

Taunton Deane Borough Council

Executive – 11 August 2011

Taunton Deane Borough Council Carbon Management Plan for 2011/2012

Report of the Climate Change Officer

(This matter is the responsibility of Executive Councillor Hayward)

1. Executive Summary

This document is the Council's Carbon Management Plan (CMP) for reducing carbon emissions from the Council's operations during 2011/2012. The report reflects on the Council's progress in reducing carbon emissions between 2006/2007 and today, sets out the priorities for 2011/2012 and briefly describes the key actions planned. These actions have been developed by the joint Member / Officer Carbon Management Steering Group. The focus of this year's Plan is on energy generation, reduction of transport emissions and upgrading of lighting and insulation.

The CMP is accompanied by an action plan with 46 carbon reduction actions across the Taunton Deane / Tone Leisure sites and activities. The actions from this Plan for which we were able to quantify potential savings would result in a year-on-year saving of 5.2% or 225 tonnes of CO₂, if fully implemented.

The CMP and action plan were considered and supported by the Corporate Scrutiny Committee on 21 July 2011.

2. Background

2.1 Reasons for mitigating the causes of climate change

Over the last 100 years the average temperature around the atmosphere near the Earth's surface has risen by about 0.8 degree Celsius. This is due to human activities such as burning fossil fuels and deforestation that increase the concentration of greenhouse gases like carbon dioxide (CO₂) in the atmosphere.

Most climate scientists agree that the global temperatures could continue to rise

between 1.1 and 6.4 degrees Celsius above 1980 to 1990 levels by the end of the 21st century depending on how much greenhouse gases get emitted in the near future. If the temperature rise is high, the impact is likely to be extreme and will be difficult to cope with. The main effects of climate change are sea level rise, more extreme weather, biodiversity loss, shortages of food and water and significant damage to the global economy.

In order to mitigate the causes of climate change, the United Kingdom (UK) has set itself the legally binding target to reduce its CO₂ emissions by 80% by 2050 (from 1990 levels). The UK has also signed to the EU Renewable Directive which includes a UK target of 15% of energy from renewables by 2020.

2.2 Taunton Deane's commitment to mitigating climate change

Taunton Deane Borough Council takes climate change seriously and is strongly committed to reduce carbon emissions within the district and from its own operations:-

- The Council's Corporate Strategy 2010 – 2013 makes climate change one of the Council's four key aims;
- The Council is committed to become carbon neutral in the longer term;
- In 2010, Taunton Deane, Somerset County Council and the four other Somerset districts jointly committed themselves to reduce the carbon emissions from their operations by at least 3% year-on-year; and
- 'Tackling climate change' is also a stated priority in the current Sustainable Community Strategy for the Taunton Deane area.

2.3 Reducing carbon emissions in order to save costs

Reducing energy usage also makes sound fiscal sense in a period of rapidly rising fuel prices and budget cuts. Over recent years the costs for energy has increased significantly at Taunton Deane sites. For example, the unit price for electricity is now 34% higher than it was in 2008/2009 and combined costs for electricity and gas have increased by 11% year-on-year per unit since 2002/2003.

With a consumption of around 2 million kWh of electricity and 3.5 million kWh of gas per year the Council is one of the largest energy consumers in the area. Whilst in 2002/2003 this amount of energy would have costed around £120,000, the same amount of energy now costs £242,000 and would cost nearly £700,000 in 2020/2021 if prices continue to increase at the current speed and no actions were taken to reduce consumption.

2.4 Taunton Deane's overall carbon reduction process (2006/2007 – 2010/2011)

Since Taunton Deane and Tone Leisure started to implement carbon reduction actions in 2008/2009 the Council's carbon emissions have been reduced by nearly 500 tonnes CO2 or 10.4% against the baseline that was established for 2006/2007. This equates to a reduction of about 3.5% year-on-year over the last four years. This exceeds the 3% year-on-year reduction target that was agreed between Somerset County Council and the Somerset District / Borough Councils.

Carbon emissions at Taunton Deane and Tone Leisure come from four different sources: The electricity and gas used within buildings and the petrol/diesel used for transport by the DLO and the Council's Grey Fleet. The table below shows how much carbon dioxide was emitted in total and from each of these sources over the last four years:-

Table 1: Taunton Deane and Tone Leisure emissions by source (in tonnes/CO2)					
YEAR	Electricity	Gas	TDBC / SW1 grey fleet	DLO fleet	TOTAL
2006/2007	2319	1633	113	709	4774
2008/2009	2182	1825	90	709	4806
2009/2010	2147	1648	130	529	4454
2010/2011	2010	1606	108	554	4278
Changes between 2006/2007 and 2010/2011					
Overall change (in tonnes/CO2)	-309	-27	-5	-155	-496
Change in %	-13.3%	-1.7%	-4.4%	-21.9%	-10.4%

The table above shows that the emissions from electricity usage have declined steadily over the last four years. The total reduction since 2006/2007 is about 300 tonnes or 13%. The emissions from gas used by the Council went up in 2008/2009 but have declined by about 220 tonnes since. Emissions from the Taunton Deane/SWOne Grey Fleet business travel peaked in 2009/2010 (130 tonnes), but have fallen again since and are now slightly below the 2006/2007 level (113 tonnes). Emissions from the DLO fleet increased during the last year to 554 tonnes but are still about 22% below the 2006/2007 level. Overall, 95% (464 tonnes) of all carbon savings made since 2006/2007 stem from reductions made in electricity usage and DLO mileage.

2.5 Carbon reductions in 2010/2011

During 2010/11 Taunton Deane Borough Council and Tone Leisure emitted 4278

tonnes of CO2. These were 176 tonnes or 4 percent less than during the year before. The Taunton Deane sites contributed savings of 133 tonnes and the Tone Leisure sites savings of 43 tonnes to this. The carbon reductions to the year before were 5.4% at the Taunton Deane sites and 2.2% at the Tone Leisure sites.

Table 2 highlights the changes in carbon emissions from Council sites and activities by source between 2009/2010 and 2010/2011:-

Table 2: Changes in emissions from Taunton Deane and Tone Leisure sites between 2009/2010 and 2010/2011					
	electricity	Gas	TDBC / SW1 grey fleet	DLO fleet	TOTAL
Changes in tonnes of CO2	-137	-42	-22	25	-176
Changes in %	-6.4%	-2.5%	-16.9%	4.7%	-4.0%

The table shows that the majority of reductions during the last year was achieved by reducing the Council's electricity usage (-137 tonnes), followed by reductions in gas usage (-42 tonnes) and the grey fleet (-22 tonnes). Unfortunately, emissions from the DLO Fleet went up by 25 tonnes CO2 or 4.7%. The most successful sites in reducing their carbon emissions during the last year were the Crematorium (-30 tonnes), St James Pool (-29 tonnes) and The Deane House (-23 tonnes).

2010/2011 also saw the creation and implementation of the Council's first Carbon Management Plan (CMP). The Carbon Reduction Action Plan that accompanied the CMP consisted of 69 actions of which by April 2011:-

- 45 were implemented;
- 17 were postponed to 2011/12; and
- 7 were abandoned for technical or financial reasons.

Further information on last year's energy consumption and Carbon Management Plan actions can be found in the Information Report circulated to Members in July 2011.

3. TDBC's Carbon Management Plan for 2011/2012

The proposed CMP action plan for 2011/2012 contains 46 carbon reduction

actions. If fully implemented, the actions for which savings could be quantified already would result in a reduction of 5.2% or 225 tonnes CO₂ against 2010/2011. Below is a brief description of the key actions. Information on the remaining actions can be found in Appendix 1.

3.1 Priorities

- The harsh winter of 2010/2011 has shown that the insulation of buildings like The Deane House and the DLO Depot is fairly poor. Improving the levels of insulation is a priority for 2011/2012;
- Electricity prices have risen by 34% over the last three years. The Council is a large importer of electricity. Reducing the import of electricity through implementing energy efficiency measures and starting to generate our own electricity are priorities for 2011/2012; and
- Petrol and diesel prices are set to rise further in the future. Therefore, reducing fuel consumed for travel at the DLO and by Taunton Deane/SWOne staff is the third priority for 2011/2012.

3.2 Key Actions planned

The Deane House

Filling the cavity walls of the building – A recent survey found that the cavity walls at The Deane House are only partly filled. Getting them filled with insulation material would reduce gas consumption and increase staff comfort by reducing heat loss. Un-insulated walls can account for as much as 35% of all heat lost in domestic buildings. It will be slightly different in an office building due to more window and less wall space, but still there should be a considerable potential for making a carbon saving from this action. However, so far Taunton Deane has not been able to find a company willing to take on the work as there are technical difficulties and warranty issues around filling partly-filled cavity walls. We will continue to seek a resolution.

Continue installing more energy efficient lights – The new lights that were installed in ground floor corridors and Main Reception last year use 30% - 60% less electricity and are brighter than the old lights. The next areas for replacement are the first floor corridors and the Environmental Health office.

Replacing the boilers: – The current boiler at The Deane House are only 60% efficient. Replacing it with new boilers would save about 28 tonnes CO₂ and £4,000 per year. Whether the boilers will be replaced or not, will largely depend on the future of the The Deane House site that is currently under review. This is the subject of a separate report to The Executive.

Crematorium

Installation of a heat recovery system – By December 2011 new cremators with a heat recovery facility will have been installed at the Crematorium. The recovered heat is sufficient to heat the building's offices and the chapel and is likely to reduce carbon emissions by 23 tonnes and running costs by £2,400 per year.

Communal areas

Replacement of corridor lighting at Kilkenny Court – The old lighting was too dim and therefore not providing sufficient light levels in the sheltered accommodation unit. Also, the old lights were on for 24hours/7days. The new lights are brighter and on sensors, so only come on when needed. The savings from this action are estimated to be around 10 tonnes CO2 or £2,400 per year. This action has already been implemented in April 2011.

Fleet

A vehicle tracking system will be installed to the DLO fleet. The system is expected to reduce the miles driven by the DLO vehicles significantly by allowing for better journey coordination and increased ability to communicate with the teams whilst off-site.

A review of Taunton Deane's / SWOne Grey Fleet (private cars used for business travel) is well underway. The recommendations from the review could include the introduction of pool cars in order to save money and carbon.

Another action for reducing carbon emissions from the Council's Grey Fleet is the initial purchase of two electric bicycles for staff business travel. The bikes will be available at The Deane House and the DLO Depot. The aim is to encourage staff to use these electric bikes instead of cars where suitable, which is hoped will reduce both short journey times and congestion. The advantage over a standard push bike is the range extension and the greater ease of use. The Council will also scope opportunities for installing charging points for electric vehicles at The Deane House.

IT

Getting regular updates on changes to and opportunities for reducing energy consumption of the IT server room at The Deane House – The server room at The Deane House accounts for more than 30% of the buildings total electricity consumption. The aim is to build carbon reduction into the forthcoming IT refresh programme for the server room and get the project board to send regular updates to the Carbon Management Steering Group (CMSG). The CMSG will also scope the opportunity for setting SWOne/IBM a reduction target for the carbon emissions from the The Deane House server room for 2011/2012.

Renewable energy generation

The Carbon Management Steering Group is looking at opportunities for capitalising on the Government incentives paid for generating renewable energy. This could be by installing solar PV to Council owned buildings such as Station Road Swimming Pool or Wellington Sports Centre and to council houses, or by using air source heat pumps to provide heating to off-gas properties. Generating energy from renewable sources would not only reduce carbon emissions and reduce dependency on importing fossil fuel, but also create a new income stream for the Council from the generation tariffs paid by the Government over 25 years.

The example below illustrates one of the options currently considered:-

The Council has been quoted that investing £100,000 in solar PV would provide an annual income of £10,000 and save 17 tonnes of CO₂ per year. Over 25 years this would mean an income of £250,000 and a carbon reduction of 425 tonnes. The energy output from an array of this size would be around 32,000 kWh of electricity per year that could be used for free. This equates to the electricity used by about nine average homes in a year, or nearly 5% of The Deane House's annual electricity demand.

The tariffs paid by Government for generating renewable energy will be reduced from April 2012. Therefore, only a small window of opportunity remains for Taunton Deane to make the most of this incentive.

Tone Leisure

Projects at Tone Leisure include replacing the lights at Blackbrook Tennis Centre and Sports Hall, and in the pool halls of Wellington Sports Centre and Station Road Pool. There are also plans in place for installing variable speed drives and a heat harvester at Station Road Pool if the modernisation project for this pool is agreed. The Tone Leisure actions above would save an estimated 112 tonnes CO₂ or £40,000 per year at an upfront cost of about £74,000 - a payback of less than 2 years.

3.3 Emission reduction target for 2011/2012

For 2011/2012 the Council commits itself to reduce its carbon emissions by at least 3% from 2010/2011. This is in line with the reduction target of 'at least 3% year-on-year' that was jointly agreed between Taunton Deane, Somerset County Council and the four other Somerset districts in 2010.

3.4 Governance/Ownership/Management

The production and implementation of the CMP is coordinated and overseen by the Carbon Management Steering Group. The group is a joint Members and Officers group. It is chaired by a Strategic Director and consists of officers with responsibility for specific sites or relevant working areas, the Portfolio Holder and Shadow Portfolio Holder for Environmental Services and other Members. The group meets quarterly.

3.5 Communications

Throughout the year, progress on implementation of the carbon reduction actions will be discussed at the quarterly Carbon Management Steering Group meetings. Updates on key actions will also go into the Footprint Newsletter, the Council's e-magazine for environmental issues sent to all Members and staff quarterly. The

Climate Change Officer will produce a half-year progress report for Members and CMT. Progress on carbon reduction actions will also be reported in Core Brief when appropriate.

3.6 Corporate Scrutiny Committee

The Corporate Scrutiny Committee considered and supported the CMP and action plan at its meeting on 21 July 2011. A number of issues were raised by the Corporate Scrutiny Committee which will be considered during the duration of the plan, including:-

- Options for Taunton Deane to become involved in micro trading;
- Extending the energy auditors scheme; and
- Reducing energy usage at the Stoke Road Nursery.

The Committee also commented positively in support of the installation of solar PV where possible on Council owned buildings.

4. Finance Comments

The actions from the CMP Action Plan for which likely savings could be quantified would create financial savings of about £65,000 per year, if fully implemented.

5. Legal Comments

Not applicable.

6. Links to Corporate Aims

Tackling climate change by reducing CO₂ emissions from the Council's operations is one of the Council's Corporate Aims. The Carbon Management Plan is the main tool for achieving this aim.

7. Environmental and Community Safety Implications

Through the implementation of the 2010/2011 Carbon Management Plan 176 tonnes of CO₂ could be saved. This amount is equivalent to the carbon emitted by about 83 households during one year.

8. Equalities Impact

A full equalities impact assessment for the carbon reduction actions contained in the CMP will be taken out once the Plan has been approved.

9. Risk Management

A full risk assessment will be taken out for actions with a capital investment above £50,000.

10. Partnership Implications

The CMP is drawn up and implemented in partnership with Tone Leisure and the DLO.

11. Recommendation

The Executive is recommended to approve the Carbon Management Plan for 2011/2012.

Contact: Torsten Daniel, Direct Dial: 01823 356592 (ext 2458), e-mail: t.daniel@tauntondeane.gov.uk

Appendix: 2011/12 CMP Action Plan

Proposed carbon reduction actions for 2011/2012							
Action number:	What?	Brief explanation of action (if necessary)	Where?	Person responsible	Estimated carbon savings (tonnes of CO2) per annum	Estimated cost savings per annum	Notes
1	Sustainable procurement	Identify opportunities to factor carbon emissions in the procurement decision process, whilst accepting that cost & quality are main drivers	Corporate	Paul Harding			Focus on paper, toner cartridges, printers, copiers, furniture, vehicles, utilities
2	Scope opportunities for using pool cars for TDBC business travel	Action is part of the current Grey Fleet review	Corporate	Martin Griffin / Torsten Daniel			CO2 savings depend on what car would be used otherwise
3	Promote use of Club Car for business travel		Corporate	Torsten Daniel			CO2 savings depend on what car would be used otherwise
4	Purchase of two electric staff bike		Corporate	Torsten Daniel			To be funded from Travel Plan budget

5	Generate TDBC electricity	Initially: Scope feasibility of putting Solar PV on roof of Station Road swimming pool and Wellington Sports Centre	Corporate	Torsten Daniel	19	£13,000	The size of installation / investment has yet to be determined. An installing for £100k was quoted to create 32,200kWh electricity per year. If this energy is used by TDBC the savings will be £3,000 pa. The income from FITs on top of this are £10,000 pa guaranteed over 25 years. Thus creating a total income / savings of more than £300k (£13,000 x 25).
6	Provision of actual (rather than estimated) gas and electricity meter readings		Corporate	All site managers / Gill Littlewood	n/a		
7	Re-think use of office space		Corporate (Asset Management)	John Sumner / Alison North	n/a		
8	Ensure best use of rooms is made in case staff numbers decline		Corporate (Asset Management)	John Sumner SW1 / Alison North			
9	Install automatic shutdown system		Corporate (IT)	Nonn Bound & an IT manager to be named			NB to produce Issues & Options paper for CMSG by Oct-11
10	Provide regular updates about the 'PC refresh' programme		Corporate (IT)	Nonn Bound to initiate	n/a		NB to request quarterly statistics to be sent to Torsten Daniel
11	Replace twin 8W fittings in corridors with 28W HF ASD Harmony fittings with integrated movement sensor	Action is expected to reduce the operating time of the corridor lighting from 24h/day to 4h/day	Communal (Kilkenny Court)	Phil Webb / Richard Eastman	9.9	£2,400	Apr-11: Action completed

12	Meter conversion project	Install pre-payment meters at temporary accommodation units. Fuel savings from action estimated to be at least 10%	Communal (Temporary accommodation units)	Jim Vernon / Phil Webb			Jun-11: Implementation of action in progress
13	Trial of air source heat pumps (ASHPs)	4 ASHPs currently trialed in off-gas social housing units, could be extended to further properties and meeting halls etc	Communal / Housing	Tim Haynes / Phil Webb			Potential for installing another 40 units in same location if funding available
14	Investigate potential for reducing hours of church light flooding	Currently churches lit from dusk until midnight. Total costs to TDBC pa: £9,500 (incl. maintenance)	Communal lighting (churches)	Dave Evans	20		Report with options produced. Corporate Scrutiny Committee made recommendation for installations to be taken on by third parties or to be removed to Executive Member on 24 Feb-11. Report will go back to Executive in Jun/Jul-11
15	Install new cremators	Installation to take place Jul - Dec-11	Crematorium	Paul Rayson			
16	Install heat recovery system from new cremators	Potential to heat all of the Crem from the excess heat off new cremators	Crematorium	Paul Rayson	23	£2,400	
17	Provide monthly cremation figures		Crematorium	Paul Rayson	n/a	n/a	Apr-11: Action agreed. Justine Sturman to provide quarterly figures
18	Employ energy efficiency consultant	Consultant would identify additional energy saving opportunities for The Deane House	The Deane House	Kevin Toller / Mark Halligan SW1		Minimum of £1,000	Would be done on the basis of savings made of at least £1,000 or our money returned.
19	Insulation of Plant Room	Finishing-off remainder pipes and ducting	The Deane House	Rob Erskine			Implemented Apr-11

20	Investigation of options for separating hot water provision from the boilers		The Deane House	Rob Erskine / Torsten Daniel			This includes looking at Air Source Heat Pumps
21	Install temporary meter to measure electricity usage of plant room	Action is part of investigating the potential for reducing opening hours of Deane House	The Deane House	Rob Erskine / Torsten Daniel	n/a	n/a	
22	Get cavity wall insulation		The Deane House	Rob Erskine			May-11: difficulties with finding a company willing to take out the work, because of partly filled cavity walls. Further investigation needed
23	Replacement of lighting	First floor corridors to be finished first, then Environmental Health Office	The Deane House	Rob Erskine	0.5	£100	
24	Sealing of windows to reduce heat loss		The Deane House	Rob Erskine			RE will make another £5,000 available for this, if his budget allows
25	Replacement of boilers		The Deane House	Kevin Toller	28	£4,000	Pending on results of TDBC Asset Review in July 2011.
26	Installation of two to three electric vehicle charging points		The Deane House	Torsten Daniel / Rob Erskine			To be funded from Travel Plan budget
27	Air conditioning in Committee Rooms	Repair cases, put lock on them and reset heat point to 21 and cooling point to 24 degrees Celsius	The Deane House	Angela Hill			Jun-11: Upgrading of air con units has been requested by specialist company

28	Provide regular updates on changes & scope opportunities for reducing consumption of The Deane House Server	Server Room uses about 1/3 of all electricity at The Deane House. The Carbon Management Steering Group will try to set SWOne/ IBM a CO2 reduction target for the Server Room for 2011/12	The Deane House (IT)	Nonn Bound to initiate / Richard Sealy			Apr-11: NB to request this to be included in the programme specifications of the IT Refresh Programme. Regular updates from the programme board to be sent to Torsten Daniel
29	Improve control of heaters	This includes installing time controls on space heaters	DLO Depot	Ray Bown (Phil Webb to report)	5.4	£900	Jun-11: Installation part of Rob Erskine's mid-summer service schedule
30	Scope opportunities for purchasing more fuel efficient vans	Condition: fuel savings must outweigh higher up-front costs	DLO Fleet	Chris Hall / Torsten Daniel			Jun-11: Continuing current practice of purchasing Ford Transit vans seems to be the best option
31	Monitor fuel consumption as well as mileage	Once installed vehicle tracking system will measure mpg. In the interim, fuel purchases for DLO vehicles get recorded.	DLO Fleet	Chris Hall			Jun-11: Martin Nelson to produce spreadsheet with fuel delivery data for 2011/12 for Torsten Daniel
32	Purchase vans with speed limiters		DLO Fleet	Chris Hall			Apr-11: So far two new vans that had speed limiters fitted to them have been purchased

33	Investigate reasons for increase in electricity consumption of Nursery and seek ways to reduce it	Although annual electricity consumption still is only 23,000kWh or around £2,000 it has increased steadily from 16,000kWh over the last three years. Action includes to investigate opportunities for 1) reducing consumption; 2) installation of a voltage optimiser unit	DLO Parks & Nursery	Brian Gibbs			One obvious reason for the increase is that Nursery now operates at full capacity
34	Investigate saving potential for the use of lighting		DLO Parks (Hamilton and Galmington Sports Pavilions)	Brian Gibbs / Richard Eastman			Richard Eastman investigates options for improving control of lighting. Jun-11: RE now back to looking at individual sensors (expensive)
35	Trial of reducing water flow in showers and monitor impact on user behaviour		DLO Parks (Hamilton and Galmington Sports Pavilions)	Brian Gibbs / Richard Eastman			Jan-11 (Brian Gibbs / Richard Eastman to investigate)
36	Conversion of 84 PIR-flood lights to low energy		Housing (flats) at various locations	Phil Webb	7.4	£1,300	
37	Replacement of 16W 2D with HF fittings as they fail		Housing (flats)	Phil Webb			
38	Installation of variable speed drives at Taunton Pool		Tone Leisure	James Curry			Part of pending Taunton Pool modernisation project. Decision on programme expected in 2011/12

39	New lights for Pool Hall at Taunton Pool		Tone Leisure	James Curry	13.4	£4,500	Part of pending Taunton Pool modernisation project. Decision on programme expected in 2011/12
40	Install new heat harvester at Taunton Pool		Tone Leisure	Mark Washington		£400	Part of pending Taunton Pool modernisation project. Decision on programme expected in 2011/12
41	New lighting for Pool Hall at Wellington Sports Centre		Tone Leisure	Mark Washington	14	£5,900	due Apr-11, but delayed
42	New lighting for the indoor Tennis Centre at Blackbrook Pavilion	Thought to be funded in 2010/11 using Carbon Trust, but funding no longer available	Tone Leisure	Mark Washington	71.5	£24,300	Apr-11: will be done if funding becomes available
43	Replacement of lights in the Sports Hall at Blackbrook Pavilion	Thought to be funded in 2010/11 using Carbon Trust, but funding no longer available	Tone Leisure	Mark Washington	12.7	£4,840	Apr-11: will be done if funding becomes available
44	Scope opportunities for Solar PV on leisure centres		Tone Leisure	James Curry / Torsten Daniel			These could be either funded by TDBC / TL or through private "rent-a-roof" schemes
45	Insulate ducting in plant room of Wellington Sports Centre		Tone Leisure	Rob Erskine			Funded from SW1 / Rob Erskine's Maintenance Budget
46	Reduce water usage	Starting with Deane House: baselining water consumption; find actions to reduce it	Corporate	Rob Erskine / Torsten Daniel / John Sumner			
TOTAL:					224.8	£65,040	