**Public Safety Facility Electrical Generator**

**Things to Consider before starting your Project**

**To ensure that you have a public safety facility that can operate during a long-term power outage, you will need to consider the following.**

1. How much power in kilowatt/hours do you need to maintain your operations?
	1. Do you need to power everything? Can you load shed, i.e., drop off electrical items that aren’t mission critical. Can you get by without using the 1500-watt microwave oven?
	2. The smaller the generator you can utilize, the less fuel you will need to operate the generator and the less upfront cost you will have.
	3. However, plan for the future. Don’t undersize the generator and then install an electrical gear washing machine.
2. Do you need a one-phase or three-phase generator?
	1. Certain motors in your facility may require 3-phase power. Find out before acquiring the generator.
3. How quickly does the generator need to come up to speed and take the load?
	1. Do you have critical power requirements and need power quickly?
	2. Can you use an uninterrupted power supply to carry the load until the generator takes the load? Is it even an issue?
4. Does the generator need to be quiet?
	1. Is your facility in a residential area and/or are there noise ordinances?
	2. High quality commercial generator can be very quiet, but they cost more.
5. What is the fuel source needed?
	1. Are you going to use propane, natural gas, or diesel?
	2. Do you already have on-site diesel tanks for a vehicle fleet?
	3. Do you have natural gas pipelines? How reliable are they during a long-term power outage? Will the supplier be down during the emergency?
	4. How reliable is your source of fuel?
	5. How much do you need to operate for a week? Four weeks? More?
6. Will it be hooked up to an automatic transfer switch (ATS) or manual transfer switch (MTS)?
	1. An ATS will start up automatically when the commercial power is lost. However, it is susceptible to voltage surges from a solar or nuclear EMP.
	2. A standby generator hooked to an ATS has little EMP protection. There are very expensive ways to EMP protect them, but this is why most Cold War control centers had generators located inside the bunker.
	3. Even if you have a standby generator on an ATS, consider installing a MTS in a manual bypass mode. This will allow you to hookup a portable generator if the standby generator doesn’t start.
	4. Have a smaller portable gasoline generator with the appropriate “Pigtail” connection for the bypass MTS.
7. Consider the location of the standby generator.
	1. Is it too close to a structure?
	2. Can it be secured by fencing if in an unsecure neighborhood?
	3. Can it be mounted on a concrete pad?
	4. Can it be permanently grounded?
	5. Can fuel trucks get easy access?
8. Operational Considerations
	1. Standby generators will start and run on a programmed schedule. However, this is running the engine and not running the electrical producing generator. The generator must also take a load periodically. Once a quarter, run the generator under a good-sized load.
	2. Have extra oil and oil filters on hand. Know how to change the oil and filters.
	3. Have the generators inspected and serviced annually.
	4. Portable generators, not connected to the grid, with a manual start are much more EMP resistant. They can be further protected with conductive cloth coverings and transient protection devices.