Ashton Hayes Going Carbon Neutral 2010 Survey

Introduction

This year's fifth and final annual paper-based Going Carbon Neutral survey was carried out by eight students from the University of Chester. Participating households provided information on their fuel usage, their household behaviour and their travel to calculate the village's carbon footprint.

Methodology

There were two surveys used this year; a baseline survey for households which have not previously taken part in the survey and a repeat survey for those who had.

The carbon footprint was calculated from information on house characteristics, home energy use, car use; and flights. Some questions were added to this year's survey relating to changes in the village. These included questions on the community shop and footpath to Mouldsworth.

A total of 116 surveys were completed this year, of which 29 were new to the survey. This is an increase on last year, with a total of 72% of the village having taken part since the survey began.

Results

Behaviour patterns since 2006

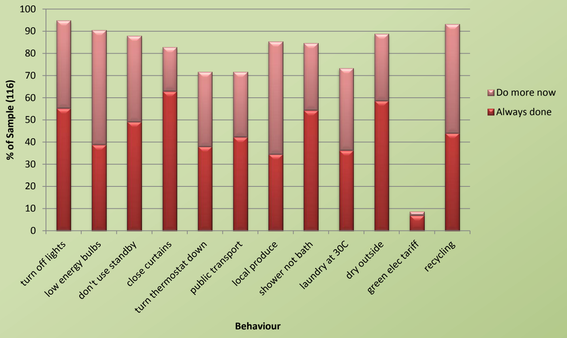


Figure 1 – Overview of behaviour developments

The Carbon Neutral Project aims to encourage behavioural changes among residents in order to reduce their carbon footprint. Part of the survey concentrated on this asking whether residents had changed their lifestyles since the beginning of the project. Figure 1 shows a positive development in all behavioural patterns, particularly the turning off of lights, use of low energy bulbs and recycling.
As Figure 1 shows there is a large proportion of participants who have always adopted such energy saving measures. There is still a relatively small uptake of green electricity tariffs, however this has still shown an increase and is now at 9%, considerably higher than the UK average at 2% (Ethical Consumerism Report 2007).

Amount of Waste Recycled

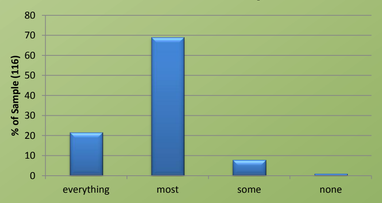


Figure 2 – How much waste is recycled per household

Recycling waste is one way to contribute to a reduction in carbon emissions. The majority of residents questioned (70%) recycle most of their waste, and more than 20% recycle everything (Figure 2).

Average Emissions 2006 and 2010 (59 households in common)

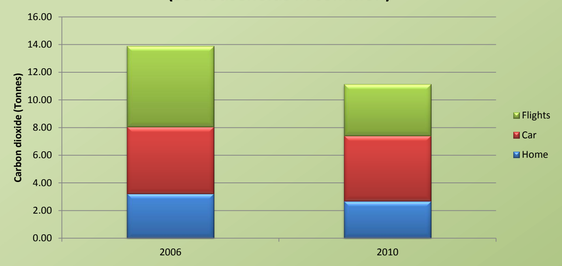


Figure 3 – Breakdown of average carbon emissions per household for 2006 and 2010 from the 59 houses sampled in both years.

The 2010 survey results (Figure 3) show a reduction in average household carbon emissions of 19.5% since 2006 for the 59 houses included in both year's samples. Emissions from car use have changed very little but there has been a marked reduction in emissions from flights (down by about 37%) and emissions from home energy have reduced by approximately 21%. Projecting whole village totals from these figures gives an estimated reduction of 21.4%, a little lower than last year's estimate (22.8%) but well within margins of error. Overall, the approximately 20% reduction in emissions has now been maintained for several years and we hope that the microgrid and community vehicles projects will help to achieve further reductions next year.

As last winter was very cold we have explored home energy in comparison to 2008/09 in more detail. Figure 4, shows the average use of electricity and gas from the years 08/09 and 09/10 based on repeat energy data from household bills from a total sample of 46. Electricity use has dropped from 6202 to 5789 kWh, showing a 6.6% decrease. This decrease is likely due to a rise in efficiency of the residents through the implementation of energy saving measures and behaviour change (see Figure 1).
Between the years 08/09 and 09/10 there is an increase in gas use of 9.6%, this can be partially attributed to the particularly harsh winter experienced between 2009 and 2010. Figure 5 displays the number of Degree days* from 09/10 and the previous year. The amount of degree days increased dramatically with an overall rise of 7.7%, resulting in higher demand for gas use, however, these increases do not correspond fully as gas use has slightly outstripped the expected increase.

* Degree days: are a measure of how much (in degrees), and for how long (in days), air temperature was lower than the base temperature of 15°C. These can be used to calculate the energy consumption required to heat buildings. (www.degreedays.net)

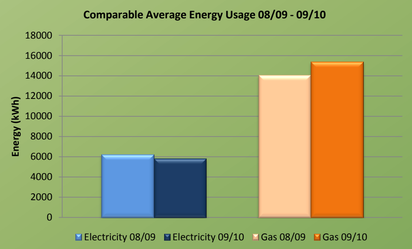


Figure 4 – Energy use comparison 08/09 to 09/10 (46 households)

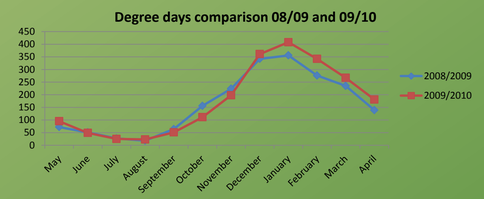


Figure 5 – Number of degree days per month 08/09 and 09/10

Carbon Emissions by House Type 2006 -2010

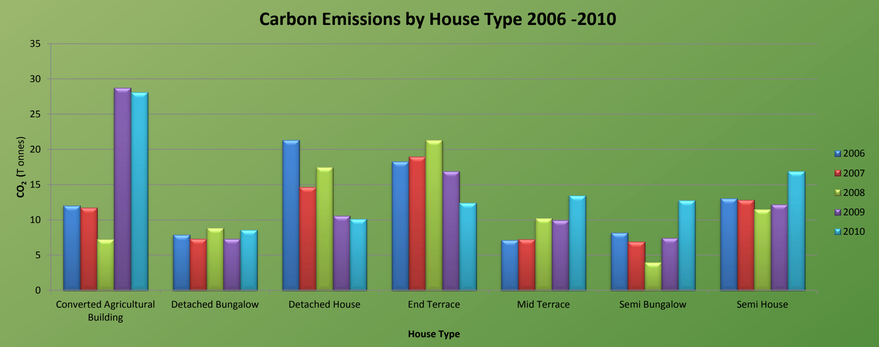


Figure 6 – Carbon emissions according to house type between 2006 and 2010

The total carbon emissions were categorised by house type, as displayed in Fig. 6 The largest overall decrease since 2006 is for detached houses, which has more than halved. Another significant reduction has been in end terrace houses, showing a drop in emissions since 2008. Detached bungalows have remained around the same level since 2006.
However, there have been some notable general increases, especially in converted agricultural buildings but also in mid-terrace and semi-detached houses and bungalows since 2009. When looking at individual data this is largely due to the number of flights in these house types. These house types are the least common and hence have had a limited impact on village totals.

Usage of Community Shop since February 2010

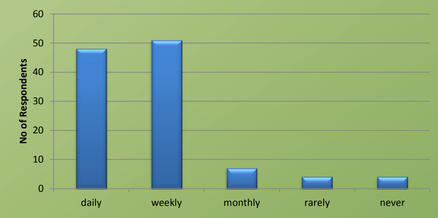
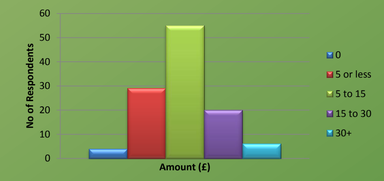


Figure 7 – frequency of visits to the community shop

Ashton Hayes community shop was opened in February 2010 and is staffed by volunteers from the community. It provide a wide range of services to the surrounding area. It stocks fresh local produce, helping to reduce food miles and therefore carbon emissions. It has been a great success as shown by the usage statistics in Figure 7. This displays that the majority of residents use the shop on a daily or weekly basis. A large amount of residents spend on average £5 to £15 per week (Figure 8) . The small number who never use the shop tend to live in outlying areas and use other nearby facilities.

Amount spent in Community Shop

Figure 8 – Amount spent in the community shop on a weekly basis 2010



Comparing Distance Travelled for Shopping 2007 and 2010

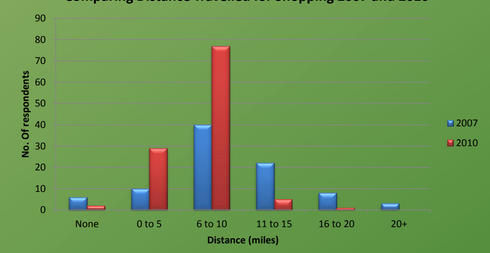


Figure 9 – Comparison of distances travelled to do shopping 2007 and 2010

The use of the community shop can be noted within Figure 9 where statistics show an increase in people travelling shorter distances to do their main shop, such as 0 to 5 and 6 to 10 miles. There is a decrease in the number who travel more than 10 miles.

Transport of Shopping

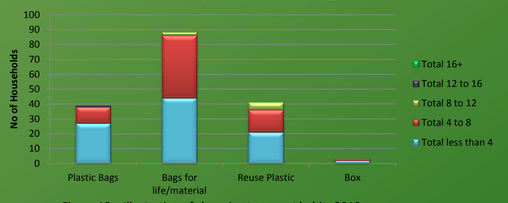


Figure 10 – Illustration of shopping transport habits 2010

The graph in Figure 10 shows promising results with bags for life being the modal group followed by the reusing of plastic carrier bags. The majority of people using plastic bags use less than 4.

Conclusion

The reduction in carbon emissions has remained at about 20% for the past year. Positive behavioural changes and less flights have been the main factors.
The introduction of the community shop has seen a large influx of customers, cutting food miles and therefore carbon emissions.
Participation in the survey increased significantly this year to around a third of the village, again showing a positive attitude towards the project.
We would like to thank the residents who took part in the survey; all help has been greatly appreciated.

Roy Alexander, Tamara Hunt, Abi Hall, Clare Davey, Jon Brain, Joshua Lepper, Laura Jones, Laura McAfee, Mary Robinson, Matt Fox