Florida International University (FIU) Tops State in Energy Performance Three Consecutive Years!

- FIU beats closest competitor by almost $3 million
- FIU beats state average by almost $21 million
- FIU one of only five to meet legislative mandate of 10% reduction

The State University System (SUS) of Florida Board of Governors released the SUS Energy Conservation Report in December 2010. Covering the three year fiscal period 2007-2009, the report shows that FIU topped all state universities in energy conservation for three consecutive years with a score of 61.9590 kBTU per square foot. The federal Environmental Protection Agency (EPA) established kBTU per square foot as the key performance indicator for energy efficiency in its Energy Star rating program.

The most effective way to achieve environmental sustainability is to use less energy. Using less energy means reduced demand on energy generators. Energy never used is the cleanest, greenest, and most renewable of all energy sources. By this standard, FIU again leads all Florida universities.

FIU's higher level of performance translates into millions of dollars in cost avoidance annually. For example, if FIU performed at the level of #2 UCF, FIU would have paid almost $3 million more in utilities. By performing at the state average, FIU would have paid almost $21 million more. In other words, FIU beat #2 UCF by almost $3 million, and beat the state average by almost $21 million. (Table 2)

Equally remarkable, FIU along with four sister schools, Florida Atlantic University (FAU), New College, the University of South Florida (USF), and Florida State University (FSU) are the five state schools to meet the 2010 legislative mandate in HB 5201 for a 10% reduction in consumption or cost (or a combination of both). Compared to the FY07-08 base year specified in the legislation, FIU reduced its energy consumption by 1.5% and its utilities cost by 12% for a combined reduction of 13.5%, surpassing the legislative mandate of 10%. The 13.5% reduction is equivalent to savings and cost avoidance of $1.2 million in FY09-10.

FIU Energy Performance
FY07-10

2010 SUS Energy Conservation Report

FIU | FLORIDA INTERNATIONAL UNIVERSITY

2010 SUS Energy Conservation Report Background

- 2010 HB 5201 Section 30

  - "Each Florida college and state university shall strive to reduce its campuswide 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

  - January 1, 2011 response date to Governor & Legislature

- SUS BOG prepared common reporting template & consolidated report/response (submitted December 27, 2010)

2010 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
- Five schools met 10% reduction mandate

	kBTU/sf	$/sf	Total Reduction
FAU	7%	28%	35%
New College	15%	15%	30%
USF	10%	11%	21%
FSU	1%	16%	17%
FIU	1.5%	12%	13.5%

SUS Energy Conservation Report

Energy Performance Indicator (EPI) (kBTU/sf/yr) (a)
FY07 thru FY10

Table 1

FIU Tops SUS in Energy Efficiency

Ranking	Institution	FY07-08	FY08-09	FY09-10	3 Year Average
1	**FIU**	**62.5434**	**61.7255**	**61.6081**	**61.9590**
2	UCF	68.8894	66.8623	66.2602	67.3373
3	FGCU	71.0253	75.4651	73.7984	73.4296
4	UNF	70.8205	77.5205	73.9260	74.0890
5	New College	94.2446	72.4715	80.2173	82.3111
6	FAU	103.2071	99.8266	95.7704	99.6014
7	UWF	107.0459	98.9120	103.6523	103.2034
8	FAMU	111.9451	119.7811	108.8060	113.5107
9	FSU	120.6798	117.6840	119.5335	119.2991
10	USF	138.5052	130.4274	124.2659	131.0662
11	UF	137.1336	132.1314	135.1238	134.7963
	SUS Average	108.7584	106.2725	105.5055	106.8455

(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 2010 Energy Conservation Report, dtd December 27, 2010

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

Table 2

FIU beats #2 UCF by $3MM

FIU beats SUS average by $21MM

Ranking	Institution	FY07-08	FY08-09	FY09-10	Cost Avoidance
1	FIU	$0	$0	$0	$0
2	UCF	$1,174,375	$1,009,554	$785,282	$2,969,212
3	FGCU	$1,569,604	$2,700,151	$2,057,763	$6,327,518
4	UNF	$1,531,708	$3,104,072	$2,079,303	$6,715,082
5	New College	$5,866,127	$2,111,857	$3,141,301	$11,119,285
6	FAU	$7,524,557	$7,487,599	$5,766,733	$20,778,888
7	UWF	$8,234,892	$7,307,864	$7,097,232	$22,639,988
8	FAMU	$9,141,445	$11,408,997	$7,967,199	$28,517,640
9	FSU	$10,757,722	$10,996,881	$9,778,048	$31,532,651
10	USF	$14,056,152	$13,501,175	$10,576,897	$38,134,225
11	UF	$13,802,350	$13,836,040	$12,409,758	$40,048,148
	SUS Roll-up	$73,658,932	$73,464,190	$61,659,515	$208,782,637
	SUS Roll-up Avg	$7,365,893	$7,346,419	$6,165,952	$20,878,264

Campus CUI ($/SQFT/yr)
Cost Unit Index

Ranking	Institution	Cost/SQ FT FY07-08	Cost/SQ FT FY08-09	Cost/SQ FT FY09-10	3 Year Average
1	FIU	$1.6549	$1.7135	$1.4484	$1.6056
2	UCF	$1.5627	$1.6760	$1.6337	$1.6241
3	UNF	$1.3821	$1.8339	$1.7103	$1.6421
4	UWF	$1.8100	$1.8865	$1.9645	$1.8870
5	New College	$2.0844	$1.9032	$1.7768	$1.9215
6	FGCU	$2.0113	$2.4562	$1.9979	$2.1551
7	FAU	$2.6282	$2.2998	$1.8935	$2.2738
8	FAMU	$2.3250	$2.6605	$2.2095	$2.3983
9	UF	$2.3620	$2.5049	$2.4688	$2.4452
10	USF	$2.7955	$2.7453	$2.4760	$2.6723
11	FSU	$2.9928	$3.0114	$2.5083	$2.8375
	SUS Average	$2.2745	$2.3691	$2.1465	$2.2634

How FIU achieved #1 "Worlds Ahead" status

1) Central Utilities chilled water plant
   - High efficiency chillers
   - Central chilled water loop (MMC & BBC)

2) Meters & Measurements
   - Electric meters on all buildings
   - Chilled water meters on 50% of buildings
   - Monthly focus on kBTU/sf

3) On-line Energy Management System (EMS)

4) Building design focused on efficiency, with LEED certification & goal of Silver

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 resulted in savings of $742,190 in only 18 months
   - Low water use plumbing fixtures

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

Staying #1 – Continuous Excellence

1) Chilled water meters on all buildings

2) Expand chilled water loop as campuses grow (e.g. Arena Expansion)

3) Automate central chiller plants

4) Increase operational efficiency of chiller plants & chilled water loop

5) New satellite chiller plant in AHC quadrant w/back-up power & high efficiency equipment

6) Transition to LED Lighting where appropriate & feasible