

SUSTAINABILITY REPORT 2018/19

1 Issue for consideration

Annual report on sustainability performance for 2018/19.

2 Background information

The attached report demonstrates continual improvements towards achieving the goals for the 2020 sustainability strategies and carbon footprint reduction in a number of areas, with continued substantial long term investment in low carbon areas.

Net energy usage overall has decreased this year by 3.49% across all campuses, with 7.74% annual reduction in our carbon footprint.

Recycling is now well embedded across the College sites. Our waste contract has eliminated all general waste going to landfill, all residues are baled and go to refuse derived fuel (RDF) for energy generation, or recycled. This completes one of our long term strategic aims of zero general waste to landfill.

3 **Decision required** To note the report.

4. **Risk rating:** Low.

5. Risk register

			Risk Register 2018/19 July
No.	Risk rating	Risk	Comments
13.1	L	Previous floods and storm damage, fire, snow, frost, ice, tree falls, power cuts.	Regular buildings, trees, equipment and insurance inspections. Consultancy advice. Business continuity plans. Risk assessments.
13.3	L	College closure (Snow)	Snow 'communication' plan. Monitor weather forecast. Reduced impact with removal of January exams. Business continuity plan to be implemented if major snow disruption.
13.4	L	Negligence of building contractor	Due diligence and formal tender analysis. Formal contractor documentation completed. Business continuity plan to be implemented if a major incident.
13.8	L	Risk that funding may be linked to success in carbon reduction (as is currently being implemented in HE sector)	College has already achieved the 2020 target of a 34% reduction in carbon footprint. Currently 51.51%.

Author: David Sharrock - Director of Facilities

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Executive Summary

Key Observations

- Carbon footprint 51.51% against 2020 target of 34% from 2005 baseline.
- Total energy usage decreased by 3.49%
- Estate building area (m²), further reduced during the year, Brisance House disposed of.
- Increase in total actual energy costs by £54,515 to £331,231 due to substantial increases in supplier energy unit cost following a formal CPC tender process.

Key Actions/Recommendations

- Continue to target a carbon footprint reduction, to maintain above 50% or greater by 2020.
- Strategy to plan for the new 2050 target of zero carbon.
- Encourage elimination of waste, or reuse whenever possible. New systems and technology will be a key driver.
- Review how to cost effectively produce more in house green energy, either PV or wind.
- Identify more effective communication strategies with students, as normally limited to a two-year cycle before they leave and new students arrive. Key ways of getting all the messages across.
- Continue to replace old inefficient boilers, with modern gas fired units.
- Review and replace when possible, old air conditioning units, for both energy saving and removal of old CFC gases.
- Review small plant units that are not connected to an automated BEM system.
- Review battery storage, once further onsite generation is achieved.

SUSTAINABILITY REPORT 2018/19

1 Energy

The data below indicates a 3.49% decrease in the year's total energy consumption overall compared with a targeted minus 3% as indicated within the 2018/19 Strategic Plan.

Overall, the cost of energy increased due to steep increases in KWH contracted prices and all the additional carbon levies that are being included with energy bills. Total energy costs increased from £276,716 to £331,231.

A number of on-going issues affected the annual target:

- (a) Extensive use of air conditioning during a warm period, especially in the Eskdale Building. This is due to very poor building insulation standards.
- (b) Installation of new replacement boilers at Rydal/Grizedale.
- (c) First full year of the new energy tender, which has substantially higher costs per KWH.
- (d) The disposal of Brisanice House.
- (e) The movement of evening courses from Chorley to Leyland Campus.
- (f) Very wet winter period of longer duration than normal, with some very hot summer's days heavy on air conditioning.
- (g) No recent ongoing building replacement programme, that helps to maintain a strong downward direction with improved insulation and modern efficient equipment.

	2018/19	2017/18	2016/17	2015/16	2014/15	2005/06	Datum diff 05-06	% diff 05-06	% in year
Electricity KWH						Datum Year			-
Langdale Road	1,451,910	1,369,749	1,506,309	1,601,885	1,567,198	1,719,259	267,349		
Euxton Lane	266,599	349,292	380,710	402,002	394,237	438,190	171,591		
Market Street	0	11,460	39,740	167,762	174,762	177,151	177,151		
Total electric KWH	1,718,509	1,730,501	1,926,759	2,171,649	2,136,197	2,334,600	616,091	35.90	0.7
Total cost	£253,575	£191,608	£203,165	£239,453	£242,634	£157,287			
Gas KWH									
Langdale Road	2,033,032	2,163,724	2,274,254	2,064,718	2,032,200	3,840,322	1,807,290		
Euxton Lane	434,548	432,438	449,773	466,956	349,793	779,674	345,126		
Market Street	0	5,539	82,823	383,850	399,111	356,966	356,966		
Total gas KWH	2,467,580	2,601,701	2,806,850	2,915,524	2,781,104	4,976,962	2,509,382	49.58	5.15
Total cost	£77,656	£85,108	£88,335	£94,614	£106,784	£124,861			

Total energy KWH									
Langdale Road	3,484,942	3,533,473	3,780,563	3,666,603	3,599,398	5,559,581	2,074,639		
Euxton Lane	701,147	781,730	830,483	868,958	744,030	1,217,864	516,717		
Market Street	0	16,999	122,563	551,612	573,873	534,117	534,117		
Total energy, all sites KWH	4,186,089	4,332,202	4,733,609	5,087,173	4,917,301	7,311,562	3,125,473	46.75	3.49
Total energy cost, all sites	£331,231	£276,716	£291,500	£334,067	£349,418	£282,148			
Water						M/3			
Langdale Road	14,990	13,966	15,852	13,270	13,357	10,161	4,829		
Euxton Lane	2,100	3,131	2,259	2,489	2,347	1,313	787		
Market Street	0	910	3,026	3,026	1,128	984	984		
Total water M/3 all sites	17,090	18,007	21,137	18,785	16,832	12,458	4,632	37.18	5.1
Total water costs, all sites	£56,310	£66,376	£72,758	£88,229	£79,894	£36,776			
Total sites M/2	32,114	33,260	36,131	36,131	33,973	29167			
Changes cum M/2	2,347	3,493	6,364	6,364	4,806	0	2,947		
% difference increase M/2	10.10	14.03	23.88	23.88	16.65	0	10.1		
% carbon difference absolute +/-	51.51	43.77	41.55	31.91	26.55	0	Current reduction	1230 MT	
Actual Carbon footprint Tonnes.	1,158	1,343	1,396	1,626	1,754	2,223.35	Target 34% reduction from baseline	756 MT	Target 1467.41 MT
Against 2005/6 m/2 if no building growth	1,170	1,155.02	1,062.63	1,237.71	1,461.95	2,223.35			Original estimate 2,388.
Weather	heating on early due to cold weather	Very cold winter, very hot summer	Average winter	Very poor winter and long	Poor winter	Base year			

2 Photovoltaic Panels (PV)

The Leyland campus now operates four separate sets of photovoltaic panels, all generating electricity and a further large array at the Chorley Campus. The arrays have a total maximum output capacity of 228 KWH. The units have produced 180,076 KWH this year. Total generated electricity 639,058 KWH since their initial installations.

Resultant saving of 466 metric tonnes of carbon since installation and reduced importation of energy.

Further PV at the Leyland site would be highly beneficial if capital or carbon grants become available.

3 Water

Water usage has increased at Leyland and decreased at Chorley. This was to be expected as the baseline this year has moved as evening courses transferred to the Leyland Campus. Overall water usage is down, due to no Market Street Chorley usage and improvements at the Chorley Campus.

Water data									
	2019/18	2017/18	2016/17	2015/16	2014/15	2005/06	diff 05-06	% diff 05-06	% in year
Water						M/3			
Langdale Road	14,990	13,966	15,852	13,270	13,357	10,161	4,829		
Euxton Lane	2,100	3,131	2,259	2,489	2,347	1,313	787		
Market Street	0	910	3,026	3,026	1,128	984	984		
Total water M/3 all sites	17,090	18,007	21,137	18,785	16,832	12,458	4,632	37.18	5.1
Total water costs, all sites	£56,310	£66,376	£72,758	£88,229	£79,894 Both	£36,776 Water only, not sewage.			

4 Waste Streams - Recycling

This is the third year of the new waste contractor, after the previous contractor was bought out. This resulted in a retender process and SUEZ Limited winning the contract. This contract again was placed with the aim to achieve zero general waste to landfill, by all remaining non-recyclable waste going to Refused Derived Fuel (RDF) being burned to produce energy. This target has now been fully achieved.

As with all waste contractors they have their own system of what they collect and what is mixed, this contractor mixes all plastic, cans and card into one wagon and then separates at their own recycling centres.

The general RDF waste is no longer sorted due to falling prices of recyclables, and is just compacted and sent directly to RDF sites for energy production. We have also seen better controls around recycling which has reduced the amount sent to RDF.

Waste contractors now all have more specialist weighing units fitted to all their collection vehicles, which has seen much more accurate weights being provided per load.

Waste Metric /Tonnes (M/T)	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	Change from 2017/18 to 2018/19 (-) = saving M/T	% Reduction M/T +/-
Refuse derived fuel (RDF)	92	142	94	197	36 (part year)	0	-50	-35%
Landfill general waste. (Skips)	Now to RDF	30	30	0	214	222	-30	-100%
All other waste in recycling chains	102	78	193	294	158	168	+24	+31%
Total of all types of waste.	194	250	317	491	408	390	-56	-21%

We have achieved our goal of zero landfill from all general waste. The remaining 92 tonnes of waste is directed for use as RDF, for energy production. This is just above landfill in the waste hierarchy.

Overall, the main bulk waste streams are now being processed by one contractor. Small quantity items are recycled by specialist companies, i.e. batteries, cooking oil, glass, tonners etc.

5 Recycling

SUEZ system for card, paper, cans and plastic for Euro bins is different and collected by one vehicle, with separation at the transfer station as recycled, this makes it difficult to give exact figures for comparison with previous years.

SUEZ also send RDF directly to incineration as recycling values have fallen, so no secondary recycling value within this year's data.

Food waste* is calculated as a standard weight per bin, per week, due to a new sub-contractor, this has distorted the figures below.

Year	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2012/13	Actual change + = increase	% Reduction +/-
Fluorescent tubes, bulbs and LEDs (no.)	120	320	120	40	40	195	4,200	200	-166%
Clear glass (tonne)	1	1	1	1	1	1	1	0	0
Coloured glass (tonne)	1	1	1	1	1	1	1	0	0
Cans / plastic (tonne)	50.15	30.50	26.08	41.01	14.73	6.67	8.95	4.42	64%
Paper / card (C/Metre) (tonne)				45.68	23.03	27.98	51.67		
Shredded paper (tonne)	9.94	11.18	4.68	6.96	5.36	6.40	9.99	6.50	-11%
Cooking oil (litre)	3,040	2,120	1,680	1,440	990	2,005	1,780	440	26%
Toner cartridges (no.)	191	161	179	96	57	114	217	30	-17%
WEEE items (tonne approx.)	Now by item number	Now by item number	Now by item number	Now by item number	Now by item number	3.32	1.98	0	N/A
Small batteries (tonne)	0.14	0.12	0.13	0.14	0.09	0.06	0.09	-0.10	-7%
Scrap metals (tonne)	5.21	6.90	4.24	5.06	5.88	6.16	4.44	2.66	-24%
Food waste (Kg's)	25,270*	26,740*	6,310	4,090	4,880	2,400	2,000	20,430	6%
Re-use items via British Heart Foundation bins. (240L bins)	9	8	8	7	9	8	11	0	12.5%
Mixed recycling, before RDF (M/T)	N/A Now direct to RDF	N/A Now direct to RDF	52	N/A Now RDF	107	111	141	0	N/A
Refuse derived fuel (RDF)	92	142	94	197	36	N/A	N/A	+48	-38%

6 Carbon footprint

Our strategic objective is to continually reduce the College's Carbon Footprint from our agreed 2005/06 datum. Carbon data conversion factors are now regularly being updated following feedback from processes. Initially our first few years' data used basic calculation principles, followed by a change to the Carbon Trust more in depth data. We now use the

UK conversion factor carbon smart calculator, which is more accurate and being accepted as the industry norm.

Year	2018/19 tonnes of carbon	% of total	2017/18 tonnes of carbon	% of total	2016/17 tonnes of carbon	% of total	2015/16 tonnes of carbon	% of total	2005/6 tonnes of carbon (Datum year)	% of total from datum
Gas	454	39.21	479	35.67	516	37.00	536	32.97	914	49.7
Electric	510	44.04	665	49.53	678	48.56	895	55.04	1,225	58.4
Student buses - All	135 (690,000)	11.66	139	10.35	137	9.80	131	8.05	120E	12.5
Staff travel	39 (167,200)	3.36	30	2.22	34	2.43	34	2.10	30E	30.0
College vehicles	9.24	0.80	16	1.19	18	1.29	20	1.23	22E	58.0
Employee commuting, estimated	2E	0.17	2E	0.15	2E	0.14	2E	0.12	1.5E	25.0
Waste to fuel (RDF)	3	0.25	2	0.15	0	0	0	0	New 2	50.0
Water	5.88	0.51	10	0.74	11	0.78	8	0.49	5	17.6
Total absolute	1,158	100%	1,343	100%	1,396	100%	1,626	100%	2,388	
Cumulative absolute carbon from datum year %	- 51.51		- 43.77		- 41.55		- 31.91		0.00	
m/3 % increase all sites	+10.10		+14.03*		+23.88		+23.88		0.00	
From datum year adjusted for m/3 growth. Carbon tonnes	1,170		1,155		1,062		1,237		2,388	
2020 target, 34% absolute reduction									1,576 Tonnes	
Current absolute 51.51%									1,158 Tonnes	

The 2018/19 figures indicate an absolute 51.51% tonnes reduction in our carbon footprint emissions across all sites from datum point. These figures indicate a reduction of 1,230 tonnes of carbon decrease from datum and 185 tonnes reduction in our carbon footprint emissions in year.

Our 2020 target (34%) has been exceeded ahead of the programmed schedule, with other planned carbon saving to be implemented during future years. The new government target moving forward is zero carbon from baseline by 2050.

10 ESOS 2 and DEC's

The 5 year process to move to ESOS 2 has now been completed, with the package forwarded to the Environmental Agency. This was fully reviewed and discussed by the SMT and approved. It takes a number of months for this to be approved and confirmed as acceptable, a small number of applications are then audited by the Environmental Agency.

All DEC's have been reviewed by a consultant and new certification issued for every building.

11 Conclusion

Good progress is continuing to be made in many areas, following further committed programmes of capital and revenue expenditure. Energy usage decreased by 3.49% this year, with water usage also down, but energy costs still increased to £331,231.

These programmes will continue to help the College further exceed its 2020 carbon reduction programme of an absolute 34%, with a current figure of 51.51%.

Further progress is expected next year after the installation of new calorifiers and pump sets with the Eskdale boiler house, new efficient air conditioning units in Hawkshead and replacements in Eskdale.

Further step changes going forward will require extensive capital investment, along with a major communication strategy to get all students on board.