



Photovoltaic Construction

One goal, one promise: To provide not only what you want, but also what you need.

Zartman Construction is pursuing the “Green Alternative” by providing the same high level of quality installations that made our commercial construction services highly sought after. We design and engineer safe, efficient systems that will service your needs for generations to come.

Our team provides an on-site assessment to determine the feasibility of solar construction. Then we will help you design the best system for your space and install it.

How does a grid tie photovoltaic system work?

Solar panels turn the sunlight's energy into direct current (DC electricity). The DC electricity is converted to Alternating Current (AC electricity) by using an inverter. The inverter also synchronizes the electric with the electrical grid.

If you produce more energy than you consume, the excess energy is distributed to the grid for broader distribution and your meter spins backwards earning you credit from your energy supplier. For safety reasons the inverters will shutdown in the event that the grid loses power.



What are my options?



Types:

- Grid Tie
- Grid Tie with battery back-up
- Stand alone off grid

Panel types:

- Crystalline Silicon Modules (hard panels)
- Amorphous Laminates Modules – for use on flat metal roofs or rubber roofs (flexible panels)

Inverter types:

- String inverters – groups modules to supply power to inverters
- Micro inverters – an inverter for each panel

Both types of inverters can be supplied with a monitoring system

Mounting:

- Roof racking – fixed
- Ground mounts – fixed
- Pole mount – fixed or tracking

How much electricity will I get per kilowatt of solar panel installed?

It depends on the following:

Geography Factors:

- Latitude: Central PA – 41° North
- Cloud cover: Viable sunlight in PA averages 4.2 hours per day
- Sunlight intensity: Panels are tested at 1000 w/m²/STC; outside light typically maxes at 800 w/m²

Location Factors:

- Orientation: optimal direction is south
- Tilt: Optimal tilt of the panel system varies with site conditions
- Shade: What % of the day will your panels be shaded?

Equipment Factors:

- Equipment: Efficiency of equipment and wire losses
- Tracking: Fixed, single axis or dual axis
- Age: With every year PV panels lose an average of 0.5% of their efficiency
- Soiling: Dirty panels affect their efficiency



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