# Types of Generators: Learn the Basics, Get the Most Out f it!

Iinquip.com/blog/types-of-generators

October 15, 2020



Generators are one of the most critical appliances in the present-day world. Electric failures can happen due to a variety of reasons such as natural disasters, load shedding, system failures, and infrastructure breakdown. Without generators, your world will go dark in such occasions. Without knowing the detail and use of each type of generator, you can end up spending your hard-earned money on the wrong machine. In this article from Linquip, we will discuss different types of generators and their applications and dive deeper into knowing each one of them on another level. As you probably know, Some generators are more popular than other competitors on the market. Here, we will introduce the most popular ones. Are you ready to expand your knowledge? Read on to find out more.

In Linquip, you will find everything you need to know about generators, from the basics to the most advanced units. In case you need help with a generator, our experts are available to assist you. For a basic understanding of these industrial devices, please take a look at Linquip's article "<u>Generator: Working Principles, Function & Diagram</u>."

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## What is a Generator?

Generators provide electrical power by converting mechanical energy and are used in an external circuit. Different mechanical energy sources such as wind turbines, steam turbines, water turbines, gas turbines, and internal combustion engines are used to provide the source for this conversion. There are different types of generators, each of them tailored for specific needs.

# **Different Types of Generators**

Whether you need a temporary electricity fix or want backup power for your factory, there is always a generator suitable for your specific purpose on the market.

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<u>Click HERE</u> Here are List some **different types of generators**:

- Gasoline
- Diesel Fuel
- Biodiesel
- Emulsified Diesel
- Propane Gas
- Natural Gas
- Solar Generators
- Portable generators
- Inverter generator
- Standby generators
- Induction generators



Solar generator (Reference: solarreviews.com)

Also, There are two fundamental types of generators known as AC (alternating current) and DC (direct current) generators. While the technique of producing electricity is the same in both types, AC and DC power become different in terms of their applications – how loads receive electric power. For instance, generators for home use deliver AC power whereas cars use generator engines that produce DC power.



Characterizing generators may be done in several ways which are:

1.

- 1. By the energy source used as input
- 2. By the application or industry in which the generator is employed

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**Generators by Energy Source** 

Common input energy sources for generators are either a fossil fuel that is combusted in an engine to produce rotary motion within the generator and a natural energy source that is captured and turned into motion.

## **Fossil-Fuel Energy Source Generators**

Generators that are based on a fossil fuel energy source include:

#### Gasoline

Of all the options on the list, gasoline generators are among the most common, primarily because gasoline is readily available and these generators are on the lowend of the cost scale. However, gasoline is usually unavailable during power outages, because it requires electricity to pump. Gasoline generators are available in small sizes, ideal for portable models, but the fuel is highly flammable. You can use them for various purposes such as residential or commercial uses. But if you want to use them for your house or office, keep in mind that they are loud and produce disturbing noises that might annoy you in the long run.

Gasoline lasts less than one year when stored, and gas prices are comparatively higher than diesel, propane, and natural gas. Gasoline generators produce relatively high emissions, do not typically last as long as some other models, and do not tend to start well in colder temperatures.

## **Diesel Fuel**

Diesel is the least flammable of all the fuel sources and is almost as readily available as gasoline. These engines have long lifespans and perform more efficiently while lasting longer under heavy, rigorous use, so long as they are properly maintained. This type of generator is affordable to operate and starts relatively easily in cold environments. So, you can easily use them in cold weather too! However, diesel fuel is only good for up to 24 months in storage, and storing large quantities can be expensive. Like gas, it is often impossible to pump diesel during power outages. Because diesel engine emissions are quite high, some areas limit the number of hours these engines can be operated per day due to environmental concerns. Besides, it is advised not to use them in wet environments because if the moisture gets into the fuel, it will damage the engine.



Parts of a diesel Generator (Reference: cdpower.com.au)

## Biodiesel

Biodiesel fuel is made from a mixture of diesel and another biological source, such as vegetable oil or animal fat. The pros and cons of biodiesel are similar to those of ordinary diesel fuel, only with more environmental benefits. Biodiesel uses less of the non-renewable energy source of fossil fuels and burns with lower emissions and less waste. This makes it an environmentally friendly option compared to regular diesel. All diesel fuels are less flammable than the other liquids and gasses on this list, but these engines are also noisy.

Like diesel, biodiesel lasts two years or less in storage and is sometimes unavailable during a power outage because it cannot be pumped.

## **Emulsified Diesel**

Emulsified diesel is a mixture of diesel fuel and water blended with a mixing agent. It shares the pros and cons of diesel and biodiesel fuels. As with biodiesel, emulsified diesel produces fewer emissions than ordinary diesel and consumes fewer fossil fuels. It too has a shelf life of two years or less, and maintaining the proper ratio of water to diesel is challenging, especially in hectic work environments.

## Natural Energy Source Generators

Other types of generators that take advantage of a natural energy source include:

## • Propane Gas

Propane boasts a longer shelf life than gasoline or diesel fuels and burns cleaner. It is easily stored in any quantity and is readily available even during power outages. Propane produces relatively low emissions and is not subject to wet stacking common in diesel generators. This type of generator is generally affordable and lasts a long time. Propane also starts easily in cold temperatures and offers quiet operation.

On the con side, propane is kept under pressure and is highly flammable, even explosive. Propane generators are more expensive to buy and operate, burning about three times the amount of fuel as comparable diesel engines.

#### Natural Gas

Natural gas is readily available in almost every location and the new shale reserves opened up by fracking techniques mean a virtually limitless supply. Because natural gas lines are run to the site of operation, these generators never run out of fuel or need to be refilled. This also means that the generators are not portable. Natural gas generators burn cleanly with very little waste, and the gas is readily available even in the absence of a power supply. These units are also affordable in comparison to other choices. Natural gas also starts well in cold conditions and runs relatively quietly. Another advantage of using them is that they run quietly which makes them perfect for residential uses.

Although they are inexpensive, they have high installation costs since they should be connected to the running gas lines. Besides, these generators do not typically last as long as diesel generators.

#### • Solar Generators

Solar generators use the sun's radiating energy as their fuel source. They use solar panels for capturing the sun's energy and charge the battery in the generator. This charge is used for producing electricity which is the final goal of the generator. It also contains an inverter for changing the power to alternating current since many appliances use AC. These types of generators are great for minimal electrical requirements. Plus, they do not produce disturbing noises. One of the drawbacks of them is that they are not cheap at all! Plus, they run very slow when charging their batteries.

#### • Hydrogen

Hydrogen is tremendously abundant, non-toxic, clean, cheap, and produces more energy per pound than any other fuel source.

Though not as readily available as some other types of generators, hydrogen generators are portable and useful for many environments, including laboratories. When equipped with proper safety features, hydrogen generators are also safe and portable.

## **Generators by Application**

Generators based on their application include:

- 1. Portable generators
- 2. Inverter generator
- 3. Standby generators
- 4. Induction generators



#### • Portable generators

This generator type uses gas or diesel as its fuel source. Just like standby generators, they use a combustion engine to produce electricity. They are great if you need temporary electrical power and for remote construction sites for powering tools and lights. They can be wired into the sub-panel for residential uses to power a refrigerator, television, etc. or you can use them by plugging your electrical appliances into the power socket of the portable generator.

Portable generators are very useful in a variety of applications. They come in varying power configurations suitable for different types of uses. They are handy during natural disasters or calamities when grid power breaks down. They are more suitable for residential purposes and smaller commercial establishments such as retail outlets and shops, at construction sites for powering smaller tools, camping, outdoor weddings, outdoor events and, powering agricultural equipment such as bore-wells or drip irrigation systems.

If you are looking for different types of generators for electricity generation for your house or office, this type may be the right choice for you. They not only provide temporary electricity but are also cheap and work very well. But keep in mind that you cannot install them inside a house or a garage! Plus, they need protection against diverse weather conditions.

#### • Inverter generator

Inverter generators produce AC power and by using a rectifier that converts the AC power into DC power and then inverts it to AC to provide steady current to appliances. These are very useful for appliances such as air-conditioners, refrigerators, automobiles, boats, and recreational vehicles which need particular values of voltage and frequency, which inverter generators are capable of providing. They are also light in weight and compact, therefore highly suitable for such applications.



Different Types of Generators

<u>What is Generator?</u> <u>What is Portable Generators?</u> <u>Generator For Sales</u>



#### Standby generators

Standby Generators are among the most popular types of generators that are also known by the name of "backup generators"! They are considered to be an emergency power system that may use gas or diesel as their fuel source. They work up to 48 hours because of their large external tank. When there is a power outbreak, an automatic transfer switch on these <u>generators</u> are activated for powering a device. Their automatic operation as well as using an internal combustion engine, not to mention their ability to deliver permanent power protection, make them a common choice on the market. After only a few seconds of the power loss, they start operating to supply the necessary electricity for you. That makes them a perfect choice for medical support equipment. This type of generator is also very useful for residential apartments, hotels, restaurants, hospitals, and commercial establishments connected to grid power. But it comes at a price! They are extremely expensive and need regular maintenance.

#### • Induction generators

These comprise two types including externally excited generators and self-excited generators.

Externally excited generators find uses in regenerative braking applications needed in hoists, cranes, elevators, and electric locomotives.

Self-excited generators find uses in windmills where wind as a non-traditional source of energy gets converted into electric power.

So, there you have a detailed description of different types of generators and their applications. Do you know any other popular types? Then comment below and share your thoughts and comments with us. To receive the latest information about generators and ask your questions, feel free to <u>sign up on Linquip</u> where our experts will help you find what you are looking for.

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