

LCC Carbon Management Report 2014/15

1. Executive Summary

All councils within England have a duty to work towards reducing carbon emissions within the UK by 34% by 2020 and by 80% by 2050. In all Climate and Energy policy documents published by the Government, energy efficiency and increased use of renewable energy are seen as central to achieving carbon emissions reduction aims.

Lincolnshire County Council (LCC) needs, therefore, to continue its progress to date and to lead by example by working to reduce carbon emissions from its own properties and services. The council remains a major consumer of energy and must as a community and business leader continue to set a good example and take a leading role in contributing to the achievement of the Government's reduction targets.

LCC was a signatory of the Nottingham Declaration on Climate Change that made public the Council's commitment towards actively addressing climate change. In doing so, LCC has placed climate change as one of its core priorities. LCC has signed Climate Local which has superseded the Nottingham Declaration.

LCC signed up to the Carbon Management Revisited programme and set itself a 22% carbon reduction target in its 2011/12 baseline by 2018 and this underpins potential financial savings to the organisation of over £2 million per year by that date.

The annual review of the Carbon Management Plan for 2014/15 aims to ensure that the Council's energy reduction plans continue to be realistic and to set further achievable goals, while still striving to be ambitious.

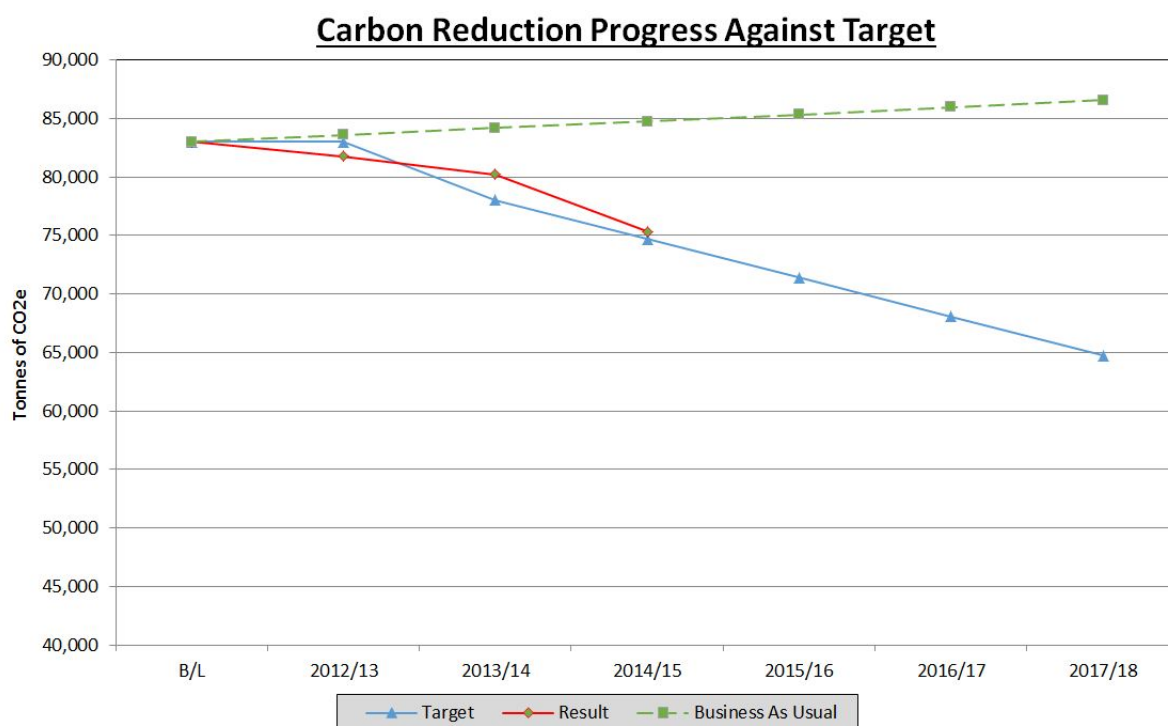
2. Introduction

This document provides an overview of the energy efficiency projects completed since April 2012, and an update on the planned projects due to be implemented in the 2014/15 financial year.

This is the latest update to the LCC's Carbon Management Plan which commits the council to reducing its carbon emissions by 22% by the 2018.

3. Progress in 2014/15

LCC has completed the second year of its 2nd Carbon Management Plan and there has been a 6.2% decrease in overall emissions to 74,988 tonnes of CO₂ from 2013/14. This equates to an overall 9.7% decrease from the 2011/12 baseline year and Graph 1 below shows progress to date.

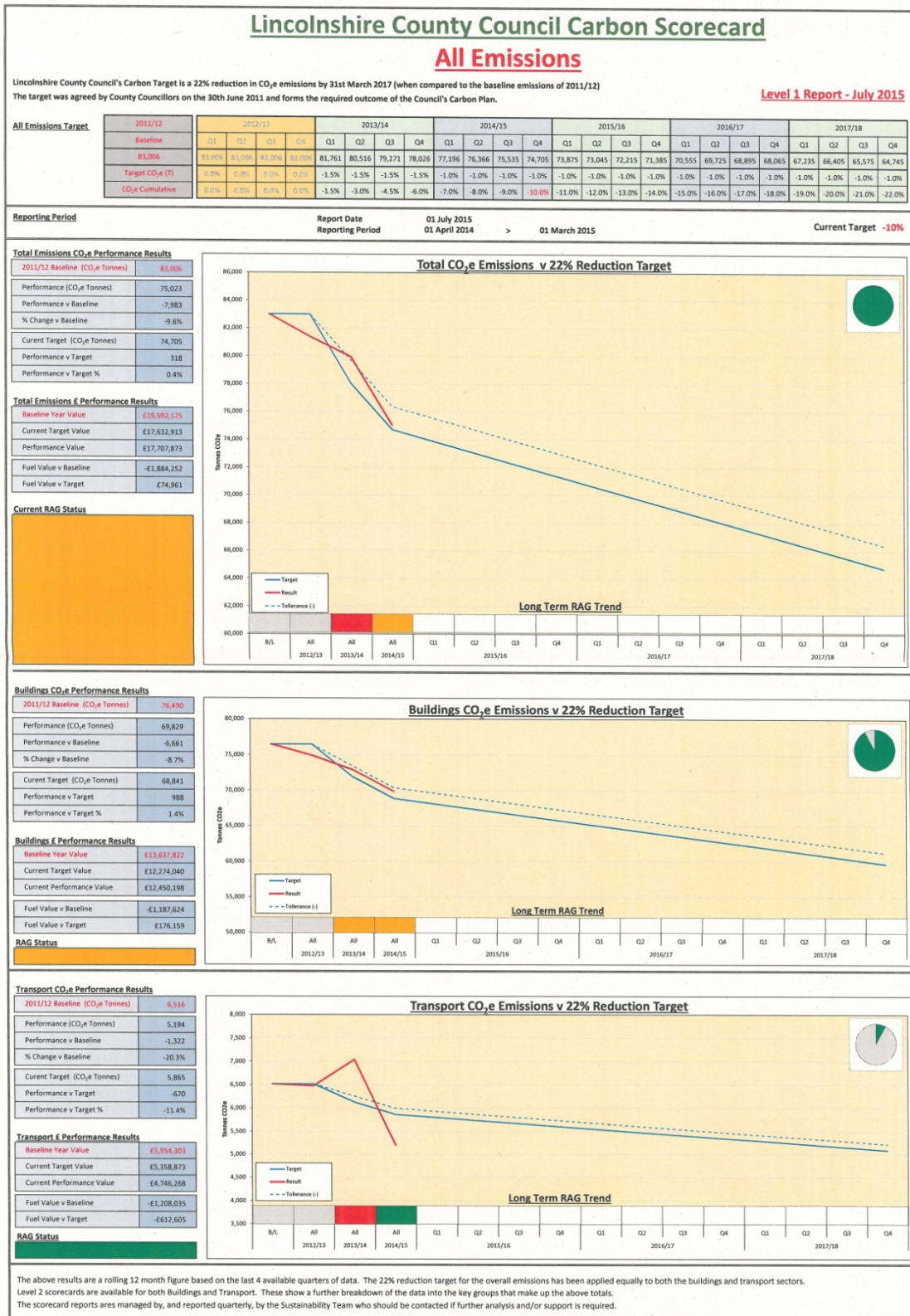


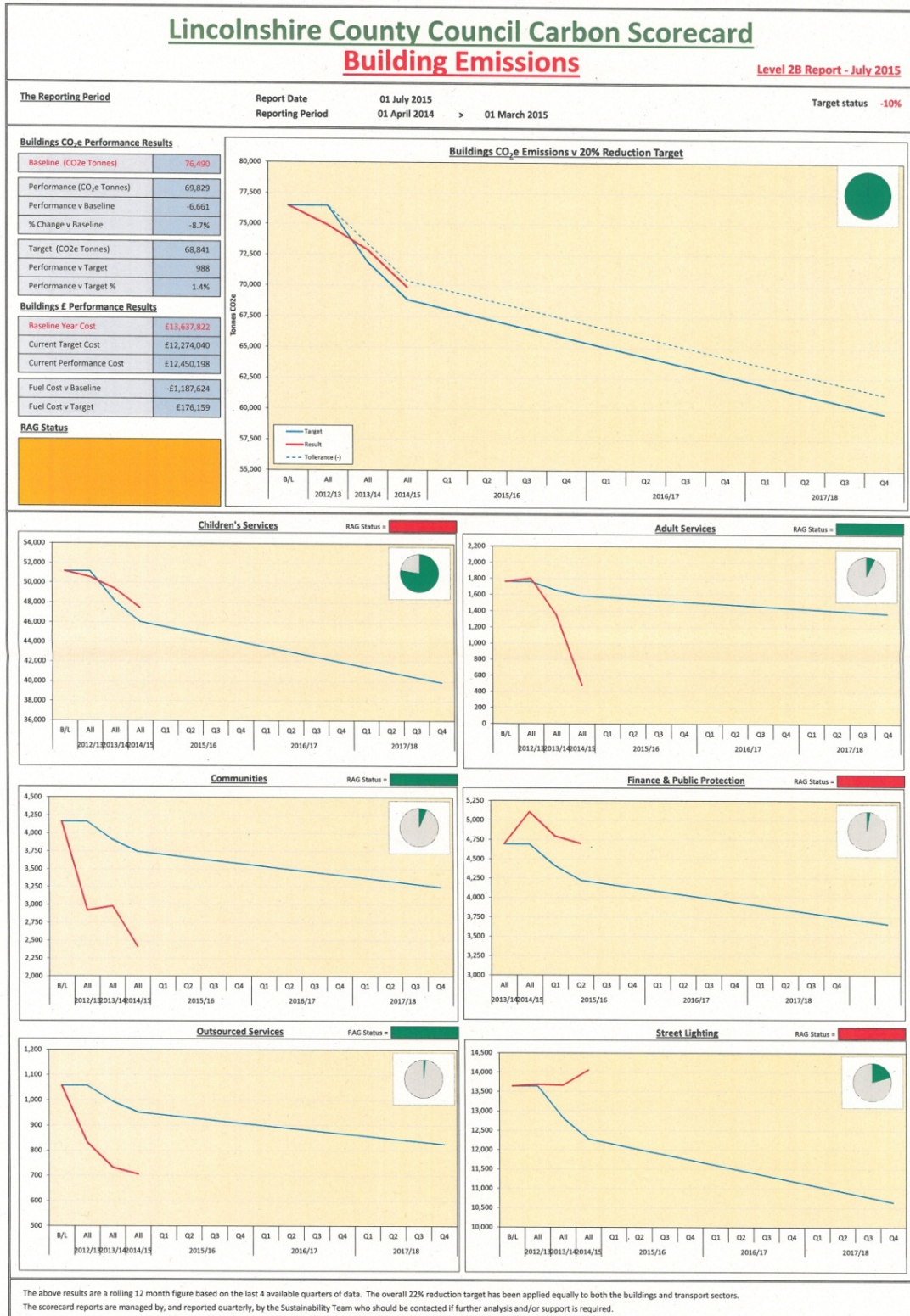
Graph 1 – Carbon Progress Against 22% Target by 2018

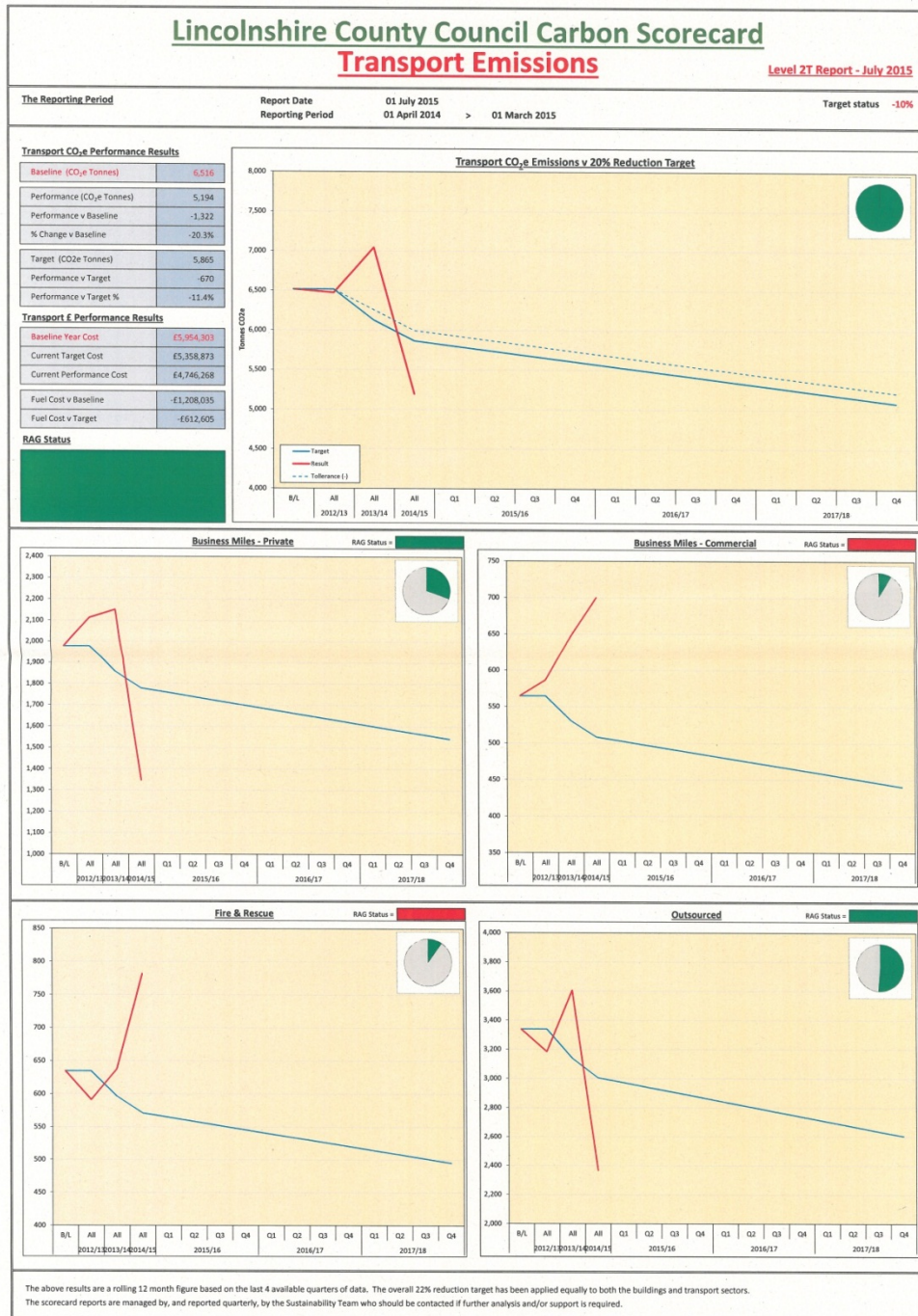
Although the measured end of year emissions are still higher than the target emissions the gap has significantly reduced during the previous reporting period. This is partly due to savings attributed to the Schools Collaboration on Resource Efficiency (SCoRE) project, which is expected to deliver 65% of the overall reductions, starting to be seen.

The delivery of the boiler room technology improvements being delivered to all Lincolnshire schools through the SCoRE programme, has been increased during the reporting period resulting in the project completing a year ahead of target. Savings will be noticed in the next heating season (winter 2015/6).

4. Detailed analysis







6. Identified Carbon management Plan Targets

Table 2 below details the completed projects identified in the Carbon Management Plan.

Description of Project	Project Start Year	Capital Cost	Annual Savings (Tonnes of CO ₂)	Annual Savings (£)	Lead
Salix School Projects	2011	£ 146,455	165	£26,704	Environmental Services Sustainability
SCORE - Boiler Optimisation & Boiler Room Insulation	2013	£ 2,000,000	2,814	£455,815	Environmental Services Sustainability
Traffic Signals	2013	£ 295,000	245	£43,725	Traffic Signs and Signals
Street Lighting - Salix Projects	2013	£ 180,100	152	£27,216	Street Lighting
Save it - Communications Strategy and Campaigns	2013	£ 15,000	265	£46,476	Environmental Services Sustainability
Louth Waste Transfer Stations Solar PV	2013	£ 130,000	14	£2,558	Environmental Services Sustainability
Waste Transfer Stations Solar PV	2013	£ 195,000	43	£7,703	Environmental Services Sustainability
TOTAL		£2,961,555	3,698	£610,197	

Table 2 – Completed projects identified in the Carbon Management Plan

Description of Project	Project Start Year	Capital Cost	Annual Savings (Tonnes of CO ₂)	Annual Savings (£)	Lead
SCORE - Behavioural and quick wins	2012	£100,000 annually	3,113	£549,600	Environmental Services Sustainability
SCORE - Action Plan Implementation	2013	£ 1,200,000	5,581	£984,988	Environmental Services Sustainability
LCC Property - Boiler Optimisation	2013	£ 170,000	222	£36,000	Strategic Property
LCC Property - Boiler Room Insulation	2013	£ 55,000	72	£11,640	Strategic Property
LCC Property - Lighting Upgrades	2013	£ 530,000	520	£93,000	Strategic Property
Travel Plan and Business Miles	2013	£ 12,000	55	£67,500	Smarter Choices
ICT – Power Management	2013	£ 12,500	58	£10,416	ICT
Love Every Drop	2013	£ 20,000	13	£27,300	Environmental Services Sustainability
Data Centre	2014	£ 5,000,000	331	£59,241	ICT
Lincoln Area Property Review	2015	£ 600,000	41	£6,600	Strategic Property
TOTAL		£7599,500	10,006	£1,846,285	

Table 3 – On going or not started projects identified in the Carbon Management Plan

Projects in Tables 2 & 3 above have been coloured to identify the following:

- Green** – Project has been completed and is realising financial and carbon savings.
- Amber** – Project is either part the way through and realising financial and carbon savings or is about to commence.
- Red** – Project has not started.

As can be seen from Table 3 above significant carbon and financial saving opportunities still exist especially within LCC's property portfolio.

7. Lincs2Work

The council has an active Travel Plan and on-going branded campaigns/actions under Lincs2Work. The Plan is regularly reviewed and forms the key document for this strand of action. Amongst the actions that have and continue to be successful are:

- Installation of new and improved cycle storage across Council sites
- Campaigns (linked in to Carbon Management communications strategy) including Manager and SAGE (staff volunteer) briefings and new podcast (in partnership with the Sustainability team)
- Continued promotion of Car sharing scheme, bus ticket subsidy
- Promotion of National initiatives including; Cycle to Work day, World Environment day, Car free day, Walk to Work week, Bike week
- Increased number of pool bikes
- Personal Travel Planning available to all staff
- 19 hirebike stations and 90 bikes for staff commuter use
- Free hirebike use for all staff for business travel
- Free Adult cycle training funded through Icount
- Free cycle maintenance sessions
- Lincs Cycle Challenge – cycle competition

Staff have benefitted from the £4.9million LSTF funding for the years 2013- March 2015. The LSTF funding centred around LN6 and Lincoln but all staff residing or commuting through these areas had access to initiatives including;

- improvements to rail stations at Lincoln and Hykeham.
- Increased bus services
- Increased rail services
- Improved infrastructure for cyclists

Since 2013 evidence shows that cycling in Lincoln has doubled and train patronage from Hykeham station has increased by 50%

All national and local initiatives will continue to be promoted through the smarter choices team and the bi-annual travel survey will be conducted in 2015.

8. Investment

Table 4 below shows the Salix loans in financial year 2014/15.

Applicant	Project	Loan Amount	Annual Saving (CO2)	Annual Savings (£)	Payback
Allington & Sedgebrook Primary School	T12/T8 to LED including new fitting	9,396.00	8.72	1,838.96	5.1
Alford Primary School	T5 lighting including changing the fitting	8,000.00	7.46	1,619.10	4.9
Linchfield Community Primary School	T12/T8 to LED including new fitting	23,400.00	18.76	3,490.74	6.7
Street Lighting	Replace controls including electronic ballasts	34,348.00	30.72	6,874.60	5
Sturton-by-Stow Primary School	T12/T8 to LED including new fitting	19,433.00	17.9	2,591.26	7.5
Cherry Willingham Community School	T12/T8 to LED including new fitting	74,775.00	84.86	15,787.80	4.7
All Saint's CE Primary School	T12/T8 to LED including new fitting	17,658.00	17.36	3,390.87	5.2
Deeping St James Primary School	T12/T8 to LED including new fitting	16,160.00	18.4	3,423.20	
Barkston and Syston CE Primary School	T12/T8 to LED including new fitting	10,778.00	10.75	1,999.40	5.4
St Faith's Infant School	T12/T8 to LED including new fitting	9,300.00	7.67	1,426.10	6.5
Total		223,248.00	222.60	42,442.03	51.00

Table 4 – Projects funded through LCC's Salix revolving Fund during 2014/15

The SCoRE boiler room improvements rollout was increased leading to the project being completed a year ahead of schedule. The total spend for each technology is detailed below:

- Boiler optimisation
 - 931 units - £1,606,906
- Valve & Flange Insulation
 - 22,922 units - £323,213

The sustainability team has again worked with William Farr secondary school in looking at energy saving opportunities able to be installed and this is leading to an increase in its 50kWp Solar PV system by a further 185kWp to 235kWp. This is being done at no cost to the school and they will see all the benefits; free electricity, Feed in Tariff (FIT) and export payments. The system will be funded through an operating lease which will mean the school is cash positive by at least £8,000 in year 1 rising to £45,000. Over the 20 year period that the Government pays the FIT the school will make approx. £750,000 through the system. The system when installed is likely to be one of the largest roof mounted PV systems on a school in the UK. The PV system along with the LED lighting upgrade the Sustainability Team helped William Farr fund in February 2014 will mean that in the peak PV production of July the school may well consume no electricity from the grid even when occupied during term time.

9. Case studies

Below are detailed two case studies on technologies that are being trialled at Tealby and Rauceby Primary Schools.

Case Study 1 - Airius Destratification Fans at Tealby Primary School

LCC's Sustainability Team has been working closely with Tealby Primary School.

Background

The original school was built in 1843 and the hall has been split into 2 classrooms. The beautiful ceiling is modelled on Westminster Hall and was used for filming of Nanny.

Issue

Due to the height of the ceiling both classrooms suffer from heat stratification (heated air rises to the top of the room) meaning higher fuel bills as more and more energy is required to heat the lower space.

Solution

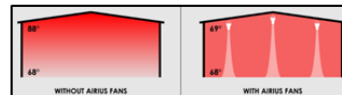
LCC Sustainability Team has been monitoring the temperature gradients within the hall over the summer and will continue into the heating season.



We will then install 2 Airius destratification units during October half term and continue to monitor the stratification effect.

The trial will end in December where the collected data will be analysed along with the feedback from the teaching staff and the children on the effects of the units.

If the trial is deemed successful and the data shows a significant reduction in stratification then the technology will be considered for other sites where stratification occurs and causes excessive heating demand.



Case Study 2 – Far Infrared Heating Panels at Rauceby Primary School

LCC's Sustainability Team has been working closely with Rauceby Primary School.

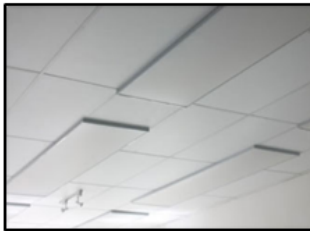
Background

The original part of Rauceby primary school is Victorian (1842) and the whole school is fuelled by electricity including the heating demand. The newer parts of the school have underfloor heating powered through ground source heat pumps. The hall is heated via a warm air unit and the 4 older classrooms each have gaining storage heaters installed.

Issue

The school has a high electricity bill. Lighting has been upgraded to LED and has helped, but heating remains the main issue. The classrooms with the storage heaters are difficult to manage as the controls are limited and the stored heat can often run out part way through the day.

Solution



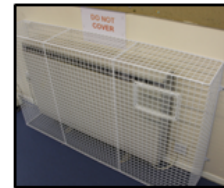
The panels are being installed over the summer break and will be used throughout the autumn term up until Christmas.

The LCC Sustainability Team is dis-connecting the storage heaters and installing far-infrared heating panels into the 4 classrooms.

The heating panels will be suspended from the ceilings and work in much the same way as the radiant heat from the sun (heating the objects within its range rather than the air itself). Full control units will be installed in each classroom giving the teacher the ability to increase or decrease heating instantly.

The panels have been used in many office, school and NHS locations and the feedback seen is very positive from both the usability and efficiency perspectives.

The panels are being installed over the summer break and will be used throughout the autumn term up until Christmas.



10. Future Reporting

It is the intention that future reporting will show LCC's overall performance through a dashboard as shown in Figures 1, 2 & 3 above. This reporting will be part of corporate reporting on the Council's Business Plan.