

Our Improvement Objective – 2015/16

Carbon Management: Reduce our carbon footprint

1. What difference do we plan to make?

Our objective is to take steps to reduce the Authorities carbon footprint and inform and assist others within the Borough to do the same.

The overall objective is to reduce the Authorities carbon footprint of 26,035 tonnes by 45%, by 2019.

2. Why we have chosen this?

Our climate is undergoing dramatic changes as the direct result of greenhouse gas (GHG) emissions from human activity. Carbon dioxide (CO₂) is the most significant and prevalent GHG is emitted mostly from the burning of fossil fuels like coal, oil and natural gas.

The UK Government has committed to take action and has introduced the Climate Change Act with a target to cut carbon emissions by at least 80% by 2050, with a minimum reduction of 26% by 2020 across the UK.

CCBC is a large organisation and as such has a large carbon footprint. We have an obligation to take steps to minimise our carbon footprint and the associated negative impact on the environment.

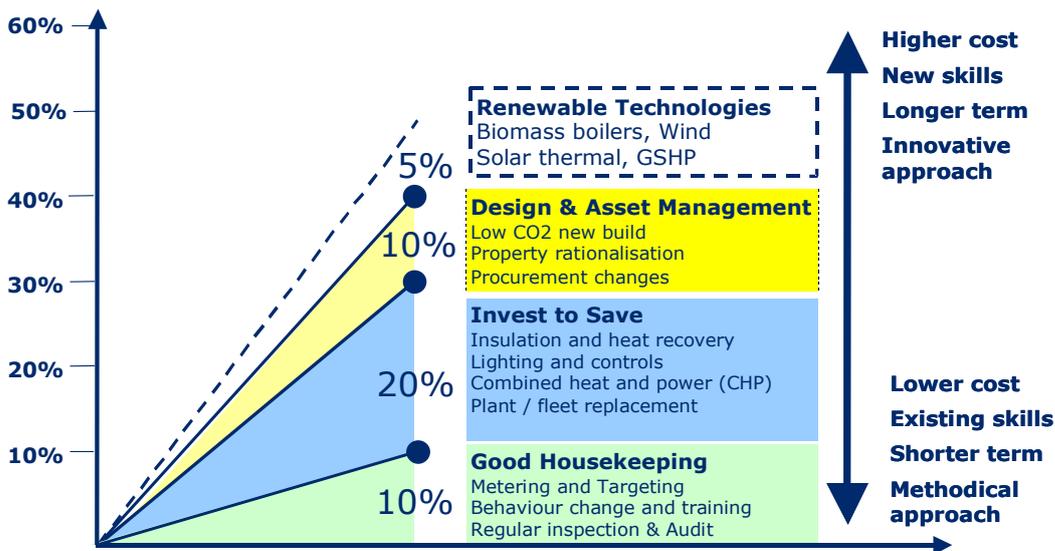
3. Where are we now?

The authority's energy management team, over the last decade, has instigated and registered impressive carbon and energy savings. This has resulted in annual carbon emissions being, 2,621 tonnes lower than where they would otherwise have been. These savings are registered through 220+ invest to save projects. Additional savings have been registered outside of this scheme, all of which result in a much more carbon efficient authority.

Legislative requirements are contributing to effect change, and incur fine/prosecution for non-compliance. Legislative demands assist in raising the profile for carbon improvements.

Our 10-year Carbon Reduction Strategy is due to end in 2019. Where other authorities have outsourced services such as leisure and housing, ours remain in house. This is an important consideration given that the age of buildings stock (fabric and building services) has a direct relationship with energy consumption.

The carbon reduction strategy has four key themes for achieving carbon improvement: Good Housekeeping; Invest to Save; Asset management and Renewable technology.



Good Housekeeping:

Involves behaviour change, ensuring staff are aware that their actions contribute to carbon emissions and encouraging them to turn off lights, computers, or other equipment. These are simple changes that can be made immediately. This relies on raising awareness of issues through; education, training, energy audits or display energy certificates. It is supported by having good benchmarks and data for all buildings. In our schools we will use the Eco Schools programme to continue to raise awareness of the importance of reducing energy use with pupils and staff.

Invest To Save

The application of new technology can reduce carbon emissions. More often than not there is a strong business case for the investment. Caerphilly aims to change street light lamps from 90 watt Sons to a more energy efficient format called Light Emitting Diodes (LED's), which run at 19 watts, this will result in significant carbon reductions. Other standard technologies installed include Building Energy Management Systems, Insulation, Lighting upgrades and controls on equipment. Caerphilly CBC has a proven track record with this approach and compare favourably against other public sector organisations across the UK.

Design and Asset management

Choosing the correct buildings to retain or dispose of can have a significant bearing on carbon emissions and constructing energy efficient buildings, which generate less carbon than the buildings being replaced, also makes a significant contribution. If for example Pontllanfraith House was to be disposed off, the annual carbon savings would be in the region of 409 tonnes, but this would only be a carbon savings if the new/replacement building housing the displaced staff was more energy efficient than the former.

Under occupation of buildings results in increased carbon, this is highlighted where schools heat the whole school for one rooms worth of community evening class.

Renewable technology

There is no authority budget for renewable technology. The correct approach is to implement good housekeeping, invest to save and asset management before looking to incorporate renewable technology. The authority has however, installed some renewables already, are installing photovoltaics on Islwyn Indoor Bowls (early 2015) and will have to install some renewable technology for new build projects as part of the BREEAM standards on Islwyn West Comprehensive.

4. What actions are we going to take to improve?

- Good Housekeeping
 - i. Carbon Reduction Commitment Training
 - ii. General Awareness Raising through various media formats
 - iii. Training key staff e.g caretakers on building energy management systems.
 - iv. Re issue benchmark information to building managers
 - v. Re Issue Energy Audits
 - vi. Workshops, events and training with staff and pupils in schools

Note: – Several actions are unquantifiable in that we cannot always record the carbon emissions that result from taking the actions.

- Invest-to-save on Salix* funded projects e.g: **Salix Finance is an external organisation, which administers the finance on behalf of central government.*
 - i. Various lighting upgrades for primary schools.
 - ii. Various building energy management systems.
 - iii. There is opportunity to replace existing street lighting lamps (90 watts) with high efficiency LED's (19 watts) units.
 - iv. Other technologies being considered include, insulation, voltage correction and controls.
 - v. To promote understanding and benefits of water conservation through consumption management and control across schools, leisure, and other non-domestic buildings.
- Asset Management
 - i Pontllanfraith Offices are being considered for disposal, which has the potential for saving 409 tonnes of carbon per year.
 - ii There are likely to be numerous properties considered for sale or disposal including the old cash office Risca and the old Caerphilly library which may bring some carbon savings
 - iii Training staff to make better use of our buildings e.g advising schools to locate after school activities in smaller buildings rather than use the

main teaching blocks which need more heating and lighting, however carbon savings would be unquantifiable.

- Renewable Technology
 - i. The forthcoming Islwyn West Comprehensive School in Oakdale is likely to require a PV system in the region of 72kwp, which would provide carbon savings in the region of 34 tonnes per year. This will require preparation consideration in 15/16.
 - ii. Further promote internally the benefits and understanding of renewable technology at the carbon group and possibly other forums such as the school budget forum.

5. How will we know we have improved?

Good Housekeeping.

- We will outline who has received carbon reduction commitment training and make the presentation material available
- We will log the number of awareness activities that promote awareness
- We will log specific data distribution events such as issuing energy audits /display energy certificates or other benchmark information
- We will log the number of workshops, events and training with schools
- We will record the number of accreditations to Eco Schools Green Flag and Platinum Awards

Invest To Save.

- We will report all carbon (tonnes) and energy (kWh) savings which result from new technologies being installed through the invest to save scheme.

Asset Management

- We will log where we have provided guidance on the efficient use of buildings particularly those resulting in Co2 savings

Renewable Technology

- We will identify and report on any renewable energy technologies that are installed such as Islwyn West Comprehensive photovoltaic scheme.
- Report annually the merits and benefits the authority has received from existing schemes and outline any potential new schemes or opportunities available to CCBC

6. Who are we going to work with to deliver this objective?

- We will liaise with members of staff across the authority such as head teachers, caretakers, facility staff and those who have a direct link to how energy is consumed within a building.
- We will use tried and trusted processes, suppliers and installers of energy improvement technologies and services to facilitate invest to save projects, such as:
 - i. Designated electrical installer(s)

- ii. Facilities team who deal with buildings
 - iii. Building Energy Management system installers
 - iv. Use existing framework arrangements to procure solar power systems
 - v. Resource Efficient Wales, who replaced the Carbon Trust in Wales.
- Street Lighting department will establish relevant procurement routes and identify appropriate installers to implement the street lighting improvements.
 - We will work with pupils and staff in schools as part of the Eco Schools programme

7. What resources do we have to deliver this objective?

We have a well-established energy team who specialise in this subject, with many years experience dealing with procurement specialists, energy providers, technology providers, property designers, site managers, site caretakers, facilities managers and contractors.

CCBC has been utilising the Salix invest to save scheme since Sept 2004. Salix provide £200k government funding and CCBC have provided £500k. This funding mechanism is used as a loan system across all non-domestic properties to implement energy efficient technologies. This scheme has saved 2,621 annual tonnes of carbon off its current consumption levels. This has also provided lifetime savings of £4.5 million.

Evidence Table

Carbon Management: Reduce our carbon footprint	2014/15 Result (baseline)	2015/16 Target
We will measure how much we are doing using the evidence below		
The number of CRC training events delivered	2	4 groups depending on head teacher accessibility.
The number of building energy audits completed and handed over to building managers.	14	25
The number of Salix projects delivered	12	No established target as identified projects must be tendered and evaluated for payback rates
The number of renewable energy technologies (claiming Feed In Tariffs or Renewable Heat Incentive) that are installed, and the merits and benefits of existing renewable schemes. Reported to Carbon Group	7 current schemes	As a minimum we will report on the performance of these 7 schemes at carbon group.
The number of Street Lights converted to Light Emitting Diode (LED) format.	New measure	9110
The number of participants attending Eco schools training	91	71
The number of energy awareness sessions delivered to schools	11	15
We will measure how well we are doing using the evidence below		
The number of Display Energy Certificates (DEC's) and advisory reports generated and delivered to building managers	90+	Aim for 100% compliance on DEC's. Total number varies from year to year. Should be 90+ DEC's.
Total lifetime energy savings (kWh) resulting from the street lighting conversions.	New measure	2,500,000 kWh annually (after all light conversions)
% Of our schools which achieve accreditation to Eco Schools Green Flag	71%	73%
The number of our schools which achieve a Platinum award under Eco Schools	15	21
We will measure whether anyone is better off using the evidence below		
The annual carbon (tonnes) saved via the Salix investment projects	2,484 t	No established target as identified projects must be tendered and evaluated for payback rates
The lifetime carbon saved on converting to high efficiency street lighting (tonnes)	New measure	1,235 t annually (12,356 t over 10 years lifetime expectation)