]

In 2022 building regulations were amended to improve heating efficiency. New or replacement systems using combi boilers (where the boiler provides hot water to showers and taps without hot water storage) were required to incorporate at least one of the following options:

- Flue gas heat recovery
- Weather compensation
- Load compensation
- Smart controls

In this section, we'll talk you through both weather and load compensation.

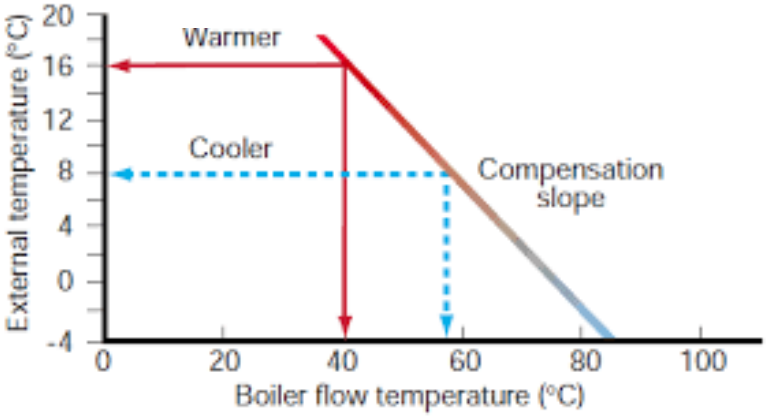
a) Weather Compensation

A 'Weather Compensator' control automatically adjusts boiler flow temperature in accordance with the outside temperature.

The term *boiler flow temperature* means the temperature that your boiler heats water to before it's then sent to radiators to warm them up.

This type of control allows lower boiler flow temperatures in milder periods of the heating season, extending boiler life and further increasing efficiency. Figure 5 illustrates this effect.

Figure 5 – boiler flow temperature diagram



[10] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

Weather compensation is a gentler approach to temperature control than ‘room’ or ‘load’ compensation, as it is proactive - it alters the radiator output before the house drops in temperature, therefore avoiding higher boiler flow temperatures to correct property heat loss.

Weather compensation will require an external sensor, preferably on a North facing wall, though definitely not exposed to direct sunlight. Unless you are confident at DIY, there will be an installation cost; less if the sensor is wireless. Your boiler manufacturer or heating contractor should be able to advise on the compatibility of this type of control with your system and to provide a quote for installation. Each situation is different and exceptional cases have reported gas consumption savings of up to 40%, though savings of over 10% should generally be possible.

Figure 6 – Summary of Weather Compensation

Weather compensation is a good choice of control if you need heating for most of the day, though if no one is in the property during the day, load compensation may be a better choice.

If your property has cooled down during the unoccupied period, then weather compensation control can lead to longer heat up times.

b) Load Compensation

Load compensation controls respond quickly to changes in heat demand. This makes load compensation suitable for heating systems that are used intermittently and/or where there is infrequent use of the building.

Because weather compensation control results in lower heating water temperatures circulating in the system, for intermittent heating schedules during milder weather, it can take longer to reach the desired space temperature. This problem can be overcome by using weather compensation control in combination with an internal temperature sensor

(load compensation) to ensure the internal temperature is used to increase the heating flow temperature sufficiently on milder days to reduce the time required to reach set point temperature.

Figure 7 – Load Compensation summarised

Discuss these options with your heating contractor, to ensure that you choose the most efficient controls to suit your heating system and your lifestyle. Many domestic heating controls now offer further refinements such as delayed or optimum start features that can further reduce gas use and 'smart' control to allow remote access to your control settings.

Be prepared not to realise some of the savings that are anticipated. This is because one energy saving measure only achieve its stated saving(s) when coupled with another.

6) Spray Foam Roof Insulation[11]

Figure 8 – Example of spray foam insulation in a roof

Traditional roof insulation is typically laid above habitable rooms at ceiling level. This is called a 'cold roof' construction, because the loft becomes cold. Installing spray foam to the sloping underside of a roof structure changes your loft to a 'warm roof' construction, because the roof space becomes warm. Changing the position of your roof insulation may make you use more energy, because you have to heat the roof space before heat will be retained in the living space below.

If your wooden roof structure is covered with spray foam it cannot be fully inspected. Climate change science warns us of more frequent extreme weather events that can damage roofs and the presence of spray foam can make identification and rectifying problems more difficult. If there's a roof leak behind some types of spray foam insulation, you may not notice it and an undetected roof leak can lead to rotting timber.

Spray foam insulation is a better thermal insulator than the same thickness of standard mineral wool loft insulation, however, existing loft mineral wool insulation can be 'topped up' to modern standards of current building regulations. Topping up the existing mineral wool insulation is likely to be substantially cheaper than installing spray foam, however, this does take up more loft space.

Spray foam is a combustible material. While uninhabited loft spaces do not require protecting from fire, in the event of a fire in your home, spray foam could increase the extent of damage to your property.

[11] Extracts from Royal Institution of Chartered Surveyors (RICS) Paper Consumer guide; A clear impartial guide to spray foam insulation, March 2023

A draughty loft above ceiling-level insulation is generally a dry loft. Air circulation balances moisture vapour to manage condensation risk within acceptable limits. Spray foam creates a warm roof void. It seals the gaps to prevent draughts and retain heat but will also seal in moisture unless adequate precautions are taken.

It is essential that appropriate records and photos are taken of your home before, during and after works are completed. For example, the condition of the roof covering and structure, provision for ventilation, moisture readings taken of the roof timbers, and atmospheric moisture conditions, and that this information is included in the building work handover/health and safety file[12].

In a domestic contract situation, the duties under the Construction (Design and Management) (CDM) Regulations 2015 should be considered by the designer – whether this is a homeowner, the appointed surveyor or architect, or the contractor. If an installer or contractor is not familiar with the requirements under the Regulations, that is a warning sign that they are not a competent installer.

Before installing spray foam insulation, consider the following do's and don'ts:

- Do check with your insurance provider whether their policy allows the installation of such products with potential increased fire risk.
- Do check with your mortgage provider whether their lender policy allows the installation of such products.
- Do not install spray foam insulation in a listed building or other protected building or structure without obtaining listed building consent in advance.
- Do think about the use of your loft area and consider installing more insulation next to your living spaces, for example, at ceiling level in the loft to keep the heat near the rooms you live in.

[12] These files may be required in the future to prove compliance with BBA/Kiwa certification and to help you should you decide to sell or re-mortgage the property.

- Do get advice from an independent, impartial professional if you are considering spray foam insulation.

Do not accept ‘cold-call’ or unsolicited offers relating to spray foam installations.

7) Heat Pumps

In this section, you will find outlines of two of the more commonly talked about sustainable heating and energy options in domestic settings – heat pumps and solar panels.

a) What is a Heat Pump?

There are two main types: air source or ground source. As they don't burn natural gas, they are a Net Zero option when linked with a renewable energy supply or tariff.

*Figure 9 – An **air-source** heat pump in-situ at a Vicarage in our Diocese.*

An **air-source** heat pump uses the same process as a fridge or freezer to use heat from outside air to warm the water that cycles around radiators.

Whereas a **ground-source** heat pump uses underground pipework to absorb heat to heat water that runs through your taps and radiators.

Further independent information on cost, benefits, case studies from around the UK and planning & installation can be found online from Get a Heat Pump. If you would like to see and experience a heat pump for yourself, go to *Visit a Heat Pump* to find hosts near you.

8) Solar PV arrays

a) What are Solar PV arrays?

Solar PV stands for *solar photovoltaic*, *photo* meaning light and *voltaic* meaning electricity. Solar PV arrays, therefore, refers to the arrangement of a number of panels – usually mounted on roofs or on the ground – to generate electricity. As alluded to above, when coupled with a heat pump, this can represent a wholly Net Zero heating solution.

If you would like to find out more information about Solar panels and have any questions answered, the Energy Saving Trust's website contains lots of useful detail which can help inform future choices.

9) Energy Labels[13]

Energy Labels help consumers to make informed decisions when purchasing new equipment and encouraging the development of higher more efficient products.

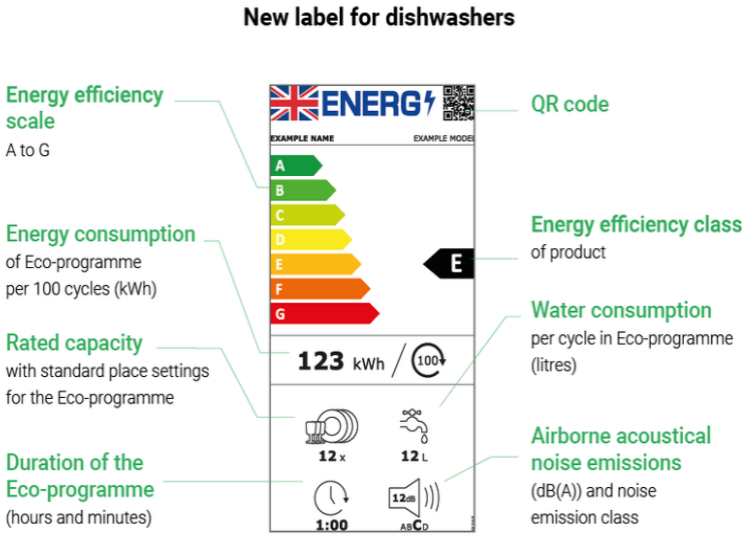


Figure 10 – Example of an energy label

Manufacturers responded to the demand for greater energy efficiency and revised the labels to provide more product information and to better differentiate between products at the top of the scale. Formerly A+++ rated products could now be classified as B or even C and A++ as D or E.

A Government study in 2023 showed that consumers tended to chose products with a higher efficiency when they were given information on the lifetime costs of the appliance. Lifetime cost savings from a more energy efficient product will usually far outweigh any extra initial purchase cost.

Fridges and fridge freezers for example, that are turning on and off 24/7, typically last for 17 years and consume a lot of electricity during their lifespan.

If you are about to replace a fridge or a fridge freezer it is important to have your old unit properly disposed of, as it could contain a refrigerant gas that contributes to global warming and this is 1,430 times more potent than CO_2. If this gas leaked out, it would produce the CO_2 equivalent of driving 500 miles. The City Council will remove bulky items if you need assistance doing that.

[13] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

10) Little Things Mean a Lot[14]

"We are not called to do great things, but little things with great love"
- Mother Teresa

Climate Change is such a huge global problem that as individuals we naturally feel that our actions can have little discernible effect. In fact, the combined actions of people, who are motivated and aware of the problem, can actually change the focus of companies and governments. Here are a couple of examples that show how when we act together we can alter the course of events.

a) Ozone

In 1985 British Antarctic Survey scientists discovered that ozone levels in the stratosphere were dropping and concluded that something was destroying the ozone molecules that protect all life on earth from harmful ultraviolet radiation. A decade earlier in the early 1970s, American scientists had developed a theory that CFCs (chlorofluorocarbons) and other chemicals were capable of destroying large numbers of ozone molecules and this finding helped to confirm the theory. CFCs, were so stable that they could rise up to the stratosphere.

Here, the CFC molecules were subjected to high levels of ultraviolet radiation and broken down to produce free chlorine atoms that reacted with ozone molecules to produce oxygen and unstable chlorine monoxide, which quickly released its chlorine atom to attack more ozone molecules. This chain reaction enabled one CFC molecule to destroy thousands of ozone molecules.

Despite intense resistance from the chemical industry, the scientific evidence, together with photographs from NASA satellites of the 'ozone hole', helped raise public awareness and paved the way for the Montreal Protocol, an agreement signed in 1987 by 198 countries, to eliminate the production of ozone depleting substances.

[14] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

b) ‘Earthrise’

On Christmas Eve 1968, the crew of Apollo 8 captured this first colour photograph of the Earth from space – shown in figure 11. This photograph was seen to contrast bleakly with the lamentable state of the Earth as seen from the ground and the first ‘Earth Day’ was born.

Figure 11 - image of Earth from the Moon’s surface.

Earth Day is now an annual event, demonstrating support for environmental protection over a wide range of issues, with over 1 billion participants in more than 190 countries.

This shows that if people are informed and aware of issues, they take action. In 2006, Coventry and Warwickshire households, schools and businesses were encouraged to turn off unwanted lights and electrical equipment for a two hour period and the results were recorded by the National Grid. The outcome was astonishing – almost 20 megawatts of electricity saved. In 2009, the last year of the campaign, 26.9 megawatts were saved.

There is a wealth of free information about energy saving for your home or business and here are a couple of organisations that can help:

- **Act On Energy**
  - Email: advice@actonenergy.org.uk
  - Freephone: 08009882881

- **Energy Saving Trust**
  - Email: foundation@est.org.uk
  - Freephone: 08000987950

11) Diocesan Pilot Projects

There are a number of pilot projects happening in the Diocese, with the aim of achieving a reduction in carbon emissions and savings on energy costs. These include:

a) Clergy housing pilot and demonstrator projects

We are improving the thermal efficiency of several clergy properties (vicarages), through a retrofit programme. We've started with simple measures like draft-proofing, insulation around pipework, adding further insulation and ventilation, especially in loft spaces and replacing windows and doors. In three properties we are fitting new heating systems to trial non-fossil fuel systems as alternatives to gas or oil-fired boiler plants that were due to be replaced.[15]

Figure 12 – Roof-mounted Solar PV array on one of our churches.

b) Demonstrator church projects

At All Saints Church, Bedworth, we are supporting the church with a grant fund application to install a Solar PV array on their church roof. This will reduce energy bills in a sustainable way. This church is in a busy town-centre location and is a Listed building, so quite challenging in terms of introducing new ideas in a very public setting.

c) Ideas to reduce emissions in the Diocesan offices

We have been measuring how our heating worked last winter. We have trialled using existing heating controls more efficiently and want to go further to reduce our carbon emissions from office activities. We have swapped almost all our light fittings to LED lamps and, as a result of this expenditure, we expect to see our electricity bills reduce.

[15] **It is worth noting that these projects are funded externally. We are receiving funding for them which we are grateful for but that these are extra projects chosen by the central CofE.**

d) Support to CofE schools

Unsurprisingly, we estimate that our 75 CofE schools produce over half of the carbon emissions of Coventry Diocese. We've committed to support the schools to obtain Decarbonisation Plans and Climate Action Plans. They can use these to see where savings can be made, both in the short and long term. They can use the plans to seek further funding and prepare for the introduction of lower carbon technologies to replace ageing heating systems.

e) Loan equipment

We bought several thermal-imaging infrared cameras and thermometer/hygrometers. We lent these to staff at the Cathedral as well as to clergy in several churches and teachers in a school. The devices link to smartphones and you can easily download the images and data collected. Using this information, you can learn about your buildings and identify where savings could be made.

Figure 13 – Thermal radiation image of the Diocesan Offices

f) Grants for churches introducing net zero measures

The Diocese has a small number of different grant schemes available for churches, including 'quick wins' and church improvement grants. Contact us for details. **We are keen to support local churches, clergy and schools in any way we can.** If you have an idea you want to share for others to consider, or ideas for discussion, please contact your Deanery Environmental Representative or our Net Zero Carbon Project Officer - contact details via the website.

12) What are Your Energy Saving Ideas?[16]

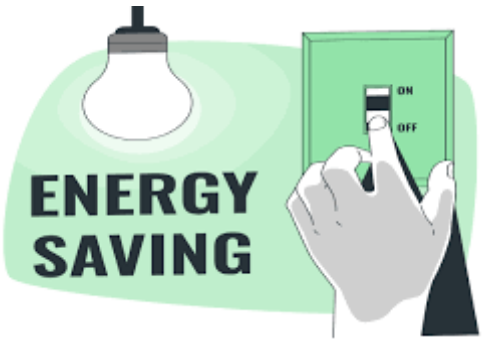


Figure 14 – Image taken from Medium.com

- Do you have any great energy saving ideas?
- Would you share them with others?

If the answers are YES, then take part in the ' Energy Saving Ideas' competition. A prize, certificate and presentation ceremony for the winner.

All you need to do is to give your three best/innovative energy saving tips for the following energy using activities around the home:

1. Cooking
2. Clothes washing
3. Clothes drying
4. Ironing
5. Refrigerating
6. Freezing
7. Heating

The competition is open to all households in ..... and the closing date for your entry is .....

[16] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

13) Energy Motivation Campaigns[17]

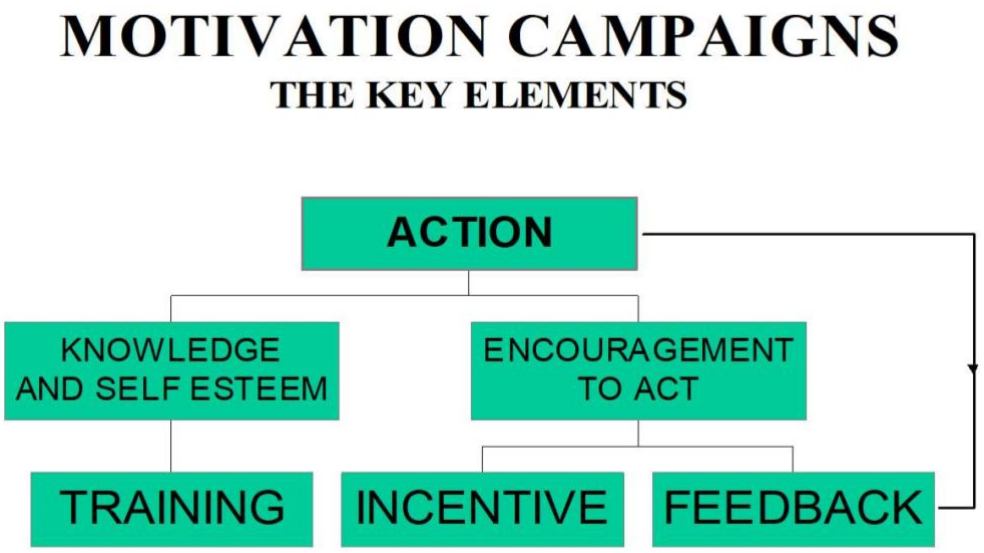


Figure 15 - Flow chart of how to inspire action

To be effective, a motivation campaign must contain three essential ingredients:

1. **Training** - To present the facts in a straightforward manner and to show that individuals can make a difference.
2. **Incentive** - Damage to the environment and the large and growing cost of energy, are good reasons to encourage greater efficiency of use.
3. **Feedback** - Essential to maintain the impetus of any scheme.

Training will provide people with knowledge, helping to increase self-esteem and giving them an understanding of what to do. Incentives for individuals would include their contribution to reducing climate change and lowering their fuel bills. The combination of the knowledge of what to do and the incentive to do it will hopefully result in action.

[17] Information based on notes provided by *Bill Johnson, Holy Trinity Coventry, July 2024*

The third ingredient is Feedback, so that people can see that their actions have had an effect. Feedback increases the likelihood that actions will be maintained and hopefully increased.

The Code of practice on domestic bills and statements, published in July 2017, requires utility companies to show the estimated annual consumption of electricity and gas in kWh. If action is taken to reduce fuel use, then these annual estimates of consumption will reduce, giving simple and effective feedback. Annual estimates are updated at each billing period, so there could be a few months wait before seeing results.

a) Churches Seeking Net Zero Facebook Group

A church member who is very active in their congregation has created a Facebook group for other church members to join. The group is intended to be a place to ask questions and share learning about how to tackle the practical aspects of Net Zero issues, particularly those which arise for churches.

Should you, or others you think would wish to join the group, want to do so the group can be found via the following link.

Glossary

‘Cold roof’ construction – a term which describes a roof in which insulation is located immediately above or between ceiling joists e.g., fibreglass insulation. Space above this is (rafters etc) therefore cooler/cold.

‘Dry’ cycling – a term which describes the action of a boiler firing to get it back up to temperature when it has lost heat to the surrounding air.

‘Warm roof’ construction – a term which describes insulation above joists and within rafters or rooves rather than ceilings.

A Rocha – a Christian charity working to protect and restore the natural world and equip Christians and churches in the UK to care for creation.

Automatic bypass valve – used to maintain a constant minimum flow of water through a boiler and reduce the chance of overheating.

Boiler condensing – a term which describes the process by which modern boilers recover waste heat energy and reuse it.

Boiler cycling – a term which describes when a boiler frequently turns on and off.

Boiler flow temperature – the temperature your boiler heats water to before it gets sent to radiators.

Boiler interlock – a term which describes a wiring arrangement to prevent a boiler from firing when there is no need to.

CFCs – abbreviation of chlorofluorocarbons. A gas used in the production of spray deodorants, fridges and freezers.

***Combi* boiler** – (short for combination) a boiler which is able to provide both hot water and central heating.

Contruction (Design and Management) Regulations 2015 – a set of rules known as CDM Regulations or CDM 2015, which set out the way construction projects of all sizes and types are planned in the UK.

Eco Church – an awards framework, created by A Rocha UK, churches use to take practical actions in caring for creation.

Flue – a pipe, duct or chimney for emitting waste gases from a boiler or fireplace.

Flue gas heat recovery – a boiler part which is designed to recycle unused energy from the flue (chimney) and use it to generate heat.

Hygrometers – a device which measures humidity in the air.

kWH – abbreviation for kilowatt hour. Meaning the amount of electrical energy used in an hour.

LEDs – abbreviation for Light Emitting Diode.

Load compensation – this process works in a similar way to weather compensation except that with load compensation, temperature sensors are inside.

NASA – National Aeronautics and Space Administration

Ozone layer – sits within the stratosphere of the Earth's atmosphere and shields the planet fom the sun's harmful ultraviolet radiation.

Return temperature – a term which means the temperature at which water comes back to the boiler having first flown around radiators.

Smart controls – a term which often refers to thermostats controlled via an internet connection to an app on a smartphone.

SMETS – an acronym which stands for *Smart Metering Equipment Technical Specifications* i.e., smart meters which display electricity and gas usage.

Solar PV – solar panels. PV is an abbreviation for photovoltaic meaning the generation of electricity from the sun.

Weather compensation – a process which uses outside temperature sensors to make a boiler work more efficiently.

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