



Backup Power: Keeping the Lights (and Other Stuff) On

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Why Backup Power

- High winds in Northern Utah – September 2020
- Polar Vortex in Texas and the South
- Rolling Blackouts in California
- Other weather events – heat wave
- Earthquake – Something we are very prone to
- Cyber-attacks...hitting the news lately
- EMP – Natural or man-produced. Solar storm, High Altitude Nuclear Detonation
- Severe pandemic
- War, terrorism, sabotage – Metcalfe substation



Decide how much energy you need to run critical loads.

- Medical equipment?
- Fridge?
- Freezer?
- Lights?
- Communications?

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Calculate energy consumption.

- Labels on appliances/devices
- Online resources
- Power consumption meters

Remember to factor in start-up demand in addition to running demand



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- 1. **Fuel based** (gasoline, diesel, propane, natural gas)
- 2. **Solar/Battery**

Each has advantages and disadvantages and come in a variety of sizes.

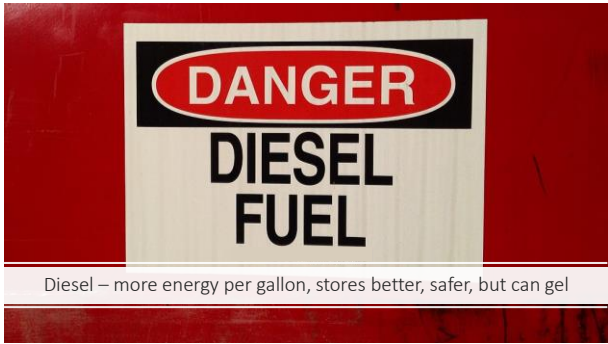


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Gasoline – most common, can get from cars, more dangerous to store



11

Diesel – more energy per gallon, stores better, safer, but can gel



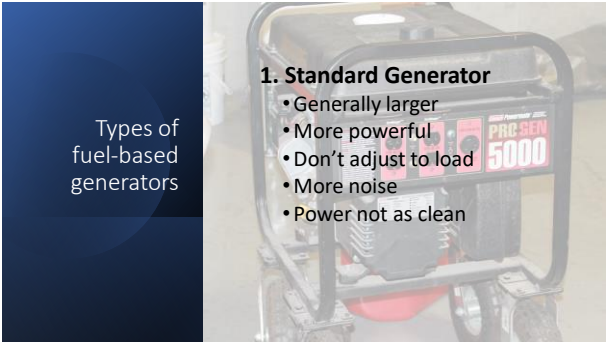
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Propane – less energy per gallon, generally safer to store



Natural gas – less common, except for home-based units tied to home

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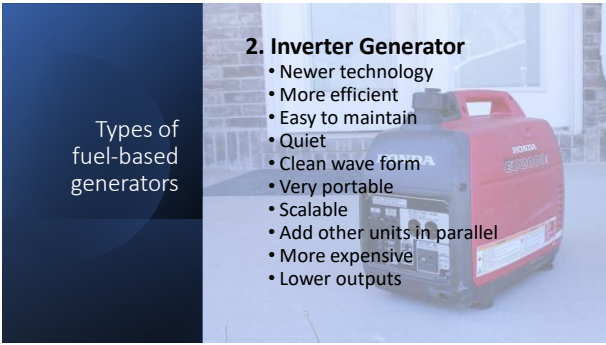
1. Standard Generator

- Generally larger
- More powerful
- Don't adjust to load
- More noise
- Power not as clean

14



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2. Inverter Generator

- Newer technology
- More efficient
- Easy to maintain
- Quiet
- Clean wave form
- Very portable
- Scalable
- Add other units in parallel
- More expensive
- Lower outputs

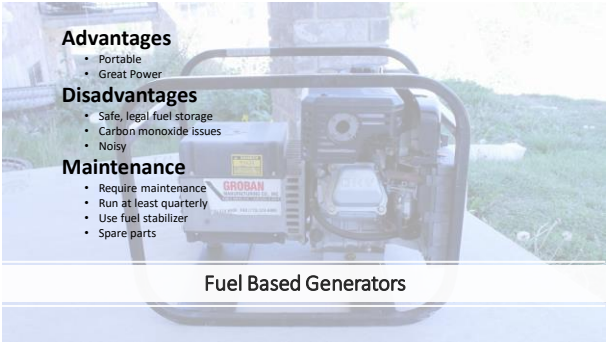
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Advantages

- No fuel to store
- No carbon monoxide
- Silent

Disadvantages

- Less powerful
- Batteries are weak point

Maintenance

- Lead-acid batteries require "irrigating" and equalizing charges
- Spare parts

Solar/Battery Based Systems

38



Question and Answer

39

Learn more at:

40