



KPU ENERGY CONSUMPTION RECORDS 2020

Prepared by Facilities Services



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Last Revision - May 21, 2020

Dan Brown

Facilities Department

Base Year Changed to 2007

In the 2019 update for the Energy Records document the base year was changed from the year 2000 to 2007. This change was made to align the base year with the BC Governments "Climate Change Accountability Act". The "Climate Change Accountability Act" requires that:

- by 2030 and for each subsequent year BC greenhouse gas emissions will be at least 40% less than the level of emissions in 2007.
- by 2040 and for each subsequent year BC greenhouse gas emissions will be at least 60% less than the level of emissions in 2007.
- by 2050 and for each subsequent year BC greenhouse gas emissions will be at least 80% less than the level of emissions in 2007.

These goals are for total emissions which means that any growth in campus sizes that increase GHG emissions will somehow need to be offset with reductions from the existing campus inventory. It also means significant changes to the current campuses will be required to achieve these increasing reductions in GHG emissions.

The "Journal of Changes" from 2007 to 2020 will help understand increases and decreases in energy consumption and GHG emissions.

Journal of Changes from 2007 Base Year to 2020

Description of Changes Affecting Energy Consumption		
	Size Changes (m2)	Operational or Equipment
2006	S - Bldg D extension added (1230)	
2007	C - Opened, N - Closed except Bldg 3/Unit 7(3715)(300), L - Farrier closed (-375)	
2008	S - Arbustus expanded added (4689)	S - Arbutus on Geothermal except old IET area.
2009	S - Main expanded added (4319), L - ISH added (425)	S - Main new north area on Geothermal. ISH lab uses 100% fresh air and up to 10x air changes/hour.
2010		L - New greenhouse lab under construction - west wing under construction and temp trailers on site, S- boiler main leak, L - Condensing boiler added, S - Condensing boilers added.
2011	L - ISH Greenhouse (758m)	
2012	L - CAHS open in Sept (2nd floor added 1335)	L - CAHS part year operation
2013		L - CAHS full year operation
2014		
2015	L - Brew Lab added (395)	Richmond renovations and construction site prep. Langley Brew Instructional Lab construction. Campus extended hours. L - Changed domestic hot water to condensing units. Hort - Replaced heating boilers with condensing.
2016		
2017		S - Leak in underground boiler main estimated 5% increase in natural gas consumption. Spruce construction estimated 5% increase in natural gas consumption. Hort leak in underground boiler piping increased natural gas. R - WSOD under construction.
2018	R - WSOD added (6155)	S - Spruce still under construction
2019	S -demo old spruce, add new spruce (2126) CC - Civic Center Campus added (4391)	S - Natural gas consumption increased suspected due to Spruce which is being investigated to resolve.
2020		

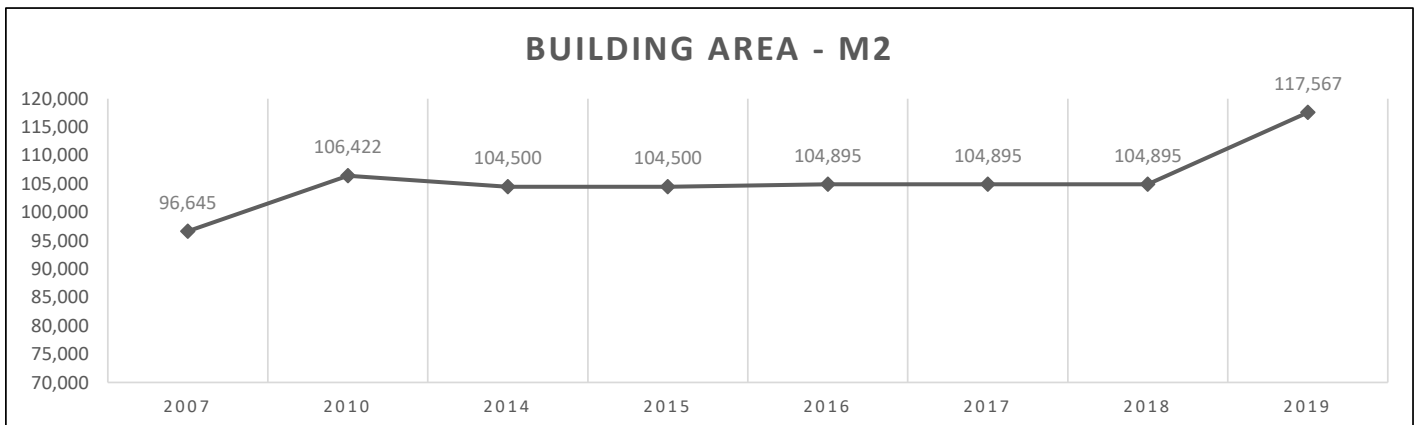
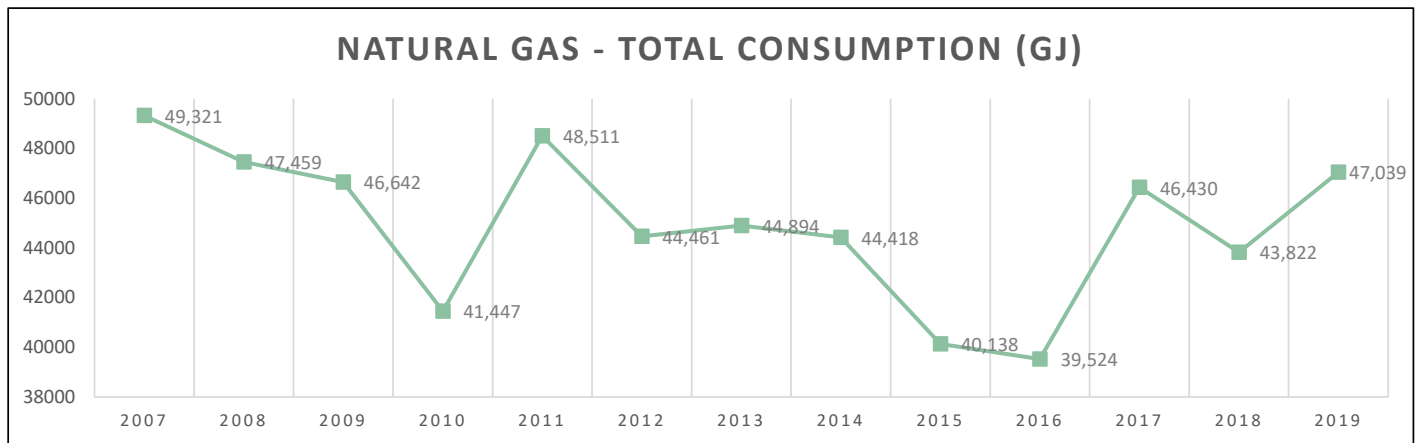
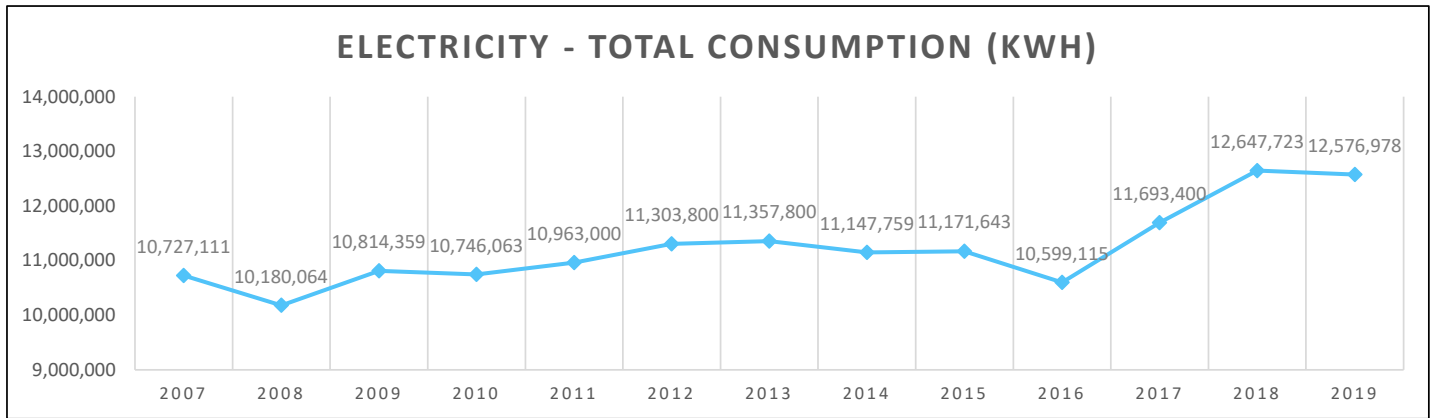
Energy Consumption - All Campuses Totals

	M2	Electric kWh	Gas GJ	tCO2e	Intensities per M2					% Consumption and Campus Size Compared to 2007			eGJ per M2 compared to 2007
					kW/m2	GJ/m2	tCO2e/m2	Total eGJ/m2	Total ekW/m2	Electric	Gas	Size M2	
2007	96,645	10,727,111	49,321	2,710	111	0.51	0.0280	0.91	253	Blue cells are increases in gas or electricity			
2008	102,240	10,180,064	47,459	2,612	100	0.46	0.0255	0.82	229	-5%	-4%	6%	-10%
2009	105,997	10,814,359	46,642	2,781	102	0.44	0.0262	0.81	224	1%	-5%	10%	-11%
2010	106,422	10,746,063	41,447	2,478	101	0.39	0.0233	0.75	209	0%	-16%	10%	-17%
2011	102,407	10,963,000	48,511	2,891	107	0.47	0.0282	0.86	239	2%	-2%	6%	-6%
2012	103,165	11,303,800	44,461	2,665	110	0.43	0.0258	0.83	229	5%	-10%	7%	-9%
2013	104,500	11,357,800	44,894	2,545	109	0.43	0.0244	0.82	228	6%	-9%	8%	-10%
2014	104,500	11,147,759	44,418	2,382	107	0.43	0.0228	0.81	225	4%	-10%	8%	-11%
2015	104,500	11,171,643	40,138	2,199	107	0.38	0.0210	0.77	214	4%	-19%	8%	-15%
2016	104,895	10,599,115	39,524	2,276	101	0.38	0.0217	0.74	206	-1%	-20%	9%	-19%
2017	104,895	11,693,400	46,430	2,599	111	0.44	0.0248	0.84	234	9%	-6%	9%	-7%
2018	104,895	12,647,723	43,822	2,422	121	0.42	0.0231	0.85	237	18%	-11%	9%	-6%
2019	117,567	12,576,978	47,039		107	0.40	0.0000	0.79	218	17%	-5%	22%	-14%
2020													

Energy Units Equivalencies

	kWh	GJ	ekWh			eGJ			MMBTU		
	Electric	Gas	Electric	Gas	Total	Electric	Gas	Total	Electric	Gas	Total
2007	10,727,111	49,321	10,727,111	13,701,485	24,428,596	38,615	49,321	87,936	36,574	46,757	83,331
2008	10,180,064	47,459	10,180,064	13,183,999	23,364,063	36,645	47,459	84,104	34,709	44,991	79,700
2009	10,814,359	46,642	10,814,359	12,957,009	23,771,368	38,929	46,642	85,570	36,872	44,216	81,088
2010	10,746,063	41,447	10,746,063	11,513,899	22,259,962	38,683	41,447	80,129	36,639	39,291	75,930
2011	10,963,000	48,511	10,963,000	13,476,300	24,439,300	39,464	48,511	87,974	37,378	45,988	83,367
2012	11,303,800	44,461	11,303,800	12,351,182	23,654,982	40,690	44,461	85,151	38,540	42,149	80,689
2013	11,357,800	44,894	11,357,800	12,471,581	23,829,381	40,885	44,894	85,779	38,725	42,560	81,284
2014	11,147,759	44,418	11,147,759	12,339,182	23,486,941	40,129	44,418	84,546	38,008	42,108	80,116
2015	11,171,643	40,138	11,171,643	11,150,364	22,322,007	40,215	40,138	80,353	38,090	38,051	76,141
2016	10,599,115	39,524	10,599,115	10,979,656	21,578,771	38,154	39,524	77,677	36,138	37,468	73,606
2017	11,693,400	46,430	11,693,400	12,898,254	24,591,654	42,093	46,430	88,523	39,869	44,016	83,884
2018	12,647,723	43,822	12,647,723	12,173,696	24,821,419	45,528	43,822	89,350	43,123	41,543	84,666
2019	12,576,978	47,039	12,576,978	13,067,462	25,644,440	45,273	47,039	92,313	42,881	44,593	87,474
2020											

Annual Energy Consumption and Building Size



Energy Intensity per M2 by Campus

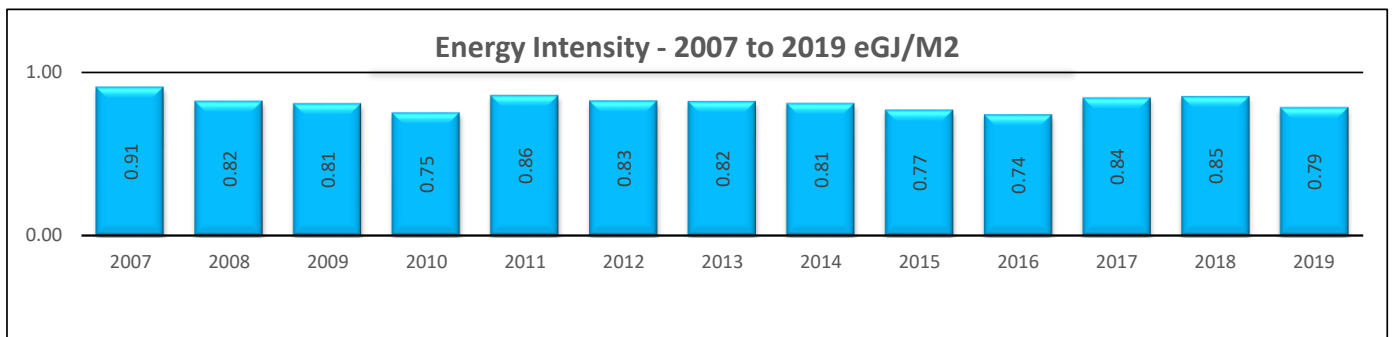
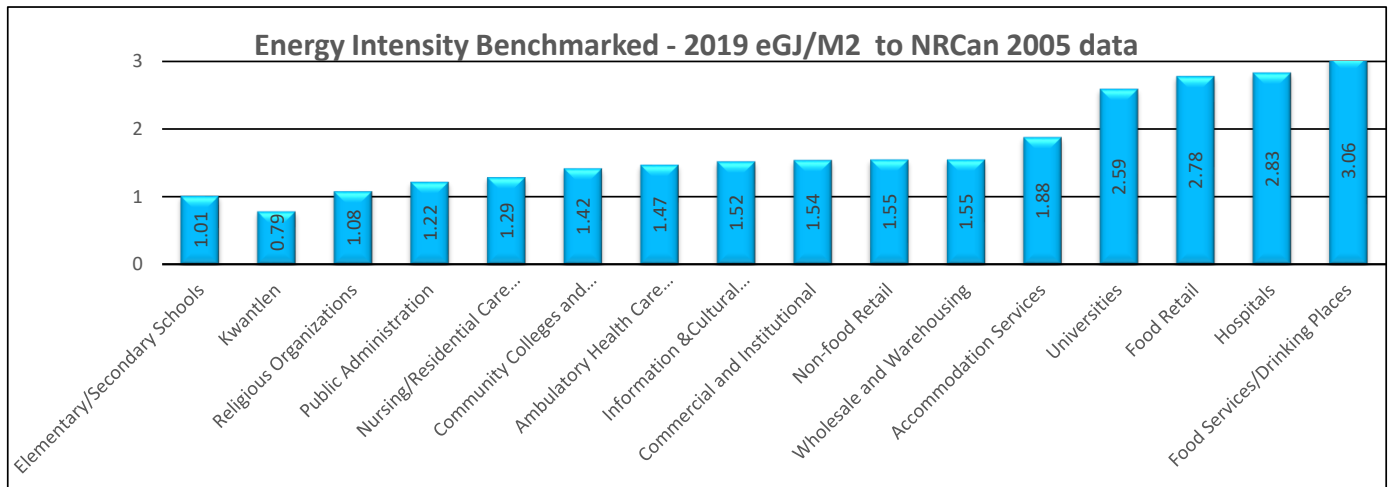
Electric - kW/M2						
	Civic	Cloverdale	Langley	Langley H	Richmond	Surrey
2007		82	94	86	102	151
2008		77	87	84	94	129
2008		77	109	83	93	127
2010		78	113	89	90	127
2011		80	111	127	92	130
2012		81	121	116	90	134
2013		78	123	102	90	132
2014		75	123	101	91	128
2015		81	127	68	91	127
2016		81	95	58	88	129
2017		85	133	93	92	133
2018		87	132	76	112	144
2019	37	89	131	81	90	135
2020						

Natural Gas - GJ/M2						
	Civic	Cloverdale	Langley	Langley H	Richmond	Surrey
		0.35	0.59	1.26	0.45	0.55
		0.34	0.55	1.24	0.39	0.51
		0.37	0.57	1.29	0.34	0.44
		0.32	0.52	1.44	0.31	0.37
		0.39	0.61	2.04	0.38	0.40
		0.37	0.58	1.56	0.30	0.38
		0.39	0.55	1.85	0.29	0.35
		0.36	0.51	1.89	0.30	0.36
		0.34	0.49	1.57	0.28	0.31
		0.36	0.46	1.44	0.28	0.31
		0.40	0.56	1.57	0.38	0.34
		0.35	0.50	1.35	0.33	0.39
	0	0.37	0.47	1.43	0.29	0.43

Electric and Gas - ekW/M2						
	Civic	Cloverdale	Langley	Langley H	Richmond	Surrey
2007		179	259	437	226	303
2008		173	240	427	202	270
2009		180	268	441	187	250
2010		168	257	489	176	231
2011		188	280	694	197	240
2012		184	282	549	174	239
2013		188	276	617	172	229
2014		175	265	625	173	229
2015		176	262	503	169	215
2016		180	222	457	164	216
2017		196	287	529	196	228
2018		183	271	451	202	251
2019	37	192	260	479	170	254
2020						

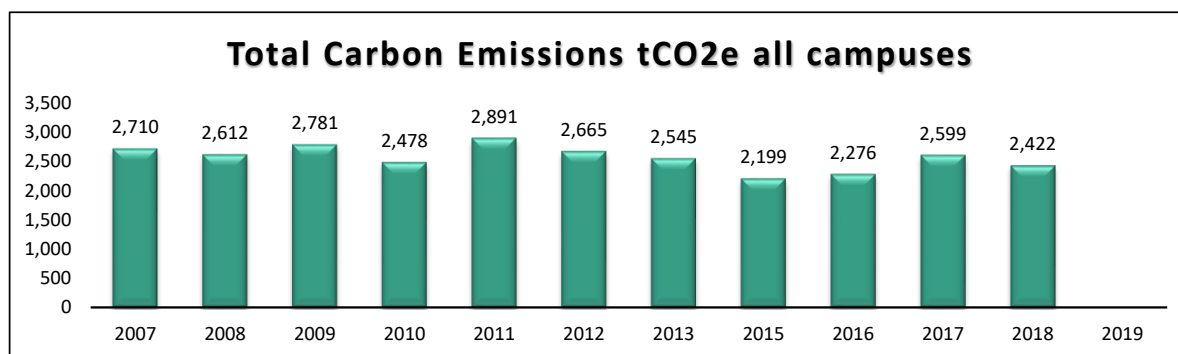
Electric and Gas - eGJ/M2						
	Civic	Cloverdale	Langley	Langley H	Richmond	Surrey
		0.64	0.93	1.57	0.81	1.09
		0.62	0.86	1.54	0.73	0.97
		0.65	0.97	1.59	0.67	0.90
		0.60	0.93	1.76	0.63	0.83
		0.68	1.01	2.50	0.71	0.86
		0.66	1.01	1.98	0.63	0.86
		0.68	0.99	2.22	0.62	0.82
		0.63	0.95	2.25	0.62	0.82
		0.63	0.94	1.81	0.61	0.77
		0.65	0.80	1.65	0.59	0.78
		0.70	1.03	1.90	0.71	0.82
		0.66	0.98	1.62	0.73	0.90
	0.13	0.69	0.94	1.72	0.61	0.91

Energy Intensity - All Campuses



Carbon Emissions by Campus

	Carbon Emissions (tCO2e) (Natural Gas/Electricity)							Other	CNAR Report	Reduction from 2007
	Civic	Cloverdale	Langley	Langley - H	Newton	Richmond	Surrey			
2007		358	477	202	124	704	845	2,710	2,710	0.00%
2008		353	452	197	63	618	921	2,604	2,612	3.62%
2009		376	479	205	65	541	913	2,579	2,781	-2.62%
2010		333	450	229	21	497	788	2,319	2,478	8.56%
2011		396	521	325	Closed	601	833	2,710	2,891	-6.68%
2012		378	502	310	Closed	490	802	2,511	2,665	1.66%
2013		398	518	365	Closed	479	744	2,410	2,545	6.09%
2014		357	477	370	Closed	472	743	2,249	2,382	12.10%
2015		344	455	306	Closed	445	657	2,072	2,199	18.86%
2016		359	429	280	Closed	440	658	2,144	2,276	16.01%
2017		399	529	308	Closed	583	711	2,530	2,599	4.10%
2018		351	481	264	Closed	523	799	2,418	2,422	10.63%
2019	3	373	449	281	Closed	554	919	2,577		
2020										



Carbon Emissions Intensity by Campus

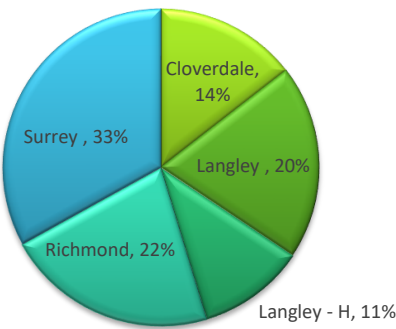
	Intensity (tCO2e/M2)						
	Civic	Cloverdale	Langley	Langley - H	Richmond	Surrey	Average
2007		0.019	0.024	0.154	0.025	0.031	0.028
2008		0.019	0.023	0.146	0.022	0.028	0.026
2009		0.020	0.024	0.154	0.019	0.025	0.026
2010		0.018	0.021	0.145	0.017	0.022	0.023
2011		0.021	0.025	0.168	0.021	0.023	0.028
2012		0.020	0.024	0.130	0.017	0.022	0.026
2013		0.021	0.023	0.134	0.017	0.020	0.024
2014		0.019	0.021	0.124	0.017	0.020	0.023
2015		0.019	0.020	0.118	0.016	0.018	0.021
2016		0.019	0.020	0.111	0.015	0.018	0.022
2017		0.021	0.023	0.137	0.020	0.020	0.025
2018		0.019	0.020	0.124	0.018	0.022	0.023
2019	0.001	0.020	0.021	0.116	0.016	0.024	0.198
2020							

Carbon Emissions by Campus % of Total

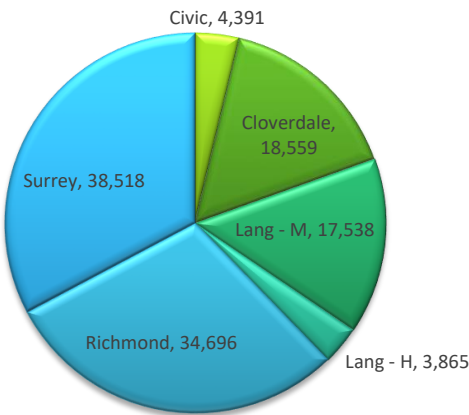
	Carbon Emissions (tCO2e)						
	Civic	Cloverdale	Langley	Langley - H	Newton	Richmond	Surrey
2007		13%	18%	7%	5%	26%	31%
2008		14%	17%	8%	2%	24%	35%
2009		14%	17%	7%	2%	19%	33%
2010		13%	18%	9%	1%	20%	32%
2011		14%	18%	11%		21%	29%
2012		14%	19%	12%		18%	30%
2013		16%	20%	14%		19%	29%
2014		15%	20%	16%		20%	31%
2015		16%	21%	14%		20%	30%
2016		16%	19%	12%		19%	29%
2017		15%	20%	12%		22%	27%
2018		14%	20%	11%		22%	33%
2019							
2020							

Carbon Emissions and Campus Sizes 2018 Comparison

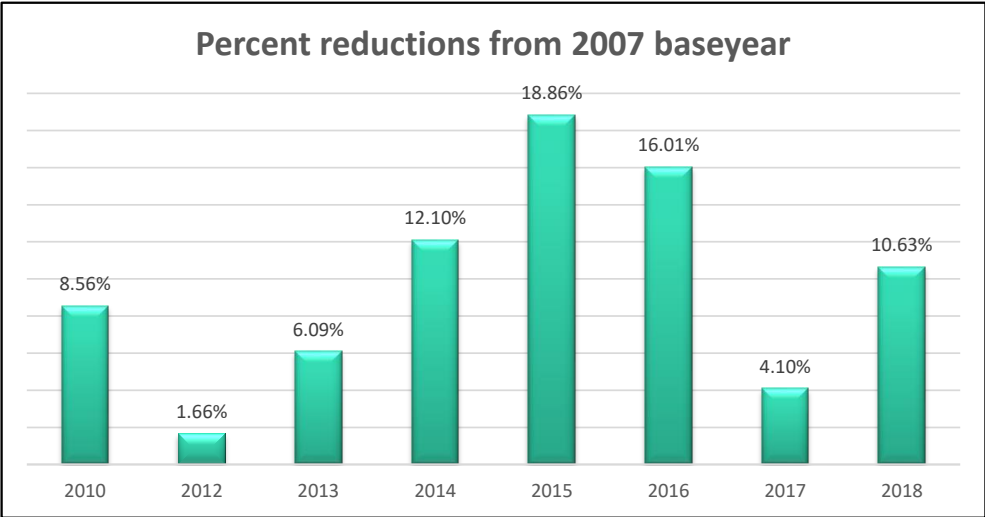
Carbon Emissions Emissions by Campus 2018



Campus Sizes in M2



Carbon Emissions Reductions from 2007 Base Year



Civic Centre Campus - Summary

	Area	Electric	Gas		Total	Energy Intensity					Compared to 2007 Blue is an increase	
	M2	kWh	GJ	ekWh	ekWh	Electric kWh/M2	Gas ekWh/M2	Total ekWh/M2	Total eGJ/M2	Gas GJ/M2	Electric	Gas
2019	4,391	161512			161,512	37		37	0.13			
2020												

Cloverdale Campus - Summary

	Area	Electric	Gas		Total	Energy Intensity					Compared to 2007 Blue is an increase	
	M2	kWh	GJ	ekWh	ekWh	Electric kWh/M2	Gas ekWh/M2	Total ekWh/M2	Total eGJ/M2	Gas GJ/M2	Electric	Gas
2007	18,559	1530877	6,453	1,792,532	3,323,409	82	97	179	0.64	0.35	0%	0%
2008	18,559	1437224	6,398	1,777,448	3,214,672	77	96	173	0.62	0.34	-6%	-1%
2009	18,559	1430400	6,873	1,909,431	3,339,831	77	103	180	0.65	0.37	-7%	7%
2010	18,559	1443600	6,009	1,669,189	3,112,789	78	90	168	0.60	0.32	-6%	-7%
2011	18,559	1483200	7,244	2,012,494	3,495,694	80	108	188	0.68	0.39	-3%	12%
2012	18,559	1499400	6,878	1,910,681	3,410,081	81	103	184	0.66	0.37	-2%	7%
2013	18,559	1451800	7,305	2,029,357	3,481,157	78	109	188	0.68	0.39	-5%	13%
2014	18,559	1393200	6,656	1,848,926	3,242,126	75	100	175	0.63	0.36	-9%	3%
2015	18,559	1499400	6,357	1,765,891	3,265,291	81	95	176	0.63	0.34	-2%	-1%
2016	18,559	1504309	6,638	1,844,092	3,348,401	81	99	180	0.65	0.36	-2%	3%
2017	18,559	1569600	7,422	2,061,748	3,631,348	85	111	196	0.70	0.40	3%	15%
2018	18,559	1612800	6,439	1,788,615	3,401,415	87	96	183	0.66	0.35	5%	0%
2019	18,559	1656000	6,878	1,910,653	3,566,653	89	103	192	0.69	0.37	8%	7%
2020												

Langley Campus - Summary

	Area	Electric	Gas		Total	Energy Intensity					Compared to 2007 Blue is an increase	
	M2	kWh	GJ	ekWh	ekWh	Electric kWh/M2	Gas ekWh/M2	Total ekWh/M2	Total eGJ/M2	Gas GJ/M2	Electric	Gas
2007	15,008	1,413,000	8,908	2,474,531	3,887,531	94	165	259	0.93	0.59	0%	0%
2008	15,383	1,337,400	8,448	2,346,966	3,684,366	87	153	240	0.86	0.55	-5%	-5%
2009	15,383	1,679,400	8,820	2,450,307	4,129,707	109	159	268	0.97	0.57	19%	-1%
2010	15,808	1,792,800	8,191	2,275,410	4,068,210	113	144	257	0.93	0.52	27%	-8%
2011	15,808	1,753,200	9,628	2,674,686	4,427,886	111	169	280	1.01	0.61	24%	8%
2012	15,808	1,906,200	9,170	2,547,537	4,453,737	121	161	282	1.01	0.58	35%	3%
2013	17,143	2,113,200	9,399	2,611,098	4,724,298	123	152	276	0.99	0.55	50%	6%
2014	17,143	2,100,312	8,802	2,445,307	4,545,619	123	143	265	0.95	0.51	49%	-1%
2015	17,143	2,178,000	8,326	2,312,852	4,490,852	127	135	262	0.94	0.49	54%	-7%
2016	17,538	1,674,000	7,984	2,218,039	3,892,039	95	126	222	0.80	0.46	18%	-10%
2017	17,538	2,327,400	9,753	2,709,439	5,036,839	133	154	287	1.03	0.56	65%	9%
2018	17,538	2,318,400	8,785	2,440,417	4,758,817	132	139	271	0.98	0.50	64%	-1%
2019	17,538	2,291,398	8,157	2,265,987	4,557,385	131	129	260	0.94	0.47	62%	-8%
2020												

Langley Campus (Horticulture) - Summary

	Area M2	Electric kWh	Gas		Total ekWh	Energy Intensity				Gas GJ/M2	Compared to 2007 Blue is an increase	
			GJ	ekWh		Electric KWh/M2	Gas ekWh/M2	Total ekWh/M2	Total eGJ/M2		Electric	Gas
2007	3,107	266,800	3,924	1,090,004	1,356,804	86	351	437	1.57	1.26	0%	0%
2008	3,107	259,800	3,845	1,068,058	1,327,858	84	344	427	1.54	1.24	-3%	-2%
2009	3,107	258,000	4,001	1,111,478	1,369,478	83	358	441	1.59	1.29	-3%	2%
2010	3,107	275,600	4,473	1,242,599	1,518,199	89	400	489	1.76	1.44	3%	14%
2011	3,107	395,200	6,340	1,761,224	2,156,424	127	567	694	2.50	2.04	48%	62%
2012	3,865	449,800	6,021	1,672,634	2,122,434	116	433	549	1.98	1.56	69%	53%
2013	3,865	394,800	7,157	1,988,270	2,383,070	102	514	617	2.22	1.85	48%	82%
2014	3,865	389,200	7,292	2,025,606	2,414,806	101	524	625	2.25	1.89	46%	86%
2015	3,865	261,400	6,053	1,681,523	1,942,923	68	435	503	1.81	1.57	-2%	54%
2016	3,865	224,406	5,556	1,543,540	1,767,946	58	399	457	1.65	1.44	-16%	42%
2017	3,865	360,600	6,062	1,683,912	2,044,512	93	436	529	1.90	1.57	35%	54%
2018	3,865	295,168	5,207	1,446,560	1,741,728	76	374	451	1.62	1.35	11%	33%
2019	3,865	313,580	5,537	1,538,262	1,851,842	81	398	479	1.72	1.43	18%	41%
2020												

Newton Campus - Summary

	Area M2	Electric kWh	Gas		Total ekWh	Energy Intensity				Gas GJ/M2
			GJ	ekWh		Electric KWh/M2	Gas ekWh/M2	Total ekWh/M2	Total eGJ/M2	
2006	14,327	1,489,079	7,447	2,068,870	3,557,949	104	144	248	0.89	0.52
2007	4,015	487,434	2,264	628,939	1,116,373	121	157	278	1.00	0.56
2008	4,015	241,506	1,149	319,303	560,809	60	80	140	0.50	0.29
2009	4,015	155,759	1,238	343,908	499,667	39	86	124	0.45	0.31
2010	4,015	34,800	405	112,592	147,392	9	28	37	0.13	0.10

Richmond Campus - Summary

	Area M2	Electric kWh	Gas		Total ekWh	Energy Intensity				Gas GJ/M2	Compared to 2007 Blue is an increase	
			GJ	ekWh		Electric KWh/M2	Gas ekWh/M2	Total ekWh/M2	Total eGJ/M2		Electric	Gas
2007	28,541	2,898,000	12,767	3,546,756	6,444,756	102	124	226	0.81	0.45	0%	0%
2008	28,541	2,678,400	11,131	3,092,053	5,770,453	94	108	202	0.73	0.39	-8%	-13%
2009	28,541	2,664,000	9,590	2,664,130	5,328,130	93	93	187	0.67	0.34	-8%	-25%
2010	28,541	2,581,200	8,743	2,428,750	5,009,950	90	85	176	0.63	0.31	-11%	-32%
2011	28,541	2,613,600	10,817	3,005,074	5,618,674	92	105	197	0.71	0.38	-10%	-15%
2012	28,541	2,581,200	8,609	2,391,691	4,972,891	90	84	174	0.63	0.30	-11%	-33%
2013	28,541	2,581,200	8,390	2,330,742	4,911,942	90	82	172	0.62	0.29	-11%	-34%
2014	28,541	2,590,447	8,499	2,361,078	4,951,525	91	83	173	0.62	0.30	-11%	-33%
2015	28,541	2,603,243	7,957	2,210,371	4,813,615	91	77	169	0.61	0.28	-10%	-38%
2016	28,541	2,498,073	7,899	2,194,259	4,692,332	88	77	164	0.59	0.28	-14%	-38%
2017	28,541	2,613,600	10,726	2,979,627	5,593,227	92	104	196	0.71	0.38	-10%	-16%
2018	28,541	3,186,955	9,313	2,587,124	5,774,079	112	91	202	0.73	0.33	10%	-27%
2019	34,696	3,132,000	9,951	2,764,388	5,896,388	90	80	170	0.61	0.29	8%	-22%
2020												

Surrey Campus - Summary

	Area M2	Electric kWh	Gas		Total ekWh	Energy Intensity				Gas GJ/M2	Compared to 2007 Blue is an increase	
			GJ	ekWh		Electric KWh/M2	Gas ekWh/M2	Total ekWh/M2	Total eGJ/M2		Electric	Gas
2007	27,415	4,131,000	15,006	4,168,722	8,299,722	151	152	303	1.09	0.55	0%	0%
2008	32,635	4,225,734	16,487	4,580,172	8,805,906	129	140	270	0.97	0.51	2%	10%
2009	36,392	4,626,800	16,119	4,477,755	9,104,555	127	123	250	0.90	0.44	12%	7%
2010	36,392	4,618,063	13,626	3,785,358	8,403,421	127	104	231	0.83	0.37	12%	-9%
2011	36,392	4,717,800	14,481	4,022,822	8,740,622	130	111	240	0.86	0.40	14%	-3%
2012	36,392	4,867,200	13,782	3,828,640	8,695,840	134	105	239	0.86	0.38	18%	-8%
2013	36,392	4,816,800	12,643	3,512,114	8,328,914	132	97	229	0.82	0.35	17%	-16%
2014	36,392	4,674,600	13,169	3,658,265	8,332,865	128	101	229	0.82	0.36	13%	-12%
2015	36,392	4,629,600	11,446	3,179,727	7,809,326	127	87	215	0.77	0.31	12%	-24%
2016	36,392	4,698,327	11,446	3,179,727	7,878,054	129	87	216	0.78	0.31	14%	-24%
2017	36,392	4,822,200	12,468	3,463,527	8,285,727	133	95	228	0.82	0.34	17%	-17%
2018	36,392	5,234,400	14,078	3,910,980	9,145,380	144	107	251	0.90	0.39	27%	-6%
2019	38,518	5,184,000	16,516	4,588,173	9,772,173	135	119	254	0.91	0.43	25%	10%
2020												

Civic Centre Campus - Electrical Consumption

ELECTRIC CONSUMPTION - kWh

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2019	15842	12513	13764	12258	14554	13154	13169	11857	12309	13933	13816	14343	161512
2020	16264	15473											

Cloverdale Campus - Electrical Consumption

ELECTRIC CONSUMPTION - kWh

Acct #: 6216372

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	107377	140400	136800	142200	127800	127800	120600	113400	104400	133200	136800	140100	1530877
2008	136800	154800	129600	142200	117000	100800	108430	104794	102600	104400	115200	120600	1437224
2009	126000	124200	135000	103800	109800	109800	118800	108000	109800	133200	133200	118800	1430400
2010	131400	117000	124200	115200	108000	113400	115200	111600	117000	115200	136800	138600	1443600
2011	138600	133200	136800	117000	109800	118800	108000	109800	126000	117000	133200	135000	1483200
2012	118800	136800	142200	124200	111600	113400	120600	122400	126000	115200	131400	136800	1499400
2013	118800	135000	117000	118000	115200	109800	122400	138600	115200	118800	120600	122400	1451800
2014	109800	135000	115200	117000	111600	117000	120600	118800	115200	104400	117000	111600	1393200
2015	118800	115200	111600	106200	133200	142200	135000	124200	129600	126000	129600	127800	1499400
2016	69709	135000	126000	127800	126000	126000	133200	120600	131400	131400	133200	144000	1504309
2017	124200	138600	131400	131400	131400	120600	129600	124200	133200	144000	135000	126000	1569600
2018	133200	132517	135683	133200	142200	126000	142200	136800	120600	142200	142200	126000	1612800
2019	149400	135000	145800	133200	131400	124200	136800	142200	135000	149400	145800	127800	1656000
2020	147600	135000											

Cloverdale Campus - Gas Consumption

GAS CONSUMPTION - GJ

Acct #: 1515702

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	1,099	1,136	772	363	163	45	27	25	189	547	978	1,109	6,453
2008	1,432	979	673	262	262	176	40	53	119	510	716	1,178	6,398
2009	1,321	969	1,035	483	280	74	24	24	103	498	808	1,254	6,873
2010	847	725	760	484	336	139	30	32	147	418	1,010	1,081	6,009
2011	1238	1144	876	685	400	104	34	31	97	508	1,012	1,115	7,244
2012	1343	1009	963	492	270	178	45	37	82	503	835	1122	6,878
2013	1453	1035	835.2	554	216	83	37	35	168	659	944	1287	7,305
2014	1247	1184	880	491	164	63	33	32	84	408	972	1097	6,656
2015	1156	783	731	569	185	77	30	28	216	468	1040	1075	6,357
2016	1216	963	845	405	135	110	33	34	178	574	826	1319	6,638
2017	1383	1094	1014	647	380	50	35	37	160	548	902	1172	7,422
2018	1165	1119	872	575	233	166	30	32	138	479	732	899	6,439
2019	1041	1282	804	520	196	86	33	34	163	792	989	940	6,878
2020													-

Langley Campus (Main Site) - Electrical Consumption

ELECTRIC CONSUMPTION - kWh				Note: includes Horticulture from 1994 - 1999 (bold text)						Acct #: 2134-2602-481			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	131400	142200	124200	117000	104400	84600	102600	109800	118800	122400	131400	124200	1413000
2008	135000	122400	124200	93600	104400	88200	84600	84600	124200	129600	124200	122400	1337400
2009	138600	138600	140400	122400	109800	136800	149400	129600	136800	154800	156600	165600	1679400
2010	165600	140400	131400	145800	127800	122400	149400	163800	158400	147600	172800	167400	1792800
2011	167400	165600	162000	14400	162000	142200	138600	151200	158400	178200	160200	153000	1753200
2012	156600	149400	138600	163800	138600	133200	153000	160200	172800	196200	169200	174600	1906200
2013	176400	167400	176400	174600	154800	165600	171000	187200	176400	212400	167400	183600	2113200
2014	182964	176400	174600	154800	165600	171000	187200	176400	212400	167400	183600	147948	2100312
2015	201600	174600	174600	194400	183600	183600	196200	172800	181800	185400	172800	156600	2178000
2016	21600	176400	178200	192600	165600	181800	181800	187200	194400	207000	180000	189000	1674000
2017	185400	185400	196200	183600	167400	212400	194400	205200	230400	192600	183600	190800	2327400
2018	194400	172800	190800	174600	207000	194400	232200	212400	194400	190800	187200	167400	2318400
2019	194400	169200	190800	171000	201600	194400	207000	212400	192202	197761	187835	172800	2291398
2020	190200	178800											

Langley Campus (Main Site) - Gas Consumption

GAS CONSUMPTION - GJ				Note: includes Horticulture from 1994 - 1999 (bold text)						Acct #: 1180023			
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	1776	1104	997	695	318	26	22	26	258	819	1271	1595	8908
2008	1533	1142	1072	790	341	205	9	11	79	755	908	1604	8448
2009	1511	1195	1150	684	334	35	25	25	150	881	1154	1676	8820
2010	1244	995	1021	716	469	235	105	32	160	678	1177	1359	8191
2011	1491	1427	1106	934	643	287	167	174	304	723	1143	1229	9628
2012	1534	1101	1137	669	454	369	296	249	332	763	998	1269	9170
2013	1523	1094	997	788	463	320	270	274	400	711	1081	1478	9399
2014	1352	1416	1091	707	367	273	156	164	295	547	1143	1292	8802
2015	1223	876	863	709	365	258	290	296	471	578	1143	1255	8326
2016	1220	902	816	492	383	321	169	161	472	697	868	1,484	7984
2017	1519	1241	1064	716	530	418	335	298	409	767	978	1,479	9753
2018	1270	1213	1030	751	473	448	213	302	435	642	835	1172	8785
2019	1171	1439	881	550	287	268	174	191	308	758	980	1151	8157
2020													

Langley Campus (Horticulture) - Electrical Consumption

ELECTRIC CONSUMPTION - kWh

Acct #: 2134-2600-531

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	24800	26800	27200	26600	20800	16600	15600	16200	19800	22000	24600	25800	266800
2008	30400	27000	26200	23000	16200	12800	13200	15000	20400	22800	22200	30600	259800
2009	25800	26000	28600	20800	14800	12800	11400	17000	18400	23000	27400	32000	258000
2010	28400	25400	25200	26000	18200	12400	12600	16200	21000	24000	31600	34600	275600
2011	34600	35400	36600	37400	43200	25600	20800	19600	15600	45600	51200	29600	395200
2012	61800	58600	44000	38200	42000	29400	35200	23400	26200	27000	31800	32200	449800
2013	40000	39800	43400	41200	32000	31600	30400	23400	22600	27600	27600	35200	394800
2014	43329	43400	41200	32000	31600	30400	23400	22600	27600	27600	35200	30871	389200
2015	26200	25600	22600	23200	19200	16800	18200	18400	20000	28800	20800	21600	261400
2016	3006	24600	30600	32200	22800	20000	22600	22800	19400	24200	30600	34400	224406
2017	40400	35400	38600	35200	31600	27800	25600	21800	25000	22800	24000	32400	360600
2018	30043	28937	31194	27227	20470	18439	19407	18833	22328	24137	25405	28748	295168
2019	31579	30390	27838	27975	25958	20000	20000	20800	23400	27600	27440	30600	313580
2020	33000	29200											

Langley Campus (Horticulture) - Gas Consumption

GAS CONSUMPTION - GJ

Acct #: 11880022

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	507	422	407	304	272	251	192	233	240	271	337	489	3924
2008	568	475	421	378	216	186	187	180	217	256	217	543	3845
2009	510	399	450	373	301	194	122	113	217	320	336	667	4001
2010	476	422	374	307	269	153	130	144	221	315	775	887	4473
2011	909	871	621	511	377	300	257	225.9	332	388	725	823	6340
2012	938	749	787	453	295	237	203	201	250	373	677	859	6021
2013	1078	798	810	686	473	314	243	207	341	546	691	971	7157
2014	993	996	756	897	520	375	217	207	247	415	745	923	7292
2015	895	680	743	614	422	232	134	145	242	309	741	896	6053
2016	889	681	656	497	222	161	113	110	203	356	565	1104	5556
2017	1100	920	750	551	278	87	56	68	163	499	574	1016	6062
2018	796	819	717	472	160	130	91	130	210	376	540	767	5207
2019	800	1036	709	472	194	131	107	119	184	495	572	719	5537
2020													

Newton Campus - Electrical Consumption

ELECTRIC CONSUMPTION - kWh

Acct #: 2074 2501 692

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	112002	55423	39550	34511	32752	37792	29970	30930	28798	29038	28060	28610	487434
2008	6941	27625	16825	13633	22034	19680	22800	25229	20160	19920	21219	25440	241506
2009	21600	24960	6720	6000	6480	12857	12857	12857	12857	12857	12857	12857	155759
2010	5,800	5,800	5,800	5,800	5,800	5,800	Campus Shut Down						34800

Newton Campus - Gas Consumption

GAS CONSUMPTION - GJ

Acct #: 879065 & 879066

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	736	483	143	120	30	19	16	33	38	174	237	237	2264
2008	183	137	153	100	21	9	12	9	30	117	93	285	1149
2009	196	148	115	28	168	56	142	2	2	52	190	138	1238
2010	125	135	90	41	12	2	Campus shut down						405

Richmond Campus - Electrical Consumption

ELECTRIC CONSUMPTION - kWh

Acct #: 1944-3200-032

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	223200	183600	266400	291600	234000	226800	252000	234000	262800	259200	255600	208800	2898000
2008	212400	223200	262800	219600	208800	187200	230400	198000	230400	241200	255600	208800	2678400
2009	219600	226800	208800	205200	234000	226800	226800	230400	212400	248400	205200	219600	2664000
2010	198000	223200	212400	212400	201600	230400	237600	219600	223200	212400	198000	212400	2581200
2011	212400	205200	216000	226800	187200	201600	226800	223200	248400	223200	234000	208800	2613600
2012	234000	198000	219600	212400	201600	190800	212400	216000	244800	212400	223200	216000	2581200
2013	205200	208800	205200	219600	194400	205200	223200	226800	255600	208800	226800	201600	2581200
2014	208800	205200	219600	194400	205200	223200	226800	255600	208800	226800	201600	214447	2590447
2015	356516	194400	219600	208800	208800	259200	205200	205200	237600	237600	183600	86727	2603243
2016	104073	234000	187200	230400	219600	194400	234000	241200	223200	223200	212400	194400	2498073
2017	129600	212400	201600	223200	201600	205200	234000	223200	266400	230400	237600	248400	2613600
2018	284972	249983	240000	241200	277200	252000	295200	295200	266400	277200	262800	244800	3186955
2019	270000	244800	266400	248400	271800	264600	270000	262800	262800	273600	262800	234000	3132000
2020	255600	226800											

Richmond Campus - Gas Consumption

GAS CONSUMPTION - GJ

Acct #: 1179620

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	2094	1559	1821	1196	562	133	161	108	472	1137	1610	1915	12767
2008	2137	1625	1574	1263	533	182	70	64	270	884	1002	1528	11131
2009	1556	1217	1312	824	497	263	218	61	121	813	1109	1599	9590
2010	1177	1064	1129	873	489	272	68	66	218	730	1293	1364	8743
2011	1458	1428	1255	1083	846	313	230	214	239	853	1367	1531	10817
2012	1547	1275	1242	770	339	203	66	56	105	721	963	1325	8609
2013	1468	1071	898	779	155	65	57	60	357	802	1140	1539	8390
2014	1389	1399	1078	688	333	173	68	69	167	605	1223	1308	8499
2015	1389	956	963	800	272	71	44	42	339	646	1154	1282	7957
2016	1336	1039	1022	621	380	59	45	43	159	765	851	1581	7899
2017	1617	1334	1200	776	358	55	45	48	165	1109	1658	2362	10726
2018	1592	1510	1392	981	211	80	59	72	357	755	1040	1265	9313
2019	1297	1704	1157	894	530	201	77	80	315	1075	1262	1360	9951
2020													

Surrey Campus - Electrical Consumption

ELECTRIC CONSUMPTION - kWh

Acct #: 2073 1199 121

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	297000	336600	349200	370800	307800	334800	356400	336600	345600	363600	390600	342000	4131000
2008	370800	354600	338400	394200	318600	336600	405000	304200	346734	342000	343800	370800	4225734
2009	426600	380600	379800	358200	363600	369000	343800	394200	338400	426600	430200	415800	4626800
2010	392400	385200	392400	342000	374400	360000	363600	401400	387000	363600	424800	431263	4618063
2011	430200	372600	441000	405000	349200	397800	361800	342000	403200	376200	444600	394200	4717800
2012	419400	396000	455400	428400	336600	397800	372600	381600	412200	412200	412200	442800	4867200
2013	392400	482400	381600	419400	360000	372600	378000	419400	387000	381600	421200	421200	4816800
2014	414000	419400	383400	378000	369000	372600	374400	432000	374400	383400	392400	381600	4674600
2015	525927	369000	403200	316800	376200	437400	406800	367200	396000	385200	387000	258873	4629600
2016	147927	423000	392400	433800	363600	401400	412200	414000	433800	408600	406800	460800	4698327
2017	421200	423000	437400	385200	349200	378000	365400	408600	392400	397800	455400	408600	4822200
2018	459000	414000	446400	388800	408600	406800	516600	505800	415800	433800	430200	408600	5234400
2019	464400	428400	464400	397800	437400	428400	466200	446400	406800	419400	419400	405000	5184000
2020	468000	421000											

Surrey Campus - Gas Consumption

GAS CONSUMPTION - GJ

Acct #: 1179620

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	2409	1806	1784	1329	795	485	91	105	618	1301	1940	2343	15006
2008	2835	2010	2130	1505	756	619	123	102	578	1224	1529	3078	16487
2009	2926	2313	2491	1216	793	153	133	110	244	1212	1632	2896	16119
2010	2035	1705	1559	1114	716	565	228	103	425	987	2133	2056	13626
2011	2243	2211	1729	1475	905	373	90	234	228	1141	1882	1970	14481
2012	2255	1763	1852	1116	739	641	337	140	353	1191	1513	1883	13782
2013	2297	1636	1417	1073.9	558	261	52	56	313	1136	1591	2252	12643
2014	2030	2128	1506	961	521	279	128	136	361	786	1656	2679	13169
2015	1871	1225	1104	1054	504	238	160	163	507	792	1852	1975	11446
2016	2136	1514	1473	760	387	314	168	50	437	1109	1405	2715	12468
2017	2697	2168	1860	1255	626	174	28	31	118	587	1611	2577	13731
2018	2161	1982	1677	1390.5	449	261	34	55	497	1248	1853	2471	14078
2019	2476	3215	2080	1399.3	254	100	251	41	556	1651	1980	2513	16516
2020													

Campus Sizes in M2 - 2007 to 2020

	Civic	Cloverdale	Newton	Lang - M	Lang - H	Richmond	Surrey	Total	Comments			
2007		18,559	4,015	15,008	3,107	28,541	27,415	96,645	N - Closed except Bldg 3/Unit 7(3715)(300) L - Farrier barn closed (375)			
2008		18,559	4,015	15,383	3,107	28,541	32,635	102,240	S - Bldg A added (4689)			
2009		18,559	4,015	15,383	3,107	28,541	36,392	105,997	S - Bldg C added (4319) L - ISH added (425)			
2010		18,559	4,015	15,808	3,107	28,541	36,392	106,422	L - New greenhouse lab under construction - west wing under construction and temp trailers on site, S- boiler main leak			
2011		18,559	Closed	15,808	3,107	28,541	36,392	102,407	L - ISH Greenhouse (758m)			
2012		18,559	Closed	15,808	3,865	28,541	36,392	103,165	L - CAHS open in Sept (2nd floor added 1335)			
2013		18,559	Closed	17,143	3,865	28,541	36,392	104,500				
2014		18,559	Closed	17,143	3,865	28,541	36,392	104,500				
2015		18,559	Closed	17,143	3,865	28,541	36,392	104,500	L - Brew Lab added (395)			
2016		18,559	Closed	17,538	3,865	28,541	36,392	104,895				
2017		18,559	Closed	17,538	3,865	28,541	36,392	104,895				
2018		18,559	Closed	17,538	3,865	28,541	36,392	104,895	R - WSOD added (6155)			
2019	4,391	18,559	Closed	17,538	3,865	34,696	38,518	117,567	S-demo old spruce add new spruce 2126 CC - added Civic Center Campus			
2020												