

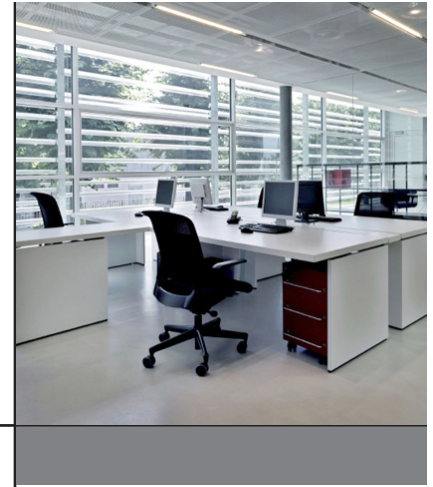
Save. Sustain. Stay ahead.



Managing Plug Loads at the Office

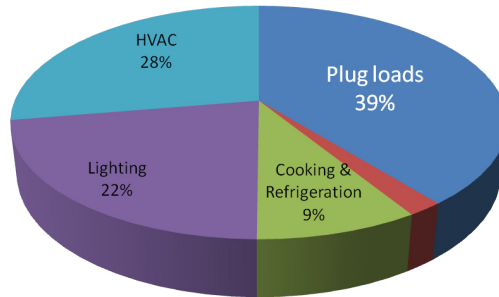
What is a plug load?

- Plug load refers to the energy consumed by any electronic device that is plugged into a socket.
- Plug loads account for nearly 40% of electricity used in offices and much of this energy is wasted.
- Plug loads are often difficult for facility managers to track because they are decentralized.



Electricity Consumption in Commercial Buildings, 2010

Source: Department of Energy, EIA Annual Energy Outlook



Typical Energy Consumption of Office Plug Loads

Appliance	Power Draw On (W)	Power Draw Standby/Off (W)	Annual Energy Consumption (kWh)	Operating Cost* (\$/yr)
Computer	80	3-5 / 2	170-650	\$15-60
CRT Monitor	70	1	186	\$17
Laser Printer	130	3	100	\$9
Personal Space Heater	1000	3	350	\$30
Refrigerated Vending Machine	1000	3	2400-4400	\$225-400
Large Commercial Coffeemaker	1100	70/1	1349	\$121
Microwave Oven	1310	3	420	\$38

Electronic devices consume energy even while in standby mode or switched "off". This is referred to as vampire or phantom energy consumption.

Sources:

1. Managing Plug Loads, Technology Assessment Service, E Source, 2009
2. Office Plug Load Field Monitoring Report, Ecos Consulting, 2011

* Assumes \$0.09/kWh

“ 60% of the PCs used in offices, 34% of printers, and 20-30% of computer monitors are left on overnight. ” - LBNL



Benefits from Reducing Plug Loads:

Save.	Realize savings.
Sustain.	Reduce carbon footprint and meet sustainability goals.
Stay ahead.	Reduce intensity of energy use and stay ahead of regulation.

Tips for managing plug loads

- There are multiple ways to reduce plug loads, ranging from purchase of energy efficient equipment to raising employee awareness about turning off devices when not in use.
- Managing plug loads is a quick, cost-effective way to save on energy costs and to boost your bottom line.

Reduce plug loads and reduce cooling loads.

A 100W drop in electricity used by computers in an office reduces cooling loads by 28W. Since electricity rates are higher during peak hours, mid-day HVAC savings can be especially advantageous.



Purchase energy-efficient equipment. Buy ENERGY STAR certified product when purchasing computers, office equipment, vending machines, or kitchen equipment. ENERGY STAR products use significantly less energy than standard models, while providing the same high level of performance.



Choose multi-purpose machines. Machines that copy, fax, print, and scan not only save space but also save energy, by eliminating the standby energy loss from separate machines.

Install smart power strips in individual offices. Smart power strips sense the presence or absence of office workers and turn the attached equipment on and off, thus eliminating vampire energy.



Raise employee awareness about turning off equipment, when not in use. Posters, stickers and finally, kiosk displays of real-time energy use can provide effective reminders, especially when designed as part of a larger energy awareness campaign.

Consider installing timers or occupancy sensors on vending machines, water coolers and coffeemakers so they only turn on when someone is present or when necessary to maintain product temperature etc.



Noveda can help manage plug loads in multiple ways:

Energy monitoring can track the effectiveness of energy saving initiatives in real-time.

MakeMeSustainable leverages social media to educate individuals in energy conservation.

EnergyZone uses virtual games related to energy and water use between competing offices/dorms to promote environmental literacy and also reduce consumption.



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