

Luton & Dunstable Hospital NHS Foundation Trust Carbon Management Programme

Carbon Management Plan (CMP)



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Contents

Foreword from L&D Hospital	4
Foreword from the Carbon Trust	5
Executive Summary	6
1. Introduction	9
1.1 Our low carbon vision and target	10
1.2 Our drivers and priorities for reducing our carbon emissions	10
1.3 The context for our Carbon Management Programme	12
2. Emissions baseline and projections	15
2.1 Scope	15
2.2 Baseline	15
2.3 Projections and Value at Stake	16
3. Carbon Management Projects	19
3.1 Existing projects	21
3.2 Planned / funded projects	21
3.3 Planned projects requiring funding	22
3.4 Potential future projects	23
3.5 Projected achievement towards target	24
4. Carbon Management Plan Financing	26
4.1 Assumptions	26
4.2 Benefits and savings - quantified and un-quantified	26
4.3 Financial costs and sources of funding	27
5. Actions to embed carbon management in your organisation	28
5.1 Corporate Strategy - embedding 'CO ₂ saving' across organisation	28
5.2 Responsibility - being clear that CO ₂ is everyone's job	29
5.3 Data management - measuring the difference, measuring the benefit	29
5.4 Communication and Training - ensuring everyone is aware	30
5.5 Policy Alignment	30
6. The management of your Carbon Management Programme	31
6.1 The Programme Board - strategic ownership and oversight	31
6.2 The Carbon Management Team - delivering the projects	32
6.3 Succession planning for key roles	32

6.4	On-going stakeholder management	32
6.5	Routine and annual progress review	34
	Appendix A: Carbon Management Matrix - Embedding	35
	Appendix B: Definition of Projects	36
	Appendix C: Communications Plan	42
	Appendix D: Equality Impact Assessment (EIA)	44

Foreword from Pauline Philip, Chief Executive, L&D Hospital

Welcome to the Carbon Management Plan for Luton and Dunstable Hospital NHS Foundation Trust (L&D). We understand that we have a clear social responsibility to manage and reduce carbon emissions. Sustainability and energy management are important in how we plan for the future and will be significant aspect of the hospital re-development plan.



This document builds upon the Sustainable Development Management Plan (SDMP) we adopted in April 2010 and our objective for 2011/2012 to improve performance on environmental sustainability. This Carbon Management Plan sets out how we plan to meet our objective of reducing our carbon emissions in line with national and local drivers. We see this as an important step in ensuring the delivery of cost effective, safe, and excellent quality patient care in fit-for-purpose environments.

Luton and Dunstable Hospital NHS Foundation Trust will strive to exceed the emissions reduction targets set by the Government and the NHS. The 30% target reduction in CO₂ emissions by the end of 2016 is challenging and demonstrates that we are fully committed to becoming energy efficient.

Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for all public sector organisations. Carbon management is about realising efficiency savings, transparency, accountability and leading by example. The UK government has identified the public sector as key to delivering carbon reduction across the UK in line with its Climate Change Act commitments, and the Carbon Trust is pleased to have partnered with Luton and Dunstable Hospital NHS Foundation Trust on our 2011/12 NHS Carbon Management Programme to help it meet this challenge.

This carbon management plan will help Luton and Dunstable Hospital NHS Foundation Trust to save money on wasted energy and put it to better use in other areas, while making a positive contribution to the environment by lowering carbon emissions. It commits the Trust to a target of reducing CO₂ by 30% by 2016 and underpins potential financial savings and cost avoidance to the organisation of around £2.8m by that date.

Public sector organisations can contribute significantly to reducing CO₂ emissions and improving efficiency. The Carbon Trust is therefore very proud to support Luton and Dunstable Hospital NHS Foundation Trust in their on-going implementation of carbon management.



Tim Pryce
Head of Carbon Management
Carbon Trust

Executive Summary

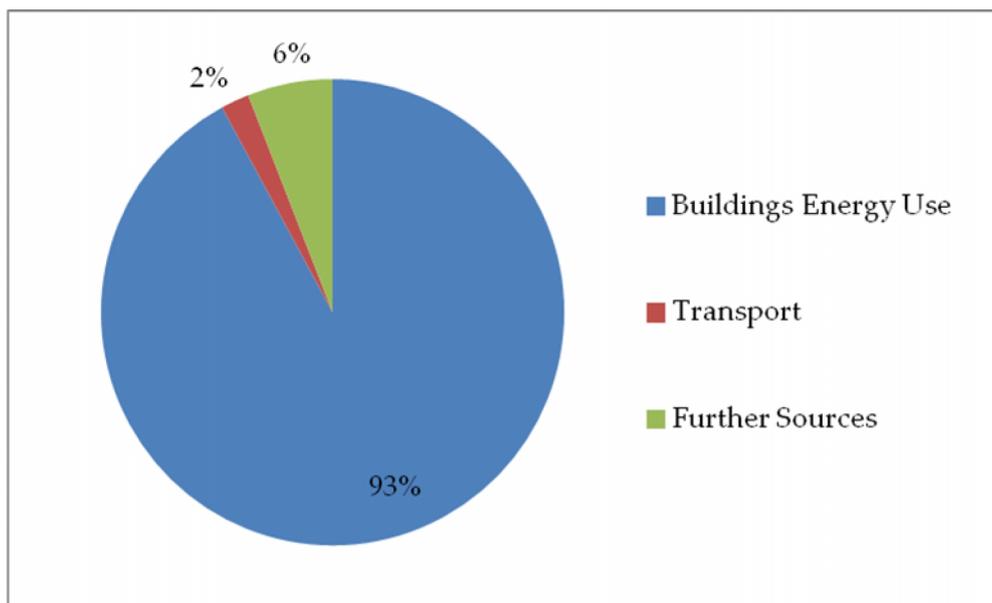
In line with national policy the Luton & Dunstable Hospital NHS Foundation Trust has committed itself to the sustainability agenda. The Board adopted the Sustainable Development Management Plan in April 2010 with a 3% energy consumption reduction target year on year.

Building upon this commitment the Trust joined the NHS Carbon Management Programme (NHS CMP) which started in May 2011. Under the programme we were provided with support and guidance to produce this Carbon Management Plan (CMP), identifying realistic carbon reduction opportunities, prioritising them and put into a 5 years programme.

Our baseline emissions for 2010-11 are 11,607 tonnes of CO₂. This can be broken down into the following areas:

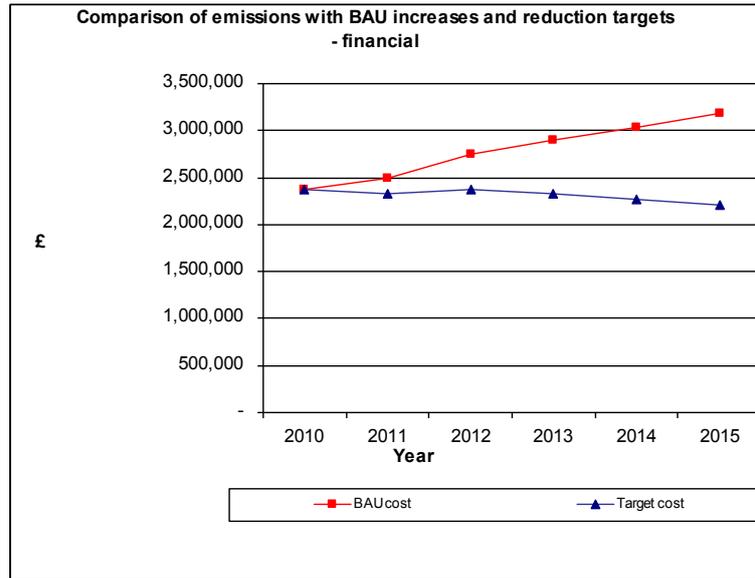
Year 2010-11	Baseline CO ₂ emissions (tonnes)	Cost (£)
Buildings Energy Use	10,660	1,711,087
Transport	258	146,026
Further sources (waste, water & refrigerant emissions)	689	518,285
Total	11,607	2,375,398

Our baseline CO₂ emissions are split out as follows:



Financial Value at Stake

This CMP commits the Trust to a target of reducing CO₂ by 30% by 2016 in absolute terms from a baseline year of 2010. The cumulative cost of a 'do nothing' option, taking into account the assumed increase in prices, would be **£2.9m by 2016** (as per Financial Value at Stake illustration on the right).



A number of projects have been identified which, if all implemented, will help us achieve 4% more than our target of 30% reduction in emissions over the five years. While some projects are very well defined, for some projects there is still a degree of uncertainty and further work is required to quantify costs and savings.

Key projects (that will deliver over 80% of our target) that will be implemented under the CMP umbrella include:

- Installation of variable speed drives
- Lighting upgrade throughout the site
- Awareness raising campaign
- Installation of small scale Combined Heat and Power plant
- Gas boilers upgrade
- Replacement of steam boilers with localised steam raising plant and new autoclaves.

To implement the projects defined in **this plan it will cost £2.6m** of which £0.2m has already been allocated, leaving £2.4m requiring funding. The majority of investment is capital and will release revenue savings. The **overall payback** period of the projects in this plan is **4 years**. When all projects are implemented it will result in estimated annual financial savings and **cost avoidance of £0.6m**.

The annual cost and CO₂ savings are summarised below:

	2010/11	2011/12	2012/13	2013/14	2014/15
Annual cost saving	£17,016	£62,658	£283,855	£411,189	£568,673
Annual CO₂ saving	105	388	1,758	2,545	3,526
% of target achieved	3%	11%	51%	73%	101%

Business cases for the projects will be presented for approval subject to scheme of delegation. Some projects will be undertaken as a part of the site redevelopment programme. We will aim to maximise opportunities for carbon reduction in the development of the new build. In parallel with plans for new build an investment programme will be developed for the retained estate, with one of the key objective to improve the energy efficiency of the site.

This plan also outlines how carbon management is embedded across organisation into day to day business. The areas which we feel will provide the greatest challenges are Policy, Finance & Investment and Procurement. The ultimate goal of this programme is that our commitment to carbon reduction is included in all job descriptions and it becomes everyone's responsibility to ensure this is achieved as we all undertake our day to day work.

Finally this plan describes the governance structure for ensuring effective leadership both in terms of senior strategic oversight and delivering the projects. It also gives provision for measurement of progress by setting out the Key Performance Indicators that will be monitored by the Programme Board, and reported half yearly to the FIP Committee on and annually to the Trust Board.

It is envisaged that this document will continually evolve, identifying and promoting best practice and the investment in new and emergent technologies as these become financially viable.

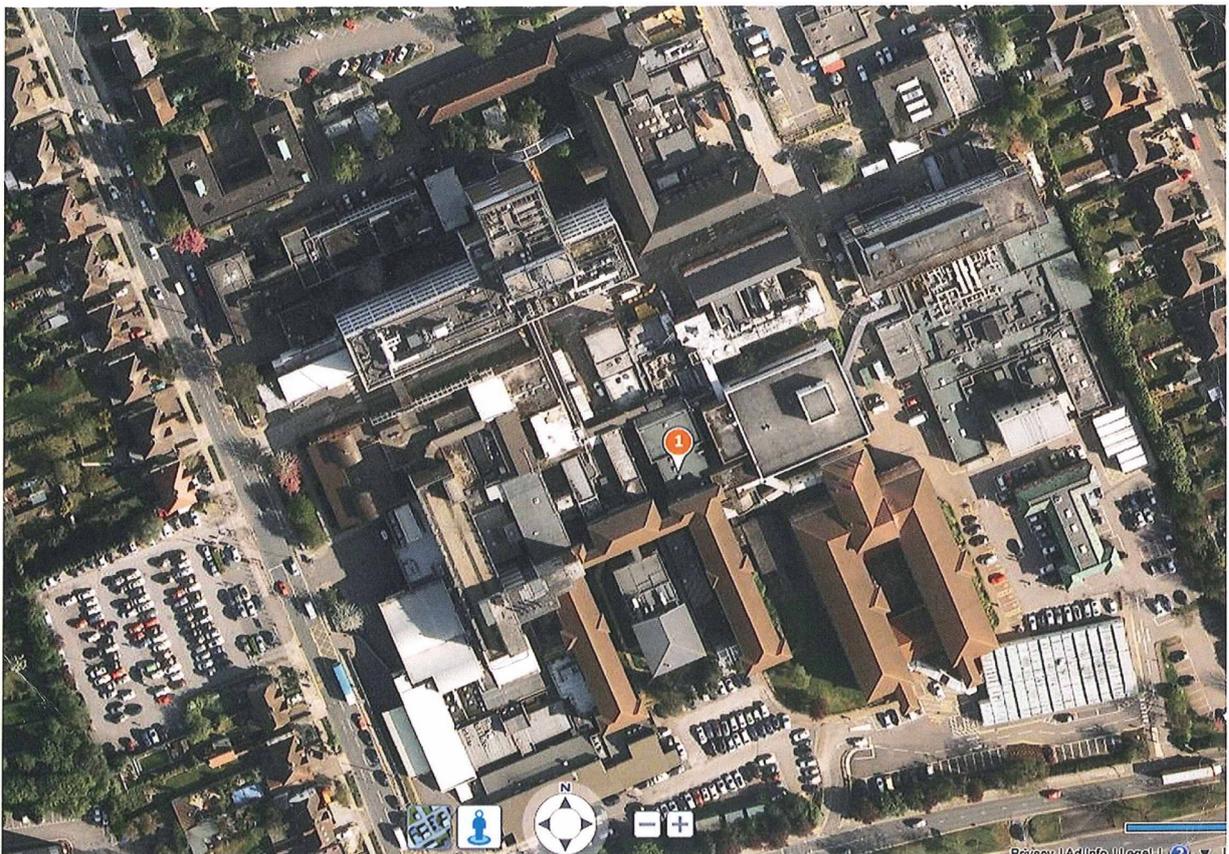
1. Introduction

The Luton & Dunstable Hospital NHS Foundation Trust is a General Hospital with 641 inpatient beds. The Hospital provides a comprehensive range of general medical and surgical services, including A&E and maternity services for people in Luton, Bedfordshire, Hertfordshire and parts of Buckinghamshire. In 2010 we provided healthcare services for over 70,000 admitted patients, over 300,000 outpatients and A&E attendees and we delivered over 5,100 babies.

In August 2006 we became a NHS Foundation Trust - the first hospital in Herts, Beds and Bucks to achieve this status. We employ over 3,500 staff and we have an annual income in excess of £210 million.

The Hospital comprises approximately 63,675 m² of buildings spread over a 10.34 hectare site located in the north west of Luton. The Hospital was originally built in 1938 and has had a number of subsequent additions over the years. The buildings on site comprise a mixed portfolio with developments ranging from the late 1930's to current day.

Fig. 1 Aerial photograph of the site



As for any other organisation in the recent economic climate, our current risks and uncertainties mainly focus on the financial provision. The Trust has signed the health economy Quality, Innovation, Performance and Prevention (QIPP) Plan and needed to identify £15m in 2011/12 and a further £9m in each of the three succeeding years. Becoming an energy efficient organisation is a key part of our QIPP programme.

The Carbon Management Plan defines our carbon management programme of activities for the next 5 years. It sets the strategic context and the 'case for action', current carbon emissions, a programme of proposed projects and actions to reduce our emissions, how much this will cost and save, as well as the governance arrangements to keep the programme on track.

In the remaining sections of this introduction we will set out:

- Our low carbon vision and target
- Our drivers for reducing our carbon emissions
- The context of the programme and how it supports other organisational initiatives.

1.1 Our low carbon vision and target

Our low carbon vision:

Luton & Dunstable Hospital NHS Foundation Trust is passionate and committed about making sustainable development an integral part of our day to day activities. We pride ourselves as being at the forefront of innovation, achievement and are leaders in patient safety initiatives and another high priority is to become one of the low carbon leaders within the NHS.

Our target:

Luton & Dunstable Hospital NHS Foundation Trust will reduce the carbon emissions from its activities by 30%, from a 2010 baseline of 11,607 tonnes CO₂, by the end of March 2016. This represents a reduction of 33% from the projected emissions should the Trust take no action i.e. the business as usual scenario.

1.2 Our drivers and priorities for reducing our carbon emissions

Climate change is globally recognised as the greatest environmental and economic threat faced by national governments, public and private sector organisations and individuals. 'The Lancet'-UCL report called climate change as 'the biggest global-health threat of the 21st century'. But it is also an opportunity for energy efficiency and financial savings. Below we set out the main drivers for taking action to reduce our energy consumption and carbon emissions.

1.2.1 Energy cost

In 2010-11 we spent £1,7m on gas & electricity. These costs are rising, with recent volatility in the energy markets seeing power prices increase by 30% in early months of 2011. The energy market and procurement report from Buying Solutions (June 2011)

showed that energy commodity element for gas and electricity (about 70% of the total bill) increased by 19% and 21% in 2011-12 comparing to the previous financial year. Prices we pay for our energy will continue to increase at a significant rate and energy efficiency makes good business sense, reducing risks from rising prices.

1.2.2 Legislative/political drivers

The main legislative and political drivers for reducing energy consumption:

- **NHS Carbon Reduction Strategy for England (2009)** - setting out clear measurable milestones to measure, monitor and reduce direct carbon emissions:
 - 10% reduction from the 2007 baseline by 2015;
 - Step targets of 26% reduction by 2020, 64% reduction by 2030 and 80% reduction by 2050 (from the 1990 baseline).
- In the **Sustainable Development Management Plan (2010)** we committed to reduce carbon emissions by 3% per year (to be achieved through a reduction in utilities - the use of gas and electricity).
- **Carbon Reduction Commitment Energy Efficiency Scheme (CRC EES)** – Organisations covered by CRC must buy carbon allowances annually to cover their emissions. Improving energy efficiency is vital in reducing the financial impact of CRC. **The estimated cost of CRC allowances to cover our emissions generated in 2011/12 is £126k.**
- **Display Energy Certificate (DEC)** - All public sector buildings over 1,000m² must display a DEC in a prominent place. The certificate indicates how much energy is being used to operate a building. The operational rating is based on meter readings of all energy actually used in the building. It is compared to a benchmark that represents performance indicative of all buildings of this type.

Fig.2 DEC ratings

Rating	Number of DEC's
A	0
B	0
C	0
D	0
E	1
F	1
G	1

Our buildings are less energy efficient than typical for this type of buildings. Surgical block has G rating (the worst DEC rating), Maternity has F rating and Medical block has E rating. An inefficient estate wastes money and the buildings rated G can be improved to make them efficient and attractive to patients and staff. When prioritising which buildings we should focus on to reduce emissions, we should start with the buildings with the worst DEC ratings but also the largest buildings. The buildings with the lower DEC ratings will have greater potential to reduce emissions, but it is important to prioritise the larger consuming buildings as the impact of effort will be greater.

- **Building regulations** - Tightening of the Building Regulations requiring improved thermal, ventilation, control, and lighting performance, which would in turn add to the cost of new build, but lower operating costs and reduce carbon emissions.

1.2.3 Reputation and branding

Seventy six NHS Trusts already participated in the NHS CM programme and 13 more joined in May 2011. Organisations covered by the CRC will be listed annually in a publicly available league table showing the best and worst performers. By improving its carbon footprint we can achieve better position in the league table.

The first Performance League Table was published in November 2011 and 4 NHS Trusts made it to the top of the table.

1.2.4 QIPP/Financial

In 2011/12 the Trust was disadvantaged by the twin impact of reduced income (payments received from the NHS for each patient were decreasing) and unavoidable inflationary costs in the wider economy. These two factors working in tandem required the Trust to improve efficiency by 4.5% per annum (£9m). The challenge in 2011/12 was made harder by a recurrent shortfall in 2010/11 Cost Improvement Plans of 1% (£2m), the requirement to invest additional resource in delivering the Emergency Care Pathway (0.3% or £0.6m) and to provide for commissioner aspirations (net impact of 1.7% or £3m). Therefore the Trust needed to identify £15m in 2011/12 and a further £9m in each of the three succeeding years.

Energy conservation is seen by the Department of Health as a QIPP initiative for Estates. By reducing our carbon emissions we will reduce operating cost. This is money that can be invested in healthcare.

1.3 The context for our Carbon Management Programme

- **QIPP** – Carbon reduction forms a part of the Estates & Facilities QIPP initiatives and the Board has approved the delivery of the CMP through QIPP programme.
- **Corporate Objectives** – improving performance on environmental sustainability was written into our Corporate Objectives.
- **6-Facet Survey** – The Trust has commissioned external consultants to undertake an appraisal of the condition of the Trust's buildings. The assessment is built up by buildings and covers all the main building components, engineering elements and plant requirements. Statutory standards that relate to the estate are also evaluated against compliance. The appraisal highlights the investment needs of the estate over the next five to ten year period and will set out the annual expenditure required to enable estate to operate in a satisfactory condition that is fit-for-purpose for modern healthcare.

- **Strategic Estates Review** – The Trust is currently evaluating a range of options to re-configure the estate. The resources for this are in the range of £100-£120 million over a 5-7 year period. This has a clear impact on the evaluation of the requirement for investment, e.g. buildings and engineering system that are planned to become redundant over the next five-to-ten year period will require lesser level of investment than those that have a longer operational life. Investment on that part of the estate is likely to be kept to a minimum whilst maintained is a safe operational standard until the buildings are out of service and non-operational.
- **Sustainable Development Management Plan** – under section 7 Energy a commitment was made to developing a delivery plan for energy efficiency.
- **Good Corporate Citizenship Assessment** – we signed up to the Good Corporate Citizenship Assessment Model, a tool helping us to think about how our organisation can contribute to sustainable development. Facilities Management and Buildings are one of the key areas under the assessment. Acting as a Good Corporate Citizen will help us to save money through energy efficiency, waste reduction and careful use of resources.
- **Capital Investment Programme** – in refurbishment and new build schemes we will ensure inclusion of low energy technologies and improvements to landscaping where appropriate.

Prior to joining the Carbon Management Programme we: -

- Put proposals for two trial projects in the Surgical Block (lighting and ventilation)
- Started an energy awareness campaign:
 - Organised several activities during Climate Week in 2011 and 2012;
 - Put articles in the staff newsletter.
- Included low energy technologies in refurbishment and new build schemes, such as:-
 - Improved automatic heating and ventilation controls using the building management system (BMS);
 - High efficiency lighting (High frequency T5 tubes in the new Medical Records locations and A&E Department and LED panels in the Maternity Reception area);
 - Boiler upgrade Limb Fitting Centre;
 - Water saving systems on toilet and bathroom refurbishments.
- Put waste management out to tender with an aim to minimise waste levels and maximise re-cycling opportunities (waste segregation at source). The contract was awarded to SITA UK Limited and started in September 2011.
- Signed up to Aquafund – water saving initiative providing public sector organisations with the funding to reduce water costs and consumption.
- Implemented several measures aiming at encouraging staff to switch to more sustainable means of transport and reducing single occupancy car usage, these include:-

- Implementing a tax free bikes scheme through a salary sacrifice arrangements for staff wishing to buy a bicycle;
- Installation of new secure bicycle shelters for staff and patients and visitors;
- Launch of new changing facilities with showers and lockers;
- Working closely with Sustrans Active Travel in Luton, who provided staff with free bike loans;
- Organising free Bicycle Health Check sessions;
- Launch of a private car share scheme for our employees;
- Discounted bus fares for staff have been initiated with local bus service providers.
- In cooperation with Luton Borough Council organised Smarter Driving Sessions for staff.
- In cooperation with Luton Borough Council we will be providing recharging posts for plug-in hybrid, full battery and range extended electric vehicles (EVs) as part of the East of England Plugged in Places infrastructure development.

NHS CMP is a government funded programme delivered by the Carbon Trust with consultancy support (including Camco). It provides technical and strategic support to help develop a fully costed Carbon Management Plan and to embed this plan across the Trust with board level support. By working with the Carbon Trust we were able to draw on the expertise from our partner consultants and other leading health care providers to achieve even greater reductions in the carbon emissions resulting from our activities.

Following an expression of interest to the Carbon Trust, we were accepted on to the fifth phase of the NHS CM Programme for the period of 10 months to March 2012. Over this period we worked through the 5 step Carbon Management process, with technical and change management expertise provided by Programme Advisors. While some projects are already underway, the implementation of the CMP is expected to commence in April 2012.

Fig 4. Five step programme:



2. Emissions baseline and projections

The Trust has annual carbon emissions of **11,607 tonnes of CO₂** and **utility costs of £2m** (2011-12 budgets). This section details what emissions were included into the scope of the programme, what year was selected as the baseline year and what potential savings from implementing our plan are.

2.1 Scope

The following elements were included into the scope of the programme, as defined by World Business Council for Sustainable Development (WBCSD) and DECC/Defra guidance on carbon reporting:

- **Scope 1 - direct emissions from sources directly controlled by us**
 - Gas use in buildings
 - Gas oil use in generators
 - Fleet transport emissions (diesel)
 - Refrigerant gas loss (from air conditioning and refrigeration systems)
- **Scope 2 – emissions from purchased energy produced off site**
 - Electricity consumption in buildings and estate
- **Scope 3 – other indirect emissions**
 - Business travel (staff vehicle use)
 - Non-emergency patient transport
 - Waste
 - Water consumption

We intend to revise the scope in year 3 of the programme with a view to include commuting for staff and procurement in the scope as this data is not readily available at present.

2.2 Baseline

The baseline year chosen for this CM Programme is financial year 2010-11. This aligns with the first reporting year under CRC.

Data sources for calculating emissions were:

Gas & electricity	<ul style="list-style-type: none"> ▪ Carbon Reduction Commitment Reports from gas and electricity suppliers ▪ Meter readings ▪ Invoices
Business mileage	<ul style="list-style-type: none"> ▪ Obtained from the Finance department
Non-emergency patient transports mileage	<ul style="list-style-type: none"> ▪ Report obtained from Medical Services

Business mileage (owned vehicles)	▪ Report obtained from Estates and Contract Support Manager
Refrigerant gas leakage	▪ F-Gas Register
Waste	▪ Annual figures from contractor via Contract Support Manager
Water consumption	▪ Invoices

Our baseline CO₂ emissions are split out as in the pie chart below:

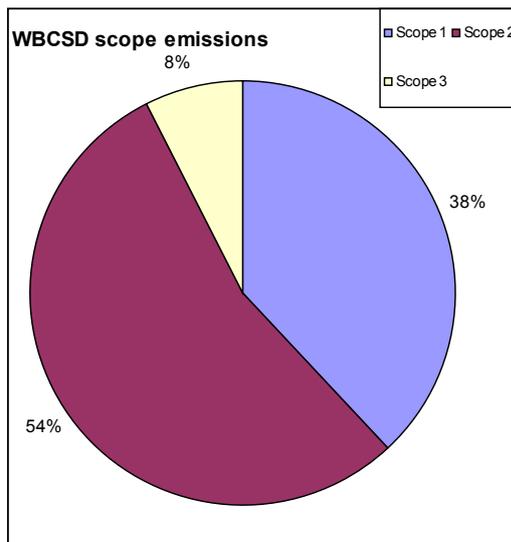


Fig. 5 Baseline GHG emissions summary

	tonnes of CO₂
	2010
Scope 1 - direct emissions from sources directly controlled by us	4,407
Scope 2 - emissions from purchased energy produced off site	6,320
Scope 3 - other indirect emissions	879
Total gross emissions	11,607

There are factors which would give a need to re calculate the baseline in future years. These are:

- Major Capital Projects – we plan to open the new Catheterisation Laboratory in 2012 and start working on the new Women & Children’s Unit in 2012.
- Estates Strategy – following on the strategic review some buildings might be scheduled for demolition and will need to be taken off the baseline

2.3 Projections and Value at Stake

The Value at Stake (VAS) is the year-on-year difference between the BAU and RES scenarios. The Value at Stake shows us the potential savings, or avoided cost, from implementing our plan and hitting our target against the alternative of doing nothing (BAU). The capital costs of projects required to meet the target are not included. The Value at Stake is a useful high level analysis, as it can be produced early on in the process of developing the carbon management plan and helps make the case for action. However the detail we have developed on savings and costs from specific projects supersede this analysis.

The following assumptions have been used:

- Cost of energy utilities (Gas & Electricity) rises by 5.8% (average increase per year)
- Cost of transport prices by 3.7% (per year)
- The introduction of the Carbon Reduction Commitment Energy Efficiency scheme in 2012/13 where the Trust will be taxed by way of having to purchase allowances on every tonne of CO₂ emitted (£12 per tonne in 2012/13, estimated cost to cover 2011/12 emissions is £126k)
- Existing data sources such as utility bills, fuel consumption and car mileage were converted into CO₂ equivalent emissions by applying relevant conversion factors as per “2010 Guidelines to Defra / DECC’s Greenhouse Gas Conversion Factors for Company Reporting”.
- Year on year growth in utility consumption for the BAU scenario assumed as zero. Whilst there are services that the Trust will be developing, there are other services that will be moved to the community or outsourced.

The value at stake of not hitting our target could cost Luton & Dunstable Hospital NHS Foundation Trust a cumulative £2,853,769 by 2016.

Fig 6: Carbon Value at Stake

Figure 6 shows the VAS as the difference between the BAU scenario (our carbon emissions if we take no action) and the RES scenario (our carbon emissions if we meet our reduction target). Cumulative CO₂ savings over 5 year period are 10,877 tonnes.

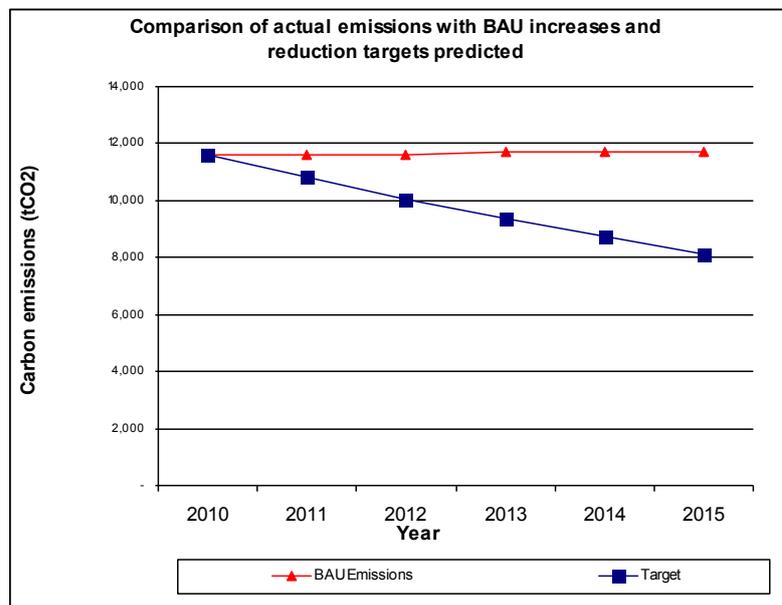
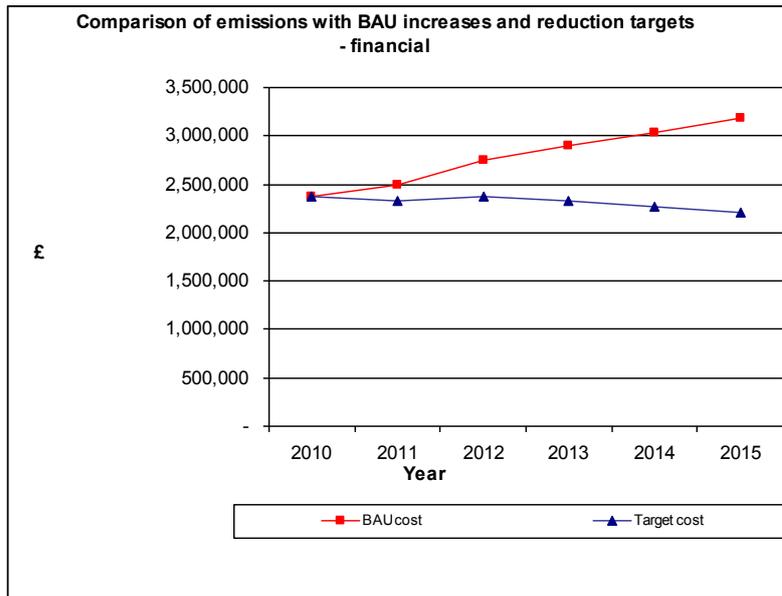


Fig 7: Financial Value at Stake

Figure 7 shows the VAS as the difference between the BAU scenario (our costs if we take no action to reduce our carbon emissions) and the RES scenario (our costs if we meet our reduction target). It can be seen that the RES is actually taking into account the effect of increasing energy costs. The VAS can be seen as cost savings or avoided costs (i.e. we could be paying for the BAU costs)".

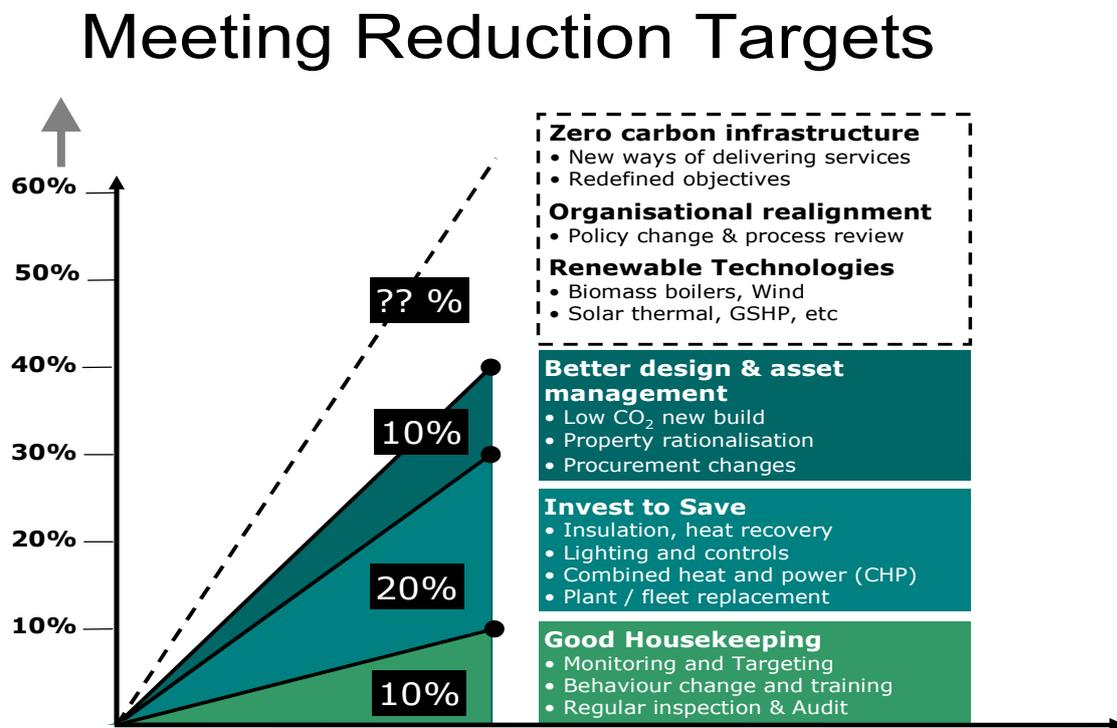


3. Carbon Management Projects

This section lists the individual actions and projects that will be undertaken, setting out key information for each project.

To meet our reduction target we will undertake a range of different of projects, which will include improvement to housekeeping, better monitoring and measurement (this can deliver up to 10% reduction), investment in new technologies and equipment (invest to save approach which could deliver another 20% reduction), better design for new built (up to 10% reduction). Further reduction can be achieved by investing in renewable technologies and changing the way we deliver our services (Patient Pathways).

Fig. 8 How we can meet our carbon reduction targets



In many cases investing in carbon reduction measures not only contributes to internal and national emission reduction targets but also make a good business case and will result in lower operational costs. Therefore over the next 5 years we will focus on these projects and actions that can save money, and contribute to the Trust Cost Improvement Programme (CIP) as well as carbon emissions over their life-time. Invest to save approach and ease of implementation were the key criteria in determining which projects should be undertaken in the first place.

Carbon reduction projects will also help with reducing backlog maintenance. The example below is a completed Ventilation System Upgrade - Ground and 1st Floor Supply System fan arrangements. The scope of work was to remove the aging, conventional belt and pulley supply fan arrangement and replace with a new high efficiency directly driven fan with integral high efficiency motor.

Fig. 9 Pre installation



Fig. 10 Post installation



3.1 Existing projects

This section includes the carbon reduction projects that are already underway or have been completed since our baseline year 2010-11.

Out of four projects that were planned and funded in 2011-12, three were completed and one is near completion.

Ref	Project	Lead	Cost		Annual Savings (yr 1)		Pay back (yrs)	Net Present Cost (£000's)	% of Target	Year
			Capex (£000's)	Opex (£000's)	Financial (Gross) (£000's)	tCO ₂				
1	LED tubes trial	MG	17	Nil	5.7	35.5	2.8	-9	0.3%	2011
2	Ventilation System Upgrade	MG	17	Nil	9.4	59.5	1.8	-94	1.7%	2011
3	Cardiac Centre corridors & ancillary areas LED lighting	IM	4	-3	0.4	2.2	1.3	-11	0.1%	2012
4	Limb Fitting Heating	SC	6	Nil	1.7	10.4	3.6	-8	0.3%	2011
Totals			44	-3	17.2	108	2.8	-122	2.4%	2011/12

MG – Magdalena Golebiewska

IM – Ian Manning

SC – Shaun Cooper

3.2 Planned / funded projects

This section list all the projects that are definitely planned to take place and have funding allocated. These projects are well defined and the quantification of costs and savings is robust. Funding for this projects 5, 6 and 7 has been allocated by the FIP Committee in January 2012. Two projects - awareness raising and implementation of the policy on small electric appliances require no capital outlay and will be delivered within the existing resource of Estates. Waste reduction projects (project no. 10 & 11) will be funded from savings achieved under the new waste contract. Details summary sheets for key projects (ref. 6, 7 and 8) are included in Appendix B. It is projected that these projects will deliver **1,012.7 tonnes of carbon saving** (29% of target) with **financial benefit of £168.2k**.

Ref	Project	Lead	Cost		Annual Savings (yr 1)		Pay back (yrs)	Net Present Cost (£000's)	% of Target	Year
			Capex (£000's)	Opex (£000's)	Financial (Gross) (£000's)	tCO ₂				
5	Plant room & external pipes insulation	MG	20	Nil	7.5	46.3	2.7	42	1.3%	2012
6	Variable speed drives	MG	30	Nil	57.2	354.4	0.5	-446	10.2%	2012
7	Lighting upgrade	LB	90	Nil	31.5	195.4	2.9	-52	5.6%	2012
8	Awareness campaign	MG	Nil	Nil	57.2	354.3	0	-108	10.2%	2012
9	Policy on small electric appliances	MG	Nil	Nil	10.1	62.3	0.1	-18	1.8%	2012
10	Food Waste Digester	SF	13	0.6	4.7	0	3.1	16	0.0%	2012
11	Introduction of mixed recycling	SF	3	Nil	0	0	0.4	-59	0.0%	2012
Totals			156	0.6	168.2	1,012.7	0.9	-625	29.1%	2012

MG – Magdalena Golebiewska

LB – Les Barras

SF – Steve Farmer

3.3 Planned projects requiring funding

This section lists all the projects which are planned to take place but are not yet funded and need to be presented to the FIP Committee for approval. It is projected that these projects will deliver **717.0 tonnes of carbon** saving with **financial benefit of £115.8k**.

Ref	Project	Lead	Cost		Annual Savings (yr 1)		Pay back (yrs)	Net Present Cost (£000's)	% of Target	Year
			Capex (£000's)	Opex (£000's)	Financial (Gross)	tCO ₂				
					(£000's)					
12	Automatic Meter Reading	MG	20	Nil	0	0	n/a	20	0.0%	2012
13	Voltage tapping	LB	1	Nil	29.4	182.0	0	-231	5.0%	2012
14	Operating theatre ventilation	LB	10	Nil	9.3	57.2	0	-106	1.6%	2013
15	Sub B upgrade (low loss)	LB	10	Nil	28.0	173.3	0.4	-312	5.0%	2012
16	R22 split air conditioning units	HoE	40	Nil	3.5	21.8	11.3	11	0.6%	2013
17	IT Management Software	ME	30	6	25.1	155.4	1.6	-56	4.5%	2012
18	Kitchen & Dinner Room AHU reduced operating hours	MG	1	Nil	20	124	0	-89	3.6%	2012
19	Loft Insulation Breast Screening	SC	8	Nil	0.5	3.3	16.0	£3	0.1%	2012
Totals			120	6	115.8	717.0	1.0	-760	20.4%	2012/13

MG – Magdalena Golebiewska

HoE – Head of Estates

LB – Les Barras

ME – Mark England

SC – Shaun Cooper

3.4 Potential future projects

This section lists all the projects that we are considering but for which there is a degree of uncertainty and further work is required to quantify costs and savings. The definition of these projects is less detailed and includes more estimation than the previous projects. Details summary sheets for key projects (ref. 20, 21 and 23) are included in Appendix B.

Ref	Project	Lead	Cost		Annual Savings (yr 1)		Pay back (yrs)	Net Present Cost (£000's)	% of Target	Year
			Capex (£000's)	Opex (£000's)	Financial (Gross) (£000's)	tCO ₂				
20	Small decentralised CHP	MG	1,400	18	224.7	1,397.5	6.8	-987	40.2%	2014
21	Boilers upgrade	HoE	400	tbc	34.9	215.8	11.4	-3	6.2%	2013
22	Building Management System consolidation and upgrade	HoE	200	50	20.1	124.6	9.9	33	3.6%	2013
23	Steam generator & new autoclaves	HoE	200	tbc	52.8	326	3.8	-408	9.4%	2013
24	AHU kitchen & restaurant motors upgrade to premium efficiency motor	MG	40	Nil	6.7	41.6	6.0	-37	1.2%	2013
Totals			2,240	68	339.3	2,105.5	6.6	-1,402	60.6%	2013/14

MG – Magdalena Golebiewska

HoE – Head of Estates

3.5 Projected achievement towards target

In this section we explain how far the projects above will take us towards our carbon reduction target.

The total identified savings are	3,943 tCO₂
This covers the following percentage of our targeted reductions	113%
This covers the following percentage of our baseline	34%
Our weighted total covers the following percentage of our targeted reductions	57%
Actual identified % reduction taking into account risk weighting	17%

All projects were risked for likelihood of occurring and confidence in the data and assumptions. Although total identified savings are greater than our aspirational target, definition of projects in section 3.4 is less detailed and includes more estimation than projects

in sections 3.1, 3.2 and 3.3. We have accounted for this degree of uncertainty and our risk weighted total covers 57% of our targeted reduction, giving the actual identified savings of 17%. Therefore in order to meet the plan and targets we need to:

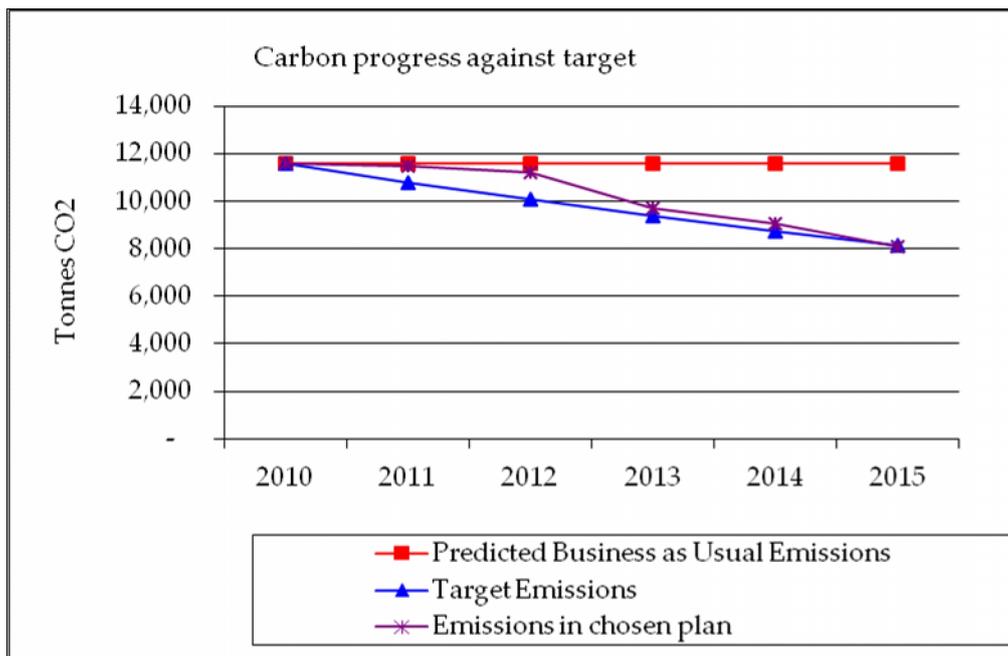
- Do feasibility studies to increase the certainty of the savings relating to the heavily risked projects
- Seek to identify further opportunities.

There are further projects that have been identified but yet require quantification. These are:-

- Modular data centre (with improved server room cooling) + off site backup;
- IT Thin clients computing;
- Estates rationalisation;

Figure 11 below shows predicted business-as-usual (BAU) emissions and the target emissions. The 'emissions in chosen plan' plot shows the emissions reductions from the projects scheduled across the years of this plan. This plot includes the effect of BAU forces, so for example if in year 3 no additional projects were implemented the emissions would then trend back along the BAU line. Also the impact of project life is included, so if a short life project is finished (e.g. awareness raising) before the end of the programme (and not maintained or repeated) the trend would show a stepwise increase in emissions. Finally a degradation factor is included. This assumes that over the life of a project its carbon saving impact will decrease due to factors such as business focus being diverted to other initiatives, projects not being maintained and also % savings becoming smaller as a building becomes more efficient. By including these effects we are trying to model some of the real life factors that may impact on our ability to meet our target. Because of these additional factors the plot does not directly agree with a simply summed list of the carbon saving impact of the projects.

Fig 11: Projection of impact of projects on meeting carbon target



4. Carbon Management Plan Financing

This section conveys the quantified benefits (financial and CO₂ savings) and the costs (capital and revenue) of our Carbon Management Plan.

To implement the projects defined in this plan it will cost £2.6m of which £0.2m has already been allocated, leaving £2.4m requiring funding.

When all these projects are implemented it will result in estimated annual financial savings / cost avoidance of £0.6m.

The overall payback period of the projects in this plan is 4 years.

Business cases for the projects will be presented to the FIP Committee for approval. Some projects will be undertaken as a part of the site re-development programme. This will be a mixture of including the most efficient technologies in the new build schemes and the upgrade and refurbishment of the retain space. Preliminary business planning suggests that the Trust will be required to invest in excess of £100 million to achieve the vision of a redeveloped site that meets modern standards of healthcare. Reducing carbon emissions will be one of the key objectives for the site re-development programme.

4.1. Assumptions

Key assumptions made in calculating the benefits and savings are:

- Unit cost used for calculations
 - Electricity 9 p/kWh
 - Gas 3 p/kWh
- Utility prices are assumed to increase by an average 5.8% per annum
- Inflation rate is assumed to increase by an average 3.5%
- Business as Usual emissions growth forecast 0%
- Financial discount rate 3.5%

4.2. Benefits and savings – quantified and un-quantified

The annual cost and CO₂ savings are summarised below:

	2010/11	2011/12	2012/13	2013/14	2014/15
Annual cost saving	£17,016	£62,658	£283,855	£411,189	£568,673
Annual CO₂ saving	105	388	1,758	2,545	3,526
% of target achieved	3%	11%	51%	73%	101%

Unquantified benefits:

There are number of benefits from the Programme which cannot be quantified, including:-

- A better working environment for staff, patients.
- Encouraging healthier, low-carbon living from staff & patients.
- Improved staff morale through staff engagement in improving their place of work and sense of caring for the environment they work in.
- Contributions to wider sustainable development within the local economy & meeting area wide carbon reduction targets.
- Enhancing the reputation of the Trust by demonstrating its commitment to be a good corporate citizen.
- Increasing the value of the estate through building and engineering improvements.
- Reduced backlog maintenance

4.3. Financial costs and sources of funding

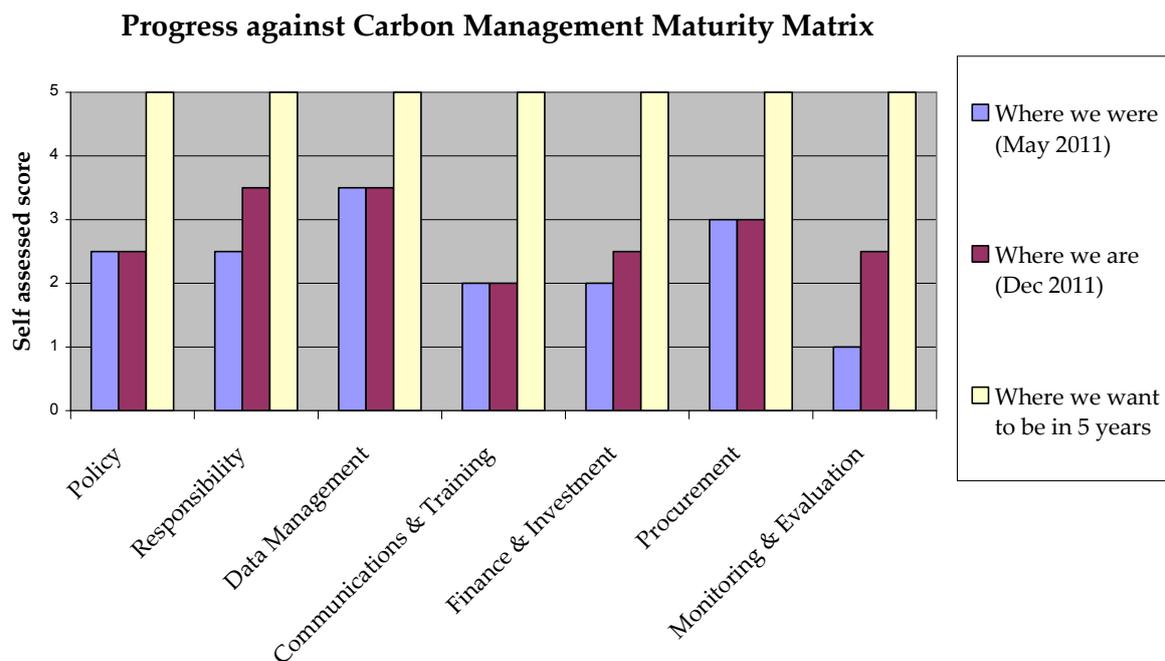
The table below summarises the total costs, split into capital and revenue. Subject to scheme of delegation approval funding will come from capital allocation.

figures in £ 1000's	2011/12	2012/13	2013/14	2014/15	2014/15
Annual costs:					
Total annual capital cost	44	226	890	1,400	0
Total annual revenue cost	0	7	57	75	75
Total costs	44	233	947	1,475	75
Committed funding:					
Committed annual capital	44	156	0	0	0
Committed annual revenue	0	1	1	1	1
Total funded	44	157	1	1	1
Funding required					
Annual capital funding required	0	70	890	1,400	0
Annual revenue required	0	6	56	74	74
Total unfunded	0	76	946	1,474	74

5. Actions to embed carbon management in organisation

A key element of our Carbon Management Plan is embedding carbon management into Trust's day to day business. We have used the Carbon Management Maturity Self-Assessment Matrix to score our position in 5 areas: Policy, Responsibility, Data Management, Communications and Training, Finance and Investment, Procurement and Monitoring and Evaluation (Appendix A). By 2016 the Trust aims to achieve the highest score across all areas. The matrix therefore outlines actions needed in order to improve our score.

The chart below shows progress against the matrix since we started the programme (May 2011), where we currently are (December 2011) and our aspirations for 2016. It can be seen that before we embarked on this programme the Trust had already put some measures in place scoring higher in areas of Policy, Responsibility and Procurement and lower in Communications and Training, Finance and Investment, and Monitoring and Evaluation. The areas which we feel will provide the greatest challenges are: Policy, Finance & Investment and Procurement.



5.1. Corporate Strategy – embedding 'CO₂ saving' across organisation

We have begun the Carbon Management Programme with a varying level of carbon management maturity across the site. To ensure we progress in the policy area the following change actions will be implemented:

Ref	Change Action	Owner	When complete
5.1.1	Endorsement of this Plan and the 30% reduction target by	SW	April 2012

	March 2016 by the Trust Board		
5.1.2	Publication of CMP on Trust's website and communicating this to various stakeholders	Comms	June 2012
5.1.3	Inclusion of the CO ₂ saving target in Corporate Objectives for 2012-13	RS	March 2012
5.1.4	Inclusion of programme costs in Trust capital programme	IA	March 2013
5.1.5	Inclusion of risks arising from not meeting our carbon reduction targets in the Risk Register	IA	August 2012

5.2. Responsibility – being clear that saving CO₂ is everyone's job

Carbon Management is already a full-time responsibility of an individual – Sustainability Officer, however for organisation of our size engagement at the local level is crucial. A key element of this plan is to devolve responsibility for carbon management to all Directorates so that it becomes everyone's job. To ensure we progress in the responsibility area the following change actions will be implemented:

Ref	Change Action	Owner	When complete
5.2.1	Establish a network of sustainability champions across departments to build engagement at the local level	MG	March 2012
5.2.2	Inclusion of specific sustainability responsibilities in relevant job descriptions	MG	September 2012
5.2.3	Use of sustainability objectives for staff as part of their performance management in relevant jobs	MG	March 2013
5.2.4	Inclusion of statement referring to our commitment and policy on sustainability and carbon reduction in all job descriptions	MG	April 2013

5.3. Data Management – measuring the difference, measuring the benefit

We already collate CO₂ emissions data on annual basis for the purposes of CRC Energy Efficiency Scheme, Display Energy Certificates and Department of Health ERIC returns. We also have been reporting on our sustainability performance the annual report since 2009.

Currently consumption data is collected via manual meter readings and from invoices and there is much scope for improvement and simplification through implementation of AMR and Automated Monitoring and Targeting (aM&T) software.

Ref	Change Action	Owner	When complete
5.3.1	Implementation of aM&T software	MG	June 2012

5.3.2	Expand existing AMR	MG	September 2012
5.3.3	Bi-monthly reporting to the Carbon Management Board and quarterly reporting to the FIP Committee	MG	February 2012
5.3.4	Annual reporting data internally reviewed	MG	April 2012
5.3.5	Data externally verified	MG	May 2013

5.4. Communication and Training – ensuring everyone is aware

Currently staff are given ad hoc Carbon Management communications in the internal newsletter. We have run few awareness raising campaigns such as Climate Week, Walk to Work Week and Bike Week, however we need to now take much more structured approach. Communications Plan is included as an appendix C.

Ref	Change Action	Owner	When complete
5.4.1	Develop Communication Plan	MG / Comms	June 2012
5.4.2	Include carbon management in staff induction	MG	August 2012
5.4.3	Piggyback on scheduled meetings to introduce this programme to various groups of staff (e.g. Matrons and Ward Sisters meetings, GM meeting etc)	MG	March-June 2012
5.4.4	Develop training for Energy Champions	MG	September 2012

5.5. Policy Alignment

The management of Trust policies is governed by the Policy for the Development and Management of Trust Policy and Procedural Documents. Travel Policy is currently under development and will include reference to the Carbon Management Programme. Other Trust policies will be reviewed as appropriate to ensure they are consistent with this CMP where relevant.

Ref	Change Action	Owner	When complete
5.5.1	Develop Travel Policy	MG	April 2012
5.5.2	Review & re-issue of the Energy Policy	MG	September 2012
5.5.3	Review of existing Trust's policies to decide where alignment with the Carbon Management Plan is relevant	MG	September 2012
5.5.4	Review of Procurement Policy to include sustainable low carbon procurement	GB	September 2012
5.5.5	Review capital projects policies to include energy / carbon whole life costing	IM	September 2012
5.5.6	Review of Waste Policy	SF	April 2013
5.5.7	Review of IM&T Strategy	ME	December 2013

6. The management of Carbon Management Programme

Good programme governance is essential for ensuring effective leadership, especially in relation to ensuring timely decision making and making sure resources (both human and financial) are available to deliver our aspirations. Our governance for Carbon Management Programme will include:

- Senior strategic oversight - Carbon Management Programme Board
- Delivering the projects – Carbon Management Team

6.1. The Programme Board – strategic ownership and oversight

The Programme Board has been established to provide the high level oversight of the carbon management programme. The CMP Board will meet bi-monthly and will report on annual basis to the Trust Board and half yearly to the FIP Committee.

Main functions of the Programme Board are as follows:

- To bring together a number of initiatives contributing to a single aim: reducing carbon emissions
- To provide regular, strategic oversight and monitoring of progress against plan and towards benefits
- To raise ‘blockages’ to a level where they can be removed, e.g. resourcing issues
- To manage the expectations of key stakeholders
- Ensure that sustainability projects are included as a key part of the QIPP programme and reported regularly to the FIP Committee
- To recognize achievements

The membership of the Programme Board is:

- Roger Stokoe, Non-Executive Director (CM Project Sponsor & Chair)
- Sarah Wiles, Director of Business Development (Executive Lead)
- Matt Gibbons, Deputy Director of Finance
- Ian Allen, Director of Estates and Facilities
- George Burley, Head of Procurement
- Mark England, Director of Information Management and Technology
- Phil Spencer, UNISON Branch Secretary
- Magdalena Golebiewska, Sustainability Officer (CM Project Leader)

The Board membership is not yet completed and further staff involvement is sought.

Terms of reference:

- Champion and provide leadership on Carbon Management (CM)
- Set and review strategic direction and targets
- Own the scope of the CM Programme and prioritise carbon reduction projects
- Monitor the implementation of the CMP and progress towards objectives and targets
- Remove obstacles to successful completion of CM projects
- Champion plans for financial provision of CM projects recommending capital and revenue expenditure to the FIP Committee (invest to save)
- Ensure there is a framework to co-ordinate projects in CM Programme

At each meeting progress of projects (using traffic light status of red, amber or green) will be reported highlighting any risks to the programme.

By end of April each year the Sustainability Officer will coordinate data collection for the purposes of reporting within the Annual Report and Accounts. The report will be presented to the Programme Board for endorsement.

6.2. The Carbon Management Team – delivering the projects

The Carbon Management Team has been established to ensure timely delivery of the projects. The CM Team will meet bi-monthly and will report progress of projects to the Programme Board.

Carbon Management Team is lead by the Sustainability Officer and it includes:

- Magdalena Golebiewska, Sustainability Officer (CM Project Leader)
- Head of Estates – to be confirmed
- Steve Farmer, Contract Support Manager
- Ian Manning, Capital Projects Manager
- IT representation – to be confirmed
- Rowan Kitchen, Catering Services Manager

Responsibilities for delivering projects will be assigned to individuals.

6.3. Succession planning for key roles

The Carbon Trust have found from previous NHS Programmes that they can ‘drive into the sand’ and progress will stall if key individuals leave post before the programme is fully established and embedded within the running of the organisation.

In this section, therefore we define the succession plan for the roles of Project Sponsor, Project Lead and Executive Lead:-

- Non-Executive Project Sponsor – it is a key role within this Programme which, if vacated, will be delegated to another Non-Executive Director by the Chairman.
- Project Lead – if this role is vacated, it will be delegated to another member of the Carbon Management Team by the Director of Estates & Facilities.
- Executive Lead – if this role is vacated, it will be delegated to another member of the Executive Team by the Chief Executive.

6.4. On-going stakeholder management

There a key people, groups and committees in our Trust, and externally, that we will need to keep informed of progress. These are listed in the table below explaining how they will be engaged, how often and by whom.

Individual or Group	Influence	Impact	Their interest or issues	Means of Communication
Trust Board	H	H	QIPP agenda Compliance Site Redevelopment	Annual report
Director of Finance	H	M	Cost / budgets Under pressure to find savings Carbon Reduction Commitment	Face-to-face briefings via Deputy Director of Finance and Director of Estates & Facilities
FIP Committee	H	H	QIPP, investment & improvement, development	Quarterly reports
Estates	H	H	Potential for reduced maintenance costs Need to standardise equipment Training requirements on new equipment	Face-to-face briefings via Head of Estates / Maintenance Supervisors Staff briefings
Staff	H	M	Day to day job Patient safety Competing priorities How they can help	Bi-monthly updates in 'team L&D' Induction/training Staff handbook Intranet Special events/road shows
Patients & visitors	L	L	Patient safety Quality of service	Public website Annual Report & Accounts
Governors	M	M	Good governance of the organisation Improving services Reducing costs	Governors meetings
Supplies	H	H	Procurement of low carbon products, goods and services	Include in membership of Programme Board
Unions	M	L	Protecting staff Influence over staff	Include in membership of Programme Board
Luton Borough Council	M	M	Potential joint activities Public health agenda Planning applications	Liaison through Strategy and Sustainability Team and Planning and Building Control departments

Influence: the level of influence on the successful outcome of the Programme - High (H), Medium (M) or Low (L)

Impact: the level of impact that the Project will have on the person or group - High (H), Medium (M) or Low (L)

6.5. Routine and annual progress review

This Carbon Management Plan will be reviewed annually by the Carbon Management Programme Board. Carbon Management Maturity Self-Assessment Matrix will be used to assess progress in embedding this Plan into day to day activities. Close review and re-issue of this CMP will be undertaken in year 3 of the programme.

For each meeting of the Programme Board a report will be prepared covering:

- the progress of projects – showing Red, Amber, Green (RAG) reporting, allowing the Board to focus on helping the Red and Amber projects
- the top 5 risks / issues to the programme – this will help the Board remove barriers and obstacles
- progress on our Key Performance Indicators (KPIs)

KPIs that we will use to monitor progress are:

- Gas, electrical and water consumption per quarter
- Carbon emissions by year
- % increase/decrease carbon emissions by year
- Achievement against projected carbon savings
- Number of projects completed
- Number of projects submitted for approval
- Individual project RAG ratings

Annual report will be produced end of each financial year which will be included in the Annual Report and Accounts in line with statutory requirements for NHS foundation trusts. The Sustainability Officer will be coordinating production of the report with involvement of the Carbon Management Team as when required (e.g. to include specific areas such as waste and business transport). The report will be submitted to the Programme Board for endorsement. The annual report will cover the financial and carbon costs and savings against our targets and trajectories. The Treasury's sustainability reporting guidance: http://www.hm-treasury.gov.uk/frem_sustainability.htm will be used to ensure best practice to reporting is applied.

Carbon data and progress updates will be communicated to staff to raise their awareness of the carbon implications of their behaviour via regular communications in internal newsletter.

The Carbon Trust will undertake an annual 'follow up' to measure the level of progress against our projects at the end of each financial year.

Appendix A : Carbon Management Maturity Matrix – Embedding

(Position as at December 2011 italicized and in red)

	POLICY	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	PROCUREMENT	MONITORING & EVALUATION
5 BEST	<ul style="list-style-type: none"> SMART Targets signed off by Board & linked to their priorities Carbon reduction target fully costed and underpinned by quantified projects Action plan contains clear goals & regular progress reviews 	<ul style="list-style-type: none"> CM is full-time responsibility of a few people CM integrated in responsibilities of senior managers Chief Exec support Involvement of clinicians Part of all job descriptions 	<ul style="list-style-type: none"> Quarterly or better collation of CO₂ emissions for scope 1 and 2 Systems being set up for scope 3 Data externally verified M&T in place for: <ul style="list-style-type: none"> Buildings Waste 	<ul style="list-style-type: none"> Key staff given formalised CM: <ul style="list-style-type: none"> Induction and training Incentives Communications CM matters regularly communicated to: <ul style="list-style-type: none"> Full internal and external community, including patients Key partners 	<ul style="list-style-type: none"> Granular & effective financing mechanisms for CM projects Finance representation on CM Team Whole life costing embedded into procedures Ring-fenced fund for carbon reduction initiatives 	<ul style="list-style-type: none"> Senior purchasers consult & adhere to sustainable procurement policy (e.g. PASA or Forum for the Future guidance) Sustainability integrated in tendering & evaluation criteria Whole life costing Collaborative procurement 	<ul style="list-style-type: none"> Senior management review CM process Core team regularly reviews CM progress and target Plan and progress reports publically available Visible board level review
4	<ul style="list-style-type: none"> SMART Targets developed and quantified but not implemented 	<ul style="list-style-type: none"> <i>CM is full-time responsibility of an individual</i> CM integrated in to responsibilities of department managers, not all staff 	<ul style="list-style-type: none"> <i>Annual collation of CO₂ emissions for:</i> <ul style="list-style-type: none"> <i>Buildings</i> <i>Transport</i> <i>waste</i> Data internally reviewed 	<ul style="list-style-type: none"> All staff given CM: <ul style="list-style-type: none"> Induction Communications CM communicated to: <ul style="list-style-type: none"> External community Key partners 	<ul style="list-style-type: none"> Regular financing for CM projects Cost estimate complete for most projects Some external financing 	<ul style="list-style-type: none"> Environmental demands incorporated in tendering Familiarity with OGC and other best practice Whole life costing for all major purchases 	<ul style="list-style-type: none"> Core team regularly reviews CM progress: <ul style="list-style-type: none"> Actions Profile & Targets New opportunities quantification
3	<ul style="list-style-type: none"> Draft policy Climate Change reference Carbon target set but not quantified 	<ul style="list-style-type: none"> <i>CM is part-time responsibility of a few people</i> <i>CM responsibility mainly within Estates</i> 	<ul style="list-style-type: none"> <i>Collation of CO₂ emissions for limited scope i.e. buildings only</i> 	<ul style="list-style-type: none"> Environmental / energy group(s) give ad hoc: <ul style="list-style-type: none"> Training Communications 	<ul style="list-style-type: none"> <i>Ad hoc financing for CM projects</i> <i>Limited task management</i> <i>No allocated resource</i> 	<ul style="list-style-type: none"> <i>Whole life costing occasionally employed</i> <i>Some pooling of environmental expertise</i> 	<ul style="list-style-type: none"> CM team review aspects including: <ul style="list-style-type: none"> Policies / Strategies Targets Action Plans
2	<ul style="list-style-type: none"> <i>No policy or target</i> <i>Carbon reduction aspiration</i> 	<ul style="list-style-type: none"> CM is part-time responsibility of an individual No departmental champions 	<ul style="list-style-type: none"> No CO₂ emissions data compiled Energy data compiled on a regular basis 	<ul style="list-style-type: none"> <i>Regular poster/awareness campaigns</i> <i>Staff given ad hoc CM:</i> <ul style="list-style-type: none"> <i>Communications</i> 	<ul style="list-style-type: none"> Some idea of investment needed to reach target Limited task coordination resources 	<ul style="list-style-type: none"> Green criteria occasionally considered Products considered in isolation 	<ul style="list-style-type: none"> <i>Ad hoc reviews of CM actions progress</i>
1 Worst	<ul style="list-style-type: none"> No policy No climate or carbon reference 	<ul style="list-style-type: none"> No CM responsibility designation 	<ul style="list-style-type: none"> CO₂ emissions not measured Estimated billing 	<ul style="list-style-type: none"> No communication or training 	<ul style="list-style-type: none"> No internal financing or funding for CM related projects 	<ul style="list-style-type: none"> No Green consideration No life cycle costing 	<ul style="list-style-type: none"> No CM monitoring

Appendix B: Definition of Projects

In this section key projects delivering more than 5% of target are described.

Project:	<i>Installation of variable speed drives</i>
Reference:	6
Owner (person)	<i>Magdalena Golebiewska</i>
Department	<i>Estates</i>
Description	<i>The energy saving potential of variable speed drives (VSD) is widely recognised in the industry with up to 50% savings on running costs resulting from 10% speed reduction. A significant element of the electricity demand on site is from operation of motors and pumps</i>
Benefits	<ul style="list-style-type: none"> • <i>Financial savings: £57,200</i> • <i>Payback period: 0.5 years</i> • <i>CO₂ Emissions reduction: 354.4 tonnes of CO₂</i> • <i>10.2% of CO₂ saving target annually</i> • <i>Based on supplier calculations</i>
Funding	<ul style="list-style-type: none"> • <i>Project cost: £30,000</i> • <i>Source of funding: internal</i> • <i>Business case presented to the FIP Committee</i>
Resources	<ul style="list-style-type: none"> • <i>Project delivery will be managed within the existing resource of Estates Capital Projects</i> • <i>Components to be fitted by the selected supplier</i> • <i>Re-commissioning of some systems will be required where VSDs are installed</i>
Ensuring Success	<ul style="list-style-type: none"> • <i>Greater savings are likely to be achieved due to increased level of control as most plant is currently running continuously.</i>
Measuring Success	<ul style="list-style-type: none"> • <i>Power readings for the current consumption of the motors and pumps will be taken. Once the installation of VSDs has taken place, power readings from the new system will be taken again and will be used as validation of the savings achieved.</i> • <i>VSDs have the facility to record consumption and this could be recorded via BMS</i>
Timing	<ul style="list-style-type: none"> • <i>Milestones / key dates:</i> <ul style="list-style-type: none"> ○ <i>Invite suppliers to submit quotations: February 2012</i> ○ <i>Start date: April 2012</i> ○ <i>Completion date: July 2012</i>
Notes	<i>Cost of the project is based on the indicative quotation received from supplier. Enabling project to make changes to boilers scheduling</i>

Project:	<i>Lighting upgrade throughout the site</i>
Reference:	7
Owner (person)	<i>Les Barras</i>
Department	<i>Estates</i>
Description	<i>Continuation of lighting upgrade project across whole site, focusing initially on 24/7 areas of the Medical Block</i>
Benefits	<ul style="list-style-type: none"> • <i>Financial savings: £31,541</i> • <i>Payback period: 2.9 years</i> • <i>CO₂ Emissions reduction: 195.4 tonnes of CO₂</i> • <i>5.6% of CO₂ saving target</i>
Funding	<ul style="list-style-type: none"> • <i>£90,000 to include lamps supply and installation</i> • <i>Source of funding: internal</i> • <i>Business case presented to the FIP Committee</i>
Resources	<ul style="list-style-type: none"> • <i>Project delivery will be managed within the existing resource of Estates Capital Projects</i> • <i>Installation to be undertaken by an external contractor</i>
Ensuring Success	<ul style="list-style-type: none"> • <i>Lighting survey to be undertaken to determine where lighting controls (such as occupancy and daylight sensing) would be beneficial</i> • <i>Lighting survey to be undertaken to ensure areas are lit for purpose (benefitting from daylight where possible)</i>
Measuring Success	<ul style="list-style-type: none"> • <i>Saving to be calculated based on current fittings wattage versus new fittings</i> • <i>Energy saving lighting upgrade will be difficult to identify at fiscal meters. Proposed sub-metering should be an integral part of the success of this project.</i>
Timing	<ul style="list-style-type: none"> • <i>Milestones / key dates:</i> <ul style="list-style-type: none"> ○ <i>Invite suppliers to submit quotations: February 2012</i> ○ <i>Start date: May 2012</i> ○ <i>Completion date: July 2012</i>
Notes	<i>Savings based on the previous quote (Surgical Block lighting upgrade) extrapolated to larger area.</i>

Project:	<i>Awareness campaign</i>
Reference:	8
Owner (person)	<i>Magdalena Golebiewska</i>
Department	<i>Estates</i>
Description	<i>Every year £4.2 billion – at least 10% of the total spent by UK businesses on energy – is wasted. Much of this waste could be avoided by greater energy awareness. Switching off desktops, monitors, printers, lights at the end of the day or when away from desk for a longer period of time should become a natural thing to do.</i>
Benefits	<ul style="list-style-type: none"> • <i>Financial savings: £57,206</i> • <i>Payback period: 0.03 years</i> • <i>CO₂ Emissions reduction: 354.3 tonnes of CO₂</i> • <i>10.2% of CO₂ saving target annually</i> • <i>Savings calculated based on typical savings of 5% electricity and 1% gas reduction as per the carbon Trust guidance</i>
Funding	<ul style="list-style-type: none"> • <i>Project cost: Nil</i> • <i>One off awareness activities to be funded from N97 budget</i>
Resources	<ul style="list-style-type: none"> • <i>Energy champions representing various departments, buildings, and directorates are required</i>
Ensuring Success	<ul style="list-style-type: none"> • <i>Include sustainability matters and energy awareness into induction process</i> • <i>Run regular Turn It Off Days / Annual Climate Week activities</i>
Measuring Success	<ul style="list-style-type: none"> • <i>Energy saving from running awareness campaign will be difficult to identify at fiscal meters. Proposed sub-metering should be an integral part of the success of this project</i>
Timing	<ul style="list-style-type: none"> • <i>Milestones / key dates:</i> <ul style="list-style-type: none"> ○ <i>start date: March 2011</i> ○ <i>completion date (when it will deliver savings): ongoing</i>
Notes	<i>Awareness campaign already started via publications in internal newsletter and Climate Week activities in March 2011.</i>

Project:	<i>Small decentralised CHP</i>
Reference:	<i>20</i>
Owner (person)	<i>Magdalena Golebiewska</i>
Department	<i>Estates</i>
Description	<p><i>Install small scale decentralized CHP plants in NWB, 5 Storey, Maternity, 6A and Steam Boilers Plantrooms.</i></p> <p><i>Combined Heat & Power (CHP) converts a single fuel into both electricity and heat in a single process at the point of use. CHP is highly energy efficient and as well as supplying heat and power, it can deliver a number of positive financial, operational and environmental benefits.</i></p>
Benefits	<ul style="list-style-type: none"> • <i>Financial savings: £207,245</i> • <i>Payback period: 6.8 years</i> • <i>CO₂ Emissions reduction: 1,393 tonnes of CO₂</i> • <i>40% of CO₂ saving target annually</i> • <i>Budget calculations for initial feasibility</i>
Funding	<ul style="list-style-type: none"> • <i>Project cost (the initial cost of implementing the project): £1,400,000</i> • <i>Operational costs (inc. annual maintenance costs): £17,500</i> • <i>Source of funding: tbc</i>
Resources	<ul style="list-style-type: none"> • <i>External consultancy required to design the scheme</i> • <i>Project delivery will be managed within the existing resource of Estates Capital Projects</i> • <i>With greater financial input required project delivery could be via Carbon and Energy Fund</i>
Ensuring Success	<ul style="list-style-type: none"> • <i>Preparation of the business case</i> • <i>Engage CHP consultant to help with design</i>
Measuring Success	<ul style="list-style-type: none"> • <i>Measuring gas & electrical consumption</i>
Timing	<ul style="list-style-type: none"> • <i>Milestones / key dates:</i> <ul style="list-style-type: none"> ○ <i>start date: tbc</i> ○ <i>completion date (when it will deliver savings): tbc</i>
Notes	<p><i>Align with the Estates Strategy Review -some buildings and engineering system are planned to become redundant and new builds will come.</i></p> <p><i>The most cost effective option would be to consider CHP as a part of new builds.</i></p>

Project:	<i>Boilers upgrade</i>
Reference:	<i>21</i>
Owner (person)	<i>Head of Estates</i>
Department	<i>Estates</i>
Description	<p><i>The current boilers were installed as a part of decentralisation project in 1995 and as such the boilers are coming to the end of their lifetime.</i></p> <p><i>Installed power is much greater than winter utilisation in last two years and there is a scope to rationalise the number of boilers at the time of upgrade to modern condensing boilers.</i></p>
Benefits	<ul style="list-style-type: none"> • <i>Financial savings: £34,950</i> • <i>Payback period: 11.4 years</i> • <i>CO₂ Emissions reduction: 215.8 tonnes of CO₂</i> • <i>6.2% of CO₂ saving target annually</i> • <i>Based on fast track day outcomes - survey of boiler plant (8% improvement on key plant room)</i>
Funding	<ul style="list-style-type: none"> • <i>Project cost: £400,000</i> • <i>Operational costs: tbc</i> • <i>Source of funding: tbc</i> • <i>Business case to be prepared</i>
Resources	<ul style="list-style-type: none"> • <i>External consultancy required to design the scheme</i> • <i>Project delivery will be managed within the existing resource of Estates Capital Projects</i>
Ensuring Success	<ul style="list-style-type: none"> • <i>Financial commitment required for replacing boilers</i>
Measuring Success	<ul style="list-style-type: none"> • <i>Measuring gas consumption on a half hourly basis via AMR</i>
Timing	<ul style="list-style-type: none"> • <i>Milestones / key dates:</i> <ul style="list-style-type: none"> ○ <i>start date: tbc</i> ○ <i>completion date (when it will deliver savings): tbc</i>
Notes	<i>Align with the Estates Strategy Review -some buildings and engineering system are planned to become redundant and new builds will come.</i>

Project:	<i>Steam generation & new autoclaves</i>
Reference:	23
Owner (person)	<i>Head of Estates</i>
Department	<i>Estates</i>
Description	<i>The Trust currently operating 2 steam boilers only for the purpose of supplying steam to autoclaves in SSD and Medical Microbiology.</i>
Benefits	<ul style="list-style-type: none"> • <i>Financial savings: £52,800</i> • <i>Payback period: 3.8 years</i> • <i>CO₂ Emissions reduction: 326.0 tonnes of CO₂</i> • <i>9.4% of CO₂ saving target annually</i> • <i>Infrastructure losses are enormous with current system. Assumed 40% saving to be achieved.</i>
Funding	<ul style="list-style-type: none"> • <i>Project cost: £200,000</i> • <i>Operational costs: tbc</i> • <i>Source of funding: tbc</i> • <i>Business case to be prepared</i>
Resources	<ul style="list-style-type: none"> • <i>Project delivery will be managed within the existing resource of Estates Capital Projects</i>
Ensuring Success	<ul style="list-style-type: none"> • <i>Outline review of the proposal and alternative options to be completed</i> • <i>Principal risks: steam supply to SSD and Medical Microbiology while works are undertaken</i>
Measuring Success	<ul style="list-style-type: none"> • <i>Reduced gas consumption</i>
Timing	<ul style="list-style-type: none"> • <i>Milestones / key dates e.g.</i> <ul style="list-style-type: none"> ○ <i>start date: 2013</i> ○ <i>completion date (when it will deliver savings): tbc</i>
Notes	<i>Further work required to establish scheme viability</i>

Appendix C: Communications Plan

Objectives

1. Support reduction of 30% in carbon emissions by 2016 through behaviour change programme of events and communications.
2. Increase stakeholders awareness about the Trust's environmental responsibilities
3. Reduce single occupancy vehicle travel by 20% by 2016 through increase in cycling, walking, public transport and car sharing.
4. Reduce clinical and general waste by 50% through diversion to comingled recycling and offensive waste collection by 2016
5. Increase strategic importance of carbon management and energy efficiency by integrating carbon management into relevant policies and strategies.

Communication initiatives

Project proposals below require resourcing with a combination of staff time and financial resources:

Project proposal	Timescale
Use competitions/open meetings to identify green-minded staff to be recruited as Energy Champions – Climate Week / NHS Sustainability Day	March 2012
Develop screensaver to ask people to switch their screens and PCs off	June 2012
Produce an annual progress report	April 2012
Train and empower Energy Champions	September 2012
Develop and implement "Switch Off" campaigns	June 2012
Promote sustainable travel as an alternative to single occupancy car usage – Cyclescheme, liftshare, discounted bus fares and walking	On-going
Seek sponsorship from contractors for sustainability communications and events	August 2012
Promote Energy Efficiency to staff using on-call accommodation	August 2012
Promote Energy Efficiency to residents of the Senior Home	August 2012
Communicate progress via regular updates in the internal newsletter	On-going
Put labels on light switches in communal areas asking to switch them off when not required	April 2012
Produce an "expectation list" of what staff are expected to do and get HR/unions endorsement.	August 2012
Educate Wards in St. Mary's Wing how to control heat using thermostatic valves on radiators	October 2012

National/Regional Events to tie in with

- 12-18 March 2012 – Climate Week



- 28 March 2012 – NHS Sustainability Day



The **NHS** Sustainability Day

- 14-18 May 2012 – Walk to Work Week



- 16-24 June 2012 – Team Green Britain Bike Week



Appendix D: EQUALITY IMPACT ASSESSMENT (EIA)

For all policies/guidelines/new service or service redesign plans

1. Policy/Guideline/Service Summary																			
Title: Carbon Management Plan	Status: Proposed <input checked="" type="checkbox"/> Existing <input type="checkbox"/>																		
2. EIA Completion Details																			
Name: Victoria Parsons Post Title: Board Secretary Department: Foundation Trust Date of completion of this EIA: 24 th February 2012 Date completed 'Respect for People' Diversity training: 11 th October 2007 Date attended EIA Workshop: 24 th April 2008																			
3. Policy/Guideline/Service Details																			
Please provide a summary of the aims/objectives or purpose of the policy/guideline/service: Carbon Management Plan (CMP) identifies realistic carbon reduction opportunities, prioritises them and puts a 5 years programme. Does the policy/guideline/service promote equality of opportunity and/or seek to eradicate health inequalities? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes – please provide details:																			
Who is likely to be affected by the policy: <table border="0"> <tr> <td>Staff</td><td><input type="checkbox"/></td> <td>Service Users</td><td><input type="checkbox"/></td> <td>Healthcare partners</td><td><input type="checkbox"/></td> </tr> <tr> <td>Patients</td><td><input type="checkbox"/></td> <td>Visitors</td><td><input type="checkbox"/></td> <td>Social care agencies</td><td><input type="checkbox"/></td> </tr> <tr> <td>Carers</td><td><input type="checkbox"/></td> <td>Contractors</td><td><input type="checkbox"/></td> <td></td><td></td> </tr> </table> Any other? Please specify Any people on site		Staff	<input type="checkbox"/>	Service Users	<input type="checkbox"/>	Healthcare partners	<input type="checkbox"/>	Patients	<input type="checkbox"/>	Visitors	<input type="checkbox"/>	Social care agencies	<input type="checkbox"/>	Carers	<input type="checkbox"/>	Contractors	<input type="checkbox"/>		
Staff	<input type="checkbox"/>	Service Users	<input type="checkbox"/>	Healthcare partners	<input type="checkbox"/>														
Patients	<input type="checkbox"/>	Visitors	<input type="checkbox"/>	Social care agencies	<input type="checkbox"/>														
Carers	<input type="checkbox"/>	Contractors	<input type="checkbox"/>																
4. Consultation/Involvement																			
Please detail which groups you have consulted with/involved in the development of the policy/guideline/service? Carbon Management Programme Board Board of Directors																			

5. Potential Impact

In your opinion and from views of the groups you have consulted with or involved in the development – please indicate any potential direct or indirect discrimination and/or adverse impact the introduction of this policy/guideline/service may have. (NB breach of legislation would be High impact)

	Potential adverse Impact ?	If Yes - Intensity of Impact? High, Medium, or Low
Race, Ethnicity, Nationality	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Low
Religion, belief, faith, no faith	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Low
Gender: women; men; transgender	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Low
Disability: Physical, Mental, Learning Disability	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Medium
Sexual Orientation: heterosexuals, bisexuals, gay men & lesbians	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Low
Age	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Low
Other Grounds: e.g. homelessness, socio-economic	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Low

6. Specific Issues Identified

Please list the specific issues that have been identified as being discriminatory / promoting adverse differential treatment. (continue on separate sheet if necessary)	How could the identified adverse effects be minimised or eradicated?	Can the adverse effects be justified on the basis of clinical reason; health and safety or positive action (please detail)
All groups to differing levels	The risk of any adjustment to lighting, heating and travel policies.	Any adjustments must not place any additional risks onto staff, patients and the public

7. Amendments/action taken

Please describe any amendments or actions taken to minimise or eradicate the adverse impact.

Signed: V Parsons

Position: Board Secretary

Date: 24th February 2012