GfK. Growth from Knowledge

REAP Petite Analysis of LCCC

Provided by: GfK NOP Social Research

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The
**Low Carbon
Communities
Challenge**

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Introduction

This report was written by Tim Buchanan at GfK NOP, with input from Dr Ruth Rettie and Dr Kevin Burchell at Kingston University, and Ann Owen at the Stockholm Environment Institute (SEI) at the University of York.

Face to face interviews with 4,977 respondents across the Low Carbon Community Challenge (LCCC) areas and the comparator areas were conducted in 2010 as part of the LCCC baseline research. This survey yielded considerable attitudinal data. Respondents to the survey were asked if they would be happy to also undertake the more detailed REAP Petite survey on behaviours, either on paper on online.

REAP Petite is a software tool developed by SEI to help communities calculate their carbon footprint. REAP Petite measures an individual or a community's full environmental impact, including both direct emissions and indirect supply chain emissions. The indirect supply chain emissions are calculated using SEI's environmentally extended input output methodology which can assign emissions associated with the production processes of our food, goods and services to the consumer. Since REAP Petite considers the impacts of food, goods and services bought it can help capture and quantify any rebound effect emissions from reallocation of monies saved from energy saving. The footprint includes all greenhouse gases and is measured in tonnes of carbon dioxide equivalence.

Of the 4,977 respondents to the LCCC survey, 1,353 (27%) also responded to the REAP Petite survey.

This report does not comment on individual question responses to the questionnaire as the aim of the REAP Petite survey is to calculate the respondent's carbon footprint from the responses to the questions.

All responses to the REAP Petite survey were forwarded to SEI who then worked out the carbon footprint of participants. This report explores the correlations between the carbon footprint of respondents and their attitudes to the environment that are present or are not within the responses of those 1,353 individuals.

One point to note is that the sample of respondents in this survey is in no way representative of the UK or the LCCC communities in which they reside. This was a self selected sample so the findings are relevant to those who responded only and cannot be construed to be the behaviours or views of a wider community.

The report concludes that there are no significant correlations between the attitudes of individuals that were revealed in the LCCC survey and the carbon footprints of those same individuals as revealed through the REAP Petite behaviours questionnaire. We comment on this possibly surprising observation in the conclusion.

Section 1: Outlining the Headline Findings

The initial analysis of the data from the 1,353 people who completed the questionnaire shows the bulk of respondents having a very similar level of carbon output with only a few outliers. The lowest footprint is just under nine tonnes of carbon dioxide, with most people around the 13-16 mark and tapering down to 130 respondents with 20 or above. Only eight people have a carbon footprint higher than 30, with 2 in the 60s. The average is 15.77 tonnes which is very close to the UK average of 16.44.

Tonnes of carbon dioxide emmitted each year
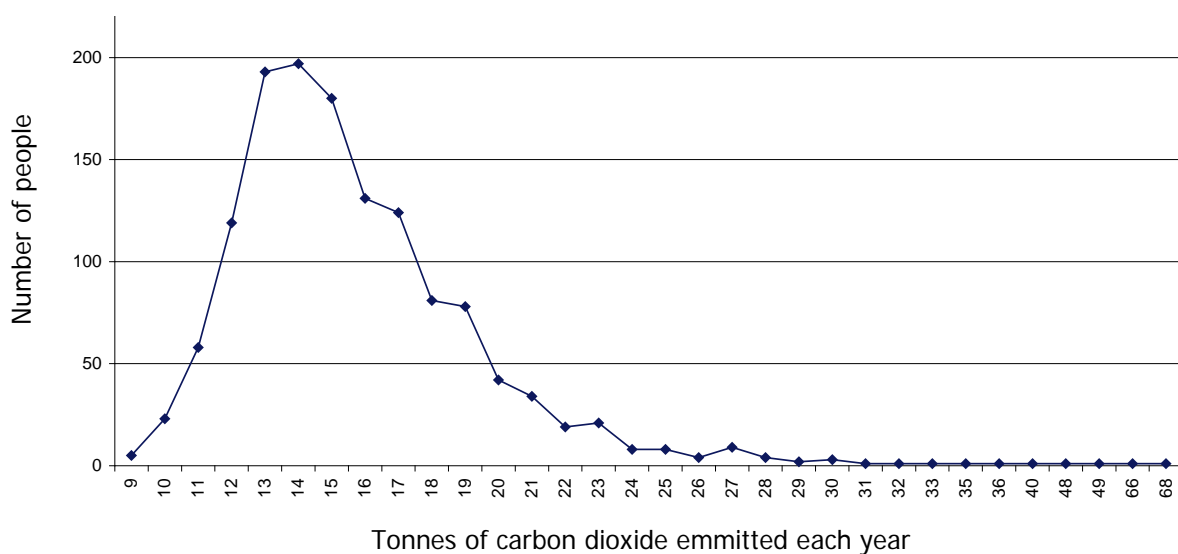
A carbon footprint was also prepared for each individual with respect to the sub-categories of housing, food, travel (both local and international) and consumer (shopping and use of consumables). Each showed a similar line chart with the bulk of people at the lower end and a few people higher up. This is particularly the case with travel where three people had scores of 30, 43 and 47 while most of the others had a score of 1. This is almost certainly the primary reason for the scores of 40 or more in the overall carbon footprint.

As well as a carbon footprint, REAP Petite also measures ecological footprint, the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste. This is measured in global hectares. This has a very close relationship with carbon footprint and therefore has a very similar profile, ranging from 2-20 hectares but with an average of 5 and only 5 people with an ecological footprint greater than 10, who are the same people who have a very high carbon footprint.

To link these results with the LCCC baseline data we had to ensure that each respondent could be connected through a serial number. Unfortunately in 50 cases a correct match could not be found so any analysis with the LCCC data is based on 1,303 respondents. The first thing we could do by linking it was to look at a comparison in average carbon footprint between the communities and between the communities and their comparators where relevant. The number of responses from each community varied considerably mostly because of the varying number of face to face interviews conducted in each. Some of the areas were very small. Even then average footprint for each community and comparator is remarkably similar.

As the table below shows CF scores ranged from 13.77 to 17.19, which is not significant. Even more similar were the comparators with relevant communities. In all cases they are within a score of 1 of each other.

Carbon Footprint by community

Communities	Average carbon footprint	No. of questionnaires returned
All Phase 1 Communities (excluding controls)	15.39	973
Chale Green	16.13	60
Totnes	15.08	108
Paington (Totnes' control)	14.17	92
Reepham	17.19	34
The Meadows	14.11	53
Berridge (The Meadows' control)	14.45	52
West Oxford	15.06	74
East Oxford (West Oxford's control)	14.74	46
Muswell Hill	16.52	27
Berwick on Tweed	14.53	107
Blacon	14.78	96
Newton (Blacon's control)	15.54	95
All Phase 2 Communities (excl controls)	15.39	973
Cwm Clydach	13.77	26
Exmoor	16.15	79
Middlesbrough	13.86	16
Halton	14.95	36
Hook Norton	17.47	40
Charlbury (Hook Norton's control)	17.30	46
Cwm Arian	17.36	20
Awel Aman Tawe	15.29	58
Ladock and Grampound Road	16.24	54
Whitehill	15.43	85

Section 2: Correlation of carbon footprint to attitude

Correlation analysis was then conducted to see if a relationship could be found between the behaviours of those who responded to the REAP Petite survey, that is, their carbon footprint, and their attitudes to the environment as recorded in the original baseline face to face research. To be sure of a correlation the test should return a value of around 0.5 at a minimum. As the table below clearly shows, no such values have been realised on any measure.

Correlation by types of carbon footprint on key attitudinal questions

	housing CF	food CF	travel CF	consumer CF	Total CF
Q8.1 Energy prices will rise steeply	-0.01	0.07	0.02	0.02	0.02
Q8.2 The UK will become too dependent on energy from other countries	-0.02	0.05	-0.03	-0.01	-0.02
Q8.3 Terrorist attacks will cause interruptions to energy supplies	0.04	0.02	-0.03	-0.03	0.02
Q8.4 Supplies of fossil fuels (e.g. coal and gas) will run out sooner than we think	0.02	0.09	0.04	0.07	0.07
Q8.5 Power cuts will become more frequent	0.01	0.05	0.05	0.02	0.06
Q8.6 Renewable sources of energy will not be enough to meet our energy needs	0.02	0.08	0.00	0.02	0.04
Q8.7 The UK will not invest fast enough in alternative sources of energy	0.02	0.07	-0.02	0.02	0.02
Q11.1 The Gov is taking sufficient action to tackle climate change	0.01	0.10	0.01	0.01	0.03
Q11.2 People say they're concerned but they're not prepared to make sacrifices	-0.02	-0.01	0.00	-0.02	-0.02
Q11.3 In my area, calculating your carbon footprint is normal	0.03	-0.03	0.01	0.02	0.01
Q11.4 It would embarrass me if my lifestyle was environmentally friendly	0.01	0.02	0.04	0.10	0.05
Q11.5 Being green is alternative	0.03	0.02	0.04	0.03	0.05
Q11.6 I find it hard to change my habits to be more environmentally-friendly	0.06	0.05	0.04	0.06	0.09
Q11.7 It's not worth me doing things to help the environment if others don't do the same	-0.03	0.05	0.02	-0.01	-0.01
Q11.8 Investment in energy efficiency is a good way to boost economy	-0.04	-0.07	-0.05	-0.06	-0.08
Q10. Thinking now about the causes of climate change, which one of the following statements best describes your own opinion?	0.07	0.06	0.08	-0.01	0.09
Q9. How concerned are you about climate change, sometimes referred to as 'global warming'?	-0.05	-0.07	-0.08	-0.02	-0.09

To try and tease out the slightest relationship further tests of the data were run. One way of doing this is to concentrate solely on the 12.5% of respondents with the lowest CF and the 12.5% with the highest CF. The following cross tabulations show the percentage of the total respondents who are in each of these extreme categories. For example, the table for Q8.1 shows that of all the respondents in the survey who said they are 'Very concerned', 14% were in the lowest CF group and 12% in the highest CF group.

Two criteria have been used to identify cases that are worthy of comment. 1. The sample size for a particular answer (in brackets) must be larger than 100. 2. The difference between the lowCF and the highCF figure must be 6 percentage points or more.

Q8.1 Energy prices will rise steeply	lowCF	highCF
1 Not at all concerned (19)	16%	5%
2 Not very concerned (83)	17%	14%
3 Fairly concerned (422)	9%	12%
4 Very concerned (768)	14%	12%
Q8.2 The UK will become too dependent on energy from other countries	lowCF	highCF
1 Not at all concerned (23)	13%	9%
2 Not very concerned (123)	15%	11%
3 Fairly concerned (471)	14%	10%
4 Very concerned (661)	12%	13%
Q8.3 Terrorist attacks will cause interruptions to energy supplies	lowCF	highCF
1 Not at all concerned (163)	12%	10%
2 Not very concerned (448)	14%	13%
3 Fairly concerned (442)	12%	11%
4 Very concerned (188)	14%	13%

Questions 8.4, 8.5 and 8.6 show a higher proportion of those who were very concerned coming from the lowest CF compare with those from the highest.

Q8.4 Supplies of fossil fuels (e.g. coal and gas) will run out sooner than we think	lowCF	highCF
1 Not at all concerned (71)	11%	14%
2 Not very concerned (274)	13%	15%
3 Fairly concerned (584)	12%	11%
4 Very concerned (322)	**16%**	**10%**

Q8.5 Power cuts will become more frequent	lowCF	highCF
1 Not at all concerned (76)	18%	14%
2 Not very concerned (361)	11%	13%
3 Fairly concerned (592)	13%	11%
4 Very concerned (238)	**16%**	**9%**
Q8.6 Renewable sources of energy will not be enough to meet our energy needs	lowCF	highCF
1 Not at all concerned (51)	14%	10%
2 Not very concerned (212)	13%	12%
3 Fairly concerned (624)	11%	12%
4 Very concerned (365)	**16%**	**10%**
Q8.7 The UK will not invest fast enough in alternative sources of energy	lowCF	highCF
1 Not at all concerned (37)	8%	10%
2 Not very concerned (165)	14%	13%
3 Fairly concerned (554)	13%	11%
4 Very concerned (500)	13%	12%
Q9. How concerned are you about climate change, sometimes referred to a 'global warming'?	lowCF	highCF
1 Very concerned (368)	15%	13%
2 Fairly concerned (553)	13%	10%
3 Not very concerned (258)	11%	15%
4 Not at all concerned (106)	10%	12%
Q11.1 The Gov is taking sufficient action to tackle climate change	lowCF	highCF
1 Agree strongly (40)	18%	15%
2 Tend to agree (239)	11%	12%
3 Neither agree nor disagree (264)	11%	10%
4 Tend to disagree (466)	13%	12%
5 Disagree strongly (239)	16%	13%

Q11.2 People say they're concerned but they're not prepared to make sacrifices	lowCF	highCF
1 Agree strongly (351)	15%	11%
2 Tend to agree (728)	13%	11%
3 Neither agree nor disagree (94)	7%	17%
4 Tend to disagree (101)	14%	15%
5 Disagree strongly (20)	15%	10%
Q11.3 In my area, trying to reduce your carbon footprint is normal	lowCF	highCF
1 Agree strongly (113)	14%	14%
2 Tend to agree (481)	13%	11%
3 Neither agree nor disagree (214)	13%	10%
4 Tend to disagree (332)	13%	13%
5 Disagree strongly (93)	14%	9%
Q11.4 It would embarrass me if my lifestyle was environmentally friendly	lowCF	highCF
1 Agree strongly (18)	17%	28%
2 Tend to agree (61)	20%	15%
3 Neither agree nor disagree (145)	11%	14%
4 Tend to disagree (342)	12%	10%
5 Disagree strongly (729)	13%	12%

Nothing is then evident until we get to the statement about being green as an alternative lifestyle where a much higher proportion of those agreeing strongly was made up of those with a high CF compared the those with a low CF.

Q11.5 Being green is alternative	lowCF	highCF
1 Agree strongly (87)	**10%**	**22%**
2 Tend to agree (359)	12%	9%
3 Neither agree nor disagree (147)	10%	13%
4 Tend to disagree (398)	15%	13%
5 Disagree strongly (299)	**15%**	**9%**

Q11.5 offers an interesting finding because it suggests that people with a low CF are more likely to think that being green is 'normal' while people with a high CF are more likely to think that being green is 'not normal', but alternative. This is notwithstanding the fact that such a distinction did not show up in the earlier question (11.3, In my area, trying to reduce your carbon footprint is normal) that tackles the 'normal'/'not normal' issue directly. While our instinctive response to Q11.5 might be to suggest that people with a low CF are themselves green and therefore think that being green is 'normal', work in psychology suggests that the reverse can also be true: these people might be green, and thus have low CFs, because they think it is 'normal'. For further information on this point, please contact Dr Burchell or Dr Rettie.

The distinction at Q11.5 is replicated in Q11.6 although the base is very small and more can be taken from the proportion amongst those who disagree.

Q11.6 I find it hard to change my habits to be more environmentally friendly	lowCF	highCF
1 Agree strongly (46)	9%	24%
2 Tend to agree (291)	10%	13%
3 Neither agree nor disagree (138)	11%	13%
4 Tend to disagree (505)	12%	10%
5 Disagree strongly (315)	**18%**	**11%**
Q11.7 It's not worth me doing things to help the environment if others don't do the same	lowCF	highCF
1 Agree strongly (61)	13%	13%
2 Tend to agree (173)	14%	10%
3 Neither agree nor disagree (72)	8%	14%
4 Tend to disagree (471)	11%	12%
5 Disagree strongly (523)	15%	12%
Q11.8 Investment in energy efficiency is a good way to boost economy	lowCF	highCF
1 Agree strongly (347)	16%	10%
2 Tend to agree (572)	14%	10%
3 Neither agree nor disagree (195)	7%	15%
4 Tend to disagree (99)	12%	16%
5 Disagree strongly (33)	9%	24%

Using this technique, that is looking at the extremes of carbon emission only, there are some differences evident in the direction one would expect.

Conclusion

As we have seen the average emission of carbon by the respondents to this REAP Petite survey was close to the UK average, and there was very little difference amongst those who participated between the different communities or between the communities and their comparators where that was relevant. When a statistical correlation test was run linking attitudinal responses with carbon footprints, no link is revealed – there is no correlation between stated attitudes and stated behaviours. It is only when you look at the 150 or so people at either extreme of the carbon footprints that you can detect some of the differences in attitude that you might expect and even then only in a few cases.

Within the context of mainstream 'behaviour change' and social marketing campaigns, these are interesting findings. This is because such campaigns tend to be predicated on the assumption of a strong link between attitudes and behaviour. With this in mind, the results of this small scale and unrepresentative survey may represent a further example of what is often referred to as the value-action gap or the attitude-behaviour gap. Certainly, these results may be a reason to examine assumptions that attitudes lead unproblematically to behaviour more closely in future research.

As part of attempts to overcome the value-action gap, Dr Rettie and Dr Burchell draw on social psychological work on conformity, and are investigating the importance of what people think is 'normal' in the context of their behaviour. The fact that the responses to Q11.5 hint at a relationship between conceptions of what is 'normal' and behaviour, suggests that this issue is worthy of further investigation in future research.