

FIU Energy Performance FY07-12

2012 SUS Energy Report



2012 SUS Energy Performance Report Background

- May 2010 HB 5201 Section 30
 - “Each Florida college and state university shall strive to reduce its campus wide energy consumption by 10%... The reduction may be obtained by either reducing the cost of the energy consumed or by reducing total energy usage, or a combination of both.”
 - FY07-08 as base year
- Dec. 2010 SUS BOG prepared common reporting template & consolidated report/response
- Jan. 2011 University system responded to Governor & Legislature
- Jan. 2013 BOG published the FY11-12 update (5-year data)

2012 SUS Energy Conservation Report Analysis & Highlights

- Key Metrics
 - Energy Performance Indicator (EPI): kBTU/sf/yr
(EPA Energy Star Program)
 - Cost Unit Index (CUI): \$/sf/yr
- Need to focus on consumption & per square foot data

	<u>kBTU/sf</u>	<u>\$/sf</u>	<u>Total Reduction</u>
FGCU	16%	37%	53%
FAU	7%	33%	40%
FSU	5%	30%	35%
New College	16%	15%	31%
FIU	6%	21%	27%
FAMU	4%	19%	23%
USF	6%	13%	19%
UF	7%	4%	11%
UWF	13%	-3%	10%

SUS Energy Performance Report

Energy Performance Indicator (EPI) (kBtu/sf/yr) ^(a)
FY07 thru FY12

**You can't compete if
you don't keep score!**

**FIU Tops SUS in Energy
Efficiency 5 consecutive years**

Ranking	Institution	FY07-08	FY08-09	FY09-10	FY10-11	FY 11-12	5 Year Average
1	FIU	62.5434	61.7255	61.6081	57.8005	58.6867	60.4728
2	UCF	68.8894	66.8623	66.2602	66.5383	65.4222	66.7945
3	FGCU	71.0253	75.4651	73.7984	67.1765	59.3399	69.3610
4	UNF	70.8205	77.5205	73.9260	75.1166	72.8725	74.0512
5	New College	94.2446	72.4715	80.2173	77.7310	78.7387	80.6806
6	FAU	103.2071	99.8266	95.7704	92.2594	96.3401	97.4807
7	UWF	107.0459	98.9120	103.6523	101.5168	92.7575	100.7769
8	FAMU	111.9451	119.7811	108.8060	104.1176	107.4416	110.4183
9	FSU	120.6798	117.6840	119.5335	117.1786	114.3395	117.8831
10	USF	138.5052	130.4274	124.2659	125.6657	129.5618	129.6852
11	UF	137.1336	132.1314	135.1238	133.0343	127.5511	132.9948
SUS Average		108.7584	106.2725	105.5055	103.0540	100.7266	104.8634

(a) The Environmental Protection Agency (EPA) established kBtu/sf/yr as the key performance indicator for energy efficiency as part of its Energy Star rating program.

Source: State University System of Florida Board of Governors 2012 Energy Report received January 14, 2013.

What KBTU/SF Means in Dollars - Savings/Cost Avoidance

**FIU beats #2 UCF by
\$5.8MM***

**FIU beats SUS average
by \$34MM****

Ranking	Institution	FY07-08	FY08-09	FY09-10	FY10-11	FY 11-12	Cost Avoidance
1	FIU	\$0	\$0	\$0	\$0	\$0	\$0
2	UCF	\$1,174,258	\$1,009,468	\$785,302	\$1,585,279	\$1,202,590	\$5,756,897*
3	FGCU	\$1,569,475	\$2,700,044	\$2,057,787	\$1,701,065	\$116,627	\$8,144,997
4	UNF	\$1,531,582	\$3,103,960	\$2,079,326	\$3,141,607	\$2,532,787	\$12,389,262
5	New College	\$5,865,949	\$2,111,758	\$3,141,322	\$3,615,929	\$3,580,142	\$18,315,100
6	FAU	\$7,524,365	\$7,487,472	\$5,766,764	\$6,251,769	\$6,722,760	\$33,753,130
7	UWF	\$8,234,695	\$7,307,723	\$7,097,254	\$7,931,317	\$6,083,110	\$36,654,100
8	FAMU	\$9,141,235	\$11,408,846	\$7,967,234	\$8,403,173	\$8,704,850	\$45,625,338
9	FSU	\$10,757,498	\$10,996,715	\$9,778,082	\$10,772,785	\$9,936,419	\$52,241,498
10	USF	\$14,055,908	\$13,500,995	\$10,576,927	\$12,312,576	\$12,654,261	\$63,100,667
11	UF	\$13,802,091	\$13,835,869	\$12,409,797	\$13,649,430	\$12,295,265	\$65,992,453
SUS Roll-up		\$73,657,055	\$73,462,851	\$61,659,795	\$69,364,930	\$63,828,811	\$341,973,443
SUS Roll-up Average		\$7,365,706	\$7,346,285	\$6,165,979	\$6,936,493	\$6,382,881	\$34,197,344**

Campus CUI (\$/SQFT/yr)

Cost Unit Index

Ranking	Institution	FY07-08	FY08-09	FY09-10	FY10-11	FY 11-12	5 Year Average
1	FIU	\$1.6549	\$1.7135	\$1.4484	\$1.3237	\$1.3004	\$1.4882
2	UCF	\$1.5627	\$1.6760	\$1.6337	\$1.5557	\$1.5198	\$1.5896
3	UNF	\$1.3821	\$1.8339	\$1.7103	\$1.8014	\$1.7551	\$1.6966
4	New College	\$2.0844	\$1.9032	\$1.7768	\$1.7221	\$1.7689	\$1.8511
5	FGCU	\$2.0113	\$2.4562	\$1.9979	\$1.5441	\$1.2753	\$1.8570
6	UWF	\$1.8100	\$1.8865	\$1.9645	\$1.9644	\$1.8567	\$1.8964
7	FAU	\$2.6282	\$2.2998	\$1.8935	\$1.7448	\$1.7642	\$2.0661
8	FAMU	\$2.3525	\$2.6605	\$2.2095	\$2.0227	\$1.8376	\$2.2166
9	UF	\$2.3620	\$2.5049	\$2.4688	\$2.3433	\$2.2731	\$2.3904
10	USF	\$2.7955	\$2.7453	\$2.4760	\$2.3286	\$2.3286	\$2.5348
11	FSU	\$2.9928	\$3.0114	\$2.5083	\$2.3758	\$2.1011	\$2.5979
SUS Average		\$2.2745	\$2.3691	\$2.1465	\$2.0189	\$1.9296	\$2.1477

Cost Unit Index

Using FIU cost as base

For every dollar that FIU spends on energy, other universities spend:

Ranking	Institution	Cost	Compared to FIU
1	FIU	\$1.00	
2	UCF	\$1.07	+7%
3	UNF	\$1.14	+14%
4	New College	\$1.24	+24%
5	FGCU	\$1.25	+25%
6	UWF	\$1.27	+27%

Ranking	Institution	Cost	Compared to FIU
7	FAU	\$1.39	+39%
8	FAMU	\$1.49	+49%
9	UF	\$1.61	+61%
10	USF	\$1.70	+70%
11	FSU	\$1.75	+75%
	SUS Average	\$1.44	+44%

Note: Calculations are based on five year averages.

FIU Carbon Footprint Reduction (5 year)

2007	2008-2012 Avg.	Annual Savings	Total Savings
128,177,651 kwh	122,873,344 kwh	5,304,307 kwh	21,217,228 kwh

Over a five year period FIU has saved the equivalent of:



14,970 Tons of CO₂



383,841 Trees



1,678,230 Gallons of Gasoline

Source: Greenhouse Gas Equivalencies Calculator, Environmental Protection Agency, www.epa.gov/cleanenergy/energy-resources/calculator.html

FIU “Worlds Ahead” performance

- 1) Central Utilities chilled water plant
 - High efficiency chillers
 - Central chilled water loop on each campus
- 2) Meters & Measurements
 - Sub-metering on all buildings
 - Chilled water meters on 70% of buildings
 - Monthly focus on kBTU/sf performance
- 3) On-line Energy Management System (EMS)
 - Focus on each building and continuous balancing
- 4) Building design focused on efficiency, with LEED certification & goal of Silver

FIU “Worlds Ahead” performance

5) Culture of energy conservation

- Chilled water temperature synchronized with environmental conditions
- Motion sensors
- Replacement of T12 with T8 lighting fixtures
- Temperature set point of 75°F
- Replacement of liquid propane gas (LPG) with natural gas in Summer 2009 on MMC has resulted in an average annual savings of more than \$400,000 over each of the past three years
- Low water use plumbing fixtures

6) Craftsman’s approach & lunch-bucket work ethic

Staying #1 – Continuous Excellence

- 1) Finish chilled water metering on all buildings
- 2) Expand chilled water loop as campuses grow
- 3) Continue automation of the central chiller plants
- 4) Increase operational efficiency of chiller plants & chilled water loop
- 5) Build satellite chiller plant in AHC quadrant w/back-up power & high efficiency equipment
- 6) Transition to LED Lighting where appropriate & feasible
- 7) Work side-by-side with the Sustainability office to maximize “green” goals
- 8) Research ... Listen ... Learn ... Advance