

## **Energy Conservation Campaigns and Results (FY 09 – 14)**

This document is intended to illustrate the programs initiated and managed by the Office of Sustainability in efforts to reduce energy consumption across campus. The timeline for this review spans 5 years, from FY 2009 through FY 2014.

Below is a chronological review (based on program inception) of the energy specific outreach and operational programs, with an emphasis on energy cost avoided/saved, number of individuals participating and the origin of each program.

### **FY 2009**

- Switch Your Thinking (SYT) campaign; FY 09 - 12
  - Overview: SYT was developed as an effort to reduce energy consumption and increase energy conservation by 10%, compared to a pre SYT average baseline from FY 06 – 08. A 10% reduction was achieved by July 2010, however the campaign continued till June of 2012 due to the success of the program in its 1<sup>st</sup> year.
  - Utilizing various marketing campaigns targeting the “low hanging fruit” portion of energy conservation, the campaign has a total avoided cost of \$5,079,772, with a mention of adjusting final total cost based on inflation (2012 dollars). See figure 1 for an in depth breakdown of avoided cost.
  - This campaign was not marketed in FY 13 due to the interim manager status within the Office of Sustainability. With this in mind, to further the promotion of energy conservation and to continue the high level of avoided cost, the Office of Sustainability has developed a Green Office Program for the spring of 2015 (pilot period); see program explanation in the FY 2014 section.

### **FY 2011**

- Chancellor’s Challenge (CC) campaign; ending FY 11
  - Overview: One year challenge from the Chancellor’s Office to the campus to reduce energy consumption another 10%, in tandem with the SYT campaign, however using a baseline from FY 10 - 11. Started in February 2011, ended in February 2012.
  - Utilizing mainly email and website updates, the campaign was able to reduce energy consumption by 3.2%, with an avoided total cost of \$632,942.
  - This campaign ended in February 2012, however utilizing a “call to action” from the Chancellor’s office in tandem with the Office of Sustainability’s outreach and data management, has shown to be extremely effective. With this in mind, we will also include such a tactic when releasing the Green Office Program.

- P.O.W.E.R. Challenge (Program On Water, Energy, and Recycling); ongoing
  - Overview: Every October, students living in residence halls compete in the POWER Challenge to see which hall can reduce the most waste, conserve the most energy, and best promote sustainability on campus. The winning hall receives a prize from the Office of Sustainability which supplements the hall's most direct need pertaining to sustainability; for instance two bikes were awarded to ARH as they had no free bike rental available.
  - Utilizing direct marketing via the Eco Vols organization, the campaign is targeted to students living in residence halls, during a time of the year in which we prepare students to conserve energy during the upcoming winter months. Total avoided cost spanning 5 years has resulted in a total of \$58,141.
  - This campaign is ongoing each FY, however discussions are currently underway to expand the program and target our highest energy use months to increase avoided cost each FY. For instance, we would continue the program during the month of October and offer it again during January and April, possibly tripling avoided cost each FY.
  
- Light Bulb Exchanges:
  - Overview: Students exchange incandescent light bulbs for CLFs provided by the Office of Sustainability. The Office of Sustainability works with UT Recycling to ensure the old light bulbs are disposed of properly. CFL bulbs use one-fifth the energy of incandescent bulbs and last six to ten times longer on average. This program began in the fall of 2010 and is ongoing, with the addition of a community stakeholder just this fall (2014), City of Knoxville Office of Sustainability.
  - Utilizing the Eco Vols program during the POWER Challenge, promoting at Sustainability events and throughout the year, this program has a total avoided cost of \$31,026 spanning five years.

### FY 2012

- Power Down Pledge:
  - Overview: Each year students, faculty and staff sign onto the Power Down pledge to demonstrate a commitment to individual behavioral change to reduce energy consumption on campus in tangent with system wide energy reduction projects and initiatives.
  - This program does not have direct energy reductions or cost avoided tracking abilities, however since its inception we have collected over 4,000 signatures

with a projection of 2,500 signatures for the FY 2015. This program is designed to provide students a reminder of our commitment to energy conservation and to create an avenue to network our current campaigns via the “Green Leaf” newsletter.

### FY 2013

- Green Revolving Fund
  - Overview: This fund was approved via the Student Environmental Initiatives Facilities Fee Committee (SEIC) in the fall of 2012, with the intention to conduct energy retrofit and reduction projects and for their subsequent savings to be allocated to this fund for a period of 5 years. This return of savings ensures the fund grows over time, allowing the Energy Task Force and the STARS team within Facilities Services to perform larger and more impactful energy focused projects, which subsequently keeps the deferred maintenance cost from growing.
  - Currently this fund is not officially promoted, but plans are to promote the fund once the Green Fee Transparency campaign is launched, which is expected to roll out at the end of FY 15.
  - Cost savings are underway with one project approved and implemented, SERF Lighting Upgrade, however we are only 1.5 months from project implementation and more time is needed to understand total cost avoided. Projections however point to a total energy savings over a one year period of \$10,263.
  - The fund was allocated \$50,000 from the SEIC in FY 13, however after the Energy Task Force and STARS team found additional projects with a short ROI, the SEIC approved an additional \$100,000 in funding, pending approval of the Facilities Fee Oversight Committee.

## FY 2014

- Green Office Program (GOP)
  - Overview: This program is designed to expand upon the Switch Your Thinking campaign (SYT), with a focus on individual relationships between the Office of Sustainability and each office on campus. While SYT tackled the “low hanging fruit” and achieved 10% reductions in roughly 1 year, the GOP will enable our office to conduct in depth energy audits, provide financial assistance to become a “greener office” and over time a competition will arise to award and promote the winner of the GOP each FY, across various categories such as waste, energy, water and student interaction. The underlying tactic is to not enforce a faculty or staff to perform sustainable practices but instead create an in depth network of sustainable champions across campus on a scale never before achieved, which will foster an ownership mentality and allow our office to expand to other offices over time.
  - With the above in mind, we do not at this time have actual cost avoided as the program has not begun, however data tracking measures will be in place to report back to the Office of Sustainability.

## Conclusion:

UT's current energy cost per sq. ft. is \$1.65 and at first glance this may seem higher than normal. However factor in a record cold winter last season, an ongoing transition from coal to natural gas, increasing building space and a lacking energy conservation campaign, the \$1.65 energy cost per sq. ft. is rather conservative compared to other years. Within Facilities Services there is a high focus on energy efficiency and conservation, from pre-construction design to preventive maintenance and the above \$1.65 energy cost per sq. ft. would be much higher without this focus. The possible addition of an Energy Manager within Facilities Services over the next 1 – 2 years will immensely increase avoided cost, but more importantly, provide a central source of information from which strategic decisions can be made that will make UT a state leader in energy conservation over the next 5 – 10 years.

Figure 1: Switch Your Thinking Cost Avoidance (created 9.24.12)

Year	End-of-Year GSFa	July-June kWh	kWh/SF	Electricity Use Avoided (kWh/SF)	Avg Electric Rate (\$/kWh)	\$/SF Avoided	Costs Avoided	2012 Dollars*	kWh Avoided
11-12	14,940,916	247,091,843	16.5	1.3	\$0.08	\$0.10	\$1,534,252	\$1,534,252	19,177,957
Pre-SYT (Avg for 05-06 thru 07-08)	13,814,639	246,197,828	17.8						
10-11	15,082,410	245,623,102	16.3	1.5	\$0.07	\$0.11	\$1,709,147	\$1,760,422	23,168,334
09-10	14,525,833	243,914,524	16.8	1	\$0.07	\$0.07	\$1,003,695	\$1,053,879	14,957,866
08-09	14,553,810	248,231,135	17.1	0.8	\$0.07	\$0.06	\$832,678	\$890,966	11,139,848
07-08	14,490,871	246,586,589	17						
06-07	13,356,660	245,042,628	18.3						
05-06	13,596,385	246,964,266	18.2						
						<b>TOTAL</b>	<b>\$5,079,772</b>	<b>\$5,239,519</b>	<b>68,444,005</b>

Figure 2: POWER Challenge (created 11.5.14)

Year	Electricity reduction	Costs Avoided
2010	25,869 kWh	\$ 4,119
2011	96,287 kWh	\$ 7,300
2012	278,618 kWh	\$ 21,125
2013	244,628 kWh	\$ 18,542
2014	189,388 kWh	\$ 14,355
<b>Total:</b>	<b>834,790 kWh</b>	<b>\$ 58,141</b>

Figure 3: Light Bulb Exchanges (created 12.10.14)

Year	# exchanged	kWh avoided*	Costs avoided*
2010-11	748	125,208	\$ 11,871
2011-12	460	77,000	\$ 7,700
2012-13	268	44,861	\$ 4,253
2013-2014	301	50,384	\$ 4,777
2014-15 (as of Dec '14)	178	29,795	\$ 2,825
<b>Total:</b>	<b>1,955</b>	<b>327,248</b>	<b>\$ 31,026</b>

Figure 4: Complete Energy Conservation Campaigns Review Snapshot (created 12.12.14)

<b>Program Name</b>	<b>Term</b>	<b>Costs Avoided to Date</b>
Switch Your Thinking	FY 09 - 12	\$5,079,772
Chancellor's Challenge	FY 11	\$632,942
P.O.W.E.R. Challenge	FY 11 - Current	\$58,141
Light Bulb Exchanges	FY 11 - Current	\$31,026
Power Down Pledge	FY 12 - Current	N/A
Green Revolving Fund	FY 13 - Current	\$10,263
Green Office Program	FY 14 - Current	N/A
<b>Total:</b>	<b>FY 09 - FY 14</b>	<b>\$5,812,144</b>

12.16.14

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