



BLUESTEM
ELECTRIC COOPERATIVE INC.

Portable Generator Safety

**Portable Standby Generators
pose a serious threat for our
linemen and members.**

Two Categories of Generators

Portable Generators

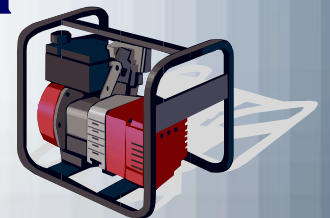
- Simple installation that works well for running a few small appliances.
- Use appropriate sized extension cords that are indoor/outdoor rated.
- **NOT WIRED INTO HOUSEHOLD CIRCUIT**

Permanent Installation

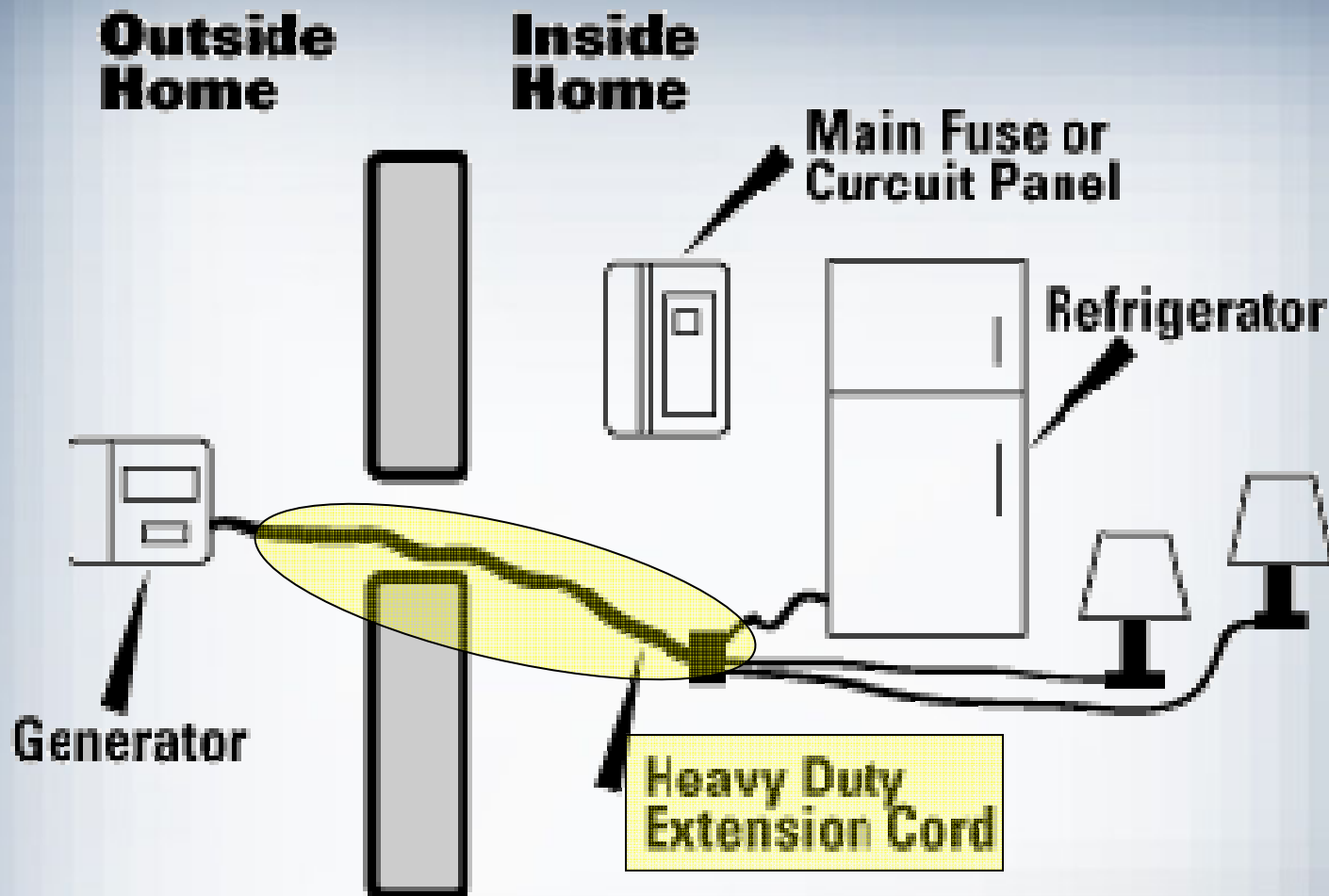
- Switch is installed by a licensed electrician to comply with NEC code.
- Uses a double-pole, double-throw switch to protect user and utility workers.
- **WIRED DIRECTLY INTO HOUSEHOLD CIRCUIT**

Portable Generators

- **Classified by power rating or wattage.**
- **Utilizes gasoline or another fuel source.**
- **Provides power via extension cords.**
- **Dangerous exhaust is created while operating.**
- **If used improperly, a portable generator can kill the operator or a worker trying to restore power.**



Using a Portable Generator



Using a Portable Generator

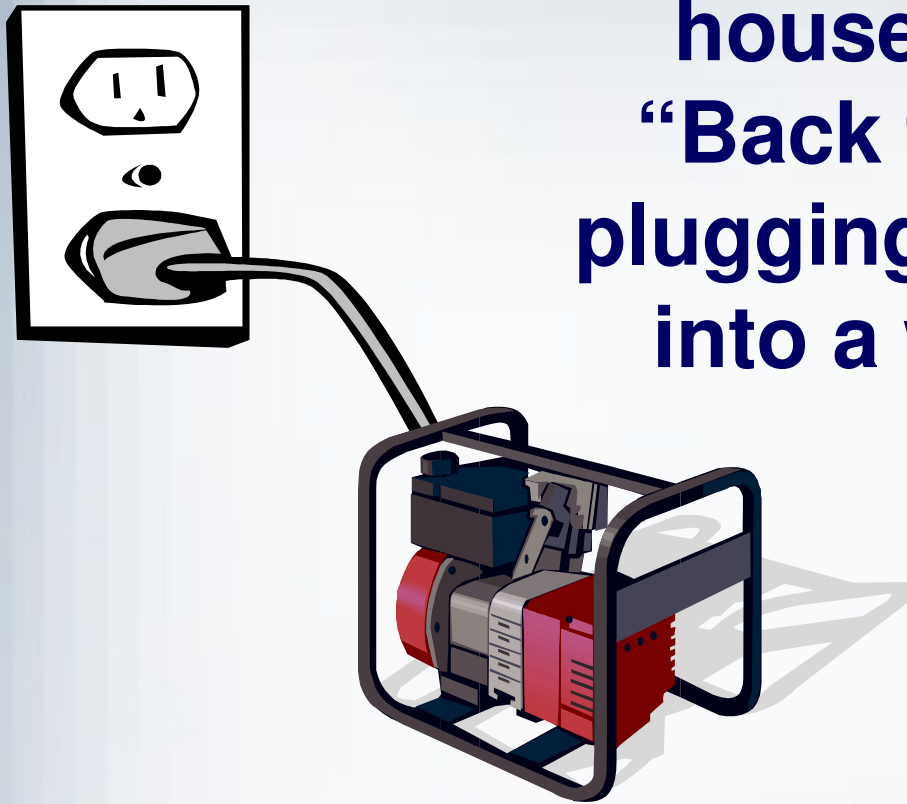
Primary Hazards:

- Breathing carbon monoxide from a generator's exhaust can cause serious injury or death.
- Using under-sized, damaged or un-grounded cords can cause a fire or electrical shock.
- Generators can sustain damage when power is restored if they are not isolated from the distribution system.



Using a Portable Generator

Never try to power house wiring by “Back feeding” or plugging a generator into a wall outlet.

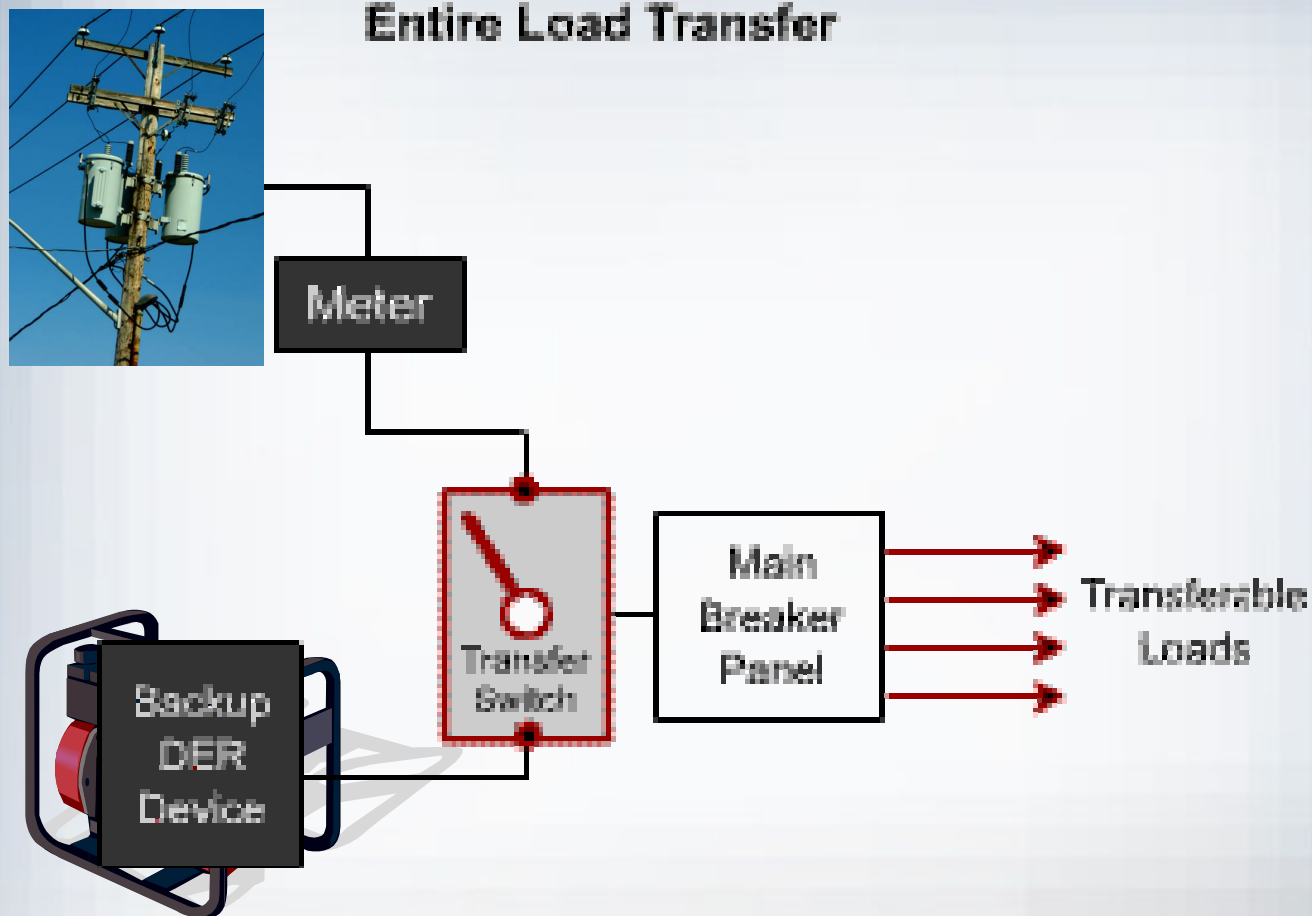


Permanent Standby Generators

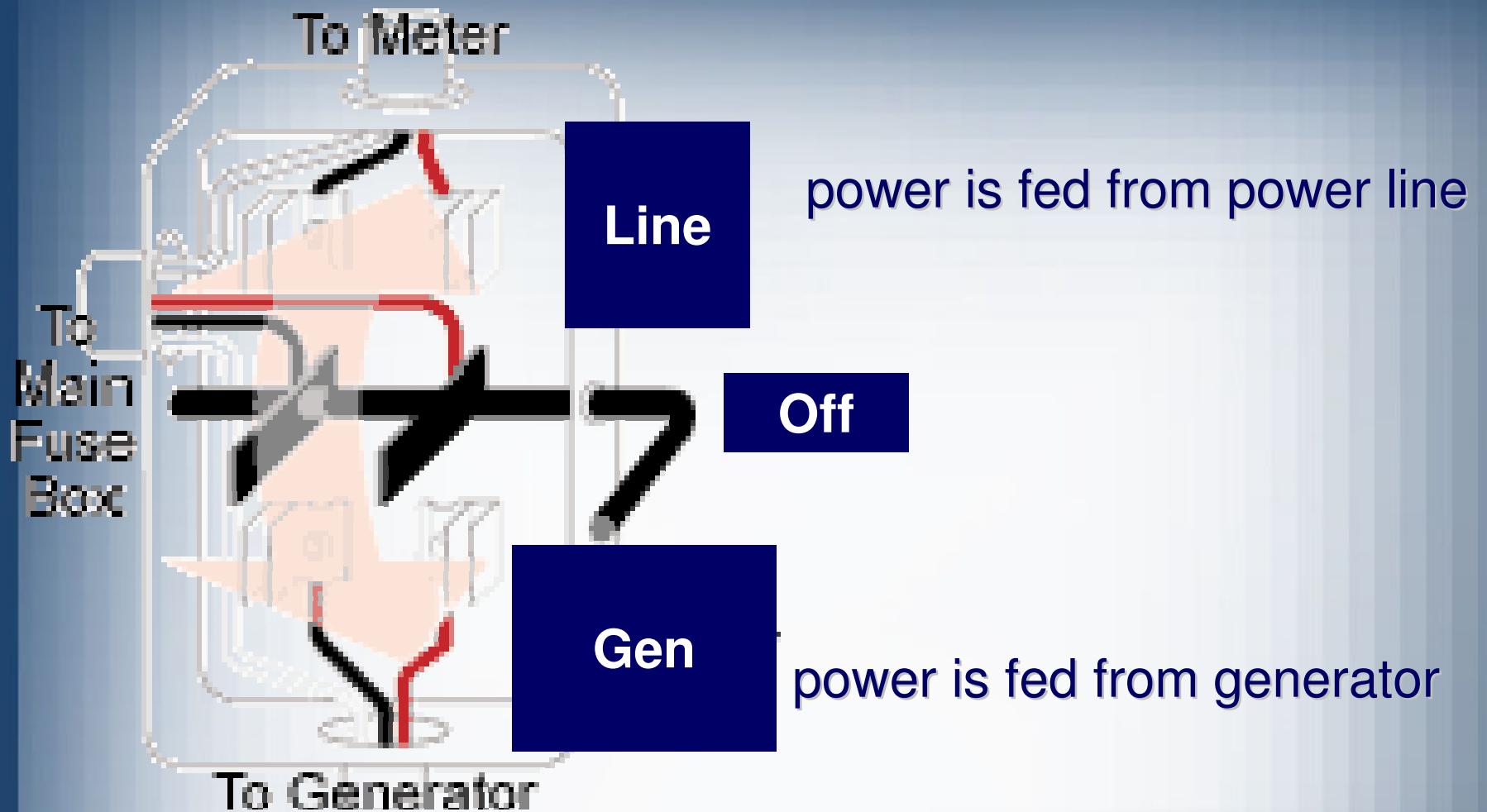
- Utilizes a power transfer switch for isolation from the main power-line.
- Non-portable design, hard-wired to the house circuit by a certified electrician.
- Must conform to NEC codes.
- Has a higher capacity and allows the use of more electrical appliances.

How do transfer switches work?

Transfer switches work by opening the connection to the utility before closing the generator connection. The diagram shows the two switch positions and power flow for each condition.



A Transfer Switch's 3 Positions



Permanent or Portable?

- **How much emergency power is needed?**
- **How often will it be used?**
- **Will it be used for anything other than an emergency?**

Normal Appliance Wattage Requirements

- Air conditioner (central) - 48,000 Btu 6000**
- Air conditioner (room) - 6000 Btu 750 - 1200**
- Coffeemaker - 900
- Freezer - 500 **
- Furnace blower (1/3 HP) - 1200**
- Hair dryer -1500
- Lamp (*Check bulb wattage*)
- Microwave - 1450
- Personal computer - 350
- Radio 50 - 200
- Refrigerator - 600 **
- Space heater (portable) - 1500
- Sump pump - (250 – 600)
- Television – (200 – 500)
- Window fan – 200

* *Appliance wattages vary. These figures represent averages only.*

** *Allow up to five times the normal running watts for starting these appliances or cycling their compressors.*

What If?

I attempt to connect a generator directly to the electrical system?

You can kill or injure a person repairing service lines. The electricity you feed into the circuit will feed back to the outside power-lines.

ALWAYS:

Have a qualified electrician install a double-pole, double-throw transfer switch according to NEC regulations.

What If?

I fail to ground the generator's electrical system adequately?

The entire generator could become electrically charged and cause an electrical shock or an electrocution.

ALWAYS:

- Make sure the unit is connected to an appropriate ground, in accordance to the NEC code.
- READ THE OPERATOR'S MANUAL.

What If?

I operate the generator in rain, wet, icy or flooded conditions?

Water conducts electricity. A generator exposed to water may cause an electrical shock to anyone touching it.

ALWAYS:

Operate a generator in a clean, dry, well-ventilated area. Make sure your hands and feet are dry.

What If?

I use worn, damaged, undersized or ungrounded extension cords?

Contact with a worn or damaged extension cord could cause electrocution. Undersized cords could overheat and cause a fire. Ungrounded cords could prevent circuit breakers from operating properly.

ALWAYS:

Inspect cords before use. Use the proper size and always use electrically grounded cordsets.

What If?

I improperly connect appliances or tools to a generator?

Exceeding the load rating of a generator by attaching too many items or by attaching items with very high load ratings can damage the item, the generator, or both.

ALWAYS:

Understand the load rating. Read the Operator's Manual and make sure the load does not exceed the load rating for the generator.

What If?

I operate the generator in an enclosed area?

The generator's engine produces toxic carbon-monoxide exhaust fumes. Breathing these fumes will cause serious injury or death.

ALWAYS:

Operate your generator in a clean, dry, well-ventilated area. Never operate a generator in a building or enclosure that is occupied by humans or animals. Keep children and pets away from the area.

Information is key when communicating safety to our members.

If you cannot find someone who can answer your questions about standby generators, please give Bluestem a call.

Many people are unaware of the dangers that a standby generator can pose.