

Measuring Sustainable Development



Purpose

This is the ninth in a series of technical briefings produced by the Association of Public Health Observatories, designed to support public health practitioners and analysts and to promote the use of public health intelligence in decision making.

This briefing looks at sustainable development and carbon reduction measurement: the metrics and tools already available, future developments and the wider political and ethical context. The NHS context provides examples, but most of the principles apply to public sector and other institutions generally.

Further material to support the series is available at <http://www.apho.org.uk>

More information about sustainable development in the NHS, including tools to support improved commissioning, procurement, leadership and engagement of staff in sustainable services, is available at <http://www.sdu.nhs.uk>

Contents

Introduction	2
What can be measured?	3
Who are the measures for?	6
What tools are available?	6
Setting goals	8
What about the bits we can't measure directly?	8
Summary	10
Resources	10
References	11
Glossary and abbreviations	12

Authors

Imogen Tennison
Paul Fryers

Contributors

Anne Cunningham (NHS Blackburn with Darwen)
Mark Dancox
Robert Davies
Julian Flowers
Sonia Roschnik (NHS Sustainable Development Unit)
Eric Thomas (Welsh Health Estates)
Hannah Walford
Sharon Walton

Introduction

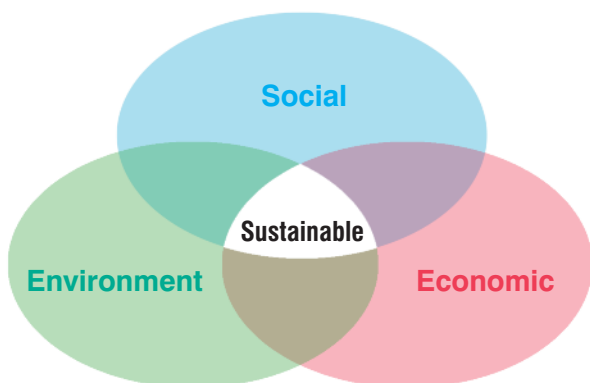
Understanding the scale and impact of action is not possible without measurement, and this holds true for sustainable development. This briefing provides a framework for identifying the measures that already exist and the opportunities to include more aspects of sustainability. By adopting standard measures for sustainable development, duplication can be reduced and the scale of potential change can be quantified. Metrics can also support organisations by indicating areas for action and quantifying the cost of inaction.

Sustainable development and health

Sustainability is defined in this document as: *“Meeting our needs today without compromising the ability of others to meet their needs tomorrow”*

Figure 1 illustrates the concept of sustainable development as the product of interaction between social, economic and environmental activities. Acting in the interests of all three dimensions makes progress sustainable. For example, actions that are purely economically driven may have worse social and environmental outcomes. The model assumes that there are optimal choices, which can have positive outcomes in all three aspects.

Figure 1: Sustainable development



Adapted from Barbier E. The concept of sustainable economic development. Environmental Conservation 1987;14(2):101-110.

Sustainable development has clear benefits for health and wellbeing, for both the individual and society.¹ Individuals can benefit, for example, through better air quality and more active travel. The population benefits through more efficient use of resources, reduction of inequalities,² and reduction in climate change which puts many lives at risk, now and for generations that follow. However, many aspects are very difficult to quantify, for example the improvement in health and wellbeing achieved by creating cohesive communities and opportunities for enjoyment of green spaces.

Sustainable development and carbon emissions

Carbon emissions are one aspect of sustainability where measurement is more established. The government has set stretching targets for carbon reduction in the UK. If the NHS is to meet the Climate Change Act³ target of 34% reduction by 2020 this will require measurement and monitoring of

progress. As measures of sustainability other than carbon emissions become more widely available these can be integrated into reporting and monitoring.

Strategic context

In the UK, delivery of the Government's sustainable development strategy, 'Securing the Future',⁴ has been tasked to the public sector including all parts of central, devolved,^{5,6,7} regional and local government as well as the NHS and others. High level contributions to the strategy's delivery have been identified by each Government department.

There are 68 national sustainable development indicators⁸ to support the 'Securing the Future' strategy. These indicators fall within four priority areas:

- Sustainable consumption and production
- Climate change and energy
- Natural resource protection and enhancing the environment
- Creating sustainable communities and a fairer world

Given the link between sustainable development and health, and the size of its contribution to the UK economy, the NHS can help drive change by becoming a leading low carbon and sustainable organisation. The NHS Carbon Reduction Strategy⁹ for England (CRS) sets out plans for the NHS to make progress by improving sustainability in healthcare and by reducing carbon emissions in line with legally binding targets set out in the Climate Change Act. A strategic approach to carbon reduction and wider action on sustainable development is also taking place in Scotland, Wales, Northern Ireland and the Republic of Ireland.

Box 1: Urgency of action

Climate change is already impacting upon health; however actions towards reducing emissions today could help shape changes in future decades.¹⁰ The NHS has an urgent role to play both in resilience by adapting to the effects of climate change and by mitigating or minimising the impact through changes to services and human behaviour.

How do we develop measures?

Metrics and indicators are key to measuring progress and enabling action. Although, there is much that we are currently unable to measure, new methods are evolving all the time, and there are many aspects of carbon reduction that organisations can measure now. Figure 2 shows the process by which new indicators are developed.

Local innovation plays a crucial role in identifying opportunities and methods for organisations to contribute both to improved sustainability and ways to measure this improvement. As measurement develops, criteria for

success emerge. With many organisations trying different approaches comes the opportunity to identify best practice and share the learning with other organisations.

Figure 2: Evolving new indicators and metrics into standards and performance indicators



The final step in the process is to support all organisations to contribute to a better future for all by establishing standards for sustainability and monitoring. Organisations can demonstrate achievements by meeting and exceeding minimum standards, for example through reductions in carbon emissions in line with Government targets.

What can be measured?

The Carbon Reduction Strategy (CRS),⁹ published by the NHS Sustainable Development Unit, identifies Sustainable Development as follows:

“The goal of sustainable development is to meet the needs of today without compromising the ability of future generations to meet their needs. Stabilising and then reducing our carbon emissions is key to ‘living within environmental limits’, just as addressing climate change is central to a ‘healthy, just and fair society’. Sustainable development is the framework within which carbon emissions will be reduced.”

Ten areas for action are identified in the Carbon Reduction Strategy. These areas correspond closely to process measures listed in the Good Corporate Citizenship assessment model.¹¹ In addition, for building energy use, waste and water there are already outcome measures to monitor the impact of action. Table 1 lists the areas identified in the Carbon Reduction Strategy with the type of measure currently available to measure progress.

Table 1: Availability of process and outcome measures for the ten categories for action

	Measures available	
	Process	Outcome
Energy and carbon management	✓	✓
Procurement and food	✓	
Low carbon travel, transport and access	✓	Some
Water	✓	✓
Waste	✓	✓
Designing the built environment	✓	
Organisational and workforce development	✓	
Role of partnership and networks	✓	
Governance	✓	
Finance	✓	

Measuring carbon emissions is often referred to as a carbon footprint. The term can be used to refer to carbon dioxide emissions alone, although it often includes other greenhouse gas emissions. When other greenhouse gases are included there is a standard calculation of how much carbon dioxide would give the same global warming potential, called the carbon dioxide equivalent. Defra environmental reporting guidance¹² forms a framework for organisations to report their carbon emissions in a standard way. One of the principles is to report greenhouse gases wherever possible.

Six gases – carbon dioxide (CO₂), sulphur hexafluoride (SF₆), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs) – were identified by the Kyoto protocol as the main greenhouse gases resulting from human activity. These greenhouse gases are converted into carbon dioxide equivalent (CO₂e) for reporting the environmental impact of an organisation. The Greenhouse Gas Protocol¹⁴ defined three Scopes, shown in figures 3 and 4. These Scopes

Figure 3: Forum for the Future – Scopes and greenhouse gases¹³

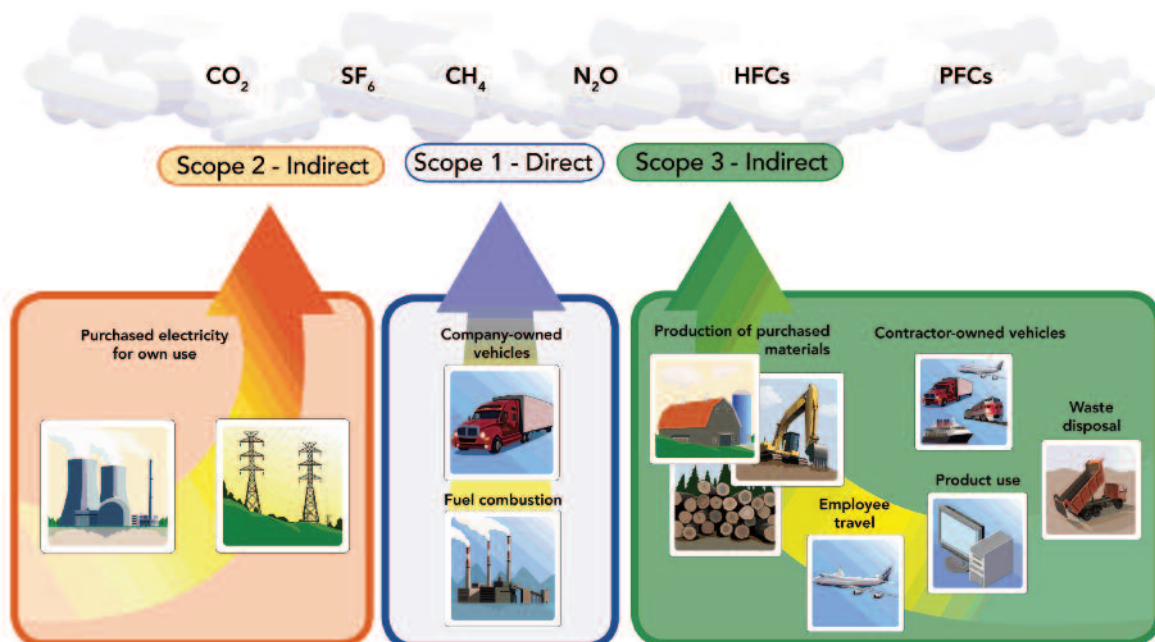
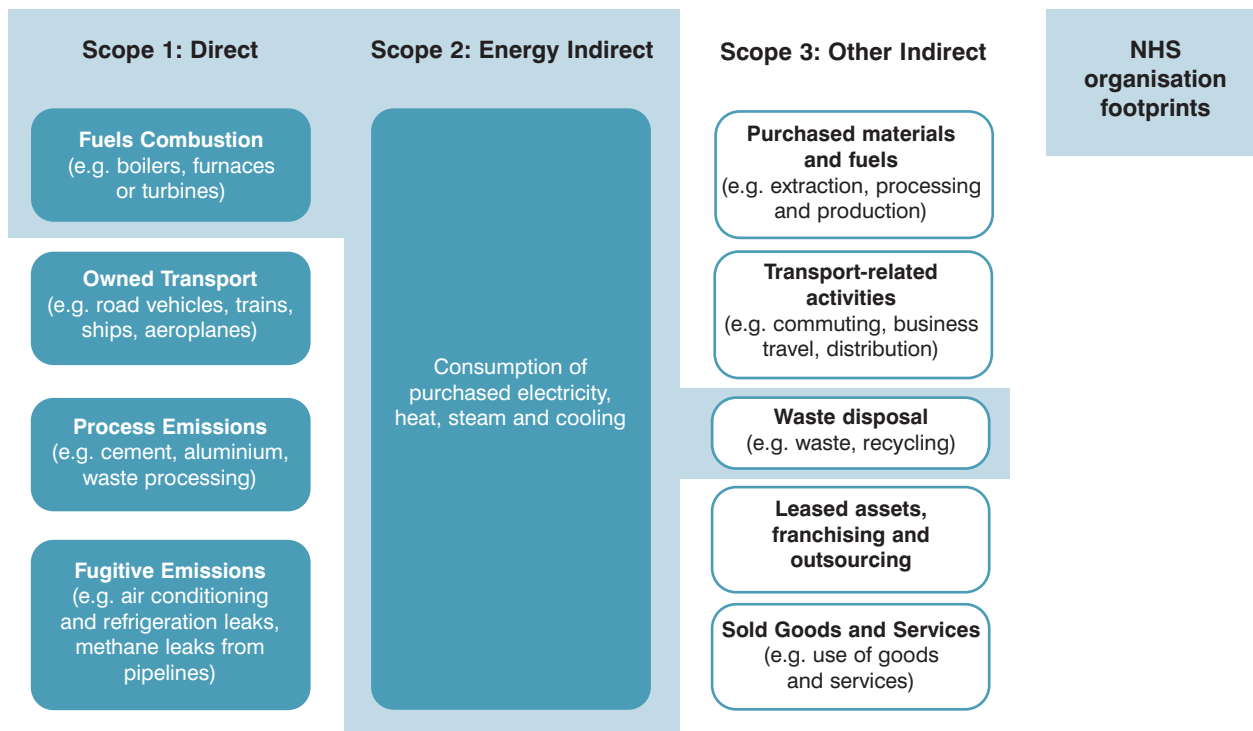


Figure 4: Defra Scopes with NHS organisation footprint marked



form a useful framework for identifying how directly carbon emissions can be influenced. Defra has also provided some guidance on the activities which contribute to each of the Scopes. Figure 4 shows the areas NHS organisations can currently include in their footprint, shaded in pale blue.

Local authorities have similar ranges of activities, e.g. schools, social services, council buildings and public transport, but also have wider influence through their oversight of local planning processes.

An organisation's carbon footprint can either measure the direct impacts only, or it can include indirect impacts as well. The Carbon Trust recommends that it should include both.¹⁵ However, indirect impacts are usually more difficult to quantify, so process measures (e.g. demonstrating a reduction in travel, which implies a reduction in footprint) may be more useful. Data for building energy use, waste and water are already available¹⁶ nationally, including the majority of data for Scopes 1 and 2 and some information from Scope 3 (see figure 4).

Developing measurement

Measurement and quantification of the carbon footprint is improving as research reveals the carbon impact of different activities. Decisions on carbon reduction options and incentives are influenced by the conversion factors and categories of the carbon footprint included in reporting. For example, monitoring and measuring the building energy use carbon footprint will focus action on buildings and may not encourage action on the other 76%¹⁷ of the footprint for the NHS.

The figures reported for the carbon impact of activities could therefore be updated both as activities change and also with improvements in measurement. Three options are identified here to report carbon emissions, and illustrated in figure 5.

1. Use current conversion factors into the future – pale blue line on figure 5

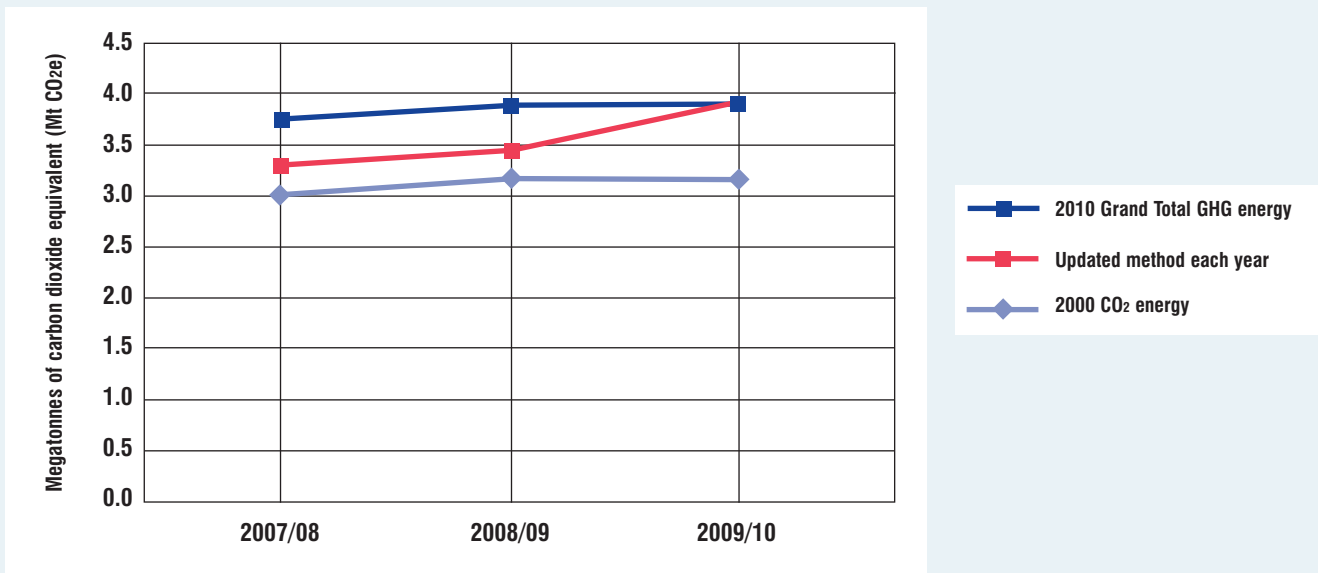
Using previously agreed conversion factors means that figures are known and static for previous years and do not need to be recalculated. Having a consistent methodology between years also makes comparison with previous years straightforward.

However we are currently limited in which actions are encouraged with this monitoring. Monitoring the impact of action in a balanced way across the breadth of sustainable development will require improved indicators.

2. Update conversion factors each year – red line

Correcting and updating the conversion factors each year will help to monitor action in a more balanced way. Existing figures could be used for previous years however the differences from previous years will reflect the change in definition as well as action. Using an inconsistent methodology therefore removes the ability to compare years.

Figure 5: NHS England building energy use, waste and water – carbon emissions comparison 2007/08 to 2009/10



3. Update conversion factors retrospectively for whole period – dark blue line

Recalculating previous years in addition to current year will reflect the impact more accurately. This provides a consistent methodology between years. More information needs to be retained in order to recalculate previous years, but much of this information is being kept anyway for financial monitoring.

Defra clearly advocates option 3 – recalculating emissions for previous years.¹²

“For consistent tracking of performance over time, you may need to recalculate your base year so that you can compare your current emissions with your historic emissions.”

Reporting categories

The draft Greenhouse Gas Protocol guidance suggests 15 categories for Scope 3 emissions reporting.¹⁸ Table 2 shows how these categories could be applied to the NHS: if organisations adopt this structure it will ensure comparability and allow reporting to develop as new measures become available.

Table 2: Carbon footprinting categories for reporting measurement in the NHS

Scope	Suggested emissions categories
Scope 1	Owned buildings – gas
	Owned buildings – coal and oil
Scope 2	Electricity
Scope 3	Leased Assets (upstream) – gas, coal, oil and electricity
	Leased Assets (downstream) – gas, coal, oil and electricity
	Capital goods
	Business travel – air
	Business travel – road
	Business travel – rail
	Patient and visitor travel
	Employee commute
	Healthcare purchased from other providers
	Pharmaceuticals
	Medical instruments
	Waste and water
	Discretionary – additional specific categories
	Other

Who are the measures for?

Sustainable development, in the NHS and other major institutions, is influenced by many stakeholders (patients and public, providers, commissioners and policy makers). Decisions by each of these stakeholders can support sustainability, if indicators are available to inform and measure the impact of their actions. The Good Indicators Guide¹⁹ identifies three key roles of measurement:

1. for **understanding**: to know how a system works and how it might be improved (research role)
2. for **performance**: monitoring if and how a system is performing to an agreed standard (performance/managerial/improvement role)
3. for **accountability**: allowing us to hold ourselves up to patients, the government and taxpayers and be openly scrutinised as individuals, teams and organisations (accountability/democratic role).

Indicators can be selected to support each of these three roles. For example the procurement carbon footprint for NHS England provides a good indication of which categories of procurement represent the largest parts of the footprint. The scale of the procurement carbon footprint is calculated using average carbon emissions per pound spent in each economic sector, e.g. £1 spent in 2004 on pharmaceuticals had on average a carbon footprint of 0.81 kg carbon dioxide equivalent (CO₂e).²⁰

Within each economic sector there are large variations in the carbon intensity of different products. Overall these variations even out, and measurement can be assumed to be reasonably accurate at national level. However, calculating the emissions resulting from procurement at local level is difficult to do consistently: comparisons between organisations, and over time, are less reliable.

Estimating carbon emissions over time from expenditure is also problematic: price rises do not imply increased carbon emissions. Other indicators, for example measuring the quantities of specific items purchased, provide a more accurate change in the footprint over time.

Decisions which impact on the NHS's carbon footprint are made by all the stakeholders in the NHS. Table 3 gives possible types of measurement and shows for which stakeholders the different types can currently be measured.

Organisation level footprints can identify which categories have greatest influence and greatest opportunities for reductions. The ability to monitor progress through repeated measurement is important in keeping carbon reduction prioritised, confirming organisations' actions and adding to the evidence base.

Commissioners have a role in measuring the impact of the services they commission. Large carbon reductions could be achieved by moving towards low carbon patient pathways, through partnership working. By comparing the carbon footprint of providers, commissioners can select services to provide high quality low carbon health for the local population.

SHAs have supported the sharing of regional good practice by identifying organisations which are reducing their carbon footprint and providing services in a way that increases the health and wellbeing of the population.

What tools are available?

Estates and Facilities Management (EFM)

NHS trusts' and PCTs' estates departments throughout England and Wales can use the secure EFM system to collect and analyse data efficiently (see Glossary). Data within the EFM system comprises of 'returns' information (including Estates information, Fires, Cleanliness etc) provided by trusts. The data goes back to 1999/2000. The analysis includes a calculation of carbon emissions for the trust buildings.

The EFM system includes the central data collection – Estates Return Information Collection (ERIC). This information is used by health bodies to strategically plan estates services and by the Department of Health and devolved administrations to support policy development and strategic investment planning.²¹ This return is also the

Table 3: Types of measurement and who they can currently be applied to

	Decision makers				
	Patients and Public	Providers	Commissioners	Local Policy Makers	National Policy Makers
Measure progress through time		✓	✓		
Categories for action (see table 2)		✓	✓	✓	✓
Comparison with others	✓		✓	✓	✓

main source of information for many of the carbon footprint calculations.

Carbon Trust footprinting tool

The Carbon Trust has developed a tool²² to enable organisations to calculate their carbon footprint based on fuel usage, vehicle usage, employee travel and utility bills. Organisations who participate in the Carbon Trust carbon management program use this tool to baseline and monitor their emissions.

Good Corporate Citizenship assessment model (GCC)

Developed by the Sustainable Development Commission in 2006 with funding from the Department of Health, and later revised in 2009 in cooperation with the NHS Sustainable Development Unit, this model helps the NHS, other organisations and individuals to identify how they can contribute to sustainable development.¹¹

The model includes:

- Information on some key areas for action on sustainable development
- A self assessment test to help you understand and monitor your progress with sustainable development
- Guidance on how to develop Good Corporate Citizenship in your organisation
- Case studies with inspirational ideas on new things you can do
- Resources to give you further information and other useful tools
- A forum to allow you to network with your peers

The model aims to help in tackling health inequalities and shift the focus from treatment to prevention. The model will help organisations to contribute to the UK climate reduction targets (80% reduction in carbon emissions by 2050, compared with 1990 levels) and in many cases will also reduce costs.

EMS (Environmental Management System) and other systems

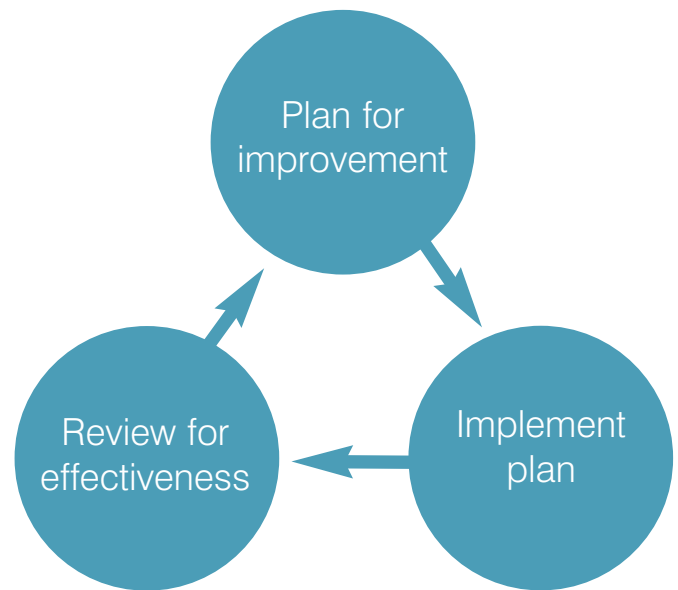
The EMS model uses concepts from the Shewhart and Deming cycle of continual improvement e.g. a Plan-Do-Check-Act cycle.

The cycle enables continuous improvement so processes can be adapted with changing circumstances. Within the context of sustainable development this system recognises the continuously changing environment and allows new plans to be implemented in the next cycle.

EMS systems help to integrate environmental issues and improvement plans into higher management decision making, with regular reporting to healthcare management

boards as an integral part of the process. EMS systems are also regularly audited by external assessors to ensure compliance.

Figure 6: Planning cycle



Strategic Health Asset Planning and Evaluation (SHAPE)

SHAPE has been developed by the North East Public Health Observatory and the Department of Health. It is designed to support commissioners in the strategic planning of services and physical assets across the whole health economy.²³ SHAPE uses hospital activity data and estates information, creating scenarios to help plan services for the future.

SHAPE aims to:

- Provide strategic and local analysis of current clinical activity
- Bring together whole health economies, physical estate and capacity
- Incorporate geographical information system (GIS) functions
- Inform potential for operational savings within a health economy
- Highlight the potential for services to transfer from acute to primary care settings
- Provide strategic analysis to support investment needs and disinvestment opportunities
- Support scenario planning

Including the carbon impact of services as one of the indicators will provide an opportunity to include sustainable development in these strategic decisions.

Setting goals

The Carbon Trust and the NHS Sustainable Development Unit provide the following guidance on target setting:

“In setting targets for carbon reduction, it is important both that NHS Trusts consider all emissions sources and that Trusts first target the largest reductions which are also easiest to measure and influence. The 10% NHS SDU target covers all emissions sources – buildings, transport, waste and procurement. To reduce emissions in line with this target action is needed in all areas of the footprint. To demonstrate progress, this action should be supported with stretching targets for the footprint we can measure i.e. from buildings and own transport. Previous experience from the Carbon Trust suggests that an absolute emissions reduction, for these areas, of between 20 and 25% over a 5 year period is readily achievable. Targets in this range are in line with the Climate Change Act targets and sufficient to set Trusts on a course to meet vital long term carbon reduction targets.”²⁴

Having a board-approved Sustainable Development Management Plan (SDMP)²⁵ provides a governance structure for action. Box 2 shows how the content of a SDMP could be assessed for progress, scope and quality.

Box 2: Sustainable Development Management Plan – progress, scope and quality

Progress	Scope	Quality
<p>Is the SDMP agreed by partners and processes in place?</p> <ol style="list-style-type: none"> 1. Review has not taken place; no baseline or targets; implementation not started. 2. Areas reviewed; baseline identified and targets agreed with some partners; implementation of SDMP started. 3. Targets agreed with all partners and SDMP implemented 4. Progress against agreed targets reported to board annually against SDMP 	<p>Are all core areas covered?</p> <ol style="list-style-type: none"> 1. The SDMP includes targets for improvements for four or fewer of the areas listed 2. The SDMP includes targets for improvements for five or six of the areas listed 3. The SDMP includes targets for improvements for all the areas listed 	<p>Does the SDMP deliver?</p> <ol style="list-style-type: none"> 1. Below agreed targets in most areas – inadequate performance. 2. Only above agreed targets in some areas – adequate performance. 3. Consistently above agreed targets – performing well. 4. Well above agreed targets – performing strongly.
<p>Partners include:</p> <ol style="list-style-type: none"> 1. Board(s) of provider organisations 2. Board(s) of commissioning organisations 3. SHA(s) 4. Local Authorities 5. Other strategic partners 	<p>SDMP core areas:</p> <ol style="list-style-type: none"> 1. Assessment and progress through Good Corporate Citizenship model¹¹ 2. Building energy use carbon footprint 3. Site/building carbon footprint provided on DEC's and DEC advisory reports (see glossary) 4. Performance against BREEAM (see glossary) 5. Travel plan performance with reduction targets for all travel to NHS sites 6. Waste reduction (domestic and clinical/hazardous) and recycling targets 7. Reduce water use through routine measuring, monitoring and reporting water use 	

The SDMP can also provide evidence to support regulatory requirements, for example the annual report. Further details on the metrics trusts can use now are available on the Sustainable Development Unit website.^{24,25}

circumstances and need. Consistent, standardised measurement would allow the assessment of progress and identify areas for action. Research is continuing into methods for a balanced scorecard of sustainable development indicators including existing measures of carbon reduction.

What about the bits we can't measure directly?

Broader sustainable development indicators

Sustainable development includes a broad range of activities and progress is dependent on local

Given current research it is clear that there are health benefits of increased sustainability, and acting on this takes us in the right direction. In the future, research may improve efficient allocation of resources by quantifying the benefits of alternative actions.

Measuring procurement

The footprinting work for NHS England is groundbreaking in terms of including procurement emissions. Including the procurement footprint represents the total impact of NHS activities more accurately. There are several methods for calculating procurement emissions depending on the application and no single method is currently available to satisfy all requirements.

Carbon footprinting models can be evaluated for their fitness for purpose on four fronts:

1. NHS organisation decision making requirements
2. Robust calculation of whole carbon impact
3. Administrative burden from information gathering and calculation
4. Fair measurement of organisations so they can be benchmarked

Box 3: Procurement carbon footprinting fitness assessment framework

1. For an NHS organisation to make robust decisions the footprinting methodology would perform well when evaluated against the following requirements:

- Understand scale of carbon emissions
- Target areas for reduction of procurement footprint
- Measure reductions in carbon emissions over time
- Support decision making between low-carbon and high-carbon products

3. Additional analysis is currently required to consider the carbon impact. The impact of this additional information can be evaluated as follows:

- Information available now for NHS organisations
- Increase in carbon literacy of suppliers

2. Carbon footprinting models would include the whole carbon impact:

- Carbon impact at each level of the supply chain back to raw materials
- Production, use and disposal of products
- All greenhouse gases, in addition to carbon dioxide

4. Benchmarking allows organisations to compare performance with their peers, and should be seen in the context of their activity levels and the health benefits they provide:

- Appropriate for all health-related organisations
- Able to establish national standards
- Organisations can compare results with peers

A full review of all footprinting models is outside the scope of this document. A quick review of the existing methodologies indicates that there are significant trade-offs, with no footprinting method offering a reasonable fit in all areas. For example, Life Cycle Analysis and monitoring quantities of individual items provides good monitoring over time although it might not be comparable across organisations and would also not provide a mechanism to monitor the whole carbon footprint. Including the procurement in the carbon footprint at a national level identifies the scale and potential key areas for reducing carbon emissions.

Quantifying procurement, for example using the SCO₂PE tool,²⁶ allows comparison of its impact with those of travel and buildings. The SCO₂PE tool can also compare the risks and opportunities of action in different categories of expenditure for an individual organisation. However, as discussed on page 6, monitoring changes over time using expenditure is problematic as it does not take account of price rises.

NHS Procuring for Carbon Reduction (P4CR) publications²⁷ include actions on reducing carbon emissions – for example: reduce demand; efficiency in use; substitution and innovation; and supply chain management. Working in partnership with suppliers to minimise carbon impact and promote sustainability could have the greatest impact on carbon reduction. Engaging suppliers in carbon reduction

will also increase carbon literacy and increase the information available for calculating a carbon footprint for procurement. It should also be noted that while reducing emissions is vital, responsible procurement should also take account of other environmental issues, such as deforestation, soil erosion, etc. Research is continuing to include more elements of sustainability into balanced, standardised sets of measures.

Advice on integrating sustainable development into public procurement decisions is available from Defra²⁸ and the European Commission.²⁹ Defra provides government buying standards,³⁰ including advice for incorporating sustainable development into procurement and specific guidance for individual products. The European Commission Green Public Procurement Toolkit³¹ also includes training materials for implementation.

Sustainable development indicators for commissioned services

Commissioners have an important role to play in ensuring that services they commission contribute as little as possible to carbon emissions. The NHS Sustainable Development Unit has published guidance for commissioners,³² and work is in progress to develop indicators and quantify the scale of carbon reduction that can be achieved through their action.

Summary

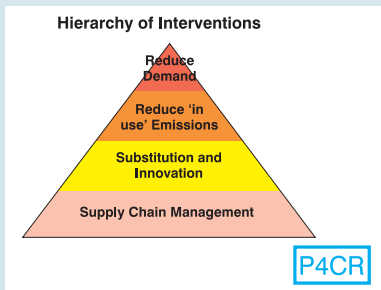
Measures to support sustainable development are available and ready to use. Including these metrics in a Sustainable Development Management Plan and getting this approved at board level can be used to demonstrate progress on sustainable development. Many organisations have already taken these first steps.

The most progressive organisations have taken sustainability much further, for example by embedding sustainability requirements into their organisational governance mechanisms. Identifying leading organisations and sharing learning and best practice supports progress on this agenda. Regional networks can enable this process to embed sustainability in all organisations. Given the health benefits to be gained from sustainable development, including mitigating climate change, the NHS has a role in continuing to be a leading organisation in understanding and reducing the impact of the services it commissions and provides.

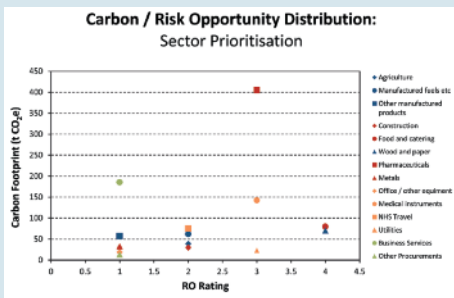
Resources

Procuring for Carbon Reduction (P4CR) – measuring and monitoring resources

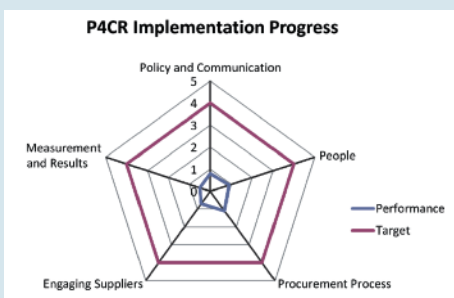
Implementation pack



Calculating your carbon footprint from procurement – SCO₂PE Tool V2



Monitoring action on sustainable procurement – P4CR Self Assessment Tool



<http://www.sdu.nhs.uk/publications-resources/23/Procuring-for-Carbon-Reduction-P4CR--NEW/>

Carbon Trust footprinting tools



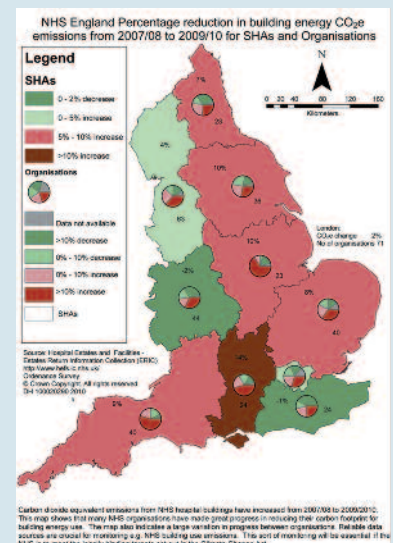
<http://www.carbontrust.co.uk/cut-carbon-reduce-costs/calculate/pages/default.aspx>



Estates and facilities guidance from The Department of Health (England), Department of Health, Social Services and Public Safety (Northern Ireland), Health Facilities Scotland and Welsh Health Estates

<http://www.spaceforhealth.nhs.uk/>

Estates Return Information Collection (ERIC) data and analysis



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Glossary and abbreviations

BREEAM: Building Research Establishment Environmental Assessment Method for buildings (<http://www.breeam.org>)

Carbon dioxide equivalent emissions (CO₂e): This refers to six greenhouse gases: Carbon dioxide (CO₂); Hydrofluorocarbons (HFCs); Methane (CH₄); Nitrous oxide (N₂O); Perfluorocarbons (PFCs); Sulphur hexafluoride (SF₆). Details of the industrial processes which result in emissions of these gases are provided on the Defra website.²⁰ Using CO₂e allows different greenhouse gases to be compared on a like for like basis relative to one unit of CO₂.

Carbon footprint: A footprint measures the impact of activities related to a specific organisation, product or service. The carbon footprint is normally the carbon dioxide equivalent emissions from these activities.

DEC: Display Energy Certificate. Since October 2008 public buildings in the UK over 1,000m² must display a DEC prominently at all times, showing the energy use of the building. It is accompanied by an advisory report which details how energy use can be reduced.

EFM: Estates and Facilities Management system, used by NHS estates and facilities managers for secure collection and analysis of data. The system is available with a login at: <http://www.efm.ic.nhs.uk/>

GHG: Greenhouse gas emissions.

Scopes: Term used in the GHG Protocol¹⁴ to define emissions according to how directly organisations can influence them.

SHAPE: Strategic Health Asset Planning and Evaluation tool to support commissioners in the strategic planning of services and physical assets across the whole health economy.

Sustainable development (SD): The goal of sustainable development is to meet the needs of today, without compromising the ability of future generations to meet their needs.

Sustainable Development Management Plan (SDMP): The Carbon Reduction Strategy identified a board approved Sustainable Development Management Plan as a way to monitor and reduce carbon emissions.

For further information contact:
Association of Public Health Observatories
Innovation Centre, York Science Park,
Heslington, York YO10 5DG

Telephone: 01904 567658
<http://www.apho.org.uk>

About the Association of Public Health Observatories (APHO)

The Association of Public Health Observatories (APHO) represents and co-ordinates a network of 12 public health observatories (PHOs) working across the five nations of England, Scotland, Wales, Northern Ireland and the Republic of Ireland.

APHO facilitates joint working across the PHOs to produce information, data and intelligence on people's health and health care for practitioners, policy makers and the public.

APHO is the largest concentration of public health intelligence expertise in the UK and Republic of Ireland, with over 150 public health intelligence professionals.

APHO helps commissioners to ensure that they get the information they need and our websites provide a regular stream of products and tools, training and technical support. We work with partners to improve the quality and accessibility of the data and intelligence available to decision makers.

We are constantly developing and learning new and better ways of analysing health intelligence data. We use these new methods to improve the quality of our own work, and share them with others.

Updates and more material, including methods and tools to support our technical briefing series are available through our website at <http://www.apho.org.uk>

About the NHS Sustainable Development Unit (SDU)

The NHS SDU works in close collaboration with NHS organisations, the Department of Health (DH), the Department of Energy and Climate Change (DECC), the Department for Environment, Food and Rural Affairs (Defra), and environmental groups to support policy direction, recommend research and convene leaders to address opportunities and barriers in the system.

The SDU consults widely within the NHS and with its partners and has published a carbon reduction strategy and route map for sustainable health. More information about Sustainable Development in the NHS, including tools to support improved commissioning, procurement, leadership and engaging staff in sustainable services, available at <http://www.sdu.nhs.uk>