

NORTH LINCOLNSHIRE COUNCIL

**NEIGHBOURHOODS
CABINET MEMBER**

NORTH LINCOLNSHIRE COUNCIL ANNUAL ENERGY REPORT 2014/15

1. OBJECT AND KEY POINTS IN THIS REPORT

- 1.1 To present the Annual Energy Report for the financial year 2014/15.
- 1.2 To provide an update on the council's Carbon Management Plan.

2. BACKGROUND INFORMATION

- 2.1 One of the recommendations of the Greening the Workplace (Scrutiny Panel 2010) was for the production of an Annual Energy Report.
- 2.2 The council agreed its Carbon Management Plan (CMP) in 2009. We committed to reduce our carbon emissions by 33% by 2014/15.
- 2.3 From April 2015, public buildings with a floor area more than 250m² must have a Display Energy Certificate (DEC).
- 2.4 In 2012 we achieved the Carbon Standard Certification. Our energy data was externally verified in line with the 'Green House Gas Protocol'. The standard publicly recognises our efforts in reducing carbon emissions. We will have to be reassessed in 2015 to maintain the certification. A further report will be presented to a future meeting.
- 2.5 All Annual Energy Reports since 2008 have included data for Academy Schools. This allowed for consistent reporting. TEAM Sigma software has provided the energy data for this report. This software also delivers the council's centralised billing for gas and electricity.
- 2.6 Appendix A provides the annual energy and carbon data for the financial year 2014/15. It also includes previous data covering the CMP.
- 2.7 We reduced our total energy use by nearly 7% in 2014/15. There was a 6% reduction in total cost compared to 2013/14.

- 2.8 Reducing our energy consumption by 7% has saved the council a further £266,000 in avoided costs in 2014/15.
- 2.9 Total heating fuel use fell by 9.1%. Heating fuel prices fell by over 8% in 2014/15. Electricity use in our buildings fell by nearly 2.8%. Electricity prices rose 2%.
- 2.10 CO2 emissions from fleet and business travel are over 2% higher than in 2013/14
- 2.11 Our total carbon emissions were 8.5% lower than 2013/14. Since 2008/09, we have reduced our carbon emissions by over 38% in total. We have exceeded the CO2 reduction target set out in the CMP.
- 2.12 The value at stake equates to an £8 million saving in utility costs against the business as usual position since 2008/09.
- 2.13 In 2014, 144 buildings required a DEC. The average score/rating has improved to a 79/D. It was 101/E in 2008/09. A score of 100/D is classed as a typical score.
- 2.14 In 2014/15 we fell below the CRC qualification for Phase 2. This has saved the council over £250,000 per year for five years.
- 2.15 Twenty two schools are now Academy status. Many of these schools have not signed up to the School's Service Level Agreement (SLA). For ease of reporting on future performance it is proposed to set a new baseline excluding Academy schools.
- 2.16 Energy costs are likely to rise over the next five years. Reducing energy use will give large money savings and cost avoidance. A sensible way forward would be to continue to finance energy projects. This will help us save and avoid increased energy costs.

3. OPTIONS FOR CONSIDERATION

- 3.1 To approve the Energy Report as detailed in the appendix.

4. ANALYSIS OF OPTIONS

- 4.1 This is primarily a factual report setting out the overall reduction in energy use, reduction in carbon emissions and the consequent savings.

5. **RESOURCE IMPLICATIONS (FINANCIAL, STAFFING, PROPERTY, IT)**

5.1 There are no implications related directly with this report although decisions will need to be made on energy usage and reduction moving forward.

6. **OUTCOMES OF INTEGRATED IMPACT ASSESSMENT (IF APPLICABLE)**

6.1 Not applicable.

7. **OUTCOMES OF CONSULTATION AND CONFLICTS OF INTERESTS DECLARED**

7.1 No consultation has taken place.

8. **RECOMMENDATIONS**

8.1 The Annual Energy Report 2014/15 is noted and approved.

8.2 A further report be submitted on renewing the Carbon Standard.

8.3 Future Energy Reports to exclude Academy Schools and establish a new carbon baseline.

DIRECTOR OF PLACES

Civic Centre
Ashby Road
SCUNTHORPE
North Lincolnshire
DN16 1AB
Author: Tim Allen
Date: 21 August 2015

Background Papers used in the preparation of this report: None

Appendix A:

North Lincolnshire Council Energy Report Data 2014 - 2015

EXECUTIVE SUMMARY

This document summarises the data on energy consumption and prices in North Lincolnshire Council buildings (including Academy schools) for the period 2014-15. The consumption data in this report is drawn from bills provided by our contracted utility suppliers.

For consistency, this report includes gas, liquid fuel and electricity consumed at schools, that gained Academy status from the start of financial year 2014/15.

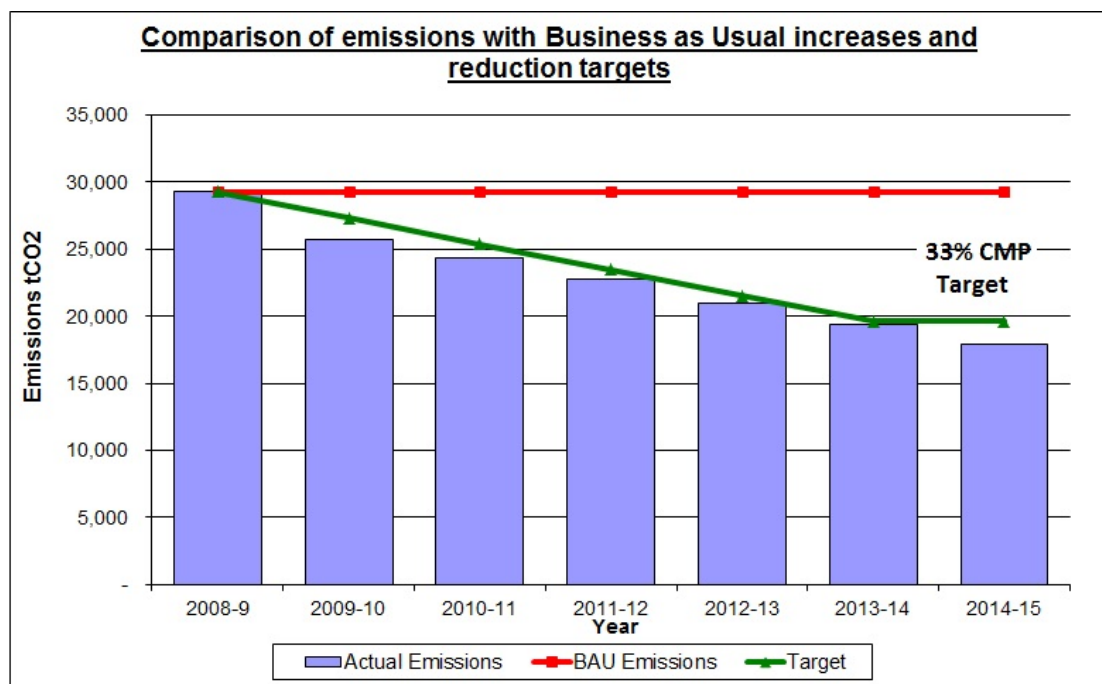
In 2014-2015 the Council reduced its total energy consumption by 7% (4.3 million kWh). This equates to a £265,718 avoided cost.

- Overall building and street-lighting energy expenditure amounted to £3.99 million (£4.24m in 13/14), a decrease of 5.9%.
- 28.5 million kWh of natural gas was consumed in our buildings at a cost of £0.85 million.
- 6.2 million kWh of heating oil was consumed in our buildings at a cost of £0.37 million.
- 14.5 million kWh of electricity was consumed for light and power in our buildings at a cost of £1.6 million. Street Lighting and other unmetered supplies, consumed a further 9.3million kWh of electricity at a cost of £1.08million.
- In total, 17,904 tonnes of carbon dioxide were emitted to the atmosphere from our energy use from buildings and street lighting. CO2 emissions have now fallen by over 38% since our 2008/9 Carbon Management Plan baseline year.
- Gas consumption was down 13.3%. Heating Oil fuel consumption was down 13.8%. Electricity consumption was down 2.8% and Carbon Dioxide emissions were down 8.5%.
- The average price of electricity was 11.1p/kWh. The average price of gas was 3.0p/kWh and the average price of liquid heating fuel was 6.0p/kWh. Since 2008, our unit fuel prices have increased by 31%
- CO2 emissions from fleet and business travel are nearly 36% lower than in 2008/09.
- During 2013/14, we consumed £161,000 m3 of water in our operational buildings at a cost of £493k.
- 80 % of our qualifying buildings (144) have a Display Energy Certificate (DEC) rated as better than typical (score 100). The average rating for all council buildings is D79.
- As a result of being excluded from the Carbon Reduction Commitment (CRC), North Lincolnshire has avoided over £250,000 of carbon penalties.

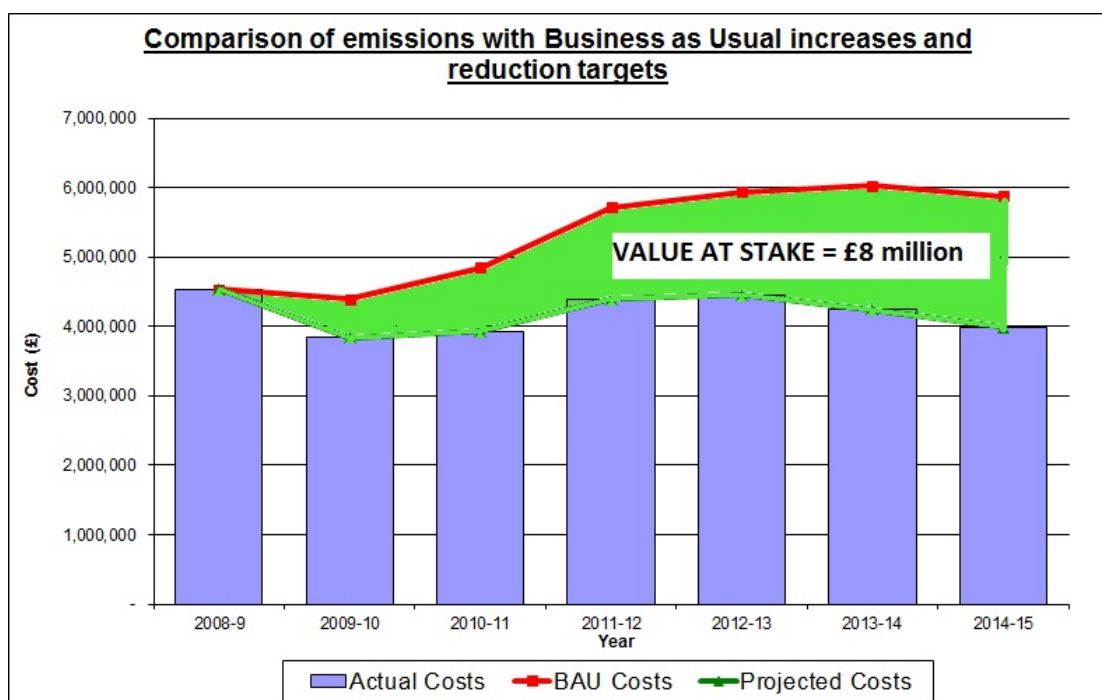
2014-15 - UTILITY SUMMARY

% Differences comparison of 2014/15 and base year 2008/09				
Utility	Consumption	Total Cost	CO2	Unit Cost
Gas	-33%	-14%	-34%	+ 30.4%
Heating Oil	- 50%	- 27%	- 45%	+ 46.3%
Biomass	+ 84%	+ 1000%	0	+ 17%
Electricity	- 31%	-11%	- 36%	+ 16.8%
Totals	-33%	-12%	-33.6%	- 39%

VALUE AT STAKE



By 2014/15 we have reduced our total CO2 emissions by 38% against the 33% Carbon Management Plan target. Our reduction is 37% when including Fleet emissions.



The total Value at Stake against the business as usual position between 2008/09 and 2014/15 equates to a cost saving and avoidance of £7.9 million.

CONTACTS:

Energy Manager: Craig Stapleton - Tel: 01724 296514

Energy Management Officer: Julie Bunclark - Tel: 01724 297553

Head of Environment and Sustainability: Tim Allen - Tel: 01724 297387

Miscellaneous Information

1 GJ = 277.8 kWh

1 therm of gas = 29.3 kWh

1 tonne of oil = 7.33 barrels (1 barrel = 35 gallons)

1 litre of Class C oil (gas, oil or 35 second) = 10.31 kWh

1 gallon = 4.54 litres

1 litre LPG = 7.08 kWh

1 tonne of wood pellets occupies 1.5m³

1 tonne of wood pellets = 4,500 kWh typical

1 cubic metre of water = 220 gallons

1 kWh = 3.6 MJ

1000 kW = 1MW, 1000 MW = 1 GW

DEFINITIONS

YPO

North Lincolnshire Council is part of the Yorkshire Purchasing Organisation (YPO) which is a consortium of nearly 70 local authorities. North Lincolnshire Council is now part of YPO frameworks for the purchasing of both electricity and gas.

Carbon Management Programme

In February 2010, by agreeing to the Carbon Management Plan, North Lincolnshire Council committed to a 33% reduction in its carbon emissions by 2014. This equates to a 8% year on year reduction from the baseline year of 2008/2009.

Carbon Reduction Energy Efficiency Scheme (CRC)

From 2012, all qualifying organisations will be liable to pay £12 for every tonne of CO₂ they emit as a result of the direct consumption of electricity and fossil heating fuel on their sites.

Display Energy Certificates (DECs)

The European Directive on Energy Performance in Buildings (2002/91EC), which came into force in the UK in January 2008, requires public buildings to prominently display an energy performance certificate. The Display classification is given in A to G format similar to energy labelling on household electrical appliances

NATURAL GAS

We used 28.5 million kWh

YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Average Cost p/kWh
2014/15	28,510,636	848,477	5,203	3.00
2013/14	32,911,973	1,064,214	6,096	3.23
2012/13	35,049,483	1,191,682	6,491	3.40
2011/12	34,351,774	1,079,993	6,203	3.20
2010/11	37,051,423	923,305	6,802	2.50
2009/10	40,359,005	880,249	7,466	2.18
2008/09	42,680,000	981,640	7,896	2.30

The 2009/10 gas contract was with Total Gas and Power. Since June 2010 gas is provided by British Gas Business under the YPO framework agreement.

The contract has three different price bands:

60 sites using up to 2,500 therms (small site contract).

95 sites using between 2,500 and 25,000 therms (medium site contract).

8 sites using more than 25,000 therms (large site contract).

HEATING OIL

We used 586,000 Litres

YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Average Cost p/kWh
2014/15	6,207,402	374,624	1,715	6.00
2013/14	7,203,145	428,679	2,026	6.00
2012/13	9,987,564	605,849	2,928	6.25
2011/12	9,137,591	560,191	2,619*	6.13
2010/11	11,258,100	629,396	3,110*	5.60
2009/10	13,170,530	564,430	3,253	4.25
2008/09	12,531,870	513,807	3,095	4.10

Gas Oil conversion Factor, 1 Litre = 10.6 kWh

42 sites (including 35 schools) have oil fired heating, most of these are in areas without mains gas access.

* Note a revised carbon emissions factor of heating oil of 0.2763 Kg/CO₂/kWh necessary for CRC submission for higher to be used from financial year 2010/2011

SOLID FUELS

YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Average Cost p/kWh
2010/15	0	0	0	0
2009/10	0	0	0	0
2008/09	578,350	20,225	181	3.5

North Lincolnshire Council no longer has any sites burning solid (coal) fuel.

BIOMASS FUEL

We used 365 tonnes

YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Cost p/kWh
2014/15	1,752,000	73,000	0	4.1
2013/14	1,723,200	68,210	0	4.0
2012/13	1,228,412	51,593	0	4.2
2011/12	600,189	25,208	0	4.2
2010/11	402,898	16,519	0	4.1
2009/10	374,000	14,960	0	4.0
2008/09	187,000	6,545	0	3.5

Calorific value varies, due to the moisture, hydrogen and ash content and will depend on whether the fuel is wood pellet or chip.

TOTAL HEATING FUELS

YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Weather corrected consumption kWh
2014/15	36,470,038	1,296,101	6,918	38,220,600
2013/14	40,115,118	1,561,103	8,122	37,445,262
2012/13	46,265,459	1,849,124	9,419	36,272,522
2011/12	43,523,596	1,665,392	8,822	45,351,587
2010/11	47,623,715	1,569,220	9,713	44,281,345
2009/10	53,903,530	1,459,639	10,728	52,572,877
2008/09	55,977,220	1,522,217	11,177	54,497,535

The weather corrected consumption is obtained by multiplying the weather related heating consumption by a factor. The factor is the ratio of the 20 year degree day average and the actual annual degree days. 2013/14 (2166/2067) = 1.048

ELECTRICITY

We used 23.9 million kWh in total (including 9.3 million kWh for Unmetered Supplies)

YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Average Cost p/kWh
2014/15	23,881,910	2,691,323	10,986	11.1
2013/14	24,570,514	2,683,863	11,303	10.9
2012/13	25,213,101	2,647,376	11,599	10.5
2011/12	26,559,085	2,729,969	13,933	10.1
2010/11	27,452,705	2,356,540	14,684	8.7
2009/10	28,654,310	2,378,308	14,986	8.3
2008/09	34,583,360	3,014,492	18,090	9.5

North Lincolnshire Council Buildings				
YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Average Cost p/kWh
2014/15	14,518,785	1,611,585	6,679	11.1
2013/14	15,502,123	1,693,395	7,131	10.9
2012/13	16,096,173	1,690,098	7,405	10.5
2011/12	17,252,471	1,742,500	9,051	10.1
2010/11	17,965,088	1,568,895	9,609	8.9
2009/10	20,111,555	1,606,677	10,518	7.9

Streetlighting and UMS				
YEAR	Consumption kWh	Cost £	Tonnes CO ₂	Average Cost p/kWh
2014/15	9,363,125	1,079,738	4,307	11.1
2013/14	9,068,391	990,468	4,172	10.9
2012/13	9,116,929	957,278	4,194	10.5
2011/12	9,306,614	939,968	4,882	10.1
2010/11	9,487,617	787,645	5,075	8.3
2009/10	8,542,755	771,631	4,468	9.0

In line with the GHG protocol, the carbon emissions factor of 0.46002 kgCO₂/kWh for grid electricity is used from 2012-13.

Up until October 2009 the electricity contract was with Scottish and Southern. Since 1st November 2009 electricity is supplied by Npower Business under the YPO framework agreement.

24 sites have half-hourly metering and 165 out of the 240 non half hourly sites (69%) now have smart meters installed

TRAVEL & TRANSPORT

We emitted 3,611 tonnes of CO₂ from fleet and business mileage.

YEAR	Fleet Emissions (Tonnes CO ₂)	Business Travel Emissions (Tonnes CO ₂)	Total (Tonnes CO ₂)
2014/15	2,814	797	3,611
2013/14	2,606	944	3,550
2012/13	2,387	1,102	3,489
2011/12	2,456	1,207	3,663
2010/11	2,451	1,732	4,183
2009/10	2,909	2,549	5,458
2008/09	2,840	2,844	5,684

WATER & SEWERAGE

We used 161,355 m³ of water

YEAR	Consumption (m ³)	Cost (£) Including sewerage
2014/15	Awaiting Consumption Report from Anglian Water	£492,021
2013/14	161,355	£493,207
2012/13	164,357	£565,602
2011/12	185,316	£641,741

TOTAL CO₂ EMISSIONS

We emitted 17,904 tonnes of CO₂ from our buildings and streetlighting.

YEAR	Tonnes CO ₂ (Buildings and UMS)	Total Tonnes CO ₂ (excluding Business Travel)
2014/15	17,904	20,718
2013/14	19,425	22,031
2012/13	21,018	23,405
2011/12	22,755	25,211
2010/11	24,397	26,848
2009/10	25,714	28,623
2008/09	29,267	32,107

The following carbon conversion factors have been used, as recognized under the Greenhouse Gas Protocol:

Carbon Dioxide equivalents	Kg/CO₂/Unit
Natural Gas	0.1825/kWh
Gas Oil	3.0213/litre
Coal	2383.1/tonne
LPG	1.5326/litre
Biomass	0
Grid Electricity	0.46002/kWh
Kerosene	2.5443/litre
Diesel (Typical retail station blend)	2.5725/litre
Petrol (Typical retail station blend)	2.245/litre

DISPLAY ENERGY CERTIFICATES (DECs)

In 2011/12 due to changes in legislation extending the provision 152 buildings required a DEC. A is the most efficient, G is the least efficient. The table below shows the numbers of qualifying County Council buildings in each band and resulting ratings.

DEC Summary						
	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14
Rating	Number	Number	Number	Number	Number	Number
A (0-25)	0	0	1	1	2	2
B (26-50)	17	6	6	12	11	16
C (51-75)	15	27	25	58	53	46
D (76-100)	20	49	50	43	53	51
E (101 -125)	9	19	9	28	29	24
F (126-150)	1	1	1	13	5	4
G (150+)	23	6	0	1	0	0
Total	85	108	92	152	153	144
Average Score	101 E	89 D	75C	82D*	81D	79D

ENERGY COST PREDICTIONS 2016-2020

The YPO have conducted an energy cost prediction exercise covering the period 2016-2020. As a result of increases in green taxes, the Electricity Market Reform Act and existing generation plant scheduled to be decommissioned, utility costs are predicted to rise sharply over the next several years. The table below lists predicted year on year figures..

Utility	2016-17	2017-18	2018-19	2019-20
Electricity	+7%	+10%	+10%	+12%
Gas	0%	+4%	+10%	+10%

Source: YPO July 2015

CARBON REDUCTION ENERGY EFFICIENCY SCHEME (CRC)

The below summarises the results of Phase 1 of the scheme.

Reporting Year	2011-12	2012-13	2013-14	2014-15
Total Regulated CRC Emissions	16,504 tonnes CO2	15,691 tonnes CO2	15,373 tonnes CO2	Exempt
CRC liability (@ £12/tonne CO2)	£198,045	£188,292	£184,476	0

As a result of energy reductions, North Lincolnshire Council fell below the qualification threshold for Phase 2 of the CRC.

The CRC liability for 2014-15 increased to £16.40 / tonne CO2. Based on 2013-14 regulated emissions, this equates to a **£252,117** cost avoidance.