Southend University Hospital **NHS**
NHS Foundation Trust

Sustainable Development
Management Plan
2013/14

Southend University Hospital NHS
NHS Foundation Trust
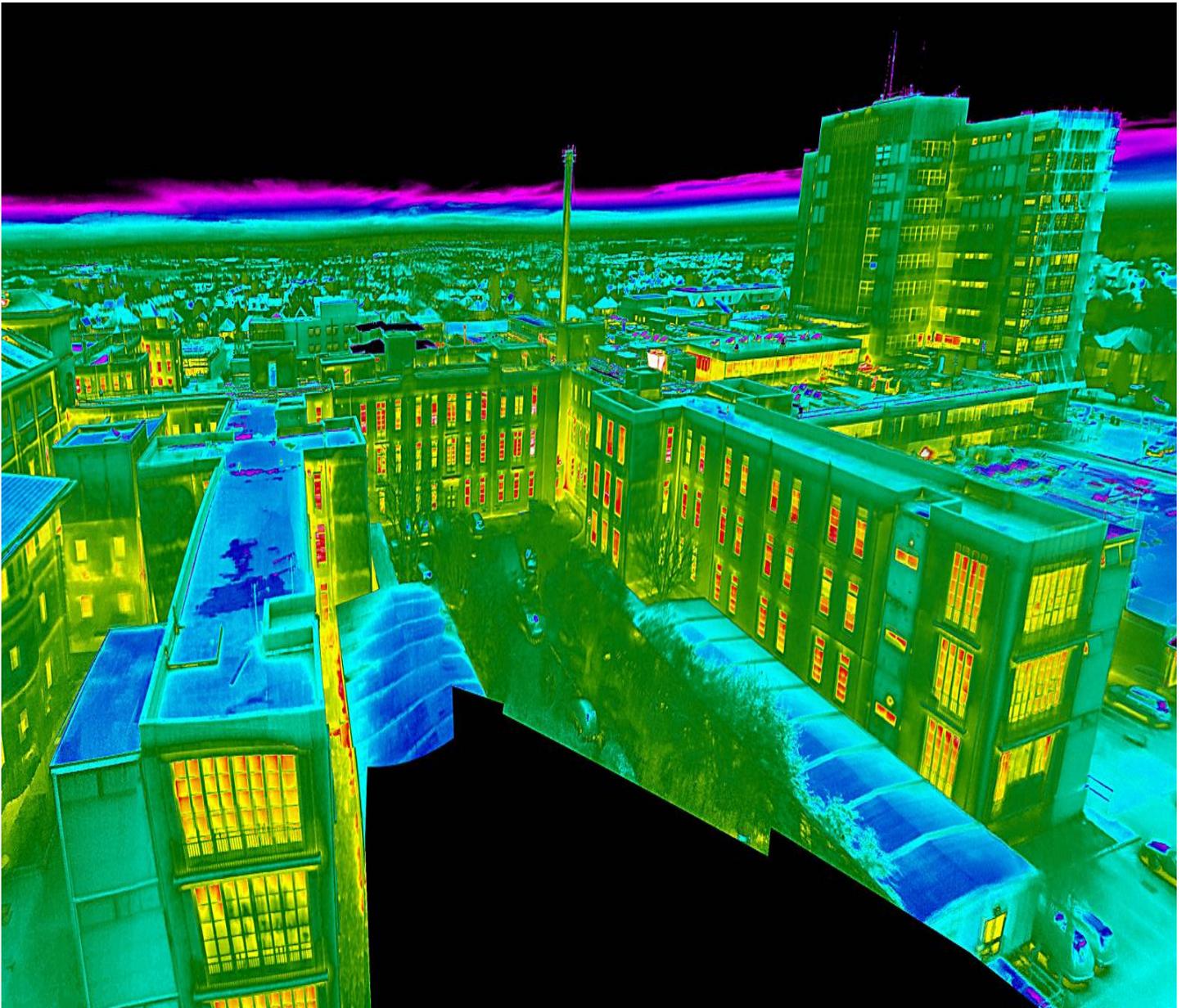
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Foreword from Jacqueline Totterdell, Chief Executive, Southend Hospital

Climate change, as a result of man-made emissions, is real and continues to have a significant impact on most parts of our country. 2012 saw the second wettest year on record, while the year before, the second warmest and both caused catastrophic effects and tested the resilience of local NHS Health and Social Care emergency services.

Southend University Hospital NHS Foundation Trust employs 4,500 staff and serves a local population of some 339,000. We recognise the environmental impacts of providing healthcare services to our patients 24 hours, 7 days a week, 365 days of the year, which include heating and lighting buildings, operating medical equipment, staff journeys, deliveries and waste services.

I therefore welcome the introduction of this Sustainable Development Management Plan to help mitigate our hospital's carbon emissions in line with both NHS policy guidelines such as Saving Carbon, Improving Health and our own key strategic sustainability objectives: to minimise unnecessary waste with the efficient management of resources resulting in the reduction of carbon emissions. At the same time this should demonstrate to our patients, partners and communities that we are committed to improving our environment and the health of the local population.

Our Sustainable Development Management Plan commits us to reduce our carbon emissions from our activities by 10% over 5 years. It describes a number of initiatives from the development of energy saving projects to training and publicity to influence the hearts and minds of staff, patients and visitors so that they use precious resources and energy responsibly both at the hospital and at home.

The task set is challenging for us but we are convinced that it will reduce the impact we make both on the environment and the communities we are here to serve.

Executive Summary

Sustainability is defined as meeting the needs of current generations without compromising the ability of future generations to meet their own needs. Sustainable development is essentially the interaction between social, economic and environmental activities and opportunities influence the outcomes of carbon emissions generated in areas such as travel, procurement, food, waste, water, energy efficiency, the built environment, workforce development and the role of partnerships and networks.

The optimal management of these outcomes can realise financial and resource savings while at the same time help to meet the national NHS carbon or carbon dioxide (CO_2) targets.

The UK Climate Change Act 2008 sets out the following statutory carbon emission reduction targets against a 1990 baseline:

- 10% by 2015
- 34% by 2020
- 80% by 2050

The NHS is one of the world's largest organisations accounting for 3% of the UK's total emissions and 5% of all UK road travel. The NHS and in turn Southend University Hospital NHS Foundation Trust (the Trust) need to support the achievement of these targets.

The costs of providing our patients with healthcare services in 2011/12 amounted to c£57million and created an environmental impact or carbon footprint of 39,300 tonnes of CO_2 broken down as follows.

Chart 1: Trust carbon emissions
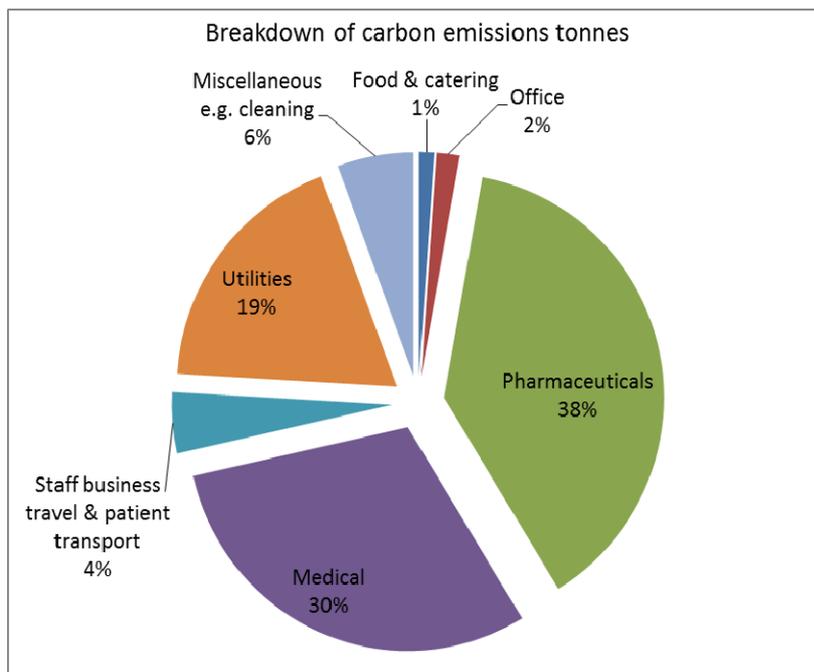
Source: Government's P4CR (Procurement for Carbon Reduction) assessment tool
Using 2011/12 operating expenses to calculate our approximate carbon footprint

In addition to this, staff journeys to and from work produced 2,342 tonnes of CO_2 giving a total estimated carbon footprint in 2011/12 of 41,642 tonnes.

The Trust has a vision of excellence for its patients, staff and visitors and includes as part of its commitment to its social, environmental and economic objectives, the efficient use of resources and in turn a reduction in carbon emissions.

The costs of our utilities, waste, recycling, staff business travel and vehicles emissions are £3.1 million with electricity and gas usage the largest source. Energy usage is influenced by a number of factors including efficiency of plant, integrity of engineering systems, maintenance, infrastructure, building or refurbishment work, winter temperatures and clinical activity.

If the Trust takes no action to reduce its carbon usage, referred to as the business-as-usual (BAU) scenario, carbon emissions are forecast to continue to increase by 3% per year over the next 5 years (based on historical growth figures) as a result of BAU growth activity.

The financial value at stake if BAU continues is shown in the chart below:

Chart 2: BAU costs [1]

BAU costs against predicted reduction targets
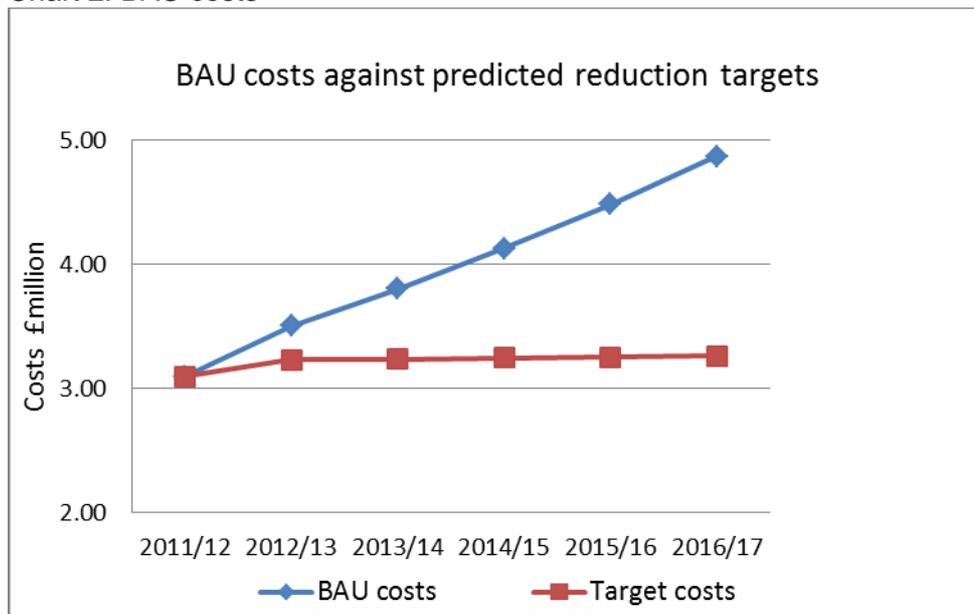
[1] includes utilities, waste, recycling, staff business travel and vehicles emissions costs

The introduction of this Sustainable Development Management Plan (SDMP) aims to provide by the end of year 5 cumulative *cost avoidance* savings against a BAU scenario of £1.61 million.

The Trust this year aims to implement under a Department of Health (DoH) funding initiative a £1.60 million programme of energy efficiency projects predominantly on the main site to reduce emissions by some 2,310 tonnes a year. The 10% target represents cumulative CO_2 reductions of 85,396 tonnes (against the 2007/08 baseline). The DoH initiative will for the first time in 2014 and 2015 take us *below* the (annual) target line - see chart 3.

Chart 3: Carbon emissions target

Energy usage CO_2 emissions
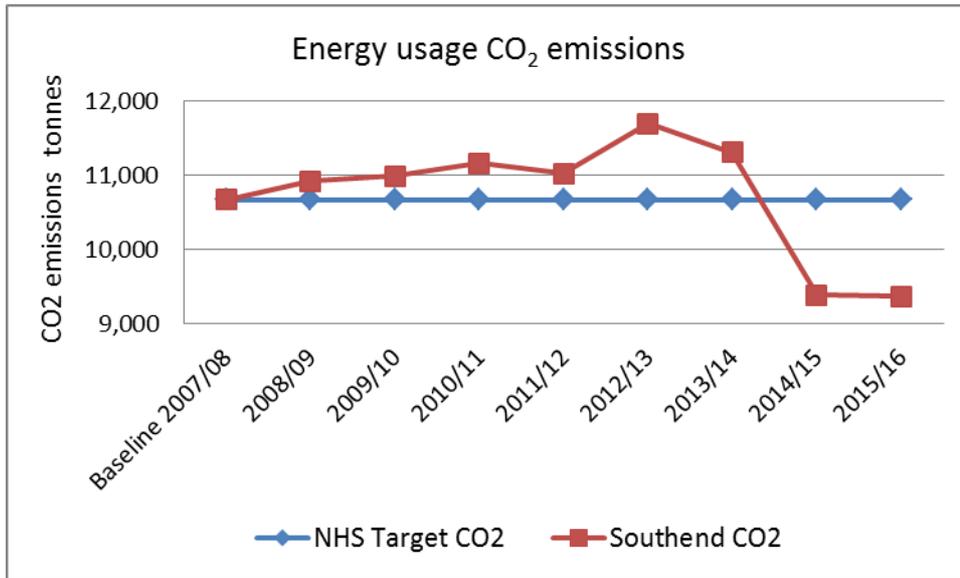
Despite this, however by 2015 the Trust is still likely to have emissions 493 tonnes *above* the national (cumulative) target and require the identification of further savings opportunities to meet this shortfall. For instance procurement, travel and work force culture initiatives, clinical carbon emissions reduction management plans as well as identifying further new and innovative energy efficiency opportunities such as tri-generation systems (combined heat and power with cooling) and the next generation of lighting and controls.

The process of achieving the carbon emissions target will need to be monitored closely and reviewed annually by the Trust Board to ensure the planned reductions occur and the changes are sustainable.

The project management of the Trust's SDMP will be carried out by an operational implementation group from the Estates Team with progress monitored via a project steering group - the Sustainable Impact Group (SIG) who meet bi-monthly. SIG has representatives from a number of our business and service units including our Energy Champion, Executive and Non-Executive leads. This will help create an assurance framework to enable regular reporting from the operational project teams and the SIG group to the Trust Board via our Estates and Facilities Director.

The Trust Board is requested to:

- endorse this SDMP
- accept via the SIG progress reporting, which will be presented annually to the Board
- approve the publication of this strategy on the Trust's website

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1.0   Introduction and background

There are a number of strategic initiatives which require the Trust to assess its carbon footprint and to develop a Sustainable Development Management Plan (SDMP) to reduce its carbon emissions. Scientific evidence has demonstrated climate change is destabilising the world's climate and adversely affecting the population's health. The NHS Carbon Reduction Strategy 2009 report requires evidence of regular Health Board performance reviews of energy efficiency and carbon reduction. It recommends the outcome of any review should be reported annually to staff, the public and other stakeholders.

Other national reports identify the following:

1.1   Saving Carbon Improving Health

The NHS accounts for 5% of all road traffic in England and travel is responsible for 18% of the National NHS carbon footprint. "Saving Carbon, Improving Health" requires NHS Trusts to be exemplar in leading the population-wide shift to more active travel such as walking and using public transport.

1.2   NHS Carbon Reduction **Strategy**

This strategy requires NHS organisations to meet a 10% reduction target in overall carbon emissions by April 2015 against a 2007/08 baseline. This represents for the Trust 85,396 tonnes of CO_2 (over 8 years). Chart 4 shows the target the Trust needs to meet.

Chart 4: CO_2 emissions against the NHS target emissions
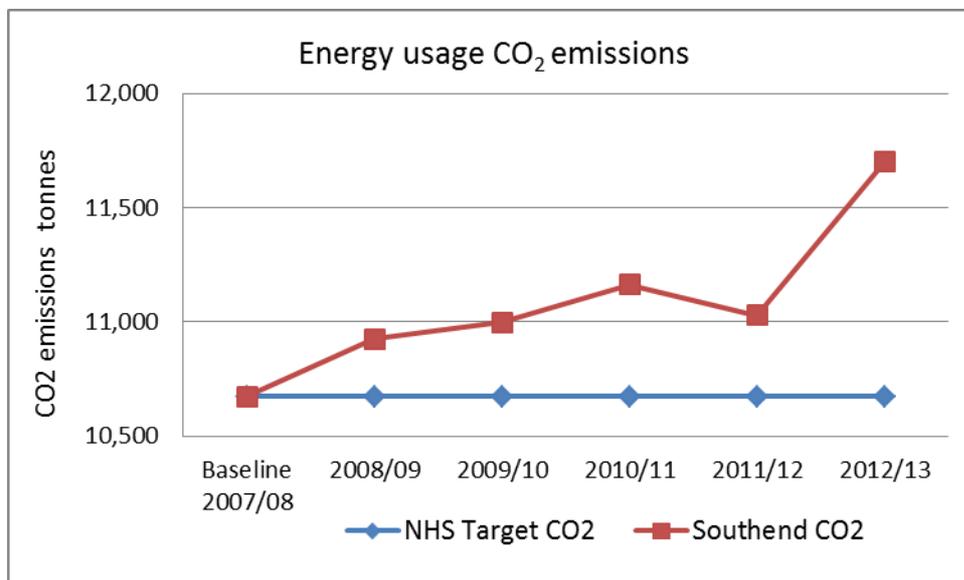
CO_2 emissions increased dramatically in 2012/13 in line with activity growth, climate or seasonal demands and technological developments.

1.3   Climate Change Act 2008

This act sets legally binding targets on the UK government to reduce greenhouse gas emissions in the UK and abroad: 34% by 2020 against a 1990 baseline and 80% by 2050. The NHS as one of the world's largest organisations accounts for 3% of the UK's total emissions and therefore has an important role to play.

The UK Climate Change Risk Assessment 2012 predicts an increase in the frequency and intensity of weather-related hazards including heat waves and floods. The NHS, health and social care organisations must adapt to a range of scenarios and be prepared for future climate change. Adaptation for the health system is two-fold:

a.   Climate change could negatively impact on the health and wellbeing of the UK population. The health system needs to be prepared for different volumes and patterns of demand
b.   Climate change could impact on the operational delivery of the NHS. The health system infrastructure (buildings, emergency services vehicles, models of care) and supply chain (e.g. fuel, food) need to be prepared for, and be resilient to, adverse weather events.

The health risks will result in an increase in mortality rates (as a result of increased summer temperatures and heat wave events), an increase in respiratory illness (associated with ground level ozone), mental health and skin cancer problems.

1.4   Carbon Reduction Commitment Energy Efficiency Scheme (CRC)

The CRC is a mandatory carbon emission trading scheme which aims to improve energy efficiency and reduce the amount of CO_2 emitted in the UK by large organisations.

Participants measure and report their carbon emissions annually, and buy allowances from Government each year to cover their emissions in the previous year (the current price is set at £12 per tonne of CO_2).

1.5   The Public Services (Social Value) Act 2012

This Act requires public services procurement approaches to consider how procured services might improve the economic, social and environmental wellbeing of the area to be covered by the contract. The Act, for the first time, places a duty on public bodies to consider social value ahead of procurement.

1.6   Saving Carbon, Improving Health - NHS Carbon Reduction Strategy for England January 2009

Organisations need to acknowledge that taking sustainability and carbon emissions seriously is an integral part of a high quality health service.

Some of the recommended key actions to manage and reduce the Trust's carbon footprint are:

- Plan to meet legally-binding carbon reduction targets
- Improve and secure immediate health benefits through increasing active travel
- Secure cost savings from energy efficiency projects to allow reinvestment into direct patient care
- Review opportunities to introduce resilience towards the use and cost of energy
- Assess the opportunity to set an example and demonstrate to partner organisations and the population that healthy people depend on a healthy environment

1.7   Conclusion

The Trust acknowledges its impact on the environment and will need to continue to work towards providing a more sustainable service both socially, environmentally and economically. This SDMP sets out how the Trust as an organisation can plan to meet the requirements set out in national reports / policies, which in turn will achieve the national carbon emission reduction target.

2.0   Developing the SDMP

The Trust's vision is to ensure this SDMP addresses the issues raised in the NHS Carbon Reduction Strategy. The outcomes of this SDMP link with our strategic objectives:

- to minimise unnecessary waste and resources
- to generate cost efficiency savings while at the same time showing our patients, partners and communities a commitment to innovation and continuous improvement

To develop the SDMP and support the achievement of our carbon emission targets, a series of management assessment tools helped to identify key areas to tackle including associated action plans – see fig. 1.

Fig 1: Trust Sustainability Pyramid

2.1   Good Corporate Citizenship Assessment Model (GCCAM)

The GCCAM is a management tool to help NHS organisations develop their sustainable activities over a period of time. The tool takes into account existing work in six key areas: travel, procurement, workforce, community engagement, facilities and buildings.

The GCCAM is an annual, self-assessment tool scoring 6 specific areas with each area having 6 assessment questions. Each area can achieve a maximum score of 36 - see Chart 5.

Chart 5: The Trust's 2011/12 GCCAM scores

Good Corporate Citizenship scores
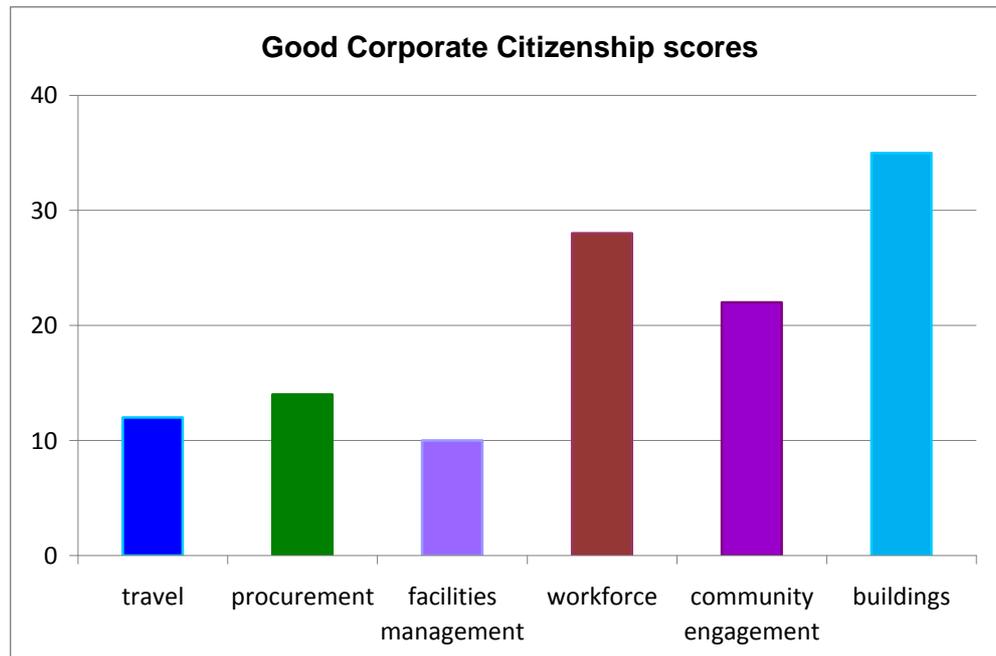
The assessment places organisations into one of the following categories.

- 'getting started'
- 'getting there'
- 'excellent'

The Trust's assessment in 2012 achieved an average score of 56% (calculated by adding each area's score and providing an average), which defined our position as 'getting there'.

Changes to the GCCAM recently allow comparisons with other hospitals and introduces an assessment of the impact of service delivery and review of the clinical model or patient care pathway. The annual assessment will be repeated in 2013 for review by the Sustainable Impact Group to assess any further opportunities to enhance our SDMP in 2014.

2.2   Green Travel Plan

The effectiveness of the green travel plan is assessed annually through a staff travel survey and patient/visitor travel survey. Monthly bike, car and motorcycle parking counts are also undertaken to assess occupancy of the Trust's parking facilities.

Since the 2005/6 green travel plan the following changes in how staff choose to travel in to work
have taken place:

- Car drivers – a 26% reduction
- Active travel (walkers and bike riders) - an 11% increase

- Public transport (bus and rail users) – a 9% increase

The modal split for staff home to work travel against the most recent national survey is shown in Chart 6.

Chart 6: Trust's travel survey against the national survey
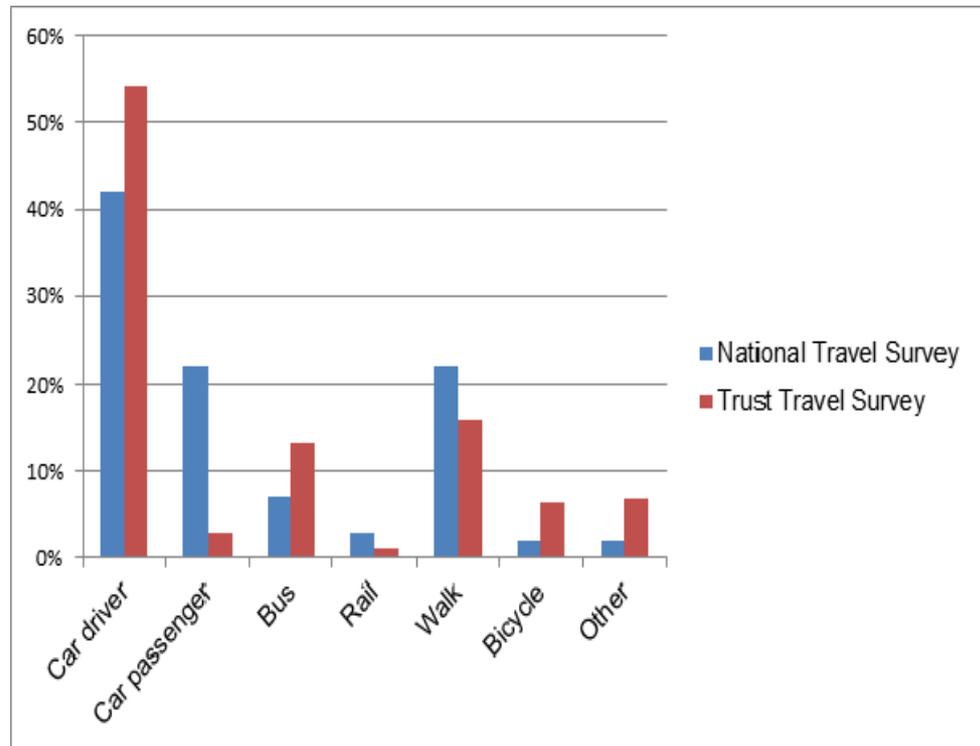
The national travel survey is not NHS or public sector specific

Green Travel Plan initiatives to date include:

- An employee bike salary sacrifice scheme introduced in September 2009 with 200 bikes bought to date, saving the Trust £28k (on tax, national insurance and pension contributions)
- Increase in cycle parking provision from 68 to 218 sheltered spaces including 60 secure staff spaces
- Installation of 51 free of charge motorcycle parking spaces
- 50% discounted/subsidised employee bus fares. (A similar scheme for rail users ended about a 1 year ago)
- An extensive communication campaign including national and local events
- The launch of a salary sacrifice car leasing scheme in partnership with a provider of "green" low pollution vehicles

Partnerships have been developed with a number of agencies:

- Southend Borough Council on elements of Local Transport Plan, Southend Council's Road Safety team, Idea In Motion Initiative and Cycle Southend for cycle and walking promotions and staff training

- Southend Crime and Disorder Reduction Partnership – supplies regular personal safety road shows and newsletters
- The Trust is a founding member of the Move Easy Network – a partnership with other local employers – whose aim is to encourage and promote green travel, share best practice and pool resources

2.2.1 Future green travel plan initiatives

The Trust's green travel plan is refreshed every 5 years, most recently in 2012/13. The Trust currently has circa 4,500 staff who travel to work daily and targets for shifting their choice of transport are set out in the table below.

Table 1: Green travel plan modal share targets 2012/17

Mode of Travel	Baseline 2011/12	Target 2012/13	Target 2013/14	Target 2014/15	Target 2015/16	Target 2016/17
Car driver	54.1%	50%	46%	42%	38%	34%
Walk	15.7%	17%	17.2%	17.5%	17.7%	19%
Bus	13.2%	13.6%	13.9%	14.3%	14.7%	18%
Car passenger	2.8%	3.1%	3.3%	3.5%	3.8%	6%
Bicycle	6.2%	6.6%	6.9%	7.3%	7.7%	9%
Motorbike/Moped	0.8%	1.1%	1.3%	1.5%	1.8%	2%
Train	1.2%	1.6%	1.9%	2.3%	2.7%	4%
Taxi	0.4%	0.3%	0.3%	0.2%	0.1%	0%
Multi Modal	5.6%	5.9%	6.2%	6.5%	6.7%	8%
	100%	100%	100%	100%	100%	100%

The green travel plan has a target of a 20% reduction in single occupancy car use to support the Trust's strategy to reduce its overall carbon impacts. Future travel plan initiatives include:

- To develop a specification for our in-house lease vehicles
- Review opportunities to use electricity charging points for vehicles installed in the borough approximately 3 years ago, but as yet not activated by the local Council
- Assess ad hoc site deliveries to the Trust and build on information already collected, e.g. warehouse postcodes, size, type and fuel usage of vehicles and frequency of visits. Options currently being investigated include reducing delivery frequency through wholesaler and freight consolidation
- Review the benefits of video conferencing facilities and flexible working. The Trust is, however, carrying out a review of its homeworking policy to include such factors as monitoring staff effectiveness, performance, ergonomics and well-being

2.3   **Procurement**

Procurement operates through various suppliers including the NHS Supply Chain and local contracts. Procurement policies and procedures are in the process of being updated and are likely to be reviewed by the Trust Board during 2013. The policy has been developed in line with the NHS Sustainable procurement policy and guidance from the procurement centre of expertise.

Current procurement policy is focused on financial balance and getting better value for the Trust. There is minimal consideration of environmental and sustainability issues within the documents with the exception of consideration of local contractors and restrictions placed on contractors.

The procurement department has practiced whole life costing for a number of purchases over the last 24 months; considering administrative costs, delivery charges, rebates for commitment and final disposal costs. Staff have received training in life cycle analysis and sustainability from the carbon trust.

Recycling routes are also sought for old equipment and furniture via charity and government initiatives and a furniture swap shop is on the virtual Staff notice board.

- **Pharmacy**

There are limited options for procuring patented medicines; the majority of medicines are obtained through 2 or 3 wholesalers. Recent problems with drug supply and shortages in the UK may mean that the Trust will have to source drugs from further away in the future. Wherever possible, however, only one type of non-patented medicine is procured.

Space limitations within the pharmacy department restrict overstocking and there is no space to support buying in bulk to reduce the number of deliveries. The department receives two deliveries per day, which is the minimum feasible with current usage and storage facilities. The installation of a pharmacy robot (automatic dispensing system) has reduced stockholding levels and allowed for more effective purchasing and storage. There is a stock level audit system in place.

Drugs purchased are constantly reviewed to ensure that medicines not required are not held. Expired drug wastage is very low; this has been minimised by the issuing of drugs to in-patients with take home labelling already in place. In the past drugs would be issued to patients twice, once whilst an inpatient and then when they are going home. In July 2012 total wastage from expired drugs was 0.13%.

- **Healthy and Sustainable Food Choices**

Catering is provided by Medirest - part of the Compass Group - who have a Corporate Responsibility Framework and are members of the DOW Jones Sustainability Index. The Compass Group considers seasonality as part of its menu planning and focuses on healthy options food, clearly labelled to inform staff and patients. They also buy fair-trade and ethically sourced items particularly with the Deli Marché part of catering.

Local sourcing is backed by company targets. Currently eggs, meat, vegetables and milk are some of the items sourced locally. The Compass Group has won awards for its local procurement activities. Used cooking oil is recycled into biodiesel for use in delivery vehicles.

Medirest has reduced its supplier deliveries from 8 to 2 with an associated reduction in carbon emissions, local pollution, traffic, noise, etc.

The use of the Steamplicity microwaves to heat patient food has reduced energy usage and allows food to be freshly prepared rather than reheating frozen cooked food. The Steamplicity process uses steaming in a microwave and prevents the use of regeneration ovens which had to run for long periods of time. Plastic dishes from this process are recycled.

2.3.1   Future procurement initiatives

A life cycle analysis procedure is being drafted and implemented to strengthen the evaluation of procurement bids and the impact on carbon emissions. This will include Business Cases identifying the energy / utility costs of any development and their impact on the Trust's carbon footprint.

Procurement services will review the feasibility of an electronic web enabled contract management system and the introduction of carbon usage contracts, to ensure specifications and the opportunities for carbon reduction are fully explored in the tendering process.

An initiative to reduce the number of suppliers using a preferred wholesaler will lead to a reduction in transport deliveries.

Ethical and fair-trade matters will be taken into consideration; e.g. ensuring that staff uniforms are made ethically and not in 'Sweat Shops'.

Consideration will also be given to the Public Services (Social Value) Act 2012, assessing opportunities to improve the economic, social and environmental wellbeing of the community e.g. where possible local industries will be used to promote financial growth in the area and to cut transport costs.

There will be a requirement of all suppliers to hold an Environmental Management System (EMS) ISO14001 standard or as a minimum suppliers will be required to submit their environmental policy.

Further works to reduce carbon emissions associated with the pharmacy will involve suppliers using more energy efficient vehicles, as the source of many pharmaceuticals is limited, this may be difficult to enforce in contracts.

2.4   Facilities Management

2.4.1   Waste

The Trust currently works to the national Waste Framework Directive and the Waste Strategy set by the Government and Environment Agency. Overall the total amount of bagged domestic (black, green or white) and bagged clinical waste (orange) is reducing year on year.

Table 2: Total waste produced against 2008/09 baseline

	Baseline 2008/09	**2009/10**	**2010/11**	**2011/12**	**2012/13**
Weight tonnes	1,574	1,596	1,536	1,510	1,480
Difference		-	21.5	(38.3)	(64.0)	(94.8)

Three methods are used to manage waste:

- Waste diverted to energy recover
- Waste recycling
- The management of clinical waste

Local Authority targets are used to assess progress against methods 1 and 2 – essentially domestic or household waste.

Method 1: Waste diverted to energy recovery

The Trust became **100% landfill free** in February 2012; all of our domestic waste is treated and used to generate steam or electrical power to the national grid. Current legislation only allows the waste contractor to claim the carbon credits. The Trust's current target is a 50% reduction in domestic waste treated by this method by 2012/13 and 65% by 2014/15; progress to date is outlined in Table 3.

Table 3: Waste diverted to energy recovery targets 2010/15

	Baseline 2008/09	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**2013/14**	**2014/15**
% Target	100	90	80	70	**50**	40	35
Weight tonnes	968	871	774	677	**484**	387	339
Actual weight tonnes	-	647	557	530	**556**		

The domestic waste target was not met in 2012/13 as a result of the contractor refusing to accept mixed recycling: plastics, cardboard, aluminium cans and packaging. The problem occurred due to another provider's mixed waste containing clinical needles. This contributed to approximately 40 tonnes of mixed recycling which would have made the actual weight 516 tonnes.

Method 2: Waste recycling

The Trust currently recycles plastics, cardboard, aluminium cans, batteries, lamps, printer cartridges, paint tins and wood.

Table 4: Recycled waste

	Baseline 2008/09	2009/10	2010/11	2011/12	2012/13
Weight tonnes	246	307	346	331	279
Difference against the baseline		+61.3	+99.5	+85.0	+32.7

In 2012/13 approximately 40 tonnes of recycled waste was diverted to method 1 energy recovery due to issues with the contractor.

Method 3: Clinical waste

Local Authority targets do not include clinical waste. This type of waste is subjected to a range of treatments to create the following waste energy streams.

Table 5: Clinical waste treatments and weights

Type of treatment	Baseline 2008/09	2009/10	2010/11	2011/12	2012 /13
High temperature incineration	563	570	248	34	44
High temperature sharps units	53	55	74	93	90
High temperature medical heat treatment (cyclostatic drugs)	15	16	12	12	11
Heat Treatment (orange bags)	-	-	300	511	498
Anatomical treatment	-	-	-	0.2	1.6
Total waste tonnes	631	641	634	650	645

The Trust's bagged clinical waste disposal costs reduced by 11.6% in 2011/12 as result of the following initiatives:

- Educating staff to ensure only clinical waste goes into clinical bins and domestic waste is disposed in the appropriate bag(s)
- Behavioural changes and practice
- Introducing heat treatment

Comment:
- Most notable is the increase by 37 tonnes in sharps waste
- In 2010 bagged clinical waste moved from high level medical heat treatment (above 1000°C) incineration to heat treatment (under 1000°C)
- Since 2010/11 to date clinical waste produced has increased in line with increased theatre activity

Page

- **Future waste initiatives**

On-going work to improve staff awareness through training courses within induction and infection control sessions. Departmental and ward sisters also act as Environmental Champions. Behavioural changes and good practice are reinforced through Trust communication media such as Friday Round Up.

An on-going audit programme helps to ensure legislation compliance and identifies additional advice and training needs.

2.4.2   Water

There are currently no national NHS water reduction targets. Longer term "best practice" targets are aimed at reducing the Trust's water usage and wastage.

It is estimated that the main site currently loses circa 18,000 m^3 each year based on national water benchmark comparisons with other hospitals - see table 7, page 19.

Repairing water leaks and better monitoring and management would reduce usage and the detrimental impact on the environment. Projects to reduce very old leaking water main pipes will reduce wastage and the associated cost of this service.

2.4.3 Energy Management

At £3.1 million the cost of carbon is the Trust's fourth largest annual operating expense and needs to be actively managed and controlled.

Chart 7: Breakdown of costs for our carbon footprint emissions
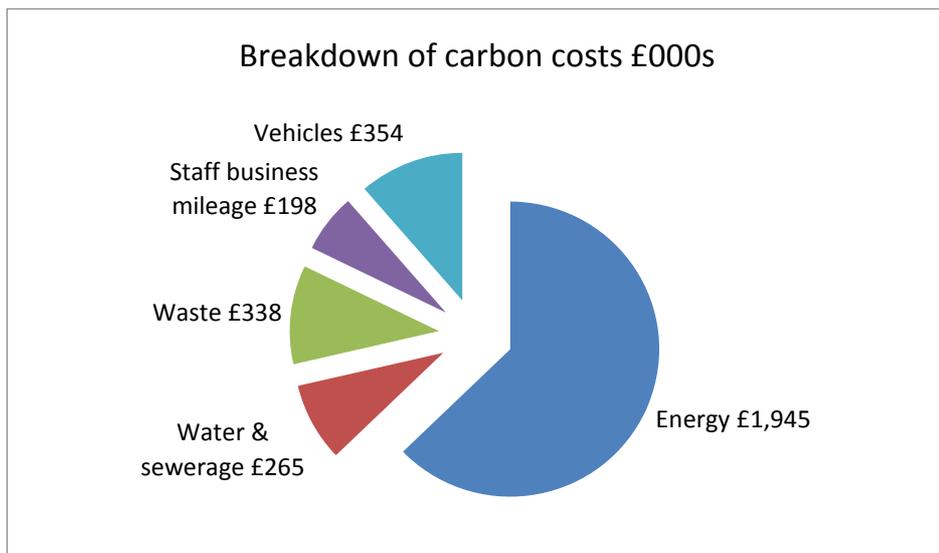
The risk is that BAU carbon usage, unpredictable usage and rising energy prices combined with increasing levels of taxation can make this an uncontrollable cost.

The risks relate to:

- the performance of our energy plant, equipment and infrastructure
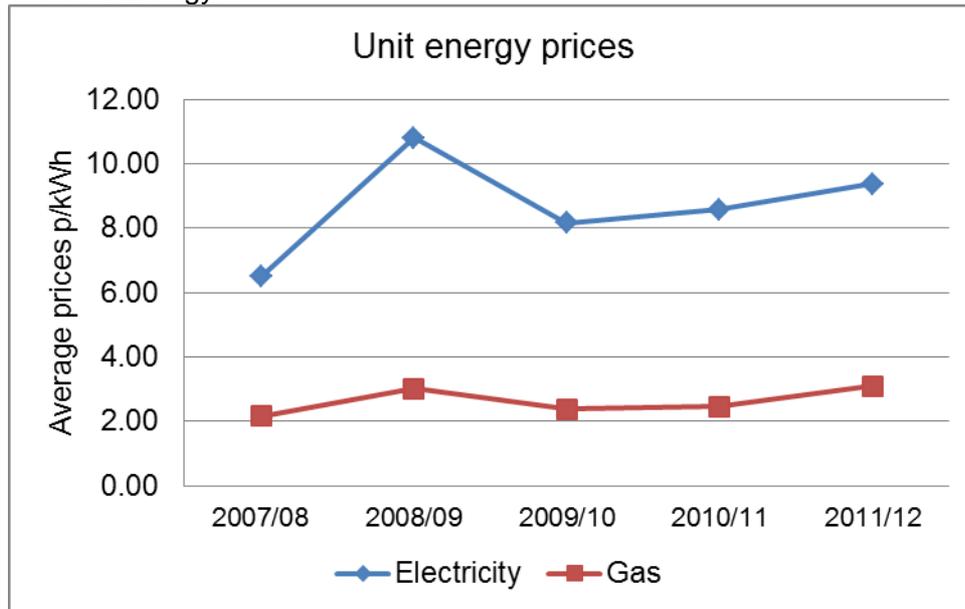- site growth activity and new developments continue to grow by approximately 3% per annum - a trend likely to continue
- unit energy tariff prices are increasing – see chart 8, page 19. Although prices dropped following a dramatic increase in 2008/09, the general trend since is an increase in tariff prices

Chart 8: Energy tariff

Rising tariff prices and BAU activities will increase our 2011/12 utilities (electricity, gas, oil and water) expenditure of £2.2 million to £3.58 million by 2016/17. This assumption excludes waste, staff business and travel costs but it includes the following:

Table 6: Assumptions

	Average increase per annum
Business as usual activity / usage	3.0%
Utility prices	6.0%

The Trust's utility performance is compared against other similar hospitals in table 7.

Table 7: Comparative review of energy and water performance

	kWh/m2/annum 2011/12		Current	Potential savings available		
Utility	Southend	NHS			£000s	kWh
Electricity	148	108	37%	27%	339	3.6 million
Gas	238	510	-53%	_	_	_
Water	1.37	1.17	17%	14%	38	18,000 m^3

The reduction in gas usage reflects the long term business benefits of new heating boilers, replaced in 2011.

The impact of national initiatives described in section 1 gives the Trust a target to achieve a minimum 10% reduction in CO_2 emissions by 2015 against a 2007/08 baseline.

The Trust's performance to date is poor - see chart 10, page 23. This results in annual penalty payments as part of our mandatory participation in the carbon reduction commitment (CRC) scheme as follows.

Table 8: CRC payments

Year	CO_2 emissions tonnes	Payment £
2010/11	7,661	91,932
2011/12	7,786	95,830
2012/13	8,191	98,292

BAU energy usage is likely to increase our CRC payments to circa £140,000 by 2015/16. The Trust will need to lower the risk of these increasing penalty payments by decreasing its carbon emissions.

The Trust has worked with the Carbon Trust to develop a carbon footprint for the hospital - summarised below:

Table 9: Carbon emissions and costs

	CO_2 emissions source category	CO_2 emissions tonnes	Carbon costs £000s
	Liquid fuels, i.e. oil	871	247.7
	Gaseous fuels, i.e. gas	2,384	403.8
1.	Vehicle fleet, i.e. shuttle bus, ad hoc delivery vehicle	7	9.6
	Sub total	**3,262**	**661.10**
2.	Purchased grid electricity	7,527	1,293.9
	Sub total	**7,527**	**1,293.9**
	Employee commuting	2,342	0
	Business travel, staff business car mileage claims	168	197.8
3.	Outsourced services, i.e. patient transport, deliveries	694	343.9
	Water and sewerage	131	265.1
	Waste and recycling	122	337.7
	Sub total	**3,456**	**1,144.5**
	Totals	**14,245**	**3,099.5**

Southend University Hospital NHS
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2.4.4 Future energy and carbon management initiatives

The Trust has bid for £1.60 million of Department of Health (DoH) capital funding to implement a number of projects predominately on the main site (see table 10, page 21), estimated to achieve annual carbon and water cost savings of £604k (at 2012/13 prices).

The bid contains a package of initiatives to address our inefficient usage of energy and water, reduce carbon emissions and reduce BAU costs over a five year period.

Table10: Energy savings projects

.No.	Proposal	Capital cost £000s	kWh or m3	CO2 emissions tonnes	Simple pay back years	Cost energy savings £000s
1	Building Management System optimisation	60	747,001	224	0.9	69
2	Individual zone area heating controls	230	1,547,616	284	4.2	54
3	Cavity wall insulation	84	1,278,452	235	1.9	45
4	Insulation of roof or ceiling voids	257	1,137,143	615	2.5	105
5	Draught proofing - windows	19	93,750	51	2.2	9
6	Reflective radiator panels	4	28,420	5	3.7	1
7	Voltage optimisation	45	186,517	101	2.6	17
8	Energy efficient air handling fan sections	175	438,784	237	4.3	40
9	Energy efficient medical air system	80	209,664	113	4.1	19
10	Energy efficient lighting	234	560,497	303	4.5	52
11	Occupancy control of lighting	8	23,490	13	3.5	2
12	PC automatic management software	25	163,800	89	1.7	15
13	Energy efficient air curtain	12	81,298	20	3.3	4
14	Time switch control of small electrical appliances	10	36,036	19	3.0	3
15	Re-use of effluent reverse osmosis water	18	2,563		3.5	5
16	Water efficient shower facilities	227	48,782		2.4	97
17	Replace water ring main	250	33,621		3.8	67
	Totals	**1,737**	**6,532,469**	**2,310**		**604**

The full impact of the projected electricity, gas and water cost savings (on the main site) against the predicted expenditure with BAU is shown in chart 9.

Chart 9: Impact of scheme savings
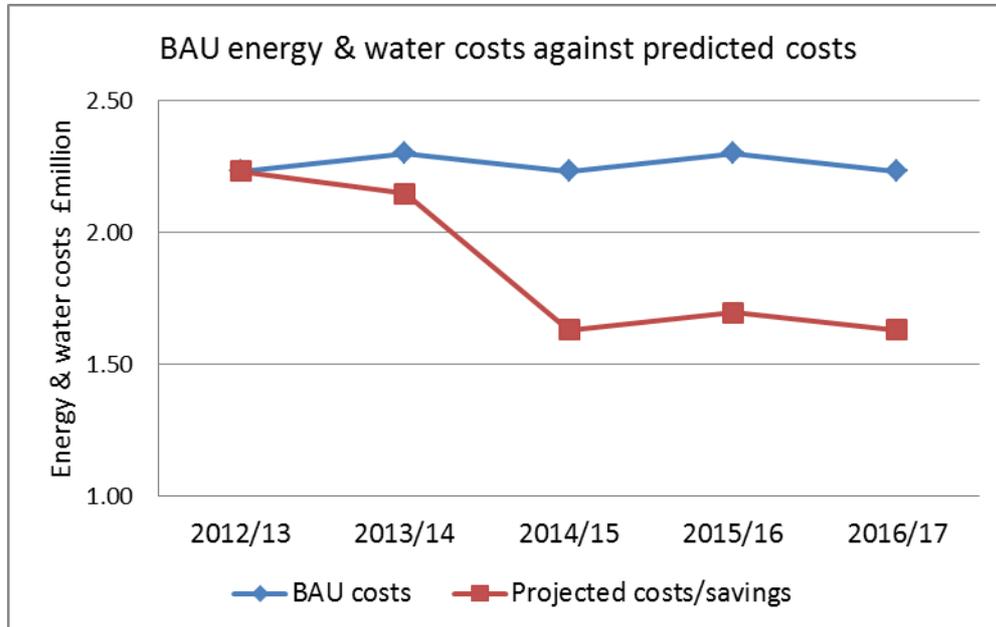
The programme timetable achieves 3 months of savings in 2013/14, i.e. £151k or 576 tonnes of CO_2. The full impact of the savings will be achieved at the start of the 2014/15 year and subsequent years as indicated in table 11.

Table 11: Anticipated savings

Year	Savings £000s	Cumulative £000s
2013-14	151	151
2014-15	604	755
2015-16	604	1,359
2016-17	604	1,963
2017-18	604	2,567

The DoH funded efficiency initiative anticipates savings will be available to re-invest annually in patient services, over the four years 2013 – 2017, which equates to £2.57 million. If energy savings are realised as anticipated they will be re-invested in patient services to tackle some of the estates / clinical service functional issues highlighted in our 6 facet estates survey or by clinical services.

The projects will take us below the annual Carbon Reduction target in 2014 and 2015 but will not achieve the 10% reduction in overall carbon emissions (against the 2007/08 baseline).

Chart 10: CO_2 emissions against the NHS target emissions
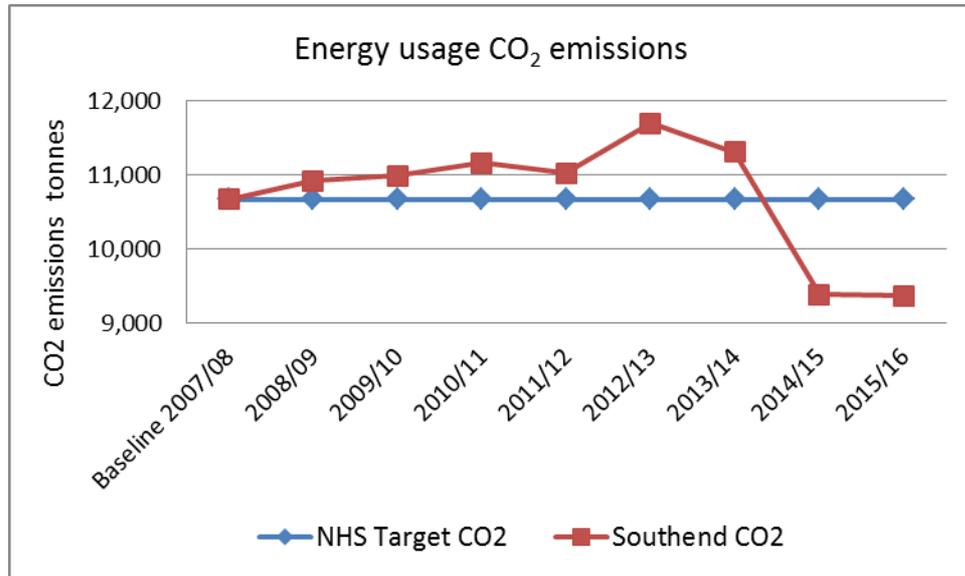
2.4.5 Key Performance Indicators

Accurate data gathering and analysis for energy usage and carbon emissions is important and includes the following:

- Use of the Marginal Abatement Curve (MAC). A MAC Curve shows which carbon reduction measures save the most money. Additional projects will be presented to the SIG with this information to support the selection of projects

- Extending the current network of sub-meters to enable electricity monitoring of local distribution boards, departments, wards, etc will provide quality information to inform services of the impact of their equipment on the environment

- Monthly data will be presented to the Estates Board and the SIG group to provide progress updates on our:
  - energy
  - carbon emissions
  - waste monitoring
  - energy initiative projects

  This will identify progress or not against our national carbon reduction target.

- Key performance indicators on travel (staff travel claims, commuting and usage of parking facilities, occupancy bike parking and shelters supported by surveys) will be presented to the Estates Board and the SIG group, to assess any deviations from our planned targets.

2.5   Workforce /clinical services

The workforce section of the GCCAM highlighted no or low assessment scores. In order to increase our overall scores towards our target levels (see Section 3.1), the Trust will need to take a more active role in this area by, for example, promoting the activities of occupational health, e.g. sports, relaxation and message as well as the on-site nursery service to enhance health and well-being.

- **Future workforce and clinical service initiatives**

To ensure the SDMP is fully implemented into the Trust a culture of carbon awareness must become an integral part of staff day to day activities. To develop this culture the following is proposed:

- Sustainable development and carbon awareness needs to be integrated in to the training and developmental processes used by the Business Unit Boards. Proposals include introducing a carbon reducing commitment in to all staff job descriptions and sustainability in the annual objectives and appraisals of Business Unit Directors

- On-going behavioural change campaigns to improve housekeeping and increase energy awareness include initiatives such as:

  - Big Switch off Day
  - Environmental road shows
  - Participation in national initiatives, e.g. NHS sustainability Day
  - On-going ward and toolbox talks on sustainability and energy saving

- In the future it is proposed that all clinical services will have a target for energy management to support good housekeeping initiatives linked to an incentive to share cost savings with reinvestment in a clinical project

- National clinically led models of care with the use of care pathways to identify opportunities to reduce waste and in turn carbon emissions, e.g. green nephrology movement, have been developed. The Trust will examine this approach

2.6   Community engagement

Our Communications Plan is defined in Appendix 2. The objectives of this plan are set out below.

   a) To change current behaviours and practice and embed and promote a culture of good energy and sustainable management
   b) To raise awareness throughout the hospital and the local community about our SDMP to ensure its engagement and success
   c) To provide through a variety communications media such as intranet, newsletters and road shows details of activities, events and successes

2.7 Buildings and associated infrastructure

The Trust is committed to delivering sustainable hospital developments as detailed in the Sustainability for Construction Project Policy. The aim in terms of environmental issues is to minimise adverse impacts of demolition and construction through the design process, materials selection, construction techniques and operational methods.

Strategic working partnerships with the national Waste Resource Action Programme (WRAP) enable the Trust to incorporate sustainability in building and refurbishment projects.

Post project evaluations provide evidence that the Trust achieves its targets to recycle demolition waste. Bricks and building materials from demolished buildings are crushed into hard-core and used to form the foundations of new buildings such as our new multi-storey car park. As a result of this, our recycling rates (where buildings are being demolished) can exceed 80% putting us in the WRAP 'good practice' category.

The Trust has close links with the Southend Borough Council planning department discussing planning proposals, access design statements and sustainability projects and considering the impact on the local community at the planning stage (stakeholder involvement). The Trust uses the Considerate Contractor's Scheme which ensures we consult with the local community about our developments.

- Information Technology

Deploying automatic PC management software to switch off or put into deep sleep PCs left on unnecessarily by staff.

- **Future Building Initiatives**

The Trust will look at further initiatives to improve environmental and comfort systems to control the use of energy in buildings such as developing a the Building Management Strategy and Cooling Policy.

3.0 Governance

The responsibility for sustainability at Board level lies with the Director of Estates. In addition to this, a non-executive board member with responsibility for sustainability was appointed in 2012.

Fig 2: Organogram of Governance of the SDMP

The Sustainability Impact Group (SIG) is responsible for the coordination and implementation of our sustainability documents, which include the SDMP, the Carbon Management Plan and the Green Travel Plan. SIG effectively acts as a combined Programme Board and Project Team and meets bi-monthly.

The Trust risk register currently addresses environmental risks of litigation and financial and public relations implications through a failure to meet the requirements of regulations or guidance. Additionally the risk of a pandemic is also considered within the risk register. However, at present there is a lack of consideration for sustainability issues and other climate change risks which will need to be included in the future.

Risks and actions associated with our SDMP will be routinely reviewed and managed by the SIG with high scoring risks escalated to the Trust Board via the Director of Estates and Facilities. A risk register is included in the appendices.

4.0   Conclusion

In summary if BAU site activity and growth continues and our old infrastructure continues to deteriorate, and tariff prices maintain their current trend, the annual costs of our utilities (including carbon emissions penalties), waste, recycling, staff business travel and vehicles emissions will increase from £3.1million to £4.72 million by 2016/17.

The BAU scenario, plus taking no action to mitigate our emissions, will result in us not achieving our NHS carbon emission targets.

Our SDMP will deliver a range of non-financial benefits that cannot easily be quantified. These include:

1) A better working environment for staff, patients and visitors
2) Encourage healthier, low carbon living

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3) Improved staff morale through staff engagement in improving their place of work and sense of caring for the environment they work in
4) Contribution to wider sustainable development within the local economy and meeting carbon reduction targets
5) Enhancing our reputation by showing a commitment to good corporate citizen
6) Increasing the value of our estate through building and engineering improvements
7) Releasing funding required for future energy costs, providing the opportunity to fund clinical service improvements

This represents a significant challenge for the Trust. The achievement of carbon reduction initiatives will be reported annually to the Trust Board with monitoring bi-monthly to SIG and bi-annually to the Estates Board to ensure the planned reductions occur and the change is sustainable.

Appendix 1: SDMP Action Plan for monitoring by SIG

Area	Area for improvement	Responsibility	Timescale
Policy	Endorsement of this Sustainable Development Management Plan	Director of EFM	2013/14
Buildings / IT	• Develop and implement a range of new policies and procedures e.g. building management system controls policy and cooling policy • Seek opportunities to enhance our infrastructure using external funding to introduce new technologies to reduce energy wastage • Look into the practicalities of audio/video conferencing as standard operating procedure. Project to scope the options. This may mean meeting rooms will need to be equipped with "spider audio conferencing" phones as an enabler to audio conferencing • There may be an opportunity to support vulnerable patients in the community. An account with a telephone conference social enterprise provider like Community Network will provide low cost conference bridge capabilities whilst cross subsidising telephone help groups for vulnerable patients e.g. patients with similar long term conditions. http://www.community-network.org/	Energy Manager	2013/14
Workforce	• All staff job descriptions will include a commitment to reducing carbon • Carbon / energy management is included in the objectives and appraisals of senior and Business Unit managers • Care Pathways will be reviewed to identify opportunities to reduce carbon emissions and save energy to support reinvestment os savings into service development	Human Resources Trust Executives Associate BUDs	2014/15
Facilities Management	• Data gathering and analysis for energy usage and carbon emissions will be enhanced • Use the Marginal Abatement Curve (MAC): a MAC Curve shows which carbon reduction measures save the most money. Presenting additional projects to the SIG to support selection of possible projects which make best financial sense to invest in and which save the most carbon • Monthly data will be presented to the SIG on progress towards our: o Utilities / energy, Carbon emissions, Waste monitoring	Energy Manager and Waste Manager	2014/15
Facilities Management	• Report (energy, carbon and financial) savings on progress against the DoH £1.74 million energy efficiency programme of projects • Identify further energy efficiency projects, e.g. combined heat and power with cooling	Energy Manager	2013/14 2014/15
Workforce /	• Publish the SDMP on our intranet and website, i.e. to key stakeholders	Communications	2013/14

Communication and training	• Recruit and extend network of sustainability champions to increase staff engagement across all departments • Give staff formalised induction, training and regular communications on energy / carbon management • Encourage staff to suggest ideas on how the Trust can reduce its own carbon footprint • Promote healthy living, diet, exercise, etc.	Travel Plan Coordinator Energy Manager Human Resources Occupational Health	2014/15 2014/15 2014/15 2014/15
Procurement	• Update the Procurement Strategy to include whole life cost analysis • Look into feasibility of an electronic web enabled contract management system. With regard to carbon usage contracts, to ensure specifications and the opportunities for carbon reduction are fully explored alongside any tender process • Promote and embed whole life costing in services funding bids • Seek to use local industries • Carry out a supplier audit to ascertain those suppliers that are Environmental Management System (EMS) certified to ISO14001 standard. All future suppliers should reach this standard • Review procurement supply chain data • All contractors to provide Energy Management Policy / ISO accreditation • Whole life costing embedded in to procedures and business cases • Discuss with preferred provider their contribution to reducing overall carbon footprint • Review waste disposal of cooking oil and recyclable plates to eliminate vehicular movements	Procurement Officer Catering Contract	2013/14
Green Travel Plan	• Travel key performance indicators (staff travel claims, commuting, usage of parking facilities, occupancy bike parking and shelters supported by surveys) • Carry out a feasibility study into "Pool Bike" scheme that would allow staff to use bicycles to travel between sites and to other local meetings • Obtain mileage information from transport providers. Convert information into carbon data • Introduce an exclusion zone. Ensure that any business travellers, including trips to Britannia House, in a 2-mile exclusion zone are not reimbursed corporate travel rates. Public transport and/or Trust mini bus should be used Walking and cycling should be encouraged. • Review business travel into London from the Southend area. Look into potential carbon and financial savings opportunities such as oyster cards available to staff	Travel Plan Coordinator	2014/15

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Appendix 2: Communications plan

Aims
- To maximise the effectiveness of our communications in regards to SDMP projects
- To reach target audiences of new and current staff, staff without regular access to a computer, patients and visitors to the hospital and the local community

Communication medium	Communication type	Uses	Target group
Printed material	Posters, flyers	Produced and displayed to support events	Staff without regular access to email
All user emails	Look e-magazine (monthly) Friday Round-Up (weekly) All staff emails (on request)	Future events Celebrating achievements Promoting relevant messages	All staff. Managers are asked to print and display this material
Staff Intranet Hospital Website	Dedicated pages (including travel pages) Screen savers	Allows access to general information and support awareness raising events, and transport and access information	Staff Patients & visitors
Staff travel survey Patient & visitor travel survey	Survey Monkey link and paper copies	Survey to assess the effectiveness of the travel plan and capture metrics	All staff Out patients & visitors
Training Induction pack	On ward energy training induction pack (printed)	On-going tool box talks Induction information set	Front line staff and new staff
Corporate presentations	Core brief, Trust Board	Gaining support through informing senior managers and executives	Managers & executives
Road shows and events	Environmental Road Show	Increases staff engagement in and awareness of sustainability at the Trust	Staff, patients & visitors Local companies

	Big switch off days, bike week, etc.		
Branding mascot Mr Green Switch	Currently printed on stickers for use near switches	Recognisable figure, direct marketing of "switch off" message	All staff
Payslip messages attachment	High impact message on paper or printed on pay-slip	Guarantee of all salaried staff reading the message	All staff
External publications & recognition	Local Papers, Local and National Awards	Positive press for the Trust helps to reinforce our green credentials	Public, All staff, patients & visitors
Printed pull-up banners	Mobile visual high impact message	For use at events, on site and mobile displays.	

Alternative methods of communication New and innovative forms of communication	• Merchandising; spreading messages through distribution of badges, etc. • Use 'practical props' to focus on an idea with dressing up • Post its containing messages • Staff noticeboards (Staff Net) • Print calendar • Event sponsoring such as business awards • Donate/reinvest profits to green programmes • Competitions • Collaborating with other BU road shows and events • Film shot or theatre piece • Twitter and Facebook

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Appendix 3: Risk register

No.	Description	Identification/cause	Date	Status	Prob. score	Potential cons.	Total score	Mitigation Plan	Risk Owner
1	Stakeholder engagement	Failure to get Trust Board SDMP sign off	July 13	Potential	3	3	9	Sign off SDMP at Trust Board	Dir. EFM
2	Stakeholder engagement	Staff are apathetic and fail to engage in the SDMP	June 13	Potential	3	4	12	Staff awareness campaign. Include sustainability clause in job descriptions and objectives. Implement communication plan	Energy Manager
3	Stakeholder engagement	Business units oppose the implementation of some projects	June 13	Potential	4	3	12	Staff Awareness Campaign and approval of projects through SDMP	Energy Manager
4	Stakeholder engagement	Comms Team do not support education and awareness campaigns	June 13	Potential	2	4	8	Formal agreement on project implementation and monitoring through formal channels. Discuss and consult at SIG meetings	Travel Plan Coordinator
5	Finance	Failure to secure Trust Backlog or other funding for projects	June 13	Potential	3	5	15	Secure Trust Board approval of national funding bids	Associate / Director of Estates and Facilities
6	Finance	Double counting of savings	May 13	Potential	3	4	12	Finance review of the SDMP. Ongoing monitoring of projects. Use of sub-metering information	Energy Manager
8	Project Leadership	Potential loss of leadership for the CMP implementation	May 13	Potential	2	4	8	Seek Trust Board approval of the CMP	Director of Estates and Facilities
9	Project Leadership	Project managers are unable to devote adequate time to their projects due to other demands	May 13	Potential	2	2	4	Ensure sufficient resources to deliver projects are identified	Associate Director of Estates and Facilities