

Power Stripping and Reducing Rutgers' Energy Consumption

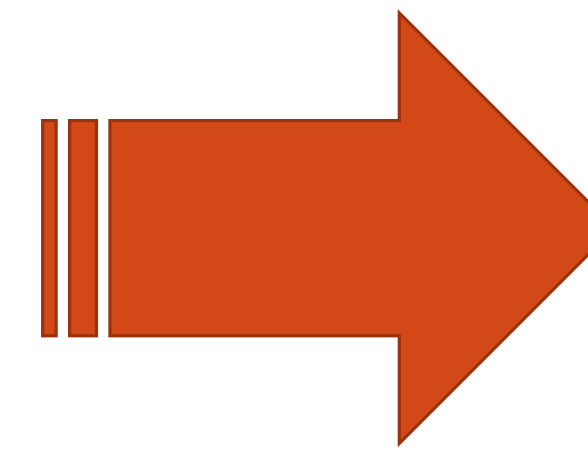


RUTGERS

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THE OVERLOOKED ISSUE:

The issue at hand is the unnecessary consumption of electric power through the **vampire draw** or standby power, is the electricity a device consumes when it is turned off but still plugged in. Many people disregard this issue because they see this use of energy to be too little to make a large impact on someone's electricity bill. Although a single device uses little standby power annually, imagine that amount of energy multiplied ten-fold, enough for every single dorm room at Rutgers. The average residence hall can accumulate standby energy usage in the hundred-thousands of kilowatt-hours. Imagine the amount gathered from 16,000 residents in the 52 residence halls found on campus.



THE GOAL:

Our team plans to equip each dorm room with a smart powerstrip by the start of the upcoming 2017-2018 academic school year.



BENEFITS:

1 kWh cost: \$0.109



Large Devices on the New System

Device	Standby Watts (Joules/Sec)	Hours Plugged in per day	Energy Saved/year (kWh/year)	Money Saved/year
Television	3.06	24	26.81	\$2.92
Washing Machine	3	24	26.28	\$2.87
Dryer	1.5	24	13.14	\$1.43
Microwave (Door Closed)	3.08	24	26.98	\$2.94
Desk Lamp	1	24	8.76	\$0.96
TOTAL Savings/year (16000/2) = 8000 devices			815,760 kWh/year	\$88,960

Small Devices on the New System

Device	Standby Watts (Joules/Sec)	Hours Plugged in per day	Energy Saved/year (kWh/year)	Money Saved/year
Keurig/Coffee Maker	6	24	52.56	\$5.73
Musical Instruments	2.82	24	24.70	\$2.69
Surge Protector	1.05	24	9.198	\$1.00
Stereos/Speakers	24.58	24	215.32	\$23.49
Cell Phone Charger	1	24	8.76	\$0.96
Video Game Console	11	24	96.36	\$10.51
Charged Laptop	29.48	6	64.56	\$7.04
TOTAL Savings 8000 devices			3,771,664 kWh/year	\$411,360

IMPLEMENTATION:

Purchase Smart Powerstrips

- The smart surge protectors can be bought for as little as \$10
- Possibility of a discount when bought in bulk.
8,000 X 10 = \$80,000

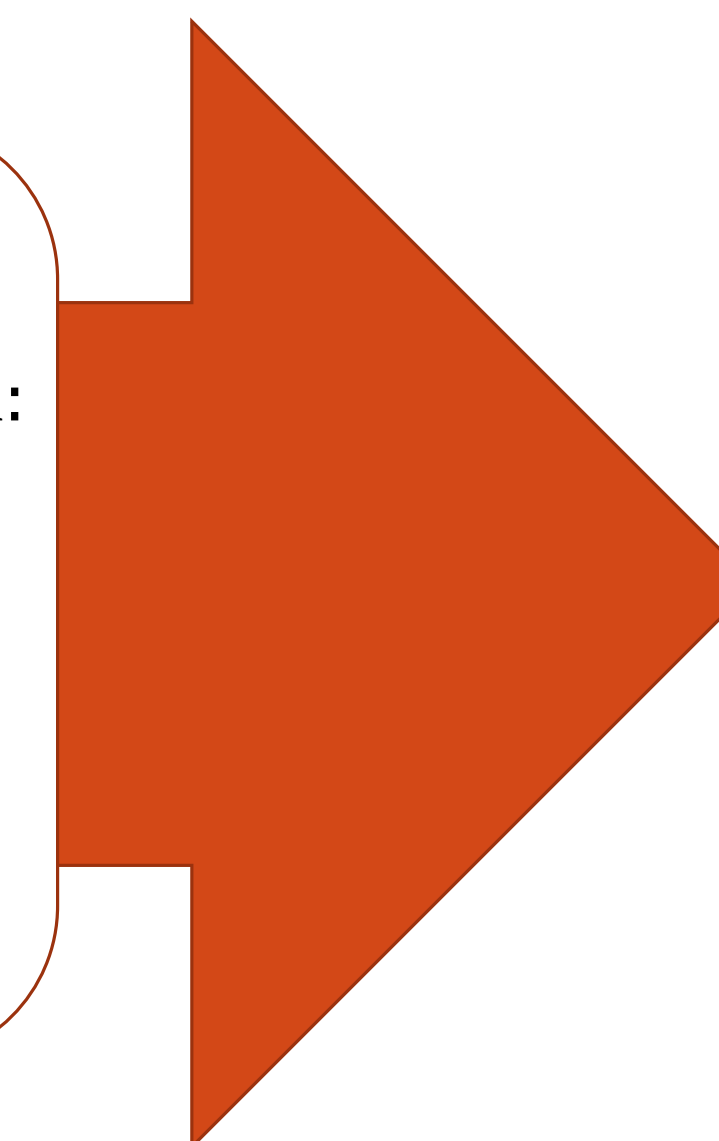
Residence Halls

- Incorporate powerstrips into the materials included upon move in.
- Students will use smart powerstrips and reduce energy consumption.

Future Work

Powerstrips can be used in:

- Student centers
- Computer labs
- Lecture Halls
- Hallways



ANALYSIS:

In a year, Rutgers – New Brunswick will save approximately 5,000,000 kWh and \$540,000. **Over a traditional course of 4 years, the university will save 20,000,000 kWh and \$2,160,000.**