Sheffield Teaching Hospitals NHS
NHS Foundation Trust

be green
Imagine. Believe. Care.
Sustainability at Sheffield Teaching Hospitals.

Sheffield Teaching Hospitals NHS Foundation Trust

Sustainable Development Action Plan

A patient-centred, collaborative approach to sustainable, better healthcare

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The Sustainable Development Journey

What does it mean for the NHS to become sustainable?

From	health care as an institution led service	To	health and social care as part of the community
From	curative and fixing medical care	To	early intervention and preventative care
From	sickness	To	health and well-being
From	professional	To	personal
From	isolated and segregated	To	integrated and in partnership
From	buildings	To	healing environments
From	decision making based on today's finances	To	an integrated value of the future which accounts for the impacts on society and nature
From	single indicators and out of date measurements	To	multiple score card information and in real time
From	sustainability as an add on	To	integration in culture, practice and training
From	waste and over use of all resources	To	a balanced use of resources where waste becomes a resource
From	nobody's business	To	everyone's business

Ref: NHS SDU 2011 Route Map for Sustainable Health 2011

Summary

Sustainability is about solutions, it allows innovative strategists to consider how they can improve their service. The measures suggested in this action plan will help to ensure Sheffield Teaching Hospitals NHS Foundation Trust is financially stable in the long-term, is complying with the law and preparing for potential future requirements, is maintaining a good reputation, is resilient to economic, social and environmental change, is making better use of finite resources and is providing a better service for patients, while looking after our staff and the community.

CO_2 is the main metric used for measuring the efficiency resilience of the Trust in relation to sustainability. Certain activities make a more sustainable hospital with a lower carbon footprint. Updating/modernising practices, only using the energy we need, travelling less, managing resources, managing space and promoting wellbeing for staff will, with sound management, reduce the Trust's carbon footprint.

Excluding procurement, The Trust's baseline carbon footprint (2007/2008) is **79,000 tonnes**. Our most recent, full year (2009/10) data indicates that this has reduced to **76,000 tonnes (4% reduction)**. This reduction has been due to various energy efficiency measures and changes in waste management contracts.

Energy projects completed to date or planned in the coming year have cost £950,000. This equates to CO_2 savings of almost 5000 tonnes per year, which will pay back in around 2.5 years, making recurrent savings from that point on. The projects which this includes can be seen in appendix D (A3). These are the quick wins, which can't be replicated; projects are underway which aim to achieve the first, most pressing target of a 10% reduction of our baseline figure by 2015. To reach the 2015, 2020 and 2050 targets, measures suggested in this plan will need commitment from the Board. This action plan has been discussed and shaped by all the named Directors included as 'responsible' for the objectives identified. It provides a mechanism to embed sustainability and make it everyone's business, integrating practical measures to encourage innovation, improving the healthcare provided now and in the future.

1. Drivers for change

Mandatory NHS targets and their influence on developing targets

National Drivers

The UK government has committed to take action through the **Climate Change Bill** which has a target to reduce carbon dioxide emissions by 80 per cent by 2050. As such, Sheffield Teaching Hospitals NHS Foundation Trust must reduce emissions and demonstrate leadership in achieving significant carbon emission reductions, as proposed by the *Saving Carbon, improving Health – Draft carbon Reduction Strategy for the NHS in England (The NHS Sustainable Development Unit).* This Strategy is endorsed by Monitor and the Audit Commission.

The NHS Constitution (March 2010) clearly states that:

> *"The NHS is committed to providing best value for taxpayers' money and the most effective, fair and sustainable use of finite resources. Public funds for healthcare will be devoted solely to the benefit of the people that the NHS serves."*

The **Care Quality Commission (CQC)** has a powerful role to ensure healthcare systems are safe, and people's rights and care are safeguarded. It will also provide assurances about patient safety and quality of services delivered. The CQC states that to be high quality, care must:

- Be safe
- Have the right outcomes, including clinical outcomes
- Be a good experience for the people who use it
- Help to prevent illness, and promote healthy, independent living
- Be available to those who need it when they need it
- Represent good use of resources

All of these characteristics are inherent to a sustainable health service. The CQC, as part of its strategic planning, will be considering how it makes environmental and public health an appropriate and meaningful part of its assessment criteria. The DH is committed to including sustainable development in the CQC's performance assessment framework for the NHS [Department of Health, 2008. Taking the long-term view: the Department of Health's strategy for delivering sustainable development 2008-2011, London: HSMO (p.23)].

Pressure to implement sustainable initiatives is growing as public awareness improves and environmental regulations become stricter. **Monitor's** role in carbon reduction and sustainability is increasingly important, with sustainability now a reporting requirement. As a Foundation Trust the local population have a say in how the Trust is run. This strengthens the case for the leadership to appreciate the importance of public feeling and the hospital's exemplar role in the local community.

The Carbon Reduction Commitment (CRC) (announced in the UK Energy White Paper 2007) will apply to Sheffield Teaching Hospitals NHS Foundation Trust. From 2012, every tonne of carbon produced by the Trust will cost £12, based on consumption in 2009/2010, this is a further cost pressure to the Trust of around £400K per year. The costs will increase over time; there will be a guaranteed minimum or "floor" price for carbon of £16 per tonne in 2013, rising to £30 by 2020. CO_2 emissions cost money, on top of the cost to purchase energy;

- Climate Change Levy (2009) = ~£9 per tonne of CO_2
- CRC (from 2012) = £12 per tonne of CO_2
- CRC (from 2013) = £16 per tonne of CO_2
- CRC (from 2020) = £30 per tonne of CO_2

As an indication of the total cost of carbon, using 2009 energy usage figures and the costs indicated above, a projected cost (in addition to the cost of energy itself) for the carbon we emit is:

- Total cost of carbon 2012 = **£1.3 Million / year**
- Total cost of carbon 2013 = **£1.5 Million / year**
- Total cost of carbon 2020 = **£2.4 Million / year**

Income is also available to the Trust by implementing and creating renewable energy technology, appendix D A1 and A2 identifies potential incomes from Feed in Tariffs (FIT) and Renewable Heat Incentives (RHI). These savings would be on top of the savings made in reduced grid energy costs.

It is becoming easier and increasingly important to address sustainable development. There is escalating availability of labelled environmentally and socially sound products and services. There is a wealth of case studies from other NHS organisations, the public, private and voluntary sector, from which lessons can be learned and ideas drawn from. There are more and more organisations working on the sustainability agenda, which improves opportunities for collaboration.

Local Drivers

Locally, Sheffield First for the Environment used to be the arm of the Local Strategic Partnership (LSP) considering climate change, sustainability and the environment. The group was the high-level city-wide partnership for the environment in Sheffield. It brought together key organisations and individuals from the voluntary, community and faith sectors, the public sector and the private sector to work together to achieve environmental excellence in Sheffield and address action for climate change. The ambition for the Environment Partnership was for "Sheffield to be an attractive and sustainable, low carbon city". This vision is set out in the city's Environment Strategy, which is currently being updated. The Trust will continue to engage with the city council, following the arrival of the new Government, there is re-organisation in this area; the Trust will be open to joining any new, relevant partnership.

The concept of reducing carbon corresponds with other current institutional initiatives and targets. This action plan will drive the Trust forward in achieving priorities sustainably. The concept of this action plan corresponds with other current institutional initiatives and targets, including saving money, improving the wellbeing and health of staff, improving patient flow and the reduction of the Estate.

NHS Priorities and visions: Beyond just carbon and cost reduction, sustainability is also directly linked to many healthcare related co-benefits. NHS Yorkshire and Humber is recognised by the NHS SDU as one of the leading regions in sustainability. The DH document (*national NHS 2010–2015: from good to great. preventative, people-centred, productive*) sets out the relevant vision for the NHS. As part of the NHS, Sheffield Teaching Hospitals NHS Foundation Trust can expect to see changes in the healthcare system with a shift towards priorities which:

- Support people in taking responsibility for their own health.
- Build on information and communication technology (ICT) in healthcare provision.
- Provide leadership in showing that low-carbon lifestyles can have a positive impact on quality of life.
- Allocate resources to health promotion rather than treatment of illness.
- Prepare for, accept and embrace radical change and a different future.

The Trust will need to develop processes to ensure it can provide services which are competitive under these developing priorities. As economic, regulatory, social and environmental climates change over time, resilience and flexibility will be important to Sheffield Teaching Hospitals NHS Foundation Trust's future. **Prevention** is an important aspect of sustainable development in its widest sense. However, healthcare is likely to always be needed. By embracing prevention, Sheffield Teaching Hospitals NHS Foundation Trust will be able to spend less time treating the preventable diseases and more time researching and treating other health issues.

2. Baseline – Carbon footprint and Corporate Citizenship

Sheffield Teaching Hospitals NHS Foundation Trust's carbon baseline uses metrics from the financial year 2007/08.

Energy Data is compiled from invoices which have been passed through the finance system general ledger.

Business travel data is compiled from fuel cards, payroll records, the lease car company's and the corporate travel broker's (rail and air tickets) records. There is a proportion of missing data, regarding bus, rail and any air travel reclaimed as expenses, as this is currently not recorded.

Commuter travel has been estimated based on the number of people who have a car parking permit. Distances have been estimated using average distances driven to work (http://www.newspapersoc.org.uk/).

The total carbon footprint from procurement has not been calculated at this stage. A study completed by The Sustainable Development Commission and the Stockholm Environment Institute has calculated the total NHS carbon footprint and concluded that procurement accounts for 57% of the total carbon footprint of the NHS. This proportion has been applied in this instance to estimate the Trust's total carbon footprint.

This action plan uses round numbers where possible.

Our baseline carbon footprint is **79,000 tonnes** (excluding procurement carbon). In 2009/2010 (current level), this figure has reduced by around 4%. Only energy and waste reduced. Water use, business travel and commute travel (estimated) carbon increased. Some targets areas, such as water, may prove difficult to achieve due to various issues, such as infection control. Any shortfall areas will need to be accounted for in other areas.

Sustainable Development is not just about metrics, targets and financial savings. To be successful at becoming a sustainable hospital, trusting a 'gut feeling' of what is right will have a large range of far reaching benefits. These are sometimes immeasurable benefits, however they should not be dismissed based on that fact, but embraced as 'the right thing to do'. When Marks and Spencer presented their Plan A successes to the Sustainable Development Strategy Group, they described the key factor to their success, was that their CEO understands the principles and is willing to invest without specific business cases, which has now allowed them to reap the benefits.

The NHS "Are You a Good Corporate Citizen?" toolkit provides guidance and targets for the less measurable aspects of sustainable development. It asks specific questions and requires self-assessment in the six areas highlighted in figure 1. The current level of Trust activity is displayed in figure 1. Only in 'Travel' and 'Workforce' is the Trust achieving the 2012 target; significant change is required to meet the 2015 and 2020 targets.

Results - Baseline

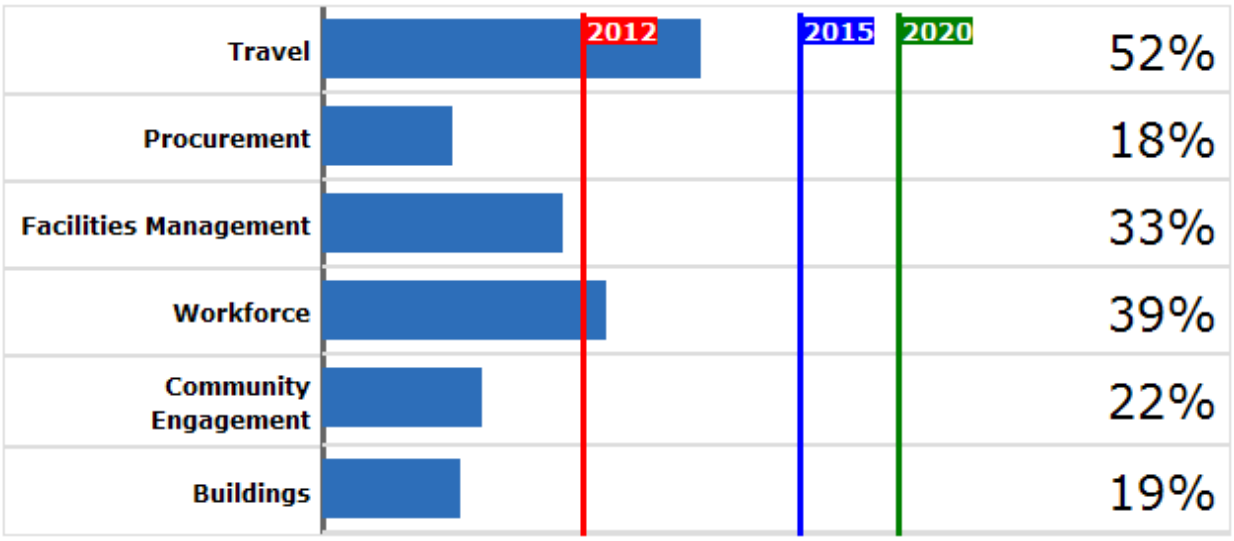


Figure 1 – Sheffield Teaching Hospitals NHS Foundation Trust Good Corporate Citizenship score 2012

3. Targets - Carbon footprint and Corporate Citizenship

The NHS Sustainable Development Unit (established in 2008 by the Office of the SHAs in England) has set the NHS in England the challenge to meet a milestone target of 10% reduction in CO_2 by 2015 (on a 2007 baseline). This milestone target has been calculated to ensure that by reaching this reduction, the Trust will have the strategies in place to meet the 2015 National NHS target and 2020 and 2050 Climate Change Act Targets, figure 2.

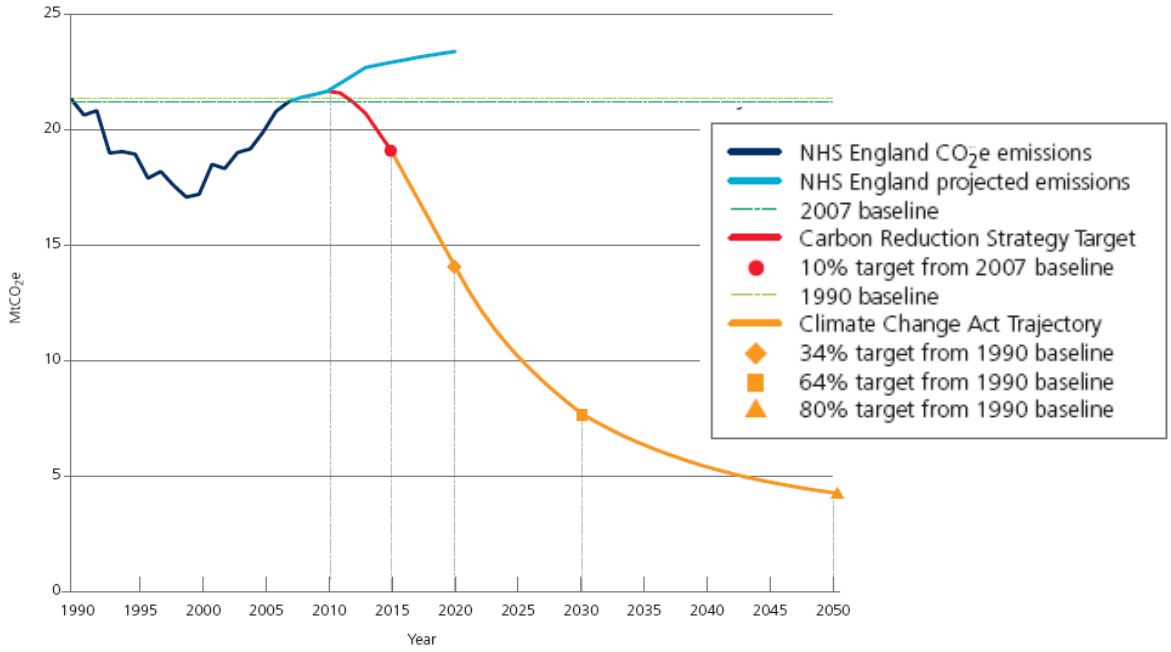


Figure 2 –Saving Carbon, Improving Health, NHS SDU (2010 update)

This action plan is designed in response to these targets, with the ambition to achieve the target in phases up to 2050 and to service specific corporate citizenship objectives. It is envisaged that this action plan will be an evolving document, with individual business cases to be presented for approval over time. These business cases will be appended to this document as and when approval is attained or rejected.

This action plan will have the added benefit of better consideration of health and healthcare as well as recurrent financial savings, allowing less money to be spent on energy, travel, waste, water and procurement; therefore making these resources available for other clinical services and healthcare.

	Energy	Water	Waste	Business Travel	Commute Travel *(est.)*	Totals	Procurement (57% est.)
Baseline (2007/08)	**64,000**	**300**	**1,500**	**900**	**12,000**	**79,000**	**~ 107,000**
2009/10	62,000	300	400	1000	*12,000*	76,000	~ 103,000
Target 1 - 2015	58,000	300	1,000	800	*11,000*	71,000	tbc
Target 2 - 2020	42,000	200	1,000	600	*8,000*	52,000	tbc
Target 3 - 2050	13,000	100	300	200	*2,000*	16,000	tbc

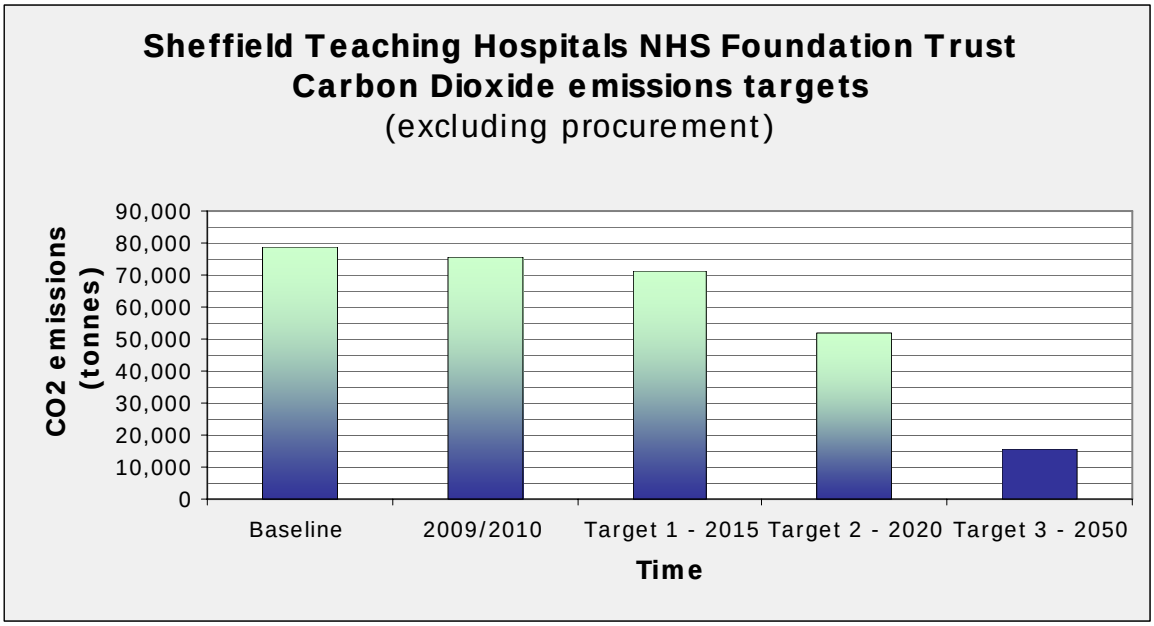


Figure 3

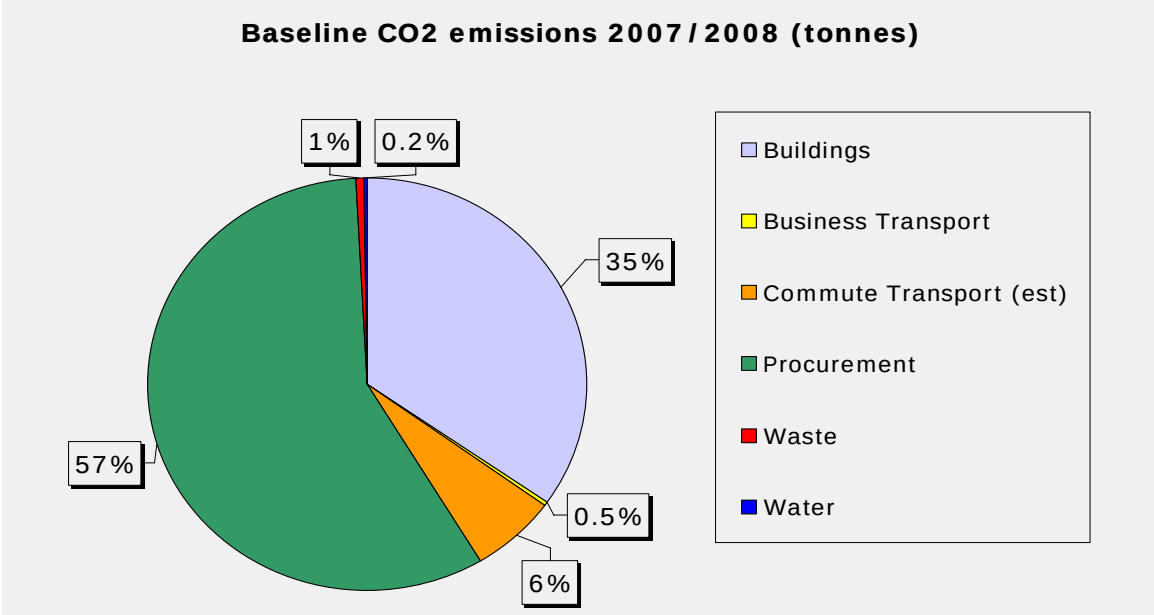


Figure 4

From figures 3 and 4 it can be seen that, after procurement 'energy' has the highest carbon impact. 'Water' has the lowest carbon intensity and although it is of financial benefit to ensure water is properly managed and not wasted, the impact of any measures on the Trust's overall carbon footprint is minimal. Refurbishing buildings to be energy efficient, limiting unnecessary new building projects and reducing buildings, is the most controllable aspect when considering carbon reduction. Therefore space reduction is a significant driver in reducing CO_2 emissions, not just in energy, but also in waste, procurement and travel.

'Waste' is an aspect which has a certain amount of controllability but also relies on external forces, such as staff awareness and motivation. Although waste is only 1% of our total carbon footprint, it is very high on staff's agenda's as an important aspect of 'being green'. With recycling becoming an everyday activity in most people's homes, familiarity and enthusiasm towards recycling will increase the desire to recycle at work. To keep motivation high, getting recycling right at the Trust is very important, so that staff can easily satisfy their desire to recycle and can feel buoyant and encouraged to do more.

The Trust is in a position to be innovative and inventive with further measures regarding 'travel'. Having achieved targets set by the travel plan, there is scope for further improvement. Improving travel also has the very specific added benefits of improved staff health and knowledge.

The 'procurement' related carbon footprint, although an estimate, is the largest contributor to CO_2 emissions related to the Trust. Work to minimise this will focus on managing stock efficiently and considering whole-life costs at time of purchase. This is currently the least controllable aspect of CO_2 production, with much of it related to the practices of suppliers, the distances they travel etc. However, this can be influenced through the tendering process, inclusion of environmental clauses and influencing suppliers to reduce the carbon footprint related to the goods and services purchased by the Trust.

Figure 5 displays the aims for the "Good Corporate Citizenship" scores by 2015, based on what is perceived possible if this action plan is delivered. This action plan outlines many of the development projects required to meet these targets. Some parts of the "Good Corporate Citizenship" toolkit, such as the "workforce" category, are objectives of other HR related strategies. 'Community engagement' and 'buildings' are unlikely to reach the targets of Good Corporate Citizenship without significant investment, cultural change and internal or National policy change.

Targets

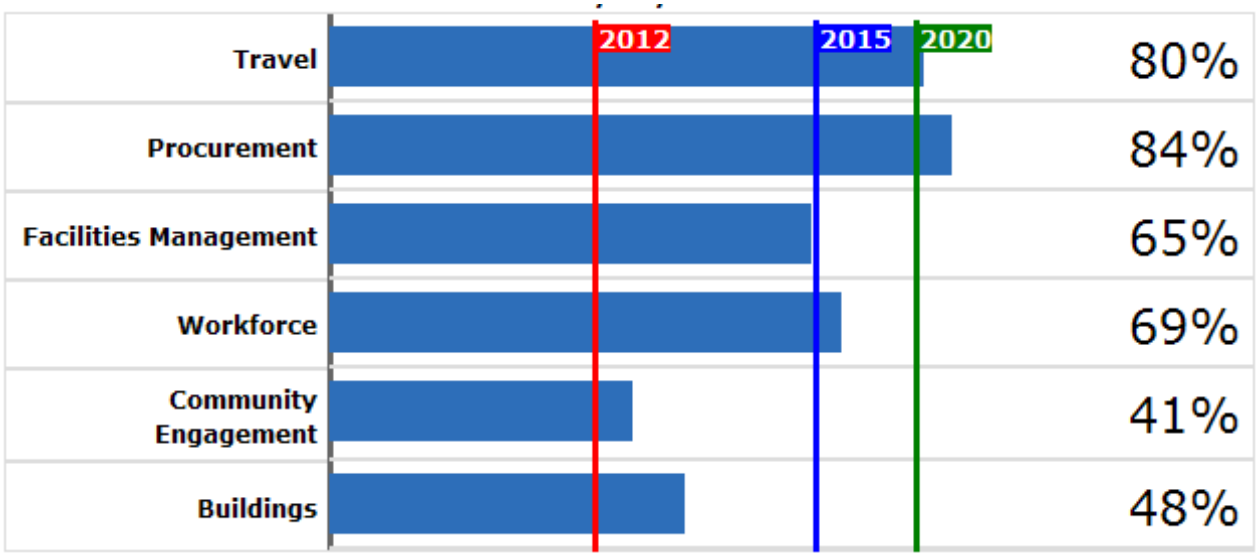


Figure 5 – Sheffield Teaching Hospitals NHS Foundation Trust Good Corporate Citizenship score aims 2015

A summary of these objective can be seen in appendix A

The objectives of this action plan are set out in appendix B

Further supplementary information behind each objective is set in appendix C

Appendix A - Summary of objectives

Two Overarching themes	
Work collaboratively	
A	Interact with regional and national initiatives to learn from best practice
Begin to make sustainability part of how we do business	
B	Create a culture of sustainable development
C	Ensure sustainability is embedded into systems and processes
Six commitment categories	
Energy and water	
D	Meet the NHS CO_2 reduction targets in energy and water
Procurement and Raw Materials	
E	Discover the CO_2 footprint of our procured items
F	Ensure efficient use of resources in our practices
G	Encourage suppliers and business partners to innovate
Waste	
H	Meet the NHS CO_2 reduction targets in waste
Travel	
I	Aim to contribute to reductions in congestion and air pollution
J	Meet the NHS CO_2 reduction targets in travel
Behaviour and Awareness	
K	Help employees, patients and the community to live a sustainable life
L	Aim for an increase in employees' awareness and motivation
Green Spaces	
M	Maintain and, where relevant, protect natural vegetation on the campuses

	Objectives and action plan	Aim	Responsible Director / Group	Delegated person(s)	Target date	Dependent on objective	Approved by director?
A	**Interact with regional and national initiatives to learn from best practice**						
A1	Assess membership of the Sustainable Development Strategy Group and invite new members accordingly.	To ensure a collaborative, joined up approach to Trust development and keep aware of best practice opportunities	Chief Executive	Sustainable Development Manager	Ongoing		Yes
A2	Invite presentations from organisations with expertise to develop understanding of opportunities.		Chief Executive	Sustainable Development Manager	Ongoing		Yes
A3	Complete a scoping exercise to identify best practice examples		Estates Director	Sustainable Development Manager	Ongoing		Yes
A4	Continue to have input and membership of relevant organisations and forums.		Estates Director	Sustainable Development Manager	Ongoing		Yes
B	**Create a culture of sustainable development**						
B1	Develop mechanisms for sustainable development to become part of the Trust's business planning function	To consider the benefits and costs of strategies relating to the Trust in a wider economic, social and environmental sense. To ensure we are prepared and adaptable to guarantee ongoing provision of service. To ensure the true definition of sustainability is recognised by all. To ensure we can cover the costs of our Estate and its liabilities.	Director of Service Development Estates Director	Service Provision Director Sustainable Development Manager	Ongoing		Yes
B2	Work with staff to define sustainable development 'beyond be green', launched at an event.		Communications Director Estates Director	Sustainable Development Manager	Apr-12	K1, L1	Yes
B4	Create a Space Management Strategy Group and Terms of Reference.		Director of Service Development	Estates Director	Oct-11		Yes
B5	Begin to understand how climate change will impact on our long term strategy. Including a discussion of the issues at the Emergency Preparedness Operation Group.		All Directorate leads	Business Continuity Leads Emergency Planning Manager Sustainable Development Manager	Ongoing		No
C	**Ensure sustainability is embedded into systems and processes**						
C1	Directorate level carbon footprints will be estimated for all 33 Directorates, based on space occupied (energy, water waste) and on patient, visitor and staff business travel.	To develop understanding of responsibilities and opportunities within departments in improving the service by considering sustainability. To achieve more efficient, sustainable practices through current governance processes.	Director of Service Development	Clinical Directors Corporate Directors Sustainable Development Manager	Jan-13	C2	Yes
C2	Every one of our 33 directorates will develop and deliver one 'development' case identifying carbon savings and other good corporate citizenship related benefits. This will form part of the formal business planning process.		Director of Service Development	Clinical Directors Corporate Directors Sustainable Development Manager	Ongoing, all completed one case by Dec-13	C1	Yes
D	**Meet the NHS CO2 reduction targets in energy and water**						
D1	Develop a business case for how we can improve the efficiency of how we raise heat.	To reduce energy wastage at source	Estates Director	Energy Manager (Central Campus) Energy Manager (Northern Campus)	Ongoing		Yes
D2	Develop business cases for how we can improve energy efficiency of our buildings	To reduce energy wastage in transport and in situ	Estates Director	Energy Manager (Central Campus) Energy Manager (Northern Campus)	Ongoing		Yes

Objectives		Aim	Responsible Director / Group	Delegated person(s)	Target date	Dependent on objective	Approved by director?
E	**Discover the CO2 footprint of our procured items**						
E1	Complete a 'rough and ready' calculation of our baseline carbon footprint (2007/08) based on spend and average carbon ratings.	To understand our impact due to our procurement requirements	Procurement Director	Analyst (Procurement) Sustainable Development Manager	Sept-11		Yes
E2	Complete work on the incorporation of the Hybris cataloguing system by April 2012, a product of which will be E-class mapping and detailed expenditure. Begin more detailed carbon footprinting, with the first full year of data.		Procurement Director Deputy Director of Finance	Analyst (Procurement) Sustainable Development Manager	May-13		Yes
F	**Ensure efficient use of resources in our practices**						
F1	Although whole-life costing is well established for major medical equipment (over £50,000), utilities cost is not currently included. This will be investigated.	To remove blockers for realising overall Trust savings. To ensure we are not paying more, over the lifetime of buying, operating, maintaining and disposing of an item than we need to.	Director of Finance Director of Service Development Procurement Director	Capital & Investment Finance Manager Purchasing Manager	Nov-11		Yes
F2	Creation of a sustainable procurement strategy and specific procurement related targets.		Procurement Director	Procurement Analyst Sustainable Development Manager	Feb-13	E2, F1	Yes
F4	Complete a catering strategy with sustainability related targets	To ensure we are considering seasonality, reducing packaging and food waste and providing a healthy, cost effective sustainable catering process for patients, staff and visitors.	Hotel Services Director	Catering Manager Sustainable Development Manager	2014 (when new CPU opens)		Yes
G	**Encourage suppliers and business partners to innovate**						
G1	Communication will continue with suppliers and support will be developed based on need. This will include a follow-up event "Sustainability Surgery" on the suggested next steps of sustainability, personalised for attending suppliers.	To use our purchasing power to influence suppliers to help us to procure more sustainably.	Procurement Director Estates Director	Sustainable Development Manager	Jan-13		Yes
G2	Identification of 5 renewal tenders to work directly with and improve the sustainability of the product/service.		Procurement Director	Contracts Manager (Procurement) Sustainable Development Manager	Dec-12		Yes
H	**Meet the NHS CO_2 reduction targets in waste**						
H1	Develop a recycling strategy to fully integrate recycling for all areas of the Trust.	To ensure waste is dealt with in the most preferable manner, reducing the cost to the Trust and the environmental impact of resource we 'get rid of'.	Hotel Services Director	Waste Manager	Ongoing	L1	Yes
I	**Aim to contribute to reductions in congestion and air pollution**						
I1	Continue to work closely with the City Council	To reduce our impact on air quality, linking to the health and safety of the local population.	Hotel Services Director	Hotel Services Manager Travel Plan Co-ordinator Sustainable Development Manager	Ongoing		Yes

Objectives		Aim	Responsible Director / Group	Delegated person(s)	Target date	Dependent on objective	Approved by director?
J	**Meet the NHS CO2 reduction targets in travel**						
J1	Completion of a Trust-wide, staff travel survey every two years, to understand distance and mode(s) for staff commute.	To measure and understand modal shifts in travel choices. To make the alternative travel to lone car use, a less expensive and/or less time-consuming option. To guide choice and inform of alternatives and their benefits.	Hotel Services Director	Hotel Services Manager Travel Plan Co-ordinator	Sept/Oct from 2012		Yes
J2	Develop a business case for implementation of a one-stop-travel -shop internet site to ensure records of all business travel are kept.		Director of Finance	Fleet and Finance Manager Hotel Services Manager Travel Plan Co-ordinator Audit Manager Intranet Web Co-ordinator Purchasing Manager Sustainable Development Manager	Dec-12	J1	Yes
J3	Policy written to state staff can no longer use their own car for business, unless really required (Managers' discretion) as an integral part of this package of objectives.		Director of Estates (Sustainability)	Fleet and Finance Manager Deputy Director of Finance (info only) Sustainable Development Manager	Feb-12	J2, J5, J10	Yes
J4	Cap on the CO_2 level of lease cars.		Director of Finance	Fleet and Finance Manager Head of Employee Relations Sustainable Development Manager	Feb-12	J3	Yes
J5	A scoping exercise into business (fleet) pool bikes, electric bikes, electric cars and low CO_2 cars, managed centrally by a travel office.		Director of Finance Hotel Services Director Estates Director	Hotel Services Manager Travel Plan Co-ordinator Sustainable Development Manager	Mar-13	J2, J3	Yes
J6	A scoping study to gauge the interest of departments to purchase an annual bus ticket for staff to share use of (in departments with significant local travel).		Hotel Services Director	Hotel Services Manager Travel Plan Co-ordinator	Feb-12	J3, J5	Yes
J7	Rate of mileage changes to reduce rewards to high carbon travel and fairly reimburse more sustainable business travel (in line with Agenda for Change proposals)		Director of Finance	Fleet and Finance Manager Sustainable Development Manager	Jul-13 (if AfC finalise)		Yes
J8	Access maps will be created to clearly display walking, cycling and public transport options for the two campuses.		Estates Director	Senior Autocad Technician Travel Plan Co-ordinator Sustainable Development Manager	Oct-11		Yes
J9	Penetrability of walking access will be assessed and improved on both campuses by opening up unnecessary barriers and gates.		Estates Director	Head of Operations (C. Campus) Head of Operations (N. Campus	Oct-11		Yes
J10	Improvement and publicity of telephone / video-conferencing facilities on both campus'		Director of Service Development	Estates Director Sustainable Development Manager	Jan-11		Yes
J11	Development of suitable communication technologies and future policy to encourage more working from home (where suitable).		Director of Human Resources Informatics Director	Head of Health and Wellbeing Sustainable Development Manager	Dep on new Informatics Director	J10	HR – YES IT – not yet
J12	Review options for encouraging mixed travel behaviour (current monthly payment may limit 'mixing' of commute travel choices)		Hotel Services Director	Hotel Services Manager Travel Plan Co-ordinator	Ongoing		Yes
J13	Parking charges will continue to represent the cost of providing parking spaces. If better facilities are required, the cost of parking will increase in line with this cost.		Hotel Services Director	Hotel Services Manager Travel Plan Co-ordinator	Ongoing		Yes
J14	Incentives to encourage electric and hybrid cars will be considered		Hotel Services Director Estates Director	Hotel Services Manager Travel Plan Co-ordinator Sustainable Development Manager	Ongoing		Yes

	Objectives	Aim	Responsible Director / Group	Delegated person(s)	Target date	Dependent on objective	Approved by director?
K	**Help employees, patients and the community to live a sustainable life**						
K1	Run a continuous programme of sustainability communications, to encourage everyone linked to the Trust to take action	To ensure we use our communication opportunities to help with national drives to become more sustainable in how people live their lives.	Communications Director Estates Director	Sustainable Development Manager	Ongoing	B2, L1	Yes
K2	Continue to help those in the community with barriers to work to get employed at the Trust.		Director of Human Resources	Head of Employee Resourcing Healthcare Academy Lead	Ongoing		Yes
K3	Invite students for work experience on the Sustainable Development Programme.		Director of Human Resources Estates Director	Head of Employee Resourcing Healthcare Academy Lead Sustainable Development Manager	Yearly		Yes
L	**Aim for an increase in employees' awareness and motivation**						
L1	Develop the 'be green' campaign to improve awareness and motivation of staff so that they fall into the 'engaged and active' section of the yearly survey.	To ensure the users are aware of how they will need to either maintain good practice or change behaviour to ensure success after any investments of time and/or finance towards sustainability. To ensure investments of time and/or finance are suitable and practical.	Communications Director Estates Director	Sustainable Development Manager	Ongoing	B2, K1	Yes
L2	Calculate the percentage coverage of Trust area covered by Be Green Representatives in sq. meters and increase this year on year until the whole site is always 'looked over' by at least one trained BGR.		Estates Director	Sustainable Development Manager	Ongoing		Yes
L3	Development of e-learning, specific to our staff. This will include how to be sustainable at home and reduce reliance on the NHS.		Director of Human Resources Communications Director	Head of Learning Development Sustainable Development Manager	Feb-13		Yes
M	**Maintain and, where relevant, protect natural vegetation on the campuses**						
M1	Map current green/grass areas and publicise to staff, including encouraging walking / litter picking groups.	To provide opportunity for healing environments which can reduce stress.	Director of Communications Estates Director	Sustainable Development Manager	Sept-11 and ongoing		Yes

Appendix C - Detail behind objectives

Two Overarching themes

How we will work collaboratively	
A	Interact with regional and national initiatives to learn from best practice

Objective A – To interact with regional and National initiatives to learn from best practice

This section outlines the commitment to continue engaging with other organisations to ensure case studies, achievements, challenges and processes are shared by STH.

STH have been working with the following organisations, sharing expertise and guiding strategic development through the Sustainable Development Strategy Group.

- CO2 Sense
- Collaborations for Leadership in Applied Health Research and Care for South Yorkshire
- NHS Sheffield
- NHS Sustainable Development Unit
- Sheffield Campaign against Climate Change (SCACC)
- Sheffield City Council
- Sheffield Hallam University
- The University of Sheffield

The Sustainable Development Programme has also worked, at varying levels with NHS Yorkshire and Humber, Marks and Spencer's, South Yorkshire Passenger Transport Executive (SYPTE) and the Campaign for Greener Healthcare to steer developments in sustainability.

STH are members of the following groups and networks and engage with their development processes:

- Sustainability Advisory Group with Sheffield City Council
- NHS Sheffield Climate Change Group
- 2Degrees
- Sustainability Leadership in the Health Care Sector Programme

How we will begin to make sustainability part of how we do business	
B	Create a culture of sustainable development
C	Ensure sustainability is embedded into systems and processes

Objective B - Create a culture of sustainable development

The Sustainable Development Programme is composed of three groups:

- Sustainable Development Strategy Group (SDSG)
- Sustainable Development Partnership Group (SDPG)
- Be Green Workforce Group (BGWG)

The three groups work together with the joint aim of ensuring the Trust is being resourceful and providing healthcare sustainably. A key change which will enable us to fully integrate the Sustainable Development Programme into the business process will be the support of the Trust's Board of Directors, Executive Group and Trust Managers to remove the cultural barrier to sustainable development. Methods to ensure the concept is no longer considered too theoretical and abstract will be taken forward by strategic leaders. By doing this, STH will adopt business strategies and activities which meet the healthcare needs of today, while protecting and enhancing the human and natural resources that will be needed to function successfully in the future.

Initiatives to reduce resource use, waste arisings, unnecessary travel and space utilisation include:

- **Reducing length of stay:** making the most from the CO_2 produced by the Trust, to ensure resources and space are not used unnecessarily and that community based alternatives consume less CO_2 than the hospital alternative.
- **Reducing follow-up appointments:** to reduce travel to and from site.
- **Reducing inappropriate admission and re-admission rates to the Trust by providing alternatives that are more appropriate and consume less CO_2.** This will include a focus on people with long-term conditions and those presenting with mental health/behavioural issues to ensure resources are used effectively.
- **Care closer to home and self-management:** includes tele-health, care in the community, NHS Direct, working with other providers and encouraging healthy behaviour.

- **Space Management:** rationalising the estate to minimise the energy, waste, maintenance and procurement carbon footprint.
- **Video/telephone conferencing:** provides opportunity to achieve the above points.
- **Home-working:** provides the opportunity to achieve the above points.
- **Travel Plan:** increasing the number of journeys without a car, to reduce transport CO2.
- **Health and Wellbeing strategy:** to ensure staff are healthy, well and sustainable**.**

Staff will be encouraged to identify hospital routines which are outdated and move to more sustainable, innovative practices. This needs to be a large scale, all inclusive strategic drive with full comprehension and support from all staff. The Trust will allow a step change to enable sustainable development. This will require time, where effort can be solely directed towards strategic, sustainable planning. This is not considered a distraction or addition to present planning but a key development which will provide a more certain future for the Trust. This will involve making measured investments with regard to time and finances, in order to prosper and survive in the future.

The infrastructure we use to provide quality healthcare will be re-evaluated to ensure there are no limits or restricts on freedom to make sustainable choices. We will mainstream sustainability, working in partnership to make sustainable choices the norm, the default choice for all, the easy option.

Regarding Risk assessments, the Trust has signed up to the prescribed wording for the Statement on Internal Control:

> *"The Foundation Trust has undertaken risk assessments and Carbon Reduction Delivery Plans are in place in accordance with emergency preparedness and civil contingency requirements, as based on UKCIP 2009 weather projects, to ensure that this organisation's obligations under the Climate Change Act and the Adaptation Reporting requirements are complied with."*

For the Trust to be fully compliant, a formalised risk assessment is required. The Trust will need to reconsider how services will be provided and how to supply the same service or better, more efficiently.

Considering our ability to adapt to future scenarios will be of importance. This includes how we design our buildings to cope with increasing summer temperatures, how we prepare for future healthcare needs in changing climates, how we ensure we will comply with future government regulations and how we will reduce financial risk from taxes and price increases, likely to develop as a

result of global climate change. We will consider our adaptive capacity as part of emergency planning and business continuity. For us, adaptation is about increasing the Trust's ability to adapt and change through forward planning, increasing resilience, managing risks, protecting itself, patients and the wider population and also, importantly, taking advantage of any potential benefits that arise from changes that can be made.

Objective C - Ensure sustainability is embedded into systems and processes

This section outlines the commitment to develop strategies to ensure the Trust is providing quality healthcare while preparing for economic, social and environmental restraints.

There will be opportunity to submit cases which require either funding, or top down support, time, backing and effort to make the suggested change. If the benefits are considered likely to improve the current situation, the Trust Board of Directors and other managers will actively support the approved projects.

Sustainability becomes part of the decision process when planning and forecasting service delivery, when designing and building construction projects, when considering how employees work, when leading on strategic direction and when continuing with day-to-day actions.

Sustainability becomes everyone's responsibility; directorate level projects will ensure that all areas of the Trust begin to embed sustainability into their systems and processes.

Regarding new build or refurbishment projects, if, following the initial Capital Investment Team financial approval at Strategic Outline Case or Outline Business Case stage, sustainable savings (through an additional investment) are identified, the CIT may be presented a follow-up business case, based on satisfactory payback periods being substantiated. This is required as, on occasion, such measures are only identified through detailed design, once more detail is known. This will involve recognition of the less measurable social, environmental and economical benefits available to the Trust. The Trust will provide support based on individual business cases from all departments relating to sustainable development either to invigorate change in outdated cultural norms, or to fund suitable investments.

Six commitment categories

Energy and water	
D	Meet the NHS CO_2 reduction targets

Objective D - Meet the NHS CO_2 reduction targets in energy and water

Our baseline carbon footprint for energy and water is 64,000 tonnes.

This footprint will be reduced in line with our targets through improvements in efficiency, consideration of development of renewable energy and limiting estate space and therefore energy requirements.

Efficiencies

Projects completed to date or planned in the coming year have cost £950,000. This equates to CO_2 savings of almost 5000 tonnes per year, which will pay back in around 2.5 years. Projects which this includes can be seen in appendix D (A3).

Assuming there are no major increases in energy use (such as new buildings, new large electrical items purchased or especially cold winters/hot summers), these projects will achieve our 2015 Target. To ensure we achieve the target, energy use/wasted energy will need to decrease. This will be achieved through behaviour change campaigns, such as our 'Power of I' campaign, encouraging staff to switch off unnecessary items. For this campaign to be successful, support will be supplied by the Trust Board of Directors at spreading the message to all departments.

The carbon intensity for grid gas is likely to remain fairly constant into the future, so all reductions will have to be made through efficiencies at point of use. The carbon intensity for grid electricity is harder to predict and is not constant over time. The electricity factor depends on the mix of gas, coal, renewable sources and demand. The government target aims to provide 15% of the country's total energy demand by 2020 through renewable energy and reduce electricity raised from coal fired power stations. This will result in a reduced carbon factor of electricity and will help to reach our targets. Due to the complexity of estimating the potential change in carbon intensity of grid energy, this will not be factored into our figures, but it is worth noting that these changes will, to a degree, help achieve the reductions.

To achieve the 2020 and 2050 targets, the following projects will be considered.

Consideration of how we create heat

Sheffield City Council is aiming to become a 'decentralised city' and produce all energy within the city, to increase resilience and reduce reliance on the grid. Sheffield Teaching Hospitals NHS Foundation Trust could also 'decentralise' by creating our own energy, or working with a partner to create energy and also, supply excess energy to the local community, either through heating their homes, or developing integrated facilities, such as sports/swimming facilities to use the extra heat, helping the city council to reach their target, while improving the efficiency of our systems.

Consideration of Renewable Energy

Analysis will be completed to identify which renewable energies may suit certain buildings (those which will not be sold or require large scale maintenance). Pay-back periods which are financially suitable will then be considered for installation. Savings will be calculated based on reduced energy costs, reduced CO_2 costs and the savings through FITs and RHIs (see appendix D (A1 and A2)).

From the 1st April 2012, the Trust will be purchasing 100% of our electricity from N.Power's renewable sources (wind and hydroelectricity). (This is subject to overall demand for renewable electricity in the contract provider's portfolio)

Limiting estate space requirements

The estate and its liabilities create significant CO_2 and costs, to cover the life cycle running costs. To be sustainable and reduce these costs, the Estate needs to be significantly reduced. Progress requires a change in culture across the Trust in how space is used and considered. It requires high-level support and buy-in by the body corporate along with an action plan to drive out the reductions.

Examples of related projects to achieve space reduction include:

- Telehealth, tele-care, care closer to home and telecommunications and electronic storage technology to replace traditional clinical practice
- More sharing of space and meeting rooms
- Café style space dedicated to hot-desking between two sites
- Wifi availability in areas of the Trust
- Development of a home-working policy, supported by appropriate technologies and an HR policy.
- Prohibit the leasing of any additional space
- Adoption of more shared space practices, including desks, meeting rooms, clinics, staff rooms (MiCAD)
- Space allocation by need rather than status
- Space reduction targets
- Cultural change in mindset of who 'owns' and 'needs' space to care for patients
- Strategic team to lead on strategy and manage change

Procurement and Raw Materials	
E	Discover the CO_2 footprint of our procured items
F	Ensure efficient use of resources in our practices
G	Encourage suppliers and business partners to innovate

Objective E - Discover the CO_2 footprint of our procured items

The most substantial part of our total carbon footprint is from our supply chain. STH will develop a better understanding of our impact on CO_2 emissions through our yearly procurement. If our CO_2 footprint is similar to the national average, it is likely that procurement will account for 57% of our total carbon footprint, around 107,000 tonnes.

Using financial codes, a rough calculation of our total baseline (2007/08) procurement carbon footprint will be completed by September 2011. This will not provide accurate data, but will be an indication of the Trust's entire carbon footprint from procurement activities.

By the new financial year in 2012/13, E-class systems (better record keeping) will be in place. This will allow for more accurate carbon analysis over the following year and will provide the opportunity to drill-down into the categories where we have the most significant impact on CO_2 emissions, so that we can begin to identify which suppliers we will focus our efforts on and work with to reduce the carbon intensity.

Objective F - Ensure efficient use of resources in our practices

Following completion of *objective F* a Sustainable Procurement Strategy will be written to ensure that the carbon footprint from our purchasing practices begins to reduce by 2015, to aim for further reductions into 2020 and 2050.

This strategy will identify priorities for action and develop a criteria framework suited specifically to the Trust[1], to reduce CO_2 emissions and improve the sustainability of procurement activities of Sheffield Teaching Hospitals NHS Foundation Trust.

The plan will focus on how to integrate utilities costs into the current whole-life cost assessments of all relevant bid evaluations (over £50,000). Information between relevant Trust departments will be freely and efficiently shared, with regular updates, to ensure costs are suitably assessed.

[1] This will be informed by the Flexible Framework developed by Defra's Sustainable Procurement Taskforce. The Flexible Framework is a widely used self assessment mechanism which allows organisations to measure and monitor their progress on sustainable procurement over time.

To achieve these aims, the Trust will develop a strategic plan to ensure whole-life cost is funded where required. Overall, savings will be seen by the Trust through better whole-life costing.

Catering is managed independently from the rest of the procurement process at the Trust and will therefore develop a specific sustainability strategy. Key aspects to be considered will include: assessing the potential of re-usable trays against single use trays, collection of food waste for more sustainable disposal, re-assessment of vending machines and their quantities/energy use and considering the food itself; although always cost driven, the new CPU bulk buying may increase opportunity for seasonally driven menus.

Objective G - Encourage suppliers and business partners to innovate

As part of our Sustainable Development Programme, we have held an event, in partnership with the NHS CPC and Yorkshire Forward, inviting all of our local suppliers to discover and meet the organisations who, locally and nationally, can provide advice and support in sustainable development. The day was very successful and a list of suppliers is now held for networking and support in developing this agenda. The Trust is committed to continuing this communication and more focused work with suppliers.

Certain renewal tenders will lend themselves better to focused sustainability specifications. By identifying tenders which will be due soon and are of a suitable product or service to have the best opportunity and result of assessing *risk*, *spend, scope and influence*.

Waste	
H	Meet the NHS CO_2 reduction targets

Objective H - Meet the NHS CO_2 reduction targets

The baseline carbon footprint for waste is 1,500 tonnes in 2007/08. In 2009/10 this figure has already been reduced by over 70% due mainly to a reduction of waste sent to landfill. It is important to note that this saving has been achieved, not through a reduction in waste produced, but by changing the destination and process for dealing with this no longer wanted mass of product. A further 10% reduction is still required by 2050. It is perceived that this will only be achieved by improving the quantity of recycled items, reusing more and encouraging all departments to reconsider what they buy, how they use items and how much they throw away.

Also, as mentioned previously, motivation of staff would be improved by setting up better and easier recycling opportunities.

The Trust will work to make recycling easier for staff within the departments; a strategy will be designed to ensure recycling is made clear, easy and consistent across all departments.

Travel	
I	Aim to contribute to reductions in congestion and air pollution
J	Meet the NHS CO_2 reduction targets

Objective I - Aim to contribute to reductions in congestion and air pollution

Sheffield Teaching Hospitals NHS Foundation Trust will continue to work with Sheffield City Council and aim to implement advice relating to the third South Yorkshire Local Transport Plan's objectives. This will include indicators in relation to congestion and air quality / climate change.

Objective J - Meet the NHS CO_2 reduction targets

The estimated carbon footprint from travel is 13,000 tonnes. This figure is estimated using recorded business travel (however travel by rail/coach is, on occasion, purchased by the staff member and reclaimed; these journeys are not included as data does not exist). Data regarding commute is also limited. The figure used is based on our total staff with parking permits, travelling the average distance travelled to work (by people in Yorkshire) using the average car or other mode.

The Trust will continue to meet targets and objectives presented in the Central and Northern Campuses and Trust wide travel plans.

Various incentives and measures have been implemented through the Travel Plan which will have helped reduce the travel carbon footprint. However, to date, the lack of data has meant that these successes have not been measured accurately and success has not been communicated to the likely achieved degree.

Potential projects will be considered for improving the strategic direction of travel at Sheffield Teaching Hospitals NHS Foundation Trust. Many of these will be reliant on each other for success. All sustainable travel projects will aim to make sustainable travel more straightforward for the staff member to use and/or less expensive for the member of staff or the departmental manager than current arrangements:

Behaviour and Awareness	
K	Help employees, patients and the community to live a sustainable life
L	Aim for an increase in employees' awareness and motivation

Objective K - Help employees, patients and the community to live a sustainable life

Engagement will take various forms, helping staff, patients and the community take action to 'be green' in relation to health.

To date 8 "let's Talk" events have been held at the Trust, where staff can engage with managers to ensure increased productivity and good patient care.

Internally we will focus on using the Sustainable Development Programme and the 'be green' campaign, communications department initiatives, the intranet and internet, HR initiatives such as the Health and Wellbeing programme, including "Let's Talk", the corporate induction and possible e-learning packages.

Currently we recruit 110 apprentices and 52 people have been employed who otherwise faced barriers to working and 686 active volunteers

The Programme will seek to work more closely with the Health and Social Care Academy, including working to involve local students in developing a sustainable NHS. Work Experience students will be invited to work with the Sustainable Development Manager and help with development of the Be Green campaign. This will help share understanding of the 'hidden roles' of the NHS.

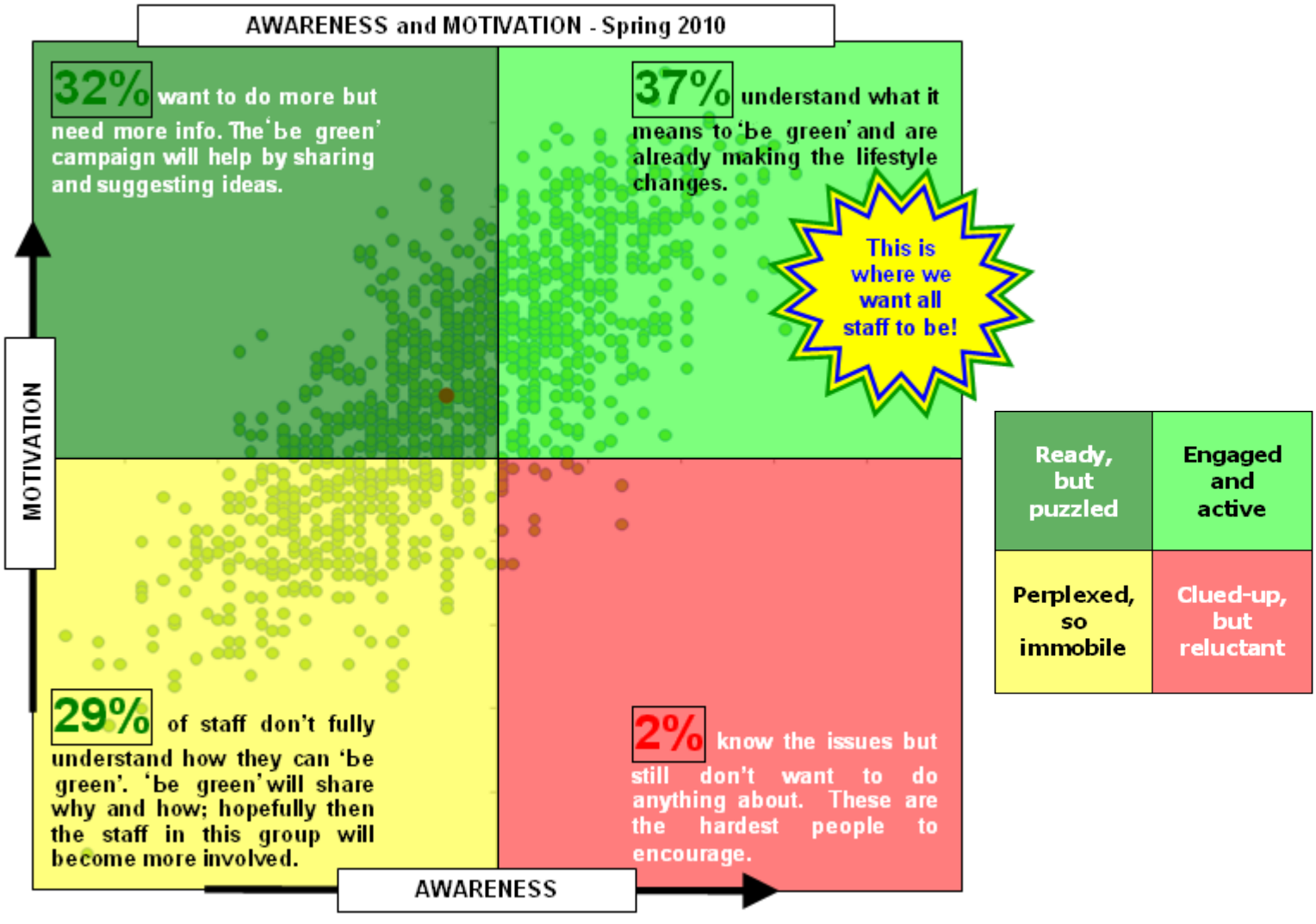
The Sustainable Development Programme will develop opportunities to work more closely with staff-side/union representatives to fairly integrate sustainable development into working practices. Options will be explored for provision of e-learning training on sustainability.

The Trust's Health and Wellbeing Group is part of the Staff Engagement Strategy. The objectives of the group will be to increase the opportunities for staff to feel healthy, happy and well while at work and at home.

Objective L - Aim for an increase in employees' awareness and motivation

The results of a yearly awareness/motivation survey will be used to assess success of 'be green' over time.

Our first awareness and motivation survey, in 2010, concluded that 37% of respondents (8% of workforce) have relatively high awareness and motivation towards sustainability both at work and at home. The Trust will work to increase this figure through sharing information using the 'be green' campaign. The Trust will also develop a 'beyond be green' campaign, to try and encourage those staff who already do the 'green things' to start considering sustainable development in its widest sense.



The BGR (Be Green Representative) training programme has (by summer 2011) trained 169 BGRs and completed 88 'walkabouts' (area visits). Data gathered by the BGRs will be used to inform future projects, campaigns, refurbishment and maintenance in their areas.

Green Spaces	
M	Maintain and where relevant, protect natural vegetation on the campuses

Objective M - Maintain and where relevant, protect natural vegetation on the campuses

Nature is inspiring, relaxing, can reduce stress and improve wellbeing. Therefore as a large NHS Trust, it is important that we do more to help people live healthy lives and speed up recuperation.

The Trust will complete a project to consider how health and environmental benefits from green space could improve recovery time of patients and improve the health and wellbeing of staff. Current spaces will be maintained and where possible, biodiversity will be encouraged.

We will work with the Campaign for Greener Healthcare's NHS Forest project to involve the Trust in parts of their overall aims:

- Improving health of staff, patients and communities through increasing access to green space on or near to NHS land.
- Greening the NHS Estates and planting 1 tree per employee amounting to 1.3 million trees within the next 5 years.
- Encouraging greater social cohesion between NHS sites and the local community.
- Bringing together a range of professionals and volunteers to produce woodland that includes the use of art, food crops, woodfuel and achieve biodiversity.

The Trust already has a large number of trees, including an area of ancient woodland shared half by the Trust and half by the City Council. There is already a path running through the length of the woodland and this will be publicised as a possible lunchtime walk for staff. If successful and staff use the walk, as a feeling of ownership increases for the area, a bi-monthly litter pick may be organised, bins may be provided and identification of species may be compiled.

Appendix D

Description	FIT year in which the eligibility date of an eligible installation falls										
	Yr 1 2010/ 11	**Yr 2** 2011 /12	**Yr 3** 2012/ 13	**Yr 4** 2013/ 14	**Yr 5** 2014/ 15	**Yr 6** 2015/ 16	**Yr 7** 2016/ 17	**Yr 8** 2017/ 18	**Yr 9** 2018/ 19	**Yr 10** 2019/ 20	**Yr 11** 2020/2 1
Anaerobic digestion with total installed capacity of 250kW or less	**12.1**	Conditional date applies and eligibility date is before that date OR where the conditional date does not apply **12.1** Conditional date applies and eligibility date is on or after that date **14.0**	**14.0**	**14.0**	**14.0**	**14.0**	**14.0**	**14.0**	**14.0**	**14.0**	**14.0**
Anaerobic digestion with total installed capacity greater than 250kW but not exceeding 500kW	**12.1**	Conditional date applies and eligibility date is before that date OR where the conditional date does not apply **12.1** Conditional date applies and eligibility date is on or after that date **13.0**	**13.0**	**13.0**	**13.0**	**13.0**	**13.0**	**13.0**	**13.0**	**13.0**	**13.0**
Anaerobic digestion with total installed capacity greater than 500kW	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**
Hydro generating station with total installed capacity of 15kW or less	**20.9**	**20.9**	**20.9**	**20.9**	**20.9**	**20.9**	**20.9**	**20.9**	**20.9**	**20.9**	**20.9**
Hydro generating station with total installed capacity greater than 15kW but not exceeding 100kW	**18.7**	**18.7**	**18.7**	**18.7**	**18.7**	**18.7**	**18.7**	**18.7**	**18.7**	**18.7**	**18.7**

Hydro generating station with total installed capacity greater than 100kW but not exceeding 2MW	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**	**11.5**
Hydro generating station with total installed capacity greater than 2MW	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**
Combined Heat and Power with total installed electrical capacity of 2kW or less (Tariff available only for 30,000 units)	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**	**10.5**
Solar photovoltaic with total installed capacity of 4kW or less, where attached to or wired to provide electricity to a new building before first occupation	**37.8**	**37.8**	**34.6**	**31.6**	**29.0**	**26.4**	**24.0**	**21.8**	**19.9**	**18.1**	**16.4**
Solar photovoltaic with total installed capacity of 4kW or less, where attached to or wired to provide electricity to a building which is already occupied	**43.3**	**43.3**	**39.6**	**36.3**	**33.2**	**30.2**	**27.5**	**25.0**	**22.7**	**20.7**	**18.8**
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 4kW but not exceeding 10kW	**37.8**	**37.8**	**34.6**	**31.6**	**29.0**	**26.4**	**24.0**	**21.8**	**19.9**	**18.1**	**16.4**

Solar photovoltaic (other than stand-alone) with total installed capacity greater than 10kW but not exceeding 50kW	**32.9**	**32.9**	**30.1**	**27.5**	**25.2**	**22.9**	**20.9**	**19.0**	**17.3**	**15.7**	**14.3**
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 50kW but not exceeding 100kW	**32.9**	Before 01/08 2011 **32.9** On or after 01/08 2011 **19**	**17.4**	**15.9**	**14.6**	**13.2**	**12.1**	**11.0**	**10.0**	**9.1**	**8.5**
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 100kW but not exceeding 150kW	**30.7**	Before 01/08 2011 **30.7** On or after 01/08 2011 **19**	**17.4**	**15.9**	**14.6**	**13.2**	**12.1**	**11.0**	**10.0**	**9.1**	**8.5**
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 150kW but not exceeding 250kW	**30.7**	Before 01/08 2011 **30.7** On or after 01/08 2011 **15**	**13.7**	**12.6**	**11.5**	**10.5**	**9.5**	**8.7**	**8.5**	**8.5**	**8.5**
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 250kW	**30.7**	Before 01/08 2011 **30.7** On or after 01/08 2011 **8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**
Solar photovoltaic (other than stand-alone) with total installed capacity greater than 250kW	**30.7**	Before 01/08 2011 **30.7** On or after 01/08 2011 **8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**	**8.5**
Wind with total installed capacity of 1.5kW or less	**36.2**	**36.2**	**34.2**	**32.3**	**30.5**	**28.9**	**27.3**	**25.8**	**24.4**	**23.0**	**21.8**

Wind with total installed capacity greater than 1.5kW but not exceeding 15 kW	**28**	**28**	**26.7**	**25.5**	**24.4**	**23.3**	**22.2**	**21.2**	**20.3**	**19.4**	**18.5**
Wind with total installed capacity greater than 15kW but not exceeding 100kW	**25.3**	**25.3**	**24.2**	**23.1**	**22.0**	**21.0**	**20.1**	**19.2**	**18.3**	**17.5**	**16.7**
Wind with total installed capacity greater than 100kW but not exceeding 500kW	**19.7**	**19.7**	**19.7**	**19.7**	**19.7**	**19.7**	**19.7**	**19.7**	**19.7**	**19.7**	**19.7**
Wind with total installed capacity greater than 500kW but not exceeding 1.5MW	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**	**9.9**
Wind with total installed capacity greater than 1.5MW	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**
Eligible Installations with a declared net capacity of 50kW or less Commissioned on or before 14th July 2009 and accredited under the ROO on or before 31st March 2010.	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**	**9.4**
EXPORT TARIFF	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**	**3.1**

A1 – Feed-In Tariffs (FITs) up to 2013 (Department of Energy and Climate Change)

Tariff name	Eligible technology	Eligible sizes	Tariff rate (pence/ kWh)	Tariff duration (Years)	Support calculation
Small biomass	Solid biomass; Municipal Solid Waste (incl. CHP)	Less than 200 kWth	Tier 1: **7.6** Tier 2: **1.9**	20	Metering Tier 1 applies annually up to the Tier Break, Tier 2 above the Tier Break. The Tier Break is: installed capacity x 1,314 peak load hours, i.e.: **kWth x 1,314**
Medium biomass		200 kWth and above; less than 1,000 kWth	Tier 1: **4.7** Tier 2: **1.9**		
Large biomass		1,000 kWth and above	**2.6**		Metering
Small ground source	Ground-source heat pumps; Water-source heat pumps; deep geothermal	Less than 100 kWth	**4.3**	20	Metering
Large ground source		100 kWth and above	**3**		
Solar thermal	Solar thermal	Less than 200 kWth	**8.5**	20	Metering
Biomethane	Biomethane injection and biogas combustion, except from landfill gas	Biomethane all scales, biogas combustion less than 200 kWth	**6.5**	20	Metering

Notes: kWh stands for kilowatt hours (used in relation to heat output) and kWth stands for kilowatt thermal (used in relation to equipment capacity).

A2 – Renewable Heat Incentives- based on 2010 prices, to be updated yearly. (Department of Energy and Climate Change)

A3 – Large, completed energy projects

Measure: PC Power Management project
Reason: Removal of screensavers and automatic shutdown of PCs
Year completed: 2010
Total cost to implement: £0
kWh saved per year (in electricity): 1,166,667 kWh
Annual £ saving in reduced costs: £70,000

Measure: Insulation on Northern Campus
Reason: To improve the ability of buildings to keep warm in the winter and cooler in the summer, using loft and cavity wall insulation
Year completed: 2010
Total cost to implement: £129,330
kWh saved per year (in gas): 825,849kWh
Annual £ saving in reduced costs: £19,820

Measure: Summertime heating (Central Campus)
Reason: This new system allows the steam to be isolated from a significant portion of the RHH tower whilst providing a Low Temperature Hot Water circulation system that will service the domestic hot water heating needs and also provide small heat as a back up, if we get unseasonably cold weather through the summer months.
Year completed: May 2011
Total cost to implement: £320,000
kWh saved per year (in gas): 12,500,000 kWh
Annual £ saving in reduced costs: £250,000

Measure: Rationalisation of steam mains (Northern Campus)
Reason: Rationalisation and modernisation of the steam infrastructure to reduce steam heat wasted through longer distance travel.
Year completed: 2011
Total cost to implement: £500,000
kWh saved per year (in gas): 10,000,000 kWh
Annual £ saving in reduced costs: £200,000

Summary
4 energy projects
Total spend: £949,330
Total annual saving: £539,820
Total annual CO2 saving: 4924 tonnes