



Progress of the C.H.E.E.S.E Project CIC

June 2017 - June 2018

Mike A. Andrews, Managing Director, September 2018

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Summary

There is a largely unrecognised crisis in energy wasted from homes being a major contributor to climate change and an important factor causing fuel poverty. Domestic energy consumption accounts for approximately one third of UK energy demand. Reduction of domestic energy use is imperative if the UK is to meet its Paris Agreement targets for mitigating climate change. The same is true for Bristol's target of reducing carbon emissions by 50% by 2025 and 60% by 2035.

The not-for-profit, community-based CHEESE Project (Cold Homes Energy Efficiency Survey Experts or TCP) was instigated to deliver on these commitments in a focussed and cost-effective manner. The aims of TCP are:

1. To assist people in fuel poverty to have warmer, healthier homes.
2. To reduce domestic energy use to mitigate climate change.

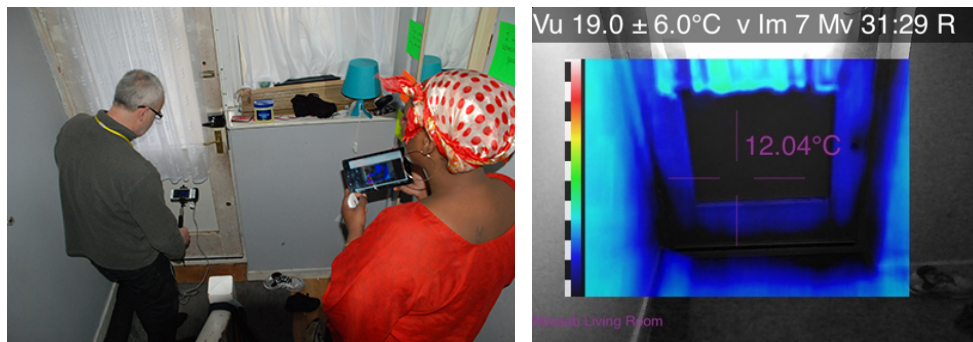
TCP has successfully developed a unique, low-cost, internal thermal survey process for homes, together with bespoke software based on miniature FLIR thermal cameras, smartphones and tablet computers. Together with blower doors to reduce internal pressure, our kit costs about a tenth of the price of standard thermal survey equipment, and a third of our surveys are carried out for free for low income households. The benefit of our unique surveys is that they show precisely where energy is escaping, allowing it to be tackled, often at low cost and with DIY-type actions.

Commencing in 2014, TCP has already been developed and refined over four winter survey seasons, and has now conducted about 200 surveys. During November 2017 to April 2018 the project delivered 91 internal surveys of homes in the Bristol area. 32 of these (35%) were conducted for free for low-income homes. These free surveys were subsidised by the fees we charged more affluent householders and by grants received towards core funding. We surveyed 62% more homes than in the previous survey season. This expansion required increasing our low-cost survey kit to nine sets, training seven new Energy Tracers, and overcoming significant set-backs (detailed below). Almost three quarters of our customers took remedial energy-saving action within three months, an extremely high response rate, demonstrating TCP's efficacy in reducing energy waste. 94% of these responders plan to take further action. Feedback from our customers has been extremely positive, which we have summarised in a word cloud:



Survey process

The CHEESE survey process involves creating a negative pressure in the house before performing the survey, recording the survey on a memory stick, giving information on remedial action and loaning a CHEESE box containing electricity monitoring meters and a home sustainability manual to further stimulate understanding and behavioural change. The process is described in more detail on our website.¹



A door being surveyed with the householder, a thermal image of which shows a strong draught.

Survey outcomes

Our paid undergraduate intern, Janine Alexander, was jointly funded by the University of Bristol and followed up the energy use, outcomes and remedial action taken by householders surveyed in the 2016/17 survey season (at one month and one year after the survey) and in the 2017/18 season (at one month after the survey).

Community partners

TCP's development and success as a community-led organisation depends on a close connection with grass-roots energy groups formed within and trusted by the local community. From the start, this has been assisted by the Bristol Energy Network (BEN) of which we are members. Through BEN, and independently, we have continued to work with Ambition Lawrence Weston, Bedminster Energy Group, Bishopston Cotham and Redland Energy Group, Easton Energy Group, Re:work in Filwood, and Sustainable Westbury on Trym. We are working with these groups and BEN to enable them to receive their own funding and become independent in their organisation of surveys as CHEESE Segments.

This season we significantly expanded our community connections, aiming to reach varied social and economic groups of the citizens of Bristol, and forming new informal partnerships with The Centre for Sustainable Energy's WHAM project (Warmer Homes, Advice and Money), CHAS housing advice service, Citizens Advice, BUZZ in Lockleaze, Dhek Bhal (an Asian network), Golden Agers (a largely black senior citizens network), the Bristol Somali Support Centre, and We Care and Repair.

¹ See <https://cheeseproject.co.uk/pre-survey-guide> and <https://cheeseproject.co.uk/cheese-box>.

Commercial customers and partners

We were commissioned by the Ethical Property Company to carry out three surveys. We initiated discussions with Bristol Energy Company Ltd. about future modes of cooperation. (Their Fuel Good project helps to support WHAM, which already uses our surveys.) We continued discussions with Philip Bazin, the Environmental Manager at Triodos Bank, for whom we did a survey. These centred on future surveys for staff and community finance initiatives such as potentially linking energy efficiency to mortgages.

We bid to participate in Bristol City Council's EU-funded REPLICATE energy efficiency project, but failed to be contracted because their budget lines were already otherwise allocated and could not be re-assigned.

Staffing

The project remained heavily reliant on voluntary effort by its directors, who cumulatively spent thousands of hours developing the kit, website, management, and on community engagement and promotion of our surveys. Thanks to sales of surveys and successful funding bids, we were able to reappoint Nick Clack as our part time (up to 2.5 days a week) organiser from mid-October until the end of April.

We were accepted by Bristol University's Q-step programme for student internships and gained a grant of £900 towards 140 hours of an intern's payment. We were thus able to employ Janine Alexander from December 2017. Her contract was subsequently extended into July 2018 to enable her to complete the outcomes report mentioned above.

Three of our paid Energy Tracers from last season did not return to work for us, owing to changing life circumstances, but one of these, who had been abroad, subsequently returned in 2018. We trained seven more surveyors, including two staff members of CSE's WHAM project.

Training Energy Tracers

In October we ran a two-day training course for eight Energy Tracers (ETs) to Continuing Professional Development (CPD) standard. Following supervised surveys, seven of them were signed subsequently off as being qualified to lead surveys. This brought our total of active trained surveyors to 19. In addition, we were joined by several volunteers who assisted with surveys and publicity activities.





Pictures from our Energy Tracer training weekend in October 2017.

Thermal-imaging hardware

We continued to have minor problems with compatibility and software issues with our survey kit. These were overcome by our Technical Director Jeremy Birch, but were exacerbated by Apple with their rollout of iOS10, which was not compatible with FLIR's new generation of cameras. The underlying issue was fixed several months later by Apple, but it took a long time for FLIR to release a new version of their software development kit to resolve the issue. (As of August 2018, FLIR released beta code that allows us to use their new cameras.)

A more serious problem arose when FLIR discontinued manufacture of the FLIR One camera and replaced it with a model that is twice the price. Due to the software issues, we remain dependent on the FLIR One models. We are therefore overcoming the issue of availability of additional cameras for this survey season by buying second hand FLIR One cameras.

To mitigate future issues of software compatibility and price volatility, as well as other inconvenient issues with the way we use iPhones and FLIR cameras, Jeremy has been developing our own bespoke camera hardware. The custom device is based on a Raspberry Pi computer which provides much more flexibility with connectivity, screen size, battery life and general maintainability. Progress with a prototype has been good and will be ready for testing this winter.

Software development

Prior to the start of the survey season, Jeremy had refined our bespoke iPhone software and had issued a new instruction manual and videos.

Website and data collection

James Hanlon continued to refine the online forms for collection of data, the database of surveys, results and follow ups, as well as the public-facing website, where we provide information on our surveys and provide news on the activity of the project.²

Privacy and the GDPR

In order to comply with new GDPR legislation as of May 2018, we devised a compliance programme, recognising 'legitimate interest' as being the most suitable justification for our

² See <https://cheeseproject.co.uk>

collection and storage of personal data. Where necessary, we adapted our public interface, for example by modifying our survey request form to refer to our privacy notice and to include a tick-box for the householder to permit use of photos in an anonymised form. We have documented our compliance with the GDPR in a public privacy notice.³ We also have a variant of the notice for our staff and members.⁴

Heatview

It was decided to focus financial and human resources on the internal surveys, and no further external surveys were carried out during the period. However, the Heatview website⁵ remains active and is useful for recruiting more survey customers. By entering a postcode, in three Bristol wards, it reveals a thermal image of the exterior of the property.

Following our discovery that another UK company was using the Heatview name for a project they were working on that used thermal imaging, they agreed to desist since the title is trademarked in Jeremy Birch's name on our behalf. We then applied for USA registration of Heatview, in addition.

Recruitment of customers

Considerable effort had to be made to recruit customers, both paying and free, especially in the autumn and before Christmas. For example, of 46 potential customers who were signed up for a survey during the summer, at the start of the season only five confirmed by email on commencement of surveys in November.

Sales promotion stalls were held at the Goram Fair, Redland May Fair and Clifton farmers' market. Several events were held with local energy-group partners, such as a Sustainable Westbury on Trym dinner, a lunch at BUZZ, and with Easton Energy Group at the Tobacco Factory. Advertising, even in local magazines, costs around £100 a page, and was usually beyond our budget, so alternative methods were sought.

Local interest was promoted through online contact magazines such as Easton's Up Our Street. The membership of online interest groups such as BEN, Bristol Green Capital and Ecojam were also used. Leafleting to houses had been found to be ineffective the previous year, but leaflets added to the Community Farm's organic vegetable boxes brought in a couple of surveys. Other energy group Segments brought in about a dozen surveys.



Goram Fair and Redland May Fair 2018.

³ See <https://cheeseproject.co.uk/privacy-notice>

⁴ See <https://cheeseproject.co.uk/privacy-notice-staff-and-members>

⁵ See <http://www.heatview.co.uk/>

We believe the project is slowly becoming better known and appreciated, especially by word of mouth. Many past clients have recruited their neighbours, but a major factor remains the outside temperature; only in February did we receive a steady stream of survey requests, and the very cold March with “The Beast from the East” helped recruitment as well as extending our survey season.⁶

Social media

Our Facebook page was set up by Janine Alexander to improve our public visibility and connection to other NGOs, and has yielded some requests for surveys. We also maintain a Twitter account, @CHEESEbristol,⁷ where we post project news and updates, as well as links to useful information.

Data collection

ETs submit results of surveys on an online form, accessible through the private section of the CHEESE website. Videos of surveys are stored on the tablets of the survey kits, along with still photos of salient features. Customers are encouraged to fill in a one-month feedback form⁸ and a one-year feedback form.⁹ This season, our intern followed these up with telephone interviews to produce an outcome analysis report.

Lobbying local government

The results from our surveys have highlighted the need for more encouragement of householders to improve the energy efficiency of homes and also clearly demonstrate the methods and opportunities for remedial action to be taken. Bristol recently witnessed the failure of a major top-down government funded scheme (Warm Up Bristol) and we believe government and local government priorities should be changed. From practical engagement with the problem we have learned that in order to encourage people to reduce domestic energy consumption and waste it is necessary:

- to work from the grass-roots community level upwards;
- to gain access to fuel-poor homes by using trusted local contacts;
- to take a whole-house approach on individual properties, starting with low-cost but effective remedial actions;
- for some low income homes, to partner with NGOs that can provide this work for free.

We have also learned from experience that:

- there is an opportunity to save up to a third of energy wasted simply by draught-busting;
- people often respond first with effective low-cost interventions, with DIY methods for draught-busting etc.;
- people first want warmer more comfortable homes rather than a financial payback;

⁶ This requires an 8 degree C temperature difference between inside and outside.

⁷ <https://twitter.com/CHEESEBristol>

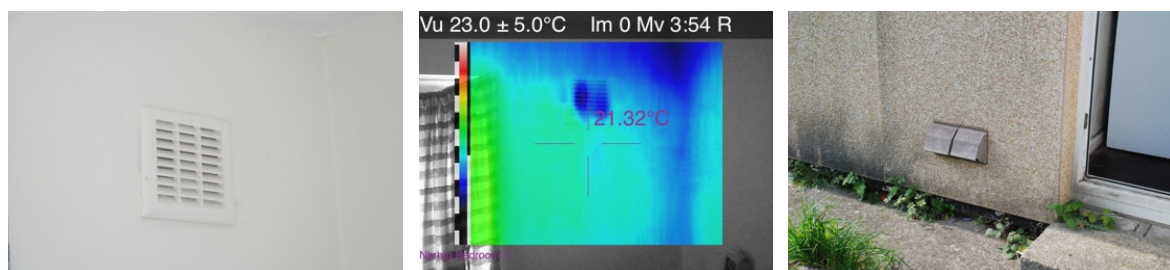
⁸ <https://cheeseproject.co.uk/one-month-feedback>

⁹ <https://cheeseproject.co.uk/one-year-feedback>

- retrofitting for energy efficiency is a journey which begins with low-cost, short payback interventions and moves on to more expensive measures such as double-glazing and wall insulation;
- much more energy is wasted from large homes and it is a priority to address these.

We have been lobbying Bristol City Council cabinet members and officers including Councillor Paul Smith, cabinet member for housing, with the support of Darren Jones MP, and Councillor Kye Dudd, cabinet member for energy.

Surveys that we carried out on behalf of tenants on several council properties have revealed alarming energy failings, despite previous major interventions such as external cladding having been carried out. We submitted a report to council officers, copied to cabinet members, and proposed that we should survey six representative properties to show the kind of generic problems which the council could address at relatively low cost. At our first meeting with the housing Asset Manager we were invited to bid to do twenty such surveys. Discussions are ongoing.



Unnecessary open bedroom and kitchen vents in externally-clad council flat in Lockleaze

Lobbying central government

The project made a detailed response to the Ministry BEIS's Call for Evidence: Building a Market for Energy Efficiency.¹⁰ We emphasised the need for funding to reach 'First Adopters' just as Bristol Green Doors had done so successfully, and also for community-based grassroots services such as the CHEESE Project. We emphasised the need for a change of focus away from major interventions with a 20 to 50 year payback period (such as external wall insulation), to community-led, low-cost and effectively-targeted interventions. We also proposed lender-led surveying of new homes and remedial intervention.

At The Rushlight Awards Mike Andrews met Mark Taylor, head of Programme Delivery for BEIS, who was very enthusiastic about our project, and which resulted in a useful introduction to BEIS staff. Two slide-packs were produced for Nicola Lazenby explaining the project. Subsequent good contact was established with Yehuda Lethbridge (energy analyst), who commended "[CHEESE is] a fantastic initiative to address this area in energy conservation".

¹⁰ Our full response is available here: <https://cheeseproject.co.uk/news/2018-02-18-beis-response>

Expansion and replication

We are excited to have agreed, in principle, to train and license our first City Partner this October, Phoenix Community Housing, Lewisham. This is London's only resident-led housing association. It is a pioneering organisation, which has been established for ten years and has over 3,200 resident members, managing more than 6,000 homes. Most buildings were built as a development in the 1920s. They were named Britain's third best landlord by 24housing magazine in their list of the UK's top 50 housing associations. They are now building new homes as well as refurbishing both homes and community buildings. They want to use CHEESE surveys to improve the energy efficiency of the homes of low-income tenants.

Finance

Written procedures for financial handling were approved at our Management Meeting 13 on 5th September 2018. These have been carried over into our CIC articles. A new bank account was opened for the CIC and the balance of funds of £13,886.66 was transferred on 9th July 2018.

We began formally trading as a CIC on 1st July 2018.

Accounts summary

Our accounts, to the end of our financial year of 30th June 2017, showed a surplus of £3,419 on sales of £4,315 and grants of £18,027. For last year till June 2018, our surplus is forecast to be around £13,000. Our sales increased to £4,910 (by 14% over the previous year) and our grants received increased to £21,220 (by 18%). The number of surveys we delivered increased by 52%, demonstrating our reduction in the cost of surveys to us.

Grant funding

It became apparent in 2017 that it was easier to raise grants towards remedying fuel poverty than for the improvement of energy efficiency for carbon reduction purposes. An example of this bias was the failure of Bristol Green Doors to attract funds to continue their excellent project of demonstrating homes that had been retrofitted by 'early adopters', which was forced to go into 'hibernation'.¹¹

We adjusted our fund-raising approach accordingly, emphasising that a third of our surveys were provided for free for fuel-poor households. Competition for grants is severe and we were fortunate to obtain four grants out of nine applications. However, we received only a proportion of our bid in two cases.

A further problem was the delay between application and the arrival of a cheque, which could be several months. Our financial imperative at the start of the season was to finance our organiser Nick Clack. Obligated to start in October to take advantage of low temperatures in November, we had to begin on the basis of our small surplus alone.

Four successful bids were as follows:

¹¹ See <https://www.bristolgreendoors.org>

- Our first successful bid was to the **Naturesave Trust**, principally to fund more CHEESE boxes. We applied for £3,000 and were granted £1,000, which was received at the end of November.
- We were fortunate to be selected to pitch to **The Funding Network**, with £250 entry sponsorship kindly provided by Jerome Thomas, Susan Nicholls, and Mike Andrews. We bid for £4,000, with half being towards 40 free surveys. This funding was won in a live 'Dragon's Den'-style presentation and we were delighted to receive £5,220. £1,500 could then be spent on staff, and £1,720 on expanding survey kit.
- We applied for £9,200 to the **Bristol Energy Cooperative Megawatt Fund** for salaries and were happy to be awarded £5,000. This allowed us to extend Nick Clack's contract.
- Finally, we applied to the **Bristol Community Energy Fund** where we were very pleased to be awarded our full bid of £10,000. This did not arrive until the 16th March 2018, and will be used to finance the next survey season.

We made five unsuccessful bids to:

- Lottery Awards for All for £10,000. Having had a previously successful bid as a member of BEN, we were now rejected as not being sufficiently community based. This lesson guided our membership policy when establishing our CIC.
- The Bristol Community Fund Express Grant.
- The Merchant Venturers Charity.
- The Eaga Charitable Trust.
- The Lottery/ITV Peoples Projects via BEN.

We also made three unsuccessful entries for energy efficiency awards:

- The Regen Green Energy Awards
- The Rushlight Awards
- The Ashden Awards,

Such sparse feedback as we could obtain suggested that we were considered to be too small to be considered in a national landscape. The Ashden Awards encouraged us to apply again next year when we would be a CIC. The awards nevertheless provided a good opportunity for networking and to increase our profile in the energy world.

Press comment

We achieved some coverage in local magazines, mostly when we had bought advertising, and in on-line newsletters, but our major success was Nick Fleming's article in the new *BBC Future* on-line magazine.¹² This was seen worldwide and provided new links overseas.

¹² See <http://www.bbc.com/future/story/20170614-thermal-imaging-reveals-the-hidden-heat-lost-from-your-home>



CHEESE featured in a Bristol Cable article on the energy-efficiency of Bristol's housing stock.

Next survey season October 2018 to April 2019

We have solid foundations to recommence training and surveys in the autumn, with sufficient survey kit and funds. We have funds to set up recruitment and training of additional ETs, refresher courses for existing ETs, and to recommence surveys. A priority is to replace Nick Clack with a new part-time survey manager.

We have restructured our charges for surveys, eliminating the lower charge for flats since the survey duration is similar to that for a small five-room house. The charge for a five-room house is increased by £5 to £75, and the charges for larger homes to £120 and £150. The cost to us last year of a survey averaged £121, illustrating our continued dependency on grants. Payments to ETs will now be based on a call-out fee of £15 and £15/hour, totalling £50 for a five-room house and pro rata. Assistants will be paid in a similar way at a living wage.

In the event that Bristol City Council pay for our services, we will pay ETs a further £50 to cover them writing a one-page synopsis report. Our finances have been substantially improved by the generosity of several of our ETs who do not charge for their services. Next season we also plan to recruit more volunteers to assist with surveys, publicity, recruitment of customers, book-keeping etc.

Our 2018/19 season's target is 135 surveys (including 20 for BCC). One third of the remaining 115 should again be delivered for free. We anticipate help in reaching this total by partner NGO 'CHEESE Segments', who have received independent funding, being able to find their own clients. Our role is then to provide the kit and trained ETs.

We will continue to develop community partnership Segments, developing a legal licensing framework within which they can operate.

We are building up a community membership base with both NGOs and individuals. Membership is free with registration via an online application form and approved at a directors meeting.

We will continue to develop our exciting incipient partnership with the Phoenix Housing Association, who manage 6,000 homes, to replicate our project in Lewisham, London. We expect to be training their ETs in October.

Legal status of the CHEESE Project

We are very grateful to have been offered pro bono assistance from TLT LLP, a major Bristol legal partnership, in developing legal documents for licensing our project and firming up agreements with ETs etc.

We held our AGM as an unincorporated association on the 26th September 2017. We were registered as Community Interest Company No. 11204415 on 14th February 2018, with our Registered Office at Bristol Community Accounts Project (BCAP), The Park, Daventry Road, Knowle, Bristol BS4 1DQ. We are grateful for their assistance in preparing our accounts for a reduced fee.

Under the terms of forming a CIC we were required to adopt an asset lock, under which, in the event of the CIC ceasing trading, our assets would pass to the charity, whom we have nominated the Centre for Sustainable Energy.

At the 20th meeting of the CHEESE Project unincorporated association, held on 6th March 2018, the management formally adopted the transfer of the business to The C.H.E.E.S.E. Project CIC. The 1st CIC directors' management meeting was thus on that date.

Brian Harper was voted to be appointed as an additional Director on that date. Joining Michael Andrews, Managing Director, Chair and acting Treasurer; Jeremy Birch, Technical Director; James Hanlon, Company Secretary; Susan Nicholls, and David Tudgey.

Conclusion

The fourth season for the CHEESE Project has been both eventful and extremely successful in proving the efficacy of our methods in encouraging householders to consider their energy use more carefully and to stimulate them to take a range of measures to save energy, while also improving the comfort of the fuel poor. We overcame late funding to expand our equipment and trained more ETs. We increased the number of homes surveyed by 52%. While undertaking more than a third for free for low income families, we nevertheless reduced our internal cost per survey. We established new working partnerships with a broad range of community groups from different social and ethnic backgrounds. The outcomes, in terms of people retrofitting their homes and improving comfort, are exceptional. We are helping to change the lives of families in fuel poverty.

We re-established ourselves as a not-for-profit Community Interest Company, developed our database and public website, obtained gratis legal advice on contracts, increased both our sales income and successful bids for grants, and ended the year with a substantial surplus of £13,000. It is important to see these numbers and the outcomes in the context of the very large amount of development work and management carried out by an entirely voluntary team.

We have developed an important new contact with Bristol City Council and hope to be contributing to the improvement of domestic energy efficiency for the council. We have provided advice to the ministry BEIS. It is most encouraging that we begin the new season with an opportunity to develop our first replicated project in Lewisham, London.

We are building a local and national reputation for originality, professionalism, and expertise. In July, Sir David Attenborough congratulated us on a 'most important project'.