

Protect your valuable equipment!

Electricity is by science very predictable, but by nature unpredictable.

Due to the unpredictable nature of electricity, no utility can guarantee an unconditionally stable and consistent power supply. Several elements combine to offer the most effective protection for your home's electronics and electrical systems. The most important component is a functional service ground – the service ground wire connects directly from the electric service box in your home to the ground by way of a “ground rod”. A licensed electrician can determine the adequacy of your ground by measuring its resistance.

Although we strive to provide reliable power at the lowest price every day, there will be inconsistencies in the power supply that we have no control over. Because of this, we recommend you protect your valuable equipment with an adequate ground, a UPS (uninterruptible power supply), and surge protection.

A surge protector is a standard piece of equipment that should be purchased when buying computers and high-end electronic equipment. Surge Protectors as the name suggests, protect valuable equipment from sudden surges or spikes in voltage.

A surge is a sudden, temporary increase in the normal current or voltage. Normal current in the U.S. is 120 volts, with an acceptable range between 114 and 126 volts. If the voltage rises above 120 volts, there is a problem, and a surge protector helps to prevent that problem from destroying your equipment.

Surge protectors send the surplus voltage to ground, diverting it from your equipment. It is important to regularly check your surge protectors because one large surge or a number of smaller surges can destroy the surge protector and then it is no longer protecting your equipment.

There are many types and price ranges of surge protectors, but we recommend purchasing a surge protecting power strip with a UL rating of at least 1449, a good warranty, and an audible alarm. An audible alarm warns you that the surge protector is no longer working and is no longer a surge protector; it has become an extension cord and **needs to be replaced**.

You should also contact your service provider for advice on protecting the telephone lines and coaxial cables entering your home.

How UPS devices work

A UPS (uninterruptible power supply) has a battery that maintains a continuous supply of electric power to connected equipment, by supplying power if utility power is not available or a voltage dip occurs.

A UPS is inserted between the source of power and the equipment it is protecting. When a power failure or dip in voltage occurs, the UPS will effectively switch from utility power to its own power source almost instantaneously. This is especially important in the summer with the increased frequency of lightning and the increased use of air conditioners.

There are two common types of UPS devices: stand-by UPS and continuous UPS. A **stand-by UPS** runs the computer off of the normal utility power until it detects a problem. At that point, it very quickly switches to the UPS's battery. The battery “back-up” gives you time to save your work and shutdown your computer safely.

In a **continuous UPS**, the computer is always running off of battery power and the battery is continuously being recharged. If the power fails, there is no switchover time. This setup provides a very stable source of power.

Standby UPS systems are far more common for home or small-business use because they tend to cost about half as much as a continuous system. Continuous systems provide extremely clean, stable power, so they tend to be used in server rooms and critical applications. As prices drop, continuous UPSs are becoming more commonly used.



Gil Finch and Rob Blood demonstrate teamwork

OFFICE UPDATE



Welcome Barbara!

Many of you know Barbara Cronin from the Accounting Office at the Town Hall, but we would like to officially welcome her to the Groton Electric Light Department. Barbara began working for the Town of Groton in 1997 – she worked

as Assistant Town Accountant for the past 11 years and brings with her a wealth of knowledge and a wonderful attitude. She joined us in March and is working in the Customer Service department and is a welcome addition to our team. Barbara lives in Pepperell with her husband Jim and son Michael. Her daughter Meghan attends Simmons College in Boston, MA and is graduating this May. Please join us in welcoming Barbara.

Protect your equipment *continued from front*

We recommend doing some research to determine the best protective equipment for your needs. There are two key ratings to be aware of when choosing a UPS unit. The first is load rating – expressed as both volt amps and watts; the load typically should not exceed 80% of the load rating. The second is runtime: do you want enough time to safely turn everything off if an outage occurs or do you want to be able to operate your electronic equipment during an extended outage?

What causes power surges?

Large appliances such as refrigerators, air conditioners and heat pumps require a lot of energy to switch on and turn off components like compressors and motors. This switching on and off creates sudden, brief demands for power, which causes the voltage flow to spike and dip. These variations in power flow can be severe enough to damage components immediately or gradually over time, and they regularly occur in most household electrical systems. The most familiar source of surges is lightning, though it is actually one of the least common causes of power surges. If a surge is caused by a lightning strike it is likely that any surge protector will be overpowered. The best precaution to take during a lightning storm is to unplug your valuable equipment from the wall outlet.

Why is my bill so high?

During different times of the year, many customers question why their bills are higher than normal. Many items in your home require large amounts of electricity to run including heating systems, cooling systems (air conditioning), refrigerators/freezers, and the like. The chart below shows the typical consumption of these household items and the cost to run them.



Device	Typical Consumption	Cost Per Hour of Operation
Oven or Clothes Dryer	5,000 watts	\$0.60
Water Heater	4,000 watts	\$0.48
Heat Pump or Central Air Conditioning	3,500 watts	\$0.42
Space Heater	1,500 watts	\$0.18
Electric Range Burner	1,000 watts	\$0.12
½ HP Water Pump	375 watts	\$0.05
Refrigerator	300 watts	\$0.04
Computer and 17" LCD Monitor	160 watts	\$0.02
Light bulb (incandescent)	75 watts	\$0.01

The cost per hour is based on our discounted rate of \$.12 per kilowatt hour (kWh). As you can see, major appliances with compressors or evaporators consume larger amounts of electricity and can affect your bill accordingly. Typically May and November are months when you are using no heat and no cooling, so these months would indicate your basic electricity needs. You can also visit our web site at www.grotonelectric.org and click on Energy Conservation on our home page and then the Energy Calculator – follow the instructions to determine exactly what items are contributing to your electric bill. If you have questions regarding how to use the energy calculator or energy conservation in general, call our customer service team at 978-448-1150 and ask for Barbara or Tammi.