



## Read about Home Solar System before you buy!

Going for home solar power is a wise decision since the prices are low, solar energy is green and free! With this you join those who want to save the planet! You will be also helping to reduce greenhouse gas emissions!

Sun's energy is free but home solar power system needs sizable initial investment. You have to therefore be careful. Unfortunately consumer ignorance about PV Solar power often is an opportunity to cheat for unscrupulous companies. Many vendors indeed are in solar business for your money with little interest in the technology or environmental benefits or your needs. Here is some information that will help you fortify yourself from being short changed.

Your lack of information is the capital of others who want to use it to mislead you into a wrong decision and not getting what you need, neither too much or too less in rating and of unreliable quality and poor useful life.

### **Choose your supplier carefully**

Beware of over- exuberance on the part of the company and its salesman. The supplier may be just a trader who does not understand what they are selling.

Remember that Solar System is profitable because of its life of 20 years or more if it is well maintained. So you need to choose a well established engineering company with deep technical expertise and reputation for quality. What good is the warranty for 20 years from a new company without proven reputation? This note helps you to stop getting cheated. It educates you in simple words and it is done by MITRAMAX which has over 35 years of reputation for quality engineering and integrity. We want you to ask questions and know the right answers you need to get from the salesman approaching you. If it hasn't been answered properly or has been deflected then show him the door. Search for someone else who has the right answers.

### **You should go for simple energy efficiency solutions to reduce cost**

A company genuinely committed to solar power is in business to make money, however they will always offer suggestions as to how you can decrease the costs of a system.

For example, if a representative visits your house for a site inspection to gauge your needs, they might notice issues such as the use of incandescent bulbs instead of LED lamps that draw just one-ninth the power than incandescent bulbs fluorescents. An ethical company will point out that spending a hundred dollars on switching to LED lamps can save you thousands of rupees on extra solar panels which would be needed to power the incandescent bulbs. On the other hand, an unethical company will see this as a good opportunity for the sale of a larger system.

### **High pressure tactics**

Do not allow the seller to rush you to buy and put pressure on you using terms like "deal ending soon", "hurry before stocks run out" etc. Actually cost of solar systems have dropped to less than half in the last three years. Ethical sales people will not place you under this type of pressure given the size of the investment, particularly if this is an initial enquiry and they've established that you're not overly familiar with solar power concepts. If you come under this sort of pressure, see it as an indication of what the company is like and avoid them altogether.

Investing in a solar power system is a decision that should be made after serious thought, having been presented all the facts and after having had time for thorough research. There is more to such decision than just the price. You buy a carefully engineered system that gives you

long and maintenance free life of at least 10 years. With this, you will save tremendously on your power bill.

### **Compare apples to apples**

Solar systems most pricy component is PV solar panels. But getting the maximum energy from the systems depends in quality and efficiency of the solar inverter and the use of energy maximiser that harvests at least 20% more energy from your solar panels such as LEECH HV PV Modules from Mitramax that process the solar energy in the panel itself!

In case of the inverter, if efficiency is just 70 to 80%, as in most home inverters, you will need to install 30% more panel wattage to get the same output. Also extremely important are the wires used and the quality of the mounting structure. Some suppliers may dazzle you with the PV panel brand name while use cheap inverters and save on installation with low current wires and poorly designed inverters. When comparing packages, do so on a component by component basis - and ask questions about why X brand is better than Y brand where there are differences.

### **Grey market/counterfeit products**

It's not all that common, but in some cases in order to save money a company will obtain components on the grey market. This can not only prove more costly but also the equipment may not perform as well as established brands and present fire/electrocution hazards through shoddy workmanship. Look for proper certifications. The 'CE Mark' from Europe alone is worthless in India because you cannot check! In the case of Solar Panels or Modules, the safety standard IEC61730 apply. PV Panels have to comply with either IEC61215 or IEC61646. .

### **Low quality components**

Currently poorer quality panels not meeting standards are being dumped in large quantities in India and offered at very low prices as a part of full systems. Additionally, while most panels will perform as rated in perfect conditions, poor quality panel performance will drop off dramatically in marginal conditions. "No name" panels may also use poor quality sealants that will do the job for the first couple of years, but then after that degrade to a point moisture enters the panel - and there is no easy fix for that situation.

### **Check the Inverter with care:**

An item often not closely scrutinized in a solar power system package is the inverter. An inverter is the device than converts DC electricity from the panels into AC electricity suitable for use in your home. Sometimes a package might have top brand solar panels, but may skimp on the inverter quality in order to maintain an attractive price point. A low quality inverter will be inefficient and may have a shorter lifespan. Being an expensive item to replace, be sure a good quality inverter is included in your solar power system. A good place for consumers to start when offered a package is to ask for the brand name for each component and then to research the brand history on the Internet.

Inverter efficiency has to be close to 90% otherwise your 1kW solar power will be go into heating the inverter than to power your load! The DC power from the solar panels is converted to AC power suitable for use in your home so this conversion efficiency is important. Some well known brands such as SUNFED from us come with features like 90% peak efficiency, solar priority, automatic transfer from best source like Solar first, then commercial line, if available or battery and also have a break-less Automatic Voltage Regular.

### **Hidden costs**

Poor quality of any component of your system will mean loss. Even the Mounting Structure used is important. If made of Mild Steel ensure that it is professionally zinc dipped and that all the mounting hardware like nut-bolts are of stainless steel. Only reliable supplier will ensure this.

Without quality these structures won't last beyond couple of years in India. There are many hidden extras and these can add thousands onto the final cost of a solar power system; so be very sure to read over quotes and contracts carefully before committing to purchase.

### **Component substitution**

A trick some companies will use is to offer you a respected brand name at a good price, then once the contract is signed and sealed, a mysteriously another inferior brand is used. It is a tactic to increase profit margins as his margins can be very slim if he uses leading brands.

### **Warranty issues**

Many solar panel and related component manufacturers have been established in India in the last five years. With the exception of very few others are not reliable since their products are often not thoroughly tested. The suppliers warranty from a new company you might deal will be of little value if the company disappears.

### **Shadow tolerance claims**

No conventional Solar Array can tolerate shade. It only takes shadow covering a small area of a panel to reduce the performance dramatically of all panels in series as is the case in a conventional array. That does not happen in case of LEECH HV PV Modules since the solar energy is peak tracked with MPPT in each panel and not in central MPPT located in the inverter! Don't let anyone convince you otherwise as you'll just be wasting your money.

### **Installation timelines**

Solar fever is sweeping the nation, so many providers are backlogged - so you can expect a wait of up to a few months for your system to be installed. Ensure that your supplier is promises and keep the delivery promise. Contract you sign should also include what the supplier will do if the installation isn't completed by the appointed time.

### **Demand for high deposits**

It's not uncommon to be asked for a deposit when ordering a solar power system. 20% is the industry norm, with 80% balance payable after system delivery and installation. Demand for a high deposit coupled with a long lead up time until installation can be a very risky business for the consumer.

### **Solar Power Buyers Guide - 8 Important Questions To Ask**

1. What brand of components will be used?
2. Will I be able to upgrade the system?
3. What sort of performance will I get from the system that will be demonstrated on installation?
4. Are all the components of the system from reliable sources?
5. What are the warranty arrangements
6. How much of a deposit will I need to pay and when?
7. How long before my system will be installed?
8. Who will install my system, who will maintain and response time after complaint?