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Our reference:
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Date: 13 June 2011

To all Members of the Council

Dear Councillor

A meeting of the CABINET will be held on Tuesday 21 June 2011 at 7.00 pm in the Council Chamber, Civic Centre, Pavilion Road, West Bridgford to consider the following items of business.

Yours sincerely

Head of Corporate Services

AGENDA

1. Apologies for absence.
2. Declarations of Interest.
3. Minutes of the Meeting held on Tuesday 24 May 2011 (previously circulated).
4. Carbon Management Plan

The report of the Head of Community Shaping is attached (pages 1 - 29).

5. Local Government Act 1972

It is RECOMMENDED that the public be excluded from the meeting for consideration of the following items of business pursuant to section 100A (4) of the above Act on the grounds that it is likely that exempt information may be disclosed as defined in paragraph 3 of Part 1 of Schedule 12A of the Act.

6. The Future Use of the Old Gresham Pavillion, Wilford Lane, West Bridgford

The report of the Head of Revenues & ICT Services is attached (pages 30 - 33).

7. Cotgrave – Strategic Acquisitions

The report of the Head of Community Shaping will follow.

Membership

Chairman: Councillor J N Clarke

Vice-Chairman: Councillor J A Cranswick

Councillors D G Bell, Mrs D J Mason, Mrs J A Smith

1 unallocated seat

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| Meeting Room Guidance |
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Fire Alarm - Evacuation - in the event of an alarm sounding you should evacuate the building using the nearest fire exit, normally through the Council Chamber. You should assemble in the Nottingham Forest car park adjacent to the main gates.

Toilets - Facilities, including those for the disabled, are located opposite Committee Room 2.

Mobile Phones – For the benefit of other users please ensure that your mobile phone is switched off whilst you are in the meeting.

Microphones - When you are invited to speak please press the button on your microphone, a red light will appear on the stem. Please ensure that you switch this off after you have spoken.

REPORT OF THE HEAD OF COMMUNITY SHAPING

CABINET PORTFOLIO HOLDER – COUNCILLOR D J MASON

Summary

1. Rushcliffe Borough Council's Corporate Strategy identifies Sustainability as one of its six priorities. Within the Corporate Strategy, Strategic Task 3 is to develop and implement a Climate Change Strategy and Action Plan. In March 2010 Cabinet approved the Climate Change Strategy and Action Plan. One of the key actions identified within the plan is the development and implementation of a Carbon Management Plan.
2. In September 2010 Rushcliffe Borough Council began work with Climate East Midlands to put together a Carbon Management Plan with the support of the Carbon Trust. Under the Climate Change Act 2008, government has certain obligations to meet to reduce the carbon emissions from the UK. Local Authorities are encouraged to act as community leaders in this work and lead by example by working to reduce the carbon emissions from their operations. The Carbon Management Plan sets out the Council's intentions to reduce carbon emissions from its own estate, thereby leading by example.

Recommendation

It is RECOMMENDED that Cabinet

- a. endorses the attached Carbon Management Plan and approves the target of reducing the Council's carbon emissions by 15 percent by 2015
- b. approves a budget allocation to the projects in table 4.2 of the attached Carbon Management Plan
- c. makes a commitment to design standards for refurbishment or replacement buildings wherever possible as laid out in **Appendix C** of the plan
- d. supports the work with the leisure service providers to identify a reduction in carbon emissions from leisure centres in the Borough

Climate Change Act

3. The Climate Change Act 2008 makes it the duty of the Secretary of State to ensure that the net UK carbon account for all six Kyoto greenhouse gases for the year 2050 is at least 80 percent lower than the 1990 baseline. The Act

aims to enable the United Kingdom to become a low-carbon economy and gives ministers powers to introduce the measures necessary to achieve a range of greenhouse gas reduction targets. There is currently no penalty attached to not complying with the Act, however this could be introduced at a later date. The consequences of not complying with the Act are increased emissions resulting in further costs to the Authority and potential damage to the Council's reputation.

4. The Climate Change Act targets cover emissions of the six main greenhouse gases, namely:
 - Carbon dioxide (CO₂);
 - Methane (CH₄);
 - Nitrous oxide (N₂O);
 - Hydrofluorocarbons (HFCs);
 - Perfluorocarbons (PFCs); and
 - Sulphur hexafluoride (SF₆)
5. Locally, in 2005 Rushcliffe Borough Council signed the Nottinghamshire Declaration on Climate Change making a pledge to systematically address the causes of climate change and to prepare the community for its impact. This has been addressed through the development and implementation of the Climate Change Strategy and Action Plan and more latterly the Draft Carbon Management Plan. The Council also works closely with residents to reduce the Borough's carbon emissions with community initiatives and awareness raising activities.

Carbon Management Plan

6. Rushcliffe Borough Council officers, with the support of the Carbon Trust and Briar Associates, have put together a draft Carbon Management Plan which is attached. The plan relates to the reduction of the Council's own carbon emissions from its own operations, as opposed to the wider issue of emissions within the Borough more generally; this remains part of the overall climate change strategy. The Council has made many improvements to the efficiency of its buildings over the years but more improvements can be made. In 2009 the Council's emissions baseline (including the leisure centres) was 5,554 tonnes of carbon costing the Authority and its delivery partners £1.3m.
7. As the Council no longer owns the social housing stock in Rushcliffe the main areas of energy and fuel use can be split into:
 - Leisure facilities
 - Fleet
 - Buildings and estate
8. As the majority of emissions are outside of our direct control, for example the leisure centres, any success will rely very much on the co-operation of our partners. The plan is also influenced by other strategies such as the Leisure Facilities Strategy and therefore will not be carried out in isolation.
9. It is proposed that the Council should adopt an interim target to reduce carbon emissions of 15% by 2015 and a longer term target of 30% by 2020 in line with Government guidance.
10. It is proposed that the interim target will be achieved through:
 - Changing people's behaviours and awareness

- Managing our properties efficiently
 - Considering the environmental impact of our services.
11. In particular, for the plan to be effective, the Council needs to embed Carbon Management across the organisation, changing attitudes and culture.
 12. The plan incorporates 4 groups of tasks to assist in achieving the 2015 target and potentially to work towards the 2020 target:
 - a) Projects that are currently approved and will reduce emissions either as a prime aim or as an additional benefit. These are shown in table 4.1 of the attached plan;
 - b) Projects that can be implemented by the Council to reduce emissions in the near future. These are shown in table 4.2 of the attached plan and are recommended for approval;
 - c) Projects that require partnership working with the Council's leisure providers, contained within section 4.3 of the attached plan. It is proposed that the Council works with Parkwood and other providers to identify viable options for carbon emission reduction at leisure centres. This work will need to be subject to the completion of the review of the Leisure Facilities Strategy.
 - d) Potential projects that require further investigation but would also, if approved, assist in reducing emissions. These are included in section 4.4 of attached plan.
 13. The projects in the first two categories above will contribute significantly to the target of 15% reduction by 2015, providing an estimated 13% reduction. However further projects from within the plan will be required to meet the target fully.
 14. In September 2010, Council resolved that work should take place to evaluate the viability of generating electricity from the Council's property assets. This project has made significant progress and although technically included with the fourth category above (12d), a further report to Cabinet is planned in the near future.

Financial Implications

15. The Council has already invested or approved £215,740 of capital funds that will complete the category a) projects, achieving revenue savings of an estimated £34,571 per annum and a reduction in carbon emissions of 340 tonnes of CO₂. To complete the category b) projects a capital allocation of £76,230 is required. These should yield annual revenue savings of £32,545 and a 377 tonne reduction in emissions.

Design Standards

16. The management plan includes at **Appendix C** within the plan, design standards recommended by the Carbon Trust for future capital works on the Council's properties to minimise carbon emissions. It is proposed that these be adopted wherever practicable and viable.

Next Steps

17. In order for the plan to be effective the Council will work to embed Carbon Management across the organisation, changing attitudes and culture. To this end, the Carbon Management Plan will become the responsibility of all managers. The implementation of the plan will be monitored by the Senior Management Team and the Performance Management Board.

Conclusion

18. Local authorities are increasingly being encouraged by central government to lead the way in reducing carbon emissions to support the targets in the Climate Change Act. Cabinet is asked to endorse the attached plan, support a budget allocation to the projects in paragraph 4.2 of the plan, make a commitment to design standards for refurbishment or replacement buildings, wherever possible, and support the work with our leisure centre providers to reduce carbon emissions from our leisure centres.

Financial Comments

The financial impact of these decisions is included in paragraph 15. The forthcoming projects that are included in the attached Carbon Management Plan are projected to provide a £32,545 annual saving. The capital contingency included in the 2011/12 budget is £350,000 and there will be further savings carried forward from 2010/11 that will increase the contingency. Those projects that will not start during 2011/12 can be incorporated within the financial strategy for 2012/13 onwards.

Section 17 Crime and Disorder Act

There are no crime and disorder implications for this report.

Diversity

There are no diversity implications for this report.

Background Papers Available for Inspection: Nil

Rushcliffe Borough Council Carbon Management Programme

Carbon Management Plan (CMP)



Date: 17/05/2011

Version number: 0.6

Owner: Charlotte McGraw

Approval route: SMT / Cabinet

Approval status: Draft

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Foreword from the Council Leader, Portfolio holder for the Environment and Chief Executive of Rushcliffe Borough Council

Reducing the carbon emissions of Rushcliffe Borough Council's operations makes sense at many levels. Global warming and climate change may be regarded as worldwide issues, but their effects could have very stark local consequences; our climate change strategy, produced in 2010 acknowledges this and set out the need to produce a carbon management plan. One of our top priorities is to make sure that all the benefits we enjoy in Rushcliffe today can also be enjoyed by future generations.

A carbon management plan however also addresses the very real economic concerns we all have today. Using fuel not only releases carbon, but costs money to purchase. We need to cut costs and part of this requires us to reduce the fuel we require, which in turn reduces our carbon emissions.

To this end we are pleased that the Council has produced this Carbon Management Plan. This plan signals a significant commitment by this Council to reduce its carbon emissions in the medium and long term. The Council is grateful for the support provided by the Carbon Trust, East Midlands Improvement and Efficiency Programme and Briar Associates without which this plan would have been considerably more difficult to produce.



Cllr Neil Clarke (Council Leader)



Cllr Debbie Mason (Portfolio Holder for the Environment)



Allen Graham (Chief Executive)

Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for local authorities - it's all about getting your own house in order and leading by example. The UK government has identified the local authority sector as key to delivering carbon reduction across the UK in line with its Kyoto commitments and the Local Authority Carbon Management programme is designed in response to this. It assists councils in saving money on energy and putting it to good use in other areas, whilst making a positive contribution to the environment by lowering their carbon emissions.

Rushcliffe Borough Council partnered with the Carbon Trust on this programme in 2010 to realise large carbon and cost savings. Through this Carbon Management Plan, the authority has set a target of reducing its CO₂ emissions by 15% by 2015 and underpins potential financial savings to the council and its delivery partners of up to £263,680 per annum by that date. This sets the council on a path towards a more ambitious aspirational target of a 30% reduction in its CO₂ emissions by 2020.

Local authorities can contribute significantly to reducing CO₂ emissions and improving efficiency. The Carbon Trust is very proud to support Rushcliffe Borough Council in its ongoing implementation of carbon management.



Richard Rugg
Head of Public Sector, Carbon Trust



Management Summary

Introduction

The consensus amongst leading scientists is that man made Climate Change is caused by gaseous emissions, especially from the use of fossil fuels. Tackling climate change links into one of Rushcliffe Borough Council's six corporate priorities – a sustainable environment. The Council secured a place on East Midland Carbon Management Programme, provided by the Carbon Trust and funded by East Midlands Improvement and Efficiency Programme.

The Carbon Management Programme provides professional, technical, and change management guidance to the Council, through a structured programme, devised and operated by the Carbon Trust. The programme has two key outputs; the generation of an accurate carbon baseline upon which future progress can be measured, and the production of a Carbon Management Plan (CMP).

The 2009 Baseline

The Council's 2009 emissions baseline is 5,554 tonnes of carbon costing £1.3million at 2010 prices. Large parts of the Council's emissions are outside its direct control; therefore any success in reducing emissions will rely on the cooperation of third party contractors. 65% of emissions are from the community facilities, particularly the leisure centres operated by external contractors. 22% of emissions are from the fleet, particularly the refuse vehicles.

Targets

It is proposed that the Council adopts an aspirational target for the Carbon Management Plan to reduce carbon emissions by 30% by 2020 based on the 2009 baseline and an interim target of 15% by 2015. The Carbon Management Plan contains projects selected to ensure the Council achieves its various emissions targets. If the proposed measures are not implemented, the Council and contractors can expect to incur increased energy costs, associated with about 1,000 tonnes of avoidable emissions, and expected price rises.

The Projects

The Council is already carrying out a range of projects to reduce emissions, these have been identified as 'Projects started or approved' (see section 4.1) and these will deliver a saving of 340 tonnes of CO₂. Further projects are proposed over the period 2011 to 2015, which will deliver a total of 13% emissions reduction, if projected savings are achieved. Further projects will need to be developed to reach the 2020 target.

The Council has already proposed £215,740 capital until 2015 leading to annual savings of £34,571. To fully fund all the potential projects in the Carbon Management Plan the Council would need to allocate a further £76,230. There are further projects detailed on pages 14-15 and alternative funding will be required for these, for example, work at leisure centres and community halls.

Implementing the Plan and Programme Management

Section 2.4 details how the Council will embed carbon management within policy and strategy, communication, employee responsibility, data management and section 5 covers finance. The project programme in the CMP will be delivered via council service plans with guidance from the Climate Change Project Team. Implementation will be monitored by both the Senior Management Team and the Performance Management Board. Each year the Council will publish a carbon emissions report.

1. Introduction

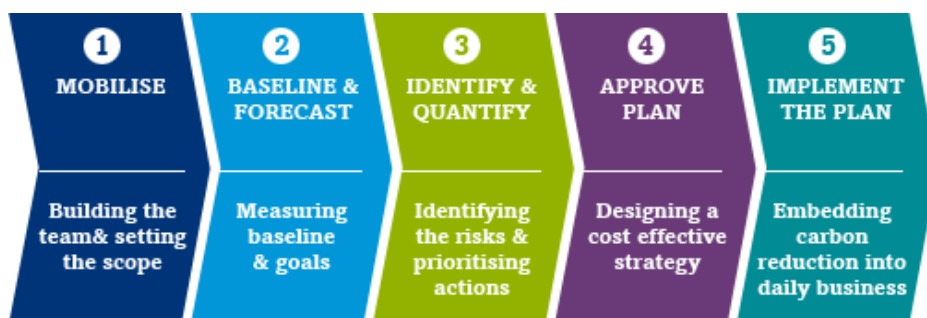
Rushcliffe Borough Council has committed itself to help deliver a sustainable environment. Creating and protecting a sustainable environment within the Borough is one of the most important jobs the Borough Council does. We aim to set an example by reducing our use of fuel and by emitting less carbon gases.

In 2009, we developed our first Climate Change Strategy and published an action plan to reduce our impact on the planet. We recognise that as community leaders we have a responsibility to bring people together to decide how best to tackle this issue within our Borough.

To enable the council to reduce its carbon emissions, it joined the East Midland Carbon Management Programme, provided by the Carbon Trust and funded by East Midlands Improvement and Efficiency Programme.

The Carbon Management Programme analyses the emissions of carbon produced by Rushcliffe Borough Council, through its activities and assets. It identifies savings that can be made, thus reducing the financial and environmental burdens of the Council on the residents of Rushcliffe.

The programme is a 5 step programme that establishes the current carbon emissions, identifies and quantifies potential savings, develops a plan to implement these savings and then carries out this plan.



The programme began in September 2010. The plan will be implemented up to 2020, with a milestone target for 2015. The plan will be reviewed annually.

This plan builds on the achievements made by Rushcliffe Borough Council since 1995 through its Environmental Management System and helps to achieve the Rushcliffe Borough Council Climate Change Strategy.

2. Carbon Management Strategy

One of Rushcliffe Borough Council's top priorities is to make sure that all the benefits we enjoy in Rushcliffe today can also be enjoyed by future generations. To do this we need to contribute to the reduction of Rushcliffe's "carbon footprint".

Studies have shown that on average in 2008, each person living in Rushcliffe was responsible for the production of 7.4 tonnes of carbon dioxide over the year.

Our vision for the year 2020 sets out what we want Rushcliffe to be like in 2020.

The Rushcliffe 2020 Vision:
The local environment is clean and safe, the population is decently housed and a sustained emphasis on recycling and energy efficiency means that the Borough as a whole contributes actively to reducing global environmental problems.
(Corporate Strategy 2009-2011)

2.1 Context and drivers for Carbon Management

The consensus amongst leading scientists is that man made climate change is caused by the gases we release into the atmosphere due to the way we live our lives. Carbon gases (such as carbon dioxide and methane) are produced every time we turn on an electrical appliance, heat our homes (whether by electricity, gas, solid fuel or liquid fuels) or use water, when we travel by car, bus or train, or when we buy and dispose of manufactured goods and these contribute to climate change.

As more carbon gases are released, the average temperature of the Earth increases, in turn affecting the climate and causing more extreme weather.

2.1.1 The national picture

The UK, for the first time anywhere in the world, has a long term legally binding framework to tackle the dangers of climate change. The Climate Change Act sets out the UK's key target, which is: "at least an 80% cut in greenhouse gas emissions by 2050, to be achieved through action in the UK and abroad. An interim target of at least a 34% reduction in emissions by 2020 is also set. Both these targets are against a 1990 baseline" (Climate Change Act, 2008). In 1990 the UK emitted greenhouse gases equivalent to 781.6 million tonnes of carbon dioxide. In 2009 this had reduced to 563.6 million tonnes (a 27% reduction).

In its 2010 Annual Energy Statement the Department of Energy and Climate Change stated that if we failed to reduce our carbon consumption we risked becoming "vulnerable to high and volatile oil and gas prices". "Reducing the amount of energy we use is the cheapest way of meeting our climate change and energy security objectives. It also reduces energy bills and provides investment which supports the development of the low carbon economy and green jobs".

2.1.2 The local picture

In 2005 Rushcliffe Borough Council signed the Nottingham Declaration on Climate Change and we made a pledge to systematically address the causes of climate change and to prepare the community for its impacts.

Within the 2009-2026 Rushcliffe Sustainable Community Strategy, climate change is identified as a key challenge and it sets out the aim to “reduce the carbon-footprint of Rushcliffe and help to make it more sustainable”.

The Rushcliffe Borough Council Corporate Strategy (2007-11) commits to explore ways the Council and residents of the Borough can “minimise their contribution to global warming”.

We have been working with our residents to reduce the Borough’s carbon footprint with community initiatives and awareness raising activities.

2.2 *Targets and objectives*

Rushcliffe Borough Council will reduce the CO₂ emissions from its activities by 15% from the 2009 baseline, by December 2015

In the first stage Rushcliffe Borough council will reduce its CO₂ emissions from its activities by 15% by 2015. The following plan gives details of how this can be achieved. An aspirational further 15% is intended to be saved between 2016 and 2020, how this will be achieved will need further development.

Additionally Rushcliffe Borough Council will be a visible leader in the local community on climate change and help to reduce the community’s carbon emission.

2.3 *Strategic themes*

We will work to reduce our carbon footprint in the following theme areas:

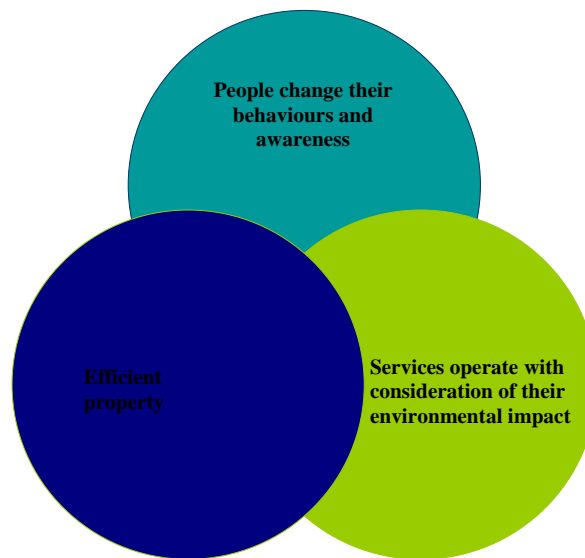
- Council Buildings – reducing our energy use in council buildings and seeking to make them as energy efficient as possible.
- Leisure and Community Facilities – working with our partners to ensure the leisure and community facilities that the Council is responsible for, are as energy efficient as possible.
- Fleet – the Council’s vehicles, especially the refuse freighters, have a big impact on the Council’s carbon footprint. We will ensure we reduce unnecessary travel and where viable use the most energy efficient equipment.
- IT – we will seek to reduce the carbon burden of our IT equipment and ensure it is used in a sustainable way.
- Awareness raising – we will seek to raise awareness of carbon issues amongst our staff, customers and the general public to cut down unnecessary energy waste.
- Renewables – we will investigate ways we can use the council facilities to produce renewable energy, as we already do at Rushcliffe Country Park.

2.4 Implementation

2.4.1 Embedding Carbon Management

This plan will only be effective if Carbon Management is embedded across the authority, this requires a change in attitude and culture. To reduce our CO₂ emissions we need to help people to change their behaviors and awareness, we need to make our properties as efficient as possible and provide our services with consideration of their environmental impacts.

Reducing our CO₂ Emissions



2.4.2 Ongoing management

The Carbon Management Plan will be approved by the Cabinet at Rushcliffe Borough Council, and Community Development Group committee, under the agreed Climate Change Strategy.

This work will be scrutinised by the Performance Management Board annually.

The implementation and review of this plan will be by the Carbon Management Team led by the Head of Community Shaping. The plan will be updated on an ongoing basis as resources, technology and opportunities become available.

The Carbon Management Team is the Head of Community Shaping (Project Sponsor) with assistance from:

- Environmental Sustainability Officer (Project Lead)
- Construction and Energy Manager
- Property Service Manager
- Leisure Contracts Manager
- Recycling2go Team Leader
- Financial Manager
- ITC Manager
- Partnerships and Projects Manager

The Rushcliffe Borough Council Corporate Strategy (2007-11) commits to explore ways the Council and residents of the Borough can “minimise their contribution to global warming”.

The aspirational target of 30% by 2020 will be monitored by the Policy and Performance Team as part of the Corporate Strategy.

2.4.3 Responsibility

Reducing the carbon footprint of Rushcliffe Borough Council is everyone’s job. Each service manager will be required to seek ways to reduce their sections contribution to the footprint and in turn this will be embedded in each member of staff’s duties.

2.4.4 Data Management – measuring the difference, measuring the benefit

Data collection will continue over the plan period, co-ordinated by the Environmental Sustainability Officer, with data provided by the relevant managers / heads of service. Progress will be recorded through the use of Covalent performance management software. Annual results will be compiled and an annual report compiled for consideration by the Senior Management Team and Performance Management Board.

2.4.5 Communication and Training

The plan and annual Green House Gas (GHG) emissions report will be available via the Rushcliffe Borough Council website and intranet. An awareness campaign will be developed to deliver this plan and issues identified with the climate change strategy. Awareness of the plan will be raised internally via staff champions, staff newsletters and induction training. External awareness will be raised via council publications and website.

3. Emissions Baseline and Projections

In 2009/10 Rushcliffe Borough Council produced 5,554 tonnes of CO₂ through its assets and activities, costing the organisation and its delivery partners £1.3 million

3.1 Scope

The Carbon Management Programme will focus on emissions that are under the Council's direct control, where the Council pays the energy bills and the energy use emissions from Leisure Centres for which the Council is responsible. The emissions therefore come from three main sources:

1. Energy Consumption from Buildings
 - a. Including: Rushcliffe Borough Council offices, community facilities and leisure centres for which the Council is responsible. Although emissions data from Leisure Centres is included, the Council does not have direct control over these facilities as they are managed by contractors.
 - b. Excluding: Residential property operated by Housing Associations, other landlords or privately owned residential property; schools, libraries, street lighting and other emissions that are the responsibility of Nottinghamshire County Council.
2. Transport
 - a. Including: Council owned vehicles (fleet) and privately owned vehicles operated by council officers as part of their job, for which they have claimed mileage allowance. Rail, bus, taxi and air travel for business use.
 - b. Excluding: private vehicle use for which no claim has been submitted; commuting by council staff (responsibility of individual); contractors fuel use (responsibility of contractor).

3.2 Baseline

The baseline was measured for the financial year 2009/10. Data was sourced from the Construction and Energy Manager and Leisure Contracts Manager for buildings energy use, from Financial Services for business travel and from the Fleet Manager for the fleet fuel use.

Total annual Carbon Dioxide (CO₂) emissions for Rushcliffe Borough Council's operations were calculated using the Carbon Trust's emission baseline tool, using its standard calculations and energy meter readings. Costs are based on energy tariffs paid by the authority.

No account has been made that all the electricity purchased by the authority is from 'green' sources.. Additionally, the wind generated electricity at Rushcliffe Country Park is not considered, as it is sold back to the grid and not used by the Council. Gas and electricity usage at Bingham, Keyworth and Rushcliffe Leisure Centres are estimates as these are in school grounds, and are not separately metered.

The emissions from private vehicles are estimates as exact emissions are unknown.

The tables on the following page provide further detail.

| | CO ₂ (tonnes) | % | Cost (£) |
|------------------|--------------------------|-------------|--------------------|
| Buildings | 4,474 | 81% | £ 893,980 |
| Transport | 1,080 | 19% | £ 413,301 |
| Total | 5,554 | 100% | £ 1,307,280 |

Summary table of emissions for baseline year 2009/10

These emissions can be allocated to particular services as shown in the following table:

| | | tCO ₂ 2009/10 | % |
|------------------|---|--------------------------|-------------|
| Buildings | Civic Centre | 350 | 6% |
| | Community facilities (including Leisure Centres) | 3,934 | 71% |
| | Hostels | 18 | >1% |
| | Other buildings | 172 | 3% |
| Transport | Fleet | 1,002 | 18% |
| | Business | 78 | 1% |
| Total | | 5,554 | 100% |

This table clearly shows the biggest emitter of CO₂ is our community facilities, the largest part of which is the leisure centres, owned by Rushcliffe Borough Council and operated by external contractors. The second greatest emitter is our fleet; the largest part of this is our refuse freighters.

3.3 Projections of future costs

If we continue to use energy, fuel and water at the same rate, by 2015 the annual cost for these will be £1.47 million, an increase of £164,679

If we continue to work in the same way, then over time the amount of energy we use tends to increase. The Department of Energy and Climate Change (DECC) has estimated this increase in energy use as an annual increase of 0.7%. Inflation and price change leads to the cost increasing by a further 1.7% each year (DECC (2010) Updated Energy and Emissions Projections).

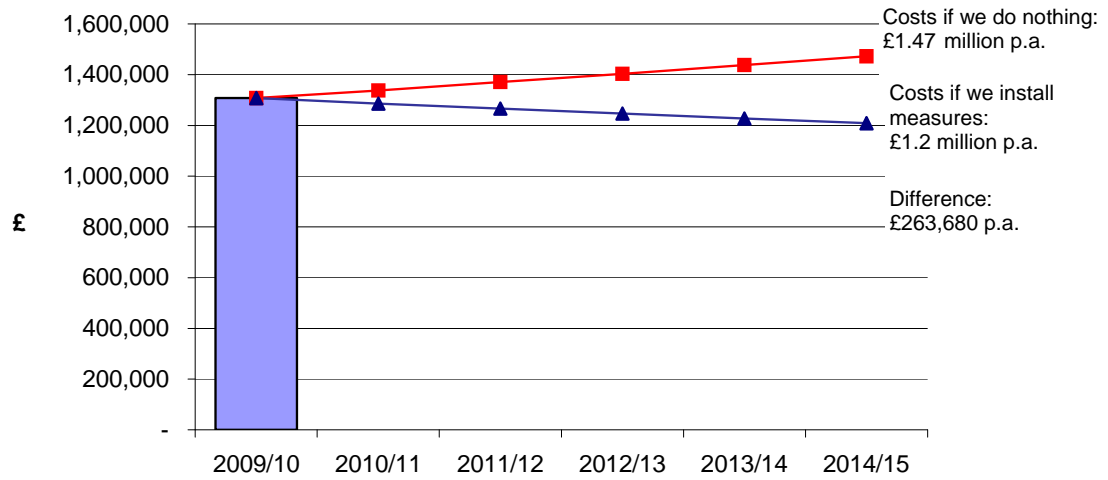
If we do nothing to reduce our energy and fuel use, by 2015 the annual cost will be £1.47 million. This will be an increase of £164,679 over costs in 2009/2010, based on the increases described above.

If we reduce our carbon emissions by our target of 15% by 2015, by carrying out carbon management projects, the total energy cost to the Council and its delivery partners will have been reduced by £263,680 (or 17%) to £1.2 million p.a. (This figure is based on a reduction to the projected annual costs of £1.47 million p.a. by 2015 if no actions are implemented.)

The financial difference is not the same as the percentage CO₂ saving as different carbon sources have different tariffs, e.g. gas is usually cheaper than electricity; the cost is not related to the carbon value.

The following graph shows the financial impact of not implementing carbon management against implementing carbon management.

Graph showing energy costs if we do nothing versus installing CO₂ reduction measures



4. Carbon Management Projects

By 2015 we will implement initiatives providing annual savings of 340 tonnes CO₂ and annual savings of £34,691.
A further 377 tonnes of CO₂ and £32,545 of annual savings are proposed.

4.1 Projects started or approved

The following table lists all the carbon and financial savings for projects that have started or been approved. Further details are given in Appendix B.

| Ref | Project | Cost | | Annual Savings | | Financial Pay back (yrs) | % of 5 year target | Year |
|--------------|---|--------------------------------|--------------------------------|------------------------------|------------------|------------------------------|--------------------|------|
| | | Capital | Operational | Financial | tCO ₂ | | | |
| 1 | Civic Ctr - HSG-UK water saving devices on urinals | £0 | £2,000 p.a. | £0 | 0.2 | no financial savings for RBC | 0.02% | 2010 |
| 2 | Civic Ctr & Depot - SMART meters on key gas/elec supplies | £5,000 | £300 p.a. | £4,974 | 24.1 | 1.1 | 2.89% | 2010 |
| 3 | WB Comm Hall - refurb | £50,000 | £0 | £1,044 | 5.6 | no financial savings for RBC | 0.67% | 2010 |
| 4 | Bridgford Park Toilets | £8,000 | £0 | £31 | 0.2 | no financial savings for RBC | 0.02% | 2010 |
| 5 | PC Power Management | £1,500 | £0 | £5,024 | 22.8 | 0.3 | 2.74% | 2010 |
| 6 | Server Virtualisation | £140,000 | £0 | £20,989 | 95.3 | 6.7 | 11.44% | 2015 |
| 7 | Desktop Printer Review | £0 | £0 | £420 | 1.9 | 0.0 | 0.23% | 2010 |
| 8 | Power Management for MFD's | £240 | £0 | £145 | 0.7 | 1.7 | 0.08% | 2010 |
| 9 | Bin lift equipment | £11,000 | £0 | £1,944 | 5.2 | 5.7 | 0.63% | 2011 |
| 10 | Calorific Value Enhancement (CVE) technology | Costs incurred by contractors* | Costs incurred by contractors* | no financial savings for RBC | 48.6 | no financial savings for RBC | 5.83% | 2010 |
| 11 | SAVASTATS | Costs incurred by contractors* | Costs incurred by contractors* | no financial savings for RBC | 135.5 | no financial savings for RBC | 16.26% | 2010 |
| Total | | £215,740 | £2,300 p.a. | £34,571.00 | 340.1 | | 40.81% | |

4.2 Potential projects not yet approved

The following table lists projects that have not yet been approved, but could potentially be carried out by 2015; these projects have been included in the calculation for total savings. *See notes below.

| Ref | Project | Cost | | Annual Savings | | Financial Pay back (yrs) | % of 5 year target | Year |
|-----|---|---------------------------------|--------------------------------|------------------------------|------------------|------------------------------|--------------------|------|
| | | Capital | Operational | Financial | tCO ₂ | | | |
| 12 | Lock TRVs at civic centre | £1,250 | £0 | £1,018 | 5.8 | 1.2 | 0.69% | 2013 |
| 13 | Awareness Training <small>(see notes below)</small> | £0* | £200 p.a. | £6,885 | 247.9 | 0.0 | 29.75% | 2012 |
| 14 | Business Driver training | £4,400 | £200 p.a. | no financial savings for RBC | 2.6 | no financial savings for RBC | 0.31% | 2013 |
| 15 | Timers on vending machines at Leisure centres <small>(see notes below)</small> | Costs incurred by contractors * | Costs incurred by contractors* | no financial savings for RBC | 5.5 | no financial savings for RBC | 0.66% | 2013 |
| 16 | Timers on hot water boilers at civic centre (x8) | £80 | £0 | £534 | 2.4 | 0.1 | 0.29% | 2012 |
| 17 | Lighting Project - Upgrade lighting across the portfolio including lighting rationalisation, active labelling scheme, mirror reflector fittings, T5 upgrades, high frequency to electronic switch start, and controls | £62,000 | £0 | £21,265 | 96.6 | 2.9 | 11.59% | 2013 |

| | | | | | | | | |
|--------------|---|----------------|------------------|----------------|--------------|-----|---------------|------|
| | where feasible | | | | | | | |
| 18 | Boiler room insulation project including calorifiers, heat exchangers, boilers, pipework, valves and flanges not already or fully insulated | £8,500 | £0 | £2,843 | 16.1 | 3.0 | 1.93% | 2013 |
| Total | | £76,230 | £400 p.a. | £32,545 | 376.9 | | 45.22% | |

For awareness training the carbon saving is based on 5% energy saving across by staff following training (i.e. more staff switch lights off, etc.). The carbon saving is across the Council and leisure centres, but the financial saving is for the Council only, as the financial savings at the leisure centres will go to the operating company. Training needs to be regularly repeated to account for new staff and awareness dropping over time as people return to old habits. The figure of 5% is based on an average of savings achieved through campaigns run at other businesses as reported by The Carbon Trust.

For the business driver training, no financial saving has been attributed to the authority as currently payments are made on a per mile basis, without a change to this policy the Council would not benefit financially through improved driving skills on business mileage.

TRVs are Thermostatic Radiator Valves; these are adjustable valves that operate individual radiators according to the room temperature, often these are misused as it takes time for a room to heat up, but users often turn them up if they are feeling cold, this leads to the room overheating, users then turn them down and the room gets too cold. TRVs should be locked to an optimum operating temperature.

Some of the projects listed (particularly Ref 3, and 4) are being carried out for purposes other than saving carbon and will be implemented anyway, however they will provide some carbon saving. The cost shown is a proportion of the overall cost and is attributable to the new energy efficient equipment and materials being fitted, but this may not provide a payback purely on grounds of energy saving.

Some projects do not lead to a financial saving for Rushcliffe Borough Council, as the service provider pays the energy costs and would therefore receive the benefit. In these cases it is expected that the service provider will provide the capital and revenue required.

4.3 Community Buildings and Leisure Centres Renewables

Subject to a review of our Leisure Facilities Strategy and member approval, our buildings have the potential to have renewable energy equipment fitted. This will assist us in further reducing our carbon emissions, thereby meeting our targets.

A survey of the capability for fitting Photovoltaic cells (PV) has been carried out. Photovoltaic cells (PV) are solar panels that generate electricity and can be fitted on the roofs of some buildings; they are effective where the roof is flat or south facing and is not overshadowed by other buildings or trees.

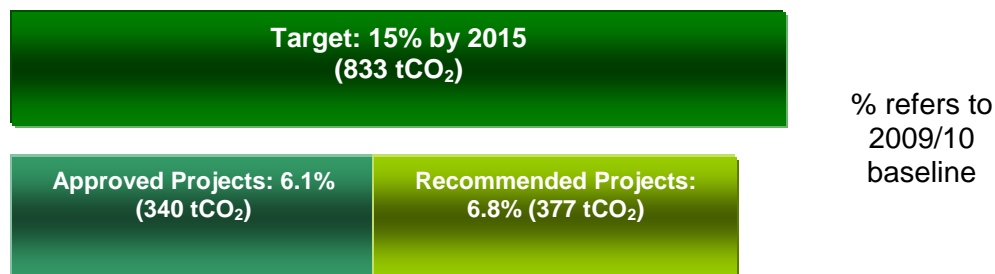
Combined Heat and Power plants (CHP), could also be fitted to some buildings. CHP's are heating systems that also generate electricity; these are particularly valuable where a lot of heat is required e.g. for heating swimming pools. The potential for CHP has not yet been assessed.

4.4 Other projects

The following projects could also be carried out. The costs and savings have yet to be quantified, but will be considered during the life of this plan.

- a. Pool Cars – zero or low carbon pool cars available for staff to use for business travel - would reduce business travel emissions.
- b. Green travel scheme (bus ticket purchase scheme) – impacts more on commuting (not included in carbon baseline) but could reduce some business travel emissions.
- c. Review business mileage payment rates – using business travel payments to favour low carbon vehicles, would over time encourage greater use of zero or low carbon vehicles and therefore reduce business travel emissions.
- d. Asset Management review – Accommodation at the Civic Centre on Pavilion Road is being reviewed. Options to address the efficiency of this building include moving to alternative accommodation or refurbishing the existing building to higher thermal and energy efficiency standards, while seeking to free space for external lease / rental. Considerations of alternative working arrangements are also considered (this may also reduce staff commuting and its associated carbon footprint). Further guidance on these opportunities is given in Appendix C.
- e. Leisure facilities review – the Leisure Centres are the largest part of Rushcliffe Borough Council's carbon footprint, Rushcliffe and Bingham Leisure Centres are both relatively old. Good practise benchmarks for equivalent leisure centres far exceed the energy efficiency of these sites. Consideration of these issues should be included in leisure reviews.
- f. Fleet upgrades – the fleet is the second greatest part of Rushcliffe Borough Council's carbon footprint, upgrades to the refuse fleet and other fleet vehicles, including alternative fuel use and fuel efficiency will be considered. Improvements would increase carbon and financial savings and may also give opportunities for financial savings on bulk purchase.
- g. Web Conferencing facilities to reduce business travel.

4.5 Projected achievement towards the 2015 target



If the projects in 4.1 and 4.2 of this plan are implemented and achieve their intended saving, then 86% of the 2015 target of achieving a 15% reduction in CO₂ emissions will be achieved.

We have identified projects in section 4.1 and 4.2 that will deliver a 13% reduction in our current total emissions (or 717 tCO₂).

5. Implementation

5.1 Financing

Finance for the projects in 4.1 is included in capital and revenue budgets. Finance for the remaining projects is still to be identified and agreed. With high and rising energy prices and low rates of return on investments in financial markets, investing in energy saving measures offers comparatively high rates of return.

5.1.1 Unquantified Benefits

Implementing the Carbon Management Plan will deliver a range of other benefits which cannot be quantified in monetary terms. Below is a list of some of these benefits:

- Meeting government targets for carbon reduction
- Enhanced reputation of the Council in demonstrating that it leads by example.
- Lower maintenance costs with modern plant installed.
- Greater involvement by all members of staff in implementing the Council's Climate Change priority.
- Increased awareness amongst staff, stakeholders and the general public.
- Council being able to exert more influence in other organisations to follow our example.



Appendix A: Carbon Management Matrix – Embedding

This table shows the assessment of carbon management as at Jan 2011. Once this programme has been implemented, this can be used to assess progress.

| Benchmark score | Corporate Strategy | Programme Management | Responsibility | Data Management | Communication & Training | Finance & Investment | Policy Alignment |
|------------------|---|---|--|---|--|---|---|
| BEST 5 | Top level target allocated across organisation CO ₂ reduction targets in Directorate Business Plans Action plans in place to embed strategy. Progress routinely reviewed | Cabinet/SMT review progress against targets on quarterly basis Regular diagnostic reports provided to Directorates Progress against target published externally | CM integrated in responsibilities of senior managers CM part of all contracts / T & Cs Central CO ₂ reduction advice available Green Champions leading local action groups | Regular collation of CO ₂ emissions for all sources Data externally verified Monitoring & Targeting in place for: o buildings o street lighting o waste | All staff given formalised CO ₂ reduction: o induction and training o communications Joint CM communications with key partners Staff awareness tested through surveys | Finance committed for 2+ yrs of Programme External funding being routinely obtained Ring-fenced fund for carbon reduction initiatives | CO ₂ friendly operating procedure in place Central team provide advice and review, when requested Barriers to CO ₂ reduction routinely considered and removed |
| 4 | CO ₂ reduction commitment in Corporate Strategy Top level targets set for CO ₂ reduction Climate Change Strategy reviewed annually | Sponsor reviews progress and removes blockages through regular Programme Boards Progress against targets routinely reported to Senior Mgt Team | CM integrated in to responsibilities of department heads Cabinet / SMT regularly updated Staff engaged through Green Champion network | Annual collation of CO ₂ emissions for: o buildings o street lighting o transport Data internally reviewed | All staff given CO ₂ reduction: o induction o communications o CM matters communicated to external community | Coordinated financing for CO ₂ reduction projects via Programme Board Finances committed 1 yr ahead Some external financing | Comprehensive review of policies complete Lower level policies reviewed locally Unpopular changes being considered |
| 3 | CO ₂ reduction vision clearly stated and published Climate Change Strategy endorsed by Cabinet and publicised with staff | Core team regularly review CM progress: o actions o profile and targets o new opportunities | An individual provides full time focus for CO ₂ reduction Key individuals have accountability for carbon reduction Senior Sponsor actively engaged | Collation of CO ₂ emissions for limited scope i.e. buildings only | Environmental/energy group(s) given ad hoc: o training o communications | A view of the cost of CO ₂ reduction is developing, but finance remains ad-hoc Some centralised resource allocated Finance representation on CM Team | All high level and some mid level policies reviewed, irregularly Substantial changes made, showing CO ₂ savings |
| 2 | Draft Climate Change Policy Climate Change references in other strategies | Ad hoc reviews of CM actions progress | CO ₂ reduction a part-time responsibility of a few department champions | No CO ₂ emissions data compiled Energy data compiled on a regular basis | Regular awareness campaigns Staff given CM information on ad-hoc basis | Ad hoc financing for CO ₂ reduction projects | Partial review of key, high level policies Some financial quick wins made |
| 1 | No policy No Climate Change reference | No CM monitoring | No recognised CO ₂ reduction responsibility | No CO ₂ emissions data compiled Estimated billing | No communication or training | No specific funding for CO ₂ reduction projects | No alignment of policies for CO ₂ reduction |

Appendix B: Definitions of Approved Projects

| | |
|--------------------------|--|
| Project: | Civic Ctr - water saving devices on urinals |
| Reference: | RBC-001 |
| Owner (person) | Construction & Energy Manager |
| Department | Property Services |
| Description | Fit Ureco Urinal Sleeve Systems to all the urinals at the Civic Centre, this is a service provided by HSG-UK. This should reduce water usage at the Civic Centre by 500m ³ and reduce cleaning material costs |
| Benefits | <ul style="list-style-type: none"> CO₂ Emissions reduction: 0.2 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> Project cost, £2000 per year service cost |
| Resources | <ul style="list-style-type: none"> No additional resources required |
| Ensuring Success | <ul style="list-style-type: none"> Principal risks: incorrect cleaning materials used |
| Measuring Success | <ul style="list-style-type: none"> Reduced water consumption |
| Timing | <ul style="list-style-type: none"> Implemented 2010 for 2 years |
| Notes | Assumes 500m ³ of water saving |

| | |
|--------------------------|--|
| Project: | Civic Ctr & Depot - SMART meters |
| Reference: | RBC-002 |
| Owner (person) | Construction & Energy Manager |
| Department | Property Services |
| Description | SMART meters to be fitted to key gas and electricity supplies at the Civic Centre and Depot. The findings from the SMART meters will be used to target further action and awareness raising. |
| Benefits | <ul style="list-style-type: none"> Financial savings: £5,038 CO₂ Emissions reduction: 24.4 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> Project cost, £5000 capital, £300 operational |
| Resources | <ul style="list-style-type: none"> Will require staff time for training and awareness raising |
| Ensuring Success | <ul style="list-style-type: none"> Ensure data is analysed Use the data to target action |
| Measuring Success | <ul style="list-style-type: none"> Reduced consumption at the meters |
| Timing | <ul style="list-style-type: none"> Due to start 2011 |
| Notes | Based on 5% estimate for savings |

| | |
|--------------------------|---|
| Project: | WB Community Hall - refurbishment |
| Reference: | RBC-003 |
| Owner (person) | Construction & Energy Manager |
| Department | Property Services |
| Description | Refurbishment of West Bridgford Community Hall including water saving measures, domestic hot water heating saving measures, upgraded to central heating components and controls, efficient lighting and upgrading thermal insulation. |
| Benefits | <ul style="list-style-type: none"> CO₂ Emissions reduction: 5.6 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> Project cost, £50,000 for energy efficiency measures |
| Resources | <ul style="list-style-type: none"> No additional resource required |
| Ensuring Success | <ul style="list-style-type: none"> Ensure controls are used correctly. |
| Measuring Success | <ul style="list-style-type: none"> Reduced fuel consumption |
| Timing | <ul style="list-style-type: none"> Implemented during 2010 |
| Notes | Based on 10% estimate for savings |

| | |
|--------------------------|--|
| Project: | Bridgford Park Toilets |
| Reference: | RBC-005 |
| Owner (person) | Construction & Energy Manager |
| Department | Property Services |
| Description | Refurbishment of Bridgford Park toilets to include controls over water and lighting, and access which will hopefully counter vandalism (indirect energy saving). |
| Benefits | <ul style="list-style-type: none"> • CO₂ Emissions reduction: 0.2 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> • Project cost, £8000 for energy efficiency measures |
| Resources | <ul style="list-style-type: none"> • No additional resource required |
| Ensuring Success | <ul style="list-style-type: none"> • Ensure controls are used correctly. |
| Measuring Success | <ul style="list-style-type: none"> • Reduction in fuel and water consumption |
| Timing | <ul style="list-style-type: none"> • Completed |
| Notes | Anticipate min 10% reduction in power/water |

| | |
|--------------------------|---|
| Project: | PC Power Management |
| Reference: | RBC-006 |
| Owner (person) | ICT Manager |
| Department | Information & Communication Technology |
| Description | Installation of PowerMAN power manger software on the Rushcliffe computer network. This automatically powers down computers which are not in use but left switched on. |
| Benefits | <ul style="list-style-type: none"> • Financial savings: £5,024 per annum • CO₂ Emissions reduction: 22.8 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> • Project cost, £1500 |
| Resources | <ul style="list-style-type: none"> • No additional resource required |
| Ensuring Success | <ul style="list-style-type: none"> • Ensure controls are used correctly and do not adversely impact on IT users |
| Measuring Success | <ul style="list-style-type: none"> • Software records computer usage and shows savings made |
| Timing | To be implemented during 2010/2011 |
| Notes | Assuming an average of 4.8 hours inactivity / day, Assuming 80% recovery rate, assuming 100W per pc with monitor. Assuming 300 PCs |

| | |
|--------------------------|--|
| Project: | Server Virtualisation |
| Reference: | RBC-007 |
| Owner (person) | ICT Manager |
| Department | Information & Communication Technology |
| Description | Installing multiple independent operating systems on servers within our server infrastructure, reducing the number of actual hardware servers required by 25. This reduces electricity use directly, but also reduces the heat output from the servers, reducing the need for air conditioning in the server room. |
| Benefits | <ul style="list-style-type: none"> • Financial savings: £13,118 per year • CO₂ Emissions reduction: 59.6 tonnes of CO₂ per year • No calculation for reduced air conditioning has been made, but this is often quoted as equalling the servers power usage |
| Funding | <ul style="list-style-type: none"> • Project cost, £140,000 |
| Resources | <ul style="list-style-type: none"> • No additional resource required |
| Ensuring Success | <ul style="list-style-type: none"> • Creation of virtual servers and removal of redundant servers • Ensure air conditioning is reduced to the actual demand |
| Measuring Success | <ul style="list-style-type: none"> • Reduction in Civic Centre energy consumption |
| Timing | Phased Implementation from 2010 onwards |
| Notes | Assumes 500 W per server, 24 hours per days, 7 days per week |

| | |
|--------------------------|--|
| Project: | <i>Desktop printer review</i> |
| Reference: | <i>RBC-008</i> |
| Owner (person) | ICT Manager |
| Department | Information & Communication Technology |
| Description | Rationalizing the number of desktop printers and increasing access to shared Multi Function Devices |
| Benefits | <ul style="list-style-type: none"> Financial savings: £105 per year CO₂ Emissions reduction: 0.5 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> Project cost, there are no capital or operation costs |
| Resources | <ul style="list-style-type: none"> No additional resources are required |
| Ensuring Success | <ul style="list-style-type: none"> Access to shared Multi Function Devices needs to be appropriate to user needs (e.g. distance to collect, colour printing, ability to print on special paper e.g. letterhead etc) |
| Measuring Success | <ul style="list-style-type: none"> Reduction in electricity usage |
| Timing | <ul style="list-style-type: none"> Implemented in 2010 |
| Notes | Twenty printers removed at an estimated 20W each, 6 hours per day |

| | |
|--------------------------|---|
| Project: | <i>Power Management for Multi Function Devices</i> |
| Reference: | <i>RBC-009</i> |
| Owner (person) | ICT Manager |
| Department | Information & Communication Technology |
| Description | Fitting timers to 12 MFDs |
| Benefits | <ul style="list-style-type: none"> Financial savings: £145 per year CO₂ Emissions reduction: 0.7 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> Project cost, £240 |
| Resources | <ul style="list-style-type: none"> Require PAT testing |
| Ensuring Success | <ul style="list-style-type: none"> Ensure timers are used and set to the right time. |
| Measuring Success | <ul style="list-style-type: none"> Reduced electricity consumption |
| Timing | <ul style="list-style-type: none"> Fitted in 2010 |
| Notes | Assuming saving 12 hours electricity on weekdays and 24 hours electricity at weekends over 52 weeks per year at 18W per device. |

| | |
|--------------------------|---|
| Project: | <i>Bin lift equipment</i> |
| Reference: | <i>RBC-011</i> |
| Owner (person) | Fleet Manager |
| Department | Depot Services |
| Description | Fit bin lifting equipment to refuse trucks, these avoid the engine being used to provide direct power, reducing fuel use |
| Benefits | <ul style="list-style-type: none"> Financial savings: £1,944 per year per appliance CO₂ Emissions reduction: 2.6 tonnes of CO₂ per year per appliance |
| Funding | <ul style="list-style-type: none"> Project cost, £5,500 per appliance |
| Resources | <ul style="list-style-type: none"> |
| Ensuring Success | <ul style="list-style-type: none"> |
| Measuring Success | <ul style="list-style-type: none"> Reduced diesel consumption |
| Timing | <ul style="list-style-type: none"> Two to be purchased in 2011 |
| Notes | Based on a 6% fuel saving assuming an average of our 26 ton diesel Refuse freighters = 16012 Litres per year, 11322 Miles. Price based on increase cost over standard bin lifting appliance. |

| | |
|--------------------------|---|
| Project: | Calorific Value Enhancement (CVE) technology |
| Reference: | RBC-012 |
| Owner (person) | Leisure Contract Manager |
| Department | Partnerships and Performance |
| Description | Calorific Value Enhancement (CVE) technology which allows gas molecular conditioning before entry to the combustion zone running thus delivering maximum efficiencies on gas consumption and reducing energy costs and emissions |
| Benefits | <ul style="list-style-type: none"> Financial savings: No financial benefit to Rushcliffe Borough Council CO₂ Emissions reduction: 48.6 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> Project cost, No cost to Rushcliffe Borough Council |
| Resources | <ul style="list-style-type: none"> No further resources required |
| Ensuring Success | <ul style="list-style-type: none"> |
| Measuring Success | <ul style="list-style-type: none"> Reduced gas consumption |
| Timing | <ul style="list-style-type: none"> Fitted in 2010 |
| Notes | Fitted at 2 leisure centres (Rushcliffe and Bingham) Sept 2010. KWh estimated from a claimed CO ₂ saving of 52.8 tonnes Rushcliffe leisure centres are managed under contract by Parkwood Leisure, therefore there are no costs to Rushcliffe Borough Council or financial benefit. |

| | |
|--------------------------|--|
| Project: | SAVASTATS |
| Reference: | RBC-013 |
| Owner (person) | Leisure Contract Manager |
| Department | Partnerships and Performance |
| Description | SAVASATS ensures the boilers are always running at maximum efficiencies reducing energy costs and emissions. |
| Benefits | <ul style="list-style-type: none"> Financial savings: Does not provide a financial benefit to Rushcliffe Borough Council CO₂ Emissions reduction: 135.5 tonnes of CO₂ per year |
| Funding | <ul style="list-style-type: none"> Project cost, No cost to Rushcliffe Borough Council |
| Resources | <ul style="list-style-type: none"> No further resources required |
| Ensuring Success | <ul style="list-style-type: none"> |
| Measuring Success | <ul style="list-style-type: none"> Reduced gas consumption |
| Timing | <ul style="list-style-type: none"> Fitted in 2010 |
| Notes | Fitted at all leisure centres Sept 2010. KWh estimated from a claimed CO ₂ saving of 147.3 tonnes. Rushcliffe leisure centres are managed under contract by Parkwood Leisure; therefore there are no costs to Rushcliffe Borough Council or financial benefit. |

Appendix C: Design standard for refurbishment or replacement of Council property

Office Type

Offices can be divided into 4 types, the types likely to be used by Rushcliffe Borough Council are:

OFFICE TYPE 1 - A simple building, often (but not always) relatively small and sometimes in converted residential accommodation. Typical size ranges from 100 m² to 3000 m². The domestic approach, with individual windows, lower illuminance levels, local light switches and heating controls helps to match the operation with the needs of occupants and tends to reduce electricity consumption in particular. There also tend to be few common facilities. Catering often consists of the odd sink, refrigerator and kettle.

OFFICE TYPE 2 - Naturally ventilated open-plan - Mainly open-plan but with some cellular offices and special areas. Typical size ranges from 500 m² to 4000 m². This type is often purpose built, sometimes in converted industrial space. Illuminance levels, lighting power densities and hours of use are often higher than in cellular offices. There is more office equipment, vending machines etc, and more routine use of this equipment. Lights and shared equipment tend to be switched in larger groups, and to stay on for longer because it is more difficult to match supply to demand.

OFFICE TYPE 3 - Air-conditioned Standard - Mainly purpose-built and often speculatively developed. Typical size ranges from 2000 m² to 8000 m². This type is similar in occupancy and planning to building type 2, but usually with a deeper floor plan, and tinted or shaded windows which reduce daylight still further. These buildings can often be more intensively used. The benchmarks are based on variable air volume (VAV) air-conditioning with aircooled water chillers; other systems often have similar overall consumption but a different composition of end use.

Type 4 offices are larger than the council would need.

The Civic Centre on Pavilion Road largely falls into Office type 2, with some aspects of type 1.

'Typical' energy consumption patterns are consistent with median values of data collected from a broad range of occupied office buildings of each type. 'Good practice' examples are those in which significantly lower energy consumption has been achieved using widely available and well-proven energy-efficient features and management practices. These examples fall within the lower quartile of the data collected.

Office Size

HSE regulations propose that in an average room, where the ceiling is 2.4 metres high, a floor space of 4.6 square metres per person is necessary. (If the ceiling is three metres or above, the minimum space decreases to 3.7 square metres). Plus non work areas eg toilets, kitchens etc. Consideration needs to be given to non standard working eg. opening out large plans, need for large scanners/printers and plan chests as well as circulation space. Alternative working arrangement also should be considered.

Therefore 400 people = minimum of 1840 m² plus other space (assuming 2.4m high)
If 75% of the buildings gross internal area is office space, then:

Gross internal area = $1840/0.75 = 2453 \text{ m}^2$ minimum, some offices will require more space and meeting rooms are also required (assumed $\sim 1500 \text{ m}^2$). Assume minimum gross internal area required = 3500 m^2 (civic centre currently = 5399 m^2)

Benchmarks

Benchmark energy use figures

| Building Type List | Electricity (kWh / m2) | | Gas or Oil (kWh / m2) | |
|-----------------------------------|------------------------|---------------|-----------------------|---------------|
| | Typical | Good Practice | Typical | Good Practice |
| Office - No AirCon Cellular type1 | 51 | 31 | 143 | 75 |
| Office - No AirCon OpenPlan type2 | 81 | 51 | 143 | 75 |
| Office - AirCon Standard type3 | 203 | 115 | 160 | 87 |
| Current Civic Centre | 86 | | 82 | |

From AEG (2010) Tool for calculation of CO₂ emissions from organisations, DEFRA and Rushcliffe Energy Manager

Case Studies - examples of exemplar developments include:

- Refurbishment of Elizabeth II Court, Winchester, for Hampshire County Council
- New build Operations Centre on St John Street in Coventry for Severn Trent Water

WE SHOULD AIM TO EXCEED THE GOOD PRACTICE BENCHMARK FOR ANY BUILDING WE USE FOR THE FUTURE.

Considerations for energy and environmental management in new or refurbished offices

- Make sure that energy performance and environmental issues are properly covered in the brief for design or property selection and the detailed specification of buildings, services and controls for new construction, refurbishment and maintenance.
- Include energy efficiency and power demand benchmarks in briefs for designs, alterations and fit-outs.
- Ask energy specialists to review design specifications and performance.
- Consider whether air-conditioning is really required, and whether it is needed throughout the building, look for natural ventilation methods and shading of exposed windows.
- Be prepared to invest in measures that bring good returns. However, many measures will cost little or no more, and some will bring rapid savings.
- Make sure that:
 - systems are readily and easily controllable by staff at the site,
 - respond clearly, quickly and effectively to management and occupant needs,
 - avoid systems defaulting to ON,
 - are properly commissioned.

Consider each of these:

End uses (building services):

- heating and hot water – e.g. gas, oil, biomass, heat pump (air, ground or water), CHP.
- cooling – including natural ventilation, chillers, packaged air conditioning equipment, condensers and cooling towers.
- fans - pumps and controls.
- humidification – though rare, is spreading in mechanically ventilated and air-conditioned buildings, avoid by careful design.
- lighting of the treated area – quantity, type, fittings and control methods.
- Water supply and use - Rainwater harvesting, tap controls, flush saving devices, waterless urinals etc.

End uses (occupiers' equipment):

- office equipment – excluding vending machines, local kitchens or equipment in dedicated rooms (e.g. computer suites and print rooms). Efficient appliances and controls (e.g., turned off outside work hours).
- catering – including vending machines, kettles, dishwashers, water boilers etc, efficient appliances and controls (e.g., turned off outside work hours).
- other electricity – including lifts, print rooms, and energy use outside the measured treated area, for instance by plant room or exterior lighting. Use most efficient equipment and consider replacing older equipment.
- computer and communications rooms – including air-conditioning of their dedicated suites. Energy use depends on the amount of equipment installed and can be substantial. Consider how to reduce energy consumption and make use of hot air from IT related operations.

Considerations for Refurbishment of Civic Centre

- Replacing boilers – these should be more efficient than current boilers, also opportunity to consider use of biomass fuel, CHP plant or water source / ground source heat pump.
- Dealing with excess summer heating by improving ventilation and air movement across building plus summer shading of exposed windows.
- Improved thermal retention in winter.
- Waste heat from cooling plants required to service the Council's Data Centre recycled to heat areas of the building in winter.
- Upgraded light fittings and improved controls (e.g. presence detection, timers etc)
- Increasing the occupancy levels.

Based on: Action Energy (2003) ENERGY CONSUMPTION GUIDE: Energy use in offices,
CROWN COPYRIGHT