

Energy use in the Home

Introduction

At this stage of the ecocell programme, we will assume that people are reasonably knowledgeable about energy use, that for instance:

- you are aware that the heating and lighting of homes accounts for something in excess of 20% of all carbon emissions in the UK around a third or a quarter of carbon emissions in the UK,
- you know how to read your meters, and to calculate your emissions from your meter readings, and you have at least taken the first steps to reducing your emissions including changing to low energy light bulbs, turning down your thermostat and turning off radiators when not required,
- you have installed insulation, draught proofing, etc) – or have at least the intention to do these things.

In this module we explore **all the options** that we need to take in getting our emissions and impacts down to sustainable levels. The actions you need to take will depend on where you live now, how you live, with whom you live – not just in what type of dwelling you live. And different options will be applicable to different members.

Preparation for this Module

As background, please read an up to date publication from the Department of Energy & Climate Change which shows trends in energy use in the home. This will give you an overall awareness of the changes in domestic gas and electricity use over recent years.



Energy Module

After you have done that, please peruse the box below:

'What do these figures tell us?

- Since 2000 domestic energy use has decreased by 19%, whilst there has been an increase of 12% in the number of UK households and a 9.7% increase in the UK population.
- UK domestic energy consumption fell by 14% from 2013 to 2014.
- Energy consumption per household has fallen by 37 per cent since 1970, with the bulk of the decrease (29%) occurring since 2004.

[source: 'Energy Consumption in the UK (2015) – Domestic Energy Consumption in the UK between 1970 and 2014' (DECC, 30 July 2015) –

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/449134/ECUK_Chapter_3_-_Domestic_factsheet.pdf

As the trends show large reductions in domestic energy use, why do we still need to reduce even further?

Exploring questions such as this is a key element of this module and will form an essential stepping stone in your *ecocell* journey as you seek to live more gently on the earth by minimizing your use of natural resources.

On the module:

As you convene for the first time for this module (possibly at your first meeting after the *First Module*) and after you have said a prayer and have 're-connected' with each other:

Activity One – a discussion: what are the dimensions of this domestic energy challenge?

Ask one set of people in your group to list all the more technical and short-term activities that you might consider doing, to reduce your domestic energy emissions. Include things that you might have already done – the loft insulation, the use of smart meters etc. List these on a sheet of chart paper.

Ask a second set of people in the group to list all the medium- to longer-term technical activities that you might consider doing to reduce your domestic energy emissions: activities that may involve spending fairly large sums of money and may need to be planned over months and years – solar panels, woodstoves, replacing the more expensive white goods. List these on a sheet of chart paper.

Allow about 20 minutes. Then put the two charts on the wall.

Then ask the first set of people to list all the behavioural, non-technical changes that you can make, such as reducing your thermostat to a certain temperature, changing the timing regime on your thermostat, perhaps 'house rules' on room usage. List these on a sheet of chart paper.

Then ask the second set: are there other, perhaps more major, changes that we need to consider? You might like to look again at the box displayed on page 1, and see if the group can explain the need to reduce energy consumption even further (but without looking at the Note on page 8. Only the Group Facilitator should look at the Note, until the discussion at the end of this exercise). List these suggestions on a sheet of chart paper.

Again allow about 20 minutes. Then put the two charts on the wall.



Then spend a while looking at all the charts, and allow another 20 minutes or so for cross-questions and discussion. Finally request one person to take all the charts away and type up and circulate (this volunteer might also like to look at Appendix One on page 4: *Some Issues that Impact on our Fuel Use in the Home* and add in any missed items).

As 'homework', members then consider which of these activities might be relevant to their situations (for instance, if you live in rented accommodation, many of the technical measures will not be relevant to you).

Total time: about one hour thirty minutes.

Also in this meeting a group might undertake:

Activity Two

Agree as a group on how and when members will record their fuel use. We suggest using the domestic energy sheet on the electronic *ecocell*/footprint measurement spreadsheet which is available at www.greenchristian.org.uk/ecocell/ecocell-documents . This involves taking monthly readings.

Time: up to 30 minutes.

If your group meeting is lasting more than two hours, please fit in this activity also:

Activity Three

Divide up into pairs or trios of people – suggest of people who are in similar living situations (e.g. one pair might be in rented accommodation, one might be householders with families, one might be single people living in blocks of flats). Ideally pairs or trios should live close to each other, but that may not be possible.

Each pair or trio makes arrangements to work together supporting each other **on household energy use action and learning plans**. In Appendix Two we suggest a model for this planning process. The facilitator might check with the group that all understand this planning process. Members of pairs or trios commit to working with each other between group meetings on these plans.

The facilitator might also bring to the attention in Appendix Three the range of sources of advice or references covered in the report of the Survey of GC People Knowledgeable on Domestic Energy. While this survey was conducted in 2010 much of the content is still relevant. Any references which are no longer applicable have been deleted – and of course several new publications have appeared since that time (but are not listed here). And check out whether there any people in this group with expertise or experience in this area that other members can call on.

Time: 45 to 60 minutes.

Future meetings of the group on this module

Future group meetings should then give people the opportunity to tell each other what they have done, what they have achieved and what difficulties they have experienced. It is very satisfying to feel the house becoming at least as warm and comfortable as you like it, yet using a lot less fuel, because of the various changes that you have made – from agreeing a regime of turning off radiators at particular times (and appointing a house energy monitor) to installing a woodstove and learning to chop wood that you collect from the neighbourhood. It can be frustrating when the firm you engaged to do the window glazing mess you around, or the teenagers in the house don't comply with the agreed regime. Members may need time to share and discuss these experiences. And of course share ideas on solutions and expertise.

Whether by email between meetings or at the second meeting, the facilitator might bring up the points made in the endnote on 'thinking outside the box'. As indicated, this discussion may be difficult for many of us. But we cannot avoid it if we are serious in our quest for sustainability.

Reading meters and calculating emissions

It would probably be sensible to do so monthly and to fill in your figures on the electronic *ecocell*/footprint measurement spreadsheet. This enables you to compare your figures over time, comparing current with previous years.

As a group you might also want to compare your figures with each other – depending on how competitive you are! Or you may wish to combine your figures and get a group average, to see the progress that your group as a whole is making.

Conclusion

This module really is a journey, and a journey made over a few years if you are to get anywhere near the required destination. Like all journeys it can be exciting (when the panels first capture the heat of the sun), satisfying (when the draught disappears because of the work you did), exhausting (whether from the arrangements with work people or the chopping of wood). Family relationships can be challenged – and strengthened from working on a shared project. New friendships can be created (as neighbours leave the wood for the stove at your door!)

As they say in the West of Ireland:
Bail ó Dhia Dhuit is go n-eirí an bothair leat.
(God be with you. And may the road rise with you, on your journey.)



Appendix One: Thirty issues that impact on our fuel use in the home (in no particular order).

1. The balance between aesthetics, functionality and energy conservation in planning home improvements
2. The balance between comfort expectations and energy conservation
3. Location of main thermostat in living space
4. Level at which thermostat is kept – about 18°C recommended
5. Temperature of the hot water tank, if there is one
6. Turning on/off radiators and overall heating in relation to patterns of use
7. Room usage to minimise fuel use
8. Showers rather than baths – or sharing either!
9. Cooking to minimise fuel use
10. Size and energy efficiency of white goods
11. Use of sun from south-facing rooms
12. Low energy light bulbs
13. Location of radiators in a room
14. Thermal controls on radiators
15. Silver foil insulation material behind radiators
16. Single glazing
17. Double glazing
18. Insulation material on inside walls
19. Draught-proofing of doors and windows
20. Quality of carpets and curtains
21. Chimney balloons
22. Loft insulation
23. Need for carpets, carpet underlays, thick curtains
24. Installing woodstove
25. Installing solar heating
26. Purchasing 'green fuel' (Ecotricity, Good Energy etc)
27. Other options in type of fuel used
28. Number of people living in house or flat
29. Moving home, size/type/location of house that you purchase
30. Type of house or flat purchased.



Appendix Two: household energy use action and learning plans

1. Immediate actions, say to be taken over next two weeks:

Ideas: Look at the above list, and see the range of things you can do. Perhaps start by ensuring your thermostat is set at no more than 19°C, and is sensibly timed - the cats don't need central heating if you are out during the day! Check how many gadgets you keep on 'standby'....
The shower rather than the bath... (or the shared bath!).

My/our plan:

Learning points arising from trying to implement your plan:

2. Before the end of year:

E.g. get information about the most fuel-efficient appliances available. Will you be needing to make any such purchases soon? Have you had an energy audit of your home?

My/our plan:

Learning points arising from trying to implement your plan:

3. Medium to longer term plans, including contingency plans, as changes and opportunities occur in your and your family's lives:

As your financial circumstances change, or you move home, or your children leave home, you may need to consider the size of house you need, or to consider taking in lodgers (thus sharing your heating etc), or to consider more major capital works (solar heating, double glazing, etc).

My/our plan:



Learning points arising from trying to implement your plan:

Appendix Three: Extracts from a Survey of Green Christian People Knowledgeable on Domestic Energy

What are the main environmental problems we need to address in the way we use energy in the home?

On a global scale Climate Change and Peak Oil (and probably collapse of developed world economies as a consequence).

More specifically, reducing our emissions without comprising health, safety and welfare. It was noted that currently many buildings, sources of heating and appliances were inefficient, and that insulation needed to be improved beyond building regulations and standard measures given at present. An obstacle to achieving this could be finding good independent advice. In addition new design and build should embrace best practice but this is still the exception.

The problem of embedded energy was also highlighted, ie the energy and emissions costs of the building process.

It was also noted that we bring into our homes through our purchases (particularly of food) and the associated problems with the recycling/disposal of these items. It was also noted that wasteful use of water also has an energy cost.

What knotty dilemmas are we likely to come up against, in reducing our emissions and impacts down to the levels required for sustainability?

It was noted that many of these were psychological in nature:

- resistance to change
- overcoming bad habits
- fear of loss of status / identity, especially if action is counter to the mainstream consumer culture
- despair about size of problem versus lack of strong leadership, and the inadequacy of the measures proposed
- differentiating between essential and less-essential processes that produce CO₂ emissions
- agreeing on reasonable/acceptable levels of heating; it was noted that this could vary and that different people had different heating needs.

Practical dilemmas include:

- lack of information and advisors
- uncertainty about which measures to take and the best time to take them
- financial issues eg: lack of funding, cost of implementing measures versus payback time

What books or websites would you recommend for learning more about this issue?

- 'Heat' by George Monbiot
- 'How to live a low carbon life' by Chris Goodall
- The Transition Handbook by Rob Hopkins (Green Books £12.95)
- Peak Everything by Richard Heinberg (Clairview £11.95)
- Swimming Lessons by David Ehrenfeld (OUP)
- The Carbon Fields by Graham Harvey (GrassRoots £9.99)
- The Big Earth Book by James Bruges (James Bruges £25)
- Ten Technologies to Save the Planet by Chris Goodall (GreenProfile £9.99)
- A Moral Climate by Michael Northcott (DLT Books)

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- Eco-house Manual by Haynes Manuals
 - 'Walk Cheerfully, Step Lightly' published by Quaker Green Action

Ecorenovation info and case studies

- Energy Saving Trust: <http://www.energysavingtrust.org.uk/domestic/>
- Case studies online: <http://climatex.org/articles/eco-renovation/case-studies-web/>
- Ecovation www.ecovation.org.uk for case studies of eco-renovated homes
- AECB: <http://www.aecb.net/index.php> their forum has a good discussion page

Suppliers:

- Logpile: <http://www.nef.org.uk/logpile/links.htm>
- <http://www.greenspec.co.uk/>
- You-Gen for micro-generation suppliers: <http://www.yougen.co.uk/>
- <http://www.greenregister.org.uk/>

Carbon Conversations: <http://cambridgecarbonfootprint.org/>

What strategies for action can you suggest – both for individuals and as a group?

Both individuals and groups could consider liturgies and prayers for each aspect of the spiritual journey.

For groups:

Space to talk about uncomfortable feelings – resistance

Effective signposting

Developing reflection and feedback for the group - recommended: <http://www.joannamacy.net/>

Individuals were encouraged to join a group, eg: Transition Towns or CRAG (Carbon Reduction Action Group).

Both individuals and groups were recommended to seek advice from local Energy Saving Trust Offices, and groups were encouraged to involve other groups, eg: Energy Saving Trust and Transition Towns, in their own activities.

Are there people with specialist expertise (not necessarily Green Christian members) whom you would recommend for a panel of advisors in this area, to whom *ecocell* participants could be referred?

A directory of experts: <http://www.yougen.co.uk/energy-experts/>

Local Energy Saving Trust Offices and advisors

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Note for Group Facilitator only

Explanation of why we still need to reduce our domestic energy consumption despite the figures shown in the box 'What do these figures tell us?' on page 1.

Here are three reasons why we still need to further reduce our domestic energy consumption (and more may crop up in discussion!)



- While it is clearly good news that domestic energy consumption is reducing, it still produces a large percentage of CO₂ emissions which directly impact climate change.
- Using less energy in our homes is something which we ourselves can do – without relying on Government and business to do it on our behalf.
- And also, the very act of thinking in these terms may make us more aware of the benefits of living more gently.

Questions that members of a group may need to address, at various stages of their lives:

- Taking in of lodgers
- House or flat-sharing (rather than a 'place of your own')
- Moving to a smaller house (e.g. when children leave home or spouse dies).
- Living in a block of flats (where the heat that 'escapes' up and out from one flat can help heat others) rather than in a detached house.

These are opportunities – or challenges – that only arise at various stages of our lives, usually as our life situations change: for instance on leaving home, getting married, having children, moving to a new area, children leaving home – or very sadly when a couple are split up by death or divorce. But we may be able to plan for such changes as part of the *ecocell* programme planning.



And they may raise very sad and difficult issues for some of us – the widow for instance who has lived in a four-bedroom house for forty years with her husband and family, and then finds herself on her own. And not all of us are good at sharing living space with others.

But they have major implications for the amount of fuel we use. They can also offer opportunities for more sociable and interesting lives. Also, from a wider societal perspective, occupying less housing space per person can reduce the demand for new house building, which reduction of course would lead to further reductions in emissions and impacts – and it would help the people currently living in over-crowded conditions.