

Warwickshire County Council

Building Energy Consumption Review

April 2014 to March 2015

Report prepared by WCC Resources Group: Physical Assets / Construction Services / Energy Team

<http://www.warwickshire.gov.uk/energyperformance>

<http://www.warwickshire.gov.uk/energyandwater>

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This publication reports on energy consumption for buildings in the Warwickshire County Council (WCC) property portfolio (for property specific details - see Appendix).

The data was gathered the same as if needing to report on the Carbon Reduction Commitment Energy Efficiency Scheme (CRC-EES) and would have formed part of the required evidence pack if WCC was in Phase 2.

Similar reports for 2010/11, 2011/12, 2012/13 and 2013/14 can be found on the internet on the WCC Energy Performance web page:

<http://www.warwickshire.gov.uk/energyperformance>

Or from the following links:

2010/11 Building Energy Consumption Review

<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-14>

2011/12 Building Energy Consumption Review

<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-15>

2012/13 Building Energy Consumption Review

<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-42>

2013/14 Building Energy Consumption Review

<https://apps.warwickshire.gov.uk/api/documents/WCCC-599-54>

These documents contain further information about energy management at WCC.

Summary

This report gives information about energy consumption (electricity and gas) at WCC properties for the financial year 2014/15 and compares it to data from 2013/14, 2012/13, 2011/12 and 2010/11.

The 14/15 energy data was collected the same as if for reporting on the Carbon Reduction Commitment Energy Efficiency Scheme (CRC) and would have formed part of the required CRC Evidence Pack had WCC been included in Phase 2.

The CRC Energy Efficiency Scheme (CRC) is a mandatory UK-wide scheme that was brought into law via the CRC Energy Efficiency Scheme Order 2010 (SI 2010/768) (the "CRC Order"). The CRC was brought in with the aim of improving energy efficiency, reducing energy bills and cutting carbon emissions. WCC submitted its fourth and final Phase 1 CRC annual report by the deadline of July 31st 2014.

2015 is the fifth year WCC has undertaken annual building energy consumption reporting. With electronic invoice data, annual supplier statements, direct meter readings and voluntary automatic meter reading installed (AMR) the data continues to improve. Even so, the data quality and accuracy can still be improved upon year on year. Common potential sources of data inaccuracy include:

- Meter read errors or meter faults.
- Paying invoices based on estimated readings.
- Uncorrected billing errors.
- Submitting customer reads in the wrong unit of measure (e.g. confusing m³ with kWh).

The data in this report provides a basis for further more detailed investigations wherever it provokes questions about unexpected patterns of energy consumption. Both higher than average and lower than average energy consumption need to be investigated to:

- Find out why this is the case.
- Better understand energy consumption and cost in WCC properties.
- Gather more accurate data where necessary.
- Detect avoidable energy wastage that otherwise may remain hidden.
- Learn from best practice in order to know what to do to reduce costs where energy performance can be improved,
- Identify areas for investment,
- Quantify potential savings from energy saving projects,
- Improve budget forecasting, and
- Develop Warwickshire specific benchmarks and targets.

Total Energy Consumption 2014/15

Electricity

Electricity consumption data was collated for 418 separate MPANs at properties with a total gross internal floor area of 779,409 m². Some properties were excluded – see footnotes.

2014/2015 electricity data	School Property	Non-School Property	Total
Number of separate MPANs on WCC / ESPO supplier contract	298 [Last year 297]	120 [Last year 150]	418 ¹ [Last year 447]
Number of properties	233	87	320
Total electricity consumption kWh	32,515,395 kWh [Last year 33,703,797 kWh]	7,423,045 kWh [Last year 8,426,857 kWh]	39,938,440 kWh [Last year 42,130,654 kWh]
Floor area of these properties m ²	671,222 m ²	108,187 m ²	779,409 m ²
Total tonnes carbon dioxide emissions using factor 0.533100 kg CO ₂ / kWh [last year 0.541 kg CO ₂ / kWh]	17,334 tonnes [Last year 18,318 tonnes]	3,957 tonnes [Last year 4,612 tonnes]	21,291 tonnes [Last year 22,930 tonnes]
Tonnes CO ₂ / m ²	0.0254 tonnes CO ₂ /m ²	0.0358 tonnes CO ₂ /m ²	0.0268 tonnes CO ₂ /m ²

Table 1 Electricity consumption data 14/15

¹ 435 in total - 17 properties were excluded because of incomplete data on annual supplier statements and some properties are no longer WCC's.

Gas

Gas consumption data was collated for 365 separate MPRNs at properties with a total gross internal floor area of 739,087 m². Some properties were excluded – see footnotes.

2014/2015 gas data	School Property	Non-School Property	Total
Number of separate MPRNs on WCC / ESPO supplier contract	288 [Last year 276]	77 [Last year 100]	365 ² [Last year 376]
Number of properties	209	68	277
Total gas consumption kWh	69,054,839 kWh [Last year 77,265,868 kWh]	10,784,233 kWh [Last year 13,751,329 kWh]	79,839,072 kWh [Last year 91,017,197 kWh]
Floor area of these properties m ²	644,153 m ²	94,934 m ²	739,087 m ²
Total tonnes carbon dioxide emissions using factor 0.184557 kg CO ₂ / kWh [last year 0.1836 kg CO ₂ / kWh]	12,745 tonnes [Last year 14,271 tonnes]	1,990 tonnes [Last year 2,562 tonnes]	14,734 tonnes [Last year 16,833 tonnes]
Tonnes CO ₂ / m ²	0.0187 tonnes CO ₂ /m ²	0.0180 tonnes CO ₂ /m ²	0.0186 tonnes CO ₂ /m ²

Table 2 Gas consumption data 14/15

Combined

Some properties do not have gas and have electric heating, so combined data was also looked at. Some properties were excluded – see footnotes.

2014/2015 gas and electricity data	School Property	Non-School Property	Total
Total electricity and gas consumption kWh	101,570,288 kWh	18,207,278 kWh	119,777,566 kWh
Number of Properties	246	94	340 ³
Average kWh consumption per m ²	142 kWh/m ²	175 kWh/m ²	151 kWh/m ²
Average kWh consumption per pupil	1,260 kWh/pupil	N/A	N/A
Average cost £ per m ²	8.25 £/m ²	11.27 £/m ²	9.8 £/m ²
Average cost £ per pupil	73.02 £/pupil	N/A	N/A
Total tonnes carbon dioxide emissions	30,079 tonnes [Last year 32,590 tonnes]	5,948 tonnes [Last year 7,174 tonnes]	36,026 tonnes [Last year 39,763 tonnes]
Total tonnes carbon dioxide emissions	83.5%	16.5%	100%

Table 3 Total consumption and carbon dioxide emissions for electricity and gas 14/15

² 383 in total - 18 properties were excluded because of incomplete data on annual supplier statements and some properties are no longer WCC's.

³ 365 in total – 25 properties were excluded because of incomplete data on annual supplier statements and some properties are no longer WCC's.

Carbon Dioxide Emissions Data 2014/15

Year	Fuel kWh	No of properties / MPANs or MPRNs	Gross internal floor area (m2)	Emissions (t CO ₂)
Total 2014/15				
2014/15	Gas	365 (MPRNs)	739,087	14,735
2014/15	Electricity	418 (MPANs)	779,409	21,291
2014/15	Combined	286 properties (gas) 334 properties (electricity) 337 properties (combined)	792,616	36,026
Total 2013/14				39,763*
2013/14	Gas	287	759,663	16,832
2013/14	Electricity	454	904,584	22,930
Total 2012/13				43,902*
*Including additional corporate emissions identified and CRC report corrected in 13/14, previously the figure was 43,030 tonnes carbon dioxide.				
2012/13	Gas	307	794,049	19,668
2012/13	Electricity	412	842,899	23,362
Total 2011/12				37,978
2011/12	Gas	289	716,196	15,819
2011/12	Electricity	378	763,179	22,159
Total 2010/11				41,472
*55,541 including street lighting				
2010/11	Gas	351	779,648	20,063
2010/11	Electricity	420	827,632	35,479
Total 2009/10				47,600
Total 2008/09				45,467

Table 4 Year on year carbon dioxide emissions data 2008/09 to 2014/15

- In 2013/14 80% of reported emissions were from educational properties, 20% were from non-school corporate properties.
- In 2013 / 14 total carbon allowances needed @ £12/tonne CO₂ cost = £487,356 (excluding credit for renewable energy generation (21 tonnes) and including 872 allowances outstanding from the previous year's commitment.
- In 2014 / 15 WCC were not in Phase 2 of the CRC so did not need to purchase any carbon allowances.

Carbon Dioxide Equivalents⁴

The **36,026** tonnes of carbon dioxide is equivalent to:

How many?	Of What?	Assumption
7,584	Passenger vehicles	4.75 tonnes CO ₂ equivalent / vehicle / year or
85,776,190	Miles travelled by an average passenger vehicle	4.20*10 ⁻⁴ tonnes CO _{2e} / mile or
4,053,786	Gallons of petrol	8.887*10 ⁻³ tonnes CO _{2 e} /gallons of petrol or
These emissions could be avoided with (9.9) 10	1.94 MW wind turbines,	Capacity factor 0.31 and 3,633 tonnes CO _{2e} avoided per wind turbine or
923,744	Tree seedlings grown for 10 years	0.039 tonnes CO ₂ per urban tree planted. Medium growth coniferous tree with 59% survival rate at year 10.

Table 5 Carbon dioxide equivalents

Emission Factors 2014/15⁵

Fuel Type	Phase 2 Emission Factors
Electricity (includes transmission and distribution losses)	0.533100 kg CO ₂ / kWh
Natural Gas	0.184557 kg CO ₂ /kWh

Table 6 CRC Carbon dioxide emission factors 14/15

Yearly Comparisons of Carbon Dioxide Emissions – Schools + Non Schools

Year	Schools tonnes CO ₂	Non-schools tonnes CO ₂	Total tonnes CO ₂
08/09	26,371	19,096	45,467
09/10	27,500	20,100	47,600
10/11	33,200	8,272	41,472
11/12	30,521	7,457	37,978
12/13	32,710	11,192	43,902
13/14	32,590	7,153	39,741
14/15	30,079	5,948	36,026

Table 7 Schools and Non- schools CO₂ emissions 2008 – 2015

⁴ <http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

⁵ <https://www.accuvio.com/latest-industry-news/emission-factors-for-crc-phase-2-year-1-201415/>

Tonnes of carbon dioxide per £million pounds of gross revenue expenditure

The CRC reporting metric is tonnes of carbon dioxide per £million pounds of gross revenue expenditure. WCC will continue to report on this metric even though not a participant in Phase 2 of the CRC. The 14/15 reported annual emissions were 36,026 tonnes CO₂, WCC's gross revenue expenditure was £748 million.

Tonnes CO ₂ emissions per £1million gross revenue expenditure	2010/11	2011/12	2012/13	2013/14	2014/15
	63.01	44.96	57.47	51.48	= 36,026 / 748 = 48.16
% change since 2010		-29%	-9%	- 18%	- 23.5%

Table 8 Carbon dioxide emissions per £million gross revenue expenditure 2010/11 to 2014/15

Degree Day Data for Reporting Periods

The table below shows that 12/13 was the coldest year for CRC reporting to date. This means that more energy would have had to be consumed for heating properties.

Factor	2010/11	2011/12	2012/13	2013/14	2014/15
Degree days ⁶ April - March	2,432	2,048	2,784	2,251	2,111

Table 9 Degree Days in each CRC reporting year – Midland region 2010 - 2015

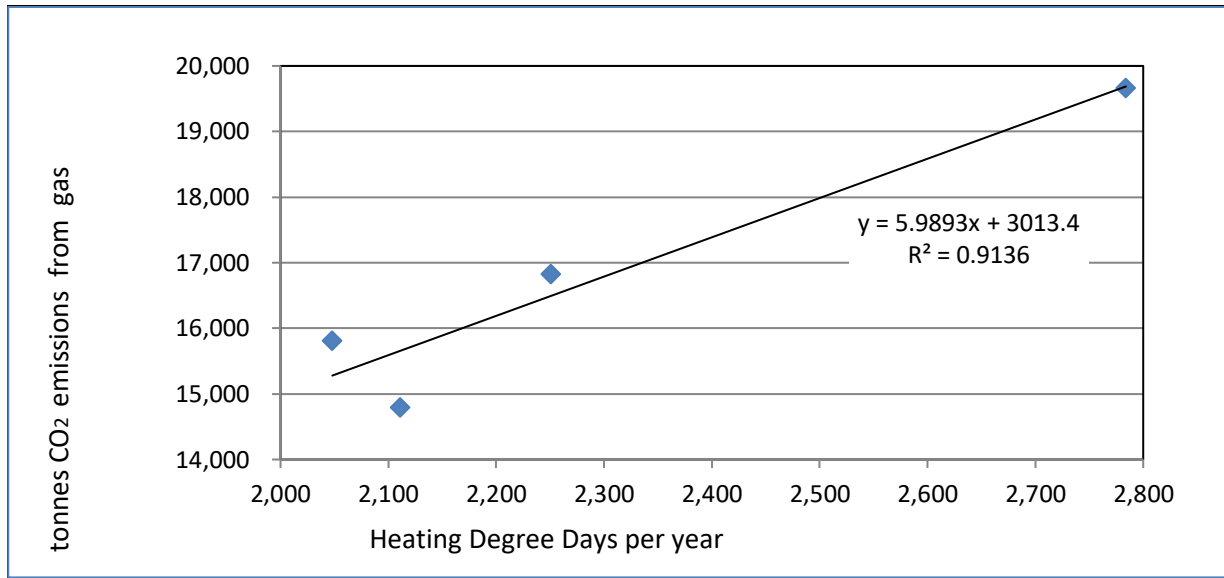


Figure 1 Graph showing the relationship between carbon dioxide emissions from gas consumption and heating degree day data from 2011/12 to 2014/15

- The R² value is a measure of how good the correlation is. The closer to 1, the better the correlation.
- Gas is used primarily for heating and is well controlled by WCC's Building Energy Management System. It is also used for hot water and can be used in catering.

⁶ From WCC's SystemsLink Energy Management Database.

Electricity Overview

Electricity Consumption per Unit of Floor Area (kWh/m²) (All Properties)

Electricity kWh / m ²	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring electricity consumption range kWh/m ²	30 – 60	25 – 55	35 – 55	30 - 50	37 - 60
Electricity consumption per square metre of floor area range kWh/m ²	3 – 1,276	0.72 – 352	1 – 662	3 - 439	9 - 613
Average kWh/m ²	No data available	No data available	No data available	67 (352 properties)	56 (320 properties ⁷)
Median kWh / m ²	No data available	No data available	No data available	No data available	47

Table 10 Electricity consumption per unit of floor area (kWh/m²) 2010 – 2015

Electricity Consumption per Unit of Floor Area (kWh/m²) (Schools)

Electricity kWh / m ²	2014/15
Most frequently occurring electricity consumption range kWh/m ²	38 - 55
Electricity consumption per square metre of floor area range kWh/m ²	16 - 130
Average kWh/m ²	48 (233 schools)
Median kWh / m ²	46

Table 11 School electricity consumption per unit of floor area (kWh/m²) 2014 / 15

Electricity Consumption per Unit of Floor Area (kWh/m²) (Non-Schools)

Electricity kWh / m ²	2014/15
Most frequently occurring electricity consumption range kWh/m ²	34 - 94
Electricity consumption per square metre of floor area range kWh/m ²	9 - 613
Average kWh/m ²	77 (87 properties)
Median kWh / m ²	53

Table 12 Non-Schools electricity consumption per unit of floor area (kWh/m²) 2014 / 15

⁷ Properties with unexplainable low and high extreme values have been excluded.

Electricity Cost per Unit of Floor Area (£/m²) (All Properties)

Electricity £ / m²	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring electricity cost range £/m²	2 – 5	2.50 – 5.50	3.25 – 5.23	2.80 – 5.80	3.97 – 6.43
Electricity cost per square metre of floor area range £/m²	1 – 104	0.55 – 31.71	0.10 – 62.89	0.09 – 458	1.01 – 65.76
Average £/m²	No data available	No data available	No data available	6.56 (348 properties)	5.98 (334 properties)
Median £ / m²	No data available	No data available	No data available	No data available	5.07

Table 13 Electricity cost per unit of floor area (£/m²) 2010 – 2015

Electricity Cost per Unit of Floor Area (£/m²) (Schools)

Electricity £ / m²	2014/15
Most frequently occurring electricity cost range £/m²	4.05 – 5.87
Electricity cost per square metre of floor area range £/m²	1.73 – 13.93
Average £/m²	5.16 (244 schools)
Median £ / m²	4.95

Table 14 School electricity cost per unit of floor area (£/m²) 2014 / 15

Electricity Cost per Unit of Floor Area (£/m²) (Non-School)

Electricity £ / m²	2014/15
Most frequently occurring electricity cost range £/m²	3.70-10.05
Electricity cost per square metre of floor area range £/m²	1.01-65.76
Average £/m²	8.24 (90 properties)
Median £ / m²	5.67

Table 15 Non-School electricity cost per unit of floor area (£/m²) 2014 / 15

Electricity Consumption per Pupil (kWh/Pupil)

Electricity kWh / pupil	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring electricity consumption per pupil range kWh/pupil	No data available	200 – 400	250 – 450	250 – 500	277- 455
Electricity consumption per pupil range kWh/pupil	No data available	22 – 2,592	111 – 943	20 – 2,777	132 – 2,659
Average kWh/pupil	No data available	No data available	No data available	408 (257 properties)	423 (233 schools)
Median kWh / pupil	No data available	No data available	No data available	No data available	345

Table 16 School electricity consumption per pupil (kWh/Pupil) 2010 – 2015

Electricity Cost per Pupil (£/Pupil)

Electricity £ / pupil	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring electricity cost per pupil range £/pupil	No data available	20 – 40	23.75 - 42.75	22.48 - 48.90	29.66- 48.66
Electricity cost per pupil range £/pupil	No data available	1.96/ - 233.25	10.55 - £89.59	1.87 - 264	14.18- 285.09
Average £/pupil	No data available	No data available	No data available	38.75 (257 properties)	45.40 (244 schools)
Median £ / pupil	No data available	No data available	No data available	No data available	36.98

Table 17 School electricity cost per pupil (£/Pupil) 2010 – 2015

Gas Overview

Gas Consumption per Unit of Floor Area (kWh/m²) (All Properties)

Gas kWh / m ²	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring gas consumption range kWh/m ²	110 – 160	75 – 125	88 – 169	80 - 140	84 - 129
Gas consumption per square metre of floor area range kWh/m ²	9 – 3,831	6.28 – 2,522	42 – 621	17 – 440	11 - 425
Average kWh/m ²	No data available	No data available	No data available	128 (294 properties)	114 (277 properties) ⁸
Median kWh/m ²	No data available	No data available	No data available	No data available	106

Table 18 Gas Consumption per Unit of Floor Area (kWh/m²) 2010 – 2015

Gas Consumption per Unit of Floor Area (kWh/m²) (Schools)

Gas kWh / m ²	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring gas consumption range kWh/m ²	110 – 160	75 – 125	88 – 169	80 - 140	86 - 122
Gas consumption per square metre of floor area range kWh/m ²	9 – 3,831	6.28 – 2,522	42 – 621	17 – 440	21 - 230
Average kWh/m ²	No data available	No data available	No data available	128 (294 properties)	106 (209 schools)
Median kWh/m ²	No data available	No data available	No data available	No data available	103

Table 19 Schools gas consumption per unit of floor area (kWh/m²) 2010 – 2015

Gas Consumption per Unit of Floor Area (kWh/m²) (Non-Schools)

Gas kWh / m ²	2014/15
Most frequently occurring gas consumption range kWh/m ²	81 - 190
Gas consumption per square metre of floor area range	11 - 425
Average kWh/m ²	141 (68 properties)
Median kWh/m ²	116

Table 20 Non-School gas consumption per unit of floor area (kWh/ m²) 2014/15

⁸ Properties with unexplainable low and high extreme values have been excluded.

Gas Cost per Unit of Floor Area (£/m²) (All Properties)

Gas £ / m ²	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring gas cost range £/m ²	2 – 5	2 – 4	2.87 - 5.51	2 - 4	2.81 – 4.29
Gas cost per square metre of floor area range £/m ²	1 – 106	0.18 - 70.61	1.37 - 20.18	0.42 – 11.01	0.37 – 14.16
Average £/m ²	No data available	No data available	No data available	3.20 (294 properties)	3.80 (286 properties)
Median £/m ²	No data available	No data available	No data available	No data available	3.52

Table 21 Gas cost per unit of floor area (£/m²) 2010 to 2015

Gas Cost per Unit of Floor Area (£/m²) (Schools)

Gas £ / m ²	2014/15
Most frequently occurring gas consumption range kWh/m ²	2.86-4.08
Gas cost per square metre of floor area range	0.70-7.67
Average £/m ²	3.53 (219 schools)
Median £/m ²	3.45

Table 22 Schools gas cost per unit of floor area (£/m²) 2014/15

Gas Cost per Unit of Floor Area (£/m²) (Non-Schools)

Gas £ / m ²	2014/15
Most frequently occurring gas consumption range £/m ²	2.69-6.32
Gas cost per square metre of floor area range	0.37-14.16
Average £/m ²	4.70 (67 properties)
Median £/m ²	3.88

Table 23 Non-Schools gas cost per unit of floor area (£/m²) 2014/15

Gas Consumption per Pupil (kWh/Pupil)

Gas kWh / pupil	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring gas consumption per pupil range kWh/pupil	No data available	Primary 500– 900 Secondary 700– 950	500 – 1250	500 – 1,000	601 – 1,093
Gas consumption per pupil range kWh/pupil	No data available	107 – 6,842	333 – 3196	116 – 8,010	172 – 7,253
Average kWh/pupil	No data available	No data available	No data available	1,064 (223 schools)	944 (209 schools)
Median kWh/pupil	No data available	No data available	No data available	No data available	779

Table 24 School gas consumption per pupil (kWh/pupil) 2010 – 2015

Gas Cost per Pupil (£/pupil)

Gas £ / pupil	2010/11	2011/12	2012/13	2013/14	2014/15
Most frequently occurring gas cost per pupil range £/pupil	No data available	15 – 25	16.30 – 40.63	12 – 22	20.04-36.17
Gas cost per pupil range £/pupil	No data available	1.33 – 1,499	10.82 – 103.87	All 2.91 – 200.26 Primary 4.73 – 77.88	5.72-241.67
Average £/pupil	No data available	No data available	No data available	26.60 (223 schools)	31.30 (219 schools)
Median kWh/pupil	No data available	No data available	No data available	No data available	25.94

Table 25 Schools gas cost per pupil (£/pupil) 2014/15

Year on Year Changes

The first year that Annual Supplier Statements were available for reporting on the CRC was 2010/11. Consumption data before that was based on data contained in the WCC SystemsLink database and average cost per unit (p/kWh) assumptions with financial data from the ledger. Data quality improves every year.

Reasons for the Range of Values and Year on Year Changes in Energy Consumption and Cost

The wide range of values is due to a number of reasons such as:

- There could be a high number of under-estimates or over-estimates accepted on which invoices were paid rather than being based on customer reads where an actual read was not taken.
- The property may have been vacated during the year resulting in low consumption.
- The meter reported on may supply more properties than where the address is – such as Shire Hall meter also covers Barrack Street.
- The data sets that have been made available to us may be incomplete.
- There may have been a change of supplier, or a sale or purchase of a property during the year resulting in partial data availability.
- There may be billing issues such as corrections, overcharges and refunds.
- Meters may have been read incorrectly, or reported in the wrong units – e.g. confusing the gas units kWh with m³.
- WCC are only responsible for reporting energy consumption in communal areas of business centres, not units used by private businesses.
- Pupil numbers should be treated with caution as they change regularly. Some of the pupil numbers we have may not have been up to date.
- Buildings used for the same purpose vary in age and construction type and therefore energy performance.
- Buildings used for the same purpose may be open plan or cellular.
- Building user behaviour varies considerably from highly motivated to be energy efficient to very wasteful depending on the social norms within the building and leadership from above.
- Hours of use for buildings used for the same purpose may vary widely. For instance, some may be open for clubs at night time or for community purposes at weekends and holiday periods.
- Some buildings used for the same purpose may be fully air conditioned; others may only have natural ventilation, others a combination.
- A small number of schools have swimming pools and hydrotherapy pools.
- Some buildings in the south of the county where there is no gas network may have only electric heating or oil heating or a combination of oil and electricity etc.
- In 10/11 and 11/12 WCC was allowed to report on a total of only 93% of its total carbon dioxide emissions from electricity, gas and heating oil consumption. WCC were permitted to exclude some residual carbon dioxide emissions.
- The properties that were excluded (in the 7% of emissions classed as residual and not reported) were all the properties on the sensitive property list (to make future years more comparable as properties were disposed of), schools about to become academies (as they won't be part of WCC in future) and all the ones with oil fired heating (due to difficulties in obtaining robust and accurate oil consumption data).
- In 12/13 the CRC rules changed and WCC had to report on 100% of its total carbon dioxide emissions, but from only electricity and gas consumption rather than all

fuels. This resulted in having to report on electricity and gas consumption for an extra 8% of property by floor area, an extra 38 corporate properties and 7 academies.

- Estimated supplies had to have a 10% uplift on reported emissions for the CRC Phase 1. In 13/14 - 4.6% of school electricity consumption and 6% of school gas consumption was from estimated readings.
- In 13/14 – 11.6% of non-school electricity consumption and 14.7% of non-school gas consumption was from estimated readings. Estimated readings artificially inflate reported emissions.
- The winter of 12/13 was the second worst winter in 20 years.
- The rules about CRC reporting allowed for no weather correction of consumption data for heating purposes.
- 82% of emissions are from educational establishments where the Head Teachers control energy consuming behaviours and equipment. WCC have no direct control over energy consumption in these properties.
- Corporate emissions will change due to property disposal and acquisition; the property rationalisation programme; works to improve the building fabric, insulation, heating, lighting and controls; increased use of IT and severity of the weather etc.

WCC Finance Team Budget and Actual Energy Related Costs (from the ledger) 2014/15

A spreadsheet of data for budget and actual energy spend for the financial year 14/15 was provided by the WCC Financial Systems Team in August 2015. The data provided for electricity for this year included street lighting, traffic signals, Stratford Park and Ride, Kenilworth train station and civil parking enforcement etc.

14/15 Actual Energy Costs

Actual Amount 14/15	Non-Schools £	Schools ⁹ £	Grand Total £
Calor Gas	825.87		825.87
Electricity ¹⁰	3,310,437.74	1,999,603.81	5,310,041.55
Made up of:			
Street lighting / traffic signals / Stratford Park and Ride / Kenilworth Station / Civil parking enforcement	2,340,588.14		
other – including operational properties / business centres / catering management / closed landfill sites / country parks / gypsy and traveller sites / Household waste recycling centres / vacant properties etc.	969,849.60		
Fuel Oil	7,518.61	108,539.35	116,057.96
Gas	577,079.72	1,441,592.87	2,018,672.59
Internal Expenditure - Energy	2,750.16	2,500.00	5,250.16
Internal Income - Energy	-	-47,023.06	-47,023.06
Solid Fuel	8,145.02	2,604.51	10,749.53
Grand Total	3,906,757.12	3,507,817.48	7,414,574.60
Excluding street lighting etc.	£1,566,168.98		5,073,986.46

Table 26 Actual energy costs 14/15

14/15 Budgeted Energy Costs

Actual Amount 14/15	Non-Schools £	Schools £	Grand Total £
Calor Gas	2,707.00		2,707.00
Electricity	3,394,373.00	383,354.00	3,777,727.00
Fuel Oil	21,807.00	65,920.00	87,727.00
Gas	493,701.00	300,699.00	794,400.00
Internal Expenditure - Energy	5,280.00	0.00	5,280.00
Internal Income - Energy	-	-15,324.00	-15,324.00
Solid Fuel	3,500.00	0.00	3,500.00
Grand Total	3,921,368.00	734,649.00	4,656,017.00

Table 27 Budgeted energy costs 14/15

⁹ Excludes schools that were an academy all through the financial year. Includes schools that converted to an academy part way through the year for the part of the year they were a maintained school, but does not include data for those schools after their conversion to academy.

¹⁰ The ledger includes; street lighting, traffic signals, group homes and other categories not related solely to properties.

- Agresso is WCC's Financial Management System (FMS) and has all of the maintained school budgets on. Schools that are bank account schools use the (Schools Information Management System) SIMS FMS as their financial system.
- WCC Finance Team only put a top line budget on Agresso. There would not be a budget against Gas or Electricity as the budget is not broken down to that level.
- However, the actual spend for bank account schools who use SIMS FMS is uploaded at the end of the financial year and the spend does show against Gas and Electricity, so if one is comparing budget against spend then it will show an overspend against these headings.

Changes in Actual Energy Costs 11/12 to 14/15

Year	Non-Schools £	Schools £	Grand Total £	% changes in grand total from 11/12
2011/12	1,781,722.38	4,002,732.07	5,784,454.45	-
2012/13	2,044,689.76	4,306,890.37	6,351,580.13	10%
2013/14	1,687,907.80	3,912,803.43	5,600,711.23	-3%
2014/15	1,566,168.98	3,507,817.48	5,073,986.46	-12%

Table 28 Changes in actual energy costs 11/12 to 14/15

13/14 Actual Energy Costs

Actual Amount 13/14	Non-Schools £	Schools £	Grand Total £
Calor Gas	3,371.01	-	3,371.01
Electricity	1,124,487.17	1,966,589.23	3,091,076.40
Fuel Oil	9,845.91	165,826.14	175,672.05
Gas	541,438.54	1,838,097.68	2,379,536.22
Internal Expenditure - Energy	3,921.48	4,600.00	8,521.48
Internal Income - Energy	-	-62,310.44	-62,310.44
Solid Fuel	4,843.69	0.82	4,844.51
Grand Total	1,687,907.80	3,912,803.43	5,600,711.23

Table 29 Actual energy costs 13/14

12/13 Actual Energy Costs

Actual Amount 12/13	Non-Schools £	Schools £	Grand Total £
Calor Gas	10,639.71	-	10,639.71
Electricity	1,132,394.30	2,019,566.68	3,151,960.98
Fuel Oil	25,223.65	188,431.36	213,655.01
Gas	759,019.81	2,146,526.02	2,905,545.83
Internal Expenditure - Energy	111,174.24	-379.77	110,794.47
Internal Income - Energy	-	-50,869.91	-50,869.91
Solid Fuel	6,238.05	3,615.99	9,854.04
Grand Total	2,044,689.76	4,306,890.37	6,351,580.13

Table 30 Actual energy costs 12/13

11/12 WCC Actual Energy Costs

Actual Amount 11/12	Non-Schools £	Schools £	Grand Total £
Calor Gas	2,186.58	-543.22	1,643.36
Electricity	1,130,878.11	2,206,158.56	3,337,036.67
Fuel Oil	31,998.16	221,263.65	253,261.81
Gas	608,252.01	1,629,655.70	2,237,907.71
Internal Expenditure - Energy	5,280.00	0.00	5,280.00
Internal Income - Energy	-	-73,759.99	-73,759.99
Solid Fuel	3,127.52	19,957.37	23,084.89
Grand Total	1,781,722.38	4,002,732.07	5,784,454.45

Table 31 Actual energy costs 11/12

Calculating Property Specific Energy Costs

Methodology

Reporting the cost per square metre (£/m²) or cost per pupil (£/pupil) for a specific property presents a challenge where any of the following is true:

- The invoice data isn't complete or available in WCC's finance system (the ledger) such as for academies or for schools that convert to an academy part way through a year.
- The site doesn't procure through the Eastern Shires Purchasing Organisation (ESPO¹¹). The WCC Energy Team only receives invoice consumption and cost data from sites that procure through ESPO. The annual CRC statements provided by suppliers focus only consumption rather than cost.
- The energy supply is shared between different properties on a site or between sites.

Where data is missing the WCC Energy Team can derive a cost based on data given in the CRC supplier statements. CRC statements give an annual consumption figure per supply, with the caveat that suppliers use estimates to generate a consumption figure where the billing cycle does not align naturally to the financial year.

Using the CRC supplier statements the WCC Energy Team are able to create a complete consumption profile for the portfolio, but establishing costs for all sites requires some derivation. This is because the cost per kWh charged to each site will vary based on level of consumption, meter type and tariff.

To establish a representative single cost per unit (p/kWh) for gas and electricity that can be applied to the annual consumption figure the following approach was used:

- Using the WCC portfolio that that procures through ESPO as a representative sample range of meter types, consumptions and tariffs.
- Using the contract rate for each supply, multiplied by consumption gives us a total cost per supply.
- Aggregating all the costs per supply then dividing this figure by the total consumption to achieve a weighted average cost per kWh consumed across the entire portfolio.
- This results in values of:
 - **3.33 pence/kWh for gas** and
 - **10.72 pence/kWh for electricity**which include billing factors such as standing charge and feed in tariff recovery charge, but not VAT.

¹¹ <https://www.espo.org/>

Energy Web Pages

The following energy related web pages have been maintained.

Energy and Water Efficiency Performance

<http://www.warwickshire.gov.uk/energyperformance>

Looks at WCC's energy reporting system and what it includes and excludes. The Systemslink database holds energy consumption and invoice data for each site.

Energy Policy

<http://www.warwickshire.gov.uk/energypolicy>

Provides links to WCC's energy policy.

<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-21>

School Energy Management

Acts as a hub for resources that will help Warwickshire schools manage their energy consumption

<http://www.warwickshire.gov.uk/schoolenergy>

AtlasWeb reports information from the SystemsLink database and presents it in tabular and graphical form. The cost and consumption data used in these reports is apportioned over the actual period over which the fuel is consumed, using meter reading dates.

Resources on the school energy page include:

- School electricity smart meter data lesson plan (PDF, 400.5 KB)
<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-51>
- Spot the difference student activity game about two different human influenced environments 2014 (PDF, 301.08 KB)
<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-50>
- School Energy Management Matrix (PDF, 142.29 KB)
<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-48>
- School energy policy and action plan template (PDF, 175.33 KB)
<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-49>
- Schools energy and water survey checklist 2014 (PDF, 234.35 KB)
<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-45>
- The great escape – water leaks 2014 (PDF, 143.05 KB)
<http://apps.warwickshire.gov.uk/api/documents/WCCC-599-52>

Display Energy Certificates (DECs) and Advisory Reports (ARs)

In order to comply with the Energy Performance of Buildings Directive 2007 (EPBD), all buildings occupied by a public authority and frequently visited by the public (i.e. every week they are open) with a useful floor area of over 250 m² are required to have a Display Energy Certificate (DEC). The DEC must be displayed in colour at A3 size in a prominent place, usually the main entrance area.

- Those buildings with a floor area of 1,000 m² + buildings need a DEC every year and an Advisory Report (AR) every seven years.
- Those buildings with a floor area of between 250 m² and 1,000 m² require a DEC and AR every ten years.

A DEC provides an overview of the energy performance of a building based upon its actual recorded energy consumption (electricity, gas, heating oil, biomass, solid fuel) and the CO₂ emissions that result from that energy use. This is shown as a rating from A to G, where A has the lowest CO₂ emissions (best) and G the highest CO₂ emissions (worst). The rating is also shown as a number. A typical building of its type would have a rating of 100. A building with twice the typical CO₂ emissions would have a rating of 200 (or G).

Energy assessors must be a member of an approved accreditation scheme. Energy assessors are responsible for conducting an energy assessment, producing a DEC and AR and lodging the DEC and AR with their accreditation scheme. The accreditation scheme is responsible for checking and lodging certificates on the national register. Accreditation schemes are also responsible for monitoring the quality of the certificates energy assessors produce.

Procurement of DECs / ARs through an ESPO Framework

Following decommissioning of the WES traded energy efficiency service to schools, in early 2015; WCC is no longer able to produce its own DEC/ARs but commissions DECs / ARs through ESPO framework 343.

<https://www.espo.org/Frameworks/Energy/343-Energy-Performance-of-Buildings-Surveying,-Ass>

ESPO is a public sector owned professional buying organisation committed to pursuing best practice in procurement, sourcing, supply chain partner support and management, contract management and ensuring EU compliance. ESPO was established in 1981 and is jointly owned by the following member authorities:

1. Leicestershire County Council
2. Lincolnshire County Council
3. Cambridgeshire County Council
4. Norfolk County Council
5. Warwickshire County Council
6. Peterborough City Council

WCC Display Energy Certificates (DECs) and Advisory Reports (ARs)

2014/15

WCC produced the following in 2014/15:

- 136 DECs for WES maintained schools
- 37 ARs for WES maintained schools
- 84 DECs for WES academies
- 16 ARs for WES academies
- 30 DECs for corporate properties
- 11 ARs for corporate properties
- 73 sites were re-visited in order to produce these DECs / ARs

In summary, a total of 250 DECs and 64 ARs were produced.

2015/16

For 2015/16 WCC have commissioned the production of:

- 77 DECs for WES maintained schools
- 59 DECs for WES academies
- 27 DECs for corporate properties
 - 6 of these are for buildings with a floor area of between 250 m² and 500 m² and will need new ARs

This is a total of 163 DECs.

- 152 of these buildings have a floor area over 1,000 m²
- 5 have a floor area between 500 – 1,000 m²

From September 2015 onwards WCC will only be commissioning DECs / ARs for its own corporate property stock. Schools and academies will be responsible for commissioning their own DECs / ARs.

DEC Ratings

DEC Ratings (all properties¹²) 2012 to 14/15

Year	12 /13	%	13 /14	%	14/15	%
A (0 – 25)	1	0.7%	1	0.5%	0	0%
B (26 – 50)	5	3.6%	13	6%	16	5%
C (51 – 75)	30	21.9%	45	21%	58	19%
D (76 – 100)	60	43.8%	88	42%	144	46%
E(101 – 125)	34	24.8%	56	26.4%	78	25.1%
F(126 – 150)	7	5.1%	6	2.8%	12	3.9%
G(Over 150)	0	0.0%	3	1.4%	3	1.0%
Total	137	100%	212	100%	311	100%
Total E,F and G rated		29.9%		30.6%	93	29.9%

Table 32 DEC ratings (all properties) 2012 to 14/15

DEC Ratings (all properties¹³) 2008 to 11/12

Year	08 /09	%	09 /10	%	10 /11	%	11 /12	%
A (0 – 25)	0	0.0%	0	0.0%	0	0.0%	3	1.0%
B (26 – 50)	10	4.9%	7	3.1%	4	2.1%	6	2.1%
C (51 – 75)	54	26.3%	39	17.2%	42	22.5%	55	19.10%
D (76 – 100)	99	48.3%	107	47.1%	93	49.7%	132	45.8%
E(101 – 125)	29	14.1%	59	26.0%	37	19.8%	72	25.0%
F(126 – 150)	7	3.4%	7	3.1%	8	4.3%	16	5.6%
G(Over 150)	6	2.9%	8	3.5%	3	1.6%	4	1.4%
Total	205	100%	227	100%	187	100%	288	100%
Total E,F and G rated		20.4%		32.6%		25.7%		32%

Table 33 DEC ratings (all properties) 2008 to 11/12

¹² Including schools.

¹³ Including schools.

DEC Ratings **June 2015** (corporate properties only)

Year	14/15	%
A (0 – 25)	0	0%
B (26 – 50)	2	6.1%
C (51 – 75)	10	30.3%
D (76 – 100)	14	42.4%
E(101 – 125)	5	15.2%
F(126 – 150)	1	3.0%
G(Over 150)	1	3.0%
Total	33	100%
Total E,F and G rated	7	21.2%

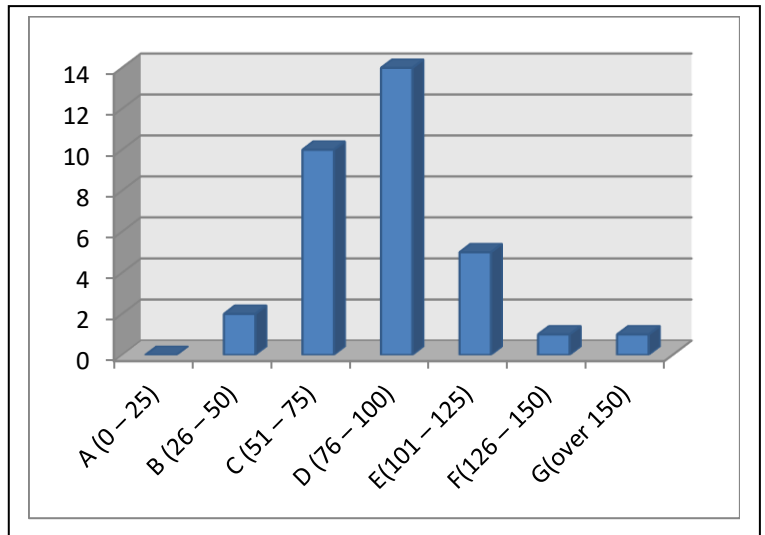


Table 34 DEC ratings (corporate properties only) as at June 2015

- WCC used the E, F and G DEC rating of all properties (including schools and academies) as a quarterly performance reporting measure when a WES traded energy service was in place, The target was maintaining the percentage of all E, F and G rated DEC's at below 30.6% of all valid DEC's.
- From 2015 WCC will use the E, F and G rating of just corporate properties as a quarterly performance reporting measure. The baseline for 33 corporate properties of E, F and G rated DEC's is therefore 21% of all valid DEC's.
- WCC expects the average DEC rating to improve over time: as the quality of the data improves; as inefficient properties are disposed of through property rationalisation and as more investment is made in energy efficiency in the properties that are retained.

Improving DEC Ratings of Corporate Properties

Improving the energy performance of buildings that will be kept for the medium to long term could be achieved through projects such as:

- Implementing an effective maintenance and minor works programme to ensure optimum operational efficiency,
- Intelligent use of the Building Energy Management System (BMS),
- Improving insulation, heating & lighting systems, voltage control and server rooms,
- Improving the thermal performance of the building envelope,
- Implementing renewable and micro-generation energy systems,
- Low carbon whole building retrofits,
- Reducing the size of the WCC estate (property rationalisation) [note that moving to new benchmarks for increased space occupancy will increase energy use per unit of floor area, even though overall it may be better use of space],
- Procuring only buildings that fall into the top quartile of energy performance,
- Ensuring all new builds and major refurbishments (with a contract value of over £1M) achieve a BREEAM 'very good' rating,

- Ensuring all projects (with a contract value of between £350k to £1M) achieve minimum BREEAM credits in energy use / carbon reduction, water use, materials / waste minimisation and ecology,
- Rolling out smart metering ensuring accurate data, and
- Resourcing effective awareness raising and behaviour change campaigns.

Delivering such projects will have a positive effect on reducing the average DEC rating of the corporate estate and reduce carbon emissions.

Appendix 1: Energy Benchmarks 2014/15

Energy benchmarking means tracking a building's energy use and using a standard metric to compare the building's performance against past performance. These comparisons can be used to drive energy efficiency upgrades, increase occupancy rates or improve property values. Benchmarks for smaller buildings may not necessarily be the same ones as for large buildings, even though the buildings may be used for the same purpose.

Benchmarks are only a guide to help more fully understand energy performance of a building – not an exact indication of either good or poor performance.

The lowest and highest outliers in each WCC category were investigated (for missing data, billing on estimates and consumption versus previous years) and excluded from developing these benchmarks if there were obvious reasons to do so.

Building Category	School	Non-School
Number of properties in category	246	94
Carbon Dioxide emissions tonnes	30,079	5,948
Gas most frequently occurring range kWh/m ²	86-122	81-190
Gas lowest consumer kWh/m ²	Stockingford Primary School (former Infant)	Unit 5, 1 - 3 Upton Road
Gas – highest consumer	Polesworth School (Academy) - Youth Wing	Priory Bungalow
Gas average consumption kWh/m ²	106	141
Electricity most frequently occurring range kWh/m ²	38-55	34-94
Electricity lowest consumer kWh/m ²	Stockingford Primary School (former Infant)	Nuneaton Library & Information Centre
Electricity – highest consumer kWh/m ²	Wolverton Primary School (Foundation)	Stratford upon Avon Park and Ride
Electricity average consumption kWh/m ²	48	77
Combined most frequently occurring range kWh/m ²	124-165	103-225
Combined lowest consumer kWh/m ²	Temple Grafton C.E. Primary School	Transport Depot Units D2, D3 and D4 Greenwood Court
Combined – highest consumer kWh/m ²	The Revel C.E. (Aided) Primary School Annexe	Stratford upon Avon Park and Ride
Combined average consumption kWh/m ²	142	175

Building Category	School	Non-School
Graph showing maximum and minimum values and most frequently occurring range	<p>Quartiles</p> <p>Combined</p> <p>Elec</p> <p>Gas</p> <p>0 50 100 150 200 250 300</p>	<p>Quartiles</p> <p>Combined</p> <p>Elec</p> <p>Gas</p> <p>0 100 200 300 400 500 600 700</p>

Table 35 School and Non-schools

Building Category	Nursery/ Infant School	Primary / Junior School
Number of properties in category	30	169
Carbon Dioxide emissions tonnes	1,593	11,531
Gas most frequently occurring range kWh/m ²	79 - 122	86 - 118
Gas lowest consumer kWh/m ²	Our Lady Of The Angels Catholic Infant School	Stockingford Primary School (former Infant)
Gas – highest consumer	Thorns Community Infant School	Wheelwright Lane Primary School
Gas average consumption kWh/m ²	102	104
Electricity most frequently occurring range kWh/m ²	35 - 61	37 - 52
Electricity lowest consumer kWh/m ²	High Meadow Infant School	Stockingford Primary School (Former Infant)
Electricity – highest consumer kWh/m ²	Galley Common Infant School	Wolverton Primary School (Foundation)
Electricity average consumption kWh/m ²	48	47
Combined most frequently occurring range kWh/m ²	122 - 170	123 - 162
Combined lowest consumer kWh/m ²	Abbots Farm Infant School	Temple Grafton C.E. Primary School
Combined – highest consumer kWh/m ²	Thorns Community Infant School	The Revel C.E. (Aided) Primary School Annexe
Combined average consumption kWh/m ²	147	136

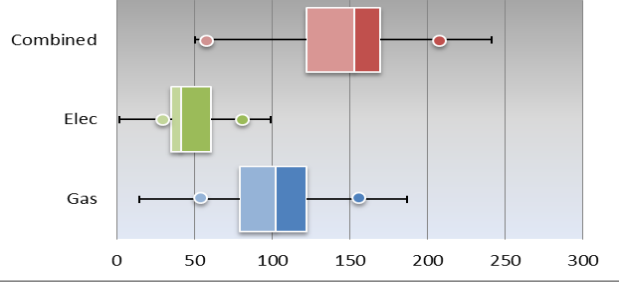
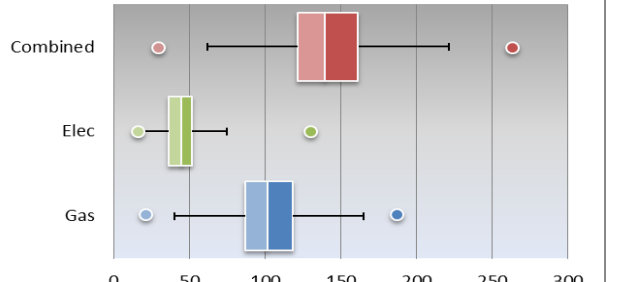
Building Category	Nursery/ Infant School	Primary / Junior School
Graph showing maximum and minimum values and most frequently occurring range	<p style="text-align: center;">Quartiles</p>  <p>The box plot for Nursery/ Infant School shows energy usage for three categories: Combined (red), Elec (green), and Gas (blue). The x-axis represents energy usage from 0 to 300. For Combined, the median is around 150, with whiskers extending from approximately 100 to 250. For Elec, the median is around 50, with whiskers from 20 to 100. For Gas, the median is around 100, with whiskers from 50 to 180.</p>	<p style="text-align: center;">Quartiles</p>  <p>The box plot for Primary / Junior School shows energy usage for three categories: Combined (red), Elec (green), and Gas (blue). The x-axis represents energy usage from 0 to 300. For Combined, the median is around 150, with whiskers extending from approximately 100 to 250. For Elec, the median is around 50, with whiskers from 20 to 100. For Gas, the median is around 100, with whiskers from 50 to 180.</p>

Table 36 Nursery / Infant Schools and Primary / Junior Schools

Building Category	Secondary / College	Fire Station
Number of properties in category	39	16
Carbon Dioxide emissions tonnes	15,274	960
Gas most frequently occurring range kWh/m ²	91-129	185-241
Gas lowest consumer kWh/m ²	Stratford upon Avon Grammar School for Girls (Academy)	Shipston on Stour Fire Station
Gas – highest consumer	Polesworth School (Academy) – Youth Wing	Bidford on Avon Fire Station
Gas average consumption kWh/m ²	111	220
Electricity most frequently occurring range kWh/m ²	46-57	47-80
Electricity lowest consumer kWh/m ²	Queen Elizabeth School & Sports College (Academy)	Coleshill Fire Station
Electricity – highest consumer kWh/m ²	The Avon Valley School & Performing Arts College	Fenny Compton Fire Station
Electricity average consumption kWh/m ²	51	79
Combined most frequently occurring range kWh/m ²	131-173	242-306
Combined lowest consumer kWh/m ²	Kineton High School a Specialist Sports College	Shipston-on-Stour Fire Station
Combined – highest consumer kWh/m ²	Kingsbury School, a Specialist Science & Maths College	Alcester Fire Station
Combined average consumption kWh/m ²	154	271

Building Category	Secondary / College	Fire Station
Graph showing maximum and minimum values and most frequently occurring range	<p>Quartiles</p> <p>Combined</p> <p>Elec</p> <p>Gas</p> <p>0 50 100 150 200 250</p>	<p>Quartiles</p> <p>Combined</p> <p>Elec</p> <p>Gas</p> <p>0 100 200 300 400 500</p>

Table 37 Secondary / College and Fire Station

Building Category	Library	Office
Number of properties in category	15	22
Carbon Dioxide emissions tonnes	311	3,158
Gas most frequently occurring range kWh/m ²	88-117	67-160
Gas lowest consumer kWh/m ²	Shipston on Stour Library & Information Centre	Saltisford Office Building 3
Gas – highest consumer	Coleshill Library & Information Centre	Priory Bungalow
Gas average consumption kWh/m ²	112	136
Electricity most frequently occurring range kWh/m ²	37-95	32-110
Electricity lowest consumer kWh/m ²	Nuneaton Library & Information Centre	Priory House
Electricity – highest consumer kWh/m ²	Wolston Library & Information Centre	County Record Office
Electricity average consumption kWh/m ²	69	74
Combined most frequently occurring range kWh/m ²	113-161	145-209
Combined lowest consumer kWh/m ²	Kenilworth Library & Information Centre	Priory House
Combined – highest consumer kWh/m ²	Coleshill Library & Information Centre	Priory Bungalow
Combined average consumption kWh/m ²	146	198

Building Category	Library	Office																																																								
Graph showing maximum and minimum values and most frequently occurring range	<p style="text-align: center;">Quartiles</p> <table border="1"> <caption>Library Energy Usage Data (Estimated)</caption> <thead> <tr> <th>Category</th> <th>Min</th> <th>Q1</th> <th>Median</th> <th>Q3</th> <th>Max</th> <th>Outliers</th> </tr> </thead> <tbody> <tr> <td>Combined</td> <td>75</td> <td>100</td> <td>125</td> <td>150</td> <td>220</td> <td>310</td> </tr> <tr> <td>Elec</td> <td>40</td> <td>50</td> <td>75</td> <td>100</td> <td>180</td> <td>-</td> </tr> <tr> <td>Gas</td> <td>60</td> <td>80</td> <td>100</td> <td>120</td> <td>160</td> <td>220</td> </tr> </tbody> </table>	Category	Min	Q1	Median	Q3	Max	Outliers	Combined	75	100	125	150	220	310	Elec	40	50	75	100	180	-	Gas	60	80	100	120	160	220	<table border="1"> <caption>Office Energy Usage Data (Estimated)</caption> <thead> <tr> <th>Category</th> <th>Min</th> <th>Q1</th> <th>Median</th> <th>Q3</th> <th>Max</th> <th>Outliers</th> </tr> </thead> <tbody> <tr> <td>Combined</td> <td>100</td> <td>150</td> <td>200</td> <td>250</td> <td>500</td> <td>800</td> </tr> <tr> <td>Elec</td> <td>50</td> <td>75</td> <td>100</td> <td>150</td> <td>200</td> <td>-</td> </tr> <tr> <td>Gas</td> <td>100</td> <td>125</td> <td>150</td> <td>200</td> <td>400</td> <td>750</td> </tr> </tbody> </table>	Category	Min	Q1	Median	Q3	Max	Outliers	Combined	100	150	200	250	500	800	Elec	50	75	100	150	200	-	Gas	100	125	150	200	400	750
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Combined	100	150	200	250	500	800																																																				
Elec	50	75	100	150	200	-																																																				
Gas	100	125	150	200	400	750																																																				

Table 38 Library and Office

Building Category	Depot	Household Waste Recycling Centre (HWRC)
Number of properties in category	8	4 (only one with gas consumption)
Carbon Dioxide emissions tonnes	212	72
Gas most frequently occurring range kWh/m ²	64-167	72
Gas lowest consumer kWh/m ²	Dunchurch Highways Sub-Depot	Hunters Lane Household Waste Recycling Centre
Gas – highest consumer	Wellesbourne Divisional Highways Depot	Hunters Lane Household Waste Recycling Centre
Gas average consumption kWh/m ²	115	72
Electricity most frequently occurring range kWh/m ²	33-82	40-250
Electricity lowest consumer kWh/m ²	Transport Depot Units D2, D3 & D4 Greenwood Court	Lower House Farm HWRC
Electricity – highest consumer kWh/m ²	Henley-in-Arden Highways Sub- Depot	Cherry Orchard HWRC
Electricity average consumption kWh/m ²	61	175
Combined most frequently occurring range kWh/m ²	66-139	48-165
Combined lowest consumer kWh/m ²	Transport Depot Units D2, D3 & D4 Greenwood Court	Lower House Farm HWRC
Combined – highest consumer kWh/m ²	Wellesbourne Divisional Highways Depot	Cherry Orchard HWRC
Combined average consumption kWh/m ²	119	149

Building Category	Depot	Household Waste Recycling Centre (HWRC)
Graph showing maximum and minimum values and most frequently occurring range		

Table 39 Depot and Household Waste Recycling Centre

Building Category	Business Units	Museum
Number of properties in category	5	2
Carbon Dioxide emissions tonnes	487	103
Gas most frequently occurring range kWh/m ²	26-56	125-188 (sample size is too small to infer anything from this data)
Gas lowest consumer kWh/m ²	Unit 5, 1 - 3 Upton Road	St John's House Museum
Gas – highest consumer	Eliot Park Innovation Centre	County Museum (Market Hall)
Gas average consumption kWh/m ²	39	156
Electricity most frequently occurring range kWh/m ²	28-34	38-42
Electricity lowest consumer kWh/m ²	Centenary Business Centre	St John's House Museum
Electricity – highest consumer kWh/m ²	Eliot Park Innovation Centre	County Museum (Market Hall)
Electricity average consumption kWh/m ²	48	40
Combined most frequently occurring range kWh/m ²	39-82	163-230
Combined lowest consumer kWh/m ²	Units 1a, 1b, 2 and adjacent land at Opportunities Centre	St. John's House Museum
Combined – highest consumer kWh/m ²	Eliot Park Innovation Centre	County Museum (Market Hall)
Combined average consumption kWh/m ²	80	197

Building Category	Business Units	Museum
<p>Graph showing maximum and minimum values and most frequently occurring range</p>		

Table 40 Business Units and Museum

Building Category	Country Parks / Sports Grounds	Children's Centres
Number of properties in category	5	6
Carbon Dioxide emissions tonnes	117	178
Gas most frequently occurring range kWh/m ²	No gas consumption	69-146
Gas lowest consumer kWh/m ²		Atherstone Early Years Centre (Maintained)
Gas – highest consumer		The Keresley Teaching & Learning Centre
Gas average consumption kWh/m ²		115
Electricity most frequently occurring range kWh/m ²	52-108	43-58
Electricity lowest consumer kWh/m ²	Myton Sports Ground and Pavilion	The Keresley Teaching & Learning Centre
Electricity – highest consumer kWh/m ²	Hartshill Hayes Country Park	The Ratcliffe Youth & Community Centre
Electricity average consumption kWh/m ²	85	55
Combined most frequently occurring range kWh/m ²	52-108	68-131
Combined lowest consumer kWh/m ²	Myton Sports Ground	Lillington Community and Children's Centre
Combined – highest consumer kWh/m ²	Hartshill Hayes Country Park	The Keresley Teaching & Learning Centre
Combined average consumption kWh/m ²	85	113

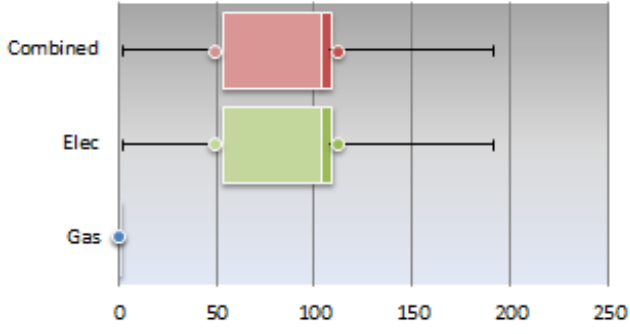
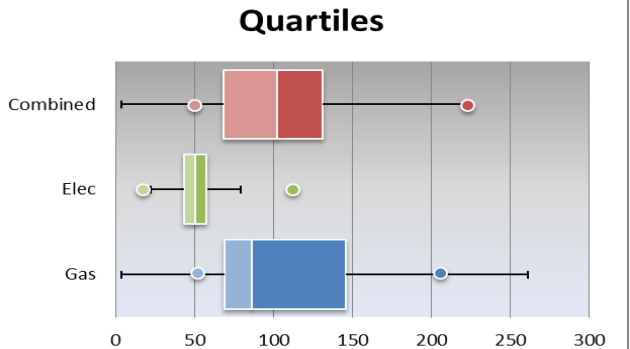
Building Category	Country Parks / Sports Grounds	Children's Centres
Graph showing maximum and minimum values and most frequently occurring range	 <p>This box plot displays the distribution of energy usage for three categories: Combined (red), Elec (green), and Gas (blue). The x-axis represents energy usage from 0 to 250. For 'Combined', the minimum is at 50, the first quartile is at 75, the median is at 100, and the maximum is at 190. For 'Elec', the minimum is at 50, the first quartile is at 75, the median is at 100, and the maximum is at 190. For 'Gas', the minimum is at 0 and the maximum is at 0.</p>	 <p>This 'Quartiles' box plot displays the distribution of energy usage for three categories: Combined (red), Elec (green), and Gas (blue). The x-axis represents energy usage from 0 to 300. For 'Combined', the minimum is at 50, the first quartile is at 75, the median is at 110, and the maximum is at 220. For 'Elec', the minimum is at 20, the first quartile is at 50, the median is at 75, and the maximum is at 120. For 'Gas', the minimum is at 50, the first quartile is at 75, the median is at 110, and the maximum is at 260.</p>

Table 41 Country Parks / Sports Grounds and Children's Centres

Building Category	Special Education	Other
Number of properties in category	8	Hatters Space Community Centre Camp Hill Education Sports & Social (CHESS) The Partnership Building Former Rokeby Infant School Myton Park Centre Marle Hall Outdoor Education Centre
Carbon Dioxide emissions tonnes	1681	312
Gas most frequently occurring range kWh/m ²	98-145	125-145
Gas lowest consumer kWh/m ²	Round Oak School, Support Service & Sports College	Camp Hill Education Sports & Social (CHESS)
Gas – highest consumer	Exhall Grange School & Science College	Marle Hall Outdoor Education Centre
Gas average consumption kWh/m ²	127	133
Electricity most frequently occurring range kWh/m ²	52-62	31-46
Electricity lowest consumer kWh/m ²	Welcombe Hills School	Marle Hall Outdoor Education Centre
Electricity – highest consumer kWh/m ²	Oak Wood Secondary School (Academy)	Hatters Space Community Centre
Electricity average consumption kWh/m ²	57	37
Combined most frequently occurring range kWh/m ²	152-210	60-179
Combined lowest consumer kWh/m ²	Woodlands School (Formerly Blythe)	The Partnership Building
Combined – highest consumer kWh/m ²	Exhall Grange School & Science College	Hatters Space Community Centre

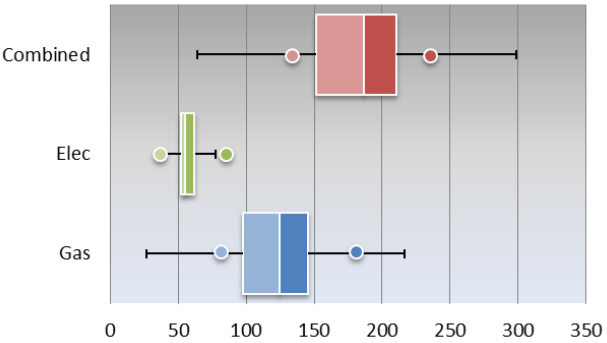
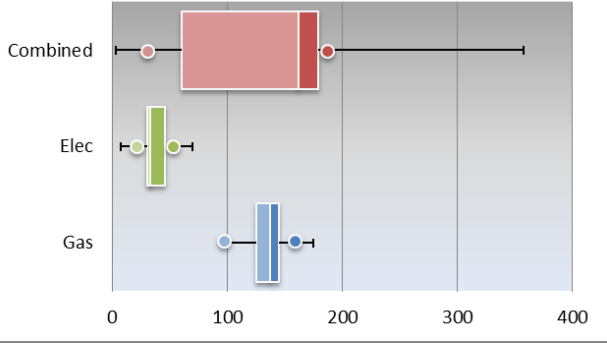
Building Category	Special Education	Other
Combined average consumption kWh/m ²	184	125
Graph showing maximum and minimum values and most frequently occurring range	<p style="text-align: center;">Quartiles</p> 	<p style="text-align: center;">Quartiles</p> 

Table 42 Special Education and Other

Appendix 2: Combined Electricity and Gas Consumption (All Properties)

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
1007	Nicholas Chamberlaine Technology Coll. (Academy)	170	2,542	£8.27	£123.87	728
1009	St Michael`s C.E. Primary School	131	1,282	£6.61	£64.97	78
1010	St Michael`s Nursery & Child. Centre (Bedworth CC)	160	1,567	£8.29	£81.15	52
1012	St Francis Catholic Primary School (Academy)	186	1,532	£9.48	£78.33	83
1014	Exhall Grange School & Science College	235	9,455	£11.90	£477.71	487
1015	Exhall Cedars Infant School	125	880	£7.13	£50.15	53
1016	Wheelwright Lane Primary School	220	1,879	£9.75	£83.27	96
1017	Ash Green School & Arts College (Academy)	204	1,720	£10.41	£87.81	423
1018	Race Leys Infant School	166	1,415	£8.53	£72.82	69
1019	Race Leys Junior (Academy) School	157	936	£8.84	£52.79	71
1021	Bedworth Heath Nursery & Children`s Centre (Maint)	143	626	£10.18	£44.42	19
1022	Canon Evans CE Infant School	134	702	£6.82	£35.72	49
1023	Canon Maggs CE Junior School	172	1,045	£8.98	£54.48	100
1028	All Saints C. of E. Infant School & Nursery Unit	171	1,506	£8.26	£72.70	46
1029	St Giles Junior School	222	1,694	£10.70	£81.55	96
1033	Bedworth Library & Information Centre	216		£14.13		54
1034	Former Bedworth Heath Library	158		£7.21		5
1037	Warwickshire Fire & Rescue Training & Dev. Centre	280		£15.14		51
1050	Bedworth Fire Station	203		£10.94		30
1075	St James CE Junior School (Academy)	146	1,355	£7.20	£66.68	78
1076	Arden Forest Infant School	179	1,263	£8.76	£62.00	59
1077	Bulkington Community Library	140		£8.45		12
1080	The Keresley Teaching & Learning Centre	223		£8.72		57
1081	Keresley Newland Primary School (Academy)	151	1,307	£8.51	£73.91	85
1083	Keresley Newland Community Library & Information C	84		£9.01		6

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
1097	Centenary Business Centre	57		£3.84		65
1107	Croft Junior School	148	856	£8.13	£47.15	81
1108	St Paul`s CE Primary School	130	668	£8.09	£41.48	101
1110	The George Eliot School (Academy)	169	1,839	£9.58	£103.95	373
1112	Higham Lane School (Academy)	151	1,298	£8.29	£71.16	453
1115	Camp Hill Primary School	154	903	£10.37	£60.73	130
1116	St Anne`s Catholic Primary School (Academy)	163	854	£8.71	£45.76	52
1119	Middlemarch School (Foundation)	175	1,454	£9.68	£80.29	86
1120	Stockingford Primary School (former Infant)	37	304	£2.43	£19.90	25
1121	Stockingford Primary School (former Junior)	242	1,983	£12.88	£105.44	217
1122	Stockingford Early Years Centre & Library (Maintd)	137	1,249	£8.35	£76.01	39
1124	St Nicolas CE Primary School (Academy)	157	905	£8.55	£49.22	109
1125	Whitestone Infant School	118	913	£6.81	£52.61	72
1131	Wembrook Primary School	126	675	£6.71	£36.02	128
1133	Our Lady Of The Angels Catholic Infant School	121	609	£8.98	£45.20	65
1134	St Joseph`s Catholic Junior School	199	1,189	£11.23	£67.24	95
1137	Nuneaton Academy	169	2,355	£9.87	£137.53	595
1140	St Thomas More Catholic School & Tech. (Academy)	125	1,241	£7.65	£76.11	369
1141	Abbey CE Infant School	154	1,085	£9.55	£67.21	72
1142	All Saints CE Primary School	160	810	£8.97	£45.39	58
1143	Queen`s Church of England Academy	145	2,246	£7.49	£115.90	105
1144	Galley Common Infant School	157	825	£11.22	£58.83	46
1145	Park Lane Primary School (Academy)	127	1,083	£6.66	£56.99	87
1146	Chetwynd Junior School	133	934	£6.77	£47.56	88
1152	Glendale Infant School	133	799	£6.69	£40.19	56
1153	Chilvers Coton Community Infant School	189	1,616	£9.36	£79.97	80

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
1157	Hatters Space Community Centre	187		£10.14		50
1158	Etone Technology Language Voc. College Academy	165	2,485	£8.13	£122.70	466
1161	Nuneaton Library & Information Centre	121		£4.73		38
1184	Nuneaton Fire Station	363		£15.52		149
1188	The Hilary Road Centre	172		£10.28		58
1242	Kings House	201		£13.48		200
1247	Goodyers End Primary School	109	881	£5.96	£48.06	94
1248	Milby Primary School	137	1,100	£6.90	£55.26	121
1249	Newdigate Primary School	175	1,593	£8.35	£76.26	125
1250	Weddington Primary School	134	1,029	£7.06	£54.32	114
1259	Transport Depot, Units D2, D3 & D4 Greenwood Court	21		£2.24		4
1270	Eliot Park Innovation Centre	185		£15.41		327
1276	Oak Wood Secondary School (Academy)	185	5,795	£12.45	£389.57	254
1287	Camp Hill Education Sports & Social (CHESS)	147		£8.55		59
1313	Units 1A, 1B, 2 and adj. land at Opport. Centre	34		£3.70		25
2001	Nursery Hill Primary School	158	1,216	£9.84	£75.56	58
2005	Arley Primary School	121	1,710	£13.03	£183.29	124
2010	Queen Elizabeth School & Sports College (Academy)	111	2,138	£5.14	£99.37	111
2011	Queen Elizabeth School & Sports College (Academy)	60	1,166	£6.46	£125.01	193
2012	Outwoods Primary School (Former Oakfield Junior)	129	965	£6.16	£45.92	55
2013	Outwoods Primary School (Former Arden Hill Infant)	197	1,473	£9.94	£74.47	66
2014	Racemeadow Primary School (Academy)	139	1,863	£6.34	£84.96	96
2016	Atherstone Early Years Centre (Maintained)	93	1,399	£6.17	£92.44	41
2017	The Ratcliffe Youth & Community Centre	112		£11.99		14
2021	St Benedict's Catholic Primary School (Academy)	148	819	£8.34	£46.15	40
2027	Atherstone Library & Information Centre	135		£8.00		24

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
2036	Atherstone Fire Station	299		£14.37		36
2045	The Partnership Building	30		£3.26		9
2053	Woodside C.E. Primary School (Academy)	125	1,201	£7.15	£68.71	67
2059	The Coleshill School (Academy)	208	2,445	£11.62	£136.31	528
2060	St Edwards Catholic Primary School	161	1,697	£9.09	£95.79	103
2061	Woodlands School (Formerly Blythe)	134	2,880	£7.62	£164.31	143
2064	Coleshill C. of E. Primary School	124	779	£8.15	£51.18	85
2065	High Meadow Infant School	152	1,347	£7.22	£64.20	30
2080	Coleshill Fire Station	247		£10.53		54
2104	Curdworth Primary School	151	1,014	£9.48	£63.86	39
2106	Dordon Community Primary School (Academy)	182	2,045	£8.96	£100.78	87
2115	Bournebrook C.E. Primary School	165	1,216	£9.01	£66.30	53
2124	Hartshill School (Academy)	160	1,345	£8.85	£74.16	399
2125	Michael Drayton Junior School	124	665	£7.76	£41.72	109
2128	Nathaniel Newton Infant School	161	1,742	£7.96	£85.99	81
2129	Hartshill Hayes Country Park	112		£12.01		3
2136	Kingsbury School, a Specialist Science & Maths Col	231	2,168	£12.38	£116.06	375
2139	Wood End Primary School (Academy)	172	1,775	£9.16	£94.29	71
2140	Hurley Primary School	154	1,023	£9.74	£64.57	64
2143	Kingsbury Water Park	52		£5.60		56
2157	Newton Regis CE Primary School (Academy)	128	1,403	£7.47	£81.99	33
2160	The Polesworth School - Academy	194	1,577	£11.29	£91.62	683
2163	Polesworth School (Academy) - Youth Wing	230	1,895	£7.67	£63.13	12
2166	Warton Nethersole C.E. Primary School (Academy)	117	775	£7.54	£50.16	38
2168	Polesworth Library & Information Centre	131		£14.06		15
2171	Polesworth Fire Station	285		£14.81		20

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
2177	Shustoke CE Primary School	137	816	£9.19	£54.60	49
2208	Water Orton Primary School	156	1,270	£7.69	£62.71	109
2209	Birchwood Primary School (Academy)	138	979	£7.22	£51.18	115
2210	Transport Depot	95		£10.14		15
2211	Kingsbury Swimming Pool	231		£12.38		86
2214	Pooley Country Park	103		£11.03		14
2224	Coleshill Library & Information Centre	310		£17.33		19
2225	Kingsbury Primary School	151	1,337	£8.07	£71.39	112
2232	Kingsbury Water Park Outdoor Education Centre	60		£6.43		12
2233	Lower House Farm Household Waste Recycling Centre	24		£2.57		36
2239	The Arden Centre	152		£5.06		12
3008	Binley Woods Primary School	122	931	£7.39	£56.50	58
3012	The Revel C.E. (Aided) Primary School Annexe	263	1,687	£14.44	£92.53	22
3016	Clifton-Upon-Dunsmore C. of E. Primary School	163	1,013	£9.37	£58.16	68
3032	Dunchurch Boughton C. of E. (V.A.) Junior School	182	964	£10.12	£53.50	73
3033	Dunchurch Infant School (Foundation)	173	1,094	£10.83	£68.49	63
3037	Dunchurch Highways Sub-Depot	70		£4.04		45
3042	Leamington Hastings CE Infant School	142	1,307	£10.34	£95.27	24
3044	Long Lawford Primary School	124	716	£6.28	£36.39	77
3047	The Revel C.E. (Aided) Primary School	181	1,160	£10.43	£66.96	94
3051	The Avon Valley School & Performing Arts College	164	1,706	£11.34	£118.32	666
3052	The Riverside Academy	125	1,070	£6.90	£59.27	73
3057	Our Lady's Catholic Primary School	128	744	£7.76	£45.10	28
3068	Eastlands Primary School	151	949	£8.44	£53.04	66
3070	Boughton Leigh Junior School	144	796	£7.54	£41.77	94
3071	Boughton Leigh Infant School	112	816	£5.94	£43.13	65

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
3073	Brooke School	231	5,703	£11.75	£290.41	253
3074	Harris School (Academy)	148	2,018	£9.18	£124.91	482
3075	Former Rokeby Infant School	31		£3.31		36
3076	Rokeby Primary School	141	977	£8.39	£57.96	80
3078	St Matthew`s Bloxam C.E. Primary School	188	2,233	£8.28	£98.20	134
3079	Henry Hinde Infant School (Academy)	111	958	£6.03	£52.14	49
3082	Rugby High School (Academy)	168	1,359	£9.55	£77.24	332
3083	Bilton CE Junior School	152	769	£8.18	£41.40	87
3085	Oakfield Primary School (Academy)	100	986	£7.92	£77.80	115
3086	St Marie`s Primary School (Former Junior)	156	918	£9.01	£53.02	64
3089	Ashlawn School (Academy)	190	1,595	£10.53	£88.25	805
3090	Bilton School A Maths & Computing Coll. (Academy)	115	1,211	£3.84	£40.34	227
3091	Hillmorton Primary School	150	1,200	£9.52	£76.37	79
3092	English Martyrs Catholic Primary School	135	662	£7.93	£38.93	43
3094	St. Oswald`s C.E. Primary School (Academy)	147	1,032	£7.06	£49.74	59
3095	Bilton Infant School	183	1,044	£10.62	£60.46	64
3099	Abbots Farm Infant School	57	337	£6.16	£36.12	32
3100	Abbots Farm Junior School	149	880	£7.25	£42.86	58
3104	Bawnmore Infant School	156	1,032	£8.28	£54.89	51
3105	Northlands Primary School	120	865	£7.26	£52.51	60
3107	St Marie`s Catholic Primary School (Former Infant)	205	1,206	£10.01	£58.89	63
3108	St Andrew`s Benn CE (Voluntary Aided) Primary School	164	1,013	£7.99	£49.47	87
3112	Lawrence Sheriff School (Academy)	72	911	£4.00	£50.52	239
3114	Henry Hinde Junior School (Academy)	134	771	£7.23	£41.41	59
3119	Hunters Lane Household Waste Recycling Centre	72		£2.40		3
3144	Rugby Fire Station	231		£11.00		77

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
3148	Fawsley House	193		£10.28		71
3152	The Bridge	142		£6.96		14
3204	Provost Williams C.E. Primary School	150	944	£9.28	£58.21	55
3205	Ryton Pools Country Park	108		£11.57		39
3210	Knightlow C.E. Primary School	105	832	£6.54	£51.88	56
3223	St Margaret`s CE Primary School	124	782	£7.60	£47.72	51
3225	Wolston Library & Information Centre	150		£16.06		12
3229	Wolvey CE Primary School	131	994	£7.42	£56.32	57
3233	Brownsover Community School	177	1,207	£8.91	£60.82	70
3243	Oakfield Park	119		£8.61		57
3260	Sir Frank Whittle Business Centre	82		£4.83		67
3261	Rugby Register Office	445		£17.78		16
3262	Paddox Primary School	144	1,029	£7.36	£52.48	120
3276	Cawston Grange Primary School (Academy)	168	1,103	£10.71	£70.19	92
3288	Unit 5, 1 - 3 Upton Road	39		£3.37		4
4005	Alcester Grammar School (Academy)	137	1,467	£8.49	£91.03	470
4006	Alcester Academy	122	1,629	£7.76	£103.48	271
4007	Our Lady`s Catholic Primary School	216	1,719	£12.52	£99.78	48
4008	St. Nicholas C.E. Primary School (Academy)	155	1,134	£8.81	£64.59	136
4009	St Benedict`s Catholic High School	127	1,264	£7.85	£78.03	287
4016	Alcester Fire Station	370		£17.74		42
4025	Wilmcote C.E. (Voluntary Aided) Primary School	123	999	£6.79	£55.01	22
4028	Temple Herdewyke Primary School	76	706	£8.16	£75.71	30
4035	Bishops Itchington Primary School	151	1,543	£7.70	£78.79	55
4055	Bidford On Avon Fire Station	361		£15.02		28
4057	Brailes C.E. Primary School	60	680	£6.46	£72.91	24

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
4064	Claverdon Primary School	50	251	£5.39	£26.87	27
4067	Coughton C.E. Primary School	113	661	£6.79	£39.83	28
4069	Ettington C.E. Primary School	59	328	£6.35	£35.17	29
4073	The Dasset C.E. Primary School	52	337	£5.62	£36.17	30
4074	Fenny Compton Fire Station	253		£27.10		19
4077	Lighthorne Heath Primary School	44	785	£4.67	£84.17	28
4079	Great Alne Primary School	57	486	£6.15	£52.12	22
4083	Harbury CE Primary School	140	980	£8.24	£57.77	60
4086	Tudor Grange Academy	105	829	£11.27	£88.89	41
4089	Henley-In-Arden High School (Academy)	185	1,668	£10.15	£91.33	288
4090	River House School	188	3,639	£10.69	£206.87	62
4092	Henley-in-Arden CofE (VA) Primary School-Academy	176	1,121	£9.58	£60.85	62
4093	St Mary`s Catholic Primary School	134	1,213	£9.69	£87.90	32
4099	Henley-In-Arden Highways Sub-Depot	102		£10.95		36
4100	Hampton Lucy C.E. Primary School	84	531	£5.59	£35.44	18
4105	Ilmington C.E. Primary School	65	421	£6.98	£45.19	24
4108	Kineton High School A Specialist Sports College	43	457	£4.64	£49.02	204
4110	Kineton C. of E. (Voluntary Aided) Primary School	47	438	£5.07	£47.01	37
4125	Acorns Primary School (Academy)	76	691	£8.17	£74.10	27
4129	Long Itchington C.E. Primary School	143	1,162	£8.15	£66.04	58
4131	Loxley C.E. Primary School	46	271	£4.91	£29.08	6
4135	Moreton Morrell C.E. Primary School (Foundation)	75	401	£8.09	£42.97	22
4144	Quinton Primary School	38	332	£4.12	£35.59	27
4158	Salford Priors C.E. Primary School	41	572	£4.37	£61.29	20
4159	Dunnington Cof E. (V.A.) Primary School	44	350	£4.73	£37.49	20
4168	Snitterfield Primary School	127	1,190	£7.43	£69.83	34

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
4173	Southam College	146	977	£8.66	£58.11	436
4174	St James (Voluntary Aided) CE Primary School	237	1,286	£12.05	£65.40	66
4176	Southam Primary School	129	961	£7.15	£53.27	72
4178	St Mary`s Catholic Primary School	72	1,081	£4.65	£69.64	34
4185	Southam Fire Station	177		£19.01		16
4191	Shipston High School, Spec. Tech.Coll (Academy)	177	1,862	£9.52	£100.39	242
4193	Shipston Primary School (Academy)	153	917	£9.11	£54.50	111
4194	Shipston on Stour Library & Information Centre	99		£5.00		5
4199	Shipston-On-Stour Fire Station	146		£8.34		11
4204	Shipston-On-Stour Highways Sub-Depot	56		£6.04		20
4206	Stockton Primary School	116	938	£7.61	£61.44	32
4216	Stratford-Upon-Avon High School (Academy)	140	1,498	£9.56	£102.56	728
4219	The Willows C. of E. Primary School	130	852	£7.00	£45.84	98
4221	Stratford upon Avon Grammar Sch. for Girls (Acad)	94	831	£6.71	£59.06	203
4223	Bishopton Primary School	125	1,006	£8.07	£64.72	60
4224	Alveston C.of E. Primary School	136	1,028	£7.38	£55.88	59
4225	Thomas Jolyffe Primary School	190	1,236	£9.69	£63.01	126
4226	Welcombe Hills School	157	3,306	£7.90	£166.81	142
4227	King Edward VI School (Academy)	156	1,986	£8.82	£111.94	397
4228	Bridgetown Primary School	93	603	£5.51	£35.86	69
4229	Stratford-Upon-Avon Primary School	163	937	£8.88	£50.90	57
4230	St Gregory`s Catholic Primary School	213	1,868	£9.68	£85.02	90
4231	Shottery St Andrew`s C.E. Primary School	63	316	£6.72	£33.87	10
4234	Stratford-Upon-Avon Library & Information Centre	170		£9.99		62
4245	Stratford-Upon-Avon Fire Station	246		£12.74		54
4255	The Saltway Centre & Stratford Family Centre	226		£9.66		38

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
4263	Studley Community Infant School	189	1,281	£9.60	£65.17	74
4266	Studley High School (Academy)	153	1,251	£8.52	£69.52	257
4267	Studley St. Mary`s CE (VA) Junior School (Academy)	164	1,109	£8.39	£56.75	63
4268	St. Mary`s Catholic Primary School	148	1,008	£9.50	£64.63	75
4271	Mappleborough Green C. E. Primary School	134	779	£8.25	£48.00	30
4279	Tanworth-In-Arden C.E. Primary (Academy) School	142	884	£8.65	£53.75	71
4284	Temple Grafton C.E. Primary School	32	235	£3.46	£25.15	13
4285	Newbold & Tredington C.E. Primary School	103	1,337	£6.49	£84.60	18
4286	Newbold & Tredington C.E. Primary School	116	1,465	£6.00	£76.11	9
4294	Tysoe C.E. Primary School	60	653	£6.40	£70.04	47
4298	Welford-On-Avon Primary School	45	224	£4.81	£24.06	30
4302	Wellesbourne C.E. Primary School	181	1,541	£9.77	£82.97	85
4303	Wellesbourne C.E. Primary School Annexe	151	1,275	£7.43	£62.76	33
4305	Wellesbourne Library & Information Centre	164		£9.35		12
4308	Wellesbourne Divisional Highways Depot	261		£14.45		34
4309	Wellesbourne C F M Workshops	239		£13.71		56
4314	Wootton Wawen C.E. Primary School	76	484	£8.18	£51.93	38
4316	Wolverton Primary School (Foundation)	130	744	£13.93	£79.73	40
4366	St. Lawrence C.E. (Voluntary Aided) Primary School	94	632	£5.17	£34.78	31
4367	Wellesbourne Fire Station	286		£13.11		23
4376	Bidford-on-Avon CE Primary School / Community Library	132	892	£8.02	£54.30	84
4388	Stratford upon Avon Park and Ride	613		£65.76		37
4389	Winton House	205		£8.24		14
5003	Barford St Peters CE Primary School	171	1,489	£9.18	£80.16	56
5006	Bishop`s Tachbrook CE Primary School	180	1,158	£9.73	£62.57	68
5009	Budbrooke Primary School (Academy)	227	1,701	£10.96	£82.02	121

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
5010	Trading Standards Headquarters	225		£15.48		108
5012	Budbrooke County Highways Head Office	106		£6.23		16
5013	Budbrooke Highways Depot	106		£6.23		2
5015	Cubbington CE Primary School	165	1,311	£8.57	£68.32	69
5016	Our Lady & St Teresa`s Catholic Primary School	136	1,153	£7.12	£60.14	49
5021	The Ferncumbe CE Primary School	163	971	£9.23	£54.85	43
5026	Kenilworth School and Sports College (Trust)	135	1,248	£7.45	£69.12	192
5027	Priors Field Primary School	143	1,104	£8.45	£65.39	70
5028	Kenilworth School and Sports College (Trust)	153	1,420	£8.04	£74.53	218
5029	Kenilworth School and Sports College (Trust)	163	1,515	£9.14	£84.71	310
5030	Park Hill Junior School	128	829	£7.12	£46.10	63
5032	St Nicholas CE Primary School	151	1,041	£7.60	£52.45	113
5033	Thorns Community Infant School	208	1,618	£10.73	£83.63	79
5034	Kenilworth Children`s Centre & Nursery School (Main	90	688	£5.55	£42.55	17
5036	Burton Green CE Primary School	172	1,088	£9.37	£59.14	31
5037	Clinton Primary School	131	856	£9.19	£60.20	65
5039	St John`s Primary School, Nursery & Children`s Ctr	173	1,420	£8.44	£69.09	98
5041	St Augustine`s Catholic Primary School	172	1,053	£10.17	£62.18	65
5042	Kenilworth Library & Information Centre	81		£2.69		14
5043	Cherry Orchard Household Waste Recycling Centre	444		£47.62		9
5058	Kenilworth Fire Station	269		£15.28		21
5066	Lapworth CE Primary School	50	394	£5.41	£42.24	29
5073	Milverton Primary School	177	1,453	£8.56	£70.22	117
5074	North Leamington School	193	2,425	£11.22	£141.19	890
5079	Campion School (Academy)	150	2,070	£8.47	£117.08	368
5085	Telford Infant School	177	851	£10.50	£50.35	69

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
5086	Telford Junior School	154	838	£7.89	£43.03	81
5087	Kingsway Community Primary School	162	2,504	£8.91	£137.58	114
5088	St Patrick`s Catholic Primary School	175	1,154	£9.88	£65.17	74
5089	Sydenham Primary School	106	1,256	£5.89	£69.45	100
5090	St Paul`s CE Primary School	153	956	£7.83	£48.95	90
5092	Whitnash Nursery School (Maintained)	154	827	£10.09	£54.13	22
5094	Trinity Catholic School, A Specialist Arts & Tech.	118	1,693	£7.23	£104.11	450
5096	Shrubland Street Community Primary School	145	1,025	£6.80	£48.11	56
5098	St Anthony`s Catholic Primary School	127	802	£7.25	£45.78	54
5100	Brookhurst Primary School	133	717	£8.34	£45.05	93
5101	Clapham Terrace Community Primary School	135	1,014	£7.11	£53.48	60
5104	St Peter`s Catholic Primary School	146	1,010	£8.32	£57.43	36
5110	Lillington Library & Information Centre	134		£6.94		18
5111	Leamington Household Waste Recycling Centre	56		£6.03		24
5124	Fire & Rescue Service Headquarters	325		£16.98		330
5169	Radford Semele CE Primary School	132	966	£7.62	£55.67	57
5178	Cape Road Car Park (Front Part)					1
5182	Myton Sports Ground and Pavillion	49		£5.26		5
5187	Shire Hall Complex	167		£11.98		892
5189	Shire Hall Complex (1 Northgate Street)	112		£12.02		10
5190	Former Judges House	203		£11.25		56
5191	16 Old Square	222		£7.39		26
5196	Northgate House Conference Centre	177		£15.93		82
5197	Barrack Street Block	167		£11.97		352
5199	Premises At Montague Road	173		£8.24		296
5226	Newburgh Primary School	138	1,058	£8.29	£63.40	122

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
5228	Woodloes Community Primary School (Academy)	86	681	£5.28	£41.88	80
5229	Emscote Infant School	121	861	£6.69	£47.57	51
5230	All Saints C. of E. Junior School	147	1,180	£8.09	£65.06	64
5231	Warwick Children`s Centre & Nursery School (Maint)	116	609	£7.69	£40.29	17
5234	Aylesford School & Sixth Form College (Academy)	162	2,408	£9.22	£136.80	519
5236	Round Oak School, Support Service & Sports College	137	3,447	£8.70	£218.78	167
5239	Westgate Primary School	113	942	£7.17	£59.84	54
5241	St Mary Immaculate Catholic Primary School	103	1,390	£6.59	£88.78	42
5245	The Old Clink	111		£5.71		11
5247	St John`s House Museum	129		£6.97		49
5248	County Museum (Market Hall)	264		£12.07		54
5252	County Record Office	369		£25.29		203
5253	Priory House	64		£3.24		4
5254	Priory Bungalow	455		£17.32		7
5268	Myton Park Centre	177		£8.57		81
5289	St Margaret`s CE Junior School	140	818	£7.91	£46.30	85
5290	Briar Hill Infant School	150	868	£8.08	£46.62	66
5291	Whitnash Primary School	140	1,586	£7.36	£83.47	77
5292	St Joseph`s Catholic Primary School	129	737	£6.61	£37.77	41
5293	Whitnash Library & Information Centre	104		£11.18		15
5339	Coten End Primary School	164	941	£10.55	£60.54	154
5340	Lillington Nursery & Primary School	168	2,418	£8.51	£122.84	169
5348	All Saints C.of E. Community Primary School	146	859	£8.63	£50.90	36
5389	Lillington Community and Children`s Centre	50		£5.34		16
5405	Ridgeway School	204	5,470	£11.86	£318.42	172
6002	Marle Hall Outdoor Education Centre	180		£7.55		77

UPRN	Name	kWh/m2	kWh/pupil	£/m2	£/pupil	Total CO2 (Tonnes)
5384-1	Office Building 1	192		£16.26		173
5384-2	Office Building 2	209		£18.18		148
5384-3	Office Building 3	145		£13.14		294

Table 43 Site specific combined electricity and gas consumption benchmarks - kWh/m2, kWh/pupil, £/m2 and total tonnes CO2

Top Ten Highest Consumers Per Unit of Floor Area – Combined Electricity and Gas (kWh/m ²)		
UPRN	Name	kWh/m ²
4388	Stratford upon Avon Park and Ride	613
5254	Priory Bungalow	455
3261	Rugby Register Office	445
5043	Cherry Orchard Household Waste Recycling Centre	444
4016	Alcester Fire Station	370
5252	County Record Office	369
1184	Nuneaton Fire Station	363
4055	Bidford On Avon Fire Station	361
5124	Fire & Rescue Service Headquarters	325
2224	Coleshill Library & Information Centre	310

Table 44 Top Ten Highest Consumers Per Unit of Floor Area – Combined Electricity and Gas (kWh/m²). Colour gradients based on 3rd quartile value (White) to 4th Quartile value (Red)

Top Ten Highest Consumers Per Pupil – Combined Electricity and Gas (kWh/pupil)		
UPRN	Name	kWh/pupil
1014	Exhall Grange School & Science College	9455
1276	Oak Wood Secondary School (Academy)	5795
3073	Brooke School	5703
5405	Ridgeway School	5470
4090	River House School	3639
5236	Round Oak School, Support Service & Sports College	3447
4226	Welcombe Hills School	3306
2061	Woodlands School (Formerly Blythe)	2880
1007	Nicholas Chamberlaine Technology Coll. (Academy)	2542
5087	Kingsway Community Primary School	2504

Table 45 Top Ten Highest Consumers Per Pupil – Combined Electricity and Gas (kWh/pupil.) Colour gradients based on 3rd quartile value (White) to 4th Quartile value (Red)

Top Ten Highest Consumers £ Costs Per Unit of Floor Area – Combined Electricity and Gas (£/m2)		
UPRN	Name	£/m2
4388	Stratford upon Avon Park and Ride	66
5043	Cherry Orchard Household Waste Recycling Centre	48
4074	Fenny Compton Fire Station	27
5252	County Record Office	25
4185	Southam Fire Station	19
5384-2	Office Building 2	18
3261	Rugby Register Office	18
4016	Alcester Fire Station	18
2224	Coleshill Library & Information Centre	17
5254	Priory Bungalow	17

Table 46 Top Ten Highest Consumers £ Costs per Unit of Floor Area – Combined Electricity and Gas (£/m2). Colour gradients based on 3rd quartile value (White) to 4th Quartile value (Red)

Top Ten Highest Consumers £ Costs Per Pupil – Combined Electricity and Gas (£/pupil)		
UPRN	Name	£/Pupil
1014	Exhall Grange School & Science College	478
1276	Oak Wood Secondary School (Academy)	390
5405	Ridgeway School	318
3073	Brooke School	290
5236	Round Oak School, Support Service & Sports College	219
4090	River House School	207
2005	Arley Primary School	183
4226	Welcombe Hills School	167
2061	Woodlands School (Formerly Blythe)	164
5074	North Leamington School	141

Table 47 Top Ten Highest Consumers £ Costs per Pupil – Combined Electricity and Gas (£/pupil). Colour gradients based on 3rd quartile value (White) to 4th Quartile value (Red)

Top Twenty Highest Emitters of Carbon Dioxide (All Properties) – Combined Electricity and Gas (Tonnes)		
UPRN	Name	Total CO2 (Tonnes)
5187	Shire Hall Complex	892
5074	North Leamington School	890
3089	Ashlawn School (Academy)	805
1007	Nicholas Chamberlaine Technology Coll. (Academy)	728
4216	Stratford-Upon-Avon High School (Academy)	728
2160	The Polesworth School - Academy	683
3051	The Avon Valley School & Performing Arts College	666
1137	Nuneaton Academy	595
2059	The Coleshill School (Academy)	528
5234	Aylesford School & Sixth Form College (Academy)	519
1014	Exhall Grange School & Science College	487
3074	Harris School (Academy)	482
4005	Alcester Grammar School (Academy)	470
1158	Etone Technology Language Voc. College Academy	466
1112	Higham Lane School (Academy)	453
5094	Trinity Catholic School, A Specialist Arts & Tech.	450
4173	Southam College	436
1017	Ash Green School & Arts College (Academy)	423
2124	Hartshill School (Academy)	399
4227	King Edward VI School (Academy)	397

Table 48 Top Twenty Highest Emitters of Carbon Dioxide – Combined Electricity and Gas (Tonnes). Colour gradients based on 3rd quartile value (White) to 4th Quartile value (Red)

Top Twenty Highest Emitters of Carbon Dioxide (Corporate Only) – Combined Electricity and Gas (Tonnes)		
UPRN	Name	Total CO2 (Tonnes)
5187	Shire Hall Complex	892
5197	Barrack Street Block	352
5124	Fire & Rescue Service Headquarters	330
1270	Eliot Park Innovation Centre	327
5199	Premises At Montague Road	296
5384-3	Office Building 3	294
5252	County Record Office	203
1242	Kings House	200
5384-1	Office Building 1	173
1184	Nuneaton Fire Station	149
5384-2	Office Building 2	148
5010	Trading Standards Headquarters	108
5196	Northgate House Conference Centre	82
5268	Myton Park Centre	81
3144	Rugby Fire Station	77
6002	Marle Hall Outdoor Education Centre	77
3148	Fawsley House	71
3260	Sir Frank Whittle Business Centre	67
1097	Centenary Business Centre	65
4234	Stratford-Upon-Avon Library & Information Centre	62

Table 49 Top Twenty Highest Corporate Emitters of Carbon Dioxide - Combined Electricity and Gas (Tonnes). Colour gradients based on 3rd quartile value (White) to 4th Quartile value (Red)

Appendix 3: Notes on the Analysis

- Myton School is not included in any of the analysis as they do not procure utility supplies through ESPO and the data was therefore not available.
- Newbold & Tredington (4286 Newbold site) is not included in any of the analysis as they do not procure utility supplies through ESPO and the data was therefore not available.
- Former Grendon HWRC closed to the public in June 2013, so not included in any of the analysis.
- Polesworth Youth Wing gas - all the billing is based on estimates.
- Bidford on Avon Fire Station billed on estimates so there was a big catch up – need to address billing estimates as customer reads are being taken.
- Fenny Compton Fire Station electricity consumption based on estimates for three years. Need to address billing estimates as customer reads are being taken.
- Floor areas were correct as at August 2015.