

Report to Sustainable development panel
25 September 2013

Report of Executive head of strategy, people and democracy

Subject Carbon reduction

Item

8

Purpose

This report is to update the committee on the outcomes of phase 1 of the carbon management plan.

Recommendation

To consider the report.

Corporate and service priorities

The report helps to meet the corporate priority Value for money services and the service plan priority to “reduce the council’s carbon emissions through a carbon management programme”.

Financial implications

None.

Contact officers

Richard Willson, environmental strategy manager 01603 212312

Claire Tullett, environmental strategy officer 01603 212545

Background documents

Norwich City Council’s Carbon Management Plan 2008-2013.

Report

Background:

1. The Carbon Management plan (CMP) was finalised and approved by executive in April 2009. It set out the council's strategy for reducing carbon emissions.
2. 2006/7 baseline emissions were calculated to have come from council buildings, travel/ fuel use, lighting, water consumption and non-domestic waste to landfill, and in 2006/7 to have totaled **11,468** tonnes of CO₂ equivalent (tCO₂e).
3. In 2008 Norwich City Council worked in partnership with the Carbon Trust and 73 other local authorities in a programme to calculate our carbon emissions footprint, to set targets for reducing our carbon emissions, and to formulate a plan to deliver the target. This work culminated in the create of phase 1 of the Carbon Management Plan for Norwich City Council.
4. Phase 1 of the Carbon Management Plan is now complete and the purpose of this report is to consider to what extent the plan has achieved it's objectives, and what learning we can take forward into the next phase of the Carbon Management Plan.

Targets:

5. The ambitious original target, set in the council's first carbon management plan in 2007, was to reduce CO₂ emissions from council activities by 30% from the 2007 baseline over the 5 year course of the plan.

Measures:

6. The Carbon Management Plan stated a series of measures whereby carbon reductions could be made these are detailed below, and actions taken are given.

Measure	Action taken
Improve the energy performance of buildings	Improvement in DEC rating for largest assets following a range of energy efficiency works. See Appendix A for example DEC certificates of large assets
To engage staff in carbon reduction	Introduction of carbon reduction publicity scheme – one small step, regular events and competitions for staff
Increase the percentage of energy	Change to green tariff for energy supply.

sourced from renewable or efficient sources	Introduction of renewable technologies to assets e.g. 36 KW pv installation on City Hall roof
To utilise technology to drive efficiency in public lighting provision	Trialling LED lights in car park for roll-out when old fittings need replacing
To improve the control of landlord lighting to optimise the balance between emissions and community safety	Investigations made into replacement of floodlighting with more efficient LED lighting
To reduce the amount of vehicle fleet and business miles travelled	Fleet review undertaken with Energy Saving Trust and findings being implemented. Cycle to work scheme and pool bikes introduced
To reduce the emissions from journeys made	Cycle to work scheme, pool bikes and electric cars introduced. Move away from one-size-fits-all fleet to smaller fleet more tailored to use following consultation with staff
To use more efficient vehicles	Our fleet is better fitted to purpose which has resulted in a reduction of fleet size. Most of the fleet are small engine size for city driving, plus 4 electric vehicles. To date 32 staff have completed the mandatory cycle training to allow them to use the pool bikes
To encourage the use of more sustainable methods of transport	Travel to work survey completed, cycle to work scheme introduced, bicycle shed refurbishment programmed, electric vehicles introduced to fleet.
Investing in energy conservation measures ideally with a 5 year or less payback	Funded through the Salix programme, over 30 projects have been introduced
Ensure effective collection and management of data for significant sources	Introduction of half-hourly meter reads for largest assets. LEAN review of billing complete
Production of an annual report on energy consumption	Environmental strategy team produce an annual report which is submitted to central government
Develop an internal “ring fenced” financing mechanism for carbon management	Eco-investment fund established
Developing relationships with partners to	We work regularly with our Salix partners across the UK and locally with the Norfolk

share best practice and deliver improved carbon reduction schemes	Climate Change Taskforce to share best practice
Develop a “sustainable procurement guide”	Completed. This can be found in the council’s Procurement Guide and Toolkit.
Monitoring of waste contracts	More efficient routes implemented using GIS mapping, 2011/12 and 2012/13 Norwich produced less household waste per household than any other local authority in Norfolk.
Water use reduction	Ongoing work with Anglian Water re: water monitoring and reduction. Aerators fitted to council houses properties to help save water, trialling combined sink/toilets which reuse grey water to flush

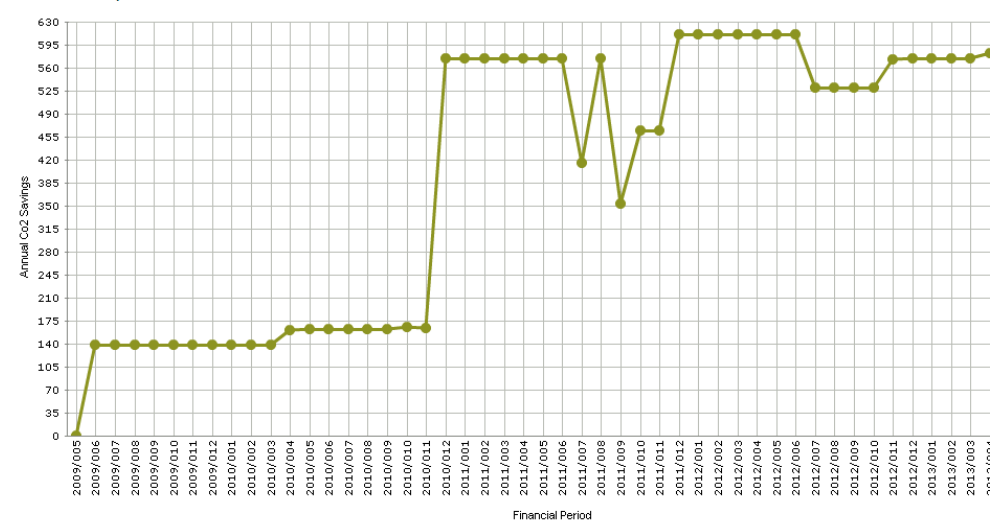
Carbon reduction:

Salix funding:

7. As a result of the approval of the Carbon Management Plan the council applied for and received Salix loan funding of £200,000. In addition the council has match funded this using £200,000 of the council’s own ‘invest to save’ funding.
8. We have been able to invest £365,000 in more than 30 projects which have helped to underpin the carbon emissions savings we have achieved over the five year lifetime of the first Carbon Management Plan. We have worked with 12 companies to install these projects.
9. Some of these projects have made sufficient savings to pay-back the Salix loan and now continue to recoup savings for the council in energy efficiency savings. This money is recycled back into the Salix fund for future energy efficiency works.
10. Over time it has become increasingly more challenging to continue to implement additional new energy efficiency projects, and therefore to make the savings once the easier projects are completed. However, we will continue to develop new opportunities as part of our new carbon management plan.
11. The graph below, from Salix, shows the annual amount of CO₂ being saved through Salix funded projects by the council.

Annual CO2 Savings Graph

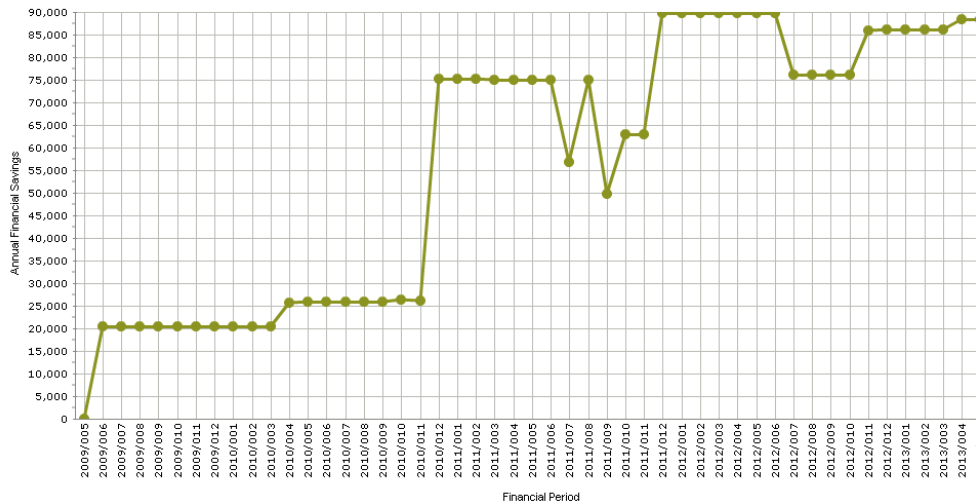
CNOR06 - Norwich City Council



12. The graph below, from Salix, shows the annual financial savings being made through Salix funded projects by the council.

Annual Financial Savings Graph

CNOR06 - Norwich City Council



13. Further details of some of Salix funded projects can be found below. Appendix B gives more details of the financial and carbon savings made by each project.

Examples of Salix projects:

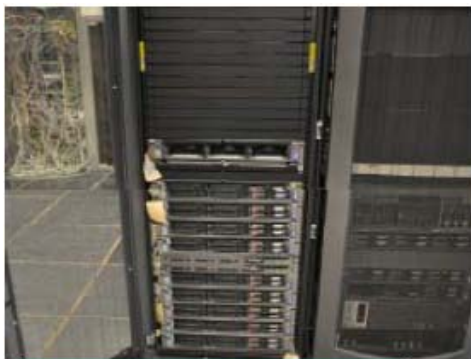
14. *Pool cover at Riverside swimming pool* - the cover goes over the pool each evening and help to retain the pool temperature meaning that not as much energy is used to bring the pool back up to the required temperature the following day.



15. *St Andrews MSCP lighting upgrade* - 395 lighting units were changed to reduce the amount of electrical load required by 31% whilst maintaining the requisite lighting levels. Old fittings were changed for new energy efficient LED fittings.



16. *PC Powerdown* - Nightwatchman software was installed on to the council's computer network to ensure that pc's 'powered down' overnight and back up again each morning. It overcomes the problem of staff leaving computer running unnecessarily overnight, but is intelligent enough to allow for periodic upgrades of other data on the system.
17. *Voltage reduction at City Hall and Riverside leisure centre* - a voltage optimisation unit was fitted at both City Hall and Riverside leisure centre. Most electrical equipment in Europe is designed and manufactured to run at 220V but most buildings are supplied voltage much higher than this. The voltage optimisation unit works to supply voltage at the level required and enables us to make savings on the energy not required.
18. *Server Virtualisation* - minimising the number of servers being used by the physical number of servers by having one server which is split up into lots of sections or 'virtual servers' on the one server using different software/hardware.



19. *Other energy saving solutions* - not all of our energy efficiency solutions are high-tech. We have made significant savings by fitting insulation covers to the boiler house valves at city hall and St Andrews hall as well as by installing timers on to vending machines at the Norman centre and Riverside and water coolers at city hall.



20. Not all our energy savings have come through installing new equipment. Some of our savings have been made through behaviour change, and understanding more clearly what staff need, and how to motivate their behaviour.
21. *Fleet Review* - in 2011 we worked with the Energy Saving Trust to undertake a Fleet Review of the council's fleet of vehicles. The review highlighted concerns around a lack of robust systems for accurate data collection for mileage and petrol use. It also highlighted how our pool fleet had been underused, and how the pool fleet (solely consisting of 49 VW Polo Blue Motion's) suffered from trying to be a 'one size fits all solution'.
22. Following consultation with staff about their fleet requirements and journey types a new fleet was introduced in October 2012. We then sought out vehicles which would meet staff requirements whilst remaining economic and minimising environmental impact. As a result our new pool fleet consists of:
- Small petrol cars for city trips
 - A medium petrol car for longer trips
 - Two estate cars for staff needing to carry equipment, but not requiring a van
 - Four electric vehicles – two for all staff to use and two based at our main neighbourhood office



23. Each vehicle has been fitted with telemetry which enables us to gather data about how far the car has been driven, the fuel consumption and how the car has been driven. With this data we hope to be able to allocate the vehicles to the areas of most need, and when the fleet is next refreshed to be able to reduce the number of vehicles in the fleet if it is shown that some vehicles are under utilised.
24. Each car now has its own petrol card, so it possible to see how much fuel is being purchased and eliminates any possible exploitation of this facility.
25. *Staff Travel* - in addition to our consultation about staff pool car use we have conducted a Travel to Work survey amongst staff. The aim of this was to establish how staff are travelling to and from work and during working hours. This data will feed into the next Green Travel Plan which is due to be refreshed. The results of the survey were very positive with 44% of staff already walking and cycling to work. The survey identified that more staff could be encouraged to cycle and use public transport as an alternative to car use.
26. To further encourage cycling we have introduced a Cycle to Work scheme in 2013, the new scheme will operate on an ongoing basis with a choice of local bicycle providers. This scheme is also open to councillors.
27. *Pool Bikes* - in July 2012 three folding Pool Bikes were purchased for travel to and from meetings. So far over 30 staff have completed the compulsory three hour cycle refresher training session.
28. Many roles involve working in and around the city centre and pool bikes were felt to fill a niche for journeys where parking was difficult, or the distance didn't merit the use of a car, but it may be too far to walk around. Each bike is complete with a set of pannier-bags to allow staff to carry equipment.
29. Folding bikes were selected to give staff the confidence that if they did run into difficulties whilst out on the bike e.g. a puncture they could ring for a taxi and easily pop the bike into the boot and still attend their meeting.



30. We have held a series of cycle events for staff where they could find out more about the new waterproof cycling map for the city, trial pool bikes, sign up for pool bike training, join the Cycle to Work scheme and have a free bike health-check.

One Small Step:



31. The one small step scheme was launched in 2009 to encourage staff to be more aware of their behaviour with regards to saving energy and reducing carbon. Staff have been encouraged to switch off lights and monitors when they are not in use, default their printing to double-sided, wear layers rather than open windows or use additional heaters, take the stairs and not the lift, walk and cycle to work.
32. The environmental strategy team have run regular competitions to raise awareness of environmental issues and the impact individual behaviour can have. To increase staff interest events have included Christmas card recycling through the Woodland Trust, unwanted Christmas present swapping and seed swapping.



33. In addition to regular internal competitions the environmental strategy team also run the annual Eco Awards where participants from across the city are encouraged to enter their projects. Since its first year in 2008 over 80 projects have entered the competition with numbers increasing every year. Entrants from schools, community groups and businesses are encouraged to enter.

34. *Ongoing work* - as well as undertaking the annual energy audit of the council, each year the annual Environmental Statement is published which details progress made against the objectives stated in the Environmental Strategy. This gives further details of the types of projects which are helping Norwich City Council make carbon savings across the city.

35. Annual Environmental Statement 2011/12:

<http://www.norwich.gov.uk/Environment/EcolIssues/Documents/EnvironmentalStrategy.pdf>

36. Environmental Strategy 2011-2013:

<http://www.norwich.gov.uk/Environment/EcolIssues/Documents/EnvironmentalStatement.pdf>

Results:

37. Between 2008 and 2013 the council achieved a 24% carbon reduction. 24% was achieved using non-weather corrected data, using weather corrected data the reduction in carbon emissions was 29%.

38. *Weather correction* - weather corrected data uses a formula to even out and 'weather correct' the data to make it comparable year on year and to allow for large and sustained fluctuations in temperature due to extended periods of either hot or cold weather and the increase in energy which this may result in due to increased need for air conditioning or heating.

GHG emission data for period 1 April 2007 to 31 March 2013						
	Global kg of CO ₂ e					
	2012	2011	2010	2009	2008	2007
Scope 1	3,446,651	3,136,959	3,549,707	n/a	n/a	n/a
Scope 2	4,054,832	4,362,280	4,280,592	n/a	n/a	n/a
Scope 3	1,449,823	1,800,339	1,821,824	n/a	n/a	n/a
Total gross emission	8,951,306	9,299,578	9,652,123	10,485,752	11,025,879	11,468,719
Annual % saving	3.75	3.65	7.95	4.90	3.86	

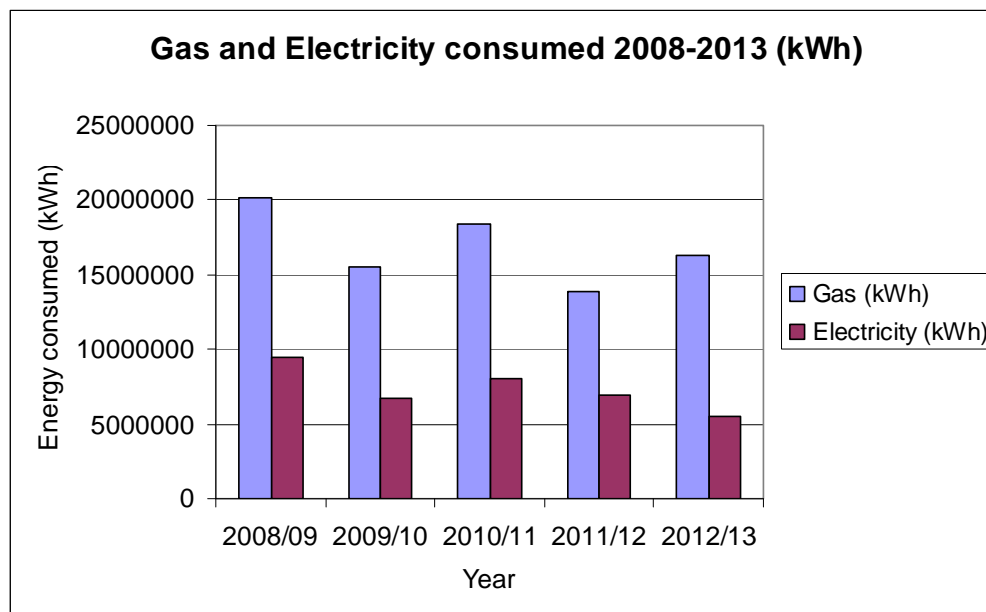
39. *Explanation of scopes:*

Scope 1 (Direct emissions): Activities owned or controlled by your organisation that release emissions straight into the atmosphere. They are direct emissions.

Scope 2 (Energy indirect): Emissions being released into the atmosphere associated with your consumption of purchased electricity, heat, steam and cooling.

Scope 3 (Other indirect): Emissions that are a consequence of your actions, which occur at sources which you do not own or control and which are not classed as scope 2 emissions.

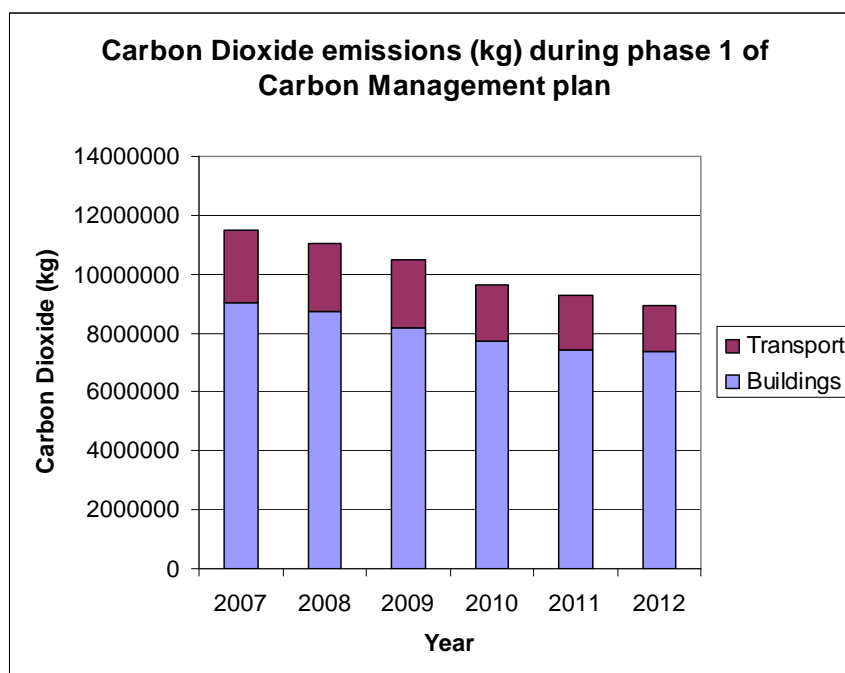
40. The following series of graphs further illustrate the level of reductions made in gas and electricity consumption over the 5 year life of the carbon management plan:



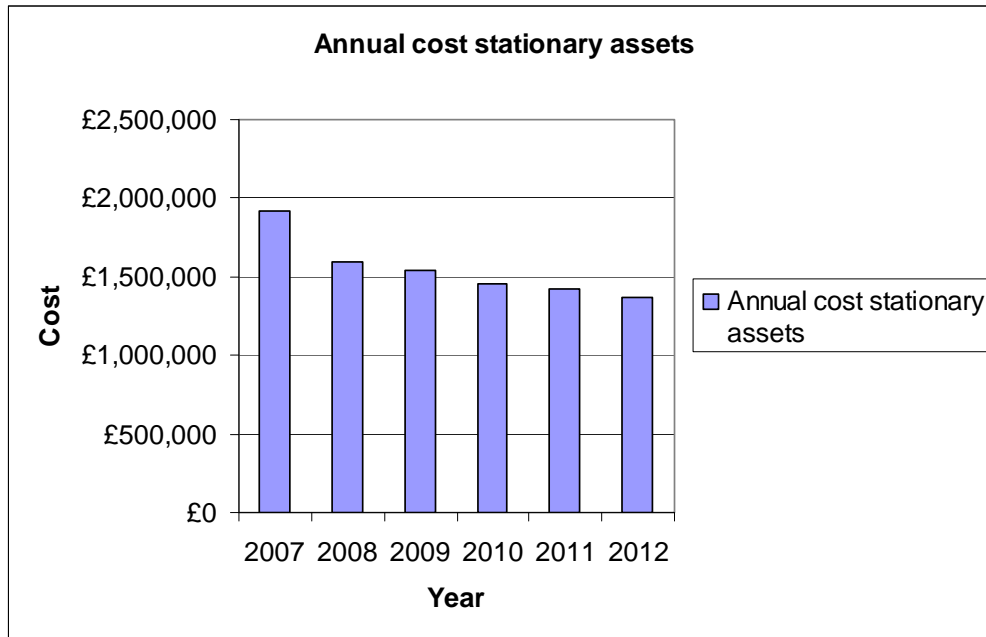
41. This above graph shows that both gas and electricity consumption decreased considerably for the first two years of the carbon management plan against the initial baseline year, but then increased in the third year. This is indicative of the scope of savings available at the start of the project. Quick payback through new projects such as pc powerdown and voltage reduction at City Hall made initial energy savings quickly in the first couple of years of the plan. In tandem with the implementation of these energy saving projects was an increase in staff awareness with regards to the importance of saving energy at work as the One Small Step campaign became embedded in the culture of the council.

42. It should not be underestimated the impact that space utilisation has had on the reduction of energy consumption over phase 1 of the carbon management plan. Staff have moved out of St Giles House and numbers are significantly reduced at Mile Cross Depot, plus areas of City Hall and some neighbourhood offices. The staff canteen has closed at City Hall as well as the café at St Andrews and Blackfriars Halls. Whilst this is not something which can be continually replicated it has resulted in some large savings in terms of gas and electricity consumption and therefore carbon emissions.

43. From year three onwards (2010/11) reduction in electricity consumption has continued year on year through schemes such as Voltage Optimisation, energy efficient lighting projects and pc powerdown. Following the peak in 2010/11 in gas consumption this then fell sharply in 2011/12 but increased again in 2012/13. Much of this increase is thought to be due to the extended freezing weather conditions that were experienced this year right through March 2013, and requirement to run heating systems for longer than usual.
44. The graph below shows how, through the implementation of new energy efficiency projects and staff behaviour change, CO₂ emissions have decreased steadily over time the lifetime of the Carbon Management plan.

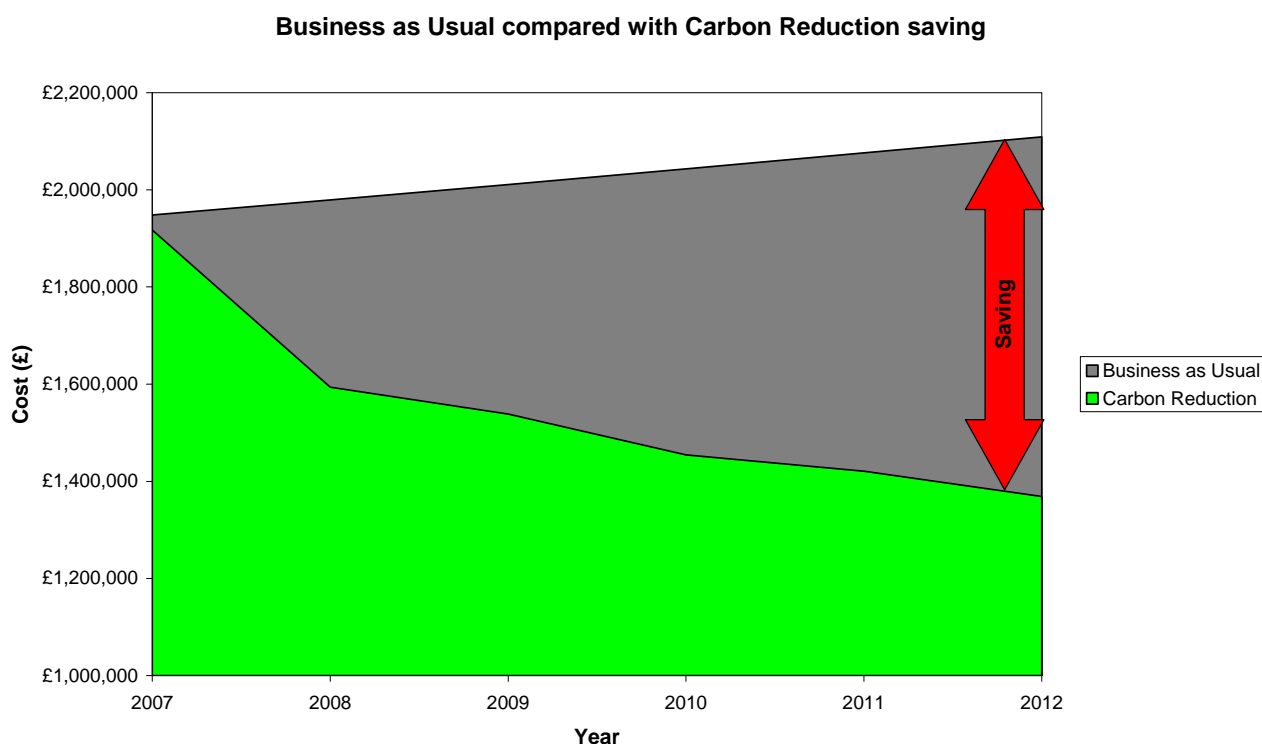


45. The following graph shows how energy savings on the council's stationary assets equate to financial savings.

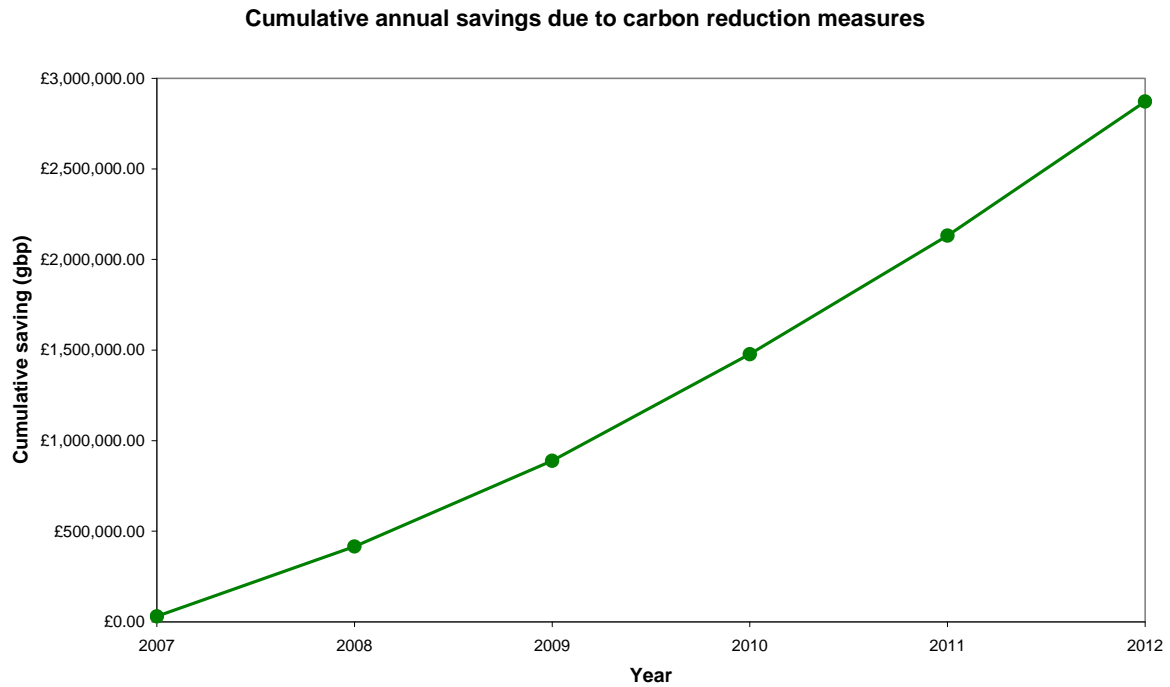


Financial savings:

46. Over the course of the 5 year carbon management plan we have seen savings made year on year through continual reductions in the council's energy use. The lower section of the graph below shows how through the variety of carbon reduction methods described earlier in this report how the council has achieved significant financial savings. However, the cost of energy has not remained static during this period of time. If we had not implemented the measures detailed in the carbon management plan then the cost of our energy use would not have remained static at around £1.9 million per annum. The cost of energy would have increased.
47. The top section of this graph allows for a 1.6% increase in the cost of energy if the council had done nothing with regards to energy reduction and had continued with Business As Usual (BAU). It's clear to see that by implementing the carbon management plan and not continuing with a BAU scenario that significant savings have been made. The arrow indicates a gap of £740,000 saving in year 5 alone.



48. The graph below shows the cumulative savings made year on year by implementing the measures in the carbon management plan, rather than following the BAU scenario. In total cumulative savings of £2.8 million have been made over the course of the 5 year carbon management plan.



Next steps – phase two:

49. A cross-service carbon management working group has been created to consider where the council can make further reductions across its estate and its activities.
50. It is anticipated that the next phase of the carbon management plan will run for the next 5 years approximately.
51. When the plan is finalised it will be reported to the Sustainable Development Panel for comment. It is anticipated it will be complete by the end of December 2013.
52. It is not sustainable to achieve a continual 5% year on year carbon reduction. Preparatory work suggests it would be more appropriate to align Norwich city council's carbon reduction target with national targets. This will be developed through cross-service work on the new carbon management plan.

Appendix A – Display Energy Certificates

City Hall

Display Energy Certificate

How efficiently is this building being used?



Norwich City Council
Norwich City Council
City Hall, St. Peters Street
NORWICH
NR2 1NH

Certificate Reference Number:
0730-0317-5899-6423-5002

This certificate indicates how much energy is being used to operate this building. The operational rating is based on meter readings of all the energy actually used in the building. It is compared to a benchmark that represents performance indicative of all buildings of this type. There is more advice on how to interpret this information on the Government's website www.communities.gov.uk/epbd.

Energy Performance Operational Rating

This tells you how efficiently energy has been used in the building. The numbers do not represent actual units of energy consumed; they represent comparative energy efficiency. 100 would be typical for this kind of building.

More energy efficient

A 0-25

B 26-50

C 51-75

D 76-100

82

..... 100 would be typical

E 101-125

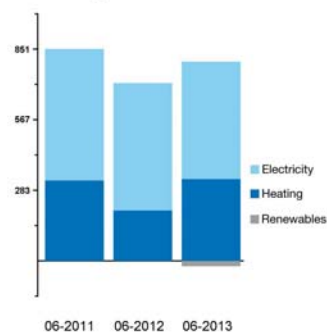
F 126-150

G Over 150

Less energy efficient

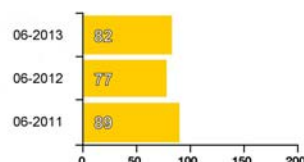
Total CO₂ Emissions

This tells you how much carbon dioxide the building emits. It shows tonnes per year of CO₂.



Previous Operational Ratings

This tells you how efficiently energy has been used in this building over the last three accounting periods



Technical information

This tells you technical information about how energy is used in this building. Consumption data based on actual meter readings.

Main heating fuel: Natural Gas
Building Environment: Heating and Natural Ventilation
Total useful floor area (m²): 12386.29
Asset Rating: Not available.

	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	137	69
Typical Energy Use (kWh/m ² /year)	137	95
Energy from renewables	0%	4.3%

Administrative information

This is a Display Energy Certificate as defined in SI 2007/991 as amended.

Assessment Software: DCLG, ORCalc, v3.6.2
Property Reference: 369853450000
Assessor Name: Miss Sandra Kass
Assessor Number: EES/004704
Accreditation Scheme: Elmhurst Energy Systems
Employer/Trading Name: Kass & Beard Building Consultancy
Employer/Trading Address: 39 Church Lanes, Fakenham, NR21 9DG
Issue Date: 23-07-2013
Nominated Date: 29-06-2013
Valid Until: 28-06-2014
Related Party Disclosure: Not related to the occupier

Recommendations for improving the energy efficiency of the building are contained in the accompanying Advisory Report.

Display Energy Certificate

How efficiently is this building being used?



Norwich City Council
Norwich City Council
St. Andrews & Blackfriars Hall, St. Andrews Hall Plain
NORWICH
NR3 1AU

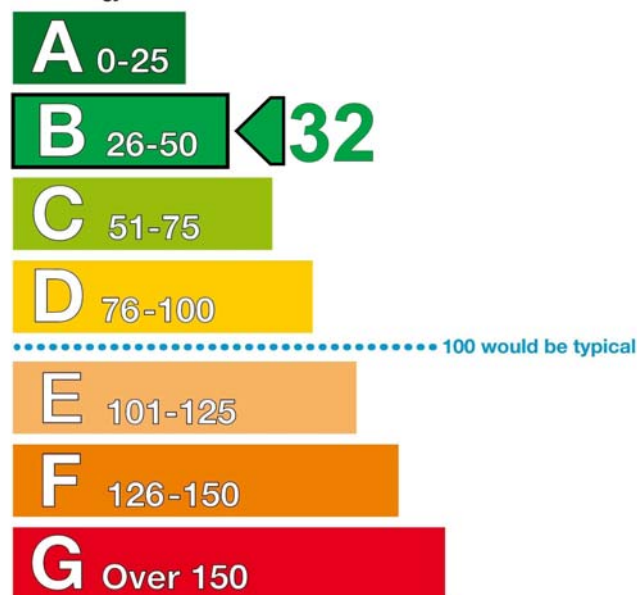
Certificate Reference Number:
0230-9996-0107-5430-0050

This certificate indicates how much energy is being used to operate this building. The operational rating is based on meter readings of all the energy actually used in the building. It is compared to a benchmark that represents performance indicative of all buildings of this type. There is more advice on how to interpret this information on the Government's website www.communities.gov.uk/epbd.

Energy Performance Operational Rating

This tells you how efficiently energy has been used in the building. The numbers do not represent actual units of energy consumed; they represent comparative energy efficiency. 100 would be typical for this kind of building.

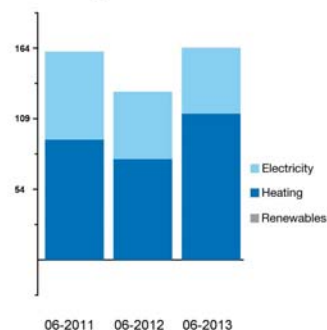
More energy efficient



Less energy efficient

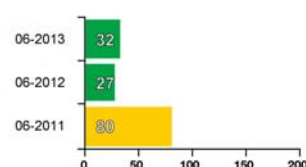
Total CO₂ Emissions

This tells you how much carbon dioxide the building emits. It shows tonnes per year of CO₂.



Previous Operational Ratings

This tells you how efficiently energy has been used in this building over the last three accounting periods



Technical information

This tells you technical information about how energy is used in this building. Consumption data based on actual meter readings.

Main heating fuel: Natural Gas
Building Environment: Heating and Natural Ventilation
Total useful floor area (m²): 2956.92
Asset Rating: Not available.

	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	197	32
Typical Energy Use (kWh/m ² /year)	480	150
Energy from renewables	0%	0%

Administrative information

This is a Display Energy Certificate as defined in SI 2007/991 as amended.

Assessment Software: DCLG, ORCalc, v3.6.2
Property Reference: 950960350000
Assessor Name: Miss Sandra Kass
Assessor Number: EES/004704
Accreditation Scheme: Elmhurst Energy Systems
Employer/Trading Name: Kass & Beard Building Consultancy
Employer/Trading Address: 39 Church Lanes, Fakenham, NR21 9DG
Issue Date: 24-07-2013
Nominated Date: 29-06-2013
Valid Until: 28-06-2014
Related Party Disclosure: Not related to the occupier
Recommendations for improving the energy efficiency of the building are contained in the accompanying Advisory Report.

Display Energy Certificate

How efficiently is this building being used?



Norwich City Council
Norman Community Centre
Bignold Road
NORWICH
NR3 2QZ

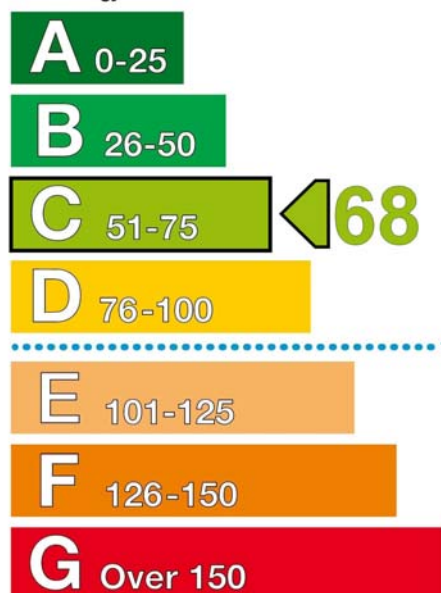
Certificate Reference Number:
9353-1093-0575-0400-2621

This certificate indicates how much energy is being used to operate this building. The operational rating is based on meter readings of all the energy actually used in the building. It is compared to a benchmark that represents performance indicative of all buildings of this type. There is more advice on how to interpret this information on the Government's website www.communities.gov.uk/epbd.

Energy Performance Operational Rating

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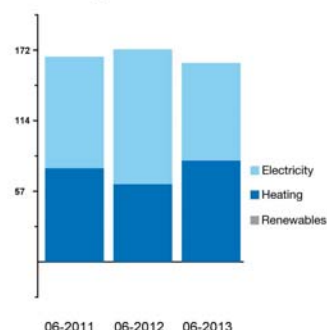
More energy efficient



Less energy efficient

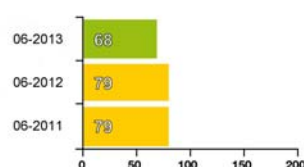
Total CO₂ Emissions

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Previous Operational Ratings

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Technical information

This tells you technical information about how energy is used in this building. Consumption data based on actual meter readings.

Main heating fuel: Natural Gas
Building Environment: Heating and Natural Ventilation
Total useful floor area (m²): 2744.57
Asset Rating: 176

	Heating	Electricity
Annual Energy Use (kWh/m ² /year)	155	52
Typical Energy Use (kWh/m ² /year)	262	66
Energy from renewables	0%	0%

Administrative information

This is a Display Energy Certificate as defined in SI 2007/991 as amended.

Assessment Software: DCLG, ORCalc, v3.6.2
Property Reference: 335564950000
Assessor Name: Miss Sandra Kass
Assessor Number: EES/004704
Accreditation Scheme: Elmhurst Energy Systems
Employer/Trading Name: Kass & Beard Building Consultancy
Employer/Trading Address: 39 Church Lanes, Fakenham, NR21 9DG
Issue Date: 23-07-2013
Nominated Date: 30-06-2013
Valid Until: 29-06-2014
Related Party Disclosure: Not related to the occupier
Recommendations for improving the energy efficiency of the building are contained in the accompanying Advisory Report.

Appendix B

Salix projects:

Title	Description	Year of completion	Annual kWh units Saved	Annual savings (£)	Annual CO ₂ savings (tonnes)
PC Powerdown - Nightwatchman	Software to powerdown pcs overnight	2010	135000	10800	73
Smart Lighting Project	Smart lighting daylight controls and PIR controls i.e. motion detection sensors	2010	14571	1821	8
Pilling Park Air Conditioning Replacement	Replacement of old units with more energy efficient units	2010	9000	1125	5
Blackfriars Hall - Chandelier light	Replace lamps with energy efficient dimmable halogen bulbs	2010	1971	306	1
Voltage reduction - City Hall	Installation of Voltage Optimiser	2010	119669	9574	65
Norman centre vending machines	Timers installed on 3 vending machines	2011	3811	381	2
Smart Lighting Computer Room	Smart lighting daylight controls and PIR controls i.e. motion detection sensors	2012	2104	263	1
Water Cooler Timers	Timers installed on water coolers where possible	2012	2234	279	1
Automated pool cover at Riverside LC	Automated pool cover to retain heat when the pool is not in use	2012	293583	11646	106
Catton AHO - save it easy T5	T8 to T5 flourescent bulb conversions - 54 lamps	2012	3812	381	2
City Hall - Save it EZ T5 lighting (stage 1)	T8 to T5 flourescent bulb conversions - 200 luminaires	2012	18000	2250	10

Title	Description	Year of completion	Annual kWh units Saved	Annual savings (£)	Annual CO₂ savings (tonnes)
City Hall - Save it EZ T5 lighting (stage 2)	T8 to T5 flourescent bulb conversions - additional	2012	32946	3295	18
Lakenham AHO - Save it EZ T5	T8 to T5 flourescent - 40 lamps	2012	3070	307	2
Norman Centre - Save it EZ phase 1	Retrofit T5 flourescent adapters in bowls hall, function room, offices, boiler room	2012	12428	1243	7
Pilling Park Save it EZ	T8 to T5 flourescent	2012	3332	267	2
Riverside Leisure Centre - voltage optimisation	Installation of Voltage Optimiser	2012	97076	6601	53
St Andrews multi storey car park lighting upgrade	Upgrade lighting to more energy efficient LED lighting and PIR in stairwell	2012	209973	13123	110
IT Virtualisation	Replacement of old servers with new virtualised system	2013	73846	9231	39
Air vent insulation	Insulation of air handling unit	2013	15728	315	3
Bullard Road AHO loft insulation	Loft insulation - housing office	2013	3105	373	2
Norman Centre LED lighting	Upgrading lighting from old flourescent tubes to LED lighting	2013	5102	638	3
Boiler Valve Insulation - City Hall	Boiler Valve insulation for City Hall boiler valves	2013	112476	2756	21
Boiler Valve Insulation - St Andrews Hall	Boiler Valve insulation for St Andrews Hall boiler valves	2013	24616	603	5
LED Lighting of Riverside Swimming Pool	LED replacement lighting of the main pool	In progress	63469	6347	33
IT Cooling	Replacement of inefficient units	In progress	87500	10938	46

Title	Description	Year of completion	Annual kWh units Saved	Annual savings (£)	Annual CO₂ savings (tonnes)
LED NCC Surface Car Parks	Total replacement of council surface parking lighting	In progress	7400	925	4
LED Parking	Retrofitting of car parking lighting to LED	In progress	1185	148	1
Riverside LED Lighting	Riverside walk 40 lamp LED upgrade	In progress	10500	1313	5
Swimming pool vending machines	Timers for vending machines	In progress	7622	953	4