

## **Considering Purchasing a Generator? Here Are Sizing and Safety Tips**

Since 2006, Missouri citizens and communities have experienced five ice storms resulting in power outages for hundreds of thousands of citizens, in some instances for several weeks. A generator can be good insurance to keep homes, businesses, and critical facilities running during a power outage.

There are several critical factors that citizens need to consider when buying, installing and using a generator. First notify your local electric utility company if you plan to use a standby generator in case of power failure, and follow the manufacturer's maintenance instructions. It is especially important to conduct regularly scheduled warm-ups to keep the generator in working order.

A second critical factor to be considered is adequate power at the correct voltage. Portable generators with 4-to 5-kilowatt ratings are the minimum size needed for a typical three-bedroom home, and prices can range from \$600 to \$4,000. More expensive units run quieter, are more durable and have larger fuel tanks.

Before you connect your new generator to your home or business's electrical system, you should contact a licensed electrician about the possibility of installing a double throw transfer switch. This switch disconnects the main power source from the standby generator and prevents electricity made by the generator from mistakenly flowing out onto utility lines where it could electrocute members of the repair crew. The switch must have the capacity to carry the total load of the building it feeds, even though the generator has less capacity.

Generators are rated in kilowatts, or KW. One kilowatt equals 1,000 watts. If the nameplate has two kilowatt ratings, the larger number is the 'short-time overload capacity'. The smaller is the 'continuous-output rating'. Electric motors draw three to five times more power at starting than when running under full load, so proper generator sizing is critical to avoid motor burnouts. The ampere rating of equipment needing power can be converted to watts by multiplying its voltage by its amperage as given on the nameplate.

Generator sizing depends upon whether it's an automatic or manual start unit. To determine the correct size for an automatic start unit, you should add the wattage of all motors connected to the generator and multiply this number by 3.5. Then add the wattage of all other connected equipment. To determine the correct size for a manual start unit, you need to know the starting wattage of your largest motor. Then, add the maximum running and starting wattage demand on the generator at any point in the system to get the required generator size. For example, a 5-horsepower, 5,000-watt running-load motor has a starting wattage of 17,500 watts, so an 18 KW generator is needed to start the motor.

Generator fuel should be stored in approved containers. Fuel should never be stored inside the home or in an attached garage. The generator should always be operated outdoors to avoid carbon monoxide poisoning from the engine exhaust.