



London Borough of Barking and Dagenham
Carbon Management Plan 2011/12 – 2015/16



Date: 31 March 2012

Version number: FINAL

Owner: Manager - Energy, Environmental and Compliance

Approval route: To be approved by Informal Cabinet on Wednesday 11 July 2012;
To be approved by Cabinet on Tuesday 24 July 2012

Approval status: Approval received from LAW Board on Thursday 17 2012;
Approval received from CMT on Thursday 05 July 2012;

Contents

Foreword from the Chief Executive	1
Foreword from the Carbon Trust	2
Executive Summary	3
1. Introduction	7
1.1 Our low carbon vision and target	7
1.2 Our drivers and priorities for reducing our carbon emissions	7
1.3 The context for our Carbon Management Programme	8
2. Emissions baseline and projections	9
2.1 Scope	9
2.2 Baseline.....	10
2.3 Projections and Value at Stakes	12
3. Carbon Management Projects	15
3.1 Existing projects	16
3.2 Planned / funded projects	18
3.3 Planned projects requiring funding and potential future projects.....	18
3.4 Potential future projects.....	19
3.5 Projected achievement towards target.....	20
4. Carbon Management Plan Financing	21
4.1 Financial costs and sources of funding	21
4.2 Assumptions.....	22
4.3 Benefits / savings – quantified and un-quantified	23
5. Change Management Action Plan	23
5.1 Corporate Strategy – embedding carbon reduction across your organisation	23
5.2 Responsibility – being clear that saving carbon is everyone’s job.....	24
5.3 Monitoring and reporting	25
5.4 Communication and training – ensuring everyone is aware	25
5.5 Engagement of your stakeholders – leading by example	26
5.6 Policy Alignment – saving CO ₂ across your operations	28
6. Programme management of your carbon management programme	29
6.1 The Programme Board – strategic ownership and oversight.....	29
6.2 The Energy Team – Delivery, Advice and Support.....	30
6.3 Risks and issues management	31
6.4 Evaluating the financial and energy saving benefits	31
6.5 Reporting and evaluation.....	31
6.6 Succession planning	33

7. Appendix A: Definition of projects 34

8. Appendix B: Communications Plan 34

Foreword from the Chief Executive

The London Borough of Barking and Dagenham recognises the need to demonstrate leadership in the area of climate change by reducing its own direct and indirect Carbon Dioxide (CO₂) emissions as efficiently and effectively as possible. This Carbon Management Plan builds on the Council's previous Carbon Programme and further demonstrates our unequivocal commitment to undertake a wide range of practical steps to assist in tackling the challenges that climate change presents.

This corporate plan is spearheaded by the Carbon Management Programme Board which is comprised of cross-departmental representation. This approach will ensure that every part of the Council takes responsibility for achieving our vision of reducing carbon emissions and becoming a more sustainable borough.

The Council has already demonstrated its commitment to this agenda by signing the Nottingham Declaration and by setting out targets within our Sustainability Strategy. This Carbon Management plan is further evidence that as an organisation we are serious about our responsibilities and it represents an important building block in the ongoing development of our Climate Change Strategy for the Borough.

Carbon management is important to the Council as it not only helps to combat climate change but reduces the Council's costs allowing it to operate in an efficient way, ensuring that we make best use of every pound of our ratepayers money.

We welcome the support of the Carbon Trust in helping the Council to realise its ambitions around climate change, and we look forward to a future in which the London Borough of Barking and Dagenham is recognised as a champion of green innovation.

(SIGNATURE)

Stella Manzie

Chief Executive of the London Borough of Barking and Dagenham

Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for all public sector organisations. Carbon management is about realising efficiency savings, transparency, accountability and leading by example. The UK government has identified the public sector as key to delivering carbon reduction across the UK in line with its Climate Change Act commitments, and the Carbon Trust is pleased to have partnered with the London Borough of Barking and Dagenham on our 2011/12 Public Sector Carbon Management Programme to help it meet this challenge.

This carbon management plan will help the London Borough of Barking and Dagenham to save money on wasted energy and put it to better use in other areas, while making a positive contribution to the environment by lowering carbon emissions. It commits the Borough to a target of reducing CO₂ by 20% by March 2015 and underpins potential financial savings and cost avoidance to the organisation of around £7.5m by that date.

Public sector organisations can contribute significantly to reducing CO₂ emissions and improving efficiency. The Carbon Trust is therefore very proud to support the London Borough of Barking and Dagenham in their on-going implementation of carbon management.

A handwritten signature in blue ink, appearing to read "T. Pryce", on a light blue rectangular background.

Tim Pryce
Head of Carbon Management
Carbon Trust

Executive Summary

The London Borough of Barking and Dagenham is committed to the objectives of reducing carbon emissions, improving energy efficiency and realising financial saving. This plan will also support the organisation to minimise the financial and reputational risks associated with the Carbon Reduction Commitment Energy Efficiency Scheme (CRC EES) regulations, as well as supporting our Policy House priorities to “Improve Value for Money across all services” and to “Make better use of our resources and assets”, as well as aiding the development of a well run organisation. We recognise that in order to achieve a successful conclusion, clear and deliverable to significantly reduce energy consumption at a local level must be implemented. Some of the key drivers motivating the Council to act are explained further in Section 1, but briefly outlined as:

- a. Carbon Reduction Energy Efficiency Scheme (CRC);
- b. Display Energy Certificates (DECs);
- c. Comprehensive Spending Review (CSR);
- d. The Mayor’s Energy Strategy;
- e. London Borough of Barking and Dagenham Council Plan 2011/12;
- f. London Borough of Barking and Dagenham Sustainable Energy Strategy;
- g. Energy and Fuel Prices;
- h. Greenhouse Gas Emissions Reporting (GHG);
- i. Leading by example

To achieve its aim of reduction in carbon emissions, the Council is working with the Carbon Trust on the Public Sector Carbon Management Plan (PSCM) to set out a strategic path for the Council to reduce its energy consumption in its buildings (Figure 1) and associated operations. Schools have been omitted from this plan as they are covered under the Carbon Trust Collaborative Low Carbon Schools Service (CLCSS) programme, for which a separate plan is being produced. Both programmes are overseen by the Corporate Director of Finance and Resources. Both plans will be reviewed at the Programme Board at the same time to ensure consistency.

The baseline year for this plan is the Financial Year 2010/11 and the Council’s carbon footprint for that period was 17,843 tonnes of CO₂ (excluding housing and schools), costing the Council approximately £4.56 million. The Council has a range of Capital Projects (i.e. building new leisure centres, etc.), which when delivered are likely to increase future emissions; however the Carbon Management Plan will support the control of any increase/s and simultaneously aid the reduction in existing buildings, this will be closely monitored via quarterly reviews.

As you can see in Figure 1 below, the majority of the London Borough of Barking and Dagenham’s carbon emissions comes from offices, leisure and “other” buildings.

Through this Carbon Management Plan (CMP), the Council is now able to see that **the Value at Stake for not taking action on carbon reduction is a cumulative 25,700 tCO₂ and £7.5 million by March 2016.**

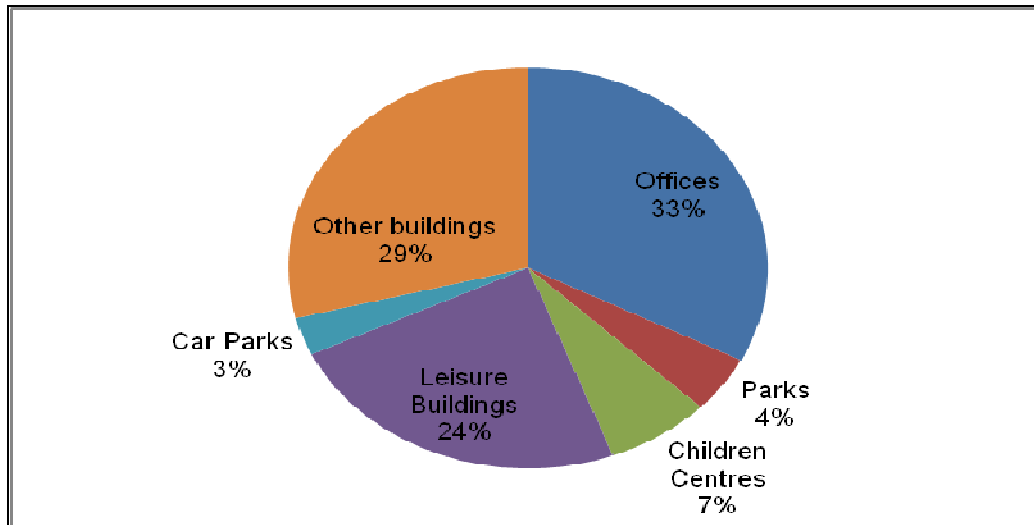


Figure 1: Chart of London Borough of Barking and Dagenham's CO₂ emission from buildings

The London Borough of Barking and Dagenham is committed to the Government's long term target of an 80% reduction in carbon emissions by 2050. Delivering a low carbon borough will take many decades and the Council will need to make carbon management a key priority for the next 40 years. In order to achieve it, the **London Borough of Barking and Dagenham will reduce the carbon emissions from its buildings and operations by 20%, from a 2010/11 baseline of 17,843 tonnes CO₂, by the end of March 2016.**

This Carbon Management Plan will help the Council set an example in leading the way in emission controls.

The Council has a vision to eliminate energy wastage across its buildings through a combination of technical controls and energy awareness behaviour, utilising Green Champions across the different service areas.

The Council will meet this challenge through the Carbon Management Plan which has been assembled with a range of stakeholders to reduce the impact of our resource use. The Council has made available resources and support to develop a clear and robust strategy which will simultaneously ensure that statutory obligations are met as well as deliver more energy efficient services.

This approach has allowed us to target our main sources of carbon dioxide emissions through the most cost effective actions. **The energy efficiency projects outlined in this plan will help the Council achieve 80% of its 20% reduction target, over the next five years** as expressed in Figure 2 below:

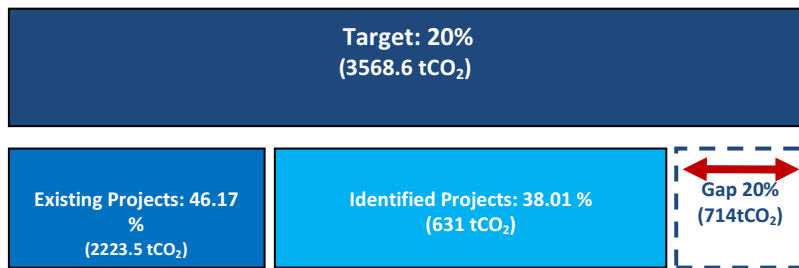


Figure 2: Projects identified against target and the carbon gap.

Concurrently, measures to reduce carbon emissions in other essential areas including street lighting, waste management, a Green Travel Plan for staff and the Council's fleet vehicles have been included as part of this plan.

This plan will enable:

- A controlled increase in energy consumption in Council building stock over the next five years and a 20% reduction to existing sites contained within the baseline;
- Achievement of targeted carbon savings;
- A reduction / control in energy costs for the Council;
- Effective energy data management;
- A shared work programme with energy efficiency activity undertaken by a large number of staff across the Council;
- A regular reporting procedure for energy consumption and carbon emissions;
- An organisational focus on energy efficiency that will enable the Council to continue controlling its carbon emissions into the future;
- High levels of energy awareness amongst our staff

Physical measures within the programme will predominately be implemented within the early years of the plan; simultaneously envisaged changes in working practice that accompany these measures will continue throughout the plan's lifecycle and effectively realise energy savings that the physical measures can enable. In addition, the Carbon Management Plan will mature into a live programme, which will cultivate and adapt as existing projects develop further and new projects are accordingly encompassed.

Not too dissimilar to other local authorities, available financial commitment has been restricted. This has meant that carbon reduction projects have been predominately funded by the existing Salix recycled fund, which though depleting, offers annual financial assistance for energy saving projects. Nevertheless, **the investment needed to carry out the projects outlined in this plan is approximately £2.5 million with an overall payback of 4.6 years. Of that, £1,326,009 has been allocated as part of existing and planned projects; leaving a funding gap of £1,190,000.**

If the Council is able to fund and implement all of the projects in this plan, it stands to see annual savings of approximately 2,854.5 tCO₂ and £546,498.

In summary, the Council has developed this Carbon Management Plan to:

- Lead by example in reducing carbon emissions within the Borough;
- Encourage, through our actions, local businesses and residents to adopt sustainable

measures that will benefit the local economy and the Borough;

- Reduce/control energy consumption and expenditure of energy bills;
- Build upon the Council's Sustainable Energy Strategy and embed energy efficiency within the Council's corporate culture and working practices;
- Allocate roles and responsibilities for implementing a series of energy efficiency projects within the Council;
- Establish an effective monitoring system of consumption and savings achieved;
- Set informed carbon controlling targets to guide progress

The Carbon Management Plan is a working document, which will be enhanced during its five year lifespan. The Energy Manager owns this plan and will be responsible for reviewing the plan quarterly and updating it on an annual basis. This will allow the plan to reflect the ever-changing environmental and economical climate but also allow us to stay ahead of advances in technology to deliver more carbon reduction projects as new initiatives emerge. A reviewed and updated plan will be presented to the Council's Executive Team on an annual basis.

1. Introduction

Climate change is acknowledged as being part of the greatest challenges facing the world in the 21st century, and governments worldwide are reacting by adopting targets and programmes to significantly reduce CO₂ emissions. Globally if left unchecked, climate change will have a profound impact on our way of life, affecting agriculture, food security, causing water shortages and impacting on people's health and economies.

This Carbon Management Plan defines our carbon management programme activity for the next five years and is designed to assist the London Borough of Barking and Dagenham to manage copious carbon reduction projects that will have a long term impact on carbon emissions. It sets the strategic context, the action plan, our current carbon emissions, a costed programme of proposed projects and actions to reduce our emissions and the governance arrangements to keep the programme on track.

Through ever increasing environmental consciousness, the London Borough of Barking and Dagenham is committed to creating sustainable development and reducing carbon dioxide emissions. The Council will deliver this challenge through the Carbon Management Plan, which has been assembled together with a range of stakeholders to reduce the impact of our resource use. The appointment of both support and resources, further underpins the Council's commitment in the development of a clear and robust strategy, which will simultaneously ensure that statutory obligations are met as well as the delivery of more energy efficient services.

1.1 Our low carbon vision and target

The London Borough of Barking and Dagenham is committed to the Government's long term target of an 80% reduction in carbon emissions by 2050. Delivering a low carbon Borough will take many decades and the Council will need to make carbon management a key priority for the next 40 years. In order to achieve this target, the **London Borough of Barking and Dagenham intends to reduce the carbon emissions from its buildings and operations by 20%, from a 2010/11 baseline of 17,843 tonnes CO₂, by the end of March 2016.**

This Carbon Management Plan will help the Council set an example in leading the way in emission controls.

The Council's has a vision to eliminate energy wastage across its buildings through a combination of technical controls and energy awareness behaviour, utilising Green Champions across the different service areas.

1.2 Our drivers and priorities for reducing our carbon emissions

The Council recognises that the action of local authorities will be critical to the achievement of the Government's climate change objectives; which are currently set at a reduction of CO₂ emissions of 80% by 2050.

The Council's main carbon emission reduction drivers are:

a. **Carbon Reduction Commitment Energy Efficiency Scheme (CRC):**

The CRC is a mandatory emissions trading scheme for organisations whose total electricity consumption is greater than 6,000MWh or approximately £500k per annum. The Council is a CRC participant and its yearly performance will be published on the

CRC league table. Carbon allowance payments are a cost to the Council, the financial impact on the Council is currently around £400k per annum.

b. Display Energy Certificates (DECs):

All public sector buildings with a floor area greater than 1,000m² are legally required to display an energy certificate. The Council has a number of buildings where its DEC's are assessed and displayed annually. For the public sector in England and Wales, a key change is that DEC's have been revised to all buildings with floor areas over 500m² must have an energy certificate displayed in a prominent place clearly visible to the public by the end of 2012; the threshold then falls to 250m² by 2015.

c. Comprehensive Spending Review (CSR):

Carbon reduction projects deliver reduced energy costs and contribute to efficiency savings. After the CSR, all Councils have been required to deliver increased cost and efficiency savings in their services per year.

d. The Mayor's Energy Strategy:

The Mayor has a target for London to stabilise its CO₂ emissions in 2025 at 60% below 1990 levels. Councils are an important delivery vehicle for this target.

e. London Borough of Barking and Dagenham Council Plan 2011/12:

The management of carbon emissions will contribute to the objectives contained within the plan, i.e.:

- Make better use of resources and assets;
- Continued efficiency and value for money

f. Council's Climate Change Strategy:

The Council published the Barking and Dagenham Sustainable Energy Strategy in October 2005 which provides the framework and policies to reduce carbon emissions across all sectors in the Borough. This has now been superseded by the Council's Climate Change Strategy and Affordable Warmth Programme

g. Energy and Fuel Prices:

In recent times an annual increase of at least 20% has been recorded for energy prices and this trend is set to continue. Therefore, measures which support the reduction in carbon emissions will help the Council manage the increase in its energy costs.

h. Greenhouse Gas Emissions Reporting (GHG)

The GHG report replaces the National Indicator- NI185, where the Council provides an annual report on CO₂ emissions across its estate, fleet and service provision. A baseline for the 2010/11 financial year has been established and the Council aspires to reduce this on an annual basis.

i. Leading by example:

The Council is keen to display a responsible approach on energy and environmental issues.

1.3 The context for our Carbon Management Programme

Over recent years the London Borough of Barking and Dagenham has undertaken a number of activities and projects that aim to reduce carbon emissions within the Borough.

The draft Council's Climate Change Strategy coupled with its Affordable Warmth Programme sets the key challenge of leading by example in reducing carbon emissions from its own activities and this led the Council to participate in the Carbon Trust's Carbon Management Programme.

In addition, the Council undertook an energy management assessment with multiple energy audits in 2005 - 2010 which has contributed to this Carbon Management programme.

Other carbon reduction activities and projects include:

- Established Carbon Management / CRC Energy Efficiency Scheme Team;
- Management of CRC Energy Efficiency Scheme compliance and financial limitation;
- SALIX recycled fund (Facilitating energy efficiency projects);
- Planning requirements for 20% renewable energy and the consideration of energy efficiency and CHP for all new developments;
- Adopted the Local Development Framework outlining a 20% carbon reduction requirement for all new developments;
- An installation programme of AMRs (Automatic meter readers);
- Key sustainability and energy requirements for all the Council's capital projects;
- Further development of the Green Champions programme;
- The clearing of backdated data to give realistic baselines in the energy management data;
- Installation of energy efficient light fittings in Council housing and Corporate building stock;
- Co-ordination of insulation programmes for private sector housing;
- Investigations into the 'FIT' (Feed in tariff) feasibilities, including the initial tender of a solar PV installation scheme;
- Sourcing, appraising, applying and securing external funds / grants i.e. the Green Fund, to support ongoing energy saving projects

To develop this plan, the London Borough of Barking and Dagenham initiated a process of regular stakeholder engagement which has resulted in the development a robust Carbon Management Plan by:

- Recognising where it utilises energy;
- Calculating its carbon emissions;
- Validating and updating of energy management data;
- Identifying opportunities for reducing consumption; and
- Developing these opportunities into a programme of energy and, where appropriate, financial efficiency projects, which will be implemented during the lifetime of this plan.

2. Emissions baseline and projections

2.1 Scope

The scope for the Council's carbon baseline includes the energy consumption of the Council's corporate building stock, street lighting and fleet vehicles (including business travel). Schools have been excluded from this plan as they will have their own Carbon Management plan under the CLCSS programme.

At present we do not have complete data on housing, waste and water to enable robust reporting; therefore these are outside of the scope of this plan. However, we are in the process of gathering baseline data on these sources and they will be included in future plans.

The Carbon Baseline and the Carbon Management Plan does not cover waste arising in the Borough or the Council's social housing. The Council is already seeking to reduce waste arising and associated carbon emissions through increasing the Borough's recycling rate.

2.2 Baseline

The Council's carbon footprint for 2010/11 is **17,843** tonnes of carbon dioxide emissions with the breakdown of emissions outlined in table 1 below. The baseline data is taken from the financial year ending March 2011 and corresponds with data used for compliance with the Carbon Reduction Commitment Energy Efficiency Scheme (CRCEES) and the Greenhouse Gas Emissions (GHG) reporting.

Category		tCO ₂ 2010	%
Stationary sources	Offices	3,818	21%
	Parks	538	3%
	Children Centres	823	5%
	Leisure Buildings	2,774	16%
	Car Parks	357	2%
	Other buildings	3,400	19%
	Street Lights	2,867	16%
Transport	Fleet	2,946	17%
	Business	320	2%
	Outsourced	0	0%
	Commute	0	0%
Further sources	Refrigerant gas	0	0%
	Waste	0	0%
	Water	0	0%
	Other	0	0%
		17,843	100%

Table 1: Summary table of baseline CO₂ emission sources (Source: Carbon Trust Baseline Tool)

Baseline Summary:- All Emissions

Data for baseline
year

	CO ₂ (tonnes)	%	Cost (£)
Stationary sources	14,577	82%	£2,783,647
Transport	3,266	18%	£1,783,297
Further sources	-	0%	£0
	17,843	100%	£4,566,944

Table 2: Summary table of baseline CO₂ emission sources (Source: Carbon Trust Baseline Tool)

Council buildings, including schools are responsible for the majority of the Council's energy consumption and carbon dioxide emissions. The Council's building stock consists of circa 300 properties covering a wide variety of building types ranging from offices, civic buildings, community centres, schools and leisure centres.

The data used to populate the Council's baseline in the Carbon Trust Baseline Tool was taken from our NI185 submission for the financial year ending March 2011. The breakdown of data is as follows:

Stationary Sources Transport

- 5 Leisure Centres
- 27 Children's Centre
- 3 Car Parks
- 14 Supplies for Street Lighting
- 39 Corporate Buildings, including Libraries and Community Halls

Transport

- Air – long haul international average
- Air – short haul international average
- Average car (unknown fuel)
- Diesel (litres)

Source	CO ₂ emission (kg)	Cost £
Air – long haul international average	1,441	-
Air – short haul international average	1,343	-
Average car	317,574	184,636
Diesel (litres)	2,945,946	1,598,661
	3,266,303	1,783,297

Table 3: Summary table of Transport CO₂ emission sources (Source: Carbon Trust Baseline Tool)

Figure 2 below gives a full breakdown of the Council's CO₂ emissions, including its schools. For the purpose of the plan, however, Figure 3 gives a breakdown of the sources of the Council's CO₂ emissions excluding schools. The chart in Figure 3 illustrates that the main energy consumption that falls under the jurisdiction of this plan occurs in corporate offices, street lighting and leisure centres, and that these should constitute the main focus of energy efficiency measures.

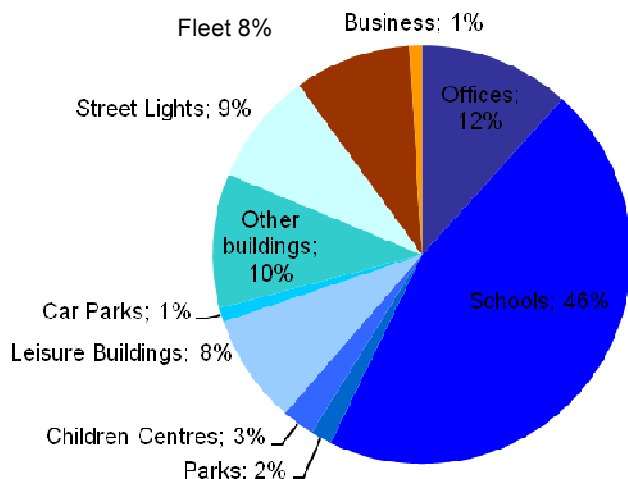
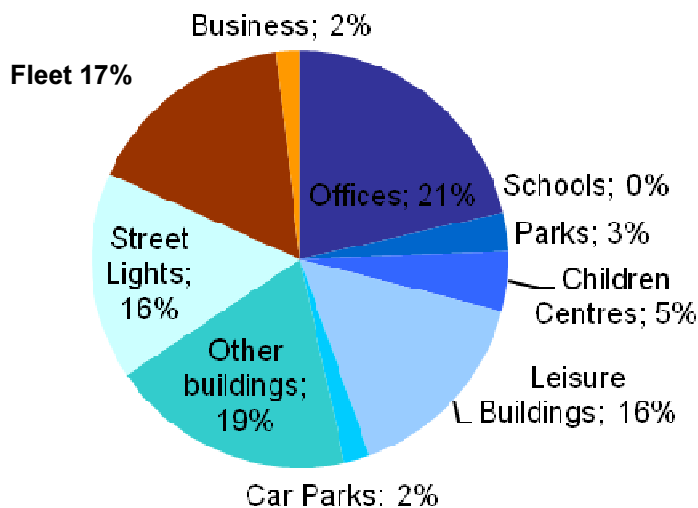


Figure 2: Chart of London Borough of Barking and Dagenham 2010/11 CO₂ emission sources, including schools.

*** Please note that although schools contribute 45% of the CO₂ emissions, the measures to reduce emissions from these sources is covered under the CLCSS programme. ***

Figure 3: Chart of London Borough of Barking and Dagenham 2010/11 CO₂ emission sources, excluding schools.

*** Please note that, for the purposes of this plan, the 20% reduction target and all associated projects will be based on this understanding of LBBD's baseline. ***



2.3 Projections and Value at Stakes

2.3.1 The value at stake of not hitting our target could cost the London Borough of Barking and Dagenham a cumulative £7.5m by 2015/16

The charts below show the comparison between the predicted increases in energy costs to the Council if it continues "Business as Usual" and does not take steps to reduce its carbon emissions. This is known as the Value at Stake (VAS) and it is the difference between the 'business as usual' scenario and meeting the 20% reduction target; also known as the reduced emissions scenario.

Using the 2010/11 emissions data as the baseline, projections for the next five years on utility cost and energy consumptions for the two different scenarios have been calculated. The scenarios are:

- 'Business as usual' (BAU) assumes that:
 - No action is taken by the Council to reduce energy and carbon emissions
 - Energy consumption rises by 3%** per year
 - Energy and fuel cost rises by 5.8%*** per year
 - Carbon emission conversion factors remain the same

- The effects of the known changes in the Council's assets have been added
2. 'Reduced emissions reduction' (RES) scenario assumes that:
- Reduction in carbon emissions of 20% in the next five years
 - Energy consumption rises by 3%** per year
 - Energy and fuel cost rises by 5.8%*** per year
 - Carbon emission conversion factors remain the same
 - The effects of the known changes in the Council's assets have been added

** The energy consumption assumption is derived by modelling the effects of some of the known changes to the Council's assets.

*** This energy and fuel cost figure is derived from Department of Energy and Climate Change Energy Cost Projections given the Carbon Trust Baseline Tool.

2.3.2 Effects of the known changes in the Council's assets

There are planned changes in the Council's Property Asset Management Plan have been included in the "Business as Usual" and not in the "meeting the Target" scenario. These planned changes include:

- Closing six buildings within the next 12 months (four offices, one library and one leisure centre)
- Extending opening hours of our registrar's office

Final year annual cost breakdown	BAU	RES
Energy and Fuel Cost	£7,281,928	£4,662,942
CRC Cost	£225,481	£139,940

Table 2: Summary table of Values at Stake

Table 2 above together with figures 4 and 5 below, further illustrates the potential risk of not achieving the target set out in this plan. The Council is at risk of up to £3million in increased energy cost, and over £100k increased CRC cost by 2015 if the carbon emissions continue to rise at a modest rate of 3% and energy costs rise by up to 5.8% and the price of carbon remain fixed at £12 per tonne.

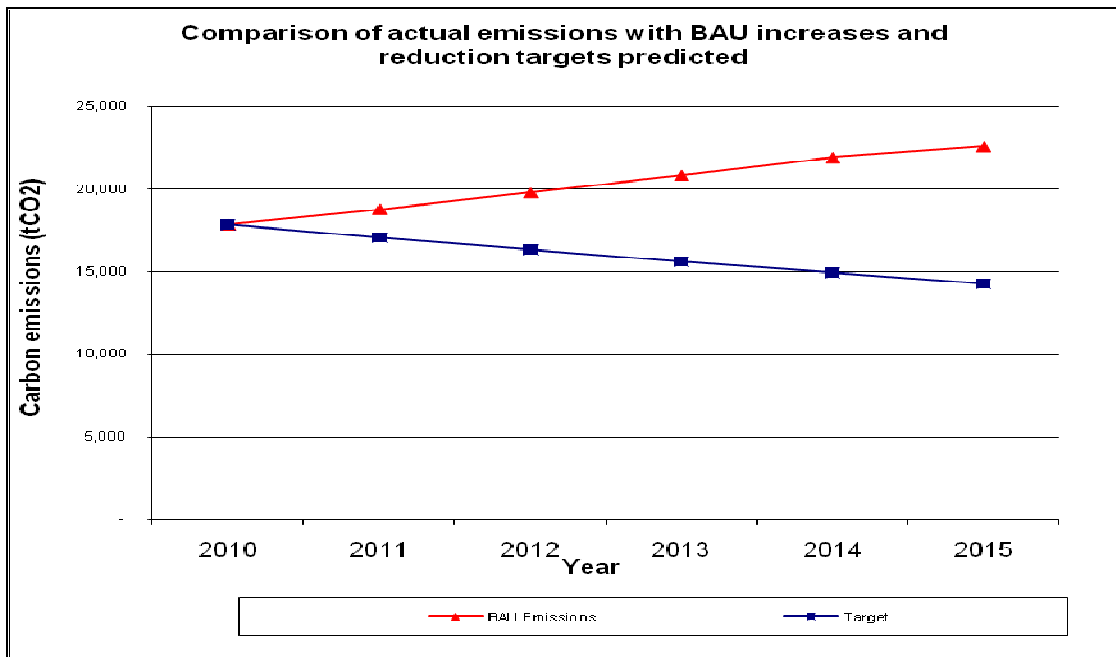


Figure 4: Carbon Value at Stake

Summary carbon value at stake

Final year annual tCO2 savings	8,302
Cumulative tCO2 savings	25,700

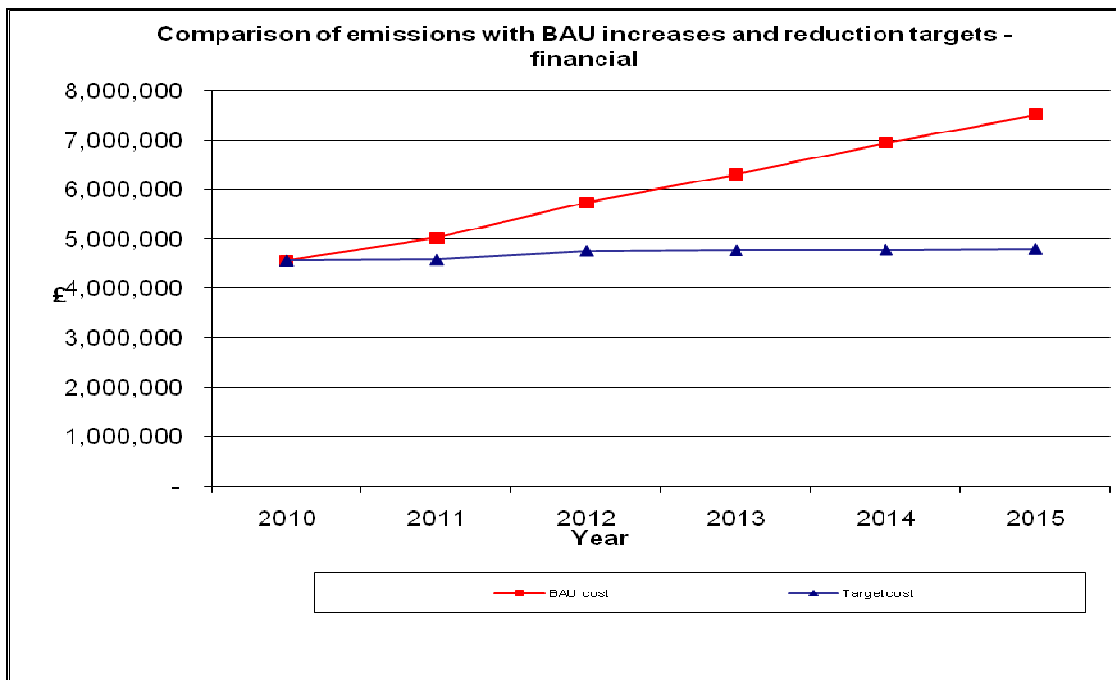


Figure 5: Financial Value at Stake

Summary financial value at stake

Final year annual cost savings (£)	£2,618,986
Cumulative cost savings (£)	£7,563,546

3. Carbon Management Projects

This section lists the projects and opportunities that will enable the Council to reduce the carbon emissions from our operations. The projects have been identified from a number of sources namely:

- The Carbon Trust Rapid Assessment Project (RAP) Tool
- Departmental staff identifying technical areas and potential saving methods
- Historic Energy Survey reports
- Measures identified by members of the Council Carbon Management Group (with representations from Street lighting, Waste, Travel)

We have identified 25 opportunities for carbon reduction at a cost of £2,516,009

A number of these projects have been implemented whilst others will be implemented over the next few years. All of the projects have been entered into the Carbon Trust Carbon Management Project Register (CMPR).

The identified projects could achieve 80% of our 20% target.

	Baseline Category	tCO ₂	%	Total Identified	% of Target	Progress vs Target
Stationary	Offices	3,818	21%	964	27.0%	126.2%
	Schools	-	0%	0	0.0%	
	Parks	538	3%	0	0.0%	0.0%
	Children Centres	823	5%	0	0.0%	0.0%
	Leisure Buildings	2,774	16%	0	0.0%	0.0%
	Car Parks	357	2%	71	2.0%	98.9%
	Other buildings	3,400	19%	0	0.0%	0.0%
	Street Lights	2,867	16%	1,119	31.4%	195.1%
Transport	Fleet	2,946	17%	0	0.0%	0.0%
	Business	320	2%	0	0.0%	0.0%
	Outsourced	-	0%	0	0.0%	
	Commute	-	0%	0	0.0%	
Further Sources	Refrigerant gas	-	0%	0	0.0%	
	Waste	-	0%	0	0.0%	
	Water	-	0%	0	0.0%	
	Other	-	0%	0	0.0%	
	All Buildings	11,710	66%	2,854	80.0%	121.9%
All Transport	3,266	18%	0	0.0%	0.0%	
All Further Scope	2,867	16%	0	0.0%	0.0%	
Totals	17,843	100%	2,854	80.0%		

Baseline total tCO ₂	17,843
Target	3,569

3.1 Existing projects

These consist of projects which are currently underway together with projects that have been completed since the baseline year.

Ref	Project	Lead	Cost		Annual Savings (yr 1)		Pay back (yrs)	Net Present Cost (£)	% of Target	Implementation year
			Capital	Operational	Financial (Gross)	tCO2				
2	T5 Lighting Upgrade	Principal Electrical & Mechanical Surveyor	£20,520		£4,818	28.2	4.3	(£19,553)	0.8%	2010
3	Replacement High Efficiency Modulating Burners	Principal Electrical & Mechanical Surveyor	£29,239		£9,035	38.0	3.2	(£58,068)	1.1%	2010
4	The Mall Car Park - Lighting	Principal Electrical & Mechanical Surveyor	£7,760		£12,043	70.6	0.6	(£190,731)	2.0%	2011
5	Town Hall & Civic LED lights	Principal Electrical & Mechanical Surveyor	£3,074		£2,285	13.4	1.3	(£34,589)	0.4%	2012
6	High Efficiency Modulating Burner with Integral Co	Principal Electrical & Mechanical Surveyor	£13,008		£4,517	19.0	2.9	(£30,646)	0.5%	2012
7	Draught-proofing at Ripple Offices	Principal Electrical & Mechanical Surveyor	£8,755		£2,684	11.3	3.3	(£11,664)	0.3%	2012
8	Draught Proofing Windows at Civic Centre	Principal Electrical & Mechanical Surveyor	£25,276		£7,964	33.5	3.2	(£35,312)	0.9%	2012
9	Installation of High Efficiency Modulating Burners at Civic Centre	Principal Electrical & Mechanical Surveyor	£21,801		£7,502	31.6	2.9	(£50,693)	0.9%	2012

London Borough of Barking and Dagenham Carbon Management Plan
working with Carbon Trust

11	Server virtualisation	ICT Officer			£18,879	110.7	no financial savings	Missing data	3.1%	2011
12	Server virtualisation	ICT Officer			£18,879	110.7	no financial savings	Missing data	3.1%	2012
14	Street Light Replacing	Operations Team Leader-Street Lighting	£1,022,673		£190,858	1,118.9	5.4	(£943,689)	31.4%	2010
15	Installation of MFDs	ICT Officer	£74,107		£13,950	81.8	does not payback	£11,122	2.3%	2010
16	Barking Learning Centre (Heating Boiler repair works)	Mechanical Engineer	£5,600		£2,293	9.7	2.4	(£4,751)	0.3%	2011
17	Civic Centre (Boiler No.2 Replacement)	Mechanical Engineer	£21,161		£4,266	18.0	5.0	(£27,973)	0.5%	2010
18	Roycraft House (Boiler No.2 Replacement)	Mechanical Engineer	£24,000		£2,047	8.6	11.7	£429	0.2%	2010
19	Civic Centre - Office Lighting Replacement	Principal Electrical & Mechanical Surveyor	£20,282		£6,211	36.4	3.3	(£31,369)	1.0%	2012
20	Roycraft House Stairwell & W.C. Re-lighting	Principal Electrical & Mechanical Surveyor	£6,520		£1,218	7.1	5.4	(£3,609)	0.2%	2012
21	Frizlands Depot - Mess Room - Boiler Optimisation	Principal Electrical & Mechanical Surveyor	£3,190		£1,340	5.6	2.4	(£3,952)	0.2%	2012
22	Town Hall, Barking - Boiler Firing Optimisation	Principal Electrical & Mechanical Surveyor	£4,785		£7,048	29.7	0.7	(£32,768)	0.8%	2012
23	Civic Centre - Installation of Boiler Optimisation	Principal Electrical & Mechanical Surveyor	£4,785		£5,637	23.7	0.8	(£25,252)	0.7%	2012
24	Roycraft House - Installation of Boiler Management	Principal Electrical & Mechanical Surveyor	£3,190		£3,102	13.1	1.0	(£13,341)	0.4%	2012
25	Communication and awareness campaign	Energy Officer	£0	£0	£14,506	79.7	0.0	(£65,495)	2.2%	2012

	Total	£1,319,726	£0	£341,082	1899.3	3.87	(1,571,905)	53.2	
--	--------------	-------------------	-----------	-----------------	---------------	-------------	--------------------	-------------	--

3.2 Planned / funded projects

These consist of projects that have been approved and for which funding is either approved or allocated.

Ref	Project	Lead	Cost		Annual Savings (yr 1)		Pay back (yrs)	Net Present Cost (£)	% of Target	Implementation Year
			Capital	Operational	Financial (Gross)	tCO2				
1	M&T	Energy , Environmental & Compliance Manager	£1,000	£1,000	£125,721	619.7	0.0	(£562,120)	17.4%	2011
10	Draught Proofing to Windows at Frizlands Depot	Principal Electrical & Mechanical Surveyor	£5,283		£2,695	11.3	2.0	(£25,754)	0.3%	2012
	Total		£6,283	£1,000	£128,416	631	0.05	(£587,874)	17.7	

3.3 Planned projects requiring funding

These consist of identified projects for which funding has not been identified/allocated.

Reference	Project	Lead	Cost		Annual Savings (yr 1)		Pay back (yrs)	Net Present Cost (£)	% of Target	Implementation Year
			Capital (£)	Revenue (£)	Financial (Gross) (£)	tCO2				
26	Civic Biomass CHP	Energy, Environ. and Comp. Manager	1,190,000	506,723	77,000	324.2	15.5	4,143,897	9.1	2013
	Totals		1,190,000	506,723	77,000	324	16	4,143,897	9	

The following projects, in addition to requiring funding, require further due diligence regarding the investment and payback. The designated Lead will be responsible for researching and developing a business case for the projects to which they are assigned.

Project	Lead	Year
Round management system	Waste Service Manager	2012
Glass in residual waste	Waste Service Manager	2012
Orange wheelie bins	Waste Service Manager	2012
Purchase of new fleet.	Waste Service Manager	2012
Increase the number of staff using public transport by 4%	Business Travel Plan Co-ordinator	2014
Increase the number of staff cycling to work by 3%	Business Travel Plan Co-ordinator	2014
Increase the number of staff walking to work by 1%	Business Travel Plan Co-ordinator	2014
Increase the number of staff car sharing by 5%	Business Travel Plan Co-ordinator	2014
Introduce web- and tele-conferencing meetings	Business Travel Plan Co-ordinator	2013
Introduce a 'meeting buddy' system	Business Travel Plan Co-ordinator	2013
Introduce car rental as an alternative to the 'grey fleet'	Business Travel Plan Co-ordinator	2012

3.4 Potential future projects

There are a number of potential projects which have been identified using the (Rapid Assessment Projects) RAP Tool and covers measures in the different baseline categories and which have been summarised below for the purpose of this report:

- Draught proofing
- BMS – installation and optimisation (i.e. fine tuning)
- Zoning, Heating control systems, Optimised control of cooling
- Pipe work insulation
- Automatic lighting controls, Localised lighting, Retrofit/replace lighting to T5
- Equipment timer controls
- Secondary glazing
- Virtualisation/thin computers to 30% of Estate

- IT Management software/PC Switch Off
- Upgrade to condensing boilers
- Cavity wall insulation
- Draught proofing
- Loft insulation
- Streetlight dimming at midnight, including energy photocells

3.5 Projected achievement towards target

The identified projects in this plan will attain 80% of the emissions reduction target. The gap of 20% will be filled by continued identification of energy efficiency projects under the Salix and RE: FIT schemes.

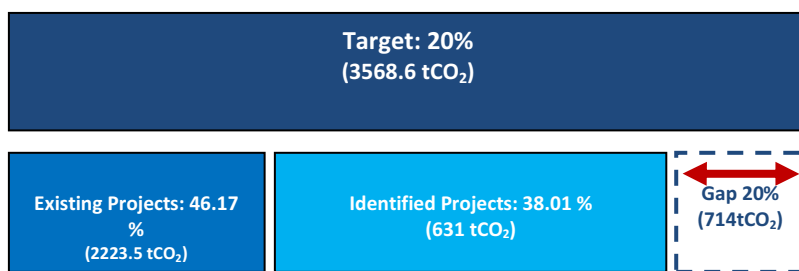


Figure 6: Projects identified against target and the carbon gap

4. Carbon Management Plan Financing

This section sets out the potential financial savings and investment sources for the projects outlined in the Carbon Management Plan. The financial benefits accruing to the Council from successful implementation of this plan could be significant; as energy prices continue to rise, the amount the Council spends on electricity, gas and street lighting will increase considerably. Hence, the Council is committed to reducing energy consumption and spend.

To implement the projects defined in this plan an investment cost £2,516,009 has been identified. £1,326,009 of this amount has been allocated as part of existing and planned projects; leaving a funding gap of £1,190,000. There are some projects that have also been identified for which no firmed up costs exists.

Currently the annual cost savings/avoidance associated with these projects is £546,498; this figure is low and is partly because financial information on some of the existing projects has been estimated whilst other projects are part of the planned maintenance/capital projects and these have high payback periods, but have been identified because of their contribution to carbon emissions reduction.

Full financial evaluation of the all proposed projects will be completed as part of the project implementation to ensure projects payback within an appropriate time frame.

4.1 Financial costs and sources of funding

Project Status Category	Cost		Annual Savings (yr 1)		Pay back (yrs)	% of Target
	Capital	Operational	Financial (Gross)	tCO ₂		
Existing	£2,487,925	£506,723	£410,580	2,192	-25.9	61.4%
Planned/Funded	£1,000	£1,000	£125,721	620	0.0	17.4%
Near Term	£21,801	£0	£7,502	32	2.9	0.9%
Mid-Long Term	£5,283	£0	£2,695	11	2.0	0.3%
	£0	£0	£0	0		0.0%
	£0	£0	£0	0		0.0%
Totals	£2,516,009	£507,723	£546,498	2,854	4.6	80.0%

Funding Source Category	Cost		Annual Savings (yr 1)		Pay back (yrs)	% of Target
	Capital	Operational	Financial (Gross)	tCO ₂		
Capital	£2,510,224	£506,723	£399,224	2,125	-23.4	59.6%
Revenue	£4,785	£0	£21,553	109	0.2	3.1%
Other	£0	£0	£0	0		0.0%
Partnership	£1,000	£1,000	£125,721	620	0.0	17.4%
	£0	£0	£0	0		0.0%
	£0	£0	£0	0		0.0%
Totals	£2,516,009	£507,723	£546,498	2,854	4.6	80.0%

The Council's Carbon Board Group will be responsible for identifying and agreeing funding sources. The Council will consider a number of options to fill the funding gap of £1,197,500 and fund other carbon reduction projects that are identified to deliver this plan

These options will include:

4.1.1 Internal Funding

Projects which represent good value for money and appropriate pay backs may be supported from the Council's capital and revenue budgets after the approval of business cases. The planned maintenance and capital programmes which include measures such as heating upgrades, lighting upgrades, roofing and windows improvements and replacements will be used to fund the inclusion of energy efficiency measures. Departmental budgets will be used to fund operational efficiency projects which have been identified as having additional carbon benefits.

4.1.2 Salix Energy Efficiency Loan Scheme

The Council has an existing invest to save fund for energy efficiency investment under the Salix Finance Scheme. This is a ring fenced revolving fund where the loan is repaid from energy cost savings accrued from energy projects and re-invested into the fund to enable the initiation of new projects. The projects funded under this scheme have to cost less than £12 per tonne of carbon and meet Salix's compliance criteria.

4.1.3 London Energy Efficiency Fund (LEEF)

LEEF provides competitive finance for the adaptation and refurbishment of buildings in London, to make them more energy efficient and environmentally friendly. Each project should seek to implement energy conservation measures that result in energy savings of at least 20% and projects can be delivered through the RE:FIT programme.

4.1.4 RE: FIT

The RE:FIT Programme has been established by the Greater London Authority to achieve significant and guaranteed energy and cost savings for Public Sector organisations through Energy Service Companies (ESCOs) retrofitting energy conservation measures in existing buildings. This work includes a range of short term and medium/long term measures to maximise the energy and carbon reduction savings. The projects savings are guaranteed by the ESCOs and backed up by Parent Company guarantees and/or Performance Bonds, and ensure fixed revenue streams which would be suitable to repay a fixed loan over an agreed term.

4.1.5 Partnership

The Council will look to work in partnership with external agencies to deliver energy saving. This approach will be sought to deliver high cost capital projects such as Solar Panel and CHP installations. The Council will also seek opportunities to utilise the Green Deal and Green Investment Bank offerings.

4.2 Assumptions

Assumptions have been made to quantify the costs and savings of the proposed projects. These include:

- Given the volatility of the energy market, assumptions about future energy prices and savings over the next five years have been capped using a nominal figure of 20%
- All the savings from this programme are not quantifiable. There will be tangible/cashable savings as well as intangible benefits. The intangible benefits include:
 1. Increasing long term energy security of the Council as we reduce demand and increase localised energy generation.
 2. Providing leadership to our communities and partners

3. Enhanced reputation amongst staff, stakeholders and wider community
 4. Enhanced joint working across different departments to address carbon issues
- Where quotes have not been obtained, project costs are based on estimates
 - The implementation costs of corporate property projects will be covered under the Salix Finance Scheme

4.3 Benefits / savings – quantified and un-quantified

	2010	2011	2012	2013	2014	2015
Annual cost saving	£13,853	£46,159	£383,910	£469,498	£546,498	£546,498
Annual CO ₂ saving	66	245	2,104	2,530	2,854	2,854
% of target achieved	2%	7%	59%	71%	80%	80%

5. Change Management Action Plan

This section sets out how officers will work to embed carbon management within the Council in order to facilitate the delivery of project within this plan.

5.1 Corporate Strategy – embedding carbon reduction across your organisation

The implementation of the Council’s Carbon Management Plan will involve a range of measures including encouraging behavioural change to installing more energy efficient technologies and the longer-term embedding of carbon management into corporate policies and procedures.

We recognise that to meet our 20% carbon reduction target will involve changes to the way we manage energy and carbon emissions across the Council. Our key strategic document is our Energy Strategy which aims to address CO₂ emissions in the Council. It outlines policies and measures for encouraging energy-efficiency improvements. Everyone in the Council will need to play their role in improving energy efficiency.

“Better Future” is one of the Council’s four main priorities set out in our Corporate Plan, and states that we aim to be a borough that reduces its waste and CO₂ emissions.

To help show how our priorities, policies and strategies fit together we have developed the “Policy House”, which is a visual representation of the Council’s Corporate Plan.



The fifth priority, which provides the firm foundations on which the house is built, is being a well run organisation. This is our approach to improving the way the Council operates to help us become more efficient.

We reflect the strategic objectives of the Council in our business plans, which contain the actions for each department, division and service. These action plans are then linked into team and individual staff objectives as part of the appraisal process.

The action plan below sets out how we will embed Carbon Management across the Council:

Action	When	Owner(s)
Sustainability to be included in the Council's risk register	2012	Energy, Environmental and Compliance Manager
Carbon management and sustainability is to be integral in the following policies, strategies and standard documents		
<ul style="list-style-type: none"> Procurement Policy 	2012	Procurement Manager
<ul style="list-style-type: none"> Travel Policy 	2012	Climate Change Officer
<ul style="list-style-type: none"> HR Strategy 	2012	Divisional Director HR
<ul style="list-style-type: none"> Modern Ways of Working 	2011	Corporate Director of Finance and Resources
<ul style="list-style-type: none"> ICT Strategy 	2012	ICT Client Officer
<ul style="list-style-type: none"> Sustainability Policy 	2012	Climate Change Officer
Carbon Management Plan published on the Council's website	2012	Energy, Environmental and Compliance Manager

5.2 Responsibility – being clear that saving carbon is everyone’s job

The Carbon Management Programme will be monitored by the Council's Energy and Compliance team (please refer to table in section 5.4). They will be responsible for

cascading programme information and communication to key stakeholders, Green Champions and staff will be a key part of the communications and management strategy.

The Council already has a number of Green Champions in place. However, due to a number of restructures that have taken place over the last year we have lost some so plans are in place to start recruiting new Green Champions.

Work is already underway to include carbon saving responsibilities in the Council's core competencies and further work is planned to include them in relevant job descriptions.

In 2011 the Council launched its Ideas Space scheme. The scheme is designed to encourage staff engagement by providing staff with a forum to submit ideas and have discussions on how the Council can save money, eliminate waste, improve the way we work and reduce our carbon emissions. Staff can submit ideas by completing an online form which is available on the Council's intranet.

5.3 Monitoring and reporting

Accurate and timely energy data management is becoming critical, particularly with the introduction of the Carbon Reduction Commitment. While data is collected from a range of sources across the Council, data collation is now co-ordinated through a central point in the Assets and Commercial Services Team. The Council was successful in collating its total CO₂ emissions based on energy and fuel consumption for its CRC report in 2011; this is now an annual requirement.

The data management information gathered each year will be used to target and monitor energy saving projects.

Some key ongoing actions to improve data quality and its management include:

- Using the Green House Gas emissions report as the core scope of emissions and aligning this with the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme annual data collection methodology.
- Installation of automatic meters to improve the Council's ability to capture and analyse data more frequently and more accurately.
- Introduction of a standard template to capture all carbon reduction projects – this template will be used Council-wide allowing us to track and monitor progress on a quarterly basis centrally, within the Assets and Commercial Services Team.

5.4 Communication and training – ensuring everyone is aware

The Council has already begun to raise awareness and educate its staff about its carbon management responsibilities, and has had some success with its Green Champions programme. However, a wider and more coordinated and focussed approach is needed to engage all staff and stakeholders.

Communications over the next five years need to be frequent, easy to understand, timely, and wherever possible link into national or local events or activities that are taking place.

Planned activities:

Action	When	Owner(s)
Overview of the Council's Carbon	2012	Energy Officer and Group

reduction plan included in staff induction		Manager HR Strategy
Development of online carbon management training module which will be delivered through the e-learning	2012	Energy Officer and Group Manager HR Strategy
Re-launch the Green Champions network. Minimum of one representative from each Division.	2012	Energy Officer
Sustainability questions added to the staff temperature check so awareness levels can be monitored annually	2012	Energy Officer and Group Manager HR Strategy
Carbon saving responsibilities included in the Council's core competencies	2012	Group Manager HR Strategy
A rolling awareness campaign which will include monthly staff communications using: E-bulletin Let's Talk cascade brief Feedback – staff newsletter and Intranet features Staff briefings and events	2012/13	Energy Officer
Carbon saving responsibilities included the in relevant job descriptions	2012	Group Manager HR Strategy
Carbon Management Plan made publicly available on the Council's website	2012	Energy, Environmental and Compliance Manager
Development of an online sustainability forum on the Council's intranet	2013	Energy Officer and Business Development Manager

A detailed communications plan outlining all activities for the next year can be found in Appendix B.

5.5 Engagement of your stakeholders – leading by example

This plan's aim of reducing the Council's carbon emissions and energy costs will be significantly enhanced if all the key stakeholders remain effectively and consistently engaged throughout the process.

While the contribution and needs of each stakeholder group differ, it is clear that all stakeholders need to be engaged to ensure broad support and successful programme outcomes. The following groups have been identified as key stakeholders that need to be engaged and receive regularly communications (please refer to Appendix B - embedded Communications Plan).

Stakeholders
Members

Living and Working Board
Corporate Management Team
Divisional Directors
HR
Group Managers
Green Champions
Staff Networks
Staff
Schools
Partners
Suppliers
Other Councils
Carbon Trust
Residents

5.5.1 How we appraise projects on carbon as well as financial criteria

The individual breakdown of projects will have identified the anticipated savings and it will be the Energy Manager's responsibility to monitor progress to ensure they are achieved. To help improve our ability to monitor the progress of projects we have implemented a standard project template which is used to track the progress of the project along with any savings and carbon reductions we have made.

All project managers responsible for managing capital projects will be required to submit a quarterly progress report to the Energy Manager. For divisions that are implementing a number of projects, such as The Assets and Commercial Services Division, a representative will be nominated to regularly report progress to the Energy Manager.

5.5.2 Engagement with schools

Schools have an important part to play in creating an environmentally aware society. The Council's schools are responsible for 44% of carbon emissions from buildings and there is great scope for improving energy efficiency. School buildings are the Council's largest source of carbon emissions. They are also integral to equipping young people with the wide-ranging skills, knowledge and understanding for sustainable living.

We have been working in conjunction with the Carbon Trust's schools programme (Collaborative Low Carbon Schools Service (CLCSS)) to produce a suite of energy efficient projects that will be used in the ten pilot schools that been selected. Once successfully implemented in the pilot schools the aim is to roll this out across the rest of the Council's schools. A separate carbon reduction plan for schools has been developed and can be found on the intranet/shared drive etc. Both programmes are overseen by the Corporate Director of Finance and Resources. Both plans will be reviewed at the Programme Board at the same time to ensure consistency

The Children's Services Directorate are working closely with schools to embed sustainable development within the curriculum.

5.5.3 **Engagement with our Housing Strategy Team**

The London Borough of Barking and Dagenham has worked in partnership with East London Warm Zone and Warm Front to ensure that over 3,500 vulnerable private sector households had home insulation and heating works committed to their properties in recent years, thereby reducing their rate of thermal failure. The Council has also collaborated with the GLA to create Low Carbon Zones in Barking Town Centre and Dagenham Heath to cut domestic carbon emissions by 20.12% by 2012 and by 60% by 2025. Part of the project concentrated on the installation of 10 energy saving measures in homes.

By using the Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP) funding, council homes and several hard to treat tower blocks will also benefit from warmer homes and reduced fuel bills. Approximately 4,000 council properties will be insulated, saving Council tenants over 5,800 tonnes of carbon each year and delivering the maximum fuel cost savings of £350 per property per annum. This will help to alleviate fuel poverty and support the delivery of the thermal comfort element of the Council's Decent Homes Programme, as well as assisting the Council in achieving its carbon reduction target.

5.5.4 **Engagement with our suppliers**

The Council realised it must ensure that all procured goods and services consider the sustainability agenda. The Council's procurement policy advises staff to take the following points into consideration when selecting a supplier:

- You should always include environmental considerations in assessment of suppliers and their products and services, including such consideration in every contract document
- You should encourage the use of suppliers striving to improve their environmental impact. This may be demonstrated by holding ISO14001 (BS7750)
- You should ensure where possible that you purchase products bearing the European Union environmental certification labelling

We are committed to ensuring that the areas which must be considered and recorded have already been outlined previously, but it is important that buyers fully appreciate that they must be able to show how they have compared their purchase options, such as:

- Whole life
- Packaging
- Delivery
- Chemical use

The Council's procurement policy is published on Council's website.

5.6 **Policy Alignment – saving CO₂ across your operations**

It is essential that carbon emissions reduction is acknowledged and planned for in the majority of Council policies. The Council already has a number of carbon reduction policies in areas such as transport policies, staff travel policies and the procurement policy, but in other areas there is no policy alignment. We will therefore work with the Carbon Management Team to review policies as they come up for renewal to ascertain whether they need to include carbon reductions.

5.6.1 Procurement policy

The strategy aims to encourage sustainable procurement practices throughout the Council to contribute to carbon savings and promote greater environmental sustainability. The strategy sets out the processes we need to follow to make sure the Council's spending activities achieve value for money, while minimising the damage to the environment.

Our procurement policy, with regard to environmental issues, is to:

- Strive to adopt the highest environmental standards in all areas of our operation
- As a minimum, comply with government and European Union environmental and health and safety requirements
- Minimise the use by the Council and its suppliers of materials, supplies and energy by cutting down on waste and repairing or reusing existing products

5.6.2 Transport

The Council promotes sustainable modes of transport and has been encouraging staff to use public transport to get to work, and to cycle or walk where possible. We have produced a Green Travel Plan providing information for staff on public transport, car sharing, cycling and other issues relating to green travel.

We have formed a bicycle users group for staff which promotes cycling and supports Council staff who cycle to work or cycle as part of their job. In January 2010 the Council introduced the Cycle to Work Scheme; this gives staff the opportunity to purchase a bicycle at a reduced rate, through salary sacrifice. We have invested in two electric pool vehicles (car and van) that staff will be able to borrow to use for work.

To manage business travel the Council has an essential car users allowance policy and a casual car users policy. Through our car allowance schemes the Council aims to ensure that its workforce contributes to this aim and chooses methods of transportation which are both financially efficient in delivering better services and which make the borough a healthier and cleaner place to live.

6. Programme management of your carbon management programme

The Council's involvement in the Carbon Management Plan was agreed by the Executive in autumn 2010. The Chief Executive and Lead member for the Environment continue to provide the political backing and commitment of resources to the programme.

6.1 The Programme Board – strategic ownership and oversight

Carbon Management is a standing item on the Council's Carbon Board Group, which meets on a quarterly basis, monitors key work items and will undertake regular assessments of the Carbon Management Plan to ensure successful implementation.

In order to manage the carbon reduction programme the Council has established a Carbon Management Board, which is chaired by the Corporate Director of Finance and Resources. The terms of reference of the group are to:

- Champion and provide leadership on carbon management

- Set and review strategic direction and targets
- Remove obstacles to successful completion of carbon management projects
- Set the scope of the carbon management plan and prioritise carbon reduction projects
- Monitor progress towards objectives and targets
- Champion plans for financial provision of carbon management projects
- Ensure there is framework to co-ordinate projects in carbon management programme

The group consists of project lead, support leads and support staff from numerous disciplines within the authority:

Function/	Name	Area of work
Chair Project Sponsor	Tracie Evans	Corporate Director of Finance and Resources
Project lead	Sandra Joseph	Energy, Environmental and Compliance
Project Deputy	Leeann Kenny	Energy Officer
Project Support	Clive Bennett	Facilities Management
Project Support	Andy Butler	Sustainability and Climate Change
Project Support and Delivery	Rupert Hay-Campbell	Customer Strategy, ITC and Transformation
Project Support	Phillip Horner	Finance
Project Support	Dawn Hughes	Children's services
Project Support and Delivery	Gloria Millis	Climate Change
Project Support and Delivery	Rachel Hookway	Climate Change
Project Support and Delivery	Peter Spencer	Electrical, Mechanical and Building
Project Support and Delivery	Martin Storrs	Procurement
Project Support and Delivery	Ruth Du Lieu	Street Scene
Project Support and Delivery	Blane Parker	Operations - Street Management
Project Support and Delivery	Tony Ralph	Refuse
Project Support and Delivery	George McCreight	Waste
Project Support and Delivery	Abdul Jallow	Refuse and Recycling Manager

The group will ensure effective cross-organisational working and assist the Energy Manager in making sure that energy efficiency projects and activities, are embedded in the Council's work programmes thereby resulting in a top-down approach to complement the bottom-up approach of the Green Champions scheme and other initiatives.

6.2 The Energy Team – Delivery, Advice and Support

The Energy Team will be responsible for directly assisting the Energy Manager with the Implementation Plan. This Team will also be responsible for collating energy data, overseeing the Green Champions Programme, CRC Compliance, Monitoring and targeting specific high users, the Energy Action Area in Barking and the planning requirements for new buildings and refurbishments to achieve a 20% reduction in CO₂. This team meets on a monthly basis to review progress and actions.

The terms of reference of the group are to:

- Help to identify new projects and opportunities, which will help to develop the Council's Carbon Management Plan
- Support the delivery of carbon reduction projects
- Promote sustainability, by leading by example

- Attend regular meetings with Service Areas to ensure there is a forum for sharing information, intelligence and ideas

Role	Name	Area of work
Group Manager- Asset Management	Kevin Sullivan	Asset Management - Energy
Energy, Environmental and Compliance Manager	Sandra Joseph	Energy, Environmental and Compliance
Energy Officer	Leeann Kenny	Energy
Utilities and Tariff Officer	Marion King	Energy
Facilities Management Manager	Clive Bennett	Facilities Management
Project Engineer	Peter Spencer	Project Support and Delivery

6.3 Risks and issues management

High-level risks will be identified by the Energy Manager and the Energy Group and reported to the Group Manager - Asset Management. At the individual project level, individual project leaders will manage risks, and difficulties will be reported to their line managers and the Energy Manager. Our reporting frequency for risks, issues and highlight reports will be determined by the project leads; however this will be no less than monthly.

Current identified risks that may impact on the Carbon Management Plan are:

- Securing project leaders from different divisions and departments for some of the energy efficiency projects planned and ensuring projects are managed and delivered effectively;
- Securing additional funding for energy saving initiatives;
- Carbon credit financial pressure;
- CRC Energy Efficiency Scheme League table;
- Ensuring the funding allocated for projects is spent in the most effective way, e.g. identifying skills that exist in-house rather than out sourcing;
- Time delays due to internal procurement processes; and
- Risks associated with the Salix recycled fund for the Carbon Management Programme – projects may not achieve the savings predicted and the pay-back period may be longer than anticipated.

6.4 Evaluating the financial and energy saving benefits

Quantifiable benefits accruing from individual actions will be measured from energy consumption data, where possible. The individual breakdown of projects will have identified the anticipated savings of each project and it will be the Energy Manager's responsibility to monitor that these are achieved.

The control in consumption will be monitored through 'before and after' consumption data where possible from the automatic meter reading equipment we are installing. The frequency of the monitoring of data and responsibility for this will be determined once the equipment has been fully installed and tested.

6.5 Reporting and evaluation

A project monitoring tool will be developed to track the implementation of each identified project by:

- Annual CO₂ per floor area (normalised against degree day data);

- KWh per hours of operation; and
- KWh per number of occupants/users/employee

These metrics have been developed to capture variation in the energy intensity of a building, where the use of the building changes and weather variations occur in order to ensure this doesn't mask energy savings resulting from the completion of the projects identified during the implementation of this plan.

The monitoring tool will also capture ongoing project costs and cost avoidance.

All project managers will use the monitoring tool to prepare their quarterly progress reports which are submitted to the Energy Manager for review.

For Divisions that are implementing a number of projects, a representative officer or officers will be nominated to regularly report progress to the Energy Manager. The areas that need to be covered include:

- Assets and Commercial Services – Building Services staff, Architects; Surveyors Engineers etc
- Assets and Commercial Services – Building / Facilities Managers;
- Housing and Environment – Street Lighting Manager;
- Corporate Procurement;
- Leisure, Arts and Olympics;
- Vehicle Fleet; and
- Information Technology

The Energy Team is coordinating the whole programme as well as implementing a number of projects itself; therefore the existing monthly monitoring process for this Department will feed in information on these projects directly to the Energy Manager. An annual report on performance and progress (including carbon reduction attained) of projects contained within the Carbon Management Plan will be collated by the Energy Manager and submitted to the Council's Cabinet.

On an Annual basis the Group will undertake a formal review of progress against the Carbon Management Plan and subsequently provide a report to the Corporate Management Team. In conjunction with the Council's Assurance and Risk Division, this exercise will be carried out following our annual data collection for CRC submission. Where recorded carbon baseline information changes following Central Government auditing, our annual review will reflect and record these changes.

The formal review will cover the cost and all benefits from the Programme:

- Financial savings, either cashable or returned;
- CO₂ savings against our target;
- Less quantifiable benefits, such as influencing partners/community;
- If the reported baseline changes following auditing, we will record and reflect these changes;

- Report to Cabinet/CMT, via the LAW Board

6.6 Succession planning

The Project Leader: Is a key element to the success of the Programme, providing a number of roles including overall coordination, management of communications, identifying and managing 'blockages' and 'change issues' and ensuring effective team working within the Carbon Management Team.

Project Sponsor: The programme sponsor plays a key role in the Programme and are a critical success factor in the implementation of this Programme and embedding carbon management into the organisation.

It is vital that these roles continue for the duration of the Carbon Management Programme. Should current post holders not be able to continue with their role, handover arrangements to find a suitable replacement will be organised so that there is no loss of momentum to the Programme and associated projects. In any transition to a new Sponsor or project leader, an appropriate handover will be ensured. This will be crucial particularly for the role and will include:

- Detailed briefing by the outgoing Project Lead.
- Meeting with the Sponsor to clarify objectives and expectations.
- Assurance and handover of all relevant documentation and contact details of CMT members.
- E-mail to all team members and key stakeholders informing of the change.
- Introduction to key CMT members, if necessary.

It is the responsibility of the Programme Board to make sure that succession planning happens and that the roles of the Carbon Management Team are delivered.

7. Appendix A: Definition of projects

Project: Reference:	Monitoring and Targeting 1
Owner (person)	Energy , Environmental and Compliance Manager
Department	Assets and Commercial Services Division
Description	<p>The Energy Management Software will be used to monitor and manage energy consumption to :</p> <ul style="list-style-type: none"> • Draw energy consumption trends (weekly, seasonal, operational...) • Determine future energy use when planning changes • Diagnose specific areas of wasted energy • Develop performance targets for energy management
Benefits	<ul style="list-style-type: none"> • Financial savings: £125,721 • Payback period: 0.1 years • CO₂ emissions reduction: 619.7 tonnes of CO₂ • Annual percentage contribution to CO₂ target - 17.4 % <p>The savings figures are derived from applying a % saving against the sites that will be affected.</p>
Funding	<ul style="list-style-type: none"> • Project cost - £1,000 • Operational cost - TBC (will be the licensing fee for the software) • Source of funding: Internal
Resources	<ul style="list-style-type: none"> • The project will be implemented within current resources
Ensuring Success	<ul style="list-style-type: none"> • Optimising the existing energy management software with relevant information to ensure reports can be run • Principal risks: Technical glitches in the software, Insufficient staff time
Measuring Success	<ul style="list-style-type: none"> • kWh energy saved per quarter • Metrics will be analysed quarterly
Timing	<ul style="list-style-type: none"> • Milestones <ul style="list-style-type: none"> ○ Start date: June 2012 ○ Completion date: Ongoing
Notes	

Project: Reference:	Streetlight Replacement 14
Owner (person)	Operations Team Leader-Street Lighting
Department	Technical Services - Street Lighting
Description	Replacement of existing street lighting lamps.
Benefits	<ul style="list-style-type: none"> • Financial savings: £190,858 • Payback period: 5.4 years • CO₂ emissions reduction: 1,118.9 tonnes of CO₂ • Annual percentage contribution to CO₂ target – 31.4 % <p>Savings are based on estimating % savings resulting from implementation of the project.</p>
Funding	<ul style="list-style-type: none"> • Project cost - £1,022,673 • Operational costs - N/A • Source of funding: Internal - Capital Project
Resources	<ul style="list-style-type: none"> • This project will be implemented within current resources with Street lighting contractors as the additional resource
Ensuring Success	<ul style="list-style-type: none"> • Timely installation of the lamps • Principal risks: Financial
Measuring Success	<ul style="list-style-type: none"> • The annual kWh and cost savings on Street lighting will be used for monitoring • The metric will be evaluated annual
Timing	<ul style="list-style-type: none"> • Milestones / key dates e.g. <ul style="list-style-type: none"> ○ start date: May 2012 ○ completion date: December 2012
Notes	

Project: Reference:	The Mall Car Park Lighting 4
Owner (person)	Principal Electrical and Mechanical Surveyor
Department	Assets and Commercial Services Division
Description	The lights in the car park will be replaced with energy efficient LED lights.
Benefits	<ul style="list-style-type: none"> • Financial savings: £12,043 • Payback period: 0.6 years • CO₂ emissions reduction: 70.6 tonnes of CO₂ • Annual percentage contribution to CO₂ target – 2.0% <p>These saving figures are the based on the estimates costed by suppliers</p>
Funding	<ul style="list-style-type: none"> • Project cost - £7,760 • Operational costs - TBC • Source of funding: External - Salix Funding
Resources	<ul style="list-style-type: none"> • This project will be implemented within current resources
Ensuring Success	<ul style="list-style-type: none"> • Timely installation of the lamps is a key success factor • Principal risks: Technical, financial
Measuring Success	<ul style="list-style-type: none"> • KWh energy saving in Car Park will be used to monitor success • The metric will be evaluated quarterly
Timing	<ul style="list-style-type: none"> • Milestones / key dates e.g. <ul style="list-style-type: none"> ○ start date: April 2012 ○ completion date: July 2012
Notes	

Project: Reference:	Communications and awareness campaign 25
Owner (person)	Energy Officer
Department	Assets and Commercial Services Division
Description	Communications and awareness campaign to inform and engage staff
Benefits	<ul style="list-style-type: none"> • Financial savings: £14,506 • Payback period: 0 years • CO₂ emissions reduction: 79.7 tonnes of CO₂ • Annual percentage contribution to CO₂ target – 2.2% <p>These saving figures are the based on the estimates provided by the Carbon Trust</p>
Funding	<ul style="list-style-type: none"> • Project cost - £ 0 • Operational costs - TBC • Source of funding: Internal , operational costs only
Resources	<ul style="list-style-type: none"> • This project will be implemented within current resources
Ensuring Success	<ul style="list-style-type: none"> • Maintaining momentum through regular communications • Principal risks: Resources and insufficient staff time
Measuring Success	<ul style="list-style-type: none"> • KWh energy saving within Council's corporate buildings will be used to monitor success • The metric will be evaluated quarterly
Timing	<ul style="list-style-type: none"> • Milestones / key dates e.g. <ul style="list-style-type: none"> ○ start date: January 2012 ○ completion date: March 2015
Notes	

Project: Reference:	Civic Centre CHP Biomass 26
Owner (person)	Principal Electrical and Mechanical Surveyor
Department	Assets and Commercial Services Division
Description	Draught proofing of the windows at the Civic Centre
Benefits	<ul style="list-style-type: none"> • Financial savings: £77,000 • Payback period: 15.5 years • CO₂ emissions reduction: 324.2 tonnes of CO₂ • Annual percentage contribution to CO₂ target – 9.1% <p>These saving figures are the based on the estimates from draft survey report</p>
Funding	<ul style="list-style-type: none"> • Project cost - £ 1,190,000 • Operational costs - £506,723 • Source of funding: Internal - Capital Project
Resources	<ul style="list-style-type: none"> • This project will be implemented by contractors with support from current resources
Ensuring Success	<ul style="list-style-type: none"> • Timely installation of the CHP is a key success factor • Principal risks: Technical, financial
Measuring Success	<ul style="list-style-type: none"> • KWh energy saving within the Civic Centre will be used to monitor success • The metric will be evaluated quarterly
Timing	<ul style="list-style-type: none"> • Milestones / key dates e.g. <ul style="list-style-type: none"> ○ start date: 2013 ○ completion date: 2014
Notes	

8. Appendix B: Communications Plan