



# A Simple Guide to Installing Rooftop Solar at Home

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# A Simple Guide to Setting Up a Solar Rooftop System for Your Home

## Introduction






Solar energy has moved from being an experimental idea to a reliable home upgrade that thousands of families choose every month. What this shift shows is simple. People want relief from rising electricity bills, better control over their power supply, and a long-term solution that feels stable.

Here is the thing. Solar sounds technical from the outside, but once you understand how it works, the decision becomes much easier. A rooftop system produces its own electricity every day, crosses its investment period in a few years, and keeps serving you for decades.

This white paper takes you through the entire journey in a clear, practical way. You will learn how solar works, what to check before installation, how the system is designed, what the costs look like, and how to keep it running smoothly. The aim is to give you clarity, not complexity.

## Why Go Solar

Most homeowners think of solar for one reason: lowering the electricity bill. But the benefits go far beyond that.

<b>Monthly Savings</b> 	<b>Protection During Outages</b> 	<b>Higher Property Value</b> 
<b>Smaller Carbon Footprint</b> 	<b>Stability in Energy Planning</b> 	



## Monthly Savings

Every unit your system generates is one less unit you buy from the grid. Over the year, these small daily credits turn into large savings. For many households, bills drop to a fraction of what they once were.

## Protection During Outages

A hybrid system or a system with batteries keeps your lights and essential appliances running even when the grid goes down. You stay powered without needing generators or UPS.

## Higher Property Value

A solar-equipped home signals efficiency, modern upgrades, and lower operating cost. Buyers see it as a long-term advantage, which often helps your home stand out in the market.

## Smaller Carbon Footprint

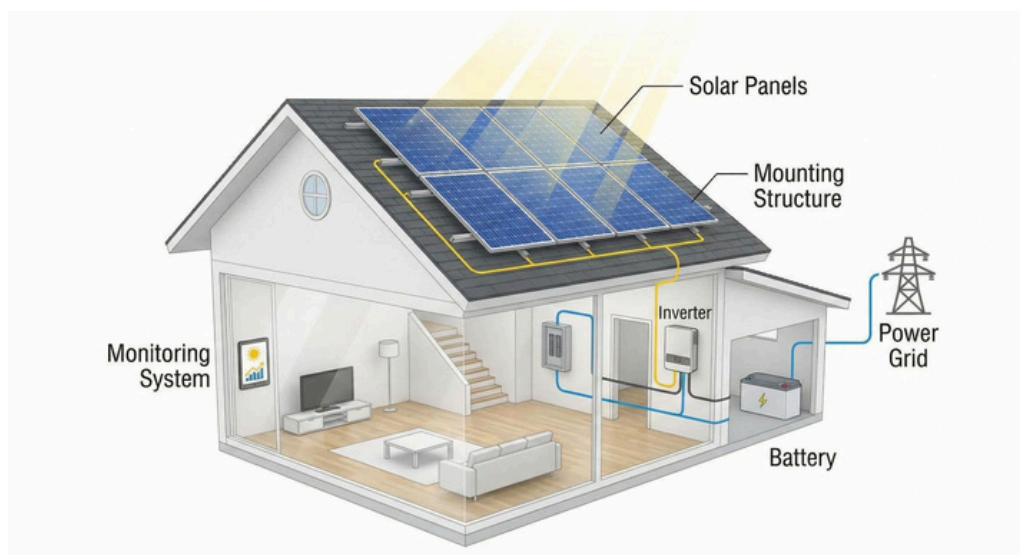
Your rooftop becomes a small clean energy plant. Every unit generated reduces the demand on coal-based power stations. Over the year, this impact has become meaningful.

## Stability in Energy Planning

Electricity costs rise over time. Solar protects you from this trend by giving you predictable, low-cost power for many years.

## What a Solar Rooftop System Includes

A rooftop system is built from several components that work together. Understanding each one helps you make informed decisions.



## Solar Panels

These panels convert sunlight into electricity. Good quality panels last for 20 to 25 years. Their efficiency, temperature resistance, and long-term durability decide how much power your home will get.

## Solar Inverter

The inverter turns DC electricity from the panels into usable AC electricity. It also manages power flow between the grid, the panels, and the battery. Many inverters include tracking apps that show your daily production.

## Mounting Structure

This keeps the panels firmly in place and aligned at a right angle to capture maximum sunlight. A strong structure ensures stability during heat, rain, and storms.

## Battery

A battery stores extra solar power. Homes that face frequent outages use batteries for backup during the evening or night. Off grid systems depend fully on battery storage.

## Wiring and Safety Equipment







High quality cables, connectors, fuses, isolators, earthing, and surge protection keep the system safe. This part ensures long-term reliability.

## Monitoring System

Some setups offer digital monitoring, so you can see how much power your system generates and how much you are saving.

## How to Check If Your Home Is Ready

### HOME READINESS CHECKLIST

		<b>Roof Strength &amp; Type</b> RCC, Metal, or Tiled. Must be strong.
		<b>Sunlight Availability</b> Direct sun, minimal shade.
		<b>Roof Space</b> Approx. 80-100 sq ft per 1 kW.
		<b>Your Power Usage</b> Assess bills for system sizing.

A proper assessment before installation ensures that the system fits your home and performs well.

### Roof Strength and Type

RCC roofs are ideal, but metal and tiled roofs work too with proper design. The roof must be strong enough to hold the system for decades.

### Roof Space

Different system sizes need different spaces. A 1kW system needs about 80 to 100 square feet. Larger homes use 3, 5, or even 10 kW systems based on their consumption.

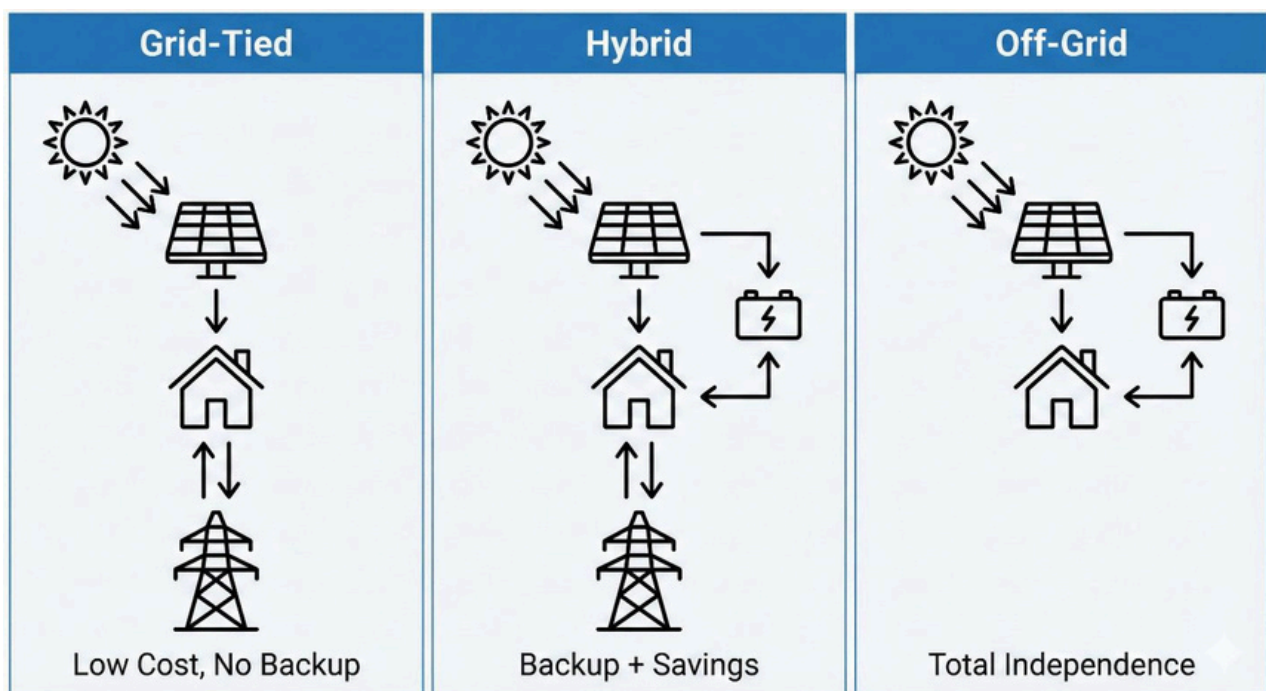
### Sunlight Availability

Panels perform best when they get direct sunlight without shadows. The assessment identifies the ideal placement, so you get maximum output throughout the year.

### Your Power Usage

Your electricity bills reveal how much energy you actually use. The goal is to design a system that matches your needs comfortably.

## Choosing the Right System Type



### Grid-Tie System

A Grid-Tie solar system is ideal for homeowners whose main goal is to reduce their monthly electricity bills.

- It does not use a battery, which keeps the overall cost lower.
- Any excess energy you produce is sent to the grid through net metering, earning you credits that reduce your bill even further.
- During the day, your home runs directly on solar power, and at night you use grid power as usual.
- It offers the highest savings and is perfect for homes with reliable electricity supply.

## Hybrid System

A hybrid system combines the best of both worlds—solar savings plus backup power. It includes a battery, so your home continues running even during power cuts.

- Like Grid Tie systems, it supports net metering, enabling you to send excess energy to the grid and earn bill credits.
- During the day, solar power runs your home, charges the battery, and exports extra energy.
- At night or during outages, the battery automatically takes over.
- It is ideal for homes that want savings + uninterrupted power without relying fully on the grid.

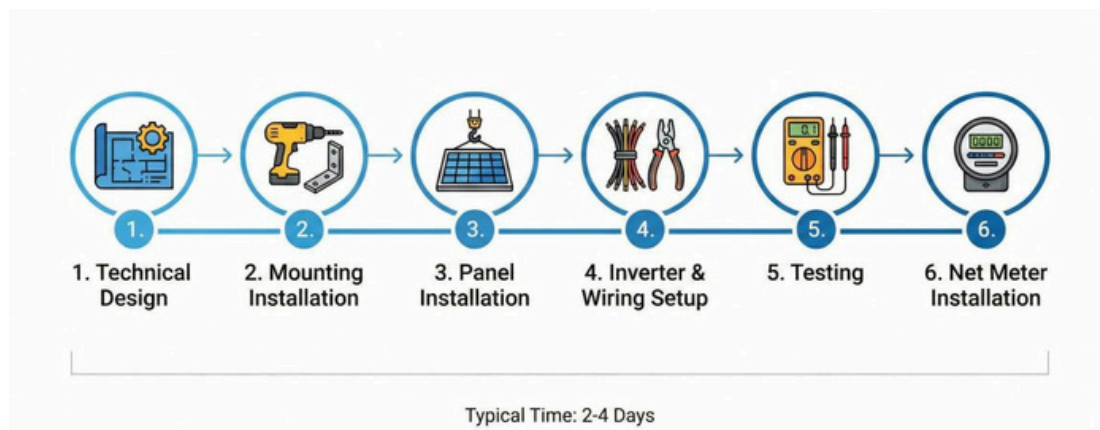
## Off-Grid System

An off-grid system is designed for homes that do not have a stable electricity connection—or those who want to complete energy independence.

- The system works entirely on solar panels + batteries, without any connection to the grid.
- Excess energy is stored in the battery to power the home at night or during cloudy weather.
- It requires a larger battery bank to ensure enough backup throughout the day and night.
- This setup is best suited for remote areas or locations with frequent and long power interruptions.

## How Installation Happens

Installation is usually completed in two to four days for most homes. Here is what happens.





**Technical Design:** Engineers design the layout based on your roof direction, sunlight flow, and electricity usage. This ensures maximum generation.

**Mounting Installation:** The structure is fixed firmly. This becomes the foundation that holds the panels.

**Panel Installation:** Panels are placed and aligned. Proper spacing and angling ensure good sunlight capture.

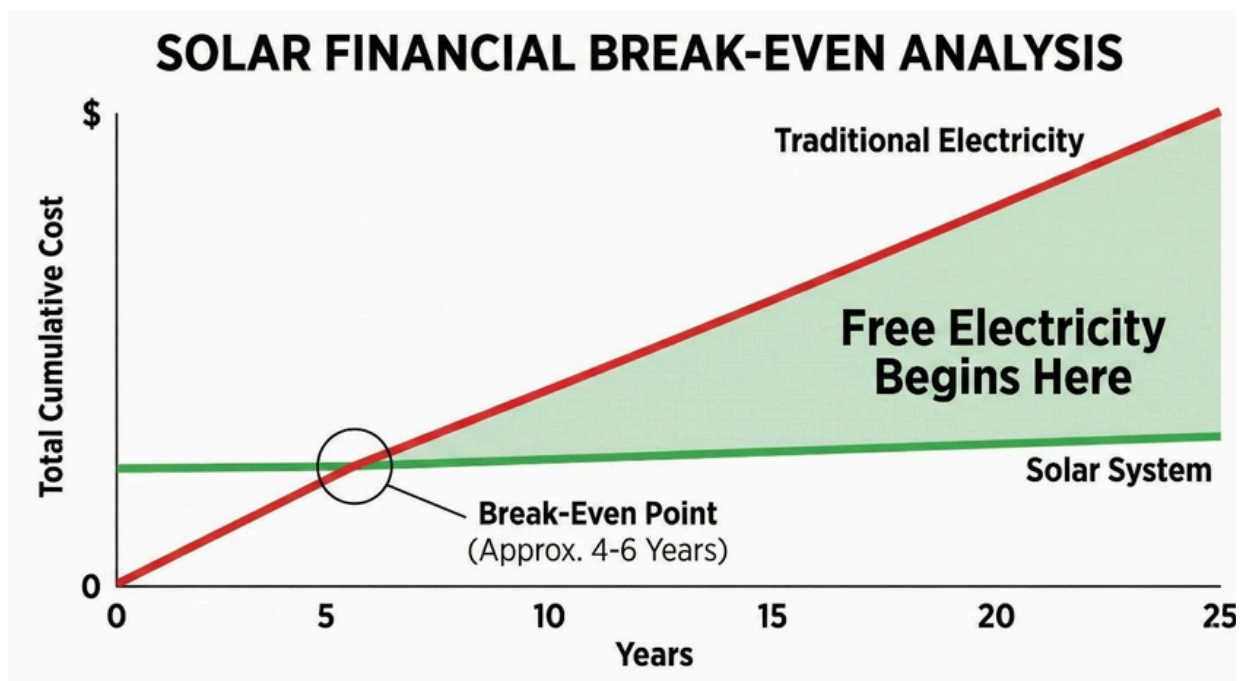
**Inverter and Wiring Setup:** The inverter is installed near the main electrical panel. All wiring, isolators, and protection systems are added.

**Testing:** When everything is connected, the team tests voltage, current, and system response to make sure all parts are working correctly.

**Net Meter Installation:** For grid tied and hybrid systems, the electricity department activates net metering, so you can export extra units.

## Understanding Costs and Savings

A rooftop solar system is an investment that pays you back year after year. Understanding how much you save and the subsidies you receive helps you make a confident decision.



### Government Subsidy – PM Surya Ghar Rooftop Scheme

Residential homes receive direct financial support from the government, making solar more affordable.

**Subsidy Structure:**

- Up to 2 kW: ₹30,000 per kW
- Above 2 kW to 3 kW: Additional ₹18,000
- Total maximum subsidy: ₹78,000 for systems 3 kW and above

This subsidy is transferred directly into the homeowner's bank account after installation and inspection. Your installer guides you through the paperwork and rooftop portal approval process.

**Monthly Savings & Annual Profit**

A typical home solar system generates enough power to cut a major portion of your electricity bill.

**For a 3kW system:**

- Monthly generation: 360–420 units
- Average electricity rate: ₹7–₹10 per unit
- Monthly savings: ₹2,500–₹4,000
- Yearly savings: ₹30,000–₹48,000

**For 5kW system:**

- Monthly generation: 600–700 units
- Monthly savings: ₹4,200–₹6,500
- Yearly savings: ₹50,000–₹78,000

These savings start immediately from the first month and continue for the next 20–25 years.

**Payback Period**

Thanks to high savings and government subsidies, most homeowners recover their investment quickly.

- Typical payback: 2.5 to 4 years for a 3kW system
- After payback, every unit generated becomes pure profit
- Over a 25-year lifespan, homeowners save ₹7–12 lakh depending on system size and electricity tariff

**Long-Term Value**

Solar panels continue generating clean electricity for 25 years or more, with minimal efficiency loss. That means:

- Decades of reduced power bills
- Protection from rising electricity tariffs
- Increased property value
- Consistent long-term financial gain





## **Maintaining Your Solar System**

A solar system needs very little maintenance, and with Eastman's one-stop rooftop solution, keeping everything running smoothly becomes even easier.

### **Panel Cleaning**

Dust and pollution can reduce solar output over time. Light cleaning every two to three weeks helps panels perform at their best.

### **System Monitoring**

Your inverter's display or mobile app lets you keep track of daily solar generation. This helps you notice any unusual drop in performance early.

### **Annual Checkup**

A yearly inspection ensures that all components—wiring, structure, protections, and inverter—are functioning properly. This small step extends the life of your system and prevents avoidable issues.

### **Battery Maintenance**

If your system includes a battery, place it in a dry and ventilated area. Regularly check charging behavior and backup performance to ensure smooth operation.

## **Why a One-Stop Solar Rooftop Solution Matters**

When different parts of a solar system come from multiple suppliers, resolving issues can sometimes become slow or confusing. It may be difficult to pinpoint whether a performance drop is due to the panels, the inverter, or the system's wiring. With Eastman's integrated rooftop solution, everything is designed to work together, and support comes from a single, reliable source—making service simpler, quicker, and far more convenient.

### **Everything from One Place**

With Eastman's complete rooftop solution—panels, inverter, battery, protections, and support—you get a single point of contact for installation, service, and maintenance.

### **Faster Issue Resolution**

Instead of coordinating with multiple distributors, one Eastman technician can inspect the system, identify the root cause, and fix the problem without delays.

### **Better Reliability & Long Life**

Eastman products are built for long-term use, backed by strong warranties and rugged IP-rated enclosures designed to withstand heat, dust, and outdoor conditions. This ensures your system continues performing for years with minimal upkeep.

## Environmental Benefits

A rooftop solar system reduces your home's reliance on fossil fuel electricity. Over the years, this reduces emissions, supports cleaner air, and helps your home contribute to a sustainable future. Even a modest system can offset a significant amount of carbon when you look at its lifetime impact.

**1 Rooftop System over 25 Years =**



## Bringing It All Together

A rooftop solar system is not just another appliance. It reshapes how your home manages power. When you understand the components, the installation process, the cost structure, and the long-term value, the choice becomes clear. Solar gives you predictable savings, improves reliability, and moves your home toward cleaner energy. With the right installer and a system built around your needs, this will become one of the most valuable upgrades you can make for the next two decades.

