



Full Council Meeting – 24 March 2022

Agenda Item CC2293/22

Reducing Carbon Dioxide Emissions in Croxley Green

Introduction

In November the Council agreed to set up a working group to

- Investigate how carbon dioxide emissions could be reduced in Croxley Green.
- Identify the barriers to reducing those emissions and
- Suggest ways in which they might be overcome.

This paper reports progress made and suggests a way forward.

Discussion

Annex A is a selection of key points

Annex B is a summary report of the Working Group's discussions and preliminary conclusions.

We met twice remotely and have made good progress investigating the issues and the sources of information. For various reasons we haven't managed to arrange a further meeting to focus our report on the actions the Parish Council might consider.

However we thought it timely to report on our progress and our preliminary findings:

- 1) There is a challenging problem which will need radical change
- 2) Everyone will have to make substantial changes in many aspects of their current lifestyles
- 3) The main areas in which the Parish Council could contribute include:
 - a. Encouraging discussion and awareness of the issues and the solutions and
 - b. Providing and sharing reliable information
- 4) The focus locally should mainly be on energy use in homes and in travel and transport.

Considerable further work will be needed to develop some of the ideas already suggested, to invite further ideas from councillors and the public, and to turn them into practical action.

Recommendations

1. To accept the attached report (Annex B) as a work in progress
2. To encourage wider community involvement in the topic by presenting the results at the Annual Parish Meeting and at Croxley Revels
3. To invite the working party to continue and develop ideas for the Council to consider.

Cllr Andrew Gallagher
17 March 2022

ANNEX A – KEY POINTS REDUCING CARBON DIOXIDE EMISSIONS IN CROXLEY GREEN

The level of carbon dioxide (CO₂) gas in the atmosphere has been rising steadily for more than 100 years. It mainly comes from burning fossil fuels (coal, oil and gas). We burn them for the energy we need to power our homes, factories, farming, transport, mining & building.

CO₂ in the atmosphere acts to trap energy from the Sun re-emitted as heat energy from the Earth and warm the air, the seas and the ground. Average temperatures have been rising around the world, leading to climate change causing:

- Intolerable temperatures in some regions,
- Increased desertification in some places,
- Heavier rain and flooding in others,
- The loss of ice around the poles and in the mountains,
- Sea level rises, and coastal flooding.

Some of these changes will make large areas of the world uninhabitable leading to famine and mass migration

To help prevent this, Three Rivers needs to achieve on average at least 14% annual reduction in emissions every year from now on. ***This is even more challenging than the Government's national target of 8%***

There are two ways of looking at the CO₂ emitted “in” Croxley Green.

- One is the **consumption** figure, which includes the CO₂ emissions from all the activities OUTSIDE Croxley Green to support our way of life as well as from all the activities WITHIN Croxley Green.
- The other is the **territorial** figure, which only includes the CO₂ emissions from activities directly related to the people living in Croxley Green.

| CONSUMPTION | % CO ₂ emissions |
|-----------------------------------|-----------------------------|
| Consumption of goods and services | 37% |
| Food and diet | 23% |
| Travel | 21% |
| Housing | 19% |

We identified some of the ways emissions could be reduced from each of the four sources, with a particular focus on things that could be done by people living in Croxley Green. These mainly come down to lifestyle choices, purchasing and investment decisions.

The key areas for the Parish Council to act on are:

- 1) Helping to spread knowledge and awareness of the practical changes we will all need to make in our daily lives
- 2) Particularly in relation to the energy (and cost) saving improvements we will need to adopt in our homes
- 3) And in relation to the opportunities for less energy intensive travel and transport.

ANNEX B – SUMMARY REPORT REDUCING CARBON DIOXIDE EMISSIONS IN CROXLEY GREEN

CONTEXT

Croxley Green Parish Council set up a working party of councillors and local residents to investigate the ways in which people living locally could be encouraged and helped to make the changes that will lead to lower carbon emissions and a more sustainable life style and the barriers to change. This is the working party's report to Council.

The level of carbon dioxide (CO₂) gas in the atmosphere has been rising steadily for more than 100 years due to mankind burning fossil fuels (peat, coal, oil and gas) extracted from the ground to provide energy to warm our homes, cook our food, power our factories and the machines we use for farming, mining, transport and travel.

CO₂ in the atmosphere acts to trap incoming energy from the Sun which is then re-emitted as heat energy from the Earth and warm the air, the seas and the ground. There are some other gases (for example methane) which also act as “greenhouse gases”.

As CO₂ levels have risen due to human emissions average temperatures have been rising around the world, leading to climate change. This is seen in rising maximum temperatures, increased desertification in some places, heavier rain and flooding in others, the loss of ice around the poles and in mountain glaciers, sea level rises, and coastal flooding. Some of these changes will make large areas of the world uninhabitable.

The Intergovernmental Panel on Climate Change (IPCC) has determined that global surface temperature is already approximately 1°C hotter than the second half of the 19th century average temperatures.

Because carbon dioxide remains in the atmosphere for hundreds of years we will continue to experience warming through this and subsequent centuries affecting current and future generations. This is why it is critically important to achieve carbon dioxide reductions as soon as possible – the longer we avoid cuts, the bigger the problems we and future generations will have to deal with.

The latest IPCC report (2021) finds:

“Global surface temperature will continue to increase until at least mid-century under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO₂ and other greenhouse gas emissions occur in the coming decades”.

At COP26 the Government set an annual target of 8% reduction in emissions. This is a really challenging target which will require substantial changes in energy supply and how we live our lives.

The Government publishes data on annual carbon emissions (CO₂) from each local authority area. Three Rivers District Council reports the emissions data for Three Rivers. The latest report is from 2019 as, due to the complexity of the data sources, the published data is always 18 months old. This shows that, on average, emissions in Three Rivers have been reducing but much more slowly than needed to meet the targets set by the UN Paris Agreement in 2015.

The Tyndall Centre for Climate Change Research uses “science-based targets” to help local authorities calculate their area’s carbon budgets so that they can cut their emissions in line with climate science and the UN Paris Agreement. They have concluded that, to stay within the Paris Agreement, Three Rivers needs to achieve on average at least 14% annual reduction in emissions every year from now on.

This is even more challenging than the Government’s national target.

There are two ways of looking at the CO₂ emitted “in” Croxley Green.

- One is the **consumption** figure, which includes the CO₂ emissions from all the activities OUTSIDE Croxley Green to support our way of life as well as from all the activities WITHIN Croxley Green.
- The other is the **territorial** figure, which only includes the CO₂ emissions from activities directly related to the people living in Croxley Green

The Centre for Sustainable Energy publishes the IMPACT Community carbon calculator available on the internet which shows the “**per household**” footprint in tonnes of CO₂e¹ per year.

Consumption emissions for Croxley Green

| Sector | Average emissions per household | |
|-----------------------------------|---------------------------------|------|
| | (t CO ₂ e) | (%) |
| Consumption of goods and services | 7.49 | 37% |
| Food and diet | 4.65 | 23% |
| Travel | 4.32 | 21% |
| Housing | 3.88 | 19% |
| Waste | 0.09 | 0.4% |
| TOTAL | 20.4 | |

Territorial emissions in Croxley Green

| Sector | Average emissions per household | |
|---------------------------|---------------------------------|-----|
| | (t CO ₂ e) | (%) |
| Housing | 3.88 | 40% |
| Road Transport | 1.72 | 18% |
| Aviation | 1.52 | 16% |
| Industrial and commercial | 1.43 | 15% |
| Shipping | 0.6 | 6% |

¹ CO₂e stands for "carbon dioxide equivalent" and is a standard unit of measurement in carbon accounting. It expresses the impact of a number of different gases collectively as a common unit.

| | | |
|-------------------------|------------|------|
| Waste management | 0.19 | 2% |
| F-gases | 0.18 | 2% |
| Other Transport | 0.02 | 0.2% |
| Agriculture | 0.01 | 0.1% |
| Diesel fuelled railways | 0.01 | 0.1% |
| TOTAL | 9.6 | |

These figures show the relative importance of the different activities:

1. Purchasing decisions for goods and services
2. Purchasing decisions for diet and food
3. Travel and transport (mainly cars and aeroplanes)
4. Housing (mainly heating)

The Place-Based Carbon Calculator (PBCC) is a free tool which estimates the **per-person** carbon footprint for every Lower Super Output Area (LSOA) in England. LSOAs are small statistical areas with a population of about 1,500 - 3,000. Croxley Green is divided into 8 separate LSOAs.

The tool takes a consumption based approach to carbon footprints. It draws on a wide range of data and research to give a representative view of how carbon footprints vary across the country. The main part of the tool is an interactive map of England. Clicking on any of the LSOAs shown on the map will bring up a local report card which contains more information on how the carbon footprints were calculated, as well as comparisons with other areas. The report card also gives useful information about contributing factors such as how well insulated homes are or how far the average person drives per year.

The PBCC gives more detail than the IMPACT calculator and suggests how consumption patterns and emissions may vary within our community. It confirms the basic priorities for changing behaviour to achieve reductions in carbon emissions.

HOW COULD CARBON EMISSIONS BE REDUCED?

We identified some of the ways emissions could be reduced from each of the four sources, with a particular focus on things that could be done by people living in Croxley Green. These mainly come down to lifestyle choices, purchasing and investment decisions.

CONSUMPTION EMISSIONS:

Consumption of goods and services (37%)

This is all about purchasing decisions.

- Information about how to make choices.
- Decisions to repair rather than to replace (avoiding the “throwaway” culture)
- Sharing economy e.g. garden/power tools.
- Circular economy – ensuring that at the end of use, products are sold or given forward, donated to charity shops or recycled.

- Moving away from fast fashion; not replacing technology (phones, laptops) annually.

Food and diet (23%)

This is also about choices.

- Reducing red meat and dairy are the main factors which will reduce emissions.
- Reducing food waste (throwaway culture)
- Reducing food miles
- Healthy living options

Travel (21%)

Again, this comes down to choices (including air travel as well as roads and railways).

- Shorter journeys, choose sustainable modes
- A particular focus on schools
- Fewer journeys (combine several things in a single trip)
- More working from home;
- Car sharing.
- Fewer flights

Flying comes out very high for Croxley. Flying is one of the highest contributors to carbon emissions per person for people who fly a lot (something like 15% of people in the UK are responsible for 70-80% of emissions relating to flying).

There is a specific problem with road travel. Once the decision to own a car has been made, then the decision whether to use it or not comes down the balance between the marginal cost and the marginal convenience. The marginal cost is the cost of a few extra miles, having written off depreciation, insurance, road licence and routine servicing costs. The marginal benefits are time savings and convenience as well as the ability to carry passengers and personal goods (like shopping).

Housing (19%)

There is a wide range of options, some simple and cheap, others expensive longer term investments.

- Turn down the thermostat, don't heat rooms you don't use.
- Turn off lights and other electrical appliance you aren't using
- Switch to lower energy light bulbs
- Smart meters to show what you are consuming
- Install thermostats in each room
- Choose a sustainable electricity supplier
- Reduce draughts
- Improve insulation
- Use thicker curtains

- Grow trees to provide wind shelter

The bigger changes become more expensive:

- Replace windows (double glazing)
- Fill cavity walls
- Insulate ceilings / roofs
- External (or internal) additional insulation for walls
- Insulation under floors
- Solar panels (where possible)
- Heat pumps rather than gas boilers
- Underfloor heating (lower operating temperature) rather than radiators
- Forced ventilation with heat exchangers

BARRIERS TO REDUCING EMISSIONS

We identified some of the barriers to people making these choices and taking these actions.

Some of the barriers apply to all the ways in which we might reduce emissions. Others are different for the different ways in which emissions are caused.

One way of summarising the barriers is to consider all the “C”s:

Complexity, Communication and Comprehension

What is the basic problem? Do people understand it?

Some knowledge is necessary but knowledge itself is not sufficient. It’s a complicated issue, difficult to explain and understand.

Convenience, Comfort, Cost

These are three drivers of our behaviour, in general we seek:

- convenience, rather than inconvenience,
- comfort, rather than discomfort, and
- are always limited by cost, what we can afford

None are absolute. People may be willing to accept some reduction in convenience or comfort in return for something else they value. Neither is cost absolute for people above the poverty line, as they may be willing to pay more for something that they value (but it can be hard to argue why people should spend more for what appears to be less).

Choices

People are free to decide what they want to do, how they want to behave.

This is important – people have to feel free to make choices, and taking away things or choices they thought they had can lead to resistance/pushback.

HOW THE BARRIERS MIGHT BE OVERCOME

We identified some of the ways they could be overcome.

Potential actions fall into four categories:

1. Things the Parish Council could do directly
2. Things it could do in collaboration with others
3. Things it could influence
4. Things beyond its reach

This leads to a four by four matrix for further investigation.

| Source of emissions: | Do directly | Do with others | Influence | Beyond reach |
|----------------------|-------------|----------------|-----------|--------------|
| Goods and services | | | | |
| Food and diet | | | | |
| Travel and transport | | | | |
| Housing | | | | |

We should work with and through residents to get a multiplication effect. We needed to collaborate with others. It is about influencing opinions and behaviour, not simply providing information. It needs incremental changes over the longer term.

There are many other bodies involved both nationally and locally, in the public and private sectors and the voluntary sector (sometimes called the third sector or even the big society).

Particular local voluntary groups include:

- Green Croxley (Local schools)
- Sustainability Three Rivers
- Green Croxley Eco-Church (All Saints, Baptist, St Bedes, St Oswalds)

Knowledge & Education

What are people actually doing in their homes?

Finding out what other bodies are doing?

Need to start with the schools

The issue is all about changing people's minds and their behaviours. It requires a paradigm shift

There is a lot of misinformation that should be challenged and rebutted. For example, about the suitability of heat pumps in older houses. As well as the small steps, there are the bigger decision points – for example when someone has to replace a boiler – when there is a choice about investment.

Hertfordshire County Council and Three Rivers District Council have launched an App for residents, developed with the Energy Saving Trust and other authorities in Hertfordshire. HEAT: Herts Energy Advice Tool provides a virtual house through which you can tour to answer basic questions about where the heat is lost and to suggest ways in which you can change behaviour and save money. It works at a fairly superficial level, with four typical rooms and a number of minor energy saving tips for each room.

Motivation & Campaigning

How do we motivate people to want to make the changes?

Think Greta Thunberg, not Extinction Rebellion

Think about other successful campaigns – Road safety generally, seat belts

The Parish Council Chair has suggested focussing the next Annual Parish Meeting (probably in May) on sustainability issues – an opportunity to share ideas with the wider community.

As well as the Annual Parish Meeting in May, the Parish Council has a stall at the Revels and this could be a good place to present ideas and sources of local information.

Behaviour change would not come about simply for environmental reasons. People had other reasons for their behaviour and these (such as cost and money saving) were important factors to be considered. The recent price increases were focussing people's minds on the cost of energy and might make people more interested in energy and cost-saving.

Marginal Changes

We need to take people on a journey of many small steps. One step at a time.

The importance of identifying quick wins – things people could do easily and relatively cheaply.

We should aim for small steps that would seem possible to people, rather than bigger changes that might seem too difficult. For example, switching to a renewable energy provider, or focussing on draught proofing and insulation rather than bigger investments like heat pumps or solar panels.

There is a high level of environmental awareness in Croxley Green and concern for the environment. However there is a real problem about shorter journeys and especially cars and parking around schools.

Legal & Regulatory Changes

Identifying what would be needed and then lobbying?

There is an opportunity to encourage people to make substantial energy saving improvements to their properties through conditions on planning approvals. Some District Councils which are including energy conservation requirements in their local plans.

Pilots & Exemplars

Showing what people have already done, and how to do it.

A key thing is to publicise and explain, for example through articles in MyLocal (Croxley) News, giving people ideas, showing what other homes have done and how much energy and money could be saved. And introducing an element of competition about how much people could achieve.

As well as articles, we could develop exemplars of properties that have made specific improvements that other residents could see as examples of what is possible in the various types of property in Croxley Green.

Perhaps an on line leaflet presenting the examples.

Competitions

Offering small prizes for success

Funding

Finding ways to leverage investment

The importance of cost to people with lower incomes and on smaller budgets. Do we have information on the relative distribution of wealth in Croxley Green and the number of families in relative poverty?

The first Green Homes Grant scheme phase 1 has closed to new applications. Three Rivers District Council has announced a new phase 2 scheme managed by Warmworks.

The Domestic Renewable Heat Incentive scheme will also close on 31st March 2022. The Energy Company Obligation (ECO) scheme continues – this can support specific lower-income / social housing households to reduce their energy bills, mainly by installation of greater insulation.

PRIORITISING

Given the extent and the complexity of the task we agreed that the Parish Council should focus on Homes & Transport.

Homes

From 2011 data: Estimated 5,300 dwellings.

- 87% houses or bungalows.
- 60% semi-detached 2 storey and bungalows.
- 17% detached.
- 17% terraced.

This would suggest an initial focus on semi-detached homes, with possibly three main strands:

- (i) Semi-detached
- (ii) Detached (often larger, with greater surface area to cover)
- (iii) Terraced (often smaller but older)

Approximately 25% single occupancy, 30% couples, 25% with children.

- Approximately 80% owner occupiers.

This would suggest a focus on owner occupiers.

75% of homes were built 1925-1940 which implies solid walls.

[Note: this provides more detail than the Decarbonising Three Rivers Buildings Report (D3RR), which estimated 27% solid walls and 12% of uninsulated solid walls. D3RR estimates only 9% of solid walls have insulation which seems very low].

Even though each home will have evolved differently with extensions, etc., a suggestion of 'banding together for bulk discount' is interesting – could we find (local) builders interested in this kind of work and facilitate groups of householders interested in getting insulation work done?

Local exemplars of

- insulation
- Heat pumps
- Solar panels PVs and
- solar thermal

Could the Parish Council maintain a list of people who would be willing to have their homes as showcases?

Thermal imaging. Could the Parish Council purchase a thermal imaging camera and have a scheme to do imaging of people's homes for free? This has worked very well

in studies to identify weaknesses in insulation and air tightness, and to motivate householders to make improvements.

Note that some changes may require planning permission e.g. external insulation to solid wall properties (most of Croxley?)

- Could we talk to a local planner?
- What possibilities for change?

Transport

In 2011 (last available census data), 40% of households had a car/van and a further 43% had 2 or more. 83% = high/very high car ownership.

Of those employed, 60% commuted by car.

Very little bus use. Approximately 8% used the tube. 6% walked.

Herts Traffic and Travel Report interesting but we would need Croxley Green data. Do the schools have data?

Funding was announced in early 2020 of £250 million to support active travel, which is part of £5 billion funding for cycling and buses.

Is this something that Three Rivers has or could apply for? If so, what would we suggest for CG?

Three possibilities could be discussed:

- better cycling facilities, particularly to facilitate commuting
- better bus services
- low traffic neighbourhood(s)

Could start with extending the 'walk to school' schemes that are probably happening already in the primary schools. There's a walk-to-school week and other schemes run by Living Streets (livingstreets.org.uk).

Low Traffic Neighbourhoods near the 3 primary schools – start with one; work carefully to get local residents' buy-in; do a pilot; get feedback.

Speed limit lower on Watford Road (a later goal – risk of resistance) [Evidence – though not unequivocal – of lower emissions with lower speeds.]

Have we data on air quality – near the schools, on the Watford Road/ Baldwins Lane?

Extend 20mph zone to Barton Way to stop rat run? Cameras are more effective than speed bumps from an emissions point of view.

A voucher scheme – residents who stamp their vouchers at various points around the village which shows they have walked/scooted/cycled get vouchers for local shops – has been a successful scheme in (I think) Bristol?

Could we do a survey of trips – do we have data on what journeys people take?

Better cycling provision – what and where?

Campaigning for better public transport?

Car share schemes?

Reducing the number of cars per household – not sure how we'd address this.

Could we campaign for a lower speed limit on the M25 (near us)?!

HOW TO ADDRESS

Playing the long game – looking for incremental gains, for continuous improvement, looking to change norms

- Working with people, not imposed, getting input, getting feedback, piloting, changing things that don't work or are unpopular
- Bringing in people who are not environmentally-motivated

Information is not enough – but is needed.

Money is not the issue (for most) – but can help for some limited motivation

Norms can be effective.

Group identity can be effective – can we keep the message centred on Croxley?

What do we know about the socio-demographics?

- What marginal groups should we consider?

A mix of household/individual behaviour change and targeted campaigns.

- We need big system changes so campaigning is key; it's also easier to engage people in this than in making big changes in their own lives.

On behalf of the Working Party
Andrew Gallagher
17 March 2022