

Plug Load Guide

Did you know?

Plug load – the energy used by equipment plugged into your walls – is often responsible for **10-20%** of the power your lab uses. Therefore, it's extremely important to be mindful of the equipment we have running, and keep it turned off or on power saving settings as much as possible.

IN THIS GUIDE

We'll help you walk through:

- **Finding equipment to turn off**
- **Installing Outlet Timers**
- **Creating Stickers as Reminders**

When to Assess?

There are certain times in a lab when it makes sense to take another, deeper look at your plug load, including:

- Vacation/Long periods of inactivity**
- Turnover in staff or students**
- New equipment is purchased**

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Ways to CUT KILOWATTS:

- ✓ **Raise the temperature on ULT freezers to -70C**
- ✓ **Decrease the temp on drying ovens**
- ✓ **Purchase **EnergyStar certified** equipment**
- ✓ **Ensure your instruments are kept running efficiently – change oil on vacuums, clean filters on freezers, and check gaskets/doors on ovens**



EQUIPMENT TO TURN OFF



While some scientific instruments need to remain on for long periods, most are left on either by accident, because of confusion over their current use, or for no real reason whatsoever!

Take time to go through your lab to see if you use any of this equipment, then discuss if it could be regularly turned off when not in use.

	Avg kWh/yr
Drying Ovens	2,500
Refrigerated Centrifuges	1,400
Tissue/Cell culture hoods	3,300
Rotovaps	5,100
Incubators	3,700
Gloveboxes	8,800
Vacuum Pumps	1,600
Computers	500
Thermocyclers/PCR/qPCR	3,800
Shakers/Agitators	50
Water Baths/Dry Baths	500
HPLC	1,400

This is equivalent to burning one ton of coal, just to dry beakers!



Turning off TC hoods not only saves the carbon used by driving a car 6,000 miles – *it also extends the life of your filters.*

Contrary to popular belief, vacuum pumps do NOT need to be on all the time in most situations. When left on, they use the energy of 3 barrels of oil per year!

PCR machines are a great option for connecting to a single outlet timer overnight.

If you need a more flexible schedule, try a [sticker](#) to remind people of times when that equipment is ok to turn off/put in standby.

For equipment that isn't used during certain periods, install an [outlet timer](#).



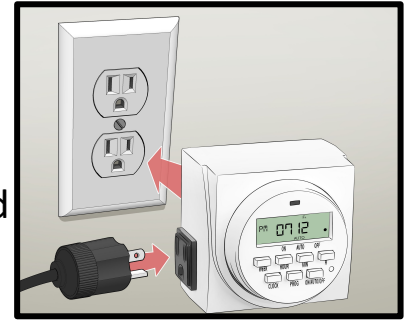
Examples:

- Glassware drying ovens: overnight
- Shakers/hotplates: over weekends

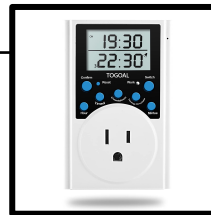
OUTLET TIMERS

An outlet timer is a device which plugs into an outlet, that devices are then plugged into, in order to automatically shut off and turn on power to that device.

Depending on the equipment, the typical schedule and operation of the equipment, and your budget, there are a few types of options to consider.



	Analog Timers	Digital Timers	Smart Plugs
Increments for timed settings	Usually 15-30 minutes	Usually one minute	Usually one minute
Grounded plugs	Sometimes	Sometimes	Usually
240V/20A option	Yes	Sometimes	Sometimes
Power fail safe mode	No	Many have battery backups	
Multiple/layering programs	Not usually	Sometimes	Usually
Typical cost	\$9-15	\$10-20	\$20-40/plug, plus fees for service
Platform for monitoring	No	No	Yes
Example models	Grainger BN-LINK Intermatic	Chicago Electric NewEgg	WATT-IQ BOSS Kasa



Be on the lookout for models (like Intermatic) which provide for a manual “on” override option



Always **check the amperage ratings** for any timer you use, keeping in mind that plugging a power strip into a single outlet timer may exceed the recommended amps.

Your Equipment



Start by making a list of all equipment in your lab. Then, with your lab mates, evaluate which category each piece of equipment best falls under. You can disregard any pieces of equipment that should be left on, such as a freezer, GCMS, etc.

[illegible]

Stickers

The following sticker templates can be found in word format in our [resources folder](#). To fill in info on energy use, refer to our Metering Guide.

You can print as many as you like for the equipment in your lab, and feel free to check out [these](#) examples of schools or companies who have made stickers as well!

This piece of equipment
CAN BE TURNED OFF
every night @ _____!

Giving it a
break can save
_____ kWh/yr!



This piece of equipment
CAN BE TURNED OFF
any time it's not running!

Warm up
Time:



This piece of equipment
**IS ON AN
OUTLET TIMER.**



DAYS OFF:
Su M T W Th F Sa
From: _____ To: _____



This piece of equipment
SHOULD BE LEFT ON.

Discuss with lab if there will
be long periods of inactivity,
in which case it could
potentially be turned off.

