

## Investing in Solar

Purchasing a solar photovoltaic (PV) system can be a great investment. As with any investment, you want to make sure you understand the upfront cost and how that investment will provide long-term financial returns. Taking the time to understand your investment before you make it minimizes the likelihood of being surprised or dissatisfied after you make it.

## How to Choose Your Installer

The best way to gain a better understanding of an investment in a PV system is to seek cost and financial analyses from multiple installers. A quick search through NCSEA's Business Member Directory can be used to find installers near you. The North American Board of Certified Energy Practitioners (NABCEP) also maintains a directory of those solar installers professional certified and companies that are accredited. You will likely receive different estimates from the installers, which should prompt you to ask, "Why?" Exploring the answer to this question is the best way to better understand how investing in solar PV can benefit your household for many years to come.

The difference between your estimates is likely due to the fact that the installers used different inputs and assumptions to create their estimates. Different inputs and assumptions can arise because of different technologies (e.g. rooftop or ground mount systems; standard, premium, or thin-film panels; fixed or tracking systems), different projections of insolation at your location, different projections of electric rate increases, different incentives/policies available to you, etc.

## Parameters to Consider

Ask your installer and their team about the technology you are about to invest in. It is important for you to consider the system components, the efficiencies, the warranties and the strengths of the companies that produce them. While NCSEA cannot cover all of the possible inputs and assumptions, below are some of the key inputs and assumptions as well as ranges that have been deemed reasonable by the installers who have endorsed this guide (the list of installers who have endorsed this guide can be found at our website [www.energync.org](http://www.energync.org)).

### Annual production estimates:

The electricity output of your system, measured in kilowatt-hours (kWh), depends on many factors including: the average amount of sunlight your location receives each year, the orientation of your potential system, and the amount of shading the system is likely to receive.

In North Carolina, fixed rooftop systems that have been monitored over multiple years produce between 1,200 and 1,450 kWh of electricity per kilowatt of direct current installed. This estimate is not meant to discourage investment in systems that are estimated to produce lower amounts due to orientation and shading as these can still be very attractive investments for your household. However, higher production values may be an over promise on the potential output of a PV system in North Carolina with current technology.

**Annual electricity price increases:** Often an installer will estimate how much you could save on your electricity bills with a PV system by assuming that electricity prices will increase by a certain amount each year. Based on historical trends, a reasonable estimate would be to assume a 2% to 4% annual residential electricity price increase in North Carolina.

**Operations and maintenance (O&M) costs:** Be sure to ask your installer about warranties and what operational and maintenance costs might be incurred for the life of the system.

**DC to AC conversion/inversion ratio:** This is the ratio of the inverter's AC rated size to the array's DC rated size. According to National Renewable Energy Laboratory, a reasonable range for this is between 1.1 and 1.25 for residential systems.

## Seeking Endorsements

Ask for references from each installer you secure an estimate from. If an installer's estimate is satisfactory to you, ask for references so that you can ensure the installer has a track record of quality workmanship and customer satisfaction.





## About NC Sustainable Energy Association

The NC Sustainable Energy Association (NCSEA) is the leading non-profit organization dedicated to driving public policy and market development that creates clean energy jobs, economic opportunities, and affordable energy to benefit all of North Carolina. Founded in 1978, NCSEA is a 501 (c) (3) nonprofit membership association of individuals, businesses, governments, and nonprofits. Our team of clean energy advisors, analysts and advocates works closely with our members and partners to research, inspire and drive clean energy progress statewide.



At the time of the printing, these are the installers that subscribed to these principles. For the latest version of the organizations who subscribe to these principles, please check our website: [www.energync.org](http://www.energync.org).

Baker Renewable Energy  
Cape Fear Solar Systems  
Hannah Solar  
NC Solar Now  
Renu Energy Systems  
Sundance Power Systems  
Sun Dollar Energy  
Southern Energy Management  
Yes Solar Solutions



## Consumer Guide to Customer-Owned Solar Photovoltaic

