

Swarthmore College Energy Use Status Report For 2017

- Progress on energy savings and cost avoidance
- Growth of Campus-Energy Intensity
- Actual Use Figures for the Calendar Year 2017
- Carbon Contribution
- Charts



Gross Square Feet Added to the Campus

Year Blds.
Added

2000	Total Sq. Ft.*		1,266,327
2001	Mullan Tennis & Fitness Center	28,275	1,294,602
2003	Chiller Plant	4,415	1,299,017
2003	Kyle House	5,010	1,304,027
2004	Science Center	134,281	1,438,308
2004	Alice Paul	34,471	1,472,779
2004	Septa Station	2,324	1,475,103
2007	Lang Center	9,642	1,484,745
2007	David Kemp	26,333	1,511,078
2010	Wister Education Center	5,400	1,516,478
2013	101 S. Chester Road	32,703	1,549,181
2014	Matchbox	21,000	1,570,181
2015	DanaWell Infill	23,770	1,593,951
2017	Whittier Hall	19,000	1,612,951
2017	PPR Apartments	47,000	1,659,951
2017	Papazian (Demolished)	-24,867	1,635,084
	Increased square footage	368,757	

* Excludes faculty staff housing



Budget Year	Btu's Per Square Foot	Btu Cost in Dollars per square foot	Square footage
1999-2000	114,510	1.01	1,266,327
2000-2001	121,855	1.45	1,311,833
2001-2002	108,255	1.39	1,311,833
2002-2003	123,792	1.63	1,321,258
2003-2004	110,673	1.51	1,321,258
2004-2005	114,738	1.74	1,492,334
2005-2006	109,738	1.89	1,492,334
2006-2007	109,270	1.73	1,492,334
2007-2008	103,740	1.89	1,528,309
2008-2009	95,930	1.63	1,528,309
2009-2010	104,406	1.46	1,533,709
2010-2011	95,970	1.38	1,533,709
2011-2012	88,503	1.21	1,533,709
2012-2013	91,681	1.34	1,566,412
2013-2014	99,844	1.41	1,587,412
2014-2015	96,456	1.38	1,611,182
2015-2016	93,813	1.02	1,611,182
2016-2017	90,540	0.95	1,635,084

From a historical perspective we have done a very good job of containing the energy units required to heat, cool and light our Campus. Even with the growth we've experienced over the past fifteen years, we have driven the average Btu per square foot rate below 100,000 Btu.

Reduction in the Energy Intensity of the Campus Nets Substantial Savings both Immediate and Ongoing

Year Ending	Gross Square Feet	Dollar Cost for Energy per GSF	BTU Rate of Energy Use per GSF (Energy Intensity)	Potential Cost at 2010 Rate of Energy use	Actual Cost	Savings by Reducing Energy Intensity from 2010 rate
2010	1,533,709	\$1.46	104,406	\$2,773,629	\$2,277,631	\$-
2011	1,533,709	\$1.38	95,970	\$2,515,589	\$2,180,720	\$334,868
2012	1,533,709	\$1.21	88,503	\$2,177,862	\$1,914,510	\$263,352
2013	1,566,412	\$1.34	91,681	\$1,697,144	\$1,617,140	\$80,004
2014	1,587,412	\$1.41	99,844	\$1,943,180	\$1,853,515	\$89,665
2015	1,611,182	\$1.38	96,456	\$2,110,212	\$1,853,515	\$256,697
2016	1,611,182	\$1.02	93,813	\$1,822,043	\$1,637,177	\$184,866
2017	1,635,084	\$0.95	90,540	\$1,791,618	\$1,559,090	\$232,528
						\$1,441,981

Peak Energy Intensity in 2005 was 114,738 Btu/Sq. Ft. Over \$3 million dollars in avoided cost have been saved by reducing energy intensity

Actual use for 2017/Facilities Management Only

Source	Quantity	Unit of Measure	Equivalent	Heat Value	Tons CO2e
•Heat Plant Fuel Oil #2	2,930	Gallons	440	mmBtu	35.4
•Heat Plant Nat. Gas	72,414	dkth	72,414	mmBtu	4,239.1
•Diesel	19,495	Gallons	2,768	mmBtu	31.0
•Gasoline	1,534	Gallons	192	mmBtu	15.0
•Plant Electricity	14,609,019	kWh	49,848	mmBtu	6,920.4
•Auxiliary Electricity ¹	778,776	kWh	2,657	mmBtu	368.9
•Auxiliary Nat. Gas ¹	22,148	mcf	22,591	mmBtu	1,322.5
•Auxiliary #2 Fuel ¹	-	Gallons	-	mmBtu	-
•Purchased REC's ²	15,500,000	kWh		Total Tons	12,932.4

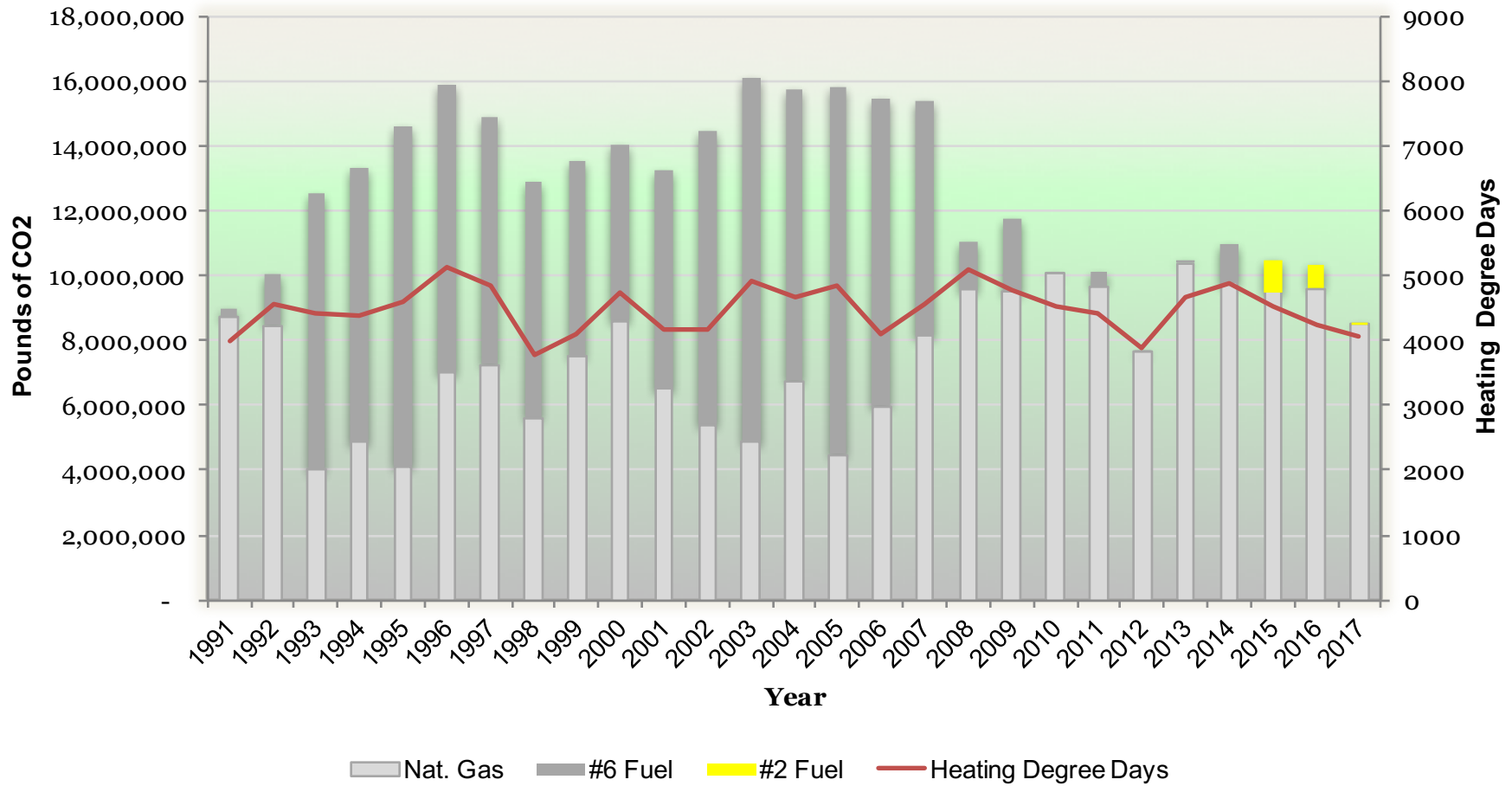
use figures from DEP calendar year

1 Metered Use in buildings (used for College business) off the main campus systems. Includes the addition of 101 South Chester Road.

2 Renewable Wind Energy Credits to offset carbon contribution of electricity use

Excludes faculty/staff housing

Annual CO2 Emissions from Heat Plant Fuels



Scope 1&2 Gross Combined Emissions From Heat Plant

