

Free Electrical Power

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Safety

The human body is a conductor of electricity, if you decide to foolishly conduct from a live circuit into another wire or the ground you will quickly become a crispy blown fuse!

- Never work on high voltage barefoot, bet you didn't know that cement and many floors are conductive and grounded! -Always try to shut down the power, there are rare times where this is impossible and you will end up taking your life into your hands as only a few highly trained and well insured electricians with many years of experience and a trained partner ready to dial 911 and give CPR do. -Never work on a wet circuit or in a wet environment, wet skin conducts well -Shut down the breaker and remove it, padlock it shut or duct tape it shut with a note and guard if possible to prevent your idiot roommate from coming home and trying to 'fix' the power, he can buy flowers for your funeral. -If working on a live circuit(suicide anyone?) lay down at least two new unpunctured rubber mats to insulate your kneeling form from the ground, cement, or floor and wear rubber electrical gloves. -If working on a live circuit use only one hand, cross chest conduction is a perfect killer, keep a hand in your pocket as you work -Have a partner safely away watching and ready to knock you free with a nonconducting pole or strap from a live circuit that has locked your muscles, this helper must be able to do CPR and call 911.

Basic Supplies

There is quite a range of tools that is good to have when working with electricity, but almost regardless of the project, the same basic supplies will come in handy:

- Electrically insulating gloves, boots, and work mat
- A voltmeter or multimeter capable of measuring AC voltage up to at least 480 volts, an orange neon glow bulb circuit tester that clips into your pocket can be handy for quick testing
- Heavy gauge, preferably stranded (not solid), electrical wire
- Fittings for attaching wire, large alligator clips work fine for very short term or testing but screw tight connectors and cable ties for anything past a few minutes.

Tapping Street Lamps

It's fairly well known that these lamps have been tapped for electricity by activists in the past. Using the cities electricity for free can be very beneficial. Only attempt this if you have some good training working with high voltage electricity, even union trained and certified electricians require lots of extra special training to be certified to work with live electrical lines.

REMEMBER: These actions are dangerous and illegal. Alert people in the area of your intentions, so they can avoid the dangerous live wires that will be in the area.

Several items will be required:

- A 2-1 or 4-1 transformer or one or two travel electrical adapters rated for as much power as possible. Do not exceed their power rating with your line load.
- A regular extension cord or socket splitter will prove useful.

- An insulated handle knife may help expedite your work.
- Tamper resistant drivers. Search online or visit a hardware store for a good set of these obscure shaped drivers. If the drivers are not available, it is possible to create your own substitute by pressing a piece of clay into the fastener, grinding a slot onto the screw or grinding sides that you can grip with a vicegrips or a spanner/wrench..
- Basic safety equipment used when handling electricity, such as insulated gloves

Don't act stupid with electricity. It can injure or kill you.

Before getting to work, make sure all of your equipment functions properly, and that your insulating gloves are on. Check for holes and punctures. Remove any unnecessary accessories such as jewelry, rings and chains.

Lay down a heavy vinyl or rubber mat, this helps to insulate you from the ground even when kneeling. Concrete, especially when damp is a surprisingly good conductor.

Wear heavy rubber gloves both hands.

Do not EVER rest your head or lean on the power pole.

When dealing with live wiring ALWAYS keep one hand in your trouser pocket, this helps prevent an electrical pathway from forming down one arm, across your heart and back through the other arm.

The first step is to gain access to the wiring within the lamp post. This is where you'll need your tamper resistant drivers. Unscrew all fasteners on the service panel on the side of the post near the bottom. Remove the panel.

Now you will see some wires going from the ground to a wire connector, and then up the lamp post to the lights. If it is possible to undo the wire connector to expose some bare lines, then do so. Otherwise, you'll have to CAREFULLY use your knife to strip the wire. Make sure it is not in contact with any other conductor, including the post itself, while doing this.

Hopefully, you already know what voltage your equipment needs. Unfortunately, it is unlikely that the lamp is carrying that voltage. You will have to use your volt-meter to measure the voltage between the lines in the lamp. If you happen to find the voltage you needed, you're in luck. Otherwise, it's going to be a multiple of it, either between 220-240 or 440-480.

Assuming that you wish to have a 110-120V socket for your equipment, you will need to use a transformer to convert the voltage. Before you can use the transformer, you need to get the power to its destination. Connect your heavy gauge wire to the now exposed copper and secure them near here with tape. Run the rest to where you need power. Make sure you run the wires close by, parallel to one another. This will minimize losses and interference in the transmitted power. Afterwards, either replace the former connector, or crimp the wire in place. If possible obtain a 2-1 or 4-1 transformer as required for the detected voltage, an inferior substitute is an inexpensive Euro to US power adapter which can be found at luggage and travel stores.

By wiring the high voltage power from the lamp to the "euro" end of your transformer, you'll approximately have half that voltage output on the other side. Thus, one adapter will convert 220v to 110v. Two adapters will take 440v to the 110v you need. When using two adapters, wire the US coil of one to the EU coil of another, and then think of it as a single unit. This contraption should go at the end of your wires farthest from the lamp post, as higher voltages will transmit with less losses.

Connect the US end of your travel transformer to a splitter or short extension cord. Connect your lines to the lamp. Do not do this beforehand, as otherwise you'll have long lengths of live wire.

Your splitter should be readily pumping out 110-120vac or 220 if that's what you made it for.

It's best to crimp the wire connections you've made, but alligator clips can work for short term purposes if nobody will disturb your tap.

Make sure everybody in proximity knows that there are exposed live lines, and that people stay away from this while you work. As soon as you connect any electrical line, the whole

line becomes live. Make sure the far ends are not touching and are not exposed to anything that could pose a hazard. Most of all, understand what you're doing and the dangers involved. Use common sense.

Tampering With Electrical Meters

Meter wires are almost always live. BE CAREFUL.

Electrical meters may be a discreet little gray box on the side of a building, but don't let their appearance fool you...

These little boxes can be tools of oppression, from the power company charging you exorbitant rates for a necessity of modern life, to them rudely shutting off your power when you're facing hard times, making life even harder. Yet, They can also be tools of liberation. Where they charge one rate, you can make another. When they cut your power, you turn it back on. And when everybody's favorite oppressive multinational is having a Black Friday sale? Their power is gone!

For most of these operations, we will be assuming that you're working with an electromechanical induction type meter. Don't worry, this is the most common kind, found on nearly every building that will concern you. These are easily identifiable by their mechanical dials. If your meter is a solid state digital meter, don't worry, there are ways to *improve* those too.

READ THIS THOROUGHLY BEFORE GOING TO WORK ON THE METER

Getting at your meter

We shouldn't need to warn you of the dangers involved. If you haven't put on your insulating gloves, you're encouraging natural selection

There is a tamper indicator on most meters, but only the most advanced of electronic meters can detect anything in real time. There are several ways to deal with this nuisance. If you're VERY careful, it's possible to snip the indicator tag with wire cutters, and once you're done, replace it, solder the cut shut, and gently sand the solder down to wire thickness. You can also try removing them the way the power company does. They use a special tool that applies pressure in odd places and at strange angles, you'd have to look at the tag yourself to figure it out, but a wire coat hanger could be very useful indeed. Otherwise, you can buy a similar looking "tamper indicator tag" online, and attach it once you're done with your work.

Once the tag is gone, the cover should either come off or flip open on hinges fairly easily. If your meter is dirty or rusty it may take some jiggling and firm, gentle force to remove it.

What you're looking at

- 1 - Voltage coil - many turns of fine wire encased in plastic, connected in parallel with load.
- 2 - Current coil - three turns of thick wire, connected in series with load.
- 3 - Stator - concentrates and confines magnetic field.
- 4 - Aluminum rotor disc.
- 5 - rotor brake magnets.
- 6 - spindle with worm gear.
- 7 - display dials - note that the 1/10, 10 and 1000 dials rotate clockwise while the 1, 100 and 10000 dials rotate counter-clockwise.]]

The diagram to the right explains the basic components of the common induction meter. This is what you should see after bypassing the tamper indicator and opening the case. We'll be referencing this in discussing vulnerabilities of the meter to alteration.

Decreasing Usage

There are a number of ways to slow down your meter and cheapen your electrical bill, some could be accomplished without even opening the meter!

- **Magnets!** Strong neodymium magnets can saturate the magnetic field in the meter, and reduce the turning force on the aluminium rotor. These can even be OUTSIDE the meter!
- **Shorting** One can also short past the meter in a limited way, allowing a constant amount of power to be subtracted from the reading.

Get a hardware store fluorescent light ballast of the same value which you wish to subtract (not ones that step up voltage. It will look like a little square transformer, but with only two wires).

Connect this in parallel to the current coil (2) at some distance from working meter components, using stranded wire.

This can also work for digital meters, except that it would have to connect the hot line into the meter to the hot line out.

- **Resetting** You can unscrew the dial mechanism and set the dials back a few notches, if you're conservative enough about your changes to not get them noticed, as the mechanism is purely mechanical.

Reactivating Cut Off Power

Generally, the electrical company cuts off power either by placing insulating plastic tabs over the meter leads, or by replacing the meter with a clear plastic cover.

While these could easily be removed, that could cause an obvious reading on the meter. Your best bet would be shorting the lines meant to go into the meter to those meant to come out. You'll want two or three lengths of thick, probably solid, copper wire. These need to carry a lot of power. Don't underdo it.

Inside the meter enclosure, with the meter or plastic cover removed, you will find either 4 or 6 terminals. If present the pair in the center is the neutral line, the others are hot lines. **Make sure the neutral line is connected.** if you don't see it, don't worry about it.

Next, locate the pairs of hot lines that you must connect. These should be vertical from one another. **These wires are always live! Don't get shocked!** Connect the terminals located on other side with one vertical wire each. You should be discreet about this, try running the wires carefully around the circumference of the opening in the faceplate, to keep them out of sight.

Enjoy your new electrical power!

Cutting Power

This is by far the easiest act you can do. First of all, fuck the tamper indicator snip that shit and toss it. Open the case, and pull the meter straight out.

As soon as the meter is out, the power to the building is gone, and you don't have much time.

Vacate the area with the meter and either drop it at a well concealed location, or smash the fucker to bits. Tear the coils, bend the aluminium disk, whatever. Make sure they cannot get the meter back to quickly get shit repaired!

Now, **vacate harder.** This doesn't necessarily mean run, if you can pull off not looking suspicious, but don't be standing around, either.

If you're feeling ballsy, blast the terminals of the hot lines with some fast setting nonconductive glue. That'll slow down repairs even more. While you're at it, have a friend shut off the gas line, padlock it in the off position, and then glue over the lock and valve to slow down any bolt cutter attack. That'll shut them down for a couple days...

Generating your own

Nowadays, there is a wide variety of power-generation technologies available, a good number of which could be put to use by radical groups. The type of project one takes on will have to be determined by and adapted to the resources on hand, the skill and knowledge, and the environment you wish to use the device in.

The basic concept of most electrical generation is essentially the opposite of a motor: turning rotational kinetic energy into electrical energy. This is accomplished with a generator, which is, mechanically, a motor run in reverse.

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Upon examining a commercially available "generator" you will find a petrol engine with the axis connected to that of something that looks like an electric motor. Alternately, electricity can be generated through dielectric properties of various materials, as in solar cells and peltier units.

Rotary Generators

This is the most simple and common approach to generating your own power.

The most important component, the generator itself, can be acquired in a number of ways. For small things like charging an mp3 player, one could run a DC motor from a toy in reverse or connect a bicycle dynamo. A good large generator can be an alternator available from a scrap automobile or junkyard (or your local car dealership, put a gps on THAT). One could also modify an existing or broken petrol generator for better functionality.

If you use an automotive alternator you will get great bang for your buck but unless you have a battery attached there will be nothing to generate and maintain the magnetic field in the coils, the good news is you probably want a good deep cycle storage battery anyways. Automotive alternators use v-belts, all you need to do is cut a triangular groove into you output or pulley, keep in mind optimal gear ratio for your source of spin for your alternator. If you want higher voltage for something like arc welding you can bypass the regulator.

If you are generating 12v remember it requires very thick short runs of wire, if you need to stretch past 3 meters convert your electricity to 120/240volts AC with an inverter to reduce power line loss.

Alternatively Fueled Generators

A commercial bought generator could be converted to run on a number of fuels. Natural gas conversions for internal combustion engines are relatively painless. You can even try running a generator on trash! Build a gasifier as you would for a car, and the flammable gasses emitted by wood and paper trash should be enough to run the engine at slightly lowered power.

If you use a homebrew generator, the possibilities for fuels go up. Anything that will turn the shaft of a large motor or car alternator is fair game to generate some power.

Steam

If you have access to a good quantity of wood, coal, or similar fuel in the intended area, a steam powered system may be worth considering. Steam power is an old technology, but the concepts remain the same. You need to create an area where you can boil water, and the steam coming off of it can drive either pistons or a turbine. This motion must then be translated to a generator. Whether or not you need a gearbox to connect them depends on your needs.

Perhaps the most mechanically simple turbines are Tesla Turbines, which can be produced from any flat disc on an axle. The steam pressure will rotate it to very high RPM at low torque, which it makes sense to gear down significantly.

Free Hydroelectricity

A propeller of reasonable strength or a hacked together paddlewheel can be placed in a sufficiently large body of flowing water. This will, of course, turn a shaft, which in turn drives your generator. A dam can be used to concentrate the flow of water over your improvised turbine, thus increasing the power with which it is turned. However, dams can cause ecological damage, and turbines can harm aquatic animals, so please limit your use of this approach. A plastic deer fence around your submerged turbine will at least discourage animals from entering, as well as reduce the chances of junk jamming your generator.

Free Wind Power

Many wind turbines are commercially available, and are significantly cheaper than solar cells. If you can find a suitably high wind area, these can be an excellent solution for a limited electrical need. Since they depend on weather patterns, output is not very reliable and must be stored in batteries.

If using home-built turbines instead, you'll have to construct your own circuit to regulate the output and charge a battery. Any large fan may spin in the wind, but getting the blade angle and gear ratio right to spin your generator will take some experimentation.

Other possibilities

Remember that anything which spins a shaft can be used to generate power! Think outside the box and you can come up with some very interesting solutions.

Experiments have been conducted where car batteries were charged by the traffic through a set of revolving doors.

Gas turbine engines are used to spin some commercial generators, if you get your hands on one, it can produce a lot of power for a fairly compact size.

A pressure plate has been used to rotate a generator before, although this can be annoying to drive over.

Dielectric Generators

Commercially available solar panels can be used to generate a moderate amount of power, should you manage to acquire them. These will generally come with information about wiring them appropriately. Just remember to keep the panels facing south (if you're in the northern hemisphere!) when installing them, if you hit three or four highway signs and you could have enough power for an electric bike or maybe a couple laptops.



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