



## Cost Comparisons of Fossil Fuel vs Solar Power Generator Systems

This article will help you make informed decisions when you are considering a whole home power backup system. There are many choices available, and its important to consider several key points when you begin the selection process.

We will focus in this document on two distinctly different solutions. Fossil fuel generation systems vs solar power generation systems.

### Typical Costs for Fossil Fuel Systems

Natural gas, propane, diesel and gasoline generators are the primary systems available for Fossil Fueled power generation plants. The costs vary widely by capacity, so this article will focus on a 15 KW capacity system throughout for comparative analysis.

#### A. Generator Costs:

- |  |            |
|--|------------|
| a. Generac 15 kw natural Gas Generator Cost- | \$4867.00  |
| b. Generac 15KW Diesel Generator Cost-       | \$14,800   |
| c. Generac GP15000E Gas Generator            | \$3,200.00 |

## **B. Installation Costs:**

- a. According to the article published below, installation costs tend to follow a rule of thumb as noted:

When budgeting for a professionally installed standby generator for your home, it is best to assume installation costs will closely approximate the cost of the generator equipment. This isn't always true but, the rule of thumb is fairly accurate. So—if you spend, say, \$5,000.00 for the generator equipment, expect the total project to be around \$10,000.00. Project costs for liquid-cooled generators begin in the mid-teens and can often range well in excess of \$20,000.00.

<https://buckeyepowersystems.com/pages/how-much-does-a-standby-generator-cost-to-install>

## **c. Warranty Coverage on your equipment:**

Generac Systems seem to include a basic 5-year warranty with the purchase price. You can add on a 10-year warrant for about \$1800.00 or slightly less.

## **d. Pros of a Fossil Fuel Generator System:**

Here are the benefits of using natural gas generators for emergency power.

- Cleaner fuel source to generate power as it produces lower emissions.
- Natural gas generators have no odor, unlike diesel-powered generators.
- Generators can be connected directly to the natural gas pipelines.
- Natural gas is a reliable, efficient, and cost-effective fuel source.

<https://www.sapphiregassolutions.com/blog/power-generation/what-are-the-pros-and-cons-of-natural-gas-generators/>

## **e. Cons of a Fossil Fuel Generator System**

Despite the several benefits, gas generators also have a few drawbacks. Here are the disadvantages of the generators.

- Natural gas is explosive and can cause a fire hazard if the pipeline bursts.
- Natural gas supply can get disrupted during calamities like earthquakes.
- Maintenance costs of natural gas generators are usually high.
- Natural gas is a non-renewable energy source.

<https://www.sapphiregassolutions.com/blog/power-generation/what-are-the-pros-and-cons-of-natural-gas-generators/>

Finally, it is important to understand with any fossil fueled system you will have to be prepared for the ongoing and recurring mechanical maintenance requirements, costs associated with fuel purchases, and in some cases storage such as underground tanks which are usually installed with Propane systems in areas where NG is not available. These can be considered hidden costs and they will vary immensely depending on your location, availability and access to services and other considerations.

## Typical Costs for Solar Systems

Solar Systems are the wave of the future, and offer benefits of ownership that far exceed any fossil fuel powered energy system. They are extremely robust, and energy efficient not to mention earth friendly if that is one of your design considerations. Solar systems are still in the early stages as well but are rapidly improving through engineering and technology advances.

The cost of a solar generator depends on its size and its capabilities. The cost of the powerful solar generator ranges between \$7,000 to \$50,000, offering over 5,000 watts. This will be able to power your entire home fully. Medium generator cost ranges from \$2,000 and \$4,000. Also, you can get small-size generators for as low as \$100.

<https://www.onithome.com/blog/solar/how-much-does-a-solar-generator-for-home-cost/>

Solar systems generally speaking will be more expensive up front to purchase and install typically and there are a wide variety of configurations to choose depending on what your energy plan goals are. We will discuss a 15 KW system here as well to keep comparative analysis information the same as with the fossil fueled systems discussed above.

### A. Generator /Energy Management Systems Costs:

Solar Research Technologies 15KW UL System	\$35K
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(This is a standalone, turnkey installation system that includes the solar panels, energy storage batteries, Energy System Controller and inverter).

### B. Installation Costs:

The average cost of installing a solar generator range between \$9,000 and \$30,000, depending on the generator size.

<https://www.onithome.com/blog/solar/how-much-does-a-solar-generator-for-home-cost/>

**C. Warranty Coverage on your equipment:**

Solar Power Generator systems offered by **Solar Research Technologies LLC** all come with a 5 Year Full Protection warranty. Included in their systems as well are various manufacturer's warranties that extend coverage for 10 years on the Inverter systems, and 25 years on the solar panels.

**D. Pros of a Solar Power Generator System**

The solar generator is an excellent source of energy that is always available when you need it. The advantages of a solar generator outweigh the disadvantages.

1. No fuel is required to run the system other than sunlight.
2. Is a clean and renewable energy source with no direct environmental impacts, including noise or harmful emissions.
3. Requires almost 0 maintenance.
4. Quiet Operation reduced operating costs.
5. Instant cut over time, when grid power goes down. No waiting for the generator to start up and produce power.

**E. Cons of a Solar Power Generator System**

1. Solar systems rely on good weather to do their jobs efficiently.
2. Power is limited by the storage battery and the output of the solar array.
3. Initial provisioning costs are high compared to fossil fueled systems.
4. Slower charging times due to weather conditions at times.
5. Federal Incentive Programs for Energy Efficient investments in your home apply to Solar power generation systems.

**Summary Conclusions:**

Are solar power generation systems worth it in the end? Absolutely they are, and the cost of ownership is far less than their fossil fuel counterparts even with the added upfront costs associated with them. The reduced costs of operation will

quickly benefit the owner of the solar system. Compared to fossil fueled systems operating costs are by far the cheapest, and the lack of maintenance and expense makes these systems an ideal prospect for the long life of the system.

Another consideration to make with Solar power generation systems are the Federal Energy credits that you can use immediately to offset the initial expenses. See the article here for the most current information for 2023:

[https://www.energystar.gov/about/federal\\_tax\\_credits/solar\\_energy\\_systems](https://www.energystar.gov/about/federal_tax_credits/solar_energy_systems)