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Energy Conservation Methods for Plug Loads at NIH



Imagine our lives without electricity. Electricity is one of the most critical resources for fulfilling the mission of NIH. Most of the daily functions at NIH require electricity and thus it is a necessary element of our daily work life. However, excessive electricity use not only costs more money, but consumes more fossil fuels and produces more greenhouse gas emissions. So are there ways we can minimize the amount of energy required to operate NIH? Absolutely! The energy usage of buildings at NIH can generally be split into built-in lighting, HVAC processes, and plug loads. In this article, we are focusing on methods to reduce plug loads, which frequently represent 30% of energy consumption in office buildings.¹ Plug loads are the energy consumed by any device plugged into an electrical outlet. As buildings become more energy efficient with built-in lighting and HVAC, plug loads are projected to become a larger percentage of building energy use, potentially larger than 50%.¹ This rising importance, along with the relatively easy methods for

lowering plug loads, make them a highly appealing target for reducing energy consumption at NIH.

One option for reducing plug loads is to utilize power strips for equipment that can be shut down. A simple flip of a switch can turn off all items at once. Additionally, power strips with timers or motion sensors can be used to turn equipment off based on the time/day or based on occupancy, respectively. This especially helps to reduce plug loads when most employees are out of the office, such as during nighttime and weekends. Another option for reducing plug loads is to purchase energy efficient items whenever upgrades are needed, such as for computers, monitors, or lab freezers. With the rapid development of technology, many new items are significantly more efficient than their counterparts of only 5 or so years ago. An example of choosing energy efficient equipment is selecting a laptop over a desktop computer. Laptops are up to 76% more energy efficient than desktops and, given the quantity of computers at NIH locations, could provide large plug load savings.¹ Power management is another method to reduce plug loads. Power management refers to properly using the features of a device that allow it to enter power-saving modes, like sleep and hibernate modes. Many modern electronics, such as computers, printers, and monitors, offer some form of sleep mode or standby mode that reduce energy consumption. Compared to active mode, laptops and desktops can use as little as 2-4% of energy while in sleep mode. Similarly, LCD computer monitors can use as little as 2% of energy while in sleep mode.

For a sense of scope, if we assume each of the approximately 40,000 staff at NIH have a single laptop and they choose to put that computer into sleep mode instead of being active when they are not on duty, NIH could save just under a million dollars in a single year! Many users already utilize power management settings, so this estimate is included merely to emphasize the scope of savings when only considering laptop power management at NIH. However, much more can be saved when also applying this general concept to computer monitors, desktops, copiers, printers, and even lab instruments! We suggest all readers check the power management settings on their computers and monitors. Set your sleep mode timers to 15 minutes! Additionally, check the power management settings on any computers and monitors you use at home, especially if you telework regularly! As a good habit, you could also manually put your computer into sleep mode if you know you will be away from it for a while. For shared resources, such as copiers and printers, be sure to have the last person to leave the office turn off these devices. By simply adjusting these settings and making sure to power down whenever possible, we can each contribute to lowering plug loads and decreasing greenhouse gas emissions. Please contact [Mr. Joshua Haines](#) with any questions regarding this article.

TAKE ACTION



Reduce Plug Loads for Energy Savings

HHS has produced an informative poster about reducing plug loads. Click the "Learn More" link below to view some further actions you can take to reduce plug loads! We also encourage you to print a single copy to post in areas shared by your coworkers!

[LEARN MORE](#)

STAFF SPOTLIGHT



Taking the Challenge to You, the NIH Staff!

We hope that you've learned a lot about conserving energy in this month's newsletter. Now, put that newfound knowledge to use! Make a change that contributes to energy conservation!

[LEARN MORE](#)

NEMS TRAINING

Did you know? Sleep mode on a computer can use as little as 2-4% of energy compared to active use. To learn more about energy conservation at NIH, please visit the [NEMS Training webpage](#) to view a short (20 minute) NIH environmental awareness training.