Boyton Village Hall

Energy Report and Action Plan

31st March 2011

Report prepared by Anna Gledhill, Business Energy Advisor,
Suffolk Coastal District Council and Groundwork East of England

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Energy Report and Action Plan

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1. Company Profile

Company Name:	Boyton Village Hall
Address:	The Street, Boyton, Suffolk , IP12 3LH
Company Representative:	Fred Stentiford - Treasurer
E mail:	fred.stentiford@btopenworld.com
Telephone:	01394 411469
Company Sector:	Village Hall
Employees:	N/A
Site buildings included in plan:	1
Activities included in CO_2(e) footprint:	Electricity & water
Date of site visit:	29/3/11
Business Advisor:	Anna Gledhill
Date of report:	31/3/11
Report prepared for:	Mr Stentiford and Mr Lilley

2. Executive Summary

The annual energy spend for Boyton Village Hall is estimated to be £124/yr, water spend is approximately £40/yr and the total annual carbon footprint is 0.52 tonnes. This report highlights opportunities for improvement which will create cost savings and carbon savings for the hall. Advice and information on sources of funding to help with the implementation of these recommendations have been detailed in section C of the Energy Action Plan.

As a priority, we recommend that Boyton Village Hall should focus on the following:

- **Reduce heat loss from building fabric**. The organisation should ensure the roof is fully insulated and that all windows and doors are fitted with draft proofing strips. The building already has double glazed windows which will help maintain some heat, however the additional insulation and draft proofing is likely to save around £19/yr and 0.1 tonnes of CO_2(e) each year.
- **Check the heating controls regularly.** Heating accounts for over 70% of your energy spend. Check that any heating controls (i.e. thermostat on WC wall heater) are working properly and reflect the occupancy patterns of the building. Ensure community members switch off all equipment (particularly the heaters) when the building is not being used.
- **Check room temperature settings.** Room temperatures should be set between 19^{o}C and 21 ^{o}C. Reducing the temperature by 1 ^{o}C will save up to 8% of your heating fuel costs (£10 per year).
- **Upgrade your lights.** Lighting accounts for 11% of your energy costs at around £10 per year (based on assumptions provided). Ensure lights are switched off and upgrade any remaining high wattage incandescent bulbs to 11W CFLs. Based on 15 hours a month usage, you could achieve savings of £8 and 0.04 tonnes of CO_2 per year by installing 11W CFLs.
- **Implement good house keeping.** Simply through implementing good housing keeping measures you can reduce your energy consumption by up to 15%. If achieved this could save you up to £19 a year. Use posters and stickers (available from the Carbon Trust) to raise interest. Tell site users how much energy is being consumed and where and ask them for suggestions to reduce consumption.
- **Consider installing Solar PV.** The building is well sited to take advantage of solar energy. Although energy use is low, any energy not used can be sold back to the grid as part of the Feed-In Tariffs (FIT). FIT provides a guaranteed rate for each unit of electricity generated and exported.
- **Explore Funding Opportunities for the Hall.** Funding is available to support the implementation of these actions. For further information see section 8.8.

3. Background

This action plan and the business advisor service is provided free of charge by Groundwork East of England and Suffolk Coastal District Council to Small to Medium Sized Enterprises (SMEs) in the Suffolk Coastal District. The service is funded through the Local Authority Business Growth Incentive (LABGI) Scheme, Groundwork East of England and Areas of Outstanding Natural Beauty Sustainable Development Fund. The aim of the service is to help SMEs reduce their carbon footprint and respond to climate change.

4. Users Guide

The report and action plan is designed to act as an information portal, tool and reference guide for your company. Ensure that all company directors and key staff, who will be involved in implementation, have a copy of this document.

The report details your company's annual carbon footprint and provides a breakdown of your energy use and costs. The breakdown will help you identify where you are using the most energy and where you may be able to make the biggest savings. We also benchmark your current performance against "good practice" and "typical" values for electricity and fossil fuel use for buildings and sector uses similar to your own.

This report is based on published $CO_2(e)$ emission factors and data made available by you during the review. Where information about your energy, transport and water use is incomplete or unavailable, we have made assumptions in order to complete the report. These assumptions are referenced throughout this report and are listed in Appendix 2 along with references to published emissions data. Please read this Appendix carefully. There are six main greenhouse gases which cause climate change and are limited by the Kyoto protocol. Each gas has a different global warming potential. For simplicity of reporting, the mass of each gas emitted is commonly translated into a carbon dioxide equivalent ($CO_2(e)$) amount so that the total impact from all sources can be summed to one figure.

The action plan identifies and prioritises practical achievable actions which will help you save energy, cut carbon emissions and costs. Your advisor has set apart key priority actions which they feel should be addressed first. In addition to these priority actions, you will find a wealth of further energy and cost savings actions for your business. We understand that not everything can, or should be, implemented at once and so we have designed this action plan to help you achieve change over time. All of the actions have been categorised and the simple tables allow you to assign chosen actions to members of staff and set proposed completion deadlines. Furthermore, all of the actions have been awarded with a key which clearly determines whether that action will result in high or low carbon and cost savings and require high or low investment. As a result, you can easily identify the quick 'no to low cost' wins and focus on the key areas of savings required. Please note that potential cost and CO2(e) savings from individual actions are not cumulative (e.g. improvements to the building fabric will cut the heating load and as a result savings achieved by replacing the boiler will be reduced proportionately).

The plan allows you to track and monitor your progress which is beneficial for internal reporting and also provides a useful foundation if you company is looking to implement an Environmental Management System (EMS) which requires target setting and monitoring. Make sure you keep staff up to date of your progress – many actions will require their input. Being informed of the savings and difference their actions are contributing to the company will maintain enthusiasm. Add the Energy Saving Report and Action Plan to internal meeting agendas to review progress and encourage staff participation.

The plan also provides relevant information on grants and loans for energy saving technologies, business networks and awards.

5. Benefits

This action plan has been specifically tailored to your business. If implemented effectively it can help you:

- Reduce energy use through no cost/low cost measures which will save you money
- Improve your energy efficiency by investing in improvements with a defined payback
- Change your business practices to cut energy, waste, water and carbon emissions
- Invest in renewable energy generation and fuels to cut carbon emissions
- Become more climate resilient

6. Support

The Suffolk Coastal Business Energy Advisor support package is available to help you. If you need any help or advice implementing this plan, the following service is available to you free of charge:

- Online/telephone support from the Suffolk Environmental Business Advisor and Suffolk Coastal Business Energy Advisor on **01394 444257**

A follow-up visit by your Advisor to check up and help you to progress your Action Plan
Additional environmental information is available on the Suffolk Creating the Greenest County website (www.greensuffolk.org.uk) covering topics from energy efficiency to environmental management systems.

If you have any queries about this report please call your Advisor on 01394 444257 or email suffolkbusinessadvisor@groundwork.org.uk.

7. Disclaimer

Suffolk Coastal District Council and Groundwork East of England are committed to providing the highest quality of information however; this report makes assumptions based on information provided by you and other external parties. These assumptions are listed in Appendix 2. Neither Suffolk Coastal District Council or Groundwork East of England can take responsibility for the accuracy of information provided by external parties and does not endorse or promote any of the organisations cited within this report.

A copy of the terms and conditions of the service are included along with the 'offer letter' in Appendix 1. A signed copy of this letter is held on the Suffolk Business Advisor files at Suffolk Coastal D.C. Melton Hill, Woodbridge, IP12 1AU.

The Suffolk Coastal Business Energy Advisor service does not involve any advice in connection with your legal responsibilities under environmental law or any other statutory or regulatory provision.

8. Boyton Village Hall
Energy Report

8.1 Annual Carbon Footprint

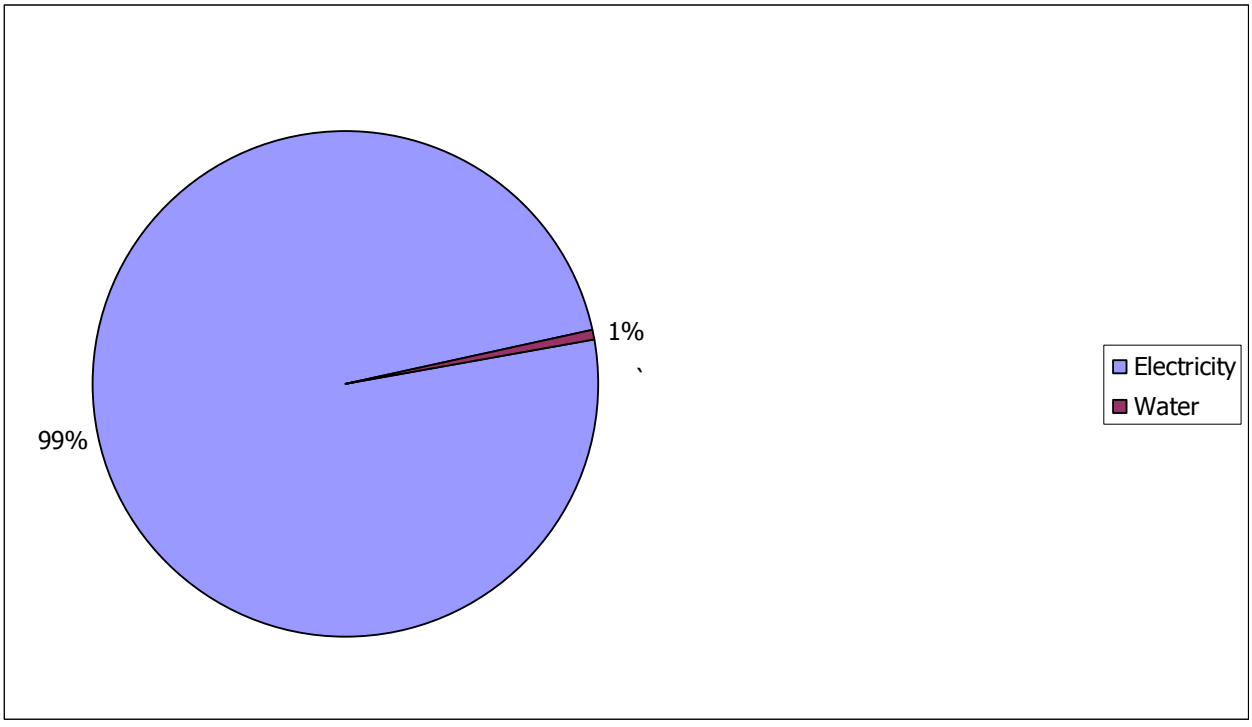
Table 1 and Pie Chart 1 below detail your company's annual carbon footprint for 2010. This includes imported and indirect emissions from electricity and water. Waste has not been included in this carbon footprint as the amount generated is minimal. The footprint is for the village hall, it does not include 'Scope 3' indirect $CO_2(e)$ emissions associated with your supply chains.

For more information on this and other assumptions made throughout the report please see Appendix 2.

Table 1. Boyton Village Hall Carbon Footprint 2010

Emissions		Use	Estimated cost (£/yr)	CO_2e (tonnes/yr)
Imported Energy (Scope 2)	Electricity	736 kWh/yr	£124	0.52 tonnes
Indirect Emissions (Scope 3)	Water and Waste Water	4 m^3	£37	0.003 Tonnes
Total Carbon Footprint $CO_2(e)$ (tonnes/year)			**0.52**	
Total Estimated Cost - (£/year)			**£161**	

Pie Chart 1. Boyton Village Hall Carbon Footprint 2010



Electricity makes up 99% of your carbon footprint, followed by water which is about 1%.

8.2 Main Energy Uses and Costs for your Building

The table below, based on information supplied by you during the review, estimates the cost of energy you use on site, broken down by activity. (This is based on the building being in use for 15 hours a month). It will help you to identify where you are likely to be using most energy and where you may be able to make the biggest savings.

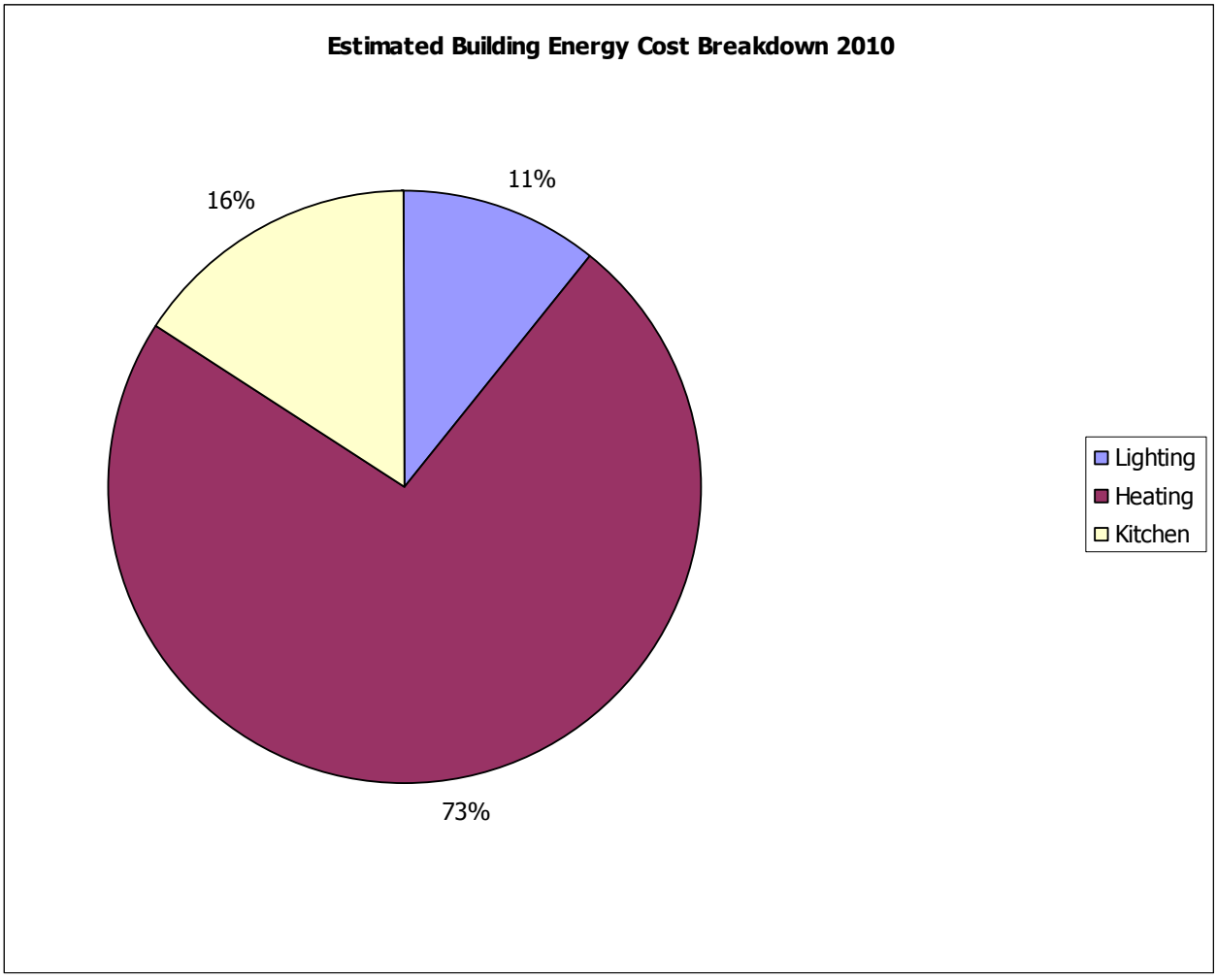
The heating costs are based on them being on full load for a quarter of the opening times. This is to take into account visitors that may not use all of the heaters or those that have them on a low/medium setting. All remaining costs have been allocated to the kitchen area. On the day of inspection, equipment in the kitchen was switched off which demonstrates items are only used when required.

Table 2. Boyton Village Hall Estimated Energy Uses, Costs and Carbon Footprint

Activity	Consumption (kWh/yr)	Estimated Cost (£/yr)	CO_2(e) Footprint (tonnes/yr)
Lighting	104 kWh/yr	£ 10	0.06 tonnes
Heating	698 kWh/yr	£ 69	0.46 tonnes
Kitchen	154 kWh/yr	£ 15	0.08 tonnes
Totals	**956 kWh/yr**	**£ 95**	**0.60 tonnes**

Pie Chart 2 indicates that your highest single energy spend is on heating, accounting for approximately 73% of your costs.

Pie Chart 2. Boyton Village Hall Estimated Energy Costs



8.3 Benchmarking Energy Use

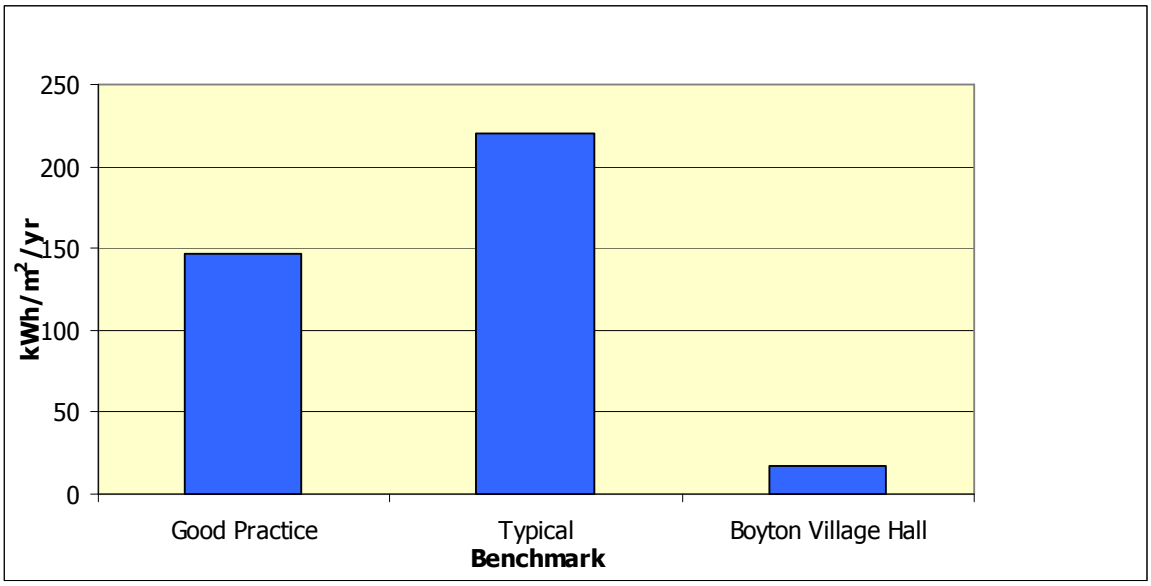
Indicative "good practice" and "typical" benchmark values for electricity and fossil fuel use are shown in Tables 3. Graphs 1 below is based on data for a Community Centre from the 'BMI retail sector energy benchmarking report 'ECG087; (the Carbon Trust web site)'. These figures should be treated with some caution because they are calculated for generic building types and uses similar to your own and will not correspond directly to your energy consumption activities, occupancy patterns, location and weather (degree days). We recommend that in order to calculate a benchmark specific to your particular situation, you should consult the online benchmarking tools available via the Carbon Trust website. When viewing the data below please note that the smaller the benchmark figure, the better the energy use performance.

This data shows that the Boyton Village Hall uses significantly less energy than a typical community centre. This is likely to be due to its low occupancy levels.

Table 3: Benchmark energy use for community centres (kWh/m^2/yr)

Benchmark energy use for community centres (kWh/m^2/yr)					
Boyton Village Hall		**Good Practice**		**Typical Community Centre**	
Fossil Fuel	Electricity	Fossil Fuel	Electricity	Fossil Fuel	Electricity
0	17	125	22	187	33
17		147		220	

Graph 1: Benchmark energy use for Community Centres



8.4 Heating Costs and Upgrade Options

Heating is currently costing approximately £70 per year. A new radiant heater has recently been installed in the hall (Dimplex QXP) which is alongside 2 additional radiant heaters and an electric fan heater. In this instance, radiant heaters are the most economically viable technologies for the site as occupancy is so low and energy requirements are low. They produce rays that pass through air without heating it, when the rays hit a surface or person; the energy is converted to heat. This makes it is ideal for buildings which have high air change rates.

8.5 Building Fabric

Using building heat loss data from the Energy Saving Trust we have estimated typical heat losses throughout the village hall. Table 4 below highlights these losses and the associated costs per year and CO_2(e) emissions as a result of the heat losses.

Table 4. Boyton Village Hall Existing Heat Losses and Associated Costs

Distribution of Existing Heat Losses				
Building Fabric	**Heat Loss (%)**	**Energy Loss (kWh)**	**Cost (£/year)**	**CO_2(e) (t/year)**
Walls	33	230	£23	0.13
Windows	18	126	£12	0.07
Roof	26	181	£18	0.10
Floor	11	77	£8	0.04
Ventilation	12	84	£8	0.05
TOTAL	**100**	**698**	**£69**	**0.38**

In a typical domestic style building, the largest heat losses occur from your walls, roof and windows collectively costing up to £53 a year and responsible for 0.29 tonnes of CO_2(e) a year. During the review it was noted that building does not have roof insulation, although the windows are double glazed. Table 5 below identifies the likely savings that should be gained annually from this building improvement. As the buildings occupancy increases, the savings will become more significant and the payback period will decrease.

Table 5. Boyton Village Hall likely Savings from Insulation

Building Improvement	Savings (£/yr)	CO2e (t/year)
Wall insulation	£6	0.03
Draft proofing	£5	0.03
Roof insulation	£8	0.04
TOTAL	**£19**	**0.1**

8.6 Waste and Recycling

Boyton Village Hall currently has waste and recycling facilities on site which consist of:

- 1 general waste bin (240 litre)
- 1 dry recyclables bin (240 litre)

The council provides this by-weekly collection service at no cost. Discussions concluded that waste generated on site is minimal and community members are encouraged to recycle wherever possible. On this occasion a detailed waste analysis has not been undertaken as quantities are low and sporadic (coinciding with village events).

8.7 Renewable Energy

Please find below some information on solar energy which may be of interest to you. This section is designed to give you further information and potential scenarios for this technology. It also provides information on the electrical Feed in Tariff opportunities.

Although Boyton Village Hall's annual energy usage is relatively low, the organisation should consider the installation of solar PV as any energy not used can be sold back to the grid at a guaranteed rate for each unit of electricity generated and exported.

- **Feed in Tariff Opportunities**

The Department of Energy and Climate Change (DECC) have announced a series of financial packages to encourage the uptake of small scale renewable energy systems. The Clean Energy Cash Back scheme is made up of two programmes; The Electrical Feed in Tariff which launches in April 2010 and the Renewable Heat Incentive which is set to launch in June 2011.

Both schemes guarantee a fixed minimum payment per kWh of either heat or electricity generated over a period of 20 years (25 years for Solar PV) giving householders, community groups and businesses the confidence to make long term investments in renewable energy systems. The tariff varies per technology but aims for overall return of investment no lower than 5%, in most cases it's much higher.

Technologies receiving payment from April 2010 include Solar PV, Wind, Hydro, Mirco CHP and Anaerobic Digestion. Technologies set to receive payment from June 2011 include Solar Thermal, Heat Pumps, Biomass Systems, Biogas and Biodiesel. Payment rates are linked to inflation and are tax free and all installations must be accredited under the Microgeneration Certification Scheme (MCS).

For further information visit the DECC website at www.decc.gov.uk.

- **Solar PV**

Solar photovoltaics (PV) are now increasingly being used to generate electricity locally for both industrial and domestic uses and to feed power into the electricity grid. These panels will require a structural survey and may require planning permission. Commercial solar installations range from 10kW to over 1 MW (1 megawatt = 1,000 kW).

Solar PV case study: A 2.7kW system costing £13,700 to install would have an annual benefit of £1,155 (£930 Feed in Tariff, £56 export bonus and £169 avoided import costs) and a 12 year pay back saving on average 1 tonnes of CO_2(e) per year. The Return on Investment would be 8.4%.
N.B Calculations are based on the tariff rates announced on 1st February 2010 and assume that 50% of the power is exported, the import price is 15 p/kWh and kWh output figures are based on industry estimates. Grants or loans are not included in these calculations. In reality, it is likely that your export % could be a lot higher than 50%.

The Joint Research Centre (JRC) European Commission have a useful online map tool that enables you to calculate the output from Solar PV systems in your area. Visit: www.re.jrc.europa.eu/pvgis. Table 7 below details the tariff levels for the electricity financial incentives (pence) calculated to offer between 5 and 8% return on initial investment in the PV.

Technology	Scale	Tariff level for new installations in period (p/kWh)			Tariff lifetime (years)
		Year 1: 1.04.10-31.03.11	Year 2: 1.04.11-31.02.12	Year 3: 1.04.12-31.03.12	
PV	≤4 kW (new build)	36.1	37.8	33.0	25
PV	≤4 kW (retrofit)	41.3	43.3	37.8	25
PV	>4-10kW	36.1	37.8	33.0	25
PV	>10 - 100kW	31.4	32.9	28.7	25
PV	>100kW - 5MW	29.3	30.7	26.8	25
PV	Standalone system	29.3	30.7	26.8	25

Table 7. Tariff Levels for PV

Before installing renewable technologies, you should consider all carbon saving opportunities, risks and issues and maintenance opportunities. A feasibility study and pilot study would need to be carried out and research for sources of financial support. Remember that renewable technologies would be eligible for Carbon Trust 0% Energy Efficiency Loan (www.carbontrust.co.uk/loans) and Suffolk Carbon Reduction 0% loan (www.answerproject.eu).

As a next step, we would advise that you contact any of the businesses detailed below to further investigate and scope whether renewable technologies are an appropriate, feasible and cost effective option the village hall. Manufactures will be able to provide you with the expected annual output of solar panels as a function of annual average solar hours in your area. This information along with your energy budget (detailed in this report) will help you decide which size solar panel will best meet your electricity needs. Remember that all installations must be accredited under the Microgeneration Certification Scheme (MCS) in order to qualify for the Feed in Tariff.

1. East Green Energy
Address: East Green Farm, East Green, Kelsale, Saxmundham, Suffolk. IP17 2PH
Telephone: 01728 602316
Website: www.eastgreen.co.uk

2. RenEnergy Ltd
Address: Woodbastwick Road, Blofield Heath, Norwich, Norfolk. NR13 4RR
Telephone: 0845 225 2727
Website: www.renenergy.co.uk

3. Aran Services
Address: Units 3-6 The Old Station, Higham, Bury St Edmunds, Suffolk IP28 6NL
Telephone: 01284 812520
Website: www.aranservices.co.uk

8.8 Funding

Below are some funding options for Boyton Village Hall to consider applying for to help with the implementation of our recommendations:

Transforming Suffolk Community Fund and Greenest County Fund
Grants of up to £5,000 and £25,000 for Suffolk's voluntary and community groups, including social enterprise companies and community interest companies, so that they may deliver projects into Suffolk that work towards delivering the Suffolk Community Strategy 2008-2028. The Hall would meet the criteria of reducing your carbon footprint.
Website: www.suffolkfoundation.org.uk
Contact: Sue Wright on 01473 734120

Suffolk Coast and Heaths Sustainable Development Fund
Each year the Suffolk Coast and Heaths Unit receives money called the Sustainable Development Fund (SDF), from Natural England, to support projects which will enhance and/or benefit the Area of Outstanding Natural Beauty (AONB). In the past they have funded heating upgrades for organisations.
Website: www.suffolkcoastandheaths.org
Contact: 01394 384948

E-On Source Fund
A fund that grants of up to £20,000 to community groups and not for profit organisations who wish to consider and implement sustainable energy projects in their buildings. The project must benefit specific community groups namely; young people, elderly and people in fuel poverty.
Website: www.eon-uk.com

EDF Energy Green Fund
Funding is provided for the installation of small scale renewable energy technology and so may be relevant if you choose solar electricity heating. For further information visit; www.edfenergy.com/products-services/for-your-home/our-services/green-energy-fund.shtml.
Email: greenfund@edfenergy.com

If you would like any support or help in applying for any of these, or other, funding streams then please do not hesitate to get in touch with me on 01394 444257 or at anna.martin@groundwork.org.uk.

9. Boyton Village Hall
Energy Action Plan

9.1 Boyton Village Hall Priority Actions

The following actions have been identified as a priority for your business. Each action has been assigned a symbol to indicate the potential level of investment required along with potential carbon dioxide and cost savings for your business. The key for the following actions is as follows:

Capital Investment Cost	None or low	Moderate	High
	£	£	£

Potential $CO_2(e)$ Saving	Little or none	Moderate	High
	$CO_2(e)$	$CO_2(e)$	$CO_2(e)$

Potential Cost Saving	Little or none	Moderate	High
	£	£	£

1. Reduce Heat Losses from the Building

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Cut out drafts. Check doors, windows and roof lights regularly and ensure that any cracks and gaps are repaired promptly.	£	$CO_2(e)$	£			
	Insulate your loft. More than 25% of a typical building's heat is lost through the roof. Reduce this to only 5% by making sure that all of the roof spaces are insulated to a depth of 270 mm or to a minimum 'u' value of 0.25 $W/m^2/k$.	£	$CO_2(e)$	£			
	Insulate your walls. Nearly 35% of your heat loss is through the walls. Reduce these losses by ensuring that the building has cavity or soild wall insulation.	£	$CO_2(e)$	£			

2. Reduce Solar Gain in the Summer

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Fit shading, solar blinds to the windows Rooms with south facing windows can experience significant solar gain during the summer. Fit removable external shading or internal solar blinds to reduce summer temperatures (these can be removed in winter to maximise natural light.	£	$CO_2(e)$	£			

3. Check and Amend Heating Controls

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Check the heating controls regularly. Heating accounts for over 70% of your energy spend. Check that any heating controls (i.e. room thermostats) are working properly and reflect the occupancy patterns of the building.	£	$CO_2(e)$	£			
	Check room temperature settings. Room temperatures should be set between 19°C and 21 °C. Reducing the temperature by 1 °C will save up to 8% of your heating fuel costs (£6 per year).	£	$CO_2(e)$	£			
	Introduce a check programme. Regular checks and maintenance should be conducted to ensure that the heating controls are set appropriately and working properly.	£	$CO_2(e)$	£			

4. Consider Upgrading Lighting

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Upgrade your lights. Although lighting is a small percentage of your energy use (11%) You could achieve savings of £8 and 0.04 tonnes of CO_2 per year by upgrading your lights.	£	$CO_2(e)$	£			
	Replace any incandescent bulbs and halogen spotlights with Compact Fluorescent Lamps (CFL's) for minimal outlay and immediate savings.	£	$CO_2(e)$	£			

5. Implement an Energy Awareness Campaign for all Site Users

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Involve the community in saving energy. You should be able to save 10 to 15% of your total energy costs (up to £19/year) by implementing common sense, good housekeeping measures.	£	$CO_2(e)$	£			
	Create an awareness campaign. Use posters and stickers (available from the Carbon Trust) to raise interest. Tell site users how much energy is being consumed and where and ask them for suggestions to reduce consumption.	£	$CO_2(e)$	£			
	Consider setting a 'condition of use' term that asks all site users to help keep the sites running costs and carbon footprint down. Spend 5 minutes with each of the existing users at the start of their session explaining the energy savings actions you are looking to implement and ask for their support and co-operation.	None	$CO_2(e)$	£			

6. Investigate Solar PV for the site

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Consider installing a solar energy system. The building is well sited to take advantage of solar energy. Although energy use is low, any energy not used can be sold back to the grid as part of the 'feed in tariff'.	£	$CO_2(e)$	£			

7. Explore Funding Opportunities for the Hall

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Creating the Greenest County Grant Fund. The new "Greenest County Fund" is for voluntary and community groups who wish to deliver community based carbon reduction projects that are 'visionary' and forward thinking in line with Suffolk County Council's Greenest County mission. Grants of up to £25,000 are available for community groups who want to significantly reduce their carbon footprint and inspire others locally. www.greensuffolk.org.	None	$CO_2(e)$	£			
	E-on Source Fund. A fund that gives grants of up to £20,000 to community groups and not for profit organisations who wish to consider and implement sustainable energy projects in their buildings. The project must benefit specific community groups namely; young people, elderly and people in fuel poverty. http://www.eon-uk.com/about/2654.aspx	None	$CO_2(e)$	£			
	Suffolk Coast and Heaths Sustainable Development Fund. Each year the Suffolk Coast and Heaths Unit receives money called the Sustainable Development Fund (SDF), from Natural England, to support protects which will enhance and/or benefit the Area of Outstanding Natural Beauty (AONB). For more information and advice about SDF, please contact the Suffolk Coast and Heaths Unit: Tel: 01394 384948 or email SDF@suffolk.gov.uk or visit www.suffolkcoastandheaths.org.	None	$CO_2(e)$	£			
	EDF Energy Green Fund. Funding is provided for the installation of small scale renewable energy technology or for feasibility studies. More information can be found at: http://www.edfenergy.com/products-services/for-your-home/our-services/green-energy-fund.shtml	None	$CO_2(e)$	£			

10. Additional Energy Saving Actions and Useful Information for Boyton Village Hall

The following tailored actions could also significantly save your business money and reduce your carbon emissions. The same key applies as before to indicate whether the action requires and brings little, or moderate or high investment or savings.

1. Building Fabric

2. Heating

3. Cooling

4. Lighting

5. Water

6. Waste and Recycling

7. Renewable Energy

8. Energy Management

9. Green Electricity

10. Kitchen Areas

11. Fridges and Freezers

A. Adapting to Climate Change

B. Business Networks and Awards

C. Tax Relief, Loans and Grants for Energy Saving Technologies

1. Building Fabric

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Improve the building fabric. Heating accounts for over 70% of your energy spend. Given the age of the building (58years old) it is likely that significant savings could be made by improving the building fabric. The Carbon Trust estimate that heat loss in a typical commercial building can be reduced by up to 58% by installing roof and wall insulation, improved glazing and draft proofing.						
1.1	**Insulate your loft.** Your building appears to have little if any roof insulation. More than 25% of a typical building's heat is lost through the roof. Reduce this to only 5% by making sure that all of the roof spaces are insulated to a depth of 270 mm or to a minimum 'u' value of 0.25 $W/m^2/k$. This is one of the most cost effective ways to save energy with a payback period of between 1-4 years. Consider the following green products for roof insulation. ▪ Warmcell – a loose fill made from recycled paper ▪ Ecowool (or Non-itch) – made from recycled bottles ▪ Thermafleece – batts of sheep wool ▪ Hemp and Flax batts	£ - £	$CO_2(e)$	£			
1.2	**Insulate your walls.** Nearly 35% of your heat loss is through the walls. Reduce these losses by ensuring that the building has cavity or soild wall insulation. For solid walls consider dry lining with an insulated plasterboard (e.g. Kingspan) or sandwiching insulated foil onto battens behind traditional plasterboard. Alternatively, consider applying an internal insulating wall covering like 'Sempatap'.	£	$CO_2(e)$	£			
1.3	**Cut out drafts.** The Energy Saving Trust (EST) estimates that a typical domestic building will lose 15% of its heat through drafts and air infiltration. Make a significant difference to the heating bills at a minimal cost by checking doors, windows and roof lights regularly and ensuring that any cracks and gaps are repaired promptly.	£	$CO_2(e)$ - $CO_2(e$	£			
1.4	**Replace air vents.** Replace uncontrolled ones with louvered vents or even better, air quality (temperature/humidity) controlled vents or vents with built in heat recovery.	£ - £	$CO_2(e)$	£			
	Tools: ▪ Carbon Trust Technology Overview 014 – Building Fabric. Visit: www.carbontrust.co.uk/publications ▪ Energy Saving Trust Insulation and Glazing information at http://www.energysavingtrust.org.uk/Home-improvements. ▪ Greenspec provide a useful summary of sustainable insulation products and contact details at www.greenspec.co.uk/html/materials/insulation.html ▪ A proposal to improve building fabric may be eligible for a Carbon Trust interest free loan, or enhanced capital allowance (ECA). ▪ The Green Building Forum. Visit: www.greenbuildingforum.co.uk						

2. Heating

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
2.1	**Check the heating controls regularly.** Heating accounts for over 70% of your energy spend. A quick and cost-free way to make sure that you are using energy effectively is to check that any heating controls (i.e. timers and thermostats and room and radiator thermostats) are working properly and reflect the occupancy patterns of the building. If you are unsure how to do this contact the installation engineer for instructions. The cost of a site visit is likely to be paid back within months.	**None**	$CO_{2(e)}$	**£**			
2.1.1	***Check room temperature settings.*** Room temperatures should be set between 19°C and 21 °C. It is not uncommon in buildings with multiple users, to find that temperature settings have been left at maximum by people mistakenly trying to heat the building as quickly as possible. Train users how to use the controls or make them tamper proof. Reducing the temperature by 1 °C will save up to 8% of your heating fuel costs (£6 per year).	**None**	$CO_{2(e)}$	**£**			
2.1.2	***Introduce a check programme.*** Regular checks and maintenance should be conducted to ensure that the heating controls are set appropriately and working properly.	**None**	$CO_{2(e)}$	**£**			
2.2	***Remove and replace electric and storage heaters.*** You are currently spending £69 on electric heating. Consider the following options to replace these heaters and decrease your costs.						

	Action	Capital cost	$CO_2(e)$ Saving	Cost saving	Action Chosen	Staff	Completion date
2.2.1	▪ **Replacement option 1. ASHP** Air source heat pumps (ASHPs) work on the same principal as air conditioners, but in reverse. They have a power coefficient (CoP) of between 3 and 5, (delivering 3 to 5 kW of heat for every kW of electricity consumed) which varies depending on the external temperature and heat delivery temperature requirements. They can be used either for space heating, (providing warm air or supplying low temperature radiators/under floor heating systems) or to supplement traditional hot water systems. An ASHP operating at a CoP of 4, could potentially meet much of your heating demand at a cost of £17 each year potentially saving up to £52 and 0.4 tonnes of CO_2. Air source heat pumps have external fans which have been associated with noise complaints so you would need to consider the impact of this on your neighbours and consult your local Environmental Health or planning team before proceeding.	**£**	**$CO_2(e)$**	**£**			
	Tools: ▪ Carbon Trust Guides CTV034, CTG002 and Good Practice Case Study 002 – Radiant Heating at Howden Compressors. Visit: www.carbontrust.co.uk/publications ▪ Anglia Woodfuels http://www.angliawoodfuels.co.uk/Content/Default.asp ▪ Remember, a proposal to upgrade your heating controls, boiler or replace your heating system (including storage heaters) may qualify for a Carbon Trust loan or the Enhanced Capital Allowance scheme.						

3. Cooling

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
3.1	**Fit shading, solar blinds or film to the windows** Rooms with south facing windows can experience significant solar gain during the summer. Fit removable external shading or internal solar blinds to reduce summer temperatures (these can be removed in winter to maximise natural light). Alternatively use solar reflective film or re-fit the windows with special heat reflective glass.	**£ - £**	**$CO_2(e)$**	**£**			
	Tools: ▪ For commentary and information on Energy Management visit www.vesma.com ▪ The Carbon Trust Technology Guide 005 - Air Conditioning can be found at www.carbontrust.co.uk/publications						

4. Lighting

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
4.1	**Upgrade your lights.** Lighting accounts for 11% of your electrical costs and about £10 of your total energy spend. Based on your estimated current use, you could achieve savings of £8 and 0.05 tonnes of CO_2 per year by upgrading your lights. The new lights will last up to eight times longer so you will also be saving on maintenance costs.						
4.2	**Encourage staff to turn off lights.** Switching off lights when not needed can save up to 15% of your lighting costs. Fluorescent lights use only a few seconds worth of energy to start up, so it is almost always cheaper to turn them off than to leave them on and this is one of the most visible statements that you can make to the public about your commitment to the reducing your environmental impact.	**None**	$CO_2(e)$	£			
4.3	**Make better use of natural lighting.** People prefer to work in natural light and using it saves money. You can: ▪ Keep windows and roof lights clean and switch off the lights where they compete with natural sunlight. ▪ Angle the blinds so that light is reflected off the ceiling. ▪ Trim vegetation preventing the light from entering the ground floor rooms or, ideally, replace it with low growing deciduous shrubs.	**None**	$CO_2(e)$	£			
4.4	**Improve your lighting controls.** The Carbon Trust estimates that typically, businesses can reduce their lighting costs by 30% by installing effective lighting controls. Below are some improvements that your business can make.						
4.4.1	***Use timers*** to ensure that lights in public areas are turned off at the end of the day.	£ - £	$CO_2(e)$	£ - £			
4.5	**Clean and maintain the lighting systems.** The efficiency of lighting systems (e.g. skylights and windows) can deteriorate by more than 30% over two years due to the build up of dust and dirt. Get the most out of your lights by setting up a lighting maintenance and cleaning programme.	£	$CO_2(e)$	£			
4.6	**Replace lights that dim with age.** Traditional halophosphate fluorescent lights dim with age so it is important to replace them regularly. Even when the tube is no longer working, an old style starter (ballast) will still be drawing about 25% of the power.	£	$CO_2(e)$	£			
	Tools: ▪ Real World Energy Solutions (Suffolk based) www.realworldenergysolutions.co.uk ▪ BLT Direct, http://www.bltdirect.co.uk/ supply and install lights and fittings (Suffolk based). ▪ Remember, a proposal to upgrade lighting may qualify for a Carbon Trust loan or Enhanced Capital Allowance. ▪ Carbon Trust Fact Sheet GPG 319 - Lighting www.carbontrust.co.uk/publications						

5. Water

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
5.1	**Control your water costs.** Your water bill comes to about £40/yr. Envirowise estimates that most businesses can cut water costs by 30% by understanding how much they use and identifying simple changes to cut consumption. Visit their website at http://www.envirowise.gov.uk/category.aspx?o=Rippleffect for detailed actions and more information.						
5.2	**Assess your toilet cisterns.** These account for over 40% of water consumption in the workplace. Check for the sound of continuously running water and replace faulty valves. Reduce the cistern volume of older toilets by fitting a hippo or cistern dam and save up to 20% per toilet.	£	$CO_2(e)$	£ - £			
5.4	**Check taps regularly**. A tap dripping just two drops per second wastes nearly 10,000 litres/yr. A dripping hot water tap means you are paying to heat the water before losing it.	£	$CO_2(e)$	£			
5.5	**Fit flow restrictors and/or aerators to taps.** Flow restrictors reduce consumption from 15 – 18 litres/minute to 8 – 10 litres/minute. Energy efficient showerheads can make even bigger savings.	£ - £	$CO_2(e)$	£			
	Tools: ▪ Envirowise Fact Sheet - EN798 can be downloaded at www.envirowise.gov.uk						

6. Waste and Recycling

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
6.1	**Reduce.** Look at how much waste you are currently producing and the different material types. Identify materials that could be reduced e.g. paper use, packaging or junk mail. Encourage staff to reduce their usage through intranet, internal staff newsletters and posters.	None	$CO_2(e)$	£			
6.2	**Reuse.** Before disposing of any resources check to see if they have a reuse value. The Eastex materials exchange facilitates exchanges between members with items and materials that they no longer require and want to pass or sell on with those that need the materials. Donating items to local community groups or schools can be excellent PR and reduce your disposal costs.	None	$CO_2(e)$	£			
6.3	**Recycle.** Ensure that you are sending the minimum amount of waste to landfill by: ▪ Identifying which materials you are currently recycling ▪ Identify if you can recycle more material types ▪ Maximise recycling rates – don't let recyclables sneak into your landfill bin ▪ Make it easy for staff to recycle by clearly labelling bins	£ - £	$CO_2(e)$	£			
6.4	**Compost.** If you have green spaces at your work consider composting your food and green waste ▪ It's simple and cost effective. ▪ It will enable you to compost waste on site and produce a quality feed for your outdoor areas. ▪ You can compost fruit peelings, food leftovers, tea bags, coffee granules, paper, cardboard and paper towels. ▪ By composting these items you will be reducing the amount of materials entering your bins, reducing the amount you to have pay for to be collected. ▪ Consider using a bokashi to produce soil conditioner www.bokashibucket.co.uk	None - £	$CO_2(e)$	£			
6.5	**Set up a recycling system.** The most effective way to ensure workers fully participate in the above is to ensure that you make it easier for them to reuse and recycle than landfill. ▪ Clearly label bins with what can be put in them ▪ Place paper bins close to desks and printers ▪ Have fewer and smaller landfill bins ▪ Assign a 'champion' in each office to promote this	None - £	$CO_2(e)$	£			

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
6.6	**Cooking Oil.** Cooking oil should not be poured down the drain and can be recycled, often for free. Try www.fishtradesupplies.co.uk or www.anglianoils.co.uk.	**None - £**	**$CO_2(e)$**	**£**			
6.7	**Update yourself on relevant legislation.** Ensure that you are complying with all legislations for the waste material types and quantities you produce e.g. The Waste Electronic and Electrical Equipment (WEEE) Directive means that no electrical or electronic equipment can enter landfill and must be disposed of by an authorised contractor. Sign up at www.netregs.gov.uk.	**None**	**$CO_2(e)$**	**£ - £**			
	Tools: ▪ Envirowise Waste Management and Managing Behaviour Change www.envirowise.gov.uk/uk/topics-and-issues.html ▪ Envirowise Publications and Tools www.envirowise.gov.uk/uk/our-services.html ▪ Eastex Suffolk Materials Exchange www.eastex.org.uk/suffolk ▪ Business Link, Environment and Efficiency, waste and Hazardous Substances. www.businesslink.gov.uk ▪ Waste and Resources Action Programme (WRAP) www.wrap.org.uk ▪ Suffolk Coastal Service Ltd offer trade waste and recycling, including a new food waste collection, call 01394 444000 for more information.						

7. Renewable Energy

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
	Invest in renewable energy. Below are a series of options to consider:						
7.1	**Biomass** Boyton Village Hall is well suited to biomass space and water heating. Modern boilers are easy to use with automatic ignition and fuel feed systems. ▪ Woodchip is almost carbon neutral and running costs (at about 1.5 to 3p/kWh) are about 1/3rd of those of electricity heating. These figures are even more attractive if you can supply the woodchip yourself. ▪ Wood chip is, however, bulky and storage and delivery can be an issue although you have good access and plenty of space so this shouldn't be a problem. ▪ To meet your existing heat demand you would need about 0.23 tonnes of woodchip each year (equivalent to $1m^3$ at 30% moisture content). The area of land required to produce this volume of woodchip would be about 0.03 Ha of short rotation coppice. Advice on biomass production, and supply and hire of related equipment is available from Anglia Woodfuels at http://www.angliawoodfuels.co.uk/Content/Default.asp	**£**	**$CO_{2(e)}$**	**£**			
7.2	**Install solar energy systems.** The building is well sited to take advantage of solar energy and much of your current hot water demand could be met by a solar thermal or other renewable energy system. ▪ In addition to water heating, consider installing a solar photovoltaic array to meet some of your electrical needs.	**£**	**$CO_{2(e)}$**	**£**			

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
7.3	**Air Source Heat Pumps.** An Air Source Heat Pump (ASHP) may be an appropriate solution for Boyton Village Hall. This is essentially an air conditioner, but working in reverse. ▪ ASHP's generally have a power coefficient (CoP) of about 4, delivering 4 kW of heat for every kW of electricity consumed, but some manufacturers claim CoP's of 7 or more. ▪ They operate most efficiently with an output temperature of about 60°C, which is best suited to under-floor heating but the heat can be used for space heating or to pre-heat hot water. ▪ An ASHP delivering 6 – 8 kW (appropriate for a small house) will cost between £3,000 £3,500 excluding the heat delivery system. ▪ Air source heat pumps have been associated with noise complaints so consult your local Environmental Health or planning team before proceeding.	**£**	**$CO_2(e)$**	**£**			
	Notes: ▪ Renewable energy systems may require planning consent or could potentially have adverse impacts on neighbours. It is always best to consult your local planning authority before proceeding.						
	Tools: ▪ A solar heating or other renewable energy scheme may be eligible for a Carbon Trust energy efficiency loan or Enhanced Capital Allowance.						

8. Energy Management

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
8.1	**Involve staff in saving energy.** Your biggest opportunities for energy saving are heating and within the kitchen These are within the control of your community members. You should be able to save 10 to 15% of your total energy costs (up to £19/year) simply by implementing some common sense, good housekeeping measures.	£	$CO_2(e)$	£			
8.2	**Create an awareness campaign.** Use posters and stickers (available from the Carbon Trust) to raise interest. Tell staff how much energy is being consumed and where and ask them for suggestions to reduce consumption.	£	$CO_2(e)$	£			
8.3	**Record activities and successes.** Make sure staff are kept informed of progress. Consider implementing a reward scheme for the team or individual that makes the most progress or comes up with the best idea.	None	$CO_2(e)$	£			
	Tools: ▪ Carbon Trust's Guide CTG001 Creating an Awareness Campaign is available free of charge, on line or by post.						

9. Energy Prices and Green Electricity

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
9.1	**Check your energy prices and source green electricity at the same time.** There are currently hundreds of business energy tariffs on the market. Check that you are not paying too much for your gas and electricity by getting quotes from alternative suppliers or energy brokers.	£	$CO_2(e)$	£			
	Tools: ▪ Suffolk Chamber of Commerce members can use Chamber Utilities on 0845 120 2423 or info@chamberutilities.co.uk. Ask them to provide quotes for accredited green electricity supplies at the same time. ▪ Alternatively, contact your current supplier to see what they can offer or consider companies such as Ecotricity or Good Energy.						

10. Kitchen

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
10.1	**Ensure your fridge is working efficiently.** A fridge uses between 200 and 300 kWh/yr so ensure the heat exchanger is kept clean, there is plenty of room for air circulation and the door seals are in good condition.	**None**	$CO_2(e)$	£			
10.2	**Review your kettle!** Although kettles are in use only occasionally, they have a big power demand, so making sure that they are not overfilled can make a significant difference. Use a 'eco-kettle' to save energy - it boils only water you need.	**None - £**	$CO_2(e)$	£			
10.3	**Encourage good housekeeping.** Catering represents one of your biggest energy uses. Save energy by implementing a staff training and awareness programme including a simple switch-off policy and providing information about pre-heat times, control settings and good practice can save in excess of 15% energy. Due to the high turnover of staff in catering operations an ongoing programme will be necessary.	**None**	$CO_2(e)$	£			

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
10.4	**Specifying new catering equipment.** Consider replacing any equipment over 15 years old. When purchasing, always consider the equipment's running costs over its lifetime, not just the capital costs. ▪ Induction hobs use 40% - 50% less energy than conventional electric or gas hobs. ▪ Combi-steam/convection ovens can reduce energy costs by around 50% compared to other equivalent cooking appliances. ▪ Install two smaller items rather than one large one if demand is likely to be variable	£	$CO_2(e)$	£			
10.5	**Switch off extractor fans.** Kitchen ventilation is one of the largest energy users in catering operations amounting to as much as 15% of electricity use. Switch off kitchen fans when not in use, or, fit automatic air quality and temperature controls.	**None**	$CO_2(e)$	£			
	Tools: ▪ Carbon Trust Sector Guide – CTV035 – Food preparation and Catering can be found at www.carbontrust.co.uk/publication ▪ Remember, new energy efficient catering equipment may qualify for a Carbon Trust loan or Enhanced Capital Allowance fund.						

11. Fridges, Freezers

	Action	Capital cost	$CO_2(e)$ saving	Cost saving	Action Chosen	Staff	Completion date
11.1.1	***Check temperature settings are not too low.*** Every 5°C lower than necessary can add 10% - 20% to running costs and CO_2 emissions. Temperatures must comply with the Food Safety (Temperature Control) Regulations 1995.	**None**	$CO_{2(e)}$	£			
11.1.2	***Locate cabinets away from sources of heat.*** Locate away from sources of heat (like direct sunshine) and ensure that there is plenty of air circulation around them.	**None**	$CO_{2(e)}$	£			
11.2	**Don't overfill.** Overfilling obstructs the cold airflow around the products and reduces the appliance's efficiency. The door is also left open for longer whilst people search for products.	**None**	$CO_{2(e)}$	£			
11.3	**Locate units to minimise heat gains.** Avoid installing equipment near heat sources like radiators, cooking equipment and direct sunlight. Ensure that the condenser units have ample ventilation so that waste heat can dissipate easily.	**None**	$CO_{2(e)}$	£			
11.4	**Check the condition of your fridges, freezers and chillers.** A typical 2 door drinks chiller uses 1,500 kWh/year, a 20 ft domestic freezer, between 400 to 600 kWh/yr and a fridge uses between 200 and 300 kWh/yr. Ensure that: ▪ Door seals are in good condition ▪ Heat exchangers are kept clean and ▪ There is plenty of air circulation around them	**None**	$CO_{2(e)}$	£			
	Tools: ▪ E-cube http://www.ecubedistribution.com/ ▪ Carbon Trust Guide GIL158 – How to get the best from your refrigeration system.						

A. Adapting to Climate Change

	Action	Action Chosen	Staff	Completion date
	Draw up a Flood Risk Contingency Plan. The Environment Agency's flood risk map at www.environmentagency.gov.uk shows that you are just outside an area subject to the risk of flooding.			
	Assess all areas of vulnerability. In addition to flooding, the organisation is vulnerable to other effects of climate change; extreme heat, storm damage, supply chain failure etc. Ensure that you include these in your plan.			
	Tools: ▪ Help and advice on contingency planning can be found at www.suffolkresilience.com (Suffolk's Joint Emergency Planning Unit).			

B. Useful Information and Contacts

	Grants and Loans	Information
	Suffolk Coastal Business Forum www.suffolkcoastal.gov.uk/yourbusiness/econdev/forum	The Suffolk Coastal Business Forum enables the Council to consult with representatives of the business community about its yearly spending plans. It has a genuine influence on Council policy.
	Suffolk Coastal Greenprint Environmental Forum www.suffolkcoastal.gov.uk/yourdistrict/greenissues/greenprint/	The Greenprint Environmental Forum was first set up in 1996 as a useful information exchange network where members can help local communities reduce their impact on our climate, land and water through improved energy and transport efficiency and waste minimisation. Membership is open to representatives from parish and town councils, environmental and community organisations and businesses across the district.
	Suffolk and Essex Environmental and Energy Group (SEEEG) www.environmentenergy.org.uk	This group provides a forum for the development and exchange of ideas on environmental issues, energy efficiency and the impact these have in the home and work place environment. SEEEG strives to educate and encourage managers and specifiers in environment & energy subjects.
	Green Tourism Business Scheme www.green-business.co.uk	An award scheme that celebrates the tourist business that have made a commitment towards reducing the impact of their business on the environment.
	Suffolk Resilience Business Continuity Forum www.suffolkresilience.com/business_continuity/business_continuity_forum.html	This network is set up to promote business continuity and to provide businesses with information on how to develop their business continuity arrangements, create opportunities for businesses to learn from each other and to ensure that businesses can provide each other with practical support and resources in the actual event of an incident. There is no charge or paperwork.
	Connect www.suffolkcoastandheaths.org	Connect has been developed by the Suffolk Coast and Heaths AONB Unit as a way of forging a partnership between visitors, local businesses and conservation. Connect collect donations from their customers which are used to fund specific projects within the AONB area. Businesses displaying the Connect symbol are supporters of the conservation of this area.
	Envirowise online Behaviour Change Tool www.envirowise.gov.uk	This free tool helps you gain support from staff and senior management for changes to improve your work environment. It covers a range of topics and allows you to pick and choose which elements of training you use to fit your business needs and available time.

C. Tax Relief, Loans, Grants and Awards for Energy Saving Technologies

Grants and Loans	Information
Carbon Trust Energy Efficiency Loan www.carbontrust.co.uk/energy/takingaction/loans.htm	The Carbon Trust offer interest free loans to help businesses cut their energy costs. To eligible for a loan you must have been in business for at least one year.
Carbon Trust Enhanced Capital Allowance (ECA) Scheme www.carbontrust.co.uk/energy/takingaction/eca.htm	The Carbon Trust offers tax relief if you invest in energy saving technologies via the ECA scheme.
ANSWER Suffolk Carbon Reduction Loan Scheme www.answerproject.eu/Loan	An interest free loan for organisations, individuals and small businesses from £500 to £5,000 with funding to be spent on work that delivers demonstrable carbon reductions. For more information call 0845 491 8735.
AquaFund www.adsm.com/aquafund.php	Financial assistance for UK based private and public sector organisations to help them make water savings and reduce water consumption. Organisations can improve water efficiency by up to a third with a guaranteed 50% cashable saving.
Low Carbon Buildings Programme grants www.lowcarbonbuildingsphase2.org.uk	This programme offers grants of up to 50% of the cost of installation (to the maximum cost of £200,000) of solar energy, biomass, ground and air source heat pumps and wind turbines.
The Brecks (Norfolk and Suffolk) LEADER Programme	Financial assistance available to farmers, growers, rural businesses, social enterprises and community groups in the Brecks area of rural Norfolk and Suffolk. Website:
Barclays Commercial Bank Green Cashback Loans www.secure.barclays.co.uk/environment/index_site.html	Financial assistance is available in the form of a loan scheme that offers a cash back payment to small businesses that are borrowing to finance environmental projects. Maximum value is £51,000 and maximum employees 249.
Grant for Business Investment	Financial assistance is available to businesses for new investment projects leading to improvement in productivity, skills and employment. Telephone: 01223 713900.
Carbon Trust "£1 million a day" www.carbontrust.co.uk/energy/takingaction.htm	A new campaign to help businesses of all sizes prioritise actins to kick start immediate energy savings, reduce carbon emissions and make significant direct costs savings.
Capital Grants for Biomass Systems www.bioenergycapitalgrants.org.uk	The Department for Energy and Climate Change offer capital grants up to the value of 40% of the difference between the cost of a biomass and traditional heating system.
Community Sustainable Energy programme www.communitysustainable.org.uk	This programme, run by the Building Research Establishment and distributed by the Big Lottery Fund will pay up to £50,000 for community-based organisations to install energy saving measures and renewable energy sources. Companies that are not registered charities but have a charitable purpose or community focus can also apply.
Creating the Greenest County Awards www.greensuffolk.org/what_are_we_doing/awards	Celebrating the environmental excellence of different organisations across Suffolk. Award winners will be named as 'Champions' and will be featured on the website and other promotional material as case studies.
BCE Environmental Leadership Awards www.bceawards.org	These awards aim to provide a unique opportunity for any business to demonstrate clearly that corporate responsibility is an integral part of their organisations, they are innovative and ahead of the competition.
Tools: ▪ **Green Grants Machine.** This provides an online search facility for grants and loans available to help businesses reduce their environmental impact. Search the database now at www.greengrantsmachine.co.uk	

Appendix 1. Terms and Conditions

Terms and Conditions

i. You agree to supply SCDC and Groundwork East of England with information which is reasonably required to conduct the audit. Where you indicate when you supply this information that it is confidential, or where it would appear to a reasonable person to be confidential, SCDC and Groundwork East of England will treat the information as confidential. The exceptions to this are where:

- The confidential information was already lawfully known, or became lawfully known to SCDC and/or Groundwork East of England independently;
- The confidential information is in, or comes into, the public domain other than due to wrongful use or disclosure by SCDC or Groundwork East of England;
- Disclosure is required by law (including but not limited to under the Freedom of Information Act 2000).

This service is funded by Groundwork East of England, the Suffolk Coastal District Council Business Growth Incentive (LABGI) fund and Suffolk Coast and Heaths Areas of Outstanding Natural Beauty (AONB) Sustainable Development Fund. For the purpose of managing and reporting on this project, SCDC and Groundwork are required to report project performance information to our funders, for example CO_2 savings, number of businesses which have participated in the project. We will not attribute to any specific source the data or information supplied to us when reporting to the funders.

ii. State Aid - Under the EC Regulation 69/2001 ("*de minimis*" aid regulation), this Business Energy Advisor service is a *de minimis* aid valued at approximately £700. There is a ceiling of 100,000 euros (approx. £60,000) for all *de minimis* aid provided to any one firm over a three year period. Any *de minimis* aid awarded to you under this offer letter will be relevant if you wish to apply, or have applied, for any other *de minimis* aid. For the purposes of the *de minimis* regulation, you must retain this letter for three years from the date on this letter and produce it on any request by the UK public authorities or the European Commission. (You may need to keep this letter longer than three years for other purposes.).
If you have received any *de minimis* aid over the last three years (from any source) you should inform us at this offer letter stage with the details and dates and amounts of aid received.

iii. After you have received the service you will be sent a customer satisfaction survey which we ask you to agree to complete and return. You may complete this anonymously if you wish. Any survey results will be used by SCDC/Groundwork East of England to develop the service and to report on the success of the project. When reporting, we will not attribute to any source comments made in the customer satisfaction surveys.

iv. SCDC and Groundwork wish to develop case studies where this service has been particularly successful. If you are identified as a potential candidate for a case study, SCDC and/or Groundwork will contact you to discuss this opportunity. SCDC and/or Groundwork will develop the case study with you and will not release the case study until you have approved it. SCDC and/or Groundwork will discuss developing a case study with you if your business is identified as appropriate.

v. Information and recommendations contained within the Energy Report and Action Plan are given as guidance only and it is a matter for you to investigate further to establish whether any information or recommendations given in the Energy Report and Action Plan are appropriate for your business. SCDC and Groundwork East of England are not liable for any actions taken or not taken as a result of the information and recommendations contained in or omissions from the Energy Report and Action Plan.

The Energy Report and Action Plan may suggest that you contact other organisations to seek further information. These organisations have not been vetted by SCDC or Groundwork East of England and it is a matter for you to establish whether or not these organisations may be of assistance to you. SCDC and Groundwork East of England accept no liability for your use of any of these organisations. The Environmental Business Advisor service does not involve any advice in connection with your legal responsibilities under environmental law or any other statutory or regulatory provision.

vi. In accepting this offer, you will ensure that an employee with the relevant experience and management responsibility will liase with the advisor. In addition you commit to working with the advisor and to supplying the advisor with the relevant information required to undertake this service e.g. access to energy billing data.

Appendix 2. Assumptions

The Organisations carbon footprint was measured using the following data:

Electricity Data for 2010 taken from bills and a meter reading on the day of inspection.

21st June 2010 – 29th March 2011
Day Rate: 9.48p/kWh
Standing charge = 7.84p per day
5% VAT

Heating data
The costs were based on these being used at full load for 45 hours a year (a quarter of the opening hours)
3x 3 kWh Radiant heaters (including the Dimplex QXP)
1 x 2 kWh heater (fan heater above door)
1 x 2.5 kWh heater (dimplex electric wall heater)

1x 2kWh hot water heater (Ariston EP10UR)

Water data was taken for the period of 2nd March 2010 to 3rd September 2010 and extrapolated to cover a year.

Supply cost of 128.64p/m3 was provided, the sewerage of cost of 143.03p/m3 was taken from Anglian Water's website.

Lighting: Electricity consumption for lighting is estimated using the assumption that the building is in use for 15 hrs a month.

Benchmarking figures are based on data from the Carbon Trust GIL062 publication. Floor area data for the site was provided at 56m2.

Heat loss percentages are taken from the Energy Saving Trust where they state that the following heat loss percentages; walls 33%, windows 18%, roof 26%, floor 11% and ventilation (drafts) 12%.

Insulation savings are calculated using the Carbon Trust u-value standards of 1.94 (existing) and 0.54 (new) for walls, 1.99 (existing) and 0.41 (new) for roofs and 5.6 (existing) and 3.2 (new) for glazing.