



# MAIN PANEL UPGRADE

## CONSUMER GUIDE



**Solar Optimum**  
Serving California, Nevada, Arizona & Florida

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When you transition to solar energy, one of the first things you can expect is a technician to come to your home and perform an initial inspection. This inspection aims to determine your home's readiness for solar power in designing your solar system.

Your solar technician will scrutinize your electrical system for our design and engineering team to determine if it can safely handle the additional power your solar PV system will generate. The main things our design and engineering team will want to determine will include:



- Can the current electrical system safely support the size of the solar energy system you wish to install?
- What is the amperage of the incoming power supply and will exceed the recommended capacity?
- Does the current utility provider require the site to have a minimum power factor to support solar?

If any red flags are uncovered during the inspection, you may need to have a main service panel upgrade performed before installing a solar PV system on your property. This guide will cover everything you need to know about getting a main service panel upgrade.



# What is a Main Service Panel or MSP?

The “main service panel” is part of your home’s circuit breaker. Do you know that **big metal box** built into your home’s exterior wall? That’s what we call the Main Service Panel (MSP).

When your main breaker panel becomes old or outdated, it may not be able to handle the additional electrical generation provided by a solar energy system. If a solar technician deems your home’s MSP unsafe, it will need to be replaced before moving forward with the solar installation.



# What is the Main Service Panel’s function?

The MSP acts as a switchboard for all electricity in your home. It receives the power from your solar panels or utility grid and distributes it throughout your home. The MSP is an essential part of your home’s electrical system and is used to power your appliances, lighting, and internet.





# Do I need a new Main Service Panel upgrade if I want to install a solar system?

A main panel upgrade isn't always necessary before installing a solar system, but it is usually recommended for older homes.

When designing your solar PV system, we will check to make sure the total amperage of solar + grid power does not exceed 120% of the MSP's rated capacity. You will need to upgrade your MSP.

## Here are some common scenarios when a main panel upgrade is necessary:

- | Your MSP is no longer up to code
- | Your MSP is less than 200 amps (note: if it is a 100 amp panel, but the busbar is rated 125 amps, an upgrade can probably be avoided.)
- | There is not enough space to add a new electrical breaker
- | your electrical box cannot handle the additional generated power provided by the new solar system.
- | Your main panel cannot handle the additional amperage which is being generated by your solar system





# Do I need a new Main Service Panel upgrade if I want to install home battery storage?

In most cases, yes. An upgrade will be required for MSPs rated 100 amps or lower before installing solar + home battery. For MSPs rated 200 amps, an upgrade can usually be avoided.

## What can I expect if I need a Main Service Panel upgrade?

A main panel upgrade is considered a job that will take place separately from the solar panel installation.

### Here is what you can expect from a main panel upgrade:

**Increased costs** - Expect a minimum fee of \$3,500 for the same location only. We take the old one out and put a new one back in the same area without modification from the utility company. If the utility company wants the location changed, or if it's a two-story overhead MSP, you can expect extra costs in addition to the \$3,500 base price.

**Additional work** - If the utility company wants modifications to the existing conduit or wiring, you may need to contact a specialized electrician to perform the job.

**Specific utility requirements** - If the MSP needs to be relocated to another area, the utility company will determine where (PG&E customer's contractor has to choose the new location). The MSP would need to be relocated because it's too close to the gas meter or water line. Another reason you might need to have your MSP relocated is if the overhead wire is running through the roof or canopy.



## What is a derate, and is this needed?

Your MSP is rated to handle a certain amount of amperage from all sources. The National Electric Code (NEC) outlines that the total power your MSP receives from solar + grid power cannot exceed 120% of the MSP's rated capacity without posing a safety hazard.

In some cases, but not all, we will need to downgrade your main breaker to accommodate the extra power your solar PV system will provide. This is called a "derate."

## Are there specific requirements that my utility company will need to see if I upgrade my Main Service Panel?

Different utility providers will have additional requirements. Some of the more common requirements you can expect will include the following:



- Three feet distance from the gas meter and water lines. This is most common.
- Trimming bushes or trees if necessary
- Maintaining a level 3x3 foot working ground clearance in front of the main panel.
- If the conduit size is not sufficient to add new wires for the latest MSP, you will need to change the conduit.
- Trenching, if required.





## **How long will it take for a utility company to approve meter spots?**

Before any work can be done on your service panel, the utility company must determine where to put the MSP and what amperage to use. This process can take up to 4-8 weeks on average but can vary depending on your provider.

A main panel upgrade will take about three months to complete from beginning to end.





## ABOUT SOLAR OPTIMUM

Since 2008, Solar Optimum has paved the way for premium solar energy, battery storage and roofing solutions for residential and commercial customers. We are the industry leader in everything solar-related, providing homeowners and businesses with premium, unrivaled value.

As a vertically integrated organization, we control the entire process from assessment, design, and installation – increasing efficiency and reducing costs. Our executive management team has over 1,000 years of combined experience in construction, engineering, design, and sales & marketing, and we have installed more than 350 MW of energy-efficient solar systems.

# Call now (800) 552-9970

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