Advanced Powerstrips for Medium/Large Commercial Customers Plug Load Energy Management

Skill Demand

Diversified Business Enterprise

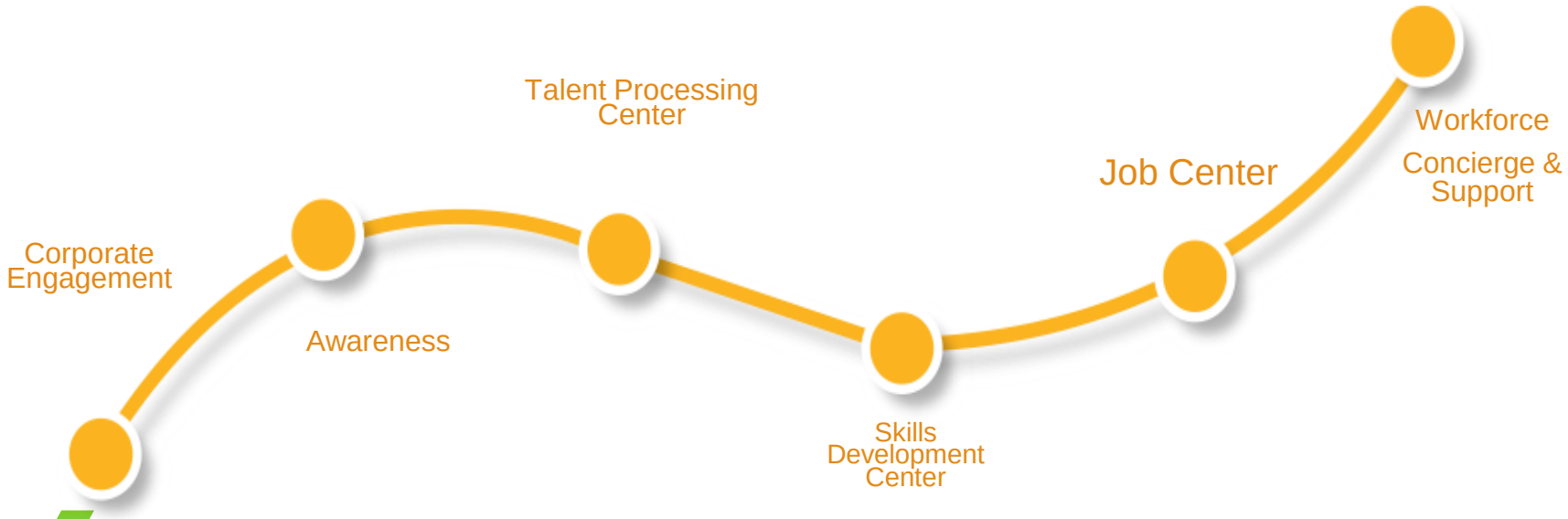
Headquarters in Carmel, IN

Skill Demand

Today and Tomorrow

- Workforce & Vendor Development
  - Energy Efficiency Services
  - Information Technology Solutions
  - Talent Acquisition
  - Training and Certification

HIRE CENTER

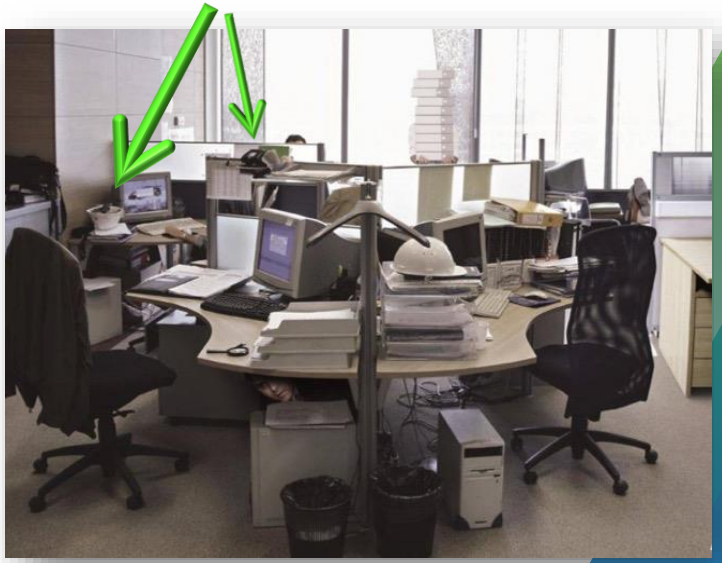

Corporate Engagement
Awareness
Talent Processing Center
Skills Development Center
Job Center
Workforce Concierge & Support

New Measure

Opportunity for Office Workstation Energy Savings

- Computers and office equipment waste power in two distinct ways:
  - Active Power Waste where the device is on but not performing its main function (e.g. computer and monitors, printer are on but not being used)
  - Passive Standby Waste where power is used by office equipment to keep it ready to switch on (Tier 1 advanced powerstrips target passive standby waste only)
- Tier 2 Advanced powerstrips (APS) monitor and eliminates both active and passive plug load energy waste, are affordable and are easy to install.
- Savings are visible and logged to each office workstation individually, identifying outliers and avoiding the “hit or miss” of broader energy management software controls.

Equipment left on during lunch, meetings, breaks, overnight and weekends



Comparison–Building Automation

- Building automation is an entire ecosystem that manages multiple aspects of building operations not just plug load. Building automation is usually geared towards larger loads like HVAC, common areas, and general lighting often leaving individual work station equipment neglected for energy savings.
- Even if building automation incorporates broad based IT energy efficiency protocols, they miss the day to day savings opportunities of office equipment in cubicles because they only manage the computer's energy use.
- In particular broad based building automation misses PC related (cubicle) energy saving opportunities during the day for individual work stations as well as peripheral load and some lighting.
- Commercial Tier 2 APS pick up where building automation leaves off to address PC load, and peripheral load (multiple monitors, lamps, speakers, chargers, etc.) and time of use such as overnight, weekends, and day to day breaks found in an office environment such as extended lunches, meetings outside the office, sick days, vacation, etc.
- Commercial Tier 2 APS reacts to the users lack of interface with the computer making it a custom savings experience for each installation in an office workspace.

Comparison-Computer Power Management

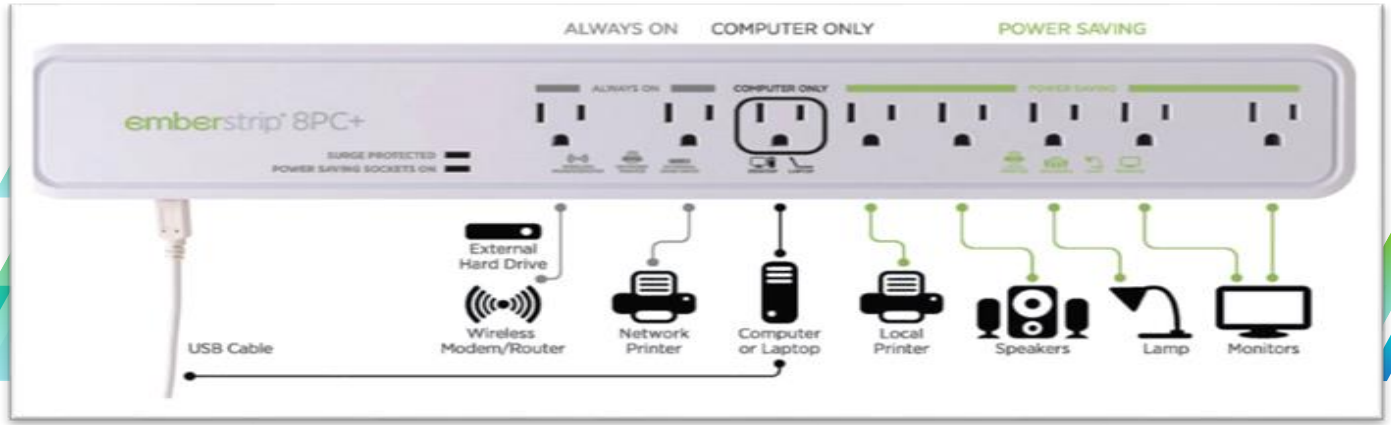
- There are many different types of computers in use commercially from notebooks to laptops to desktops all with varying degrees of power consumption. On average, notebooks use 20-30 watts, laptops typically use a max. of 60 watts and desktops can use up to 175 watts.
- You only save a watt or two by physically turning off a computer vs placing it in hibernate mode. Forgetting to turn off the computer just a handful of times will negate an entire year's worth of incremental energy savings. System sleep and hibernate settings reduces power draw down to 1 to 2 watts.
- Modern computers are designed to handle 40,000 on-off cycles during their useful life. It does not harm the hard drive to cycle the computer from active to sleep during the day.
- Computer Power Management defaults are not customizable to the users schedule and the settings are not intuitive to the user nor do they log pre/post energy usage.
- Employees are less motivated to self activate power management as they don't pay the utility bill.
- Only addresses computer load and not the other office equipment in the work station.

Automated Energy Savings

- This program would be offered to mid to large commercial and educational facilities. The program offers pre and post energy use data **logging** of office equipment (PC, personal printer, lamps, heater, monitors). Data is collected per individual work station but, can be sorted per organization unit, per floor or per building for analysis.
- The program would inform the utility with energy use data for personal work stations which then could be utilized to determine a deemed number for the Commercial Tier 2 Advanced Powerstrip measure. Questions for SAG-What is a suitable dataset?
- Each workstation will have energy use data collected prior to energy management and then after installation of the powerstrip. Data is accessible on the PC and on an optional desktop platform. Incentive program would pay X cents per kWh saved with a consolidated kWh energy savings number submitted by the customer to the utility for incentive payment.
- Tier 2 Advanced Power Strips for computer management are a proven but underutilized technology. Program installations can be tracked for persistence. However, the non energy benefit of surge protection has led to anecdotal data that the powerstrips remain installed over their lifetime. In time with more deployment, persistence data should be collected.

Tier 2 Advanced Powerstrip Logs and Monitors Power Usage

- Emberstrip PC+ is an example software/hardware solution that logs office equipment energy use
- Turns equipment off when office equipment is not engaged, by monitoring multiple usage parameters and displaying an alert
- Allows business to monitor energy use for each office workstation, track energy use patterns and determine outliers over time



Target Market

- Medium to large Commercial office buildings (75 KW demand to 1000 kW demand consolidated) and universities with high number of computer work stations
- Skill Demand staff would install Tier 2 Advanced Powerstrips with data logging capabilities on each qualified work station. Working with the IT and/or Facility Manager power management software is engaged and collects interval logging data. After a specified time period the energy management setting is engaged and powers down the computer and office equipment when not in use
- Skill Demand would work with Building Owners and Managers Association (BOMA) to promote and recruit for the program
- Utility Key Account representatives will be tapped for recommendations on interested customers

Details

- Energy Managed Office Equipment: Desktop and laptop PC, single and multiple monitors, lamps, under desk heaters, personal printers, mobile phone chargers
- Estimated Participation TBD
- Estimated Savings 25 to 40% of the workspace energy use- 100 to 400 kWh per workspace depending on installation with a notebook, laptop or desktop and number of connected office peripherals.
- Estimated Budget: $60 per powerstrip installed includes equipment and data monitoring package
- Estimated Cost per Savings (Benchmarked)
- Persistence – 7 to 10 years (Lifetime Equipment Warranty)

Outreach and Program Delivery Skill Demand will..

- Recruit field staff, specifically from the diverse community
- Vet, train and develop staff
- Provide leadership crew to manage delivery and mentor staff
- Coordinate outreach to commercial customers to bring awareness to opportunities of the program
- Acquire and install equipment
- Conduct oversight and customer follow up

Thanks!

Any questions?

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Bio

Janice Boman, CEM

Janice has in-depth knowledge of energy efficiency and demand side management (DSM) services developed over a 30-year career in the electric utility industry. She is competent at communicating complex and controversial issues and adept at market analysis and customer relationship management to advance business goals and objectives.

Janice is a published author awarded for innovation, customer service, leadership, creativity and exemplary achievement. Her BA degree from Central Washington University is in Education and Psychology. She is an Association of Energy Engineers Certified Energy Manager.