

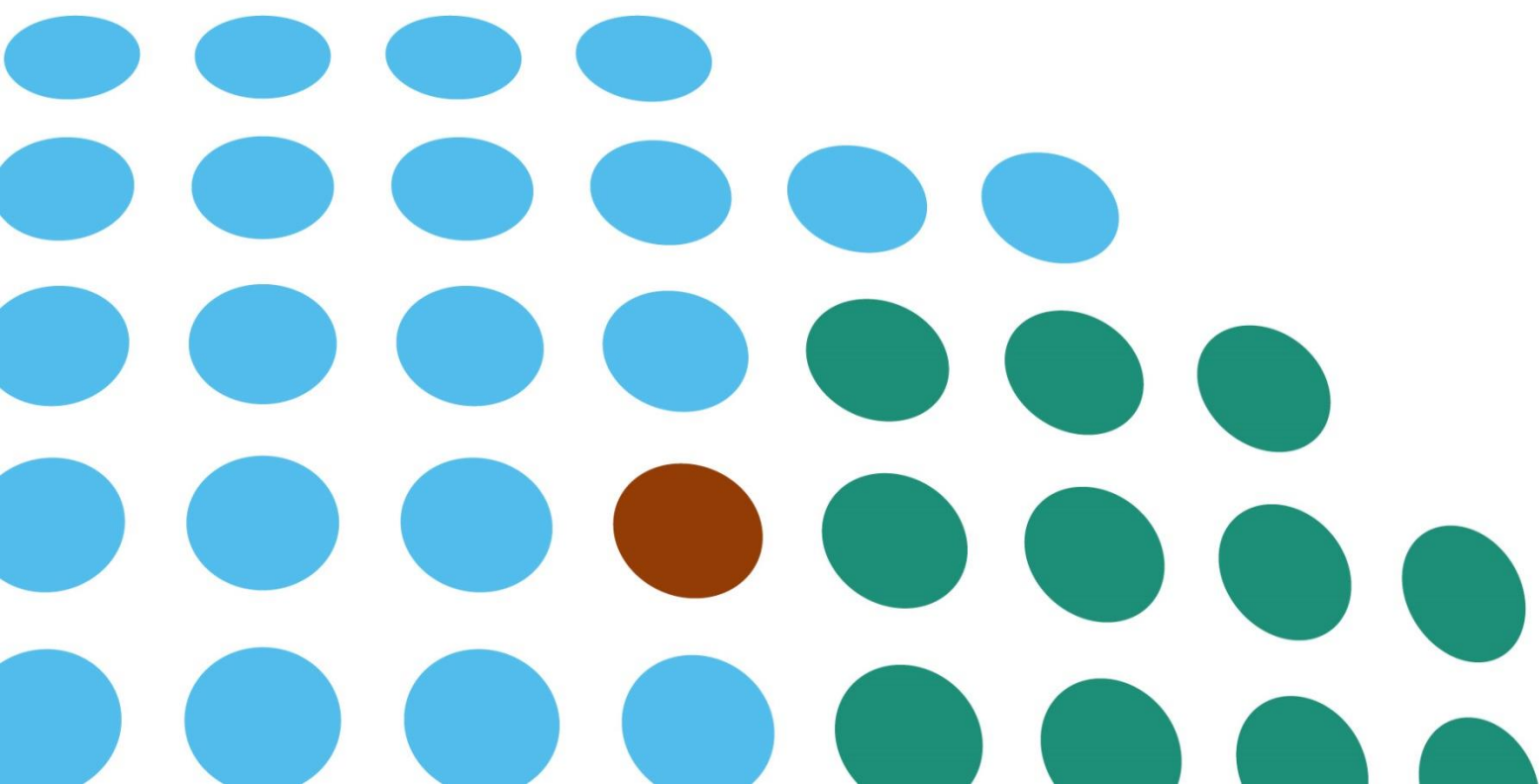


Climate
VISION

Turning environmental problems
into enterprising solutions

Carbon Logic Footsteps 2009

August 2015



Behavioural Change

By Reverend Canon Philip Lambert,
Canon Missioner Truro Cathedral 2006-2014

“It was a bit of a gamble in 2009 as we in Truro Cathedral got together with others to plan the campaign, ‘Footsteps to Copenhagen.’ Would we have enough money? Had the Cathedral got itself caught up too deeply with a lot of groups of very differing political and other perspectives, which would simply fragment? Would it galvanise those across Cornwall concerned with sustainable and environmentally friendly living into action for the Copenhagen summit and more importantly would it facilitate a change in behaviour?

This report is evidence that the gamble paid off in more ways than we could have ever imagined. Most of all it shows that people can be motivated by the deep values they hold to change their behaviour. Once that behaviour changes and becomes a habit, it also opens up other opportunities and other thinking. Reading some of the responses from the Ambassadors reveals just this kind of process, values lead to behaviour change, which leads to good habit forming which leads to an opening of the mind to further possibilities and perspectives. It’s a bit like a long-term smoker giving up smoking because it is damaging their health who then finds that non-smoking becomes a habit and at the same time they begin to taste their food better and enjoy the cleaner fresh air.

What is also impressive about this study is that a huge amount has been achieved on a relatively small budget. With news of the abuse of the carbon marketing system by some industries and even nations, it is so refreshing to hear of a proven, effective, and cheap way of reducing carbon emissions. Not only has it effectively reduced carbon emissions it has also contributed to the wellbeing of the community through the purchase of locally produced food or in simply getting people out of the solitary use of cars and into either public transport or meeting people through walking or cycling or car sharing.

As a Cathedral we wanted to support in many ways environmental awareness and sustainable living. It was through working with partners from across the board and especially Climate Vision and the indefatigable Luci Isaacson that helped translate vision into action. This is a fundamental point because it shows how much we need each other, our skills, our visions and our values to have our dream of flourishing together to be put into practice. “



‘Footsteps’! Eat your helmet, Neil Armstrong!

By Bert Biscoe,
Cornwall Council

“The ‘Footsteps’ Project began in 2009. It wanted to ensure that Cornish communities would influence the Copenhagen World Environment Conference. The project surprised us in a number of ways. Firstly, thanks to the energy and commitment of all those who participated, it happened!

Secondly, Howard Curnow and Oliver Baines managed to get a gig rowed up the canal to the Conference to introduce a very welcome burst of Cornish creative colour and commitment, which attracted much attention and brought home vividly the message that this is all about making a good world for our children and their children. Now, it has a really good story to tell about carbon reduction.

‘Footsteps’ invited people to pledge to take personal actions which would reduce their carbon generation. Since 2009, those pledges have been tracked by Luci Isaacson. The experience shows that reducing carbon output in this way significantly reduces the cost of minimising our personal environmental impact, and makes a real difference.

In 2009, the project estimated that it would cost about £30 per tonne to reduce carbon outputs. Through tracking and recalculating the real data from pledges fulfilled, we can now show that the actual cost is about £3 per tonne. This is good reductive economics...and fun! It means that personal commitment is important enough to matter.

Through colour, convenience and, above all, fun ‘Footsteps’ is now showing how we can all change the world, or at least contribute meaningfully to making much less of such a terrible mess. Well done ‘Footsteps’; thank you Luci and all those who pledged, organised, fund-raised, rowed, spoke, prayed, calibrated and supported. Now, onwards – more pledging, more ‘three quids’ spent to reduce carbon – more real world for less!”



Acknowledgements

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For laying the foundations in 2009 and 2010, I have to acknowledge the contributions of Associate Professor Stephan Harrison, Professor Catherine Leyshon, Professor Catherine Mitchell and the inspiration of Professor Mike Hulme. For checking the whole of the data analysis at various stages, I thank Canon Lynda Barley, Mr. Richard Hopper and the Climate Vision team. Thanks to Ben Simpson for assisting Jack Ingledew with creating the Carbon Calculation Methodology.

I thank Canon Philip and Truro Cathedral for hosting the 2009 Project and subsequent related events and for the support of Colin Reid, Truro Cathedral Communications Officer. Bert Biscoe of Cornwall Council who suggested I apply for the position back in 2009 and nurtured me through the tougher parts of the recent project. He and the 2009 Steering Group were great to work with. Tom Flanagan, Corporate Director Environment, Planning and Economy for Cornwall Council, February 2009 – May 2012, for providing financial support for the original campaign. Mard & Robin Sellwood for helping make the project happen in so many kind ways and to Lindsay Southcombe, Sarah Wetherill, Oliver Baines and Chris Jones for their tireless enthusiasm to help and encourage, for which I am most grateful. Many thanks to Jeannie Ninis and Gaye Charlton for their great help with proof-reading.

Finally, many thanks to David Thomas, Acting Editor for the West Briton and Donna Birrell of BBC Radio Cornwall for filling many homes and workplaces with the stories of the admirable Ten Carbon Logic Ambassadors in Cornwall as they embark on their very public carbon cutting journeys. They have done so well and the stories so far are very enthusing, humbling and of course – low carbon!

Executive Summary

In 2009, a network of climate activists and scientists in Truro delivered a behavioural change campaign to support local and national delegates involved in the Copenhagen Climate Change Conference (COP15). In only four months, the campaign enabled [individuals and organisations to make 4488 low-carbon pledges](#) and adopt sustainable behaviours such as buying local food, saving energy or researching climate change (Appendix 1).

This study calculates the carbon cost of the campaign to establish the value of behavioural strategy solutions and being effective in achieving carbon reduction targets.

Project Outline

This report aims to inform the relevant partners in the COP21 community of the Carbon Logic 'cost-per-tonne' result. Since the time of writing, the project has been adopted well by the public, as ten high profile individuals in Cornwall were selected to become Carbon Logic Ambassadors and undertake the 10 easy carbon cutting Top Ten Pledges (TTPs). This allowed the individuals to publicly demonstrate how easy it is to cut significant amounts of carbon and reduce the impact on climate change through behavioural changes. The experiences and views of these Ambassadors can be found in Appendix 3 (section 9.2).

Adding Value

This project aimed to add value to the previous research conducted in 2009/10. Delivery through partnership working was integral to the project between Climate Vision, Truro Cathedral, the Truro Diocese, and the original Steering Group. The revisit to the 2009 project facilitated and strengthened the following:

- Engagement between trusted messengers and society. In this case the Ambassadors encouraging behavioural change and endorsing those already striving to cut carbon
- Invigoration of community spirit
- Increased partnership working between private and public sector organisations, the church and the community
- Increased profile raising (through good news stories in local news media in [2009](#) and [2015](#)) for all partners involved
- Increased mitigation, access to knowledge and building of resilience in communities
- Boosting local produce and the local economy
- Encouraging more sustainable lifestyles which can benefit the individual, the community and the environment.

Project Outcomes

The aim of this project was to provide a cost per tonne for reducing CO₂ emissions, Table 1 below provides a brief overview of the project outcomes. This includes the sample size, cost of

Total for known participants, applying recent survey data, CO ₂ e (tonnes)	3029.506882
Cost of 2009 Footsteps (including in-kind contribution)	£6,000
Cost per tonne	£1.98

Table 1: Summary of findings (further details of funding can be found in the appendices of this report)

the overall project, and the final cost per tonne figure.

Key Recommendations

The study has also identified a number of key recommendations for some topic areas regarding future research and lessons learnt. These are given below:

- **Community involvement:** consider opportunities with government to increase the reach of the TTP to build climate resilience and boost health and the local economy.
- **Media coverage:** the project provides a positive news story that is easily publicised with significant benefits to all partners, enabling the normalising of complex issues via good news stories about simple actions.
- **Project delivery:** the project manager, guided by a Steering Group (see section 7.4) much like the Footsteps project in 2009, could add value when rolling this project out to other communities.
- **Trusted messenger quality:** the Steering Group must also be recruited based on ascertaining whom the trusted individuals are with the ability to deliver messages in a colourful, lasting way.
- **Reassurance:** reassurance is needed to endorse the work people do already, but also to keep the ongoing carbon-reduced lifestyle a choice worth making due to its foundations.
- **Responsibility:** responsibility is a key factor in the behaviour of a society, and for those actively taking responsibility receive reward. In this case, this takes the form of influence.
- **Representation:** representation comes from the trusted messengers within the community, their presence, information, and imagery. The role of these messengers is to deliver clear, simple messages that highlight how all are invited to participate, air views, and learn by experience.

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1 Introduction to the Carbon Logic Project 2015

Background

Currently, climate change agreements have become a focus among the world's political entities and the events that occur at the United Nations Conference of the Parties on Climate Change (COP21) will influence the future of climate policy worldwide. While governments and global leaders will attempt to reach ambitious strategies for curbing carbon emissions, universities and civil society can contribute to inspire individuals and communities to take climate change seriously and adopt alternative behaviours.

In 2009, a network of climate activists and scientists in Truro delivered a behavioural change campaign to support local and national delegates involved in the Copenhagen Climate Change Conference (COP15). The project asked individuals and communities to think about the carbon cost of their lifestyle and to pledge easy and realistic carbon cutting actions.

In only four months, the campaign enabled [individuals and organisations to make 4488 low-carbon pledges](#) and adopt sustainable behaviours. This included activities such as buying local food, saving energy, or researching climate change. As a result of this, the research team has embarked on calculating the carbon cost of the campaign in order to provide evidence for the COP21 delegates that behavioural strategy solutions can be effective to achieve carbon reduction targets. Another aim of this project is to show that these behavioural-change strategies can compete with risky and more expensive technology such as carbon storage and capture (CCS). Clearly establishing the value of the TTPs and the 2009 campaign would be beneficial. While the outcome is a cost per tonne, the project heavily relies on an enthusiastic and vibrant Steering Group, led by an experienced project manager.

Upon reaching a desirable cost per tonne, the project aims to provide further outcomes. One such outcome is to consider a gradual rollout of the project across the South West, the UK and beyond. The project also aims to encourage the Government to look at its policymaking and determine how these pledges and the subsequent behavioural change can be written into new climate change policy. When contemplating the alternatives, such as CCS, the cost and timescales should be compared to projects such as the TTPs. The project works effectively to meet the principles of sustainable development as highlighted by the United Nations (2010 p.6), which states:

“Development which meets the needs of the present without compromising the ability of future generations to meet their own needs”

This project encourages people to reduce their carbon footprint today so that future generations will not suffer the consequences, as well as encouraging positive behaviour within communities such as increasing resilience. This project works towards a strong and sustainable community, protecting and enhancing the physical and natural environment, using resources and energy as efficiently as possible whilst holding carbon management at the heart of its design. A hybrid approach that uses the Greenhouse Gas Protocol developed and published by both the World Resources Institute (WRI) and World Business Council on Sustainable Development (WBCSD) is implemented to ensure this project uses the most up-to-date approach.

Details of project funding can be found in the appendices of this report.

Risk and Behavioural Change Policy

Why is it so important to insist on behavioural change policy? The truth is, our lifestyles are unsustainable, and if we hope to address the environmental consequences, we have to change our lifestyles. A range of technological solutions are being looked at to help combat the risks of climate change, such as CCS. This, however, fails to address the root of the problem. Fossil fuels are not sustainable. They will run out and the extraction and use of these fuels can cause great environmental damage. Even if we can contain the emissions of these fuels via CCS, the fossil fuels will still run out eventually and the extraction and transportation of these fuels will still produce environmental damage and emissions (The Guardian, 2011). A shift away from fossil fuels to a more sustainable lifestyle is a necessity, as it will one day become inevitable. The TTPs are a great example of how people can become less dependent on fossil fuels with small and unobtrusive changes to their lifestyles.

Behavioural change enables people to be part of a local solution to a global problem whilst enjoying the benefits, such as a reduced energy bill or fresh local food (Norberg-Hodge, Merrifield, and Gorelick, 2000).

Previous Research

After the 2009 project and further research in 2010, it became evident that the current project methodology is suitable and has been simple to execute effectively. Following on from the previous successful experience it became apparent that there was potential for further research in this area.

The initial project cost £6,000, and via the TTPs campaign, resulted in individuals and organisations taking 4488 actions to reduce their carbon footprint. The success of this project inspired further work as the cost per tonne of this movement was believed to be highly competitive with alternative solutions such as CCS. The Centre for Climate and Energy Solutions (2015) estimates that carbon capture and transportation requires \$36USD per tonne of carbon dioxide for the cheapest type of power plant, which at current exchange rates is £22.97, as well as additional costs for storage, construction cost and time that also need to be factored into this cost analysis, although for this report, the figure above is used as a comparison. In addition, Gibbins and Chalmer (2008) note that CCS only applies to the fossil fuel industry and not to residual carbon dioxide currently in the atmosphere. Baker *et al* (2009) identified significant disagreement between experts in CCS costs. Their study looks at the economic impact of R&D Investment on abating emissions; they conclude more needs to be known about CCS and the potential technical, societal and cost implications.

Sustainability

This project could consider unlocking financing to address climate change through inter-personal relationships between the participants, Climate Vision, and local businesses. This potential could be used in a system where Climate Vision and businesses work together to combat the consequences of climate change whilst benefiting the local businesses. Through our expert local knowledge and relationships with local businesses, a pledge programme would

have the potential to unlock financing through an innovative income stream that takes a small percentage of the profit local businesses make. Local businesses would still benefit however, because Climate Vision increases businesses customer base, as well as advertising and recommending their business.

The customer base would be increased as participants of the pledge programme are directed to specific businesses that will help participants achieve their pledges, e.g. Climate Vision would recommend participants to buy from a particular organic farm, or renewable energy supplier. At the same time, Climate Vision would be recommending these businesses to the local community. Furthermore, businesses associated with the pledge programme would also receive free advertising through Climate Vision's social media channels, sofa sessions, and community contacts. Local business stands to benefit the most from this potential arrangement, through advertising and direction of new customers to their business. The pilot study in 2009 attracted over 4,000 participants and it would be possible for all parties to benefit from such an arrangement, allowing Climate Vision to develop an innovative financing mechanism, businesses to develop a new, larger customer-base, and pledge participants to discover new ways to save money, lead a healthier lifestyle, and ultimately reduce carbon emissions.

Market Opportunities to Address

This market opportunity, should it be exploited by Climate Vision, is the increasingly prevalent social movement towards environmentally sustainable living. Cornwall in particular is an ideal launching market due to the community collaboration and ethos in the region. Furthermore, the county is subject to sea level rise, intense storms, and localised weather events. Local people are increasingly being exposed to such extremes, and awareness of climate change issues is increasing. Climate Vision believes this raising awareness is not happening quickly enough, and believes the market opportunity is there to educate people in climate change, and really strive to build a county that is resilient to many of the extremes climate change has the potential to bring. It is an opportunity yet to be addressed, which could bear great opportunity. Cornish people have also shown themselves to be willing to engage in efforts to combat climate change. The South West has led the way in small- and medium-sized installations of solar panels over recent years and Cornwall is second only to Devon for renewable capacity within the South West. Cornwall has shown that it can embrace renewable energy and the fight against global climate change (RegenSW, 2014).

Addressing Market Barriers

The market barriers predominantly are financing such ventures in one of the poorest areas in Europe. Though we believe we have overcome this, as described in the previous section, through the development of business relationships. Other barriers include public scepticism of climate change, though we believe we are overcoming this through 'sofa sessions' where individuals are invited to a care-free discussion about climate change, and where Climate Vision experts help clarify any misunderstandings of climate change, providing insight into the science

and the risks. Any behavioural change campaign that can provide clear benefits to the participants will overcome many of the barriers surrounding scepticism.

2 Methodology

This project has been broken down into two stages:

- 2010 research and findings
- 2015 research and findings

A brief overview of these is given below and then examined in detail.

Crowdfunder

The first phase of this project was to raise the required funds via a crowdfunded online campaign (see appendix 10.2). This project was promoted both online and offline and made use of established contacts in helping to spread awareness of the campaign. An initial target of £2,500 was set for data analysis with an overfunding target of £5,000. £3,770 was successfully raised within the 31-day window.

Data Collection and Analysis

Using existing contact data, surveys were sent online to the participants from 2009, which invited them to describe their experience of the TTPs and provide the information required to calculate the cost per tonne.

Ambassadors

Ten local Ambassadors were chosen to renew the project in the run up to COP21. The experiences of these Ambassadors demonstrate the repeatability of this project as well as showing that it can be enjoyable for those involved whilst cutting their carbon footprint. These newly named “Carbon Logic” Ambassadors are:

1. Pete Masters, Truro City Football Club
2. Ruth Smith, ZLC Energy
3. Deborah Clark, former PR Company Director
4. Cllr. Edwina Hannaford, Cornwall Council
5. Arch Deacon Bill Stuart-White, Archdeacon of Cornwall
6. Donna Birrell, BBC Radio Cornwall Presenter
7. Robin Freight from St. Austell Brewery
8. Bishop Tim Thornton, Bishop of Truro
9. Rev. Steve Wild, Chairman of the Cornwall Methodist District
10. Kirstie Newton, Cornwall Today Editor

3 Outputs from the 2010 Research

Research conducted by Climate Vision in 2010 aimed to find what triggers environmental action, by inviting participants to experience staggered information in varying forms, to measure stimulation or activity through further research, and to determine indicators of improved climate change activism. It explored if a positive correlation existed between the selected information events and increased activism (in carbon cutting). While it may not be the sole causal connection, the research attempted to find out more about any that may exist within the range of possibilities. With the qualitative methods used, reaching conclusions based on observation and logic prevailed, and categories emerged from the participants, providing rich “context-bound” information. This allowed for any patterns that arose to help explain the phenomena.

Triggers of Behavioural Change (Discussion)

Of those taking part in the 2009 Footsteps Project, 105 went on to participate in the spring 2010 survey, 88.57% undertook the pledges, and the remainder (12) did not because of the following reasons:

1. “I don't remember seeing the pledges on the declaration...but I do try.”
2. “Can you remind me what they are?”
3. “...not specifically...laziness, I've already done some of them, an urge to focus on the things that are already eating at me, don't like being told what to do!”
4. “I can't remember what they were - shame on me.”
5. “Many of them would have been a retrograde step in terms of e.g. car use! Most of the things I gave up/started doing decades ago!”
6. “We've not thought about it properly as a house (7 of us).”
7. “I was not aware of the pledges.”
8. “Cannot remember what they were, but try to limit my carbon footprint.”
9. “Moving house.”
10. “The Council did not wish to partake.”
11. “I didn't subscribe to the pledges, I do my own thing.”
12. “Not interested.”

The reasons above show that many of those not taking part did not simply because they were unable to remember to do the pledges or they were not sufficiently motivated. This demonstrates the importance of communicating the benefits to those involved.

The same individuals were asked if they were working for, or affiliated with, any groups such as the church or an environmental group. The responses are listed below in Table 2 below:

Are you working or affiliated with any of the following?	Are you working or affiliated with any of the following?	Are you working or affiliated with any of the following?	Are you working or affiliated with any of the following?
Answer Options	Answer Options	Response Percent	Response Count
Church	Church	18.1%	19
Government	Government	10.5%	11
Environmental Group	Environmental Group	35.2%	37
Political Party	Political Party	8.6%	9
None	None	26.7%	28
Other (please specify)	Other (please specify)	23.8%	25
Answered question	Answered question	105	105
Skipped question	Skipped question	0	0

Table 2: Participants involved with affiliated groups

The 2010 research was developed based on the behavioural validity concept from McNeill (2005). It asked participants to provide evidence that they understand triggers of behavioural change and establish if they happen equally or all at the same time. It interpreted how participants responded in the real world having been provided with specific tools, to identify significant patterns and themes.

Themes

1. The first theme identified in this research was the **reassurance of what people already knew and what they were doing played a significant role**. Numerous comments linked feelings of comfort with the similar actions they experienced going on around them, that even more action was happening and they appreciated it was by groups they had not known about. Feeling more equipped in this way appeared to nurture confidence. There appeared to be growing confidence in talking to others about ‘doing things’ as “messages are getting through on a subliminal level” despite the “blinkered views based on myth as opposed to fact.”

It is worth noting the social transitions participants underwent and how that might affect decisions. The research fits within a specialist knowledge area, but general availability of related information means the sample might have been better informed (Oliver, 2010). It is also noted that a third of the group were environmental group members and the movement they are part of constantly changes, stirs, and reorganises itself (Secrett, 2011).

The research groups of the 2010 survey were invited to become engaged with the peer-review process, IPCC process, and university experience. These participants clearly endorsed the trusted role of scientists as the most appropriate messengers to provide a basis for activism.

Science lends itself to being accepted if based on a true scientific basis (Dodds, Tseelon, and Weitkamp, 2008).

Combining their regular view that the issues were not “*mainstream*” enough with Hulme’s question “*Who speaks for the twenty-second century?*” (Hulme, 2008), this research leaves little doubt that a vacancy exists for a role that enables scientists, in continuing doing what they do, to somehow speak to the local public; and not just any public, but one that confidently knows the character of the source of the information. As Hulme (2009), suggests, “*By understanding why we disagree about climate change we will also better understand what it takes to live sustainably on a crowded finite planet by a quarrelsome species.*” **The 2010 research suggests the importance of providing a means for solutions to be aired for everyone.**

Group A experienced thinking about local landscape and knowledge with Professor Catherine Leyshon (Associate Professor of Human Geography at the University of Exeter). It is essential to bear in mind the local people taking part might indeed feel closer to the local landscape living in Cornwall and may have connected with the concept faster than those from other areas or cities, who could be “insulated from the experience” (Hitchings, 2010). The snapshot that is provided does not really encompass any history of social change as a result, but does have the bonus of the longer study enabling a response to this problem to be represented (McNeill, 2005). However, it does look at how people felt throughout the duration.

2. The second theme identified was **the intrinsic responsibility people felt for the environment**. Again this could be reflected by the sample that volunteered, despite appealing to the best representative of the population possible (McNeill, 2005). Of those who completed the series of experiences, 38% were involved with environmental groups or the transition movement. This ‘accountability’ was linked with deep concern about past loss or future prevention. In the past memory played a significant role with imagery of smoking stacks, living with progressive pollution, but most significantly the grieved “loss” over time, in a way of life; becoming desensitised to the natural environment and how it responds to human activity, clearly seen as exacerbating the problem. Thinking about the irreversible damage taking place now armed people to think about the future, mostly quietly, but actively and confidently; so equipping them to live their lives with preventing further impact in mind. Could these basic principles operating be enhanced by the things that formed them? The influences ingrained in people were predominantly connected to campaign messages or other individuals. Most people seemed to have been naturally scooped up into an experience that established the terrain for the rest of their lives.

When connected with actual carbon cutting activity, environmental activism, or assessing the future risks of climate change, beyond the original 89% doing TTPs online and the overall 4488 combined declarations and pledges, the research found little *new* activity had actually taken place in the final group, throughout the duration of the Footsteps to Copenhagen Project FTCP. As above, endorsement of their current activities is likely to reinforce their actions, and further enable and equip them to pass on the ‘good work’ with possible ‘new material’, with the exception of one person deflated by the Copenhagen result. The most significant area requiring continued work is the concept of future risk of climate change on the local and personal landscape. Only one person took steps to find out about risk, “*I have looked at the Environment Agency website for likelihood, have you heard of Stephan Harrison?*” In addition, only one person made any reference to contemplating a localised situation “*I have thought how long it*

would take me to realise that everything was flooding to get to the boat and how quick could I get my welder out and fill up that last hole!"

3. The third theme distinguished **the important role imagery represented**. The march that took place across Cornwall during the Footsteps 2009 Campaign, appeared to be least referred to throughout the research. It was in fact the most prominent image the final group thought of, well covered by local press. It is significant to contemplate in the light of recent debates; *"Environmental activism needs its own revolution to regain its teeth"* Secrett (2011) and the 'March Against Iraq' comment suggesting its low impact and resulting apathy. The second most thought-about image was the university experience. Providing the room for bonding with new people, new connections, and new voices appeared welcome if not a little surprising. People found the lectures inspiring, interesting and encouraging as it represented an area of mostly new found trust. In joint third, three images played a role in people's memory: The short video of Professor Harrison talking about local climate change, the podcast they had to listen to of the distressed woman about to lose her home due to rising sea levels and finally the Reverend, whose interactions had made an impact on people memories. This strong imagery had distinct character with emerging and lasting presence through personal representation.

The research stemmed from the FTCP. Despite openness of the Cathedral and project co-ordinator to define the project as 'open for all,' a few minor objections to being involved with a religious building were recorded. These must be considered in the research context, but do not amount to necessary inclusion, other than recognition for those who did not have or make an opportunity to air their views (Oliver, 2010).

The research aimed to frame the links of recent behavioural research, and bring them together providing a case study and action research perspective of which to view a conclusion and formulate new approaches to increased carbon cutting activism. The three emergent strong themes: **reassurance**, **responsibility**, and **representation** could augment Yusoff's (2005) powerful "global reach" into a local one.

Limitations

What the research did not do was identify any real connections with the risks involved. Plagued by debate to keep climate change discussions positive, in 2010 the reality of discussing risk and foreseeing uncomfortable changes were almost taboo. However, preparing and adapting for changes, predicted by the science, formed into a policy document by the IPCC has to be a logical passage.

Local historical records of climate change, coupled with a globally-driven consensus approach through the IPCC, could assist local level risk assessments to be made. In turn adaptation and management for high rainfall, flooding and heat wave events over the next few decades, could be at least positioned within the public eye. The public needs to be made more aware of the personal risks of climate change in order to minimise affects through experiencing direct precautionary actions in the same way as they do fire, via a public information campaign. This is what the Pitt report (Defra, 2007) called for, in flooding preparation, *after* the event. The 2010 research identified a significant gap in the public profile of risk culture and accepted science.

Changes in overnment strategy and financial constraints due to the current economic climate appeared to be having an effect on adaptive strategies locally e.g. National Indicator 188 (local authority self-assessment guidance for planning to adapt to climate change) was axed in 2010, indicated by local authority anecdotal evidence to no longer drive action. However, two thirds of the costs of the 2007 floods were caused by surface water damage (Communities, 2008), whereas a local programme can simply allude to simple measures e.g. removing leaf litter from drains.

As the original study had spanned two years (2009-2010), its length permitted a look at the temporal processes at work as progressive disclosures Silverman (1997), were elicited. The results supported the 2010 research introductory theory that the **information needs to be regularly provided** (Moser and Dilling, 2004; Lowe et al., 2006; Lorenzoni, Nicholson-Cole, and Whitmarsh, 2007).

The task was to *“elucidate how people did whatever they did”* (Sacks, 1992), and what encouraged them to do so. The nature of the interviews was to establish what the experience (of visiting the university and the lecture), did for them, but to also entrap the same elucidation above and establish if people did things as a result, that were different.

Synthesis of the Research

The 2010 research combined local, real, and regular experiences to aid environmental activism and proposes identifying with the three emergent strong themes; the three Rs; reassurance, responsibility and representation;

- Reassurance is needed to endorse the work people do already, but also to keep the ongoing carbon-reduced lifestyle **a choice worth making** due to its foundations.
- Responsibility is what society craves from all people at all levels, and for those actively **taking responsibility delivers reward**, here fashioned by influence.
- **Representation:** representation comes from the trusted messengers within the community, their presence, information, and imagery. The role of these messengers is to deliver clear, simple messages that highlight how all are invited to participate, air views, and learn by experience.

Critical Reflection

Having a mixed physical and historical science background, extensive research into social sciences methodology helped to determine the best techniques suitable for this research providing the three prominent themes above. The author however remained mindful of McNeill’s (2005) opinion that, as with most participant observation, attempting to reveal human social behavioural patterns would provide a basis for influencing social policy. It has become widely accepted to use a number of research techniques for a single study, albeit an obvious solution, this resolve follows a history of debate to the contrary (McNeill, 2005).

Summary of Main Findings in 2010

The FTCP culminated in the delivery of 3001 Cornish Declarations on Climate Change, made by organisations and individuals, along with 1261 Top Ten Pledges being delivered to 10 Downing St on 5th December 2009. As co-ordinator of the FTCP and author of this and the 2010 paper, the opportunity arose to apply logical gaps in understanding climate change, behavioural change and activism research, identified in the literature review, to those who had participated. As a result, 226 further carbon cutting pledges were made and a heightened connectivity with environmental activism amongst some of those individuals. In these specific cases, conclusions cannot be made with complete certainty as other factors may have influenced behaviours (Frankfort-Nachmias and Nachmias, 1996).

Quantitative Data

Around a fifth of the fluctuating FTCP database members, involved predominantly by word of mouth or email, were happy to become involved in a research process about climate change. The majority felt the FTCP was positive and two thirds were keen to continue with the next stages of the research. 28% were not affiliated to any other groups of which 100% used the TTPs and 92% signed the Cornish Declaration on Climate Change.

Qualitative Data

No new carbon-cutting activism occurred within the final group; however, behavioural changes became enlightened due to the three Rs described above.

Group A embarked on a new experience and were invited to view landscape as rich in facts and experience (Caseldine, Fyfe, and Hjelle, 2007) and unpack and value their own local knowledge about how the landscape responds to climate. Group B, having learnt about the Intergovernmental Panel on Climate Change process, with Professor Catherine Mitchell (Professor of Energy Policy at the University of Exeter), a Lead Author of the IPCC Working Group, clearly portrayed trust in scientists, further enhancing confidence, and association by experiencing a scientist's perspective personally, on a local level.

Limitations of Research

The focused research on the smaller groups was limited by the choice of methodology. The literature review posed an opportunity to provide experiences, challenged by dates during the summer, reducing participants from 105 to 13 due to availability.

The research was also net-based and time restrictions eliminated the opportunity of working with those who were not originally contacted online during the onset of the FTCP, but did sign the declaration and TTPs, leaving names and addresses in the event of future research.

4 Outputs from the 2015 Research

The contact lists of those involved in the 2009 project were used again to invite people to take part in the 2015 survey if they had taken any of the TTPs. The lists included a list of 89 people who pledged online and 207 who had written their pledges in the Cathedral or at 2009 events and had left email addresses. This 2009 database contained many obsolete email addresses and finally only 65 people took part.

They were clearly invited to be mindful of the restrictions of researching the campaign that took place 6 years prior. Figure 1 below shows the brief provided to the participants prior to undertaking the survey.

What this survey is about

You have kindly recalled making some carbon cutting pledges, as part of the Footsteps to Copenhagen Campaign in 2009.

As you know we are interested in knowing what you might have done as a result of those pledges as we have embarked on a further journey to find out how much carbon we might have cut as a result of that campaign. If you didn't select all of the pledges, please answer 'no' when asked if you did the pledge, you will be taken to an option to specify that. Please do make sure you don't get confused with your activity now, please do think back to 2009, it is really important we capture the activity Footsteps created in the 4488 pledges and declarations back then, thank you. No individual will be identifiable in any compilation or report of the survey results.

Footsteps 2009 ran over 4-5 months, which cost £6k and as a result individuals and organisations made 4488 declarations and pledges to fight to restore the balance between nature and society, to strive to lead sustainable lives, to leave a positive footprint on the path to Copenhagen.

Please accept this very important request to ask you to take a bit of time and think back, to 2009, six years ago and think about what you did.
This survey could take from 10-15 minutes as you might need to revisit your carbon calculator.
Please do make a cup of tea and sit back knowing your time is valuable to us.
It was during the start of Autumn and you might enjoy having your memory jogged by clicking on this link <http://climatevision.co.uk/footsteps-the-top-ten-pledges>

The only risk is people not getting the original email and doing the survey as our contact data is 6 years old so we really need you to have a go at the survey, we really appreciate your help just once more.

****PLEASE complete the survey by the end of the month Friday July 31st - THANK YOU****

Thank you, so much for your commitment back in 2009 and being part of -hopefully- taking a Cornish solution to Paris.

Figure 1: Survey brief supplied online

It is now worth describing the methodology for this research in detail before examining the results of the project.

4.1 Methodology for calculating the carbon dioxide (CO₂) savings from the 10 pledges

Outline

The methodology used in this report is based on a hybrid approach that uses the Greenhouse Gas Protocol developed, published by both the World Resources Institute (WRI) and World Business Council on Sustainable Development (WBCSD). This protocol sets the global standard for how to measure, manage, and report greenhouse gas emissions (for further information please see Greenhouse Gas Protocol, 2009). The protocol is consistent with the Intergovernmental Panel on Climate Change (IPCC) for the compilation of greenhouse gas emissions at a variety of scales. The applicable calculations are provided under each pledge in the following report. The protocol methods are formulated on productive-based carbon accounting, which are applicable to pledge 1 of this report.

The other pledges rely on data from consumptive-based estimates that are an alternative approach to the productive-based methods. Unfortunately, this limitation cannot be circumvented due to the scope and resources of the report.

The methodology expresses findings in terms of carbon dioxide equivalent (CO₂e) as used within the Greenhouse Gas Protocol. This is the sum of the weights of each different greenhouse gas emitted multiplied by their global warming potential (GWP) relative to carbon dioxide over a 100 year period (Vereecken *et al.*, 2010).

There are many direct and indirect emissions related to each of these pledges related to each stage of the supply chain. To quantify indirect emissions is beyond the scope of this project and will result in some uncertainty of results, although this may be negligible Clear About Carbon (2012). Throughout this report, any areas of uncertainty are explained clearly, with references to peer-reviewed material used to explain the logic behind the methods used. A breakdown of the ten pledges is now given.

Please note that pledges 3 and 4 are omitted as there is no scientific evidence within the literature and therefore any estimations would be speculative. This would have negative implications on the final survey results if applied to the overall project; however, the volume of those pledges excluded from quantification provides optimistic weighting to the indicative figure for project cost per tonne. The overall approach to the methodology has been to offer estimates towards the lower bounds on the reductions achieved by the sample under examination. The study has been designed to inform and stimulate the value of behavioural change policy, should the cost per tonne of carbon saved by the Footsteps Campaign be judged sufficiently significant.

The study assumes that a change once adopted by an individual is persisted. But where possible the study captures behavioural changes over the 69-month period from the start of Footsteps 2009 to the date of the survey being taken, (unless implementing major changes, then an under estimation of a four-year time period is used) and discusses these issues in the accompanying Footsteps Report.

Respondents that skipped individual questions have been assumed not to participate in the pledge concerned. This has resulted in calculations that offer minimum levels of reductions

achieved. If a proportion of this item non-response came from respondents who participated in a pledge but did not report it, the levels of reduction achieved will be higher than that calculated.

The Pledges

Pledge 1: “I pledge to ring my electricity supplier over the next 24 hours and see if I can switch to green energy (if not I will find one)!”

Using consumptive-based accounting, the last countywide survey Clear About Carbon (2012) examined the carbon footprint of residents within Cornwall. The survey found that household fuel and energy use accounted for the single greatest source of CO₂ emissions at 23.3% (1.9 million tonnes CO₂e) of the total (8.2 million tonnes CO₂e). This is primarily due to electricity and gas usage, although oil, coal, and other fuels also contribute. The following figures are used for pledge 1:

- Total CO₂ emissions for Cornwall (2008) = 190,000 tonnes CO₂e
- Total residents in Cornwall (2011) = 532,300

Therefore;

$190,000 / 532,300 = 3.57$ tonnes CO₂e per resident from household fuel and energy usage.

Next, it is useful to examine the supply of energy to local areas and which companies provide which tariffs from renewable sources. Using the postcode for Climate Vision (TR1 1DG) the Green Electricity Marketplace (2015) suggests that green energy suppliers in the area can provide up to 100% green electricity from non-nuclear sources. There are many limitations using this approach, but due to the limitations of the project, a ‘best guess’ approach is used.

It is worth noting here that economic factors will have an effect on the adoption of new energy suppliers (Verbruggen *et al.*, 2010). Therefore, this methodology will provide a breakdown of CO₂e savings per level of percentage renewable to give a range of scenarios (100%, 70%, 50%, 40%, 25%, and 0%). These figures are those supplied on the companies’ websites. Table 3 below shows the energy suppliers with the percentage given for their primary tariff that is derived from renewable sources.

The level of those participants who have pledged to change to a green supplier will determine the overall outcome of how successful the project has been in reducing emissions. Table 4 below is a breakdown of these scenarios and their impact on potential reduced CO₂e using example numbers of participants.

List of suppliers with Renewable Energy Tariffs:				
100% RE	70% RE	50%	40% RE	25% RE
Good Energy	Ecotricity	Green Energy	LoCO ₂ Energy	OVO
	Co-operative Energy			

Table 3: Breakdown of Local Energy Suppliers and their Renewable Energy Sources

Percentage Renewable Energy	Number (examples)	Baseline CO ₂ e (3.57 tonnes)	Reduction in CO ₂ e per resident (tonnes)	Total CO ₂ e reduced (tonnes)
0	2000	3.57	N/A	0
25	1324	3.57	0.8925	1181.67
40	1102	3.57	1.428	1573.656
50	150	3.57	1.785	267.75
75	56	3.57	2.6775	149.94
100	27	3.57	3.57	96.39

Table 4: Renewable Energy Scenarios and Potential CO₂e Reductions

One foreseen limitation of this method is that different energy suppliers have individual tariffs that are made up from different percentages of renewable and non-renewable sources. In order to circumvent this, each company will be generalised to a percentage by using the most popular tariff found on the company's website. It is understood that this will vary within each supplier, but the limitations in the scope of this project only allow for a simple breakdown. It is also known that the emissions per resident in Cornwall (Clear About Carbon, 2012) include other sources of energy such as coal, oil, and other fuels. This study acknowledges that although these do contribute, they form a smaller portion of the total CO₂ emitted.

Pledge 2: “I pledge to buy local seasonal produce as much as possible – starting with at least 2 meals a week”

For Pledge 2, it is noted that without detailed records of meals, it is difficult to gain a true representation of the emissions reductions following the pledge. The following figures were used from the Eden Project carbon calculator tool (Eden Project, 2015).

- 1 meal of air-freighted unseasonable veg = 4.34kg CO₂e
- 1 meal of local seasonal veg = 0.93kg CO₂e

A possibility of up to 21 meals per week assuming people eat 3 meals per day, although this is more likely to be less than 21 as the study assumes that the participants won't eat vegetables for breakfast. The method used for this study is based on people selecting within the survey an average of how many seasonal vegetable meals are eaten per day. To factor in the meat content, recent research (Scarborough *et al.*, 2014) suggests that removing meat from a diet can reduce CO₂e by 25%, although this depends what the meat is replaced with. This is a general figure, but it will be used here. Table 3 below shows the calculations based on the number of meals eaten per week that contain either seasonal or unseasonable fruit and vegetables, in addition to 25% increases for meat consumption and the subsequent CO₂e savings in kilograms. As shown below in the table, the potential saving per meal is worked out as 3.41kg, by subtracting the CO₂e of 1 meal of local seasonal veg from that of one containing air-freighted unseasonable veg (4.34kg – 0.93kg). This approach is also used when applying a 25% increase for meat (e.g. 5.425kg – 1.1625kg = 4.2625kg).

Potential Meals Per Week	1 meal of local seasonal veg = 0.93kg CO ₂ e	Plus Additional meat (25% extra CO ₂ e) local seasonal veg	1 meal of air-freighted unseasonable veg = 4.34kg CO ₂ e	Plus Additional meat (25% extra CO ₂ e) air-freighted unseasonable veg	Potential CO ₂ e Saving	Per year equivalent local seasonal (kg CO ₂ e)	Per year equivalent air-freighted unseasonable (kg CO ₂ e)	Potential CO ₂ e Saving (kg)
1	0.93	1.1625	4.34	5.425	3.41	48.36	225.68	177.32
2	1.86	2.325	8.68	10.85	6.82	96.72	451.36	354.64
3	2.79	3.4875	13.02	16.275	10.23	145.08	677.04	531.96
4	3.72	4.65	17.36	21.7	13.64	193.44	902.72	709.28
5	4.65	5.8125	21.7	27.125	17.05	241.8	1128.4	886.6
6	5.58	6.975	26.04	32.55	20.46	290.16	1354.08	1063.92
7	6.51	8.1375	30.38	37.975	23.87	338.52	1579.76	1241.24
8	7.44	9.3	34.72	43.4	27.28	386.88	1805.44	1418.56
9	8.37	10.4625	39.06	48.825	30.69	435.24	2031.12	1595.88
10	9.3	11.625	43.4	54.25	34.1	483.6	2256.8	1773.2
11	10.23	12.7875	47.74	59.675	37.51	531.96	2482.48	1950.52
12	11.16	13.95	52.08	65.1	40.92	580.32	2708.16	2127.84
13	12.09	15.1125	56.42	70.525	44.33	628.68	2933.84	2305.16
14	13.02	16.275	60.76	75.95	47.74	677.04	3159.52	2482.48
15	13.95	17.4375	65.1	81.375	51.15	725.4	3385.2	2659.8
16	14.88	18.6	69.44	86.8	54.56	773.76	3610.88	2837.12
17	15.81	19.7625	73.78	92.225	57.97	822.12	3836.56	3014.44
18	16.74	20.925	78.12	97.65	61.38	870.48	4062.24	3191.76
19	17.67	22.0875	82.46	103.075	64.79	918.84	4287.92	3369.08
20	18.6	23.25	86.8	108.5	68.2	967.2	4513.6	3546.4
21	19.53	24.4125	91.14	113.925	71.61	1015.56	4739.28	3723.72

Table 5: CO₂e for Potential Meal Changes and Subsequent Emissions Reduction

Pledge 3: “I pledge to educate myself about the science and impacts of climate change starting with reading Climate Vision's article ‘Climate Change’”

As explained previously, due to the difficulty in quantifying this pledge, it has been omitted from the overall report.

Pledge 4: “I pledge to contact my MP and my friends and make these pledges too”

As explained previously, due to the difficulty in quantifying this pledge, it has been omitted from the overall report.

Pledge 5: “I have pledged to walk, cycle, use public transport, or register with www.carsharecornwall.com 08700 111199 to travel to work or regular journey at least once a week”

Within Cornwall, the total emissions attributed to transportation are 25% (national average 21%), of this, 62% is attributed to car travel (Clear About Carbon (2012). This study uses a general figure given when calculating the potential emissions savings from commuting to and from work. This is given as 16.3km (10.1miles), the average distance travelled to work in 2011 (ONS, 2014).

Torbay Council (2009) provides a calculator for transport that uses the Carbon Trust's methodology; the figures are given below in

Table 6. Figures given are the potential savings per person per year (tonnes CO₂e).

Changing from:	Changing to:	Savings per tonne per passenger per year
Diesel Car	Savings by bus	0.25
	Savings by train	0.48
	Savings by car share (2 people per car)	0.32
Petrol Car	Savings by bus	0.45
	Savings by train	0.68
	Savings by car share (2 people per car)	0.41
Diesel	Savings by walking or cycling (not including emissions from manufacture of a bike)	0.63
Petrol		0.83
Bus		0.38
Train		0.15

Table 6: Transport Savings (Torbay Council, 2009)

Pledge 6: “I have worked out my own carbon footprint using one of the many easy to use carbon calculators e.g., <http://footprint.wwf.org.uk>”

Bottrill (2007) researched the effectiveness of carbon calculators available at the time. It is not sure whether the suggestion for a review into using ‘next-generation’ carbon calculators has been undertaken. Given the results from the survey, it is worth noting that most of the 30 common calculators fall short on their effectiveness. There is a distinct lack of literature regarding how people’s behaviour has changed after using a carbon calculator; this would be an interesting area for future work. This pledge has been omitted from the overall report due to the inability to meaningfully quantify the emissions reductions.

Pledge 7: “I pledge to do a ‘home energy check’ to find out how I can save energy in my home. I will contact the Energy Saving Trust on 0800 512 012 or visit their website”

Shorrock, Henderson, and Utleby (2006) define a few standard areas in which energy efficiency savings can be made at the household level. These have been used for this project, and are as follows:

- Loft insulation
- Cavity wall insulation
- Solid wall insulation
- Low-emissivity double glazing
- Cylinder insulation
- Condensing boilers
- Heating controls
- Energy efficient lighting
- Energy efficient appliances

Figures for the potential CO₂ savings used for this project are found in the Energy Saving Trust’s report on savings and emissions (2013). For this, an average of the typical household appliances provided by the Energy Saving Trust is used (without replicating fridges and freezers by type i.e. having both an upright and a chest freezer).

Table 7 below provides a breakdown of the potential savings that can be made at a household level. This is given in kilograms of CO₂ and reproduces certain caveats that are given by the Energy Saving Trust (2013).

Household Area	From 0 energy efficiency to the best measures in their class:
	CO ₂ savings per year (kg)
Loft insulation	730
Cavity wall insulation	560
Solid wall insulation	1800
Low-emissivity double glazing	650
Cylinder insulation	170
Condensing boilers	1200
Heating controls	270
Energy efficient lighting	111
Energy efficient appliances	54.2
Total potential savings	5545.2

Table 7: Household CO₂ Savings

Table 8 below shows the potential savings per year in kilograms of CO₂. This is based on a breakdown of hypothetical ranges that participants may have undertaken. The final survey will provide a number of CO₂ savings made per year in kg, although it must be noted that this is a generalisation and greater research will need to be conducted to provide a more precise total. This methodology also does not take into account that multiple participants of the survey are residents of the same house.

Percentage of total actions taken	CO ₂ savings per year (kg)
0%	0
25%	1386.3
50%	2772.6
75%	4158.9
100%	5545.2

Table 8: Potential CO₂ Savings per Year

Pledge 8: “I pledge to turn my thermostat down or use a thermometer to reach the lowest comfortable temperature, typically between 18-21°C and think about putting on a jumper instead”

The Energy Saving Trust’s (2013) data on the emissions from use of the thermostat are given below in Table 9. Based on the pledge above, this project uses an average CO₂e saved per year (although it must be noted that this assumes each degree accounts for the same CO₂e saved) at 335kg CO₂/year (the middle range of the CO₂e savings by ‘Turning room thermostat down by one degree’).

Action	Potential savings per year
Installing and correctly using a room thermostat and thermostatic radiator valves	£80 - £165 and 330kg - 680kg carbon dioxide
Fitting a hot water tank insulation jacket	£25 - £35 and 110kg - 140kg carbon dioxide
Turning room thermostat down by one degree	£85 - £90 and 310kg - 360kg carbon dioxide

Table 9: Potential Monetary and CO₂ Savings Based on Residential Heating

This figure above (335kg/year) is then multiplied (Table 10 below) for each degree the thermostat is reduced by, i.e. reducing by three degrees from 21 to 18 would potentially save 1005kg/year CO₂e. Example numbers are also given below to simulate the possible results from the survey.

Average saving per degree decreased (kg/year)	Number of people pledging (examples)	Total CO ₂ e saved per year (kg)	Tonnes CO ₂ e
335	2565	859,275	859.275
670	1404	940,680	940.68
1005	402	404,010	404.01

Table 10: Hypothetical Savings CO₂e per Year

Pledge 9: “I have pledged to reduce my holiday air miles by 50%”

The Clear About Carbon (2012) report states that the average CO₂e that a UK resident uses on flights per year is 1.24 tonnes. This figure is a simplification, but there are other factors such as business flights and latest data available based on efficiency of flights that ideally would be factored in but are unfortunately beyond the scope of the project. Survey respondents will be asked to provide anecdotal evidence that they have cut back on flights by 50%. An additional consideration that is beyond the scope of the project is that alternative transport such as driving, trains, and ferries are not entirely free from CO₂ emissions, and that in reality there is not a 50% reduction in total CO₂ unless holidays are reduced completely by half.

Table 11 below shows the difference in tonnes of carbon dioxide if a hypothetical number of participants do not cut their flights at all, or if they are reduced by half.

Average tonnes

CO₂e for UK

Residents' Personal

Flights: 1.24

% Reduction	CO₂e	Number of people pledging	Total tonnes CO₂e per year	Total CO₂e saved per year (tonnes)
0%	1.24	1540	1909.6	0
50%	0.62	2565	1590.3	1590.3

Table 11: CO₂ Savings per Year Based on UK Residents' Personal Flights

Pledge 10: “I pledge to research ‘Driving in a greener way’ by Google/research or by ringing up a driving instructor and booking a lesson to learn eco-drive ideas”

Barkenbus (2010) has conducted research into eco-driving, finding that overall a possible 10% of fuel consumption (and therefore the equivalent percentage of CO₂) can be saved from using the suggested techniques.

This project uses the UK average CO₂e for residents’ driving emissions (Clear About Carbon, 2012) and is based on whether participants have actively researched eco-driving and have adopted the lessons learned. Table 10 below uses the same approach as pledge 9 regarding cutting 50% of flight emissions. The figures given below are based on the Clear About Carbon (2008) report and applied to an example number of participants undertaking either no action, nor the average savings of 10% reduction in fuel consumption.

**UK resident CO₂e
for driving: 2.33**

% Reduction	CO₂e	Number of people pledging	Total tonnes CO₂e per year	Total CO₂e saved per year (tonnes)
0%	2.33	1540.00	3588.20	0.00
10%	0.23	2565.00	597.65	597.65

Table 12: Eco-driving Potential Savings based on 10% Fuel Reduction

4.2 Carbon Calculations Survey 2015

Pledge 1

Of the 65 that took part, (question 1 in the survey) 50% did pledge to ring their electricity supplier over the following 24 hours and see if they can switch to green energy. It is assumed that this is per household as the supply can only mean per household (plus only one person per computer can do the survey). Eventually 80.06% did switch from their ordinary supply as a result (question 4). Question 5 determined how much renewable energy the supplier uses which was combined with question 6 that estimated how many months they have been buying the greener energy. Of those who provided the information, this gave a total of 2.97 tonnes of carbon had been saved per person/household annually.

Since people will tend to respond more if they have attended to the pledges than not, the responses will be like those from a biased sample. However, question 2 asked why people did not carry out the pledge. This revealed that 16.7% forgot, (5 participants from question 2 out of the 30 people that said yes in question 1 = 16.6%). 10% had also forgotten, but later got back to it and signed up. Therefore, accounting for the bias, it is assumed that the 2.97 tonnes of carbon was saved by each of the total 29. This provides total figure of 86.2 tonnes of carbon per year.

Data from 2009 includes 69 pledges online and the 16 hand written pledges, in total 85. Using the approach described above, 85 participants undertook the pledges, but only (question 4) 80.6% actually switched supplier as a result. Based on scaling up to the same responses as those participating in this survey, when applying trends from questions 5 and 6 (how long they have been buying renewables since the switch), it is assumed that 1156.90 tonnes of carbon was saved by the total 85 (2009) people that took part.

TOTAL Amount

**Footsteps Reduction in CO₂e (tonnes) from Pledge 1, considering 85 people, total
1156.90**

Pledge 2

Of those who did the survey, (question 7) 45.6% undertook Pledge 2, and have continued to do so. 3.5% said they “keep forgetting to make the effort, it’s difficult for me.” In this pledge, meat or organic trends are not included in the calculations, due to budget and timing. Participants were asked about the frequency of consumption (question 12) over an average week and applied the ratio provided by 51 people to carbon savings made per meal. This was based on one vegetable meal bought locally saving 3.41kgs and one meat meal bought locally saves 4.265kgs CO₂e

For example:

20,677 of meals were changed by all those providing data (57 people). This study analyses meals that were locally sourced; 40% of meals were veg/fruit locally sourced, with 32% being local meat options. Applied to the number of meals selected (8306.8 meals x 3.41kgs + 6645.44 meals X 4.265kgs), saved 0.99 tonnes CO₂e per person (57 people). 7.3% of those who pledged yes in the survey did not actually do it.

Data from 2009 includes 165 pledges online and 36 hand written pledges, in total 201. Based on scaling up to the same responses as those participating in this survey, (question 12) 72% did select locally sourced meals, providing 0.99 tonnes per person. If 7.3% of the 201 did not take part, the group overall would have saved 159.3 tonnes CO₂e.

[I.e. 0.855t/person x (100-7.3) % x 201persons = 185.24 tonnes CO₂e TOTAL.]

TOTAL Amount

**Footsteps Reduction in CO₂e (tonnes) from Pledge 2, considering 201 people, total
185.24**

Pledge 3, 4 & 6

Please note that Pledges 3 and 4 are omitted as there is no scientific evidence within the literature and therefore any estimations would be speculative. Pledge 6 is also discounted due to the lack of available information regarding the carbon calculators. This would have negative implications on the final survey results if applied to the overall project; however, the volume of those pledges excluded from quantification provides optimistic weighting to the indicative figure for project cost per tonne. The overall approach to the methodology has been to offer estimates of the lower bounds on the reductions achieved. This study has been made in a bid to inform the value of behavioural change policy, should the cost per tonne of carbon saved by the Footsteps Campaign be significant.

Bottrill, (2007) researched the effectiveness of carbon calculators available at the time. It is not sure whether the suggestion for a review into using 'next-generation' carbon calculators has been undertaken. Given the results from the survey, it is worth noting that most of the 30 common calculators fall short on their effectiveness. There is a distinct lack of literature regarding how people's behaviour has changed after using a carbon calculator; this would be an interesting area for future work. This pledge has been omitted from the overall report due to the inability to meaningfully quantify the emissions reductions.

Pledge 5

In question 20, 34 people pledged to walk, cycle, use public transport, or register with www.carsharecornwall.com to travel to work or regular journey at least once a week.

In total 35 respondents, informed the study about their changed activity.

First, the approach was to apply the savings made by switching to a new type of transport, and then calculate this for a year.

In question 23, 8 people (22.9%) stated they have been undertaking the pledge since they started, once a week, for this study it will be calculated using that figure, for 69 months. Question 23 clearly shows people have started to do it more than once a week, favourably with 4 people (11.4%) participating four times a week and 6 people (17.1%) five times a week.

This study calculated how many new lower carbon journeys people made over 69 months. This was done by dividing the annual carbon savings into monthly amounts and then multiplied the two. The sum of those weekly experiences, by the 35 that took part, is 165.2 tonnes.

The project has data from 2009 of 131 and written 18 participants, in total 149. Based on scaling up to the same responses as those participating in this survey, (question 20) 34 people (66.7%) selected the pledge and **all** took part, the group overall would have saved 703.2 tonnes.

TOTAL Amount

Footsteps Reduction in CO₂e (tonnes) from Pledge 5, considering 149 people, total 703.2

Pledge 7

I pledge to do a 'home energy check' to find out how I can save energy in my home. I will contact the Energy Saving Trust on 0800 512 012 or visit their website.

23 participants provided data on their pledge activity, 3 people forgot, 2 did not do it due to time limitations, 2 attempted the pledge but could not get through-it didn't work. This is important to note as at the time, people were finding it hard to use the service provided.

4 participants (17.4%) found the results surprising. 52 actions were taken as a result of the pledge.

This study did not ask when participants took the measures, it is assumed a generous period for enquiry and installation activities to take place and work with a period of 48 months (4 years).

The sum of those experiences, by the 23 that took part, is 81.41 tonnes.

Data collected in 2009 of 105 electronic records and 10 written took part, in total 125. Based on scaling up to the same responses as those participating in this survey, the total figure provided for each participant is 3.5 tonnes, the group overall would have saved 442.5 tonnes.

TOTAL Amount

Footsteps Reduction in CO₂e (tonnes) from Pledge 7, considering 125 people, total 442.5

Pledge 8

Pledges have always been directed at the person's behaviour, this however would have represented the whole household. In hindsight, it would have been beneficial to ask only one per household to answer. One family enquired as to who should do the survey. They were provided with an explanation it would skew the data as it would capture two lots of data, however the Survey Monkey would not allow the same computer to be used twice anyway and present the question.

Heating control activity was recorded in the previous pledge, with 30.43% (7 people) saying they had amended their heating controls, to the value of 7.56 tonnes, we calculated over a 4 year period. To avoid error, this detail needs to be subtracted from the more refined pledge 8 calculations.

By turning the room thermostat down by one degree 310kg - 360kg carbon dioxide can be saved, for this exercise it is assumed the lower amount of 310kg.

If 310kg could be scaled up to 4 years, as in Pledge 7, times by the number of people providing data less 7, 35.96 tonnes were saved by those taking part.

There are 165 electronic and 18 written participants from 2009, totalling 183. Based on scaling up to the same responses as those participating in this survey, the total figure provided for each participant is 0.9 tonnes, the group overall would have saved 167.9 tonnes.

TOTAL Amount

**Footsteps Reduction in CO₂e (tonnes) from Pledge 8, considering 183 people, total
167.9**

Pledge 9

28 participants undertook the pledge. Of the 26 people that provided data, 50% participated in the pledge, with 5 people (19.23%) acting even further and “reduced my holiday air miles by 100% since making the pledge”. 4 participants however had not been able to succeed in doing this pledge and 2 did reduce their holiday air miles, but only by 25% since making the pledge.

Unfortunately, due to the limitations of this project, further analysis could not be undertaken for those who could provide a breakdown of their increased efforts at this pledge.

The Clear About Carbon report (2012) states that the average CO₂e that a UK resident uses on flights per year is 1.24 tonnes. This figure is a simplification but is the one used here to illustrate potential successes.

13 participants cut their holiday air miles by 50% and 5 by 100%. Those 18 people of the 28 who provided data resembled 64%, saving 14.26 tonnes a year, potentially 57.04 tonnes over a 4-year period.

From the 2009 data, 117 electronic, and 9 written participants, totalling 126. Based on scaling up to the same responses as those participating in this survey, then total figure provided for each participant is 0.79 tonnes, 64% of the group overall would have saved 256.68 tonnes.

TOTAL Amount

Footsteps Reduction in CO₂e (tonnes) from Pledge 9, considering 126 people, total 256.68.

Pledge 10

23 people did carry out their pledge. 91.3% found it made a difference having done the research.

This project uses the UK average CO₂e for residents' driving emissions: 2.33 (Clear About Carbon, 2012) and is based on whether participants have actively researched eco-driving and have adopted the lessons learned.

It was not asked when participants took the measures, and it is assumed that the 59 months from the start of the campaign, less a generous 11 months for enabling research/lessons to take place and work with a period of 48 months (4 years).

21 people agreed it made a difference (95%). Barkenbus (2010) has conducted research into eco-driving, finding that overall; a possible 10% of fuel consumption (and therefore the equivalent percentage of CO₂) can be saved from using the suggested techniques.

21 people saving 0.23 tonnes CO₂e per year for 4 years saves 19.32 tonnes in total.

From the 2009 data, there are 117 electronic, and 17 written participants, totalling 134. Based on scaling up to the same responses as those participating in this survey, the total figure provided for each participant is 0.92 tonnes, 95% of the group overall would have saved 117.1 tonnes.

TOTAL Amount

**Footsteps Reduction in CO₂e (tonnes) from Pledge 10, considering 134 people, total
117.1**

4.3 Overall Cost per Tonne

Table 13 below shows the summary of each of the pledges, the total participants, and their respective CO₂e savings in tonnes. This is then totalled in Table 14 and a figure for the cost per tonne of the project is given against the overall costs.

Footsteps Reduction in CO₂e (tonnes) from Pledge 1, considering 85 participants, total	1156.90
Footsteps Reduction in CO₂e (tonnes) from Pledge 2, considering 201 participants, total	185.2449618
Footsteps Reduction in CO₂e (tonnes) from Pledge 5, considering 149 participants, total	703.1522857
Footsteps Reduction in CO₂e (tonnes) from Pledge 7, considering 125 participants, total	442.473913
Footsteps Reduction in CO₂e (tonnes) from Pledge 8, considering 183 participants, total	167.9365962
Footsteps Reduction in CO₂e (tonnes) from Pledge 9, considering 126 participants, total	256.68
Footsteps Reduction in CO₂e (tonnes) from Pledge 10, considering 134 participants, total	117.116

Table 13: Total participants and CO₂e savings for each pledge

Total for known participants, applying recent survey data, CO ₂ e (tonnes)	3029.506882
Cost of 2009 Footsteps (including in-kind contribution)	£6,000
Cost per tonne	£1.98

Table 14: Total CO₂e savings, costs, and final cost per tonne

It is now worth briefly looking at the alternatives to this type of behavioural change project, such as the carbon capture and storage approach.

5 Alternatives

Carbon Capture and Storage

Carbon capture and storage (CCS) is being heavily considered as a viable solution to the problem of carbon emissions with little consideration being given to the potential negative impacts. The cost per tonne of CCS has already been discussed; however, the risks involved with CCS are often overlooked by both politicians and members of the public. At the start of 2015, Aberdeenshire Council approved the construction of a CCS facility at Peterhead (University of Aberdeen, 2015). This construction will be one of the first of its kind. There was little protest, with many praising the project's potential to create jobs in the area and reduce CO₂ emissions. The leader of the SNP Nicola Sturgeon said it was a "big opportunity for Scotland". There was however, little discussion about the potential negative effects of such a project and little debate as to whether encouraging continued use of fossil fuels is really a sustainable approach.

Plants fitted with CCS capabilities require 15-25% more energy than conventional plants (Azar *et al.*, 2006). This additional energy use can increase emissions indirectly, such as emissions caused by the extraction and transportation of this additional fuel. The technology used in CCS can also increase certain aspects of air pollution. Particulate matter and nitrogen oxide are both predicted to increase due to the additional fuel consumption. Ammonia is expected to increase by more than 3 times current levels from energy plants, due to the degradation of the solvents in the process of capturing carbon. Ammonia can lead to acidification and eutrophication as well as forming particulate matter in the atmosphere (Arden, Ezzati, and Dockery, 2009). Particulate matter is considered by the World Health Organisation (2015) to be the deadliest form of air pollution due to its ability to enter the respiratory system. Some of the potential effects can include DNA mutations (which can lead to cancer), heart attacks, respiratory illness, and premature death. The overall increase in ammonia is likely to be small overall, as the agricultural sector is by far the biggest emitter; however, it is still important to consider these consequences when there are safer alternatives available.

CCS has also been linked with damaging the environment due to leakage of CO₂ from the pipelines or storage reservoir. Leakage of CO₂ underground has been shown to increase plant mortality, reduce growth, and create potentially severe localised damage to ecosystems. The mining and transport of the additional fuel needed for CCS, usually coal, produces its own environmental damages as well as the environmental cost of building such a plant and all of the required pipelines. Gradual leakage of CO₂ or large-scale leakage caused by catastrophic failure of the system could remove the benefits of capturing CO₂ as well as producing additional environmental damage and damage to human health. The CO₂ would need to remain stored for hundreds of years or potentially indefinitely and the feasibility of this has been questioned. The build up of pressure underground may also lead to small seismic events.

Some have claimed that the environmental risks and risks to human health involved in CCS are similar to those already experienced in the oil and gas industry. However, is that acceptable? Should governments be considering solutions that do less damage, not a similar amount?

The worst-case scenario associated with CCS is the threat of sudden catastrophic leakage of CO₂, which would decimate human and animal life in the surrounding area. A good example of this is the sudden release of CO₂ from Lake Nyos in 1986. This resulted in the deaths of 1700 people in rural Cameroon. Nuclear power has long been frowned upon despite having no direct carbon emissions because of the worst-case scenarios associated with it, so these events are worth considering. This situation is of course, unlikely, however this technology is new and untested and it needs to endure for extremely long timescales, which is a challenge unlike any humans have faced before.

A more likely scenario is gradual leakage of CO₂. This could occur if the incorrect site is selected or the site is not prepared correctly. Leakage of CO₂ would remove the purpose of CCS and may also pose a risk to fresh groundwater resources if the site is incorrectly selected. Aquifers that are not connected with groundwater systems have been proposed as potential site for CCS. However, it has also been argued that injecting CO₂ into these aquifers can cause acidification of the water, increasing its ability to break down the surrounding rocks, increasing the potential for leakage into the soils or water table. Considering the fact the CO₂ would have to be stored for hundreds or thousands of years, we cannot be certain what would happen.

Overall, CCS carries a host of risks and unanswered questions, so needs to be carefully regulated and scrutinised. CCS may be useful in carefully selected sites, however it is important it is not viewed as a panacea, as it doesn't address the core problem of fossil fuel usage, it simply masks the main problem associated with it, which is carbon emissions. There are ways to reduce emissions, which carry none of these risks and will be required when fossil fuels run out. The question posed here is that is it worth taking all of these risks for a technology which requires further use of fossil fuels, distracts from the adoption of renewable energy, and doesn't address the core issue of unsustainable fossil fuel dependence?

6 Media Coverage

The project has captivated the media locally and nationally, in newspapers and on BBC Radio Cornwall.

Local media engagement with the project so far:

- 09/07/15 West Briton Online Carbon Ambassadors Embark on their Carbon Pledge Challenge
- 09/07/15 West Briton Ten high profile ambassadors to cut carbon use
- 16/07/15 West Briton It isn't easy being green, but they're giving it a go (double page lifestyle spread)
- August Issue Cornwall Today Magazine Think Global, Act Local
- 20/08/15 Keeping it neutral – how are our ten meeting the challenge? (double page lifestyle spread)

This was to promote the project and all parties involved in the project. It was seen as a good opportunity to promote the work that was considered very palatable to the media and public alike. Raising the profile may also lead to the rolling out of the project in other locations.

7 Recommendations

7.1 Adding Economic Value

Pledge 2 encourages people to purchase local seasonal produce. This is a good example of how a sustainable behavioural change can bring economic benefits to the area. For every £1 spent in a small- or medium-sized business, £0.63 stays in the local economy, which when compared with the figure for large businesses of £0.40, it shows how pledge 2 can boost the local economy. For an area such as Cornwall which is poorer than most of England, this added economic boost could be valuable. Therefore, it is important that the economic benefit for local communities is emphasised when a behavioural change campaign is established, as it can really encourage involvement.

7.2 Building Resilience

Pledge 3 aims to encourage people to educate themselves about the science and impacts of climate change. Raising the level of education about climate change within a community helps to increase resilience to its effects. People can learn about how climate change can affect them and their communities directly and this enables them to take action to minimise the consequences. A good example of this would be taking preventative measures to reduce future flood risk. Increasing scientific literacy also enables people to question government policy, critique environmental groups, or see through climate sceptics' pseudo-science. Politicians may take climate change more seriously when the electorate is better informed. Increasing resilience can really benefit the community in which it takes place.

7.3 Healthier and Closer Communities

Pledge 5 is a great example of how behavioural change to help the environment can also help individual health and fitness. Encouraging people to walk or cycle will improve their health and reduce their carbon emissions. Pledge 2 encourages people to return to their local high street, supporting local business and entrepreneurs. This can help foster a tighter-knit community whilst Pledge 4 helps that community become more involved in politics and make its voice heard.

7.4 Consultants for Project Delivery

A consultancy with experience in managing such a project will be well placed to ensure that the work is completed to deadline. Local consultants would be highly beneficial in starting up a similar project elsewhere. The use of consultants for start-up and continued delivery has also been recommended due to consultants having the:

- Experience from designing and executing the project
- Relationships with professional partners and community members
- Dedicated time to ensure the schedule is met

Climate Vision could re-deliver the project in other communities.

7.5 Carbon Logic Roll Out and Training

This project could be effectively rolled out to other areas, utilizing local people and resources to tailor the project to other communities.

Such a rollout could be undertaken simultaneously with Earth Summit events, including locally-made declarations and pledges and knowledge exercises in preparation for local university-based experiences. The project would require a project manager to oversee the project and local ambassadors to energise the local community and act as trusted messengers.

The 2009 four-month project was guided by a Steering Group, which comprised the following people:

- Canon Philip Lambert (Truro Cathedral)
- Claire Eason-Bassett (Event Cornwall)
- Oliver Baines (Groundswell/Transition Ladock)
- Howard Curnow (Cornwall Wildlife Trust)
- Bert Biscoe (Cornwall and Truro City councillor)
- Phyllis Reddock (WI)
- Robin Sellwood (Transition Truro/Truro Cathedral)
- Sarah Wetherill (Transition Truro)
- Lindsay Southcombe (FOE/Green Party)
- Jemma Roberts (Coast).

7.6 The Project Manager

Different regions will have different challenges and opportunities. The project manager should be seen as a pivotal role and will need to be paid. The project manager is the driving force behind the project and is vital in choosing appropriate ambassadors for the community as well as tailoring the project to the community. Each new community will bring exciting new opportunities and ways to engage. The project manager will be at the forefront of making the project a successful and enjoyable experience for those involved.

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9 Appendices

9.1 Appendix 1: Top Ten Pledges.

Pledge 1

I pledge to ring my electricity supplier over the next 24 hours and see if I can switch to green energy (if not I will find one)!

Pledge 2

I pledge to buy local seasonal produce as much as possible – starting with at least 2 meals a week

Pledge 3

I pledge to educate myself about the science and impacts of climate change starting with reading Climate Vision's article [“Climate Change”](#)

Pledge4

I pledge to contact my MP and my friends and make these pledges too

Pledge 5

I have pledged to walk, cycle, use public transport or register with www.carsharecornwall.com 08700 111199 to travel to work or regular journey at least once a week.

Pledge 6

I have worked out my own carbon footprint using one of the many easy to use carbon calculators e.g., <http://footprint.wwf.org.uk>

Pledge 7

I pledge to do a ‘home energy check’ to find out how I can save energy in my home. I will contact the Energy Saving Trust on 0800 512 012 or [visit their website.](#)

Pledge 8

I pledge to turn my thermostat down or use a thermometer to reach the lowest comfortable temperature, typically between 18-21°C & think about putting on a jumper instead.

Pledge 9

I have pledged to reduce my holiday air miles by 50%.

Pledge 10

I pledge to research ‘Driving in a greener way’ by Google/research or by ringing up a driving instructor and booking a lesson to learn eco-drive ideas.

9.2 Appendix 2: Project Funding

This project was funded using www.crowdfunder.co.uk, which encourages individuals to pledge money in support of the project. The project will only be successful if the target amount is reached. An initial target was set of £2,500 for data analysis and an overfunding target of £5,000 set with the intention of renewing the project in the run up to the conference in Paris in December. After a funding window of 31 days, 67 different backers pledged £3,770 to the project, which successfully achieved its initial target, and was therefore funded. Individuals were invited to pledge any amount they felt was appropriate for them and there were a range of rewards for different sizes of pledge. Different rewards were available for £5, £10, £20, £50, £100, and £250 pledges. These rewards were offered by Climate Vision or by members of the local community, including local businesses. Some examples of these rewards include a free pen, an invitation to a mailing list, a tour of Truro Cathedral, entry into a prize draw to win one week's holiday in Cornwall, and many more. The project page can still be accessed at <http://www.crowdfunder.co.uk/providing-global-leaders-with-a-carbon-solution>. As well as asking for pledges, volunteers were also asked whether they would be willing to assist the project. Crowdfunding was a positive way to raise money for this project as it involved the local community from the start and enabled people to take part directly by changing their lifestyles or via donation. Local businesses became involved and provided rewards to those who pledged, aiding sales promotions and the local economy.

9.3 Appendix 3: Carbon Logic Ambassadors

The project utilised 10 Ambassadors to champion the project in their local area and among their contacts. Following on from the success of the 2009 project, the concept was renewed by involving 10 local personalities to pledge to cut their carbon footprints over a period of 5 months. This project was delivered by trusted messengers and was worthwhile, rewarding, fun, and easy to do for those involved. The local ambassadors, including the Bishop of Truro, agreed to take part in the campaign to lower their carbon footprints with the aim of showing how possible it is to make a genuine impact on personal carbon consumption and global issues.

The ten include:

1. Pete Masters, Truro City Football Club
2. Ruth Smith, ZLC Energy
3. Deborah Clark, former PR Company Director
4. Cllr Edwina Hannaford, Cornwall Council
5. Arch Deacon Bill Stuart-White, Archdeacon of Cornwall
6. Donna Birrell, BBC Radio Cornwall Presenter
7. Robin Freight from St. Austell Brewery
8. Bishop Tim Thornton, Bishop of Truro
9. Rev Steve Wild, Chairman of the Cornwall Methodist District
10. Kirstie Newton, Cornwall Today Editor

Each of the Ambassadors agreed to try and complete two pledges a month for 5 months using the pledge form found on the 'Hot Topics' page of the Cathedral's website (www.trurocathedral.org.uk).

In July, each Ambassador attempted to change to a 'green' energy supplier and buy local seasonal produce for at least two meals a week. At the end of each month, they will report on their particular experiences, the successes and the failures, sharing what they've learnt. The update on this report will be available in December. Meanwhile the Ambassadors reflected on being asked to undertake this work;

Pete Masters, Truro City Football Club

"Being committed to cutting carbon in ten different ways could prove even more challenging than gaining promotion, but I'm determined to give it a go. But anyone who knows me knows I don't take on simple tasks so I'm pledging to be greener and no doubt a lot leaner with all the cycling and running I'm expecting to undertake to do my bit to help the planet."

Ruth Smith

"When I saw Luci's pledge project, it seemed a really accessible, effective way to get people engaged with making carbon cutting part of their everyday lifestyle. It's always been important to us to be aware of our impact on the environment, so we've made many small

changes to our lifestyle already. I think there are many pressures on people these days, so the environment doesn't always come high up in people's everyday considerations. Hopefully this project can demonstrate that it doesn't have to be complicated or expensive. When you're faced with the huge potential impact of climate change, it can be hard to have the conviction that your small choices make a difference, so it will be great to see the end results of the project!"

Deborah Clark

"I have a deep commitment to supporting Cornwall in whatever way I can. If that local outlook translates into a more carbon efficient way of living then it's even better."

Cllr Edwina Hannaford, Cornwall Council (Portfolio Holder of Planning and Environment Strategy)

"I am delighted to be asked to a climate change Ambassador. Climate change is not just an abstract concept discussed by boffins and environmentalists, but is manifesting itself in direct ways here in Cornwall. Over the past few years in my division of Looe, Polruan and Polperro we have experienced this directly with severe weather events that caused flooding, extensive damage and disruption. I believe we all have a responsibility to do our bit to help address climate change and by making small changes to our everyday behaviours we can make a difference."

Archdeacon Bill Stuart-White, Archdeacon of Cornwall

"I learned the prayer long ago "Lord, change the world - and start with me". It's a dangerous thing to pray but it's my prayer for this challenge."

Donna Birrell, BBC Radio Cornwall presenter

"It's sometimes easy to think our actions as individuals won't make any difference to the global issue of climate change. As an Ambassador, I'm looking forward to challenging myself to think differently and I hope my own small steps will help lead towards the much bigger pathway."

Robin Freight, St Austell Brewery

"St Austell Brewery are proud to be ambassadors of carbon cutting and doing our part to protect the unique and beautiful environment of this part of the world, we hope others will join us in making this extra effort. No matter how small every little bit helps and together we will make a huge difference."

Bishop Tim Thornton, Bishop of Truro

“I'm really happy to be part of an easy carbon cutting project in Cornwall. We hope to share our experiences and encourage others to do the same. The Ten Pledges I will undertake over the next five months will help me to have a better understanding of the problems with carbon, support the local economy and become more resilient to climate change. I hope everyone will join us and have a go at the pledges too.”

Revd Steven Wild

Steven thinks this is a really good idea and wholeheartedly supports the project.

Kirstie Newton, Cornwall Today editor

Kirstie has signed up to complete 10 carbon-cutting pledges, and will be reporting back on her monthly challenges. “I committed to this project because while I’m aware of climate change and try and do my bit for the environment, I also know that I could think more about it and work harder,” she says. “Like a lot of people, I’m very busy, and that means that sometimes I’m lazy and take short-cuts. I hope this project will be not only good for the environment, but also good for my purse.”

Ambassadors Pledges (1 & 2)

Pledge 1

I pledge to ring my electricity supplier over the next 24 hours and see if I can switch to green energy (if not I will find one)!

Pledge 2

I pledge to buy local seasonal produce as much as possible – starting with at least 2 meals a week

The first months challenge was a resounding success:

“The aim of the Carbon Logic project is to show that it is possible to make a genuine impact on individual carbon consumption and thus on global issues like climate change. It’s not going to be easy – it is a challenge – because it is asking each one of the Carbon Ambassadors to take a look at their lifestyle and habits, and asking them to make changes to their daily routines, that might be inconvenient but are ethically the right choices to make if we want to avoid the damaging impacts of global warming on climate change. We are incredibly impressed with the commitment and enthusiasm shown by the Ambassadors in the first two of their ten carbon challenges.” Luci Isaacson Project Manager

Pledge experiences from all Ten Carbon Logic Ambassadors can be found on the [Climate Vision Website](#).

Pledge 1

Archdeacon Bill Stuart-White, Archdeacon of Cornwall, researched options on the internet via the “Which” switch website and after filling in various online forms he talked to a consultant as a result of which he has taken out a new 12 month contract for the gas and electricity, which includes a 100% green electricity tariff. He said, “The process was not without the usual frustrations of talking to a call centre operative, but it took about 40 minutes from start to finish. The website claims that this will save us £46 per year compared to our current contract, but this is not easy to verify since we pay by standing order and have built up considerable credit. We’ll wait and see about this and about how smoothly the switch goes, but we are glad to be now on a green tariff.”

Deborah Clark, former PR Company Director, is another of our Carbon Ambassadors. She was disappointed with some of the customer service aspects when she contacted her energy supplier. She said, “The quality of response from my supplier was disappointing, as are the many phone calls I get from cold callers trying to sell me energy efficiency measures at home. I was directed to a live web chat, and we all dread those awful cold calls! Fortunately I made the choice to invest in Photo-voltaic and solar thermal years ago, but I find the quality of cold calling especially shabby.”

Perhaps most interestingly for this particular pledge was when Luci Isaacson accompanied Carbon Ambassador Ruth Smith, from ZLC Energy, to Carley’s Organic Foods factory near Chacewater. ZLC Energy, from St Austell, is a multi-technology company offering both consultancy and installation expertise and is helping Carley’s make its new factory zero waste and zero carbon. The factory already has many photovoltaic panels on the roof, very thick walls, and roof insulation, triple glazed windows, heating by a bio-mass boiler, and harvests rainwater for flushing the toilets. ZLC Energy was there to install a Wattstor™ battery developed in Cornwall and leading the way in affordable renewable energy storage systems.

Ruth said, “The world-renowned naturalist, David Attenborough met with Barack Obama and the meeting was shown on BBC1 on the 29th June 2015. David mentioned TWICE that renewable energy storage was the way ahead for the planet’s future energy provision. (See www.youtube.com/watch?v=MsoPOQE5ass.) David Attenborough has since written to us “I was most interested to read of the WATTSTOR. Clearly the ability for individuals to store energy generated by their own individual sources is a most important one if we are to solve the problem of Climate Change.”

Pete Masters, Truro City Football Club said; “Southern Electric have informed us that we are already on their cheapest Evergreen tariff and that they would let us know at least once a year if this changes. They worked out for us that we have used 5% less electricity than in the same period last year!”

Pledge 2

The second July challenge was to buy local seasonal produce as much as possible – starting with at least 2 meals a week. Luci Isaacson took **Rev Steve Wild, the Methodist District Chair,** to the Cornwall Food Box Company in Truro (also www.thecornishfoodboxcompany.co.uk) to explore the products from more than 100 Cornish farmers and food producers. Steve was suitably impressed and said, “Luci Isaacson is in my book of heroes! She belongs to Truro Methodist Church and is such a lovely person. We had such a great time last week shopping and having such fun with the people from the Cornish Food Box Company. I learnt a lot about climate change and the way locally sourced food has a role to play in reducing my carbon footprint as well as supporting the Cornish economy.”

Cllr Edwina Hannaford, Portfolio Holder for the Environment, Heritage and Planning at Cornwall Council and lives in East Looe. She took her pledge very seriously. She already has a weekly box of organic vegetables delivered to her door from nearby Keveral Farm and this included Cornish new potatoes, beetroot, carrots, a cucumber, salad leaves and onions. To add to her veg she visited Quayside Fresh on East Looe Quay for some meat. Cllr Hannaford said, “We are lucky in that Philip Warrens at Oughs have a butchery counter here as well as Tamar Fruits green grocery and a range of delicatessen style cheeses, pickles and other treats. First to the butchery counter. They were advertising Lanson sausages, Cornish bacon, South Devon burgers as well as chicken, beef and lamb. I quizzed the assistant as to where the meats came from as I spotted on one pack that the postcode was Exeter. He assured me that this was where their processing and distribution operation took place and that the animals from which this meat came from were indeed in Cornwall. The assistant was extremely helpful and talked about traceability, but I needed some reassurance so checked their website and emailed them asking for that reassurance which I duly received. It did get me thinking how much of what we purchase actually comes from where we think it comes from.”

Cllr Hannaford had some great tips to pass on:

- Challenge shop keepers on traceability and their food knowledge
- 1. Finding seasonal produce is not as easy as you might think unless you have a farm shop on your doorstep
- I could find no locally produced seasonal produce in the local Co-op and Spar supermarkets
- You may have to pay a little more and go out of your way to find it but the quality is superior and the buying experience definitely much more pleasurable.