

Install A Generator for Power Interruptions

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Electric power interruptions can create serious problems for growers anytime during the year. If it occurs in winter, temperatures in heated areas can drop to freezing levels in a short time. If it occurs during the summer, ventilation, refrigeration and watering systems will be inoperative. Electric powered equipment, such as, computers, inflation blowers and materials handling equipment can be affected throughout the year.

The causes of power interruption are many. Ice and snow, wind and lightning, automobile accidents or generating equipment failure, can all result in the loss of power for a period of time.

All growers should have a plan that includes standby power equipment and procedures to meet the power interruption. Today — while you have the opportunity — is the time to prepare and implement this plan as you will not have time when the emergency occurs.

One of the first considerations when developing a plan is to determine the essential electrical needs of your operation during a power outage. A list of all electrical equipment in each building should be made. This should contain the size, type, horsepower and phase of all motors. The starting and running watts of typical motors is shown in Table 1. Also list the number and wattage of all lamps and electric heaters. Now check those which **MUST** operate during an emergency.

Table 1. Starting and Running Wattage for Common 60-cycle, Single-phase Capacitor Motors.

Motor HP Rating	Approximate Wattage Running	Required by Motors Starting
1/6	350	1050
1/4	525	1575
1/3	650	1950
1/2	750	2250
3/4	1100	3300
1	1250	3750
Over 1 HP	1100 watts/HP	3300 watts/HP

Next discuss your needs with the electric supplier's consumer representative as well as a couple of suppliers of generating equipment. They will help determine your needs and suggested equipment. Before purchasing a unit, go over the details of the installation with your electrician to see how the generator will connect to the present electric service.

Standby generating equipment can be classified as either engine-driven or tractor driven. If a tractor is available a low cost power-take-off generator can be purchased either as a stationary or trailer unit. About two engine horsepower are needed for each 1000 watts (W) of generator output. Extra horsepower is desirable on larger units to prevent surges when large motors are started.

Engine driven generators are available in increments from 1000W up to 1000 kilowatts (kW) or more. Up to about 15 kW, an air-cooled engine is recommended because of low maintenance requirements. Larger units use a water cooled engine.

Where 3-phase power is installed it is best to contact your electric utility representative as to type of generator and transfer switch needed.

Several requirements must be met when installing a standby unit. The unit should be placed in a dry location. If the generator is to be powered by a tractor, a readily accessible location is needed. The exhaust from the power unit should be vented to the outside of the building.

The local building code and the National Electrical code must be followed. The standby power unit must be connected to your wiring system from your generator from backfeeding through the power company lines and injuring linemen working on the wires.

After the standby generator has been installed, a strict maintenance schedule should be followed so that the equipment will always be ready to operate. Run the equipment at least once a month under load and keep a record of the testing dates. Store extra fuel in a safe place. Fuel should be kept fresh. Train someone else to operate the unit in the event of a power interruption in your absence.

An operating procedure should be developed for use during an emergency. Before starting the generator, shut off all electrical equipment. Place the double throw-switch in position to operate the generator. After the unit is started, check the voltmeter. Then place the essential equipment into operation, starting with the largest motor first.

At least one alarm system should be installed on the most essential circuits. This system should be checked frequently.

Although the power companies try to restore electric services as rapidly as possible after an interruption, there are times when the outage can last for several hours or longer. An investment in emergency generating equipment is good insurance to cover three times.

