**Report for Resolution**

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| **Report to** | Sustainable Development Panel<br>28 March 2012 | **Item**<br>8 |
| **Report of** | Head of Strategy and Programme Management | |
| **Subject** | Update: Carbon Management Programme and Environmental Strategy 2011-2014 | |

## Purpose

To update members on the progress of the Carbon Management Programme (CMP) and Environmental Strategy 2011 – 2014.

## Recommendations

To make suggestions/ recommendations and note the progress to date.

## Financial Consequences

There are no direct financial consequences of this report.

## Corporate Priority and Outcome/Service Priorities

The report helps to meet the corporate priority to achieve “value for money services” and the key action “To reduce the council’s carbon emissions through a carbon management programme”.

## Contact Officers

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|---|---|
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| Richard Willson, Environmental Strategy Manager | 01603 212312 |

## Background Documents

Please note the Environmental Strategy is a web based document
http://www.norwich.gov.uk/Environment/EcoIssues/Documents/EnvironmentalStrategy.pdf

**Carbon Management Programme (CMP)**

1. Since 2008 Norwich City Council has reduced its $CO_2$ emissions by a total of 16.9% through the implementation of a series of measures via its Carbon Management Programme. The city council achieved its largest reduction in $CO_2$ emissions over the 2010-11 financial year achieving an 8% reduction. The council's energy consumption has been dropping year on year since 2008.

2. Currently we are gathering data from contractors who have worked with us this year and whose contracts are ending within this financial year. Once we have completed this tranche of work the environmental strategy team will be moving on to gathering data around the energy use across all of the ongoing contractors as well as council owned sites to establish our carbon footprint.

3. When we have the complete energy use figures from our contractors for the past financial year we will add this to the energy use figures across our assets and transport to ascertain Norwich City Council's total $CO_2$ emissions over this period.

4. City Hall is a case in point, and has seen a decrease in energy use of 14% due to a variety of measures including T8 to T5 retrofitting of light tubes. In April 2011 City Hall was voltage optimised and we are expecting to see a significant reduction in energy use of approximately a further 7.5% when we have a full year's data. Following the installation of the photovoltaic cells on the roof of City Hall we are also expecting a further 3% reduction on energy use. The total reduction in energy use at City Hall since 2008 is 24.5%.

5. At Riverside Leisure Centre a voltage optimiser has also been installed and recent electricity consumption figures are showing a 9% reduction in energy use. In addition to this motorised pool covers have been fitted on the main and teaching pool and it is expected that this will equate to savings of up to £60 per night, or £20,000 per annum (13% reduction)

6. The refitting of St Andrews multi-storey car park with LED lighting is now complete and we will calculate the reduction of electricity consumption following their implementation once we have a full year's data, but projected savings look to be over £13,000 per annum.

   Please see 2011 Salix Projects (attached) for further details.

   Going forwards we are investigating the following projects:

   - Evaporative cooling of the server room
   - Server virtualisation
   - Valve insulation of City Hall and St Andrews boiler rooms

**Environmental Strategy Update**

7. The new Environmental Strategy 2011-2014 was approved and adopted on November 2011.

8. The Environmental Management Team has demonstrated environmental leadership via involvement in the Cambridge Sustainability Leadership Programme. This has raised the council's profile regionally and locally as a high environmental performer.

9. The team is working in partnership with others, including the 3rd sector and the Climate Change Taskforce for Norfolk, to continue to develop environmental awareness campaigns such as Earth Hour and World Water Day. The Environmental Strategy Team and members of the sustainable development panel have also completed judging and delivery of the council's 4th annual Eco Awards.

10. The team has supported the development of our new Affordable Warmth Strategy as well as the delivery of our existing affordable warmth activities. To date the team has sent 20,000 letters to residence informing them of grants to increase their domestic energy efficiency. The team has also worked with our neighbourhood wardens and housing officers to personally visit vulnerable households to provide them with NHS "Warm and Well" packs.

11. The team is preparing to establish our new carbon footprint over the next 8 weeks. City Hall is expected to have reduced its energy by 25% this reporting period. (21% so far) Taking our Display Energy Certificate (DEC) to a D from a G four years ago. The total emissions reduction stands at 16.9% which is an accumulated saving of £500,000 in 4 years.

12. The progress of the Environmental Strategy will be shown via the Annual Environmental Statement due to be published in autumn 2012 after cabinet approval. A list of the full actions contained within the Environmental Strategy can be found in the action plan. Key outputs for 2012 include:

    - New cross service affordable warmth strategy.
    - New web pages and public information.
    - New travel plan and associated actions (Pool bikes, electric cars, travel to work survey, new cycle to work scheme).
    - Heat Load Map for Norwich and the development of Energy Policies.
    - Training for members and officers.
    - Anglia water utility review and baseline.
    - Development and delivery of an Eco Investment fund.

# 2011 Salix Projects

| Project No | Title | Technical Cost | Annual kWhr Saved | Total Annual GBP Savings |
|---|---|---|---|---|
| NCC 01 | Norman centre vending machines | £20.97 | 3811 | 381.1 |
| NCC 02 | City Hall - Save it EZ T5 lighting (stage 1) | £9,499.00 | 18000 | 2250 |
| NCC 03 | Lakenham AHO - Save it EZ T5 | £1,031.76 | 3070 | 307 |
| NCC 04 | Norman Centre - Save it EZ phase 1 | £4,462.61 | 12428 | 1242.8 |
| NCC 05 | Pilling Park Save it EZ | £1,177.02 | 3332 | 266.56 |
| NCC 06 | Catton AHO - save it easy T5 | £1,679.70 | 3812 | 381.2 |
| NCC 07 | City Hall - Save it EZ T5 lighting (stage 2) | £10,035.17 | 32946 | 3294.6 |
| NCC 08 | Automated pool cover at Riverside LC | £29,714.00 | 293583 | 11645.78 |
| NCC 09 | St Andrews multi storey car park lighting upgrade | £51,292.00 | 209973 | 13123.31 |
| NCC 10 | Riverside Leisure Centre - voltage optimisation | £32,224.52 | 97076 | 6601.17 |
| NCC 11 | Smart Lighting Computer Room | £1,020.00 | 2104 | 263 |
| | | **£142,156.75** | **680135** | **£39,756.52** |

| Project No | Total Annual CO2 Savings Tonnes | Lifetime GBP Savings | Lifetime CO2 T | Loan Payback Yrs |
|---|---|---|---|---|
| NCC 01 | 2.08 | £2,606.72 | 14.23 | 0.1 |
| NCC 02 | 9.79 | £22,500.00 | 97.9 | 4.9 |
| NCC 03 | 1.67 | £3,070.00 | 16.7 | 5.2 |
| NCC 04 | 6.78 | £12,428.00 | 67.8 | 5.5 |
| NCC 05 | 1.82 | £2,665.60 | 18.2 | 5.1 |
| NCC 06 | 2.08 | £3,812.00 | 20.8 | 6.8 |
| NCC 07 | 17.96 | £32,946.00 | 179.6 | 4.7 |
| NCC 08 | 106.34 | £98,406.84 | 898.57 | 3.9 |
| NCC 09 | 110.15 | £166,556.74 | 1398 | 6 |
| NCC 10 | 52.93 | £125,422.23 | 1005.67 | 5.6 |
| NCC 11 | 1.15 | £2,338.07 | 10.22 | 4.5 |
| | **312.75** | **£472,752.20** | **3727.69** | **4.358333333** |

# St Andrews car park LED lighting project


BEFORE: (example info)

- T8 Tri phosphor 70w (single)
- 626,523 consumed
- £79,000/yr running costs
- The project need to keep the Park Mark, Lux and conform to the EU/UK/CE retrofitting regulations
- (modifications) Dec. of conformity.

AFTER:

- 395 Units at £67.10/unit installed
- Project cost £51,292
- Load reduced by 31% to 432,302W
- Lux output maintained
- £13,123 saving / year projected
- Payback 3.91 years
- 110 $tCO_2$ saved / year

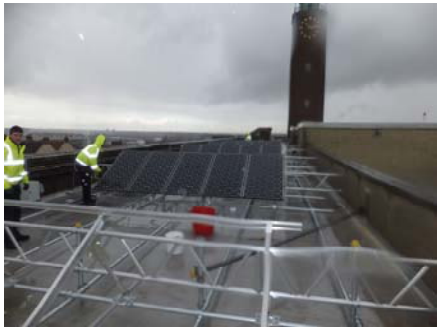
# Photovoltaic cells on City Hall roof

BEFORE: (example info)

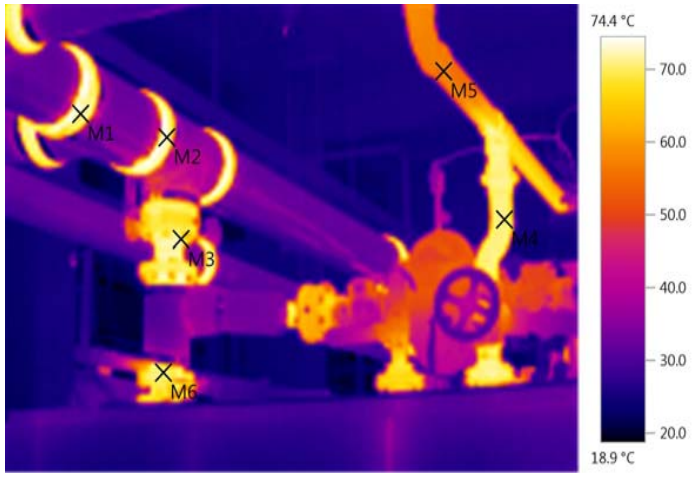
•956466 kWh of electricity used in City Hall in 2010/2011 financial year.

AFTER:

By the end of March 2012, City Hall will have a 38 kW PV system installed, which will reduce electricity costs; earn additional income for electricity generated; reduce the council's overall carbon footprint; and raise awareness of energy efficiency.



# Boiler room valve insulation




BEFORE: (example info)

- 250 flanges and valves un-insulated and losing heat in City Hall
- 51 flanges and valves un-insulated and losing heat in St Andrews Hall

AFTER:

- 301 jackets to be fitted across both sites.
- Project cost £9335
- £3313 cost savings/ annum projected
- Payback 2.7 years
- 26.2 $tCO_2$ saved / year

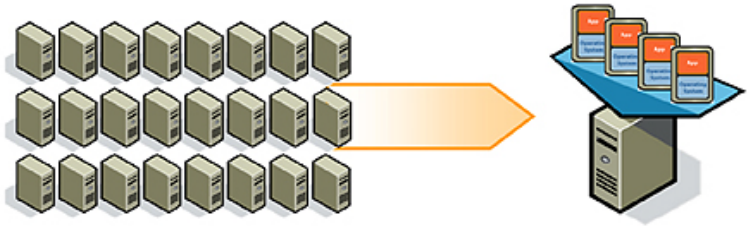
# Server Virtualisation at City Hall

BEFORE: (example info)

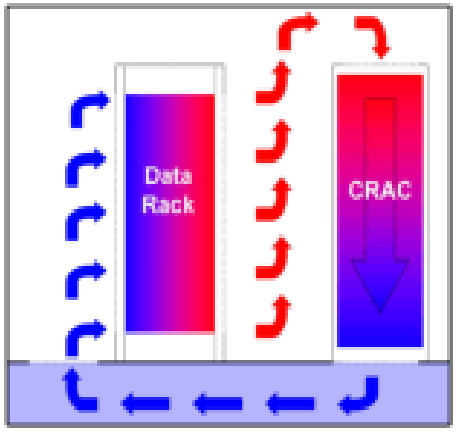
- 30 servers due for a refresh
- Each server consuming around 5000-7000kWh/ annum
- Each server producing waste heat which needs to be cooled.

AFTER:

- Virtualising 30 servers is a projected saving of 210,000 kWh/ annum
- Electricity cost of 12p/ kWh
- Projected cost saving of £25200/ annum
- Still researching cost of project with incoming IT provider, but would look to pay back in under 4 years.



# Evaporative Cooling - City Hall Server room




BEFORE: (example info)

•Currently Computer room air conditioners (CRACs) cool the server room.

•The server room currently uses approximately 20% of the total electricity use for City Hall.

AFTER:

•Typical running costs of evaporative coolers are 10% of air conditioning units.

•No refrigeration is required, initially external air is brought into the system.

•If the air requires cooling it is passed through wetted filter pads.

•Costs being investigated, but energy savings could be up to 90%.