



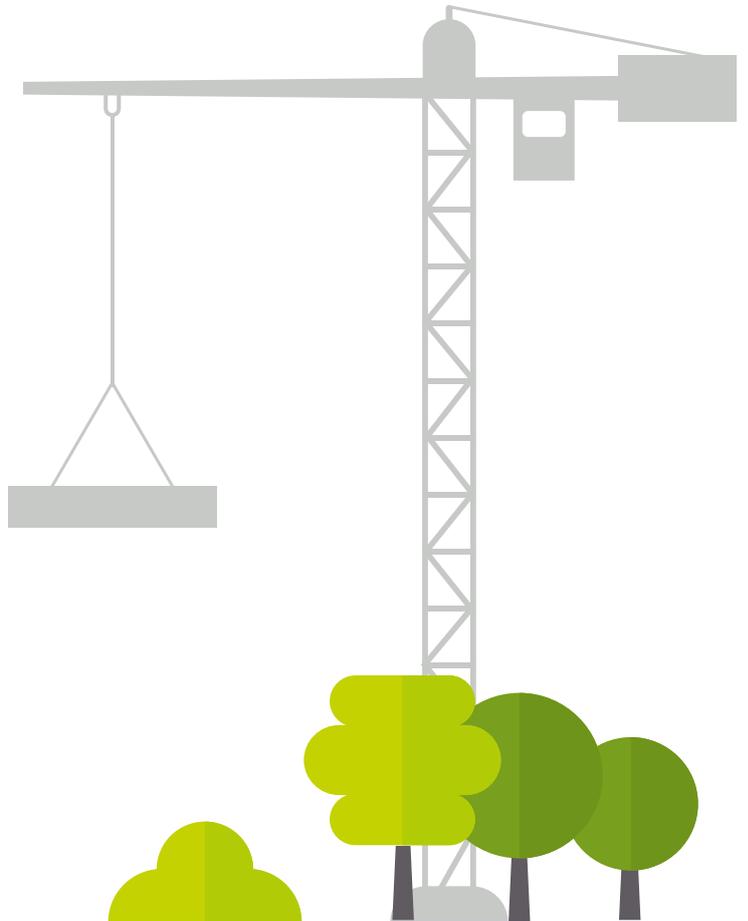


## Partners

Bedfordshire Hospital NHS Trust  
Berkshire Healthcare NHS Foundation Trust  
Buckinghamshire Healthcare NHS Trust  
Buckinghamshire New University  
Cranfield University  
Frimley Health NHS Foundation Trust  
Great Western Hospitals NHS Foundation Trust  
Milton Keynes University Hospital NHS Foundation Trust  
Oxford Brookes University  
Oxford Health NHS Foundation Trust  
Oxford University Hospitals NHS Foundation Trust  
Royal Berkshire NHS Foundation Trust  
South Central Ambulance Service NHS Foundation Trust  
Southern Health NHS Foundation Trust  
University of Bedfordshire  
University of Oxford  
University of Reading

## Contributors

The Carbon and Energy Fund  
Kent and Medway NHS and Social Care Partnership Trust  
Global Action Plan  
National Grid  
NHS Property Services  
NHS Sustainability Network  
Organic Resource Agency  
Severn Trent Water  
The Soil Association  
Sustainable Healthcare  
Tesla Motors  
University Hospital Coventry and Warwickshire





# A Partnership of Providers

The Oxford Academic Health Science Network is a partnership of NHS providers, commissioners, universities and life science companies to improve health and prosperity in Bedfordshire, Berkshire, Buckinghamshire, Milton Keynes and Oxfordshire.

Success comes from collaborative working by the partners and stakeholders across the region, and examples include the Bicester Healthy New Towns Programme ([nwbicester.co.uk](http://nwbicester.co.uk)) and Get Physical ([oxfordahsn.org/news-and-events/news/get-physical/](http://oxfordahsn.org/news-and-events/news/get-physical/)), which focuses on prevention and public health.

This report covers the activities of the Oxford AHSN Sustainability Network, which dates back to the identification of a need for a Sustainability theme in 2013. In early 2014, the opportunity to develop a regional approach that could deliver rapid savings to NHS Trusts was developed by the Oxford AHSN in discussions with Bronwen Vearncombe, who had led the South Central Strategic Health Authority's approach to energy savings, and the specialist company Zexu.

The core of the offer was a regional benchmarking exercise aimed at identifying opportunities for reducing carbon emissions while generating savings through investment at both Hospital Trusts and universities across the region. A number of scalable projects emerged out of this exercise, and due to their size and scope, a collaboration was entered into with the Carbon and Energy Fund to provide support in business case development, financing and support in delivering the carbon energy project.



# The Sustainability Network

The Sustainability Network was formed out of this project, and with a need to share best practice across the region, it became evident that additional projects could support partner ambitions in a number of ways.

This has included behaviour change to reduce carbon emissions, reducing transport costs and emissions, solar opportunities and food provision in hospitals. Participants in the Network are drawn from a number of backgrounds including directors and managers of estates, sustainability leads and finance directors.

The Sustainability Network's focus anticipated one of the themes developed in the Carter Report around the "significant opportunity for trusts to achieve cost efficiencies by reducing their energy consumption which

will also help to mitigate against the effects of climate change through improved energy efficiency."

Throughout the Network's evolution, the emphasis has been on sharing best practice and learnings to deliver system savings and to seek solutions to the challenges posed by reducing energy consumption in novel ways.

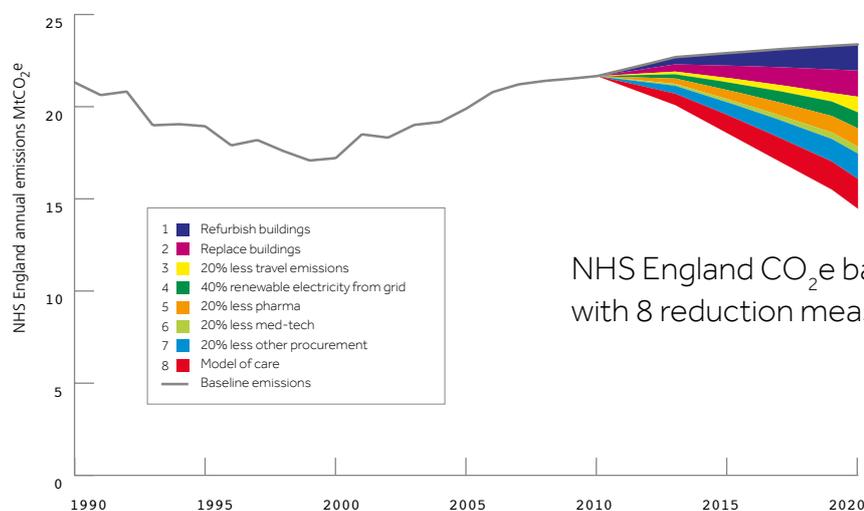
The ethos of the Network is to deliver significant savings and major improvements in the region's carbon footprint through an efficient. The collective experience of the Network has been a critical factor in realising this vision, along with the enthusiasm and support from Bronwen Vearnecombe, the Programme Lead and Steven Heape from Zexu.

## Aims and objectives of the Network

In 2008, as part of the Climate Change Act the UK set itself the target of becoming a low-carbon economy by 2050, with the aim of reducing the emission of carbon by 80% (against 1990 baseline levels) in this time.

In response to this, the NHS published the "NHS Carbon Reduction Strategy" (Saving Carbon, Improving Health NHS Sustainable Development Unit) in 2009. This started with a 10% reduction by 2015 on the NHS' 2007 baseline, rising to a 64% reduction by 2030 to the 80% target set by the Climate Change Act. This strategy was updated in 2010 (NHS Sustainable Development Unit.

Saving Carbon, Improving Health), giving a new interim target of 34% reduction on the 2007 baseline by 2020. The strategy's authors estimated that a total of £180m in cost savings are achievable through carbon savings, with the chart showing where the authors estimated these savings would come from – The Oxford AHSN Sustainability Network aims to help the hospitals, and universities, in its region to reach these targets, by co-ordinating regional efforts and identifying new ways for these organisations to work together.



# The project process

## **Analysis of publicly available data and early engagement.**

Analysis of the two primary datasets that report performance for partners of the network – ERIC (NHS Trusts data) and HEIDI (University data) – which was completed prior to programme launch to provide the initial performance metrics for discussion.

## **Launch to 11 NHS and HEI partner organisations.**

The programme launched at both board level (Chief Executive/Vice-Chancellor, Director of Finance and Estates Director) and Estates Management level (Heads of Estates and Energy Manager) as buy-in at senior level is crucial to ensure commitment and determine long-term success. The launch workshop focused on reviewing performance and experience to date, and on building commitment for the forthcoming programme.

## **Survey development, launch and data collection.**

A two-part survey was developed to review both the technological opportunity and organisational maturity to developing carbon reduction projects. These surveys were designed based on previous programme experience and outcomes from the launch workshops, and were delivered through survey web-tools and site visits.

## **Data analysis and reporting.**

Analysis of the data identified the key opportunities that partners were encouraged to investigate, with a summary report of the analysis provided to each partner organisation. Each report was presented through workshops to the partners and stakeholders.

# The outcomes

- Support at both executive and operational levels to develop projects and business cases in tandem
- Clear understanding of the project potential in each organisation and across the region and potential for collaboration
- Clear understanding of the state-of-readiness of each organisation
- Packaged projects that fit within a single business case and procured/funded together that fast track implementation and deliver resource efficiency
- Provision of funding, procurement and guaranteed savings contract where applicable through the Carbon and Energy Fund (project partner)
- Ongoing knowledge transfer and capability building through quarterly workshops



# Benchmarking and Carbon Energy Fund Projects

All sectors of the UK economy need to significantly reduce their carbon footprint, and the NHS and Universities, which both occupy large, often out-dated, premises have the potential to make a big impact. The NHS Trusts and universities in the AHSN region of Buckinghamshire, Berkshire and Oxfordshire alone spend around £60m on energy every year. The AHSN set up a Sustainability benchmarking project to show these organisations where the biggest carbon reductions, and money savings, could be made.

The Oxford AHSN secured initial expert input from sustainability consultancy Zexu, who produced baseline reports for each organisation who decided to participate in the network, detailing areas where carbon and budgetary savings could be made. These reports identified annual savings of almost £8.7m, which would require an initial investment of £32m in more sustainable, energy-efficient technology and practices – such as new combined heat and power (CHP) and renewable energy generating sources, along with reducing long-term consumption through the installation of LED lights.



On the basis of these reports, the AHSN enlisted the help of the Carbon Energy Fund (CEF), who offered to work for free with NHS providers and universities in the Oxford AHSN region, to help them build the business cases and contracts required to support the necessary investment and deliver the identified savings.

Work is now underway on four large energy projects across the region, which have been identified as offering the greatest potential, with combined annual savings of over £5m.

- Buckinghamshire Healthcare with connection to Bucks New University, High Wycombe
- Oxford Health and Oxford Brookes University heat network connection to Oxford University Hospitals
- Heatherwood & Wexham Park and Frimley Park Hospitals
- Great Western Hospital, Swindon

In addition to the large structural energy projects that were undertaken as part of the benchmarking process, smaller projects were also implemented.



# Total annual savings by project type

Lighting

**£1,335,851**



Voltage  
optimisation

**£226,203**

Awareness raising  
campaign

**£641,982**



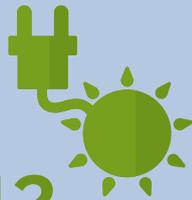
Heating systems

**£713,205**



Renewable  
energy

**£1,484,242**

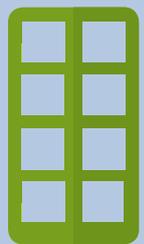


HVAC

**£618,722**

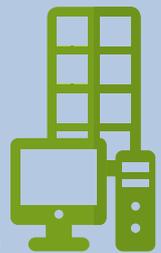
Building  
fabric  
improvements

**£272,737**



Building  
Management  
System

**£1,539,571**



Combined heat  
and power

**£1,750,290**

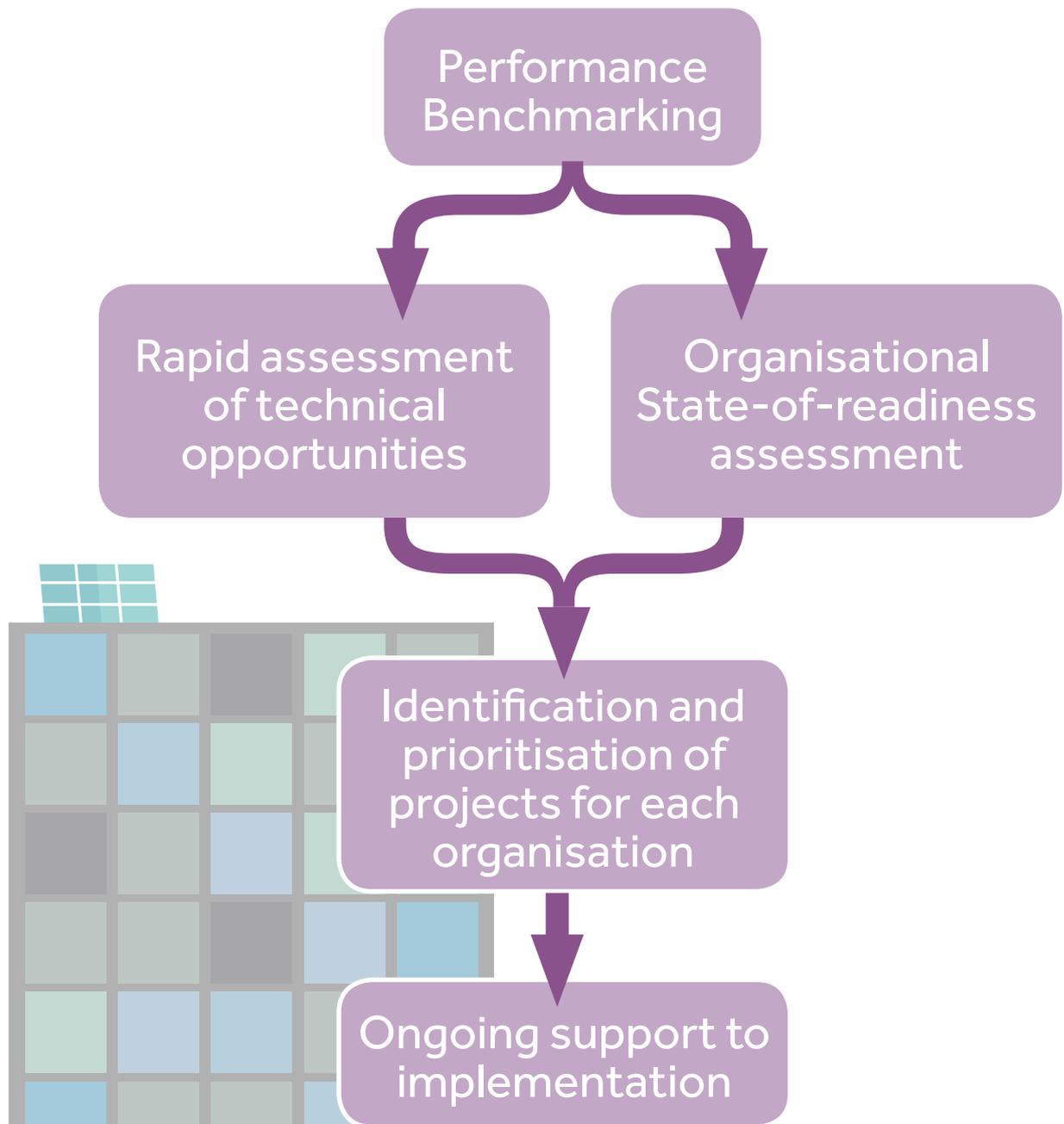


ICT



**£190,434**

# The Process



# Culture Change/TLC project

Reducing energy consumption through behavioural change has been identified as one of the most cost effective ways of reducing NHS Trusts' carbon emissions, according to the NHS Sustainable Development Unit.

In order to identify the levels of savings available to each of the Trusts in the region through energy efficiency behaviours, the Oxford AHSN and 4 of the 9 local NHS Trusts commissioned Global Action Plan to conduct a scoping review in each of the participating Trusts, involving both day and night behavioural reviews.

The 4 Trusts reviewed were found to be able to save over £284,000 per annum, which amounts to 2% of their current energy bill. The average payback ranges from 0.5 to 0.8 years, depending on the level of implementation

and the delivery model for Operation TLC.

Operation TLC, created by the Global Action Plan, is about helping staff better manage their buildings in order to help cut energy use and costs, while creating a healing environment for patients. Measures included switching off lights during the day in areas well-lit by natural light, "shutting down" outpatient areas at night when they are not being used, the introduction of "quiet time" on certain wards where the lights are dimmed and patients are encouraged to rest. This energy management approach has been shown to be effective as the main motivator for the hospital staff is providing better patient care, not cutting energy costs. Operation TLC has been shown to provide the following benefits –

- Improved patient experience has been reported, including one third of patients reporting better sleep, rest, 25% fewer privacy intrusions and improved patient comfort;
- Increased staff pride in their hospital, satisfaction with their working conditions and boosted team spirit and collaboration;
- Reduced energy consumption and lower carbon emissions.

Frimley Health NHS Foundation Trust were the first in the region to implement TLC on the wards, focussing on 2 key areas – improving night time light switching off and reducing equipment left on overnight. The results were excellent –

- Lights on wards were switched off 2 hours earlier at night
- Staff reported that patients were happier in the mornings
- Over £17,000 of audited energy savings were achieved
- 71,000kg CO<sub>2</sub> were avoided, which is enough to fill Big Ben 8 times over



# Sustainable Transport

The health and care system accounts for a significant proportion of road traffic in England, with 5% being attributed to NHS related travel, and is responsible for 13% of the NHS' carbon footprint.

The Sustainability Network invited other award winning Trusts to come and share their best practice on topics such as

- Business travel and ways to reduce this, such as better teleconferencing facilities, or making it more sustainable – like electric vehicles for use between hospital sites or longer journeys, including barriers to their adoption and gathering enough data for a good business case.
- Staff travel to work, and making it easier and cheaper for staff to commute via public transport such as subsidised train and bus passes, and encouraging staff to cycle to work by providing the required facilities to enable this such as bike racks and showers.
- Collaboration with local government and organisations to make staff commuting easier, being around the table to participate in discussions that will affect the ability of staff to commute.
- Incentivising staff through Green Champions and best practice.

# Solar Opportunities

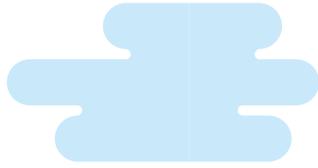
The network brought together the most up to date knowledge to help our partners understand the myths and opportunities that solar power can provide. A workshop was run looking at the latest changes in Government "feed-in-tariffs" and how this has impacted the Cabinet Office solar programme, as well as case studies and barriers to adoption. The Solar Power workshop looked at the practicalities of these changes, and how they would impact on any business case that a Trust might put together.

# Sustainable Food

The network members expressed interest in engaging in the work that the Soil Association is currently doing to improve good food provision in hospitals and universities. Healthier food for NHS staff, patients and visitors is soon to be introduced as a Commissioning incentive (CQUIN) for hospitals, which will make sustainable food a priority for hospitals in the future.

The Soil Association's Food for Life programme encourages framing food as a leadership issue in organisations, and supports good governance around food through interdisciplinary working. It has been suggested that the network members participate in a collaborative project to form a Sustainable Hospital Food Cluster, and assist hospitals in gathering evidence towards compliance with the future food provision CQUIN.





"Not all networks are effective, but as a way of sharing best practice in energy management...the Oxford AHSN has been outstanding in bringing together people and information"

**Michael Esvelt**, Operations Director,  
Oxford Brookes University

"Thanks to our involvement with the Oxford AHSN we have the opportunity to learn from the experience of other organisations, and benefit from external expertise tailored to our specific needs. We have already started to move forward with a major project to address energy use and sustainability within our hospitals"

**David Hounslea**, Director of Estates and Facilities Management,  
Great Western Hospitals NHS Foundation Trust

"The Oxford ASHN has provided the expert knowledge and support our Trust required to kick start its sustainability programme. It has also helped us to develop strategic long term partnerships with other organisations outside the health and care sector, including academia and social enterprises / charities / non-profit organisations that has resulted in a 14% reduction of our carbon footprint in 2015 from our 2013 baseline and continues to help the Trust to improve not only our environmental but also our social and health care activities."

**Louise Sawyer**, Environmental Sustainability Manager,  
Southern Health NHS Foundation Trust





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