CLIMATE CHALLENGE FUND FINAL REPORT
31ST MARCH 2015

for

WARDIE CLIMATE CHAMPIONS

WARDIE PARISH CHURCH

PRIMROSE BANK ROAD

EDINBURGH

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Wardie Parish Church of Scotland

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CCF-2683

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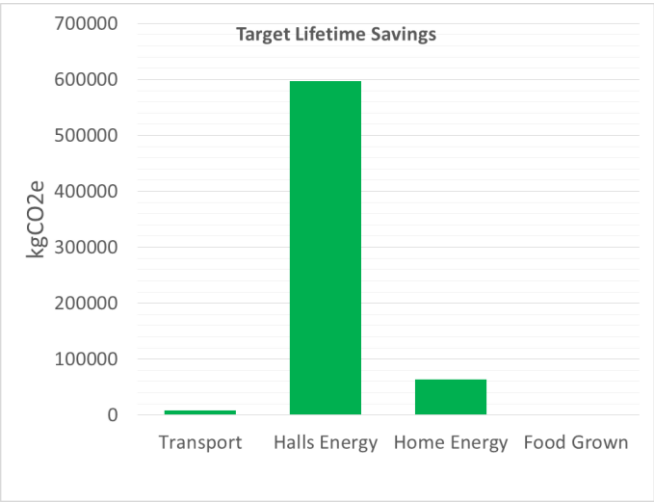
1 WHERE THE PROJECT IDEA CAME FROM

The Wardie Climate Champions Project was initiated following Wardie Church Property Committee's concern about rising energy costs, CO2e and the lack of insulation in our Victorian buildings. We began by exploring the idea of installing solar panels but were advised that the roof layout meant that these panels would not receive sufficient sunlight or daylight to make the initial outlay cost efficient. We therefore commissioned an energy audit which was completed by the Energy Saving Trust which indicated the measures we could take to reduce energy costs and make a significant contribution to national targets for reducing CO2e. We then followed their advice to contact the Climate Challenge Fund to see if we were eligible for a grant to assist with these improvements. We aimed to achieve the following outcomes.

2 TARGET OUTCOMES

1. Cut Wardie Church Halls CO2e by 18.3 tonnes annually through a planned building improvement programme.
2. Cut CO2e by 20% through reducing car use and encouraging building users to walk, cycle, or use public transport.
3. Cut CO2e by 10% in 20 local households by helping local people to save energy by changing their behaviour at home.
4. Increase numbers of local households growing fruit and vegetables in 10 gardens, including Trinity Children's Nursery, each garden to grow 10kgs of produce.
5. Target CO2e lifetime savings from the project was 670.21 tonnes.

Below is a chart showing the target savings within each of the major areas which we hoped to achieve by March 2015.



2.1 WARDIE PARISH CHURCH

Wardie Parish Church is governed by the requirements of the Church of Scotland and has a Congregational Board which manages the running of the church. The Church and halls are all on a single site with an adjacent garden. The Board membership consists of around 60 Elders plus 30 co-opted members who serve a term of three years. The Board has three committees-Property, Finance and Business. Wardie also has a Kirk Session which consists of the 60 Elders above whose role it is to manage spiritual matters. Some of these matters are delegated to various committees such as the Pastoral Committee, the Church and World Committee, the Communications Committee etc.

Wardie was Edinburgh's first eco-congregation, and this achievement was celebrated with our local schools which are part of the eco-schools community. It is also a Fair Trade Church and won the Lord Provost Fair Trade Faith Community Award in 2011. Wardie encourages both its members and the wider community to support a range of activities

- Environmental - LoveFood HateWaste, Waste -watchers and Say NO to plastic bags
- Social - supporting an Indian rural mission hospital in Tilda, Christian Aid, and Church of Scotland Guild causes, both local and international.

2.2 WARDIE COMMUNITY

The wider Wardie community comprises the people who worship in Wardie Parish Church plus all the organisations who use the halls. The age range stretches from birth to 100+ years and includes around 750 people who visit the halls each week. In addition to the various weekly worship activities there are further church related groups such as Sunday School, Network for teenagers, Open Door and the Guild for adults and the various committee meetings that go into the running of the church-Kirk Session, Congregational Board, Property Committee, Church & World Committee, Communications Committee, Pastoral Committee, Summer Gala Committee, etc.

Several children's voluntary organisations use the buildings weekly -Scout, Cub and Beaver groups, Guide, Brownie and Rainbow Groups and Parent and Toddler Groups. In addition to these are Messy Church for 3-9 year olds and their families, Senior and Youth Choirs and the Easter Holiday Club.

There are regular weekly commercial lets which include Trinity Nursery, Disco Duck, Shuffle Dance, Daisy's Music Time, Drama Workshop, Manor School of Ballet, Highland Dancing, Zumba, Badminton, Sing in the City, Scottish Swedish Society Language Classes, Relate Committee Meetings.

Seasonal lets include Scottish Machine Knitters Annual Meeting and Workshops, the Jane Austen Society, Wardie Drama Group who present a pantomime every year, and Arkle Drama Group who rehearse in the halls for their Edinburgh Festival productions.

Hall users meet annually for social and practical purposes which allows for shared concerns to be raised, practical and policy issues to be discussed and ideas welcomed.

3 HEADLINE ACHIEVEMENTS

We were awarded the full cost of £52,633.72 enabling us to undertake not only building improvements, reducing the climate change impact of our halls significantly, but also an education programme within the community. We have achieved a reduction, in our lifetime footprint, of over 526 tonnes CO2e.

a) Total kWh reduction achieved was 55,207kWh made up of 52,965kWh gas and 2,242kWh electricity.

b) Total car miles reduction between December 2013 and December 2014 was 7,618 miles.

c) Total number of people involved in the project was over 750

d) Due to the quick provision of the bulk of the grant we were able to organise all the building improvements within a very short time frame over the summer holidays when the halls were not in use causing very little disruption to hall users.

e) The Wardie Climate Champions Committee forged strong working relationships, complementing each others' existing skills, developing new ones (and benefiting on a personal level from getting to know each other better.)

f) The project stimulated a positive response from the whole Wardie community, exceeding our expectations and all signed up to the Sustainability Strategy.

g) We developed working links with other local people who were already taking action to tackle climate change.

h) The name of our project 'Wardie Climate Champions' became a reality as we have signed the Scottish Pledge and adopted a sustainability Strategy which will be reviewed annually.

i) Eleven people involved in grow your own produce achieving a lifetime saving of 4.279 tonnes CO2e

4 WHAT THE PROJECT DID

Our project organised several improvements to the halls buildings. These were:-

4.1 INSTALLATION OF INSULATION

- Thermal insulation boards and glass wool to the attic spaces
- Over lapped (double insulation) glass wool to the main hall ceilings
- Over lapped (double insulation) glass wool to ceiling space of hallway leading to ladies toilets

4.2 REFURBISHMENT OF WOODEN DOORS AND WINDOWS WITH DOUBLE OR SECONDARY GLAZING

- Fitted new 45mm solid core fire door with security glass panels, draught strips and weather bars
- Refurbished and double glazed six wooden sash and case windows in the Green Room including draught and brush strips
- Fitted new double glazed dead frame unit to the stair window
- Refurbished and double glazed six wooden sash and case windows in the Upper Hall including draught and brush strips
- Refurbished the wooden sash and case windows in the kitchen including draught and brush strips

- Fitted a new fire door with draught-stripping and weather bar to the New Hall
- Refurbished the wooden frames, draught-stripped with brush-strips the sash window in the Office and installed secondary horizontal sliding glazing which allowed the original stained glass features to be preserved.
- Refurbished the wooden sash and case windows in the gents toilet including draught and brush strips
- Installed secondary glazing to the fixed timber windows in the Ladies Toilets and extractor fan installed.
- Draught proofed two external doors

4.3 REPLACEMENT OF ALUMINIUM SINGLE GLAZED WINDOWS IN THE MAIN HALL WITH FIVE NEW STORM PROOF DOUBLE GLAZED (28MM) TIMBER WINDOWS

4.4 FITTED SECONDARY GLAZING

- To three roof lights in main corridor and one in toddlers' cupboard with 10mm Corotherm twin wall polycarbonate

4.5 INSTALLED ZONE VALVES AND ROOM THERMOSTATS

- To separate the heating system into Main Hall, New Hall, Upper Hall, Green Room, Corridor and toilets, and Office

4.6 INSTALLED THREE CYCLE RACKS

- Outside Wardie Halls

4.7 ORGANISED A PLANNED RANGE OF ACTIVITIES

- Providing information to help hall users save energy through changing their behaviour when using the buildings and when at home.

4.8 DEVELOPED A SUSTAINABILITY STRATEGY AND COMMUNICATED IT TO ALL HALL USERS.

- - See appendix A

5 SERVICES PROVIDED DURING THE PROJECT PERIOD

Our project provided the following services to the hall users and others in the local community

- Produced and distributed leaflets to inform the local community of the launch of the project
- Set up a dedicated climate challenge notice board in the communal entrance to the halls with changing monthly displays
- Supplied bus timetables and cycle route maps at the notice board
- Placed notices in parish monthly newsletters to highlight events-special September and December issues are delivered to every household in the parish
- Posted information about services and events on our church website and shared these with the neighbouring congregation at Inverleith St Serf's Parish Church.
- Placed notices of key events in Trinity Spotlight, the local monthly community magazine.
- Established a monthly social walking group and advertised it in the launch leaflets, News@Wardie, on Wardie's website and in Sunday intimations.
- Shared information with representatives from several other organisations wishing to find out more about the Climate Challenge Fund and associated activities e.g.
    - The Seventh Day Adventists, Boswall Parkway, Edinburgh;
    - Greenbank Church, Morningside, Edinburgh,
    - St Brycedale's Church, Kirkcaldy,
    - St Columba's RC Church in Upper Gray St, Edinburgh
    - Alyth Parish Church.
- Organised a Carbon Conversations Group in conjunction with facilitators from the University of Edinburgh's Department of Social Responsibility and Sustainability
- Sent details of talks available from the educational section of Changeworks to all young people's organisations held within Wardie
- Organised Fuelgood driving lessons for nine people between October 2014 and February 2015
- Assisted fifteen people to check and reduce their energy consumption by lending energy monitors supplied from Edinburgh City Libraries

- Established an energy saving 'tip of the month' in News@Wardie from October 2014.

- Contributed to a leaflet designed by Transition Edinburgh, to advise others on how to arrange an energy fair.
- Engaged in discussions with Wardie Parish Church Minister about how to incorporate the edible gardens initiative into the substance of Wardie's worship e.g. at the harvest festival.
- Organised ongoing monitoring of Wardie buildings' energy consumption
- Created a live light bulb display to explain the different types of energy saving lamps available to help reduce people's confusion when buying new ones-this display kit can be borrowed by other projects at any time.
- Updated our Waste Watchers notices to alert our hall users to recycling options on site.
- Contributed to a workshop for young people (Network) raising their awareness of climate change and their carbon footprint.
- Tracked temperature gradients in the buildings as part of the original funding bid
- Sourced room thermometers and behaviour change quizzes from Home Energy Scotland at the request of 36 Guild members who are aged from 60 to 90 years approximately. These can serve the dual purpose of ensuring they are not wasteful with energy but also that they keep their premises warm enough to prevent hypothermia.
- Distributed "request for call" cards by Home Energy Scotland to local community
- Created a colourful slideshow to show progress on key elements of the project, and this was shared with those attending the Energy Fair and Souper Sunday, the congregation before Sunday worship and also the Local Church Review Panel.

Available at http://www.wardie.org.uk/

Supported a research student from the University of Edinburgh who wished to engage with four congregations across Edinburgh who are taking on climate change and environmental issues.

- Sent representatives to attend public lectures at the University of Edinburgh on Our Changing World after making links with contacts made through the project, as they wanted to learn more about the science of climate change and environmental challenges.
- Helped the University School of Informatics with their projects by allowing them to take thermal imaging of our buildings, thus offering data on heat loss from our sanctuary (not covered in the terms of the CCF grant itself).

6 EVENTS ORGANISED DURING THE PROJECT PERIOD

Our project organised the following community events for hall users and others.

- A visit was organised to the Edible Gardens Project at the Royal Botanic Garden Edinburgh on 17th May 2014 attended by 17 people.
- Two Open Gardens Days took place on 17th June and 21st June in the local Trinity area involving around 100 people. These were designed to encourage people to grow their own produce.
- A thank you evening for the 8 households who opened their gardens to the public was organised -several have offered to open them again.
- Trinity Nursery established its own growing space within the church garden-23 children and 3 staff involved each week.
- The Grow your Own Produce Project was launched - online forms were sent out to 12 households taking part to help them record their harvest. Details of this are included later in the report. See Appendix B
- An Energy Fair took place on 6th September 2014 and included information stalls for
    - Changeworks,
    - Carbon Conversations,
    - Fuelgood Driving lessons,
    - Fairtrade,
    - Edible Gardens Project,
    - Transition Edinburgh- who supplied energy toys and books for children
    - Doug the Caterpillar draught excluder knitting pattern, samples were knitted by members of the committee
    - Spokes who promoted cycling with lots of free cycle route maps, details of cycling skills courses and safety information while -remove
    - Pedal Forth who were busy all day giving free bike safety checks and doing repairs.
    - We borrowed a Cycle Smoothie to give a physical demonstration of energy consumption for the simple task of pureeing fair trade fruits all of which were kindly donated by a local Scotmid Co-operative store.
    - We displayed a proposed Sustainability Strategy policy along with a post-it board seeking comments and feedback on the draft policy which were used in the final policy.

- There were ongoing ‘Teach-in” sessions on light-bulbs using a live demonstration kit to explain the different energy-saving bulbs,
- Trinity Glazing demonstrated the energy efficient glazing used in the Halls improvements
- Changeworks brought everyone together to give a talk on saving energy at home which was full of tips, hints and advice.
- Trinity Children’s Nursery contributed to the garden produce stall
- Miniature garden making kits were provided for all children who attended the Fair which gave their parents time to study all that was on offer.
- A power point presentation showing highlights of our progress up to September was running throughout the day.

Approximately 100 people came through the doors to the Energy Fair either helping or attending and many indicated verbally that they had benefited from the materials on offer.

- An illustrated and interactive talk was delivered by Changeworks to the Open Door Group. 24 people attended - 13 regular members of the group and 11 non members. The talk concentrated on helping people to understand how heat is lost from homes and raising people's awareness of how to prevent this.

- "Walk to Wardie Weeks" took place in December 2013, June 2014 and December 2014 involving every group who uses the buildings. This revealed that on average an astonishing 750 journeys a week are made to Wardie. The carbon reduction achieved due to this awareness raising is detailed later in the report.

- A Climate Change and Carbon Workshop organised by Keep Scotland Beautiful was attended by two Wardie Climate Champions Committee members on 29th May at Keep Scotland Beautiful HQ in Stirling. This also gave the attendees the opportunity to make links with and learn from other projects across Scotland.

- A subsequent request for the Wardie community to sign the climate change pledge for communities to cut carbon emissions was followed up by building it into our draft plan to create a lasting legacy in the form of a sustainability strategy which will be reviewed annually by the charitable Trustees.

- The annual meeting with all hall users was held on 25th August 2014 and members of Wardie Climate Champions publicised the energy conservation work achieved over the summer. Hall users were encouraged to access an educational talk for their group and to take part in publicising their energy saving activities and habits.

- A Composting Story Workshop entitled Compost in a Bottle was subsequently organised and delivered to Trinity Children's Nursery by a representative from the educational section of Changeworks on 28th October. A wormery and composting bin were set up as a result.

- Wardie Climate Champions set up a stall at the Souper Sunday event in Wardie Church on 26th September showing displays of current CCF events, opportunities and achievements and sharing the updated environmental sustainability strategy and legacy from the project. People were also asked to bear the aims of the CCF project in mind when offering contributions to the church's stewardship seasons of Talents and Time.

- A talk on climate change was delivered to Network (youth group) by a member of the committee. The young people were asked to think about their own lifestyles and the WWF quiz was used. They supported the sustainability strategy and legacy from the project and made (private) pledges to reduce their personal impacts, like leaving phone chargers on or running water when brushing teeth, etc.

- A presentation of the work of Wardie Climate Champions was delivered to the Local Church Review Panel on 3rd December 2014, including the slideshow and explanation of the environmental sustainability strategy and legacy. The Panel consisted of three members of other congregations in Edinburgh who expressed a keen interest in a number of the ideas for their own communities' use.

- The Local Church Review Panel sent their report to Presbytery and commended Wardie's CCF project impact in particular.

  Thermal images of the outside of Wardie's buildings were taken by a representative from the University of Edinburgh School of Informatics on1st February 2015. See Appendix C

- A Make Do and Mend session was held by Guild members on 14th January 2015. A booklet which collates the tips and advice gleaned from that session has been produced and distributed to the Wardie community. See Appendix D.

- One member of the group reported:-

  "On 14th January twenty five members of the Guild had a very happy meeting with lots of fun and laughter when we, as members of the older generation (aged a bit less than sixty to ninety,) shared ideas of how to keep our carbon footprints down by Making do and Mending. We shared tips and ideas from our youth, as most of us grew up in a time when making do and mending was the norm. There were so many ideas that we decided to produce a pamphlet which we hope everyone will find useful or at least amusing. Somewhere in the editing/production the name has changed to "Waste Not Want Not""!

- We have publicised in News@Wardie feedback from people's attempts to reduce their personal CO2 footprint - advantages, difficulties, observations. An example of this from one of the people who attended the Carbon Conversation Groups is:-

  "Five meetings were held to discuss reducing personal carbon footprints. Topics covered included energy, travel, food, waste and consumption. Discussions were informal, fun and enlightening! Having monitored our energy consumption, kept a record of travel modes and distances, looked at the content of our food cupboards and considered what we purchase and throw out, it was time to consider what we could do individually going forward to reduce our carbon footprint. Making subtle adjustments to our lifestyles and tweaking well established habits is not easy. The one issue that I knew we as a family could consider was the footprint of our weekly shop! This certainly has not been without its challenges when you consider packaging, food miles,

a balanced diet and local produce. One aspect that should be fairly straightforward to implement is to buy only what is in season. Well we failed at the first hurdle! A trip to the supermarket coincided with a toddler tantrum demanding blueberries! Said blueberries were from Peru and to make matters worse there were only about 24 in the plastic tub!! Blueberries aside, we continue to educate ourselves about the contents of tins, air miles travelled and try to buy only the food that we need! A journey of a thousand miles starts with a single step ….."

- The 'Big Wardie Christmas Card' initiative led to less cards being sent locally – 20 people took part, raising the congregation's awareness of the environmental impacts of sending individual Christmas cards and collected donations for cancer charities close to the community at this time. This initiative will be repeated in subsequent years and we anticipate that more people will gradually take part.
- 60 people responded to an invitation to recycle Christmas cards for the month of January 2015 through the Woodland Trust resulting in more trees being planted. Some members collected used cards from work colleagues, spreading the 'save trees' message further.
- A Fashion Exchange to encourage recycling and avoiding waste is planned for 17th April 2015.

7 OUTCOME

7.1 OUTPUT GRID

Output Grid – *Please fill in only those outputs which relate to your project. More information about all of these outputs can be provided in other sections of the report – these figures will enable us to collate some overall impacts of the CCF.*	
How many **advice/information centres** – regular drop-in centre, advice surgery etc. - is your project running?	0
How many **training sessions where skills and/or information were passed on** – e.g. composting training, cooking workshops, etc. – has your project has held.	50
How many **events** did your project hold, e.g. information fairs, open days, etc.? Do not include events held by other organisations which you have attended.	17
How many staff, volunteers or community members have achieved **qualifications** through the project – e.g. City & Guilds Energy Awareness, Trail Cycle Leader, etc.	0
How many people were **directly employed** by your project. Tell us the full-time equivalent (FTE) number of employees (e.g. 3 days per week = 0.6 FTE).	0
Is the project is supporting the development of any **long-term jobs** which are not dependent of CCF Funding? How many?	0
How many **people are actively involved** in your project – attending groups & workshops, using the project facilities etc.?	750
How many **people volunteer** their time and energy to keeping the project going – don't forget the members of your management committee or board.	65
How many **schools** are involved in your project?	0
How many **community-owned buildings** have been refurbished?	1 (includes 3 halls, 2 meeting rooms and kitchen

How many **Home Energy Checks or similar energy efficiency reports** have been carried out by your project?	1initially. Others not counted.
How many households have been **referred on to other agencies or providers** (e.g. HES, Green Deal assessor) for further action?	Not measured
How many households **installed energy efficiency measures** – loft, wall or floor insulation, draft-proofing, double glazing etc. – as a result of your project?	Not measured
How many households **installed green energy generation measures** – photovoltaic panels, solar thermal panels, air or ground source heat pumps, wood fuelled heating systems etc – as a result of your project?	Not measured
How many **miles of car journeys have been reduced** through the activities of your project?	7,618
How many **square metres (m^2) of community growing space** (allotments, poly-tunnels, raised beds, community gardens) has your project brought into use?	Not measured
How many **tonnes of waste** have been diverted from landfill because of the activities of your project?	Not measured
How many **kWh of energy** has been reduced because of the activities of your project?	55,207 52,965 gas 2,242 electricity

7.2 OUTCOMES EVIDENCE –

7.2.1 Setting the baseline

To enable us to measure progress, we decided to set baselines and future targets that we hoped would be achievable. We aimed for reductions in transport use, energy consumption in halls and homes and an increase in the number of people growing their own food.

The transport baseline was set using the initial survey details carried out in December 2013.

The home energy and home grown food baselines were set using data from reading various publications and advice from our CCF advisor.

The calculations included a lifetime prediction of savings.

7.2.2 Cut Wardie Church Halls CO2e by 18.0 tonnes annually through a planned building improvement programme

7.2.2.1 Baseline

The baseline and estimated savings for halls energy usage was set by using the results of the Energy Savings Trust, January 2013 Report. These are shown in the table below.

Energy Halls				
Baseline Annual Energy Emissions	**Annual usage**	**Conversion Factor**		
Current Electricity usage kWh per annum	18860	0.54702	10317	kg CO_2e
Current Gas usage kWh per annum	211860	0.18975	40200	kg CO_2e
Baseline Annual Energy Emissions			50517	kg CO_2e
Estimated Annual Energy Savings				
Reduction through Staff Awareness per year (Energy Saving Trust estimate)			2400	kg CO_2e
Insulation/ Draughtproofing and Replacement of lamps per year (Energy Saving Trust Estimate)			5100	kg CO_2e
Implement Sub - zone heating per year (Energy saving Trust estimate)			10500	kg CO_2e
Estimated Annual Emissions Savings			18000	kg CO_2e
Estimated Annual Emissions after project impact			32517	kg CO_2e
Estimated Lifetime Savings	**Annual Saving**	**Lifetime Savings (yrs)**	**Lifetime Savings**	
Reduction through Staff Awareness per year (Energy Saving Trust estimate)	2400	5	12000	kg CO_2e
Insulation/ Draughtproofing and Replacement of lamps per year (Energy Saving Trust Estimate)	5500	30	165000	kg CO_2e
Implement Sub - zone heating per year (Energy saving Trust estimate)	10500	40	420000	kg CO_2e
Estimated Lifetime Energy Savings			**597000**	**kg CO_2e**

7.2.2.2 Reduction of Gas usage

It was highlighted in the Energy Saving Trust report that a major contributor to the CO2e of the buildings was the heating installation and its operation. The installation was only controlled in two stages, the Church and the rest of the buildings.

The buildings comprise three halls, an office, corridors and toilets, further rooms and kitchen. We built up an analysis of the usage of these different areas to understand what our options were.

Based on the usage of the halls during 2012, a believable scenario was created which matched the annual gas consumption (first table). A second scenario was created based on the effect of introducing zoning and temperature controls in each area (second table). This showed a possible saving of 55,920 kWh per year of gas.

Based on Energy Efficiency summary Jan 2013 :-						
NB Load, hrs etc are estimated but closely match annual consumption	kWatt	hrs/ event	%on	events/ year	kwh/Year	cost per year
Area 1 (Church)	100	9	100	65	58500	£1,638
Area 2 (New Hall)	16	12	100	190	36480	£1,021
Area 3 (Main Hall)	20	12	100	190	45600	£1,277
Area 4 (Green Room)	4	12	100	190	9120	£255
Area 5 (Upper Hall)	12	12	100	190	27360	£766
Area 6 (Common areas)	15	12	100	190	34200	£958
	167	69			211260	£5,915
gas cost (pence/ kWhr)	2.8					

Better Zoning and temperature controls :-						
%on is reduced due to thermostats events are reduced due to zones	kWatt	hrs/ event	%on	events/ year	kwh/Year	cost per year
Area 1 (Church)	100	9	100	65	58500	£1,638
Area 2 (New Hall)	16	12	75	160	23040	£645
Area 3 (Main Hall)	20	12	75	160	28800	£806
Area 4 (Green Room)	4	6	75	120	2160	£60
Area 5 (Upper Hall)	12	6	75	160	8640	£242
Area 6 (Common areas)	15	12	100	190	34200	£958
	167	57			155340	£4,350
gas cost (pence/ kWhr)	2.8			Saving	55920	£1,566

It was on this basis that we proceeded to split the heating into six zones.

During the ongoing discussions with potential installers, one of the two existing boilers failed and was deemed to be beyond economic repair. As the Church was now dedicated to reducing the overall buildings' CO2e footprint and to preparing the buildings for the future, it agreed to fund the cost of replacing both the boilers with high efficiency condensing ones. This enabled us to select a control system which worked with the new boilers as a complete system.

The zoning controls were only part of the solution and we took the opportunity to ensure that not only on and off times could be set but also that the temperature in the different areas could be controlled. In addition the integrated controls/ boiler system includes weather compensation, automatic on/ off time adjustment and water temperature.

New Boilers and heat exchanger during installation

Zoning pipework, pumps and valves during installation

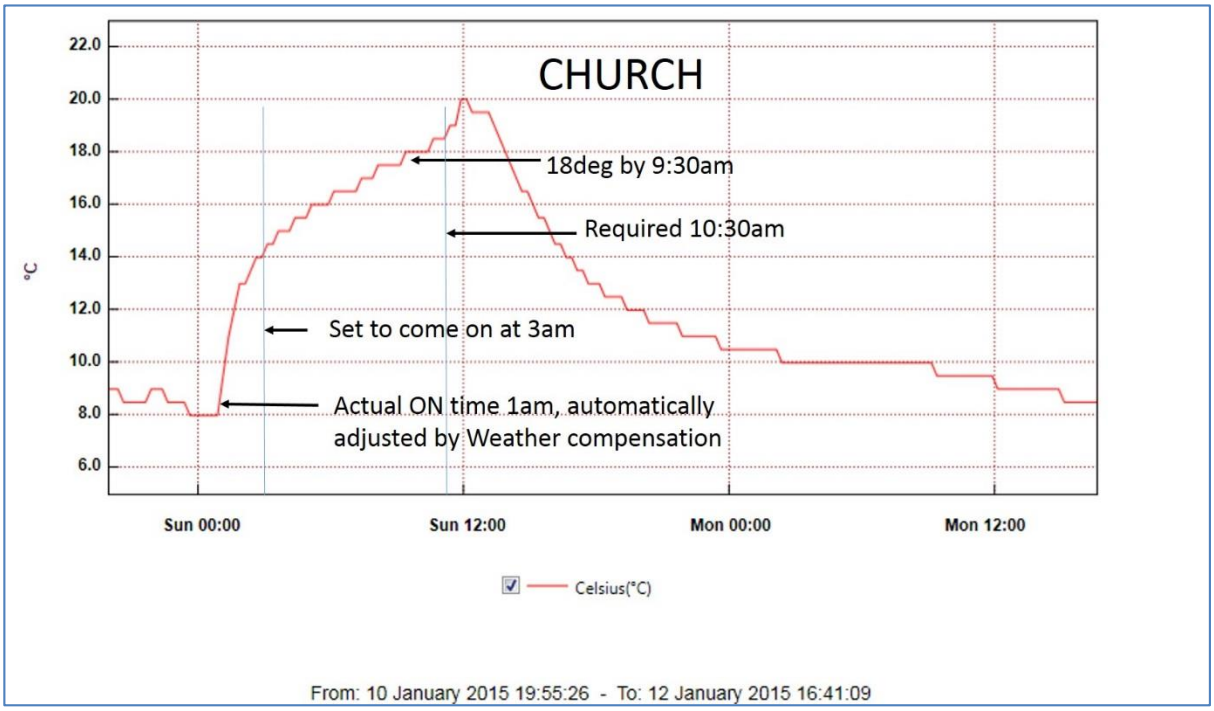
The system was commissioned in August 2014.

The first issue that we had was the increased complexity of setting on/off times for the six zones due to the varying daily and weekly use of the halls. Previously, the Church zone rarely changed and only the second zone was altered and even then it was basically set to go on at the beginning and off at the end of the day. Initially, the new system appeared to work well but as the temperatures fell and there was more demand on the heating, it was apparent that the heat wasn't going to where it was needed. A survey was conducted and it was found that further balancing of the system and adjustments to flow rates were required. This resolved the main issues and the system has operated correctly since the adjustments have been made.

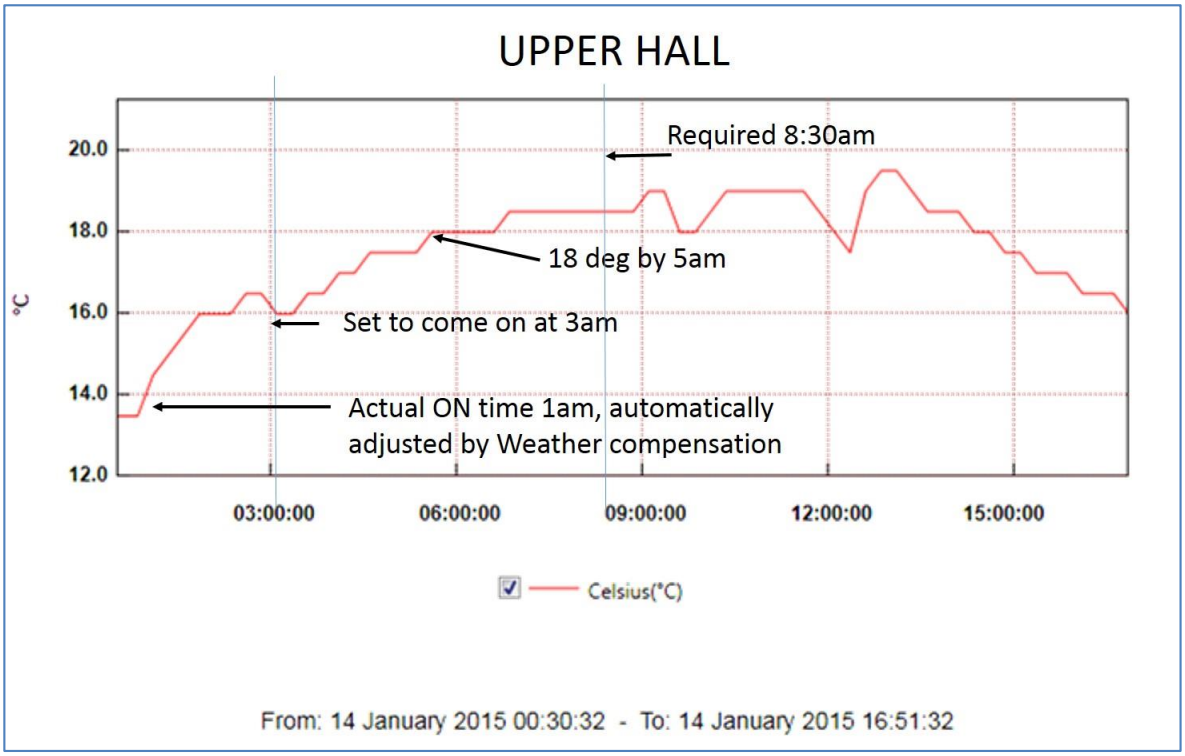
The second issue was the understanding of heat up times for the various zones, which resulted in zones failing to be at the correct temperatures for the start of meetings etc. Various temperature surveys revealed what the issues were and we were able to understand how the various areas heated up and verify that the weather compensation was operating correctly.

Heating up times after improvements:-

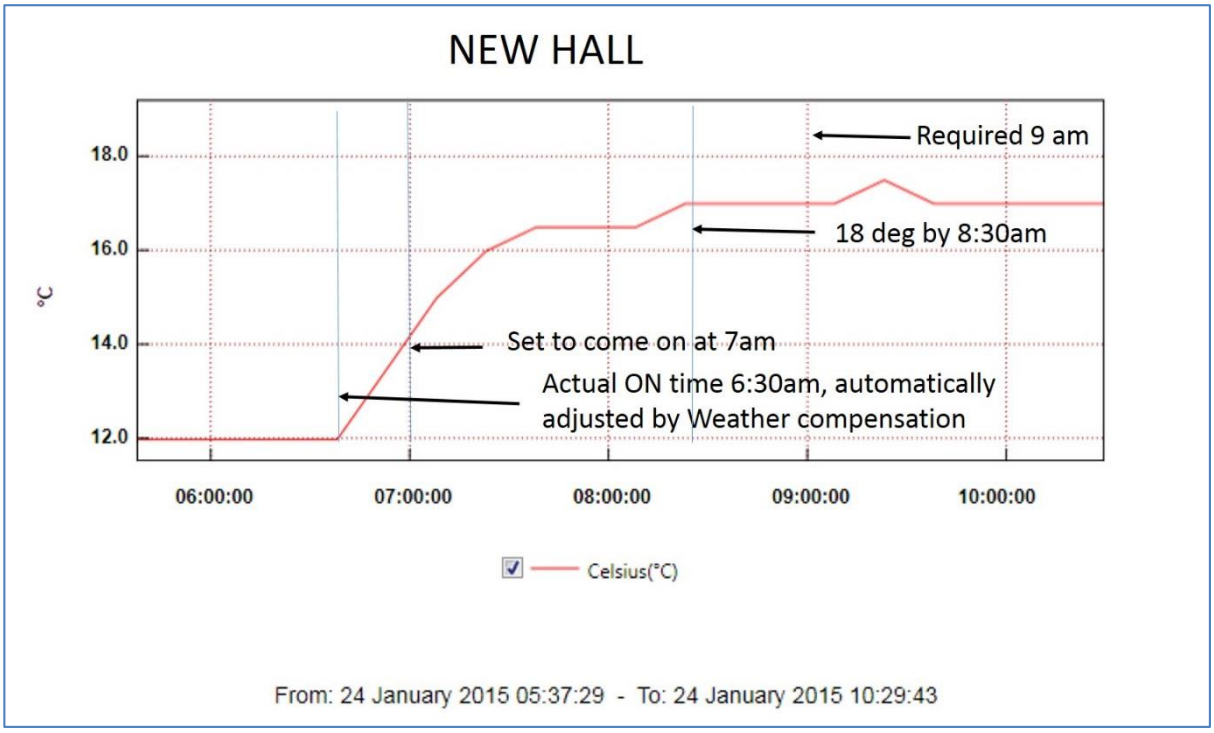
Church 7 hours



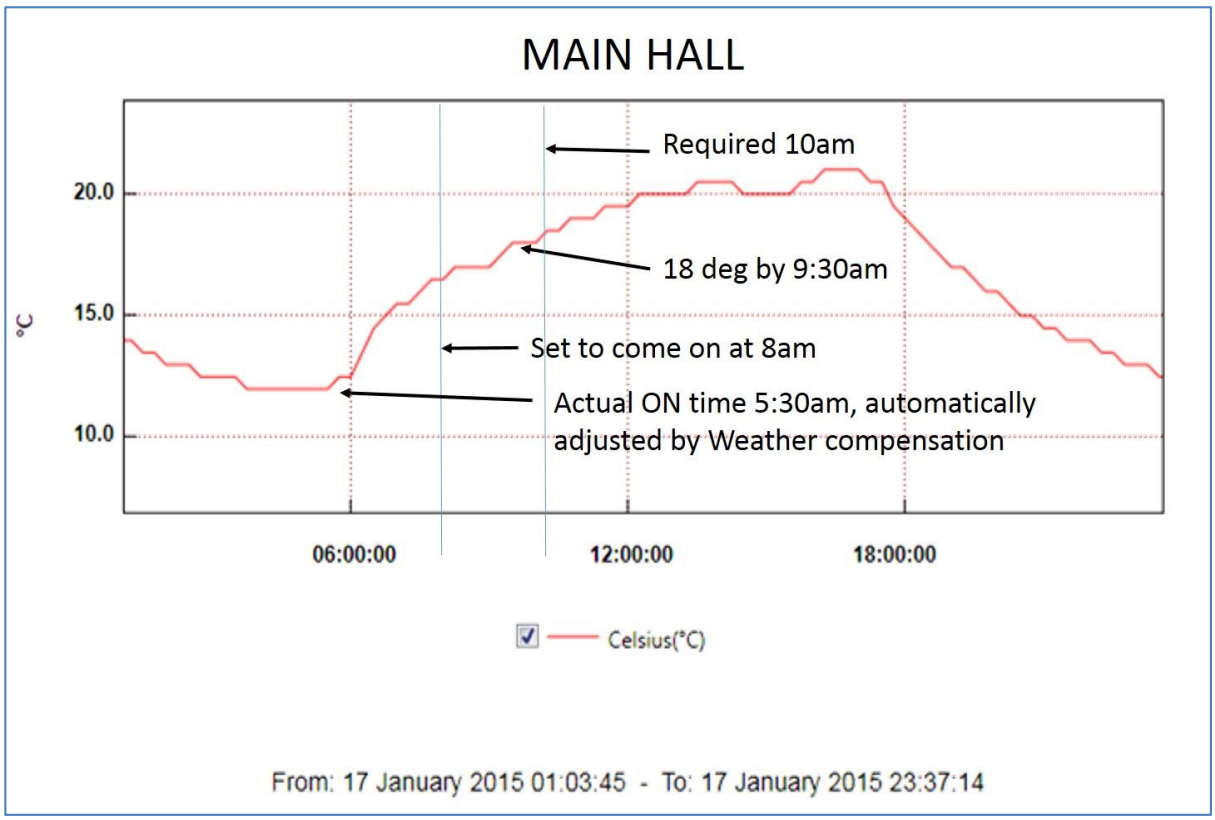
Upper hall 3.5 hours



New Hall 2 hours

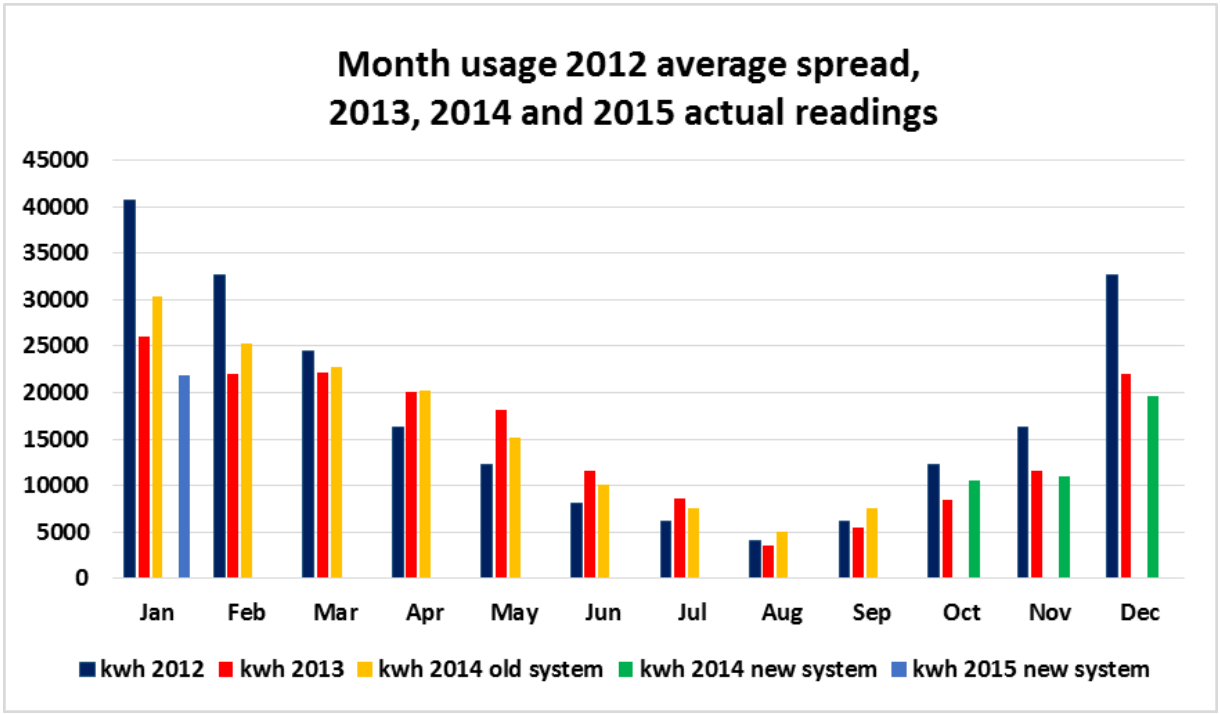


Main Hall 2 hours



The Gas usage since 2012 was tabulated to enable comparisons to be made

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
kwh 2012 (Baseline)	40742	32594	24445	16297	12223	8148	6111	4074	6111	12223	16297	32594
kwh 2013	26010	22010	22104	20104	18104	11562	8562	3562	5509	8509	11509	22010
kwh 2014 old system	30370	25308	22777	20246	15185	10123	7592	5062	7592			
kwh 2014 new system										10,552	10,962	19651
kwh 2015 new system	21831											



The new system took a few months to set up correctly and tune to the building heat up times but it has operated correctly since October 2014. A true comparison is now able to be made from October 2014 for the last four months.

Comparison of the 4 months from October 2012 to January 2013 with October 2014 to January 2015, identifies a saving of 28%.

October 2012 to January 2013	87123	kWhrs
October 2014 to January 2015	62,996	kWhrs
Difference	24,127	kWhrs
as a percentage	28%	
Assuming same saving of 28% against baseline of 211860 kWhrs	59,320	kwHrs
Coverted to kgCO2e (factor 0.18975)	11,256	kgCO2e
Lifetime (40 years)	450,239	kgCO2e

This shows a remarkable reduction of gas usage - 28% or 59,320 kWh against our estimated savings of 55,920 kWh.

7.2.2.3 Reduction in electricity

The reduction in electricity usage is not as dramatic but shows a reduction from 18,860 kWh to 16,618 kWh, a saving of 2,242 kWh or 11.9% against an estimated saving of 850 kWh.

Both these reductions are also against a background of increased hall usage.

7.2.2.4 Conclusion, Hall Energy usage

The total energy reduction of the halls (gas and electric) is 61,562 kWh or 26.7% reduction compared to those predicted in the Energy Savings Trust survey. That survey estimated that if we undertook all the recommended improvements we could save 41% however we have not installed solar PV due to unsuitability of the roof, we have not yet measured the benefit of the new installed lighting, (estimated reduction of 30% by replacing 70W with 49W tubes) and the use of the halls by the local community has increased.

7.2.3 Cut CO2e by 20% through reducing car use and encouraging building users to walk, cycle, or use public transport.

We decided to hold three awareness raising events in the form of 'Walk to Wardie' weeks and conducts surveys on each occasion- the first in December 2013 to set the baseline and a further two in June 2014 and December 2014 to measure the change.

The surveys involved the cooperation of all the hall users, over 800, who collected the information from their own group members which was then collated.

The results were tabulated, the annual distances calculated along with the equivalent kgCO2e.

The annual distance is based on the average for each distance (up to 0.5 mile ~ 0.5mile, 0.5 to 1 mile ~ 0.75 miles and 1 to 5miles ~ 3 miles).

Values of kgCO2e used were 0.3286 kgCO2e per mile for car and 0.2412 kgCO2e per mile for bus.

Transport				
Assumptions:-				
Average mileage of 1 to 5mile category is	3			miles
Average mileage of 0.5 to 1mile category is	0.75			miles
Average mileage of <0.5mile category is	0.5			miles
Most of the journeys are carried out within school term	40			weeks
Average CO_2 conversion factor for average car, unknown fuel Sustainable Development Commission Scotland's 'Climate Challenge Fund, Delivering Change' guide reference on page 16	0.3286			kg/mile
Average CO_2 conversion factor for bus journey, not London Keep Scotland Beautiful ccf-co2e conversion factors jan 2013	0.241176292			kg/mile
CAR JOURNEYS				
Visits by car in 1 to 5 mile category	134			
Visits by car miles in 0.5 to 1 mile category	148			
Visits by car miles in <0.5 mile category	96			
	Annual Miles	**Conversion Factor**	**Total**	
Annual miles travelled by Car (visits* average mileage *2*wks per year) x Conversion	44880	0.3286	14747.57	kg CO_2e
BUS JOURNEYS				
Visits by bus in 1 to 5 mile category	17			
Visits by bus miles in 0.5 to 1 mile category	1			
Visits by bus miles in <0.5 mile category	0			
	Annual Miles	**Conversion Factor**	**Total**	
Annual Miles travelled by Bus (visits* average mileage *2*wks per year)	4140	0.241176292	998.47	kg CO_2e
Baseline emissions: Car and Bus travel =			15746.04	kg CO_2e
Estimated after project, 20% reduction in car usage, 5% increase in bus usage			12846.45	**kg CO_2e**
Estimated savings from changes in transport per year			2899.59	**kg CO_2e**
	Annual Saving	**Lifetime Savings (yrs)**	**Lifetime Savings**	
Estimated Lifetime Transport Savings	2899.59	3	**8698.77**	kg CO_2e

7.2.3.1 Results for December 2013 Survey

December 2013		Results	Annual Distance (miles)	Annual kgCO2e
Car	Under 0.5miles	85	3400	1117
	0.5 to 1 mile	113	6780	2228
	1 to 5 miles	97	23280	7650
Car Share	Under 0.5miles	11	440	145
	0.5 to 1 mile	35	2100	690
	1 to 5 miles	37	8880	2918
Bus	Under 0.5miles	0	0	0
	0.5 to 1 mile	1	60	14
	1 to 5 miles	17	4080	984
Bike	Under 0.5miles	6	0	0
	0.5 to 1 mile	5	0	0
	1 to 5 miles	0	0	0
Walk	Under 0.5miles	136	0	0
	0.5 to 1 mile	28	0	0
	1 to 5 miles	3	0	0
Scooter/ Other	Under 0.5miles	15	0	0
	0.5 to 1 mile	4	0	0
	1 to 5 miles	2	0	0
	Totals	595	49020	15746
Average kgCO2e per person				26.46387

7.2.3.2 Results for June 2014 Survey

A second survey was conducted in June 2014.

June 2014		Results	Annual Distance (miles)	Annual kgCO2e
Car	Under 0.5miles	55	2200	723
	0.5 to 1 mile	98	5880	1932
	1 to 5 miles	117	28080	9227
Car Share	Under 0.5miles	29	1160	381
	0.5 to 1 mile	65	3900	1282
	1 to 5 miles	44	10560	3470
Bus	Under 0.5miles	1	40	10
	0.5 to 1 mile	5	300	72
	1 to 5 miles	4	960	232
Bike	Under 0.5miles	9	0	0
	0.5 to 1 mile	12	0	0
	1 to 5 miles	4	0	0
Walk	Under 0.5miles	185	0	0
	0.5 to 1 mile	116	0	0
	1 to 5 miles	35	0	0
Scooter/ Other	Under 0.5miles	14	0	0
	0.5 to 1 mile	6	0	0
	1 to 5 miles	1	0	0
	Totals	800	53080	17329
Adjusted to original Population		595	39478	12888
% reduction				18%
Average kgCO2e per person				21.66125

After the second survey, we discovered that comparing the two was not as simple as comparing the two numbers due to the difference in the population numbers. The increase in the population may have been due to the time of year, December against June, or could be due to the publicity and CCF activities undertaken prior to June. To resolve the calculation issue, we decided to adjust the numbers by the ratio of the populations and therefore be able to refer back to the baseline, whilst recognising that the actual savings for the project are greater than originally anticipated. The adjusted result shows a reduction of 18% in kgCO2e from the set baseline. Some of this reduction may also be due to the weather in June versus December.

7.2.3.3 Results for December 2014 Survey

A third survey was conducted in December 2014, one year on from the baseline survey.

December 2014		Results	Annual Distance (miles)	Annual kgCO2e
Car	Under 0.5miles	61	2440	802
	0.5 to 1 mile	87	520	1715
	1 to 5 miles	82	19680	6467
Car Share	Under 0.5miles	17	680	223
	0.5 to 1 mile	73	4380	1439
	1 to 5 miles	63	15120	4968
Bus	Under 0.5miles	0	0	0
	0.5 to 1 mile	0	0	0
	1 to 5 miles	5	1200	289
Bike	Under 0.5miles	4	0	0
	0.5 to 1 mile	4	0	0
	1 to 5 miles	7	0	0
Walk	Under 0.5miles	185	0	0
	0.5 to 1 mile	114	0	0
	1 to 5 miles	16	0	0
Scooter/ Other	Under 0.5miles	11	0	0
	0.5 to 1 mile	2	0	0
	1 to 5 miles	0	0	0
	Totals	731	44020	15903
Adjusted to original Population		595	35830	12944
% reduction				18%
Average kgCO2e per person				21.75513

7.2.3.4 Conclusion-Transport

Surprisingly, the results show that we have maintained the reduction and therefore believe that the reduction by 18% is real.

To calculate the predicted lifetime savings and taking into account the varying population of the surveys, we have used the average reduction of kgCO2e per person, (December 2013 = 26.5 kgCO2e per person and December 2014 = 21.8 kgCO2e per person). a reduction of 4.7kgCO2e per person. With an average population of 750 people this would generate a saving of 3572 kgCO2e per year and a lifetime saving (3 years) of 10.7 Tonnes CO2e.

7.2.4 Cut CO2e by 10% in 20 local households by helping local people to save energy by changing their behaviour at home.

7.2.4.1 B*aseline*

The baseline was set using average published consumption figures.

Energy Homes				
Baseline Household Annual Energy Emissions	**Annual usage**	**Conversion Factor**		
Current Electricity usage (OFGEM 2013 Average) kWh per annum	3300	0.54702	1805	kg CO_2e
Current Gas usage (OFGEM 2013 Average) kWh per annum	16500	0.2775	4579	kg CO_2e
Baseline Annual Energy Emissions			6384	kg CO_2e
Estimated Annual Energy Savings per household				
10%			638.39	kg CO_2e
Estimated Annual Emissions per household after project impact			5746	kg CO_2e
Estimated Lifetime Savings across 20 households	**Annual Saving**	**Lifetime Savings (yrs)**	**Lifetime Savings**	
20 households	12767.83	5	63839	kg CO_2e
Estimated Lifetime Energy Savings			**63839**	**kg CO_2e**

7.2.4.2 Use of energy Monitors

We expected that the home energy savings would be based on education and the use of energy monitors borrowed from Edinburgh Public Libraries.

We designed a pamphlet to explain the use of the energy monitors and provided a table to enter background readings, daily and weekly readings. After some trials we were able to reset and use the monitors easily. In addition to individuals noting usage, it was discovered that data could be downloaded to a computer to give better information. See Appendix E for pamphlet.

Sample returned results sheets :-

Wardie Energy Survey - Results Sheet

Base Load

Date	Time	Load - A)
2/8/14	08:00	100W
16/9/14	07·30	275W
17/9/14	07·30	273W
17/10/14	08·00	500W
18/10/14	08·00	307W
19/10/14	09·00	470W
21/10/14	09.45	190W
22/10/14	08·00	372W
23/10/14	08·00	369W
24/10/14	08·15	338W
25/10/14	08·30	330W
26/10/14	08·35	342W
28/10/14	08·24	326W
29/10/14	08·26	321W
30/10/14	08·15	305W
31/10/14	08·25	315W
1/11/14	8·45	260W
2/11/14	09·00	275W

List some items and their load in kW :-
Eg Kettle 2.25kW .....

KETTLE – 2·1Kw (ONLY FILLING KETTLE WITH AS MUCH WATER AS NEEDED for eg: 2 CUPS)
(ORDINARY) CEILING LIGHTS - 80W
LED " " - ZERO
(CHANGED ONE HALF OF CEILING LIGHTS IN HOUSE TO 4W LEDS).
(ALSO REDUCED TOTAL NO OF HOURS IN ONE DAY THAT CENTRAL HEATING IS ON - CONTROLLED BY TIMER).

* SOLAR PANELS FITTED TO ROOF OF HOUSE IN 2012 *

* ALSO FITTED HEATSHIELD RADIATOR PANELS IN OCTOBER 2014 *

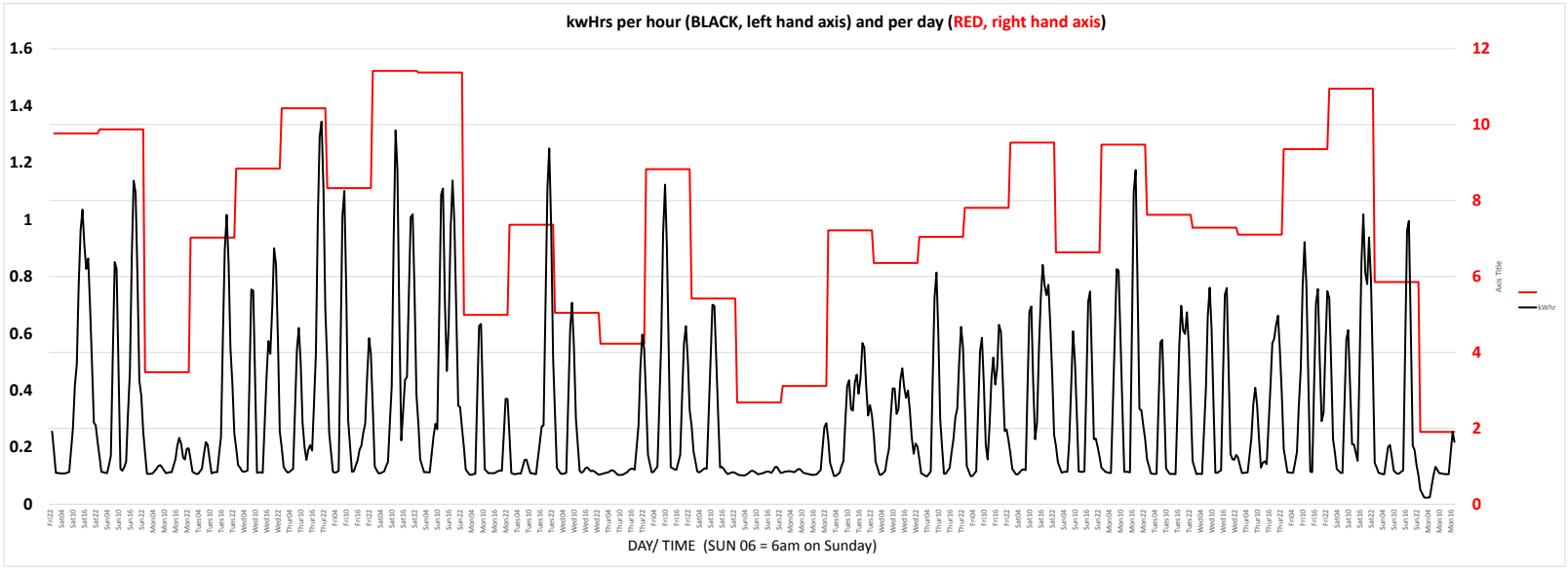
Daily Load

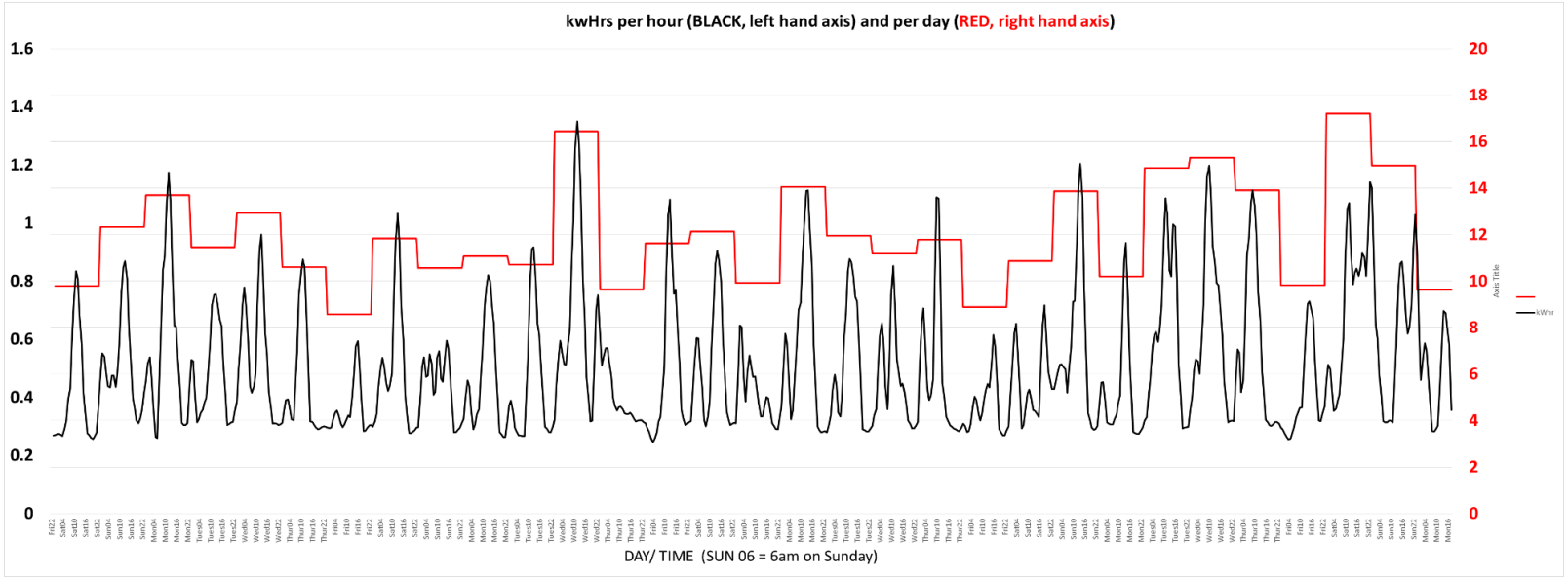
Date	Time	Load C)
3/8/14	17:42	10.2kWhr
16/9/14	07·30	3 kwhr
17/9/14	07·30	11 kwhr.
16/10/14	23·30	13 kwhr.
17/10/14	23·30	11 Kwhr
18/10/14	23·30	13Kwhr.
19/10/14	20·00	13Kwhr
20/10/14	21·00	11 Kwhr.
21/10/14	23·30	12 Kwhr.
22/10/14	23·00	12 Kwhr.
23/10/14	23·00	10 Kwhr
24/10/14	23·30	10 Kwhr.
25/10/14	23·15	15 kwhr
27/10/14	23·35	10 Kwhr.
28/10/14	23·45	12 Kwhr.
29/10/14	23·00	10 Kwhr.
30/10/14	23·30	10 Kwhr
31/10/14	24·00	11 Kwhr
1/11/14	23·25	10 Kwhr.
2/11/14	23·45	8 Kwhr.
3/11/14	23·30	8Kwhr.
4/11/14	24·00	9 Kwhr
5/11/14	23·45	14 Kwhr.
6/11/14	23·35	11 Kwhr.
7/11/14	23·45	11 Kwhr
8/11/14	24·00	10 Kwhr.
9/11/14	23·45	8 Kwhr
10/11/14	23·30	8 Kwhr
11/11/14	23·30	12 Kwhr.

7 Day Load

End of Week	Date	Time	Load C) 7 day
X	9/8/14	15:23	65kWhr
1	21/10/14	18·30	78Kwhr.
2	28/10/14	19·00	81 Kwhr
3	4/11/14.	18·45	77 kwhr
4	11/11/14		

Sample Downloads from Energy Monitors :-





All the results were distributed to all the participants with their own one highlighted to enable them to make comparisons. Due to the time of year when the monitoring was conducted, October, it was a difficult time to try and make any reductions in energy during the onset of winter and a further repeat monitoring may have to carried out later in 2015. However, feedback from the participants has been extremely encouraging and has certainly made them think about their energy usage. The participants came from different circumstances, number of people in a house, size of house, cooking/ shower types but one of the numbers which was stressed to consider was the overnight usage level.

As can be seen from the two graphs above, the difference in background usage (basic load when no activity is on eg during the night) is from 100W to 300W and if it could be reduced across 24hrs per day, could reduce annual consumption by 1,752kWh per year, a saving of approximately £250 and reduced carbon footprint of 958 kgCO2e.

7.2.4.3 Conclusion-Home energy

We have not been able to complete collating all the information at the time of writing this report but will continue to monitor the outcomes. In addition to lending the monitors, we have explained what to consider and discussed any issues and answered questions. All those taking part have shown great interest and questioned their usage of energy and how to reduce their CO2e footprint. The main steps have been to switch off items when not in use and to trace where overnight energy is being used. Findings varied from an inefficient fridge to a faulty central heating valve which continuously ran the pump. Monitors are still being used and if possible, we will rerun the monitoring later this year to be able to compare results.

7.2.5 Increase numbers of local households growing fruit and vegetables in 10 gardens, including Trinity Children's Nursery, each garden to grow 10kgs of produce.

7.2.5.1 Baseline

We decided that the baseline for this part of the activities was to assume that we were starting from scratch and that gains would be made by people starting to grow their own fruit and vegetables.

Food - Growing Our Own				
(Conv factor from Low Carbon example)	**kg fruit/veg**	**Conversion Factor (0.54kg co2e/kg)**		
Savings based on people growing vegatables/ Fruit	10	0.54	**5**	kg CO_2e
Nursery Garden	10	0.54	**5**	kg CO_2e
Estimated Lifetime Savings	**Annual Saving**	**Lifetime Savings (yrs)**		
Across 10 households	54	10	**540**	kg CO_2e
Nursery Garden	5.4	25	**135**	kg CO_2e
Estimated Lifetime Grow own Food savings			**675**	**kg CO_2e**

7.2.5.2 Education

We planned two activities to help us deliver our planned outcome.

- A visit to the Edible Garden Project at the Royal Botanic Garden Edinburgh (RBGE)
- An Open Gardens event in the local area.

7.2.5.3 Edible Garden Project

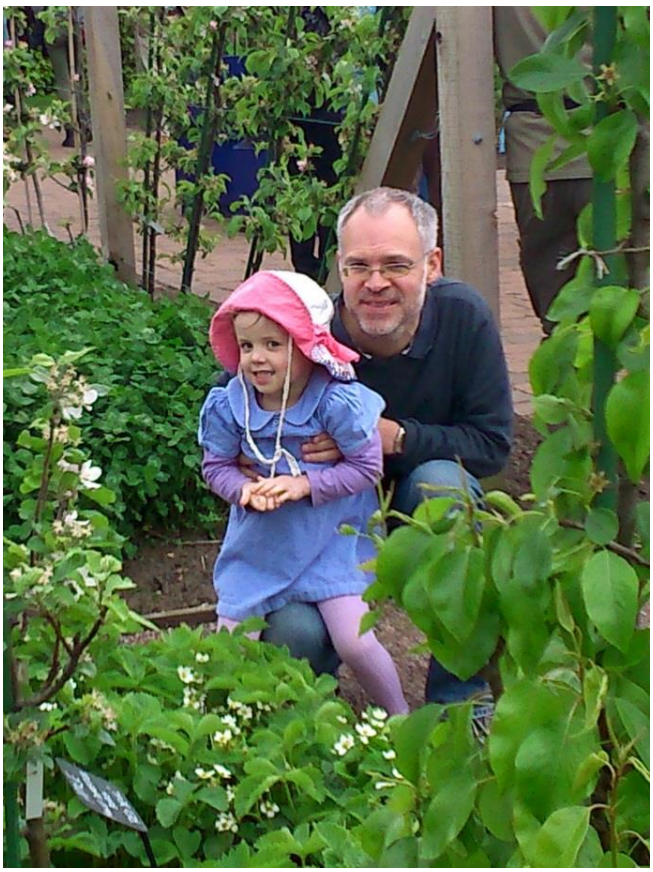
The visit to the Edible Garden Project took place on Saturday May 17th 2014.

The following is an account of the visit which appeared in the Church newsletter and on our website:

> *"A group of 17 very enthusiastic Wardie gardeners visited the Edible Gardens Project at the Royal Botanic Garden Edinburgh last Saturday. We met one of the Project's gardeners who guided us around the gardens and told us about the groups who were taking part in the project and showed us their plots. They include community groups, pupils at local schools and students working towards an HND qualification. We saw examples of the wide variety of fruit, vegetables and herbs that can be successfully grown in the Edinburgh climate. Another of the project gardeners who specializes in fruit growing joined us and gave some very helpful hints on how to grow apple trees in a small space and we were given all sorts of useful tips about growing edible produce.*
>
> *The best news was that double digging is not necessary for successful cultivation as it damages the natural nutrients and soil organisms. It also raises dormant weed seeds to the surface.*

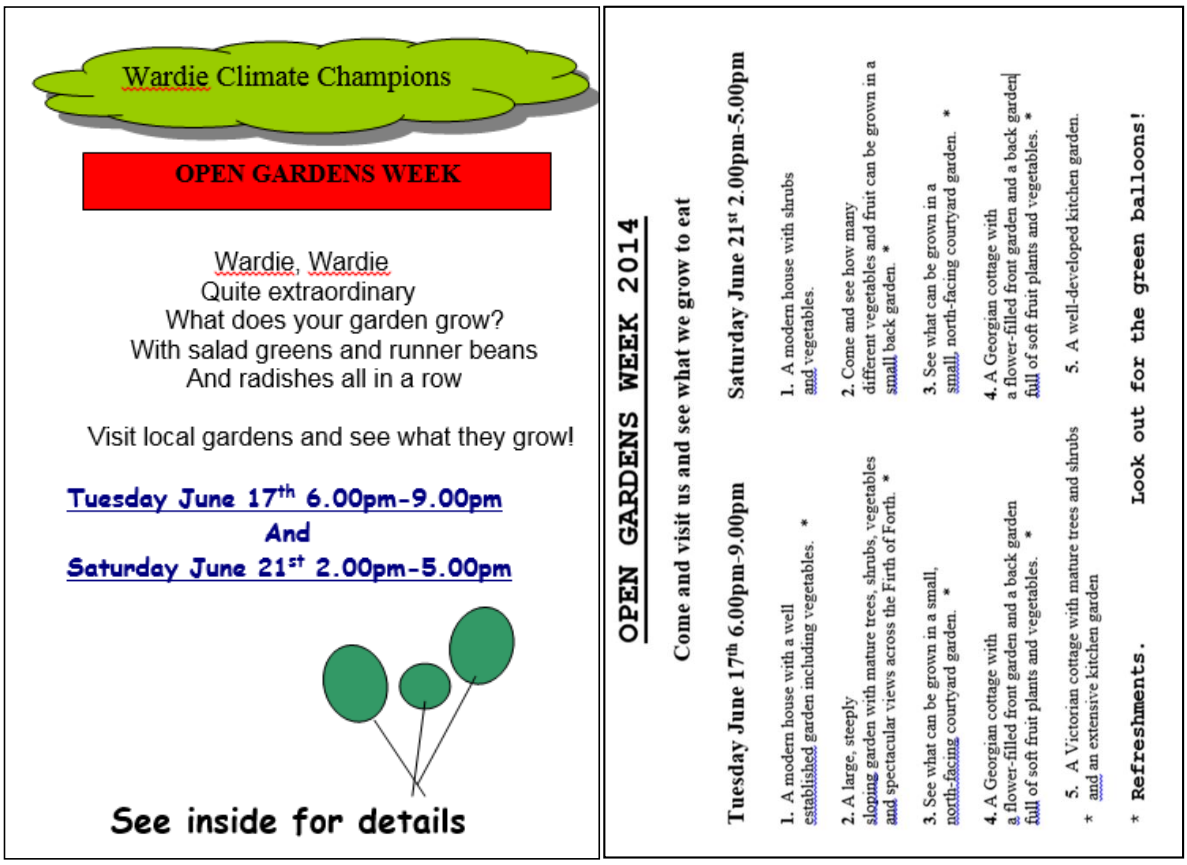
Everyone joined in the discussions and it was a most enjoyable afternoon. The visit actually lasted twice as long as planned because there was so much to see and learn. The only person who seemed rather bored with the whole affair was an eight months old who spent the entire afternoon asleep in his buggy!

It is well worth a visit."



7.2.5.4 Open Gardens

The Open Gardens Week was well publicized and, helped by a spell of good weather, was well attended. Posters, fliers and a small pamphlet gave details of the different types of gardens to visit.



Photographs of the event :-

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...



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A tally of visitors was made – around 100 came over the two days.

Survey sheets were given to interested visitors and around 30% were returned.

80% found out about the event from the leaflet which had been distributed to all local households. Others heard about it from a friend.

7.2.5.5 Survey form

OPEN GARDENS SURVEY

Name :..... **Tel No:** .....

All returned Surveys will be entered in a prize draw for a bottle of wine.

How did you find out about the Open Gardens Event? (Please tick all that apply)	Poster Leaflet Website Friend Other
How many were in your group?	
How many gardens did you visit? Tuesday 17th June Saturday 21st June	
Do you have a garden?	
Do you grow vegetables and/or fruit?	
If no, would you consider growing vegetables/fruit after your visit?	
What do you most enjoy about visiting gardens?	
If we held another Open Garden Event which of these themes would you enjoy? (Please tick all that apply)	Spring Flowers Autumn Colours Planting to encourage Wildlife Vegetable Gardens Other

All but one already grew a small amount of edible produce e.g. herbs, a fruit tree, and all but one indicated that they would start growing a wider range of produce based on what they saw growing in the open gardens. Thirteen visitors volunteered to keep a record of the produce they would grow over the next year.

Trinity Nursery also initiated a growing project in their garden.

Eleven gardeners and the Nursery returned completed forms.

7.2.5.6 Conclusion, Grow your Own Fruit and Vegetables

The nursery's output was 2.3kg (it should have been higher but the children kept eating the peas that they grew!). They learned a lot from the first year's efforts and have already started planting for this year's growing season.

The average output, based on 10 of the garden records was 19.9kg, almost doubling the projected target. The 11th garden's output was an incredible 299.9kg. This was the output of a large garden established 40 years ago by a couple who are very enthusiastic amateur gardeners; one is over 80 years old. They had never weighed their harvested produce before and took the opportunity to weigh everything and were amazed to see the final total.

The biggest individual success has been one of the visitors who had previously never grown fruit or vegetables in his garden. He started on a small scale and was so delighted with the results that he now has an allotment and great plans for his plot.

There was a wide variety of produce grown from parsley and carrots to kiwi fruit and figs.

Overall this has been a very successful project not only with the quantifiable outcomes but also the social benefits for all involved.

There is great enthusiasm for a repeat of the Open Gardens Event and planning for this year is in process.

7.2.6 Additional initiatives

We complemented the above formal actions with several other initiatives designed to offer more people in the Wardie community extra opportunities to think about their personal carbon footprint. This was through establishing a monthly walking group, Fuelgood driving lessons and a Carbon Conversations Group.

7.2.6.1 Walking Group

The walking group tried to take on board the different capabilities of those interested, choosing places and routes of interest both local and further afield.

Date	Destination	No of People	Transport
May 21st 2014	Water of Leith to Modern Art gallery	14	Walked
June 18th	Sea front to Cramond	8	Walked
July 16th	Fisherrow to Prestonpans	9	Car-share and walked
August 9th	Family Walk Royal Botanic Garden Edinburgh	4	Walked
Sept 24th	Holyrood Park circuit	6	Car-share and walked
October 22nd	Cramond to Cammo Estate	9	Car-share and walked
November 19th	Berwick Law	4	Car-share and walked
December 17th	Slateford to Colinton	2	Buses and walked
January 21st	Penicuik to Roslin	10	Buses and walked
February 18th	Innocent railway line Holyrood to Musselburgh	6	Buses and walked
March 18th	Roseburn to Slateford and canal to return	8	Buses and walked

“Probably at least 20 people participating in different walks.

Comments from participants:

I really enjoyed being out in the fresh air with good company and great chat. The time flies in.

I love going on the walks – so does Topsy the dog – we go to places we don’t know already.

It was easier to use buses on all day trips because of the time factor, but they were faster than expected.

I enjoyed going to places in Edinburgh that I have never been to before.

I like Wardie Walkers for the regular opportunity for exercise, for company and fellowship. Each walk is an opportunity to learn about the location/history and habitat of the area.

I enjoy having the chance to speak to new people in the congregation.”

The walking group has now become established and will continue to plan events.

7.2.6.2 Fuelgood Driving Lessons

Further evidence of the Project's influence on people can be found in the interest shown in the Fuelgood Driving Lessons. These were arranged through the Energy Saving Trust and were provided free of charge. Nine people took up the opportunity to have a lesson and everyone both enjoyed the experience and felt they had learned a different approach to driving which would cut petrol consumption, reduce their emissions and save money. One person reported :-

"*It took an hour one Saturday morning last September to discover ways I could achieve valuable savings through some simple changes to my driving behaviour. I met my instructor, and drove around the local area for 20 minutes in his Mini which had a device for recording my fuel consumption. We stopped and discussed strategies to help improve fuel consumption having told me that my driving was already quite fuel efficient. I then drove around the same route employing the techniques he had talked about. These were very straightforward. I was to look at the rev counter and change gear to keep the reading at one thousand revs, also to read the road ahead and adjust my speed accordingly. These actions helped me to lower my fuel usage by 10.2%.*

Basing his calculations on my Citroen Picasso travelling 10000 miles per year I would save £148 in fuel costs and 270 kgCO2e emissions.

My average monthly mileage is fairly regular and I have noticed that when I visit the garage to fill up each week the display shows slightly fewer litres of fuel are required.

In summary the driving instructor predicted that the total amount of annual CO2e that can be saved by these nine people if they consistently follow the advice they received would be 2,531kgCO2e - an average of 281 kgCO2e per person. In addition fuel consumption could be cut by between 10.2%-24%.

7.2.6.3 Carbon Conversations group

We approached this challenge by inviting people to join a Carbon Conversations Group and advertised it through having a stall at the Energy Fair as well as promoting this through the News@Wardie magazine. Seven people committed to the six two hour sessions to be held in the evening in the Green Room at Wardie. The Church gave the use of the room free and tea/coffee and biscuits were provided. In addition, the energy monitors were lent out – see section 7.2.4.2.

7.2.6.3.1 Questionaire Results

Comments made by members of the Carbon Conversations Group in response to a simple questionnaire show that their awareness of their carbon footprint had increased and that they were taking practical steps to reduce this in a variety of ways. Below are some of the comments made in response to the questionnaire:

"Generally it made me much more aware of what the issues are and what can be done about them. The handbook is a useful resource to refer to.

I am making a conscious effort not to use the car if possible.

I am trying to buy food as fresh and local as I can and am more aware of the packaging.

I am switching appliances off more in the home and plan to move over to LED bulbs where possible."

"The course was very informative in terms of what changes individual households can make to their carbon footprint through behavioural changes as well as physical works.

The course made me think about the choices I make especially those relating to the way I travel and the food products I buy.

I have bought an eco-fan for my gas stove to help circulate the heat in my front room.

I'm trying to buy food in season and reduce the amount of food waste."

"I have had new floors laid to reduce the draughts from the original stripped pine floors. It has made a huge difference to the comfort in the two rooms I've done so far, so much so that I can turn the radiator down a notch. I intend to gradually replace light bulbs with energy saving bulbs.
I intend to grow some vegetables this year

I make much more effort with recycling, to the point I drive everybody mad"

"Switching off lights, standby off, lowering heating temperature by 1degree.Thinking about my responsibility for preserving the world for the future"

7.2.7 UNEXPECTED OUTCOMES

There have been a number of unexpected outcomes as a result of the Wardie Climate Champions Project. These have been encouraging and affirming as they have shown that many people in the Wardie community are already aware of the need for action to reduce carbon emissions. Some examples are:-

- As part of the weekly worship in Wardie, with 150-200 attendees, the prayers, hymns, readings and sermons frequently touched upon related themes of creation-care, community and collaboration, reducing consumption e.g. energy saving and thinking of others. Individual members leading prayers referred to thanksgiving for the gift of the CCF funds, and the work done in the building to improve its life.
- We decided to make the environmental sustainability strategy subject to annual review by the Trustees and Hall Users as this will ensure that the legacy is continually developed and that

improvements in awareness and targets are increased over time. Raising these issues with users of the buildings also improves their awareness of their own lifestyle choices.

- An example of raised awareness was the decision of the Guild to hold the Make Do and Mend session without any prompting from the Wardie Climate Champions committee.
- When the seating pads of the chairs in the New Hall became worn and stuffing exposed, the decision was taken by the Property Committee to refurbish the chairs by renewing the pads rather than dispose of the chairs and buy new ones.
- Church members who wanted to learn more about the science of climate change and environmental challenges attended public lectures at the University of Edinburgh on "Our Changing World" after building links through contacts made in the Project.
- Wardie is helping the University School of Informatics with another project by offering data on heat loss from our sanctuary and allowing thermal imaging of this area. (Not covered in the terms of the CCF grant itself).
- Another PhD Student came to learn from our activity as an ecoCongregation and built up a rapport with members of the church at Wardie. Her work involves "discussing with congregations the successes and struggles of climate action in the local church"
- We were delighted by huge support from across the spectrum of the Wardie community and positive feedback about the activities we planned.
- Activities will continue beyond the timescale of the Project itself as there is to be a charity Fashion Exchange on 19th April 2015 with the proceeds going to buy energy saving light bulbs for Freshstart to include in their starter homepacks.
- Plans are being made for further Open Gardens Days in May 2015.
- There has also been some discussion about having an energy awareness stall at the Wardie Community Summer Gala to be held in Lomond Park at the end of August 2015.

7.2.8 LEARNING AND REFLECTION

7.2.8.1 Understanding the challenge

At the start of the project the small committee came together with some trepidation at the enormity of the task which lay ahead. Although we had a variety of skills, experience and knowledge between us, none of us felt confident about being responsible for the all demands which would follow a successful application for the CCF grant. Initially we thought we would be applying for a relatively small amount of money in the region of £10,000 but as we added up the work which needed done and sought estimates we quickly realized we had underestimated this and would need at least five times this amount. At this stage we concentrated on the more obvious improvements which were to install insulation, double glazing and better zoning of the heating controls. We were anxious in case we failed in our application but also anxious about succeeding given the demands which would follow!

The project was made more complicated as one of our ancient boilers went on fire and so we were also faced with the (in the end, sensible) task of replacing our two boilers with much more efficient models. The overall seeking of estimates, comparing them when they were not always like for like and trying to ensure we would spend the money wisely weighed heavily on us, however we were fortunate to have a chartered engineer on our committee who could understand the alternatives we were being offered and advise us on the advantages/disadvantages of the more technical aspects. This was invaluable. Early on we learned the advantage of consulting others who had already received grants and met with the Project Manager of the Himalayan Centre who gave us information about the amount of reporting back and accountability which would be required. We were relieved ours was a relatively small project compared to his but the forewarning of the level of overseeing of the improvement works which would be required once they were underway gave us some foresight into how we should try to manage the project. We also consulted with St Mary's Church in Dunblane, Stenhouse St Aidens's Parish Church in Edinburgh, and St Mary's Episcopal Church, Broughty Ferry who had all been awarded grants of varying sizes.

7.2.8.2 Involving others

A month or two into our preparations for the application we realized we had been rather naive about the Planning Department's requirements when wishing to make significant changes to our B listed buildings. Earlier attempts to glean information from them on what would be required had left us bemused. We decided to approach a local architect who knew our premises well as his firm had designed and managed the building of our New Hall some years earlier. Just in time he kindly produced the plans of our buildings which he still held and combined them with the photographs required to submit to the Listed Buildings Department. They in turn responded quickly and were able to give us the go ahead for the work we were proposing, without which our application could not have been considered. We would certainly advise others to check out this aspect very early on and to engage the services of someone who knows the workings of the Planning and Listed Buildings Departments. In our case the architect gave his services freely to support what he felt was a desirable outcome for a local building.

This was only the beginning however and we still did not really realize the impact the project would have on our lives-for the time it would take, the learning which would be involved, the wonderful support which would come freely from our local community and the knowledge that we were a very small part of a huge swell of concern and effort to "do something" about climate change.

7.2.8.3 Communication

How were we going to communicate with the whole of Wardie's community? What sort of response would we get? Would people have the time or inclination to support us? Some of our committee had been heavily involved in previous years in establishing Wardie as an Eco congregation and despite managing to achieve this had at times felt they were running out of steam. However the committee members found strength in each others' varying abilities and by breaking down what was required into smaller parts, and by using the knowledge and contacts that we each had, it soon became clear that we could engage with

a much broader range of local people who in turn would be able to disseminate information and encouragement to attend or contribute to planned events. The fact that Wardie Parish Church is such an open place and welcomes everyone in the community into the buildings for a huge variety of activities whether faith based or not helped enormously.

7.2.8.4 Planning

We decided to plan a mixture of fun and informative events throughout the year which we hoped would raise people's awareness of climate issues, their individual carbon footprints and ways of reducing these, as well as their personal financial outlays. We think this balance helped us to engage with the wide range of people who have given us ongoing support over the project year and who show signs of continuing with new habits and changed attitudes in their own lives.

7.2.8.5 Strength in a Team

We found that during the project the CCF committee grew closer through meetings hosted in one member's home, a pot luck supper hosted by another member and an Open Gardens get-together, all of which highlighted the benefits of fellowship and social time as well as task/outcome focus, and on reflection made it much easier in overcoming practical obstacles together. This small group/task-focused and fellowship way of working which can be a springboard to larger outcomes has been endorsed by the Kirk Session and is now being used in other areas of the work and witness of the church. The unexpected influence on the worship patterns following the project themes were also a positive affirmation for all those taking part and for the church and halls users to feel close together as a community.

7.2.8.6 Working on a sustainable strategy

The environmental sustainability strategy and legacy emerged from an affirmative inquiry approach – what do we do well and what could we build on? Although trying to define a new policy which we expected all hall users to accept seemed daunting, by listing all the steps we were taking already we realized that we had a good foundation to start from.

Although our anticipated outcomes were very focused and activities to achieve these were time limited there have been requests for some activities to continue after the project as ongoing reminders to people of our aims e.g. the Walk to Wardie Weeks, and further Open Gardens Days. A recent invitation to church members to consider pledging time to specific tasks has also been used to help some of the outcomes, such as offers of car-sharing and gardening for each other.

7.2.8.7 Implementing the plan

For the Walk to Wardie Weeks we underestimated the initial difficulty in collecting data about travel but by the time we did the third survey it was efficient and non-intrusive. We also thought harder about when, where and why we were getting the publicity materials printed, about the paper waste and the fuel costs.

We realized that in our absorption with the challenge of bidding for and managing the larger more costly building improvements we forgot to include the Energy Saving Trust's advice to change our lighting too.

It was only after initiating the insulation and zoning controls that we realized we should have included the lighting as advised in the original Energy Audit.

7.2.8.8 Managing the project

Some of barriers we came up against along the way were small practical ones like failures in our home IT systems or a lack of knowledge of how to design the necessary publicity-leaflets, posters etc. We learned that by sharing resources and knowledge we could overcome these hurdles. We also learned that we needed to be very organized and to plan the publicity for events well in advance so that people had time to absorb the information and to respond positively to it.

As many of the people involved were working full or part time there was a limit to when they could do certain jobs, and there often seemed to be a lack of time to prepare for the activities. When reflecting back on all that was achieved it seems remarkable that this was all volunteer led. We were fortunate to have someone who was able to coordinate the work and tradesmen on site, which was crucial.

Setting only a year for our project seemed a manageable time scale initially but that meant that we had only short periods to prepare for each stage. For example, we had a short piloting period with three volunteers using energy monitors which helped us realize that we were not getting back the information we were seeking. Although we adapted the recording form which accompanied the monitors and were able to give back clear illustrations of energy consumption over a three week period we did not have hard evidence of everyone actually reducing their usage and CO2e. However a later survey of the volunteers shows that all of them are much more aware of their consumption of electricity and have taken some conscious steps to reduce this. In order to achieve further results we would have needed to devote more time and bodies to this part of the project. We were expecting too much from our small team of CCF committee members who worked flat out on top of their day jobs to achieve the set outcomes. We think now that we should have considered allocating this task to a subgroup and starting it much earlier in the project to allow time to follow it through more effectively.

Handling the finances and accounting accurately for them was felt as a heavy responsibility by the person administrating these, however it was a huge support to be part of a church which already had a Treasurer and Finance Convener to assist with these matters. It is strongly recommended that other groups have a robust system in place for this to prevent complications. Towards the end of the grant period finances became slightly more complicated as some budgets had not been fully used as anticipated and others had been overspent or unanticipated in the first place. Fortunately the Climate Challenge Fund allowed for reprofiling of the original budget which meant that all the funds could be used as long as the requests were in line with the Project aims. This meant that Wardie was able to go on and upgrade the lighting systems after all.

One general outcome of the climate challenge funding has been to allow Wardie buildings to be upgraded, for them to be made more comfortable and attractive for shared community use and to ensure that they continue to have a significant place in the local area. Extra opportunities for the coming together

of church members and neighbours has enhanced the positive role that Wardie plays in the area which may now be critical in their attempt to replace the Minister who is moving on to another parish.

7.3 SUMMARY AND LIFETIME SAVINGS

The baselines and targets set out in the previous sections were set in March 2014 and estimated lifetime savings calculated.

Target Savings :-

Total Lifetime savings from project				
Transport			8.70	Tonne CO_2e
Energy Halls			597.00	Tonne CO_2e
Energy Homes			63.84	Tonne CO_2e
Food			0.68	Tonne CO_2e
			670.21	**Tonne CO_2e**

7.3.1 Transport Lifetime Savings

The transport calculations have been more complicated than originally due to the populations of the surveys being different. It was decided that the best way to calculate the kgCO2e was per person and thereby compare the reduction per person as a percentage.

However, to calculate a more accurate lifetime savings, it was decided to base the lifetime savings on an average population of 750 people. The calculations are as follows :-

Transport Summary and post survey Calculations		
Based on population of 595, baseline emissions were	15746.04	kg CO_2e
Savings 18%, based on surveys	2834.29	kg CO_2e
Savings based on larger population of 750 v 595	3572.63	kg CO_2e
Transport Lifetime savings (3years)	10717.89	kg CO_2e

7.3.2 Energy use in the Halls Lifetime Savings

As stated in a paragraph 7.2.2.2, the predicted lifetime savings is based on a 28% reduction in gas and 12% saving in electricity.

Energy hall Summary	Gas	Electric	
Baseline Energy usage	40200.00	10317	kg CO_2e
Savings 28% on gas and 12% on electricity	11256.00	1238.04	kg CO_2e
Energy Lifetime savings over 40 years for heating and 30 years for lighting	450240.00	37141.2	kg CO_2e
Total	487381.20		kg CO_2e

7.3.3 Energy use in Homes Lifetime Savings

This has been the biggest challenge to measure. To properly measure this would require either a comparison of annual usage or a remeasure over the same period, both of which extend beyond this reporting period.

However, from the data collected so far, the average base (overnight load) is 148watts. (Ranging from 90W to 300W). The participants have all been made aware of this challenge and we believe in most cases action will be taken to reduce at least this base load.

If we assume that is the case then a calculation can be made on the lifetime savings which are likely to be achieved just from baseload and not including lamp changes.

Predicted savings based on baseload reduction by 50W	438.00	kWhr
Concversion factor kWh to kgCO2e, 0.54702	239.59	kg CO_2e
Lifetime of 20 households over 5 years	23959.48	kg CO_2e

7.3.4 Grow your Own Food Lifetime Savings

The lifetime savings for growing your own food was based on the 10 gardens and nursery.

	kg fruit/veg	Conversion Factor (2.09kg co2e/kg)		
Home grown fruit and veg	199	2.09	**416**	kg CO_2e
Nursery Garden	2.3	2.09	**4.8**	kg CO_2e
	Annual Saving	**Lifetime Savings (yrs)**		
	416	10	**4159**	kg CO_2e
	4.807	25	**120**	kg CO_2e
			4279	**kg CO_2e**

7.3.5 Lifetime Savings Totals

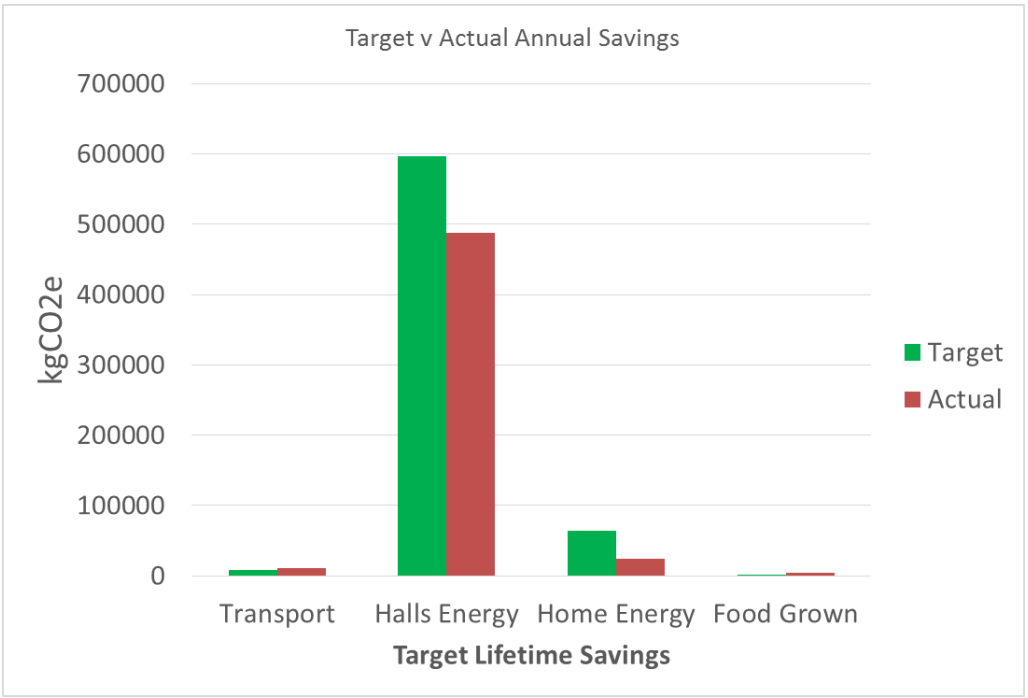
The outcome of the project in terms of measurement is as follows :-

Total Lifetime savings from project	**Baseline**		**Actual**	
Transport	8.70	Tonne CO_2e	10.72	Tonne CO2e
Energy Halls	597.00	Tonne CO_2e	487.38	Tonne CO2e
Energy Homes	63.84	Tonne CO_2e	23.96	Tonne CO2e
Food	0.68	Tonne CO_2e	4.28	Tonne CO2e
	670.21	**Tonne CO_2e**	**526.34**	**Tonne CO2e**

Although it may seem disappointing not to have achieved the baseline figures, this is only in terms of measurement at the time of writing this report. Not only are various benefits still to be measured, eg home

energy and hall lighting but the education of many has still to be embedded in their way of life and certainly many home improvements will be taken on board when opportunities arise.

Below is a chart showing the actual savings that we have achieved against the target within each of the major areas.



8 FINANCE AND ADMINISTRATION

8.1 OBTAINING THE QUOTES

As part of our application process we had to decide what energy efficiency improvements we could make and then seek three quotes for this work when it would amount to more than £5,000.00. We decided to use local companies where possible to keep carbon impact to a minimum. This proved to be more complicated and frustrating than we thought for a variety of reasons e.g. we had to ask for more quotes than were needed as some of the contractors did not get back to us, and some would not come until we had an architect and architect's drawings. Others came and took no notes and it became clear that they would not be able to cope with the job. One insulation quote was well below the others but when we tried to follow that up we learned that the firm had gone out of business.

Despite creating written specifications, quotes did not cover the same pieces of work, especially where the zoning was concerned. Eventually we were able to come to agreements over what was sufficient to achieve our goals and to accept what seemed to be the most appropriate quotes, all which were accepted / agreed with our CCF advisor. (We realized later that this complication led to us initially claiming more money under the zoning heading than we required, however we received permission to transfer the excess to another heading in our budget.)

In summary Wardie Climate Champions applied to the Climate Challenge Fund for a total of £52,633.72. This amount was made up of the following:-

	Budget	Final
Publicity	£ 360.00	£ 284.55
Building Work Windows	£ 26,395.00	£ 26,395.00
Building Work Insulation	£ 6,140.00	£ 6,315.00
Zone Heating Controls	£ 13,153.72	£ 11,760.00
Cupola Insulation	£ 345.00	£ 345.00
Skip Hire	£ 150.00	£ 120.00
Hall Hire	£ 140.00	£ 140.00
Refreshments	£ 90.00	£ 61.94
Driving Lessons	£ 240.00	£ -
Bicycle Racks	£ 770.00	£ 770.00
Carbon Conversation Cours	£ 200.00	£ 192.00
Seeds, Plants and Tools	£ 100.00	£ 126.02
Stationery	£ 80.00	£ -
IT Cartridges	£ 200.00	£ 58.77
Photo copying	£ 80.00	£ 80.00
Prizes	£ 50.00	£ 47.55
Window Painting	£ 2,700.00	£ 2,700.00
Energy Monitors	£ 240.00	£ 10.55
Talks	£ 1,200.00	£ 29.99
Main Hall and Ceilings	£ -	£ 469.45
Upgrade to fluorescent fitir	£ -	£ 2,521.20
	£ -	£ -
	£ 52,633.72	£ 52,427.02
Unspent against budget		£ 206.70

The application was successful and we were granted the total amount.

Despite being advised that we would not receive any part of the grant until an outlay was made, a receipt issued to prove payment and then submitted with a Claim Form to the CCF, we received our first instalment on 20th May 2014 in advance which enabled us to pay deposits and allow major works to proceed efficiently. This was the amount required to pay for the main outlays covering Building Work (Windows), Building Work(Insulation), Window Painting, Bicycle Racks and Cupula Insulation and allowed us to make good headway with the main disruptive work over the summer period when most of the organizations were on holiday thereby causing the minimum of disruption to the community groups.

Subsequent claims were submitted for the rest of the expenditure and received in varying amounts according to work done or activities organized:-

Claim	Date	Amount
1	10th May 2014	£36,350.00
2	1st June 2014	£11,964.55
3	August 2014	£200.00
4	3rd November 2014	£238.75
5	14th November 2014	£181.10
6	16th February 2015	£1595.57
7	9th March 2015	£1129.84
8	March 2015	£767.21
Total		£52,427.02

8.2 REPROFILING

Once the project was underway it became clear that we had omitted to anticipate some of the costs involved and had overestimated the amounts required for other tasks. This involved applying to the CCF for permission to revise some of our budget headings so that we could transfer the excess amounts from some budget headings to another where we had fallen short or failed to anticipate a need. An example of this was the replastering and painting of the main hall roof after the removal of some redundant downlighters whose fittings were impeding the efficient installation of the insulation there. A further example was the replacement of the hall lighting with more energy efficient fittings which we had failed to quote for despite it being recommended in the original Energy Audit. However, we were allowed to go

ahead with this when it became clear that we had sufficient funds to do so. All our applications for reprofiling of our budget were treated sympathetically as the money was still being used for measures which contributed to energy efficiency of the buildings.

As far as the invoicing, paying of bills and general accounting for the use of the grant is concerned we were helped greatly as, being part of a church, there already existed an official finance convener who was able to set up a separate CCF accounting code to handle all the incomings and outgoings connected with the CCF improvements. We sent in receipts for bills paid to the CCF to provide the necessary accounting for the majority of the grant which was paid to us initially. For the remainder we paid the contractor from other church funds and then recouped the money afterwards via the claim forms to the CCF.

Although the finance systems were clear and easy to comply with whenever there was any doubt in our minds about what we needed to do in relation to the budgets it was very easy to email or telephone our development officer at the Climate Challenge Fund to ask for advice. This always came back quickly and efficiently, addressing all the points which had been raised as well as offering additional tips and resources to which we could refer. In addition to this, we felt that a very important aspect of the smooth running of the project was due to the opportunity we had to have several face to face meetings with our Development Officer so that a working relationship was established right from the beginning.

8.3 THE REPORT

The report was written and edited by the committee :-

Ev McVie

Fiona Campbell

Heather McHaffie

Karen Bowman

Margaret Robinson

Trevor Garlick

Assisted by Alice Hague

The committee would like to thank the following for their support throughout :-

Wardie Church Treasurer, Chairman of the Congregational Board, Convenors of Property and Finance Committees and the Minister & Session Clerks

The 800+ people who attended our events, gave us feedback and took part in surveys to contribute to this report.

Our CCF advisor who was always available to give us advice and guidance.

Appendix A

Sustainability Strategy

WARDIE SUSTAINABILITY STRATEGY 2015

Wardie is an Eco-Congregation and raises awareness of the beauty of God's creation in our worship, our activities & in speaking out for others.

We are committed to **Scotland's Communities Climate Pledge** :

1. To **reduce our greenhouse gases and carbon footprint** we will:

   a) Only heat a part of the building we are using and only if necessary, *e.g. let the church office know if our meeting is off,*
   b) Turn off lights and power when leaving,
   c) Shut doors and draw curtains,
   d) Encourage energy monitoring (at home),
   e) Encourage walking, cycling, scooter, bus or car-share,
   f) Learn more and share ideas about energy / carbon savings.

2. As a **fair trade** community, we will work together to:

   a) Buy Traidcraft or fair trade coffee, tea, sugar and biscuits,
   b) Ask for fair trade fruit and products when shopping,
   c) Give generously to Food Bank and Fresh Start for others,
   d) Encourage awareness of unfair trade and seek justice for all.

3. As **waste-watchers**, we will help to reduce landfill, and will:

   a) Use re-useable or recyclable cups, plates and cutlery,
   b) Dispose of waste to the correct bins in the church halls,
   c) Take bulky waste home and dispose of it responsibly,
   d) Encourage less consumerism and increase re-use,
   e) Use recycled paper, and put used paper in recycle bin,
   f) Give generously to charity shops (books, clothes, etc).

Welcome to Wardie an Eco-Congregation

Wardie Sustainability Strategy will be reviewed by Kirk Session and Congregational Board each year, and ideas and actions shared from members, visitors and hall users will be considered in the Wardie Parish Church Development Plan (available on request from the Church Office)

Wardie Parish Church is a Scottish Registered Charity number SC008710
Climate Challenge Fund, Scotland's Community Climate Change Pledge,
Keep Scotland Beautiful Scottish Registered Charity number SC030332

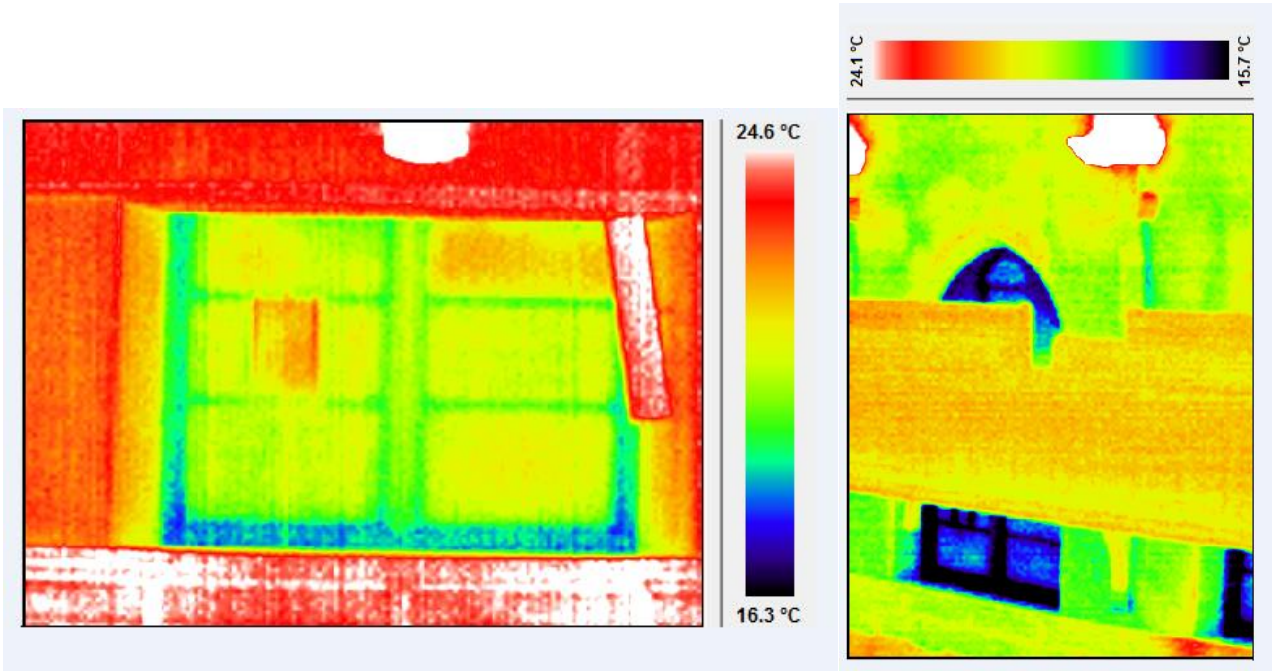
Appendix B

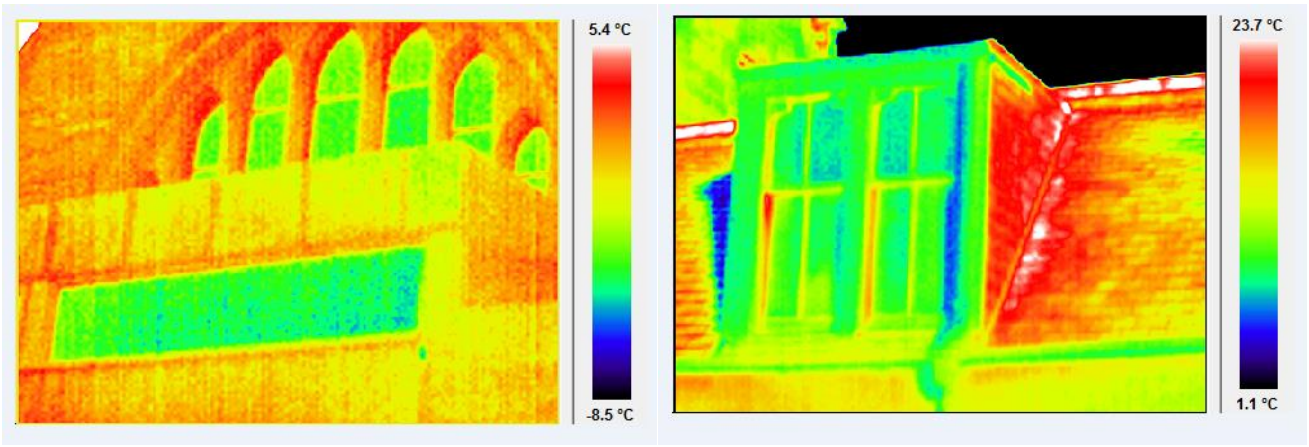
Edible Garden Survey Form

	Edible Garden Record Sheet	
Name:-		
Date	**Produce**	**Weight**
Total		

Appendix C

Thermal Images of Buildings





Appendix D - Make Do and Mend Pamphlet

This leaflet is the Wardie Church Guild response to the Climate Challenge Fund programme. It includes ideas on sewing, cleaning, cooking and general domestic duties, and some cheap suggestions as a reward for practising thrift and self-denial!

Ideas were gathered on saving resources by a group which grew up in a time when making do with what was available was pretty well the norm by necessity as much as choice There were about twenty-five of us aged from a 'bit less-than-60' to 90, who talked together in small groups with much reminiscing and laughter, and wrote down the ideas on post-it notes. This is the result – we hope you find it useful or at least amusing.

Most of the tips were tried and tested by Guild members once upon a time, but the editors accept no responsibility for their efficacy today!

SEWING

If you missed out when younger**, learn how to use a sewing machine**.

Patch worn elbows on jackets or jumpers.

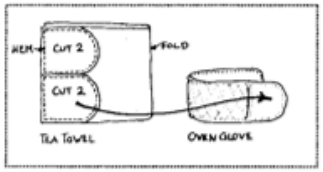
Revive worn shirts by 'turning' collars and cuffs – ie unpick, turn over and re-sew. Works best on casual shirts with no collar stiffeners.

Alter garments to suit you better, like changing to more interesting buttons (which can be bought in some charity shops)

Reuse best bits of old duvet-covers to make shopping bags (and keep one about your person at all times to avoid needing plastic)

To **shorten curtains**, cut off at the top and replace heading tape (or unpick and reuse the old). Easier and better result than re-hemming.

Give new life to a tired oven glove by using best part of an old tea towel to cover stained but still usable oven glove – see diagram.



CLEANING

You don't need lots of different cleaning products – 2 or 3 will do fine.

Try to run your **washing machine** with a full load, and use a low temperature, when possible, to save electricity.

Dissolve bicarbonate of soda, or salt, in water to soak off **stains in china cups** or **vacuum flasks**.

Washing soda and boiling water will clean **sink drains**.

To remove **chewing gum or candle wax** from fabric, put in the fridge or freezer and it will come off more easily. Then wash the item as normal.

For burnt saucepans, boil up with water to which you have added washing powder or salt and watch the black bits come off.

To clean **wooden furniture**, wipe with vinegar and water, dry carefully and polish up.

To remove **bloodstains** from fabric, soak in milk before washing as usual. (Did Agatha Christie know about this?)

Wipe out the **fridge/freezer** with malt (not balsamic) vinegar to kill lingering smells.

Clean **jewellery** with a soft toothbrush and toothpaste.

Cleaning windows: use vinegar or methylated spirit to clean, then dry and polish them up with kitchen towels; or, even more eco-friendly, use newspaper.

Heavy **tarnish on brass** can be removed with half a lemon dipped in salt, before washing and polishing up.

After **washing woollies**, put a tablespoon of vinegar in the water to remove all traces of soap.

Clean **silver cutlery** by boiling it in water with aluminium foil and bicarbonate of soda.

Don't try this at Home: *Clean gold and silver jewellery in* ***coca-cola*** *(and just think what drinking cola must do to your tummy)*

KNITTING

When cuff or welt are worn or out of shape, carefully cut a stitch above the worn part, pick out that row to give you two parts. Rip out and rewind the worn part and after picking up the stitches on the good part, knit back down. Good for a much loved hand knit.

IN THE GARDEN

Kill garden aphids and such like with a spray made up of vinegar, salt and washing up liquid. Or use cleansel.

Tattie bree (the water from boiled potatoes) **kills weeds** to the roots as does plain boiling water – particularly good on a paving. **Compost** vegetable waste, either yourself or via the council. Buy **refurbished garden** tools at Garvald Edinburgh's annual bazaar.

Old **animal fat** (not chicken) and porridge oats make fat-cakes for the **birds.**

Don't Try This at Home

Dry used teabags, dip in paraffin and use instead of firelighters!

(Only for South African BBQs)

GENERAL THRIFT

Save ribbon and paper from bunches of flowers, to re-use for your own gifts.

Cut the front picture off **greeting cards** and reuse as notecards.

Make next year's **Christmas gift tags** from suitable parts of this year's cards.

Re-use paper & envelopes.

Keep **supermarket plastic trays** to fill with baking for sales of work. Ditto nice jam-jars.

AROUND THE HOUSE

Don't **wash your clothes** until they need it.

Re-use **containers**- e.g. ice-cream tubs-for storage in fridge or freezer.

Don't be too hasty to **de-clutter**-it may come in handy later. E.g. glass jars for flowers, jams or buttons. Old clothes for fancy-dress.

When **rubber gloves** are past it, cut the wrist parts into wide, strong, stretchy rubber bands.

Cut **plastic tubes** of cream or lotions across, to get the last bits out.

Cut best bits out of old cotton t-shirts etc. for use as **cleaning cloths.**

Use a **damp cloth** at, e.g. picnics (keep in a poly bag) instead of 'wipes'.

If you do use j-**cloths**, wash and use again.

Before buying expensive equipment, borrow a similar one from a friend, and find out if it is suitable for you.

Keep **freezer/fridge** defrosted - it will use less electricity.

Boil only the amount of water you need at the time, OR if you have extra, store it for later in a vacuum flask.

If you use an electric cooker, **switch off the oven** about 10 mins. Before end of cooking time.

Keep **inner cardboard of kitchen roll** to bring home children's artwork from nursery/school; or to store paper you don't want to fold.

To store Christmas lights, wrap round inner roll of wrapping paper (which you made sure was recyclable when you bought it!)

Don't Try This at Home *To re-use an old inhumane* ***mousetrap*** *(!) clean it, paint it a bright colour and hang it on the wall as a giant paper clip holder.*

FOOD

Plan menus for a few days/a week ahead, and only buy what you need, to avoid waste.

Cook large quantities at a time (it will use no more power than small) then freeze some for another day.

If you have the oven on anyway, **prepare some of the next day's food ahead** (e.g. stock for soup, roasted veg for a salad) That way you get a nice surprise when you open the fridge, you don't have to start from scratch every time and will be less tempted to phone for a carry-out.

Before throwing things out, **look at 'use by'** rather than 'sell by' dates. And use your common sense!

Put lids on boiling saucepans.

Use **1 teabag for at least 2 cups** – and use a teapot.

Learn to use **that pressure cooker** in the cupboard - it won't blow up if you follow the instructions!

Use a slow cooker – less power and lovely to come home to.

Eat less meat (or even none) and bulk up the meals with veg and pulses.

Remember to **soak dry pulses** overnight ready to cook the next day, rather than using tins. Cooked pulses freeze well, so cook in bulk.

Defrost naturally rather than in the microwave –saves electricity.

Learn to joint your own chicken – much cheaper than buying pieces. You can end up with 4 bits of leg, 2 wings with some breast attached, 2 breasts, and a carcass to turn into excellent stock. Then pick the cooked bits off the carcass and use in sandwiches, fried rice etc.

Buy **seasonal and locally grown** food to save on carbon emissions.

Make **intelligent use of the freezer**: e.g. store bread and milk; clear things from fridge to freezer when going on holiday; turn surplus bread into breadcrumbs for another day (see recipes) freeze leftovers (label them carefully!)

Get another slice out of a loaf with a thick heel, by slicing it in half.

Be **creative with left-overs** –DON'T THROW THEM OUT! (see recipes)

A **ham or gammon knuckle** makes good stock, and provides lots of juicy meat to eat straight, or chopped or minced to use in recipes.

Make your own pasta sauces. Start with a fried onion, add a tin of tomatoes, garlic and herbs. Simmer to the right consistency. Mushrooms, aubergine, peppers etc. can all join the onion at the beginning.

When a recipe says **parmesan cheese**, consider whether mature Scottish cheddar - at half the price and not travelling so far (and lurking unloved at the back of your fridge) might not be just as nice.

Soup, soup and soup – nearly all vegetables can be turned into soup with a bit of care for tasty combinations, before they go past their best.

LEFT OVER RECIPES

Health Warning: all food left overs should be cooled, covered and refrigerated as soon as possible. When recooked you must ensure they are heated to a high temperature.

Pies. Make a well-flavoured white sauce, add left over chopped meat/ vegetables/ gravy and top with mashed potato or pastry. Choose any variations but take care that the combinations are sympathetic. Grated cheese will go well with fish or veg, tinned tomatoes with nearly everything. If you want more flavour, start with a gently fried onion and use herbs and spices.

Left-over potato makes nice little potato cakes, or add in chopped bacon, spring onion, tuna fish etc. etc. Either dust with flour, or dip in egg and breadcrumbs and fry, or fry it up with some onions, or use it to thicken soup.

Your own cooked left over **rice** can be fried with onion, veg, chopped meat and added herbs and spices, BUT do it within 24 hours.

Small quantities of meat can be bulked up with breadcrumbs or cooked pulses to **stuff vegetables** like peppers, tomatoes or courgettes.

Cabbage will reheat successfully in butter with some grated ginger or cumin seed— provided it was not over cooked in the first place!

Turn left over **double cream** into ice-cream – whip and add in very well sweetened fruit puree or good lemon curd and freeze quickly. A slosh of liqueur will go well too and make a softer ice.

Breadcrumbs: Coat fish, fishcakes, potato cakes, rissoles. Scatter on sauces for 'gratinee'. Use in stuffings. Fry with garlic and grated lemon zest for pasta topping.

KEEPING WARM AND HEALTHY

To keep your **core temperature** warm, and avoid colds and germs, cover your nose and mouth when out in cold weather.

Wear gloves in public places, like buses, to avoid germs.

On the bus, leather gives a **safer grip** on handrails than fabric.

To keep the heat in, close **shutters and curtains** as it gets dark – even if you do have double-glazing.

Don't despise the **humble hot water bottle** – and always take one on holiday. Lovely to cuddle in bed and great for soothing aches and pains.

Snuggle up to the dog – its temperature is higher than yours, and a towel on the sofa will cope with most of the mud and hairs- possibly.

CHEAP THRILLS to reward yourself for adopting all the tips!

Get out in the fresh air. **Cuddle a cat.**

Walk a dog, and see how many people talk to you.

Take time to **admire the natural world** around you

Bake something and ask a friend round to share it.

Smile at people when you are out – they might smile back!

Wear bright colours. **Go for a walk.**

Set a tray with tea in a pot and some nice china even if you don't have a visitor.

Re-read a book you enjoyed years ago. **Join a choir.**

Take a bus to an unfamiliar part of town or country.

Move the **furniture/pictures** around. **Swap a book** with a friend.

Keep a poem in your bag and share it with a stranger.

Listen **to music** without doing anything else at the same time.

Plan your **Desert Island Disc** (or heritage track) selection.

Read, think or compose a **prayer** of praise or thanksgiving.

Appendix E

Energy Monitor Pamphlet

Energy Monitor

For more information :- http://www.currentcost.com/product-cc128.html

This monitor has been lent to you through the Wardie Climate Challenge and supplied through Edinburgh City Libraries

Installation

It's important you observe some simple precautions before using the product.

The Current Cost monitor does not require you to carry out any electrical wiring. However, it is to be used in and around the electricity supply to your property. If you have any doubt about how to install it safely consult a qualified electrician. Similarly, if you notice anything unusual about your electricity supply, such as loose wires, exposed cabling, burn marks or holes in the insulating materials, damage to your meter, then stop immediately and consult an electrician or your energy supplier.

Do not attempt to repair or service any part of the Current Cost equipment. Contact our customer service department for assistance.

- Do not immerse the product in water, or any other liquids
- Do not expose the product to heat, flame, steamy conditions or extreme cold
- Do not open the equipment or touch any of its electronic circuitry
- Do not hit, strike or drop the equipment - if the display gets broken, take special care not to touch the liquid crystals
- Do not use this product for any purpose other than for which it was intended.

The monitoring should be done over 3 weeks.
We will contact you and arrange uplift near that time.

What will we do with the information :-

1) We will calculate, hopefully, what reduction you have achieved in the period and the corresponding CO2e saving achieved.
2) We will send you a copy of the results (anonomous)

Thank you for taking part and we hope that you benefit from using the energy monitor.

Got a problem, phone …….

A) This shows your current instantaneous usage of Power

B) This shows you what the cost per day would be if you used the same power throughout the day

C) This rotates between your usage over the last 24hrs, last 7 day usage and last 30 day usage in kiloWatt_hour

D) Current room temperature

E) Current Time

F) Shows relative usage Night/ Day/ Evening

So What does it tell me and what can I do ?

Firstly, it is useful to understand what your base load is – the energy used overnight is a good example and can be checked by reading A) above first thing in the morning before anything is switched on, including lights.
This base load can be made up of items that are on standby, items that are required eg alarm clocks, burglar alarms, internet hubs/ wireless repeaters, chargers, heating boiler – even in standby.

1) ***Take a note of the value and try and work out what it is made up from ?***

Whatever this value is, runs 10 hours overnight, probably everynight, a good target is less than 100W.

Secondly, after running for a day

2) ***Take a note of the value in C) when showing for 1 day***

Thirdly, Try switching on different items and see what difference that makes to the A) reading.

3) ***Take a note of a few items, kettle, electric shower, a hall light, laptop charging.***

Having set a baseline (your usage may be different during the week from the weekend), the challenge is to try and reduce your base load and your daily usage.

Wardie Energy Survey - Results Sheet

Base Load

Date	Time	Load - A)
2/8/14	*08:00*	*100W*

List some items and their load in kW.:-
Eg Kettle 2.25kW ……

Daily Load

Date	Time	Load C)
3/8/14	*17:42*	*10.2kWhr*

7 Day Load

End of Week	Date	Time	Load C) 7 day
X	*9/8/14*	*15:23*	*65kWhr*
1			
2			
3			

Should you need to change any settings – this is how you do it :-

Envi - Specifications

For more information on the data output of the Envi, please see further info HERE

Buttons are:

1. Up and down changes appliance view
2. OK changes between one, seven and 30 days
3. Press and hold OK to set the clock
4. Press and hold down to sensor-tune the whole house, or the currently-displayed appliance number
5. Press and hold up to set normal price (13.9p default, also sets low price the same)
6. Press and hold up and down to set low price (and start times, if prices are different)
7. Press and hold OK and down to download history to PC. Please note: all processor activity is halted during this download, even the clock, with a lot of history, the download may take some time! Self-resets when done
8. Press and hold Up during switch-on to display whole LCD for two seconds then software version number. Cycle power to restart.
9. Press and hold up and down during switch-on to do the above, then wipe all History and Tuning IDs and burn in fresh defaults, previous DSB is saved. Data is not physically erased, only the pointers are quickly set to zero, like deleting a hard disk file.