



PLUG LOAD REDUCTION CHECKLIST

Plug loads refer to energy used by equipment that is plugged into an outlet. In an office, computers and monitors represent the largest plug loads. The next largest are printers, faxes, multifunction devices and computer speakers. Other devices include portable lighting, telephones, battery chargers, vending machines and coffee makers. General building lighting, heating, ventilation, cooling, and water heating are not considered plug loads.

Plug loads are big energy users, consuming approximately 30% of electricity used in offices. For example, California’s office plug loads consume more than 3,000 gigawat hours annually, costing business owners more than \$400 million each year. This is the equivalent to the carbon dioxide emissions of 140,000 cars (700,000 metric tons) per year.

Unfortunately, plug loads are essentially “orphans.” They are not high priorities; they are not managed by any one person or department. Research shows that the most successful approach to reducing plug loads is an integrated team approach.

This checklist is intended to assist an integrated team in developing and implementing a plug load reduction program. It is a result of information compiled from research on plug and process load programs addressing energy impacts in government, private, and institutional facilities. It functions as a “to do” tool as well as a tracking tool. The checklist describes a general sequence of activities that may happen concurrently. In addition, it provides a framework for continual retuning. The user should note that information developed or progress made in one activity is likely to affect work in other activities.

For more information on how to save energy by reducing plug loads, go to: [“Plug Loads: The Overlooked Energy Hog”](#)

For more information on plug load impacts, go to: Plug Load FAQ [“Why do we care about plug loads?”](#)

TASK: Establish a plug load champion. Plug loads are essentially “orphans.” They are not high priorities; they are not managed by any one person or department. Plug load reduction efforts need a leader and an integrated team that understand the importance of “adopting” plug loads.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Select a leader who understands plug load opportunities and strategies.	☐	☐	☐	goals and options , go to: “What outcomes can we target?” program leadership , go to: “Who needs to know about plug loads?” integrative design process , go to: SFTool Integrative Design Process
Select a leader who has the ability to independently and objectively apply business model cost justifications.	☐	☐	☐	
Select a leader that has the authority to make changes.	☐	☐	☐	
Select a charismatic leader who understands the dynamics of facilitating an integrated team, and is enthused with rallying people around the “cause.”	☐	☐	☐	

Notes:

TASK: Develop a business case to address plug loads. To gain buy-in from stakeholders, especially the building owner, the team must develop economic justifications for addressing plug loads.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Identify low-cost and no-cost plug load management strategies.	☐	☐	☐	procurement and guidance on office equipment , go to: SFTool Office Electronics
Quantify the energy reduction and energy cost savings associated with	☐	☐	☐	

each strategy. See benchmark below.				energy reduction strategies, go to: “ What are best practices for reducing plug loads? ”
Select/prioritize low-cost and no-cost strategies for this plug load reduction program.	☐	☐	☐	
Notes:				

TASK: Benchmark the efficiency of current equipment and operations. In order to have cost effective solutions, the team must identify the sources of plug load problems.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Perform an energy audit to establish a baseline of plug loads.	☐	☐	☐	energy use patterns and strategies and measuring energy impacts of office equipment , go to: “What Gets Measured Gets Managed: Metering Your Plug Loads.” equipment energy “modes,” and power used by equipment , go to: “How do plug loads use energy?” power used by office equipment , go to: Efficient Products.org
Collect data to understand when and how equipment is used.	☐	☐	☐	
Determine when equipment is not in use, and can be turned off.	☐	☐	☐	
Notes:				

TASK: Identify occupants' true needs.In order to have cost effective solutions, the team must identify the occupants' needs and compare those to the occupants' activities.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Determine if the occupant's allocated office equipment is optimal in terms of energy efficiency and productivity.	☐	☐	☐	energy benefits of laptop computers, go to: “The Energy Lowdown on Laptops.” options/methods for a plug load program, go to: “What are best practices for reducing plug loads?”
If not, determine if a business case can be made for upgrading or replacing this equipment (e.g. improving productivity, or addressing health, safety & welfare issues).	☐	☐	☐	
Determine if power management negatively impacts occupant productivity.	☐	☐	☐	
Notes:				

TASK: Meet needs efficiently. The key strategy in an effective plug load program is to use more efficient equipment in a more efficient manner.				
Activity	In Progress	Achieved	N/A	Helpful Links & Info
Survey occupants to determine if he/she has access to energy efficient equipment identified for his/her job.	☐	☐	☐	office equipment power use, go to: “What are best practices for reducing plug loads?” effectiveness of power management, go to: “The Power of Power Management.” power management features, go to: “Can’t equipment power management reduce plug loads?”
Determine if power management is installed on the occupant's equipment.	☐	☐	☐	
Determine if the occupant's power management features are turned on.	☐	☐	☐	
Determine if the occupant's power management functions work properly (i.e. wake up the computer).	☐	☐	☐	
Determine if the occupant has changed the power management delay to a higher number of minutes.	☐	☐	☐	

Notes:

TASK: Turn unused equipment off. Office buildings are unoccupied on average for two-thirds of the year. A key strategy in any plug load program is to reduce wasted energy during non-business hours.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Determine if the occupant can turn his/her equipment off at night.	☐	☐	☐	Installing Timer Plug Strips , go to: “Installing Timer Plug Strips to Save Energy (and Money).” best practices for power management , and plug strip functions go to “What are best practices for reducing plug loads?”
Where this is possible, determine if the occupant routinely turns his/her equipment off at night.	☐	☐	☐	
Consider whether centralized solutions are in place to switch non-essential systems on and off.	☐	☐	☐	
Determine if the occupant has plug strips that manage equipment.	☐	☐	☐	
Determine if the occupant has been educated about the different kinds of plug strips.	☐	☐	☐	
Notes:				

TASK: Institutionalize Plug Load measures though procurement decisions and policy programs. Another key strategy for a plug load program is to adopt enforceable plug load policies for procurement and operations. These policies should be designed to promote desirable occupant behavior.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Create a plug load policy for procurement of equipment.	☐	☐	☐	plug load control with power strips , go to “Green Proving Ground -Plug Load Control Report” procurement of plug strips , go to : “Installing Timer Plug Strips to Save Energy (and Money)”
Create a plug load policy for energy management of equipment based upon efficiency measures.	☐	☐	☐	
Notes:				

TASK: Promote occupant awareness. Because occupant behavior greatly impacts energy use, occupants should be educated about plug load policies and enlisted to support their implementation.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Create a process for educating occupants on plug load reduction practices and policies.	☐	☐	☐	equipment user impacts , go to “What are best practices for reducing plug loads?” equipment energy “modes,” & “parasitic loads,” go to: “How do plug loads use energy?”
Educate the occupant regarding his/her role and responsibility to reduce plug loads.	☐	☐	☐	
Train the occupants to use equipment efficiently.	☐	☐	☐	
Educate the occupant about "parasitic loads" and how to reduce these loads.	☐	☐	☐	
Create a "suggestion box" to address plug loads.	☐	☐	☐	
Work for continual improvement. For	☐	☐	☐	

example, collect occupant feedback on successes and failures of the plug load reduction program and use the feedback to improve the program.				
Notes:				

TASK: Address unique miscellaneous plug loads. Some equipment (e.g. vending machines) is not purchased by the building owner or occupants, these plug loads must be addressed on a case-by-case basis. Manufacturers may be able to recommend alternatives.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Determine if contractor/vendors are engaged to provide equipment.	☐	☐	☐	measuring energy impacts of miscellaneous equipment, go to: “What Gets Measured Gets Managed: Metering your Plug loads.”
If so, use contractor/vendors that provide energy efficient equipment; and, include energy efficiency requirements in the request for proposal (RFP) and contract language.	☐	☐	☐	
Determine if devices in common areas (e.g. kitchens, break rooms, and fitness rooms) are energy efficient.	☐	☐	☐	
Identify other miscellaneous plug loads, if any.	☐	☐	☐	
Notes:				

TASK: Address plug loads in building design/retrofits (Design Team).New construction and retrofit projects bring additional plug load reduction opportunities that the design team should address. The team should review standard specifications, operations, and design standards that may limit energy savings opportunities.

Activity	In Progress	Achieved	N/A	Helpful Links & Info
Determine if there are policies or practices in place that limit energy saving design opportunities.	☐	☐	☐	space reconfiguration and renovation , go to: SFTool space reconfiguration and renovation space efficiency , go to TotalWorkspace Solutions Library- Space Configuration
Consider options for space efficiency to reduce loads.	☐	☐	☐	
Consider upgrades to the facility's electrical system to control outlets at work stations and common areas.	☐	☐	☐	
Notes:				