1979
RABE
HARDWARE

DUAL AXIS

SOLAR TRACKERS



Tracking the sun produces 30-40% more power than a traditional fixed solar array.

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RabeSolar.com

"EVERY HOUR THE SUN BEAMS ONTO EARTH MORE THAN ENOUGH ENERGY TO SATISFY GLOBAL ENERGY NEEDS FOR AN ENTIRE YEAR."

- National Geographic



EASTERN IOWANS ARE TURNING TO SOLAR ENERGY

A solar panel installation produces clean, cost-efficient energy harnessed by the sun that locks in energy costs while helping the environment. Over the last 10 years, the cost to install solar panels has dropped by more than 70 percent while the technology and durability has improved. Due to these factors, on-site power generation with solar panels is an extremely economical energy solution with a shorter payback time. Rabe Hardware's knowledge and experience will ensure you get the greatest return on your solar investment.

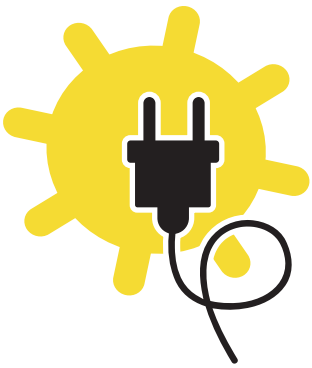
When you're ready to invest in a custom solar system for your home call Rabe Hardware, Eastern Iowa's leader in residential applications. From start to finish, the team at Rabe Hardware will make the entire process easy and hassle free.



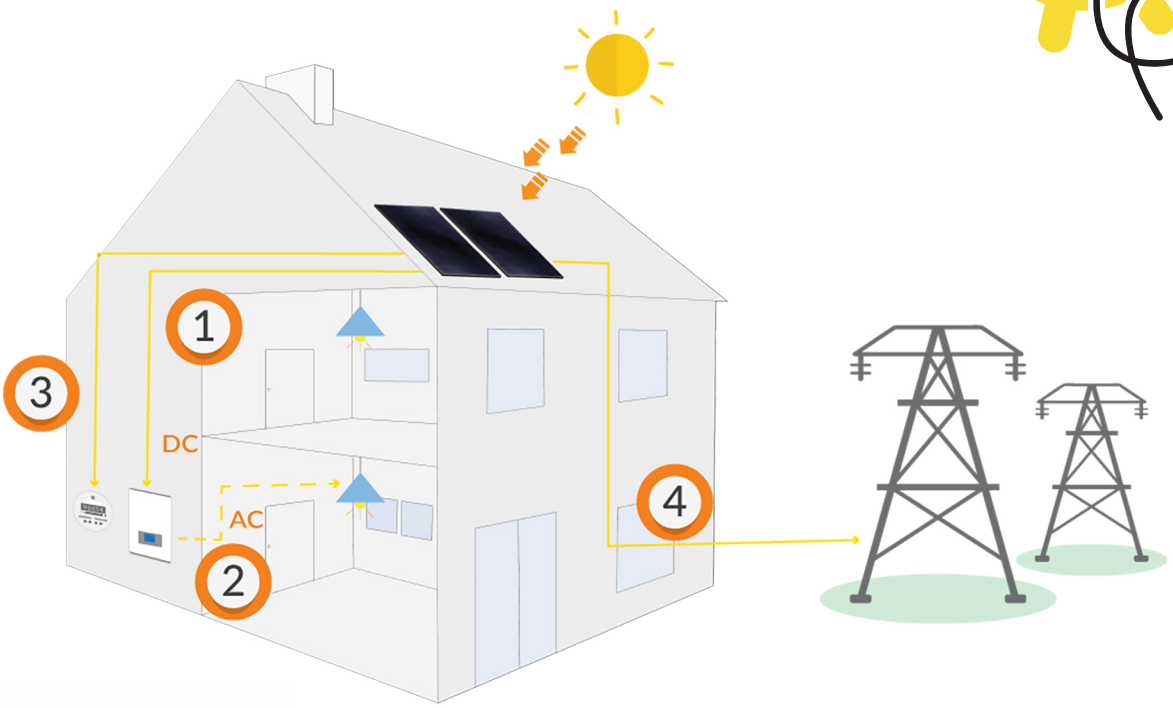
- Lock in energy costs for 25–30 years
- Rabe's power production guarantee
- Iowa sales tax exemption
- 5 year property tax exemption
- Commercial/ag rapid depreciation
- Produce 1000 kWh/year per panel
- Flexible financing options
- 25-30 year panel warranty
- 12-25 year inverter warranty
- 5 year parts & labor warranty
- Licensed & certified electricians
- No batteries necessary
- Real-time monitoring (PC & Mobile)

SOLAR BASICS

WHAT IS SOLAR ENERGY?



- Solar Energy is radiant light and heat from the sun.
- Solar Energy is a clean and renewable source of energy.
- Solar Energy can be converted into usable energy such as electricity.



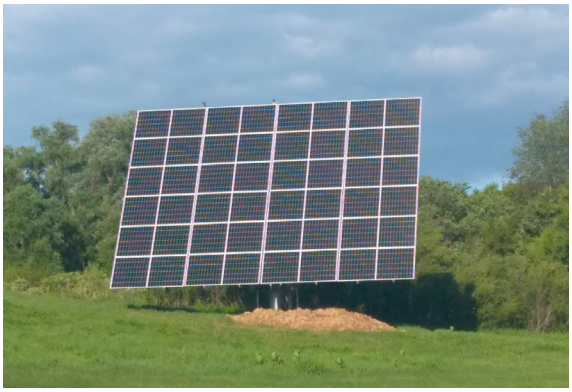




HOW SOLAR WORKS

1. Solar panels contain solar cells, which have semiconductors that convert light into electrical energy. Direct current (DC) electricity is produced and routed to an inverter.
2. An inverter converts the electricity into alternating current (AC), which is used in consumer appliances, lighting, and heating and cooling systems. AC power from the solar system supplies power to your hog barn or other farm buildings.
3. Meters measure the amount of electrical energy produced by the panel and monitor performance of the system.
4. Electricity produced goes through the utility grid and the grid supplies additional power if needed.

COMMON RESIDENTIAL SETUP



SOLAR ARRAY



BACKUP GENERATOR



DISCONNECT



AUTOMATIC TRANSFER SWITCH



BI-DIRECTIONAL METER



UTILITY GRID



HOUSEHOLD ELECTRICAL USAGE

CAPTURING MAXIMUM ENERGY

SUN ACTION Trackers
Eyeing the Sun

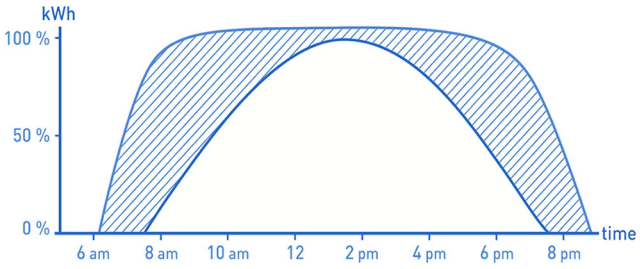


DUAL AXIS SOLAR TRACKERS

The Sun Action Trackers' Dual Axis Tracker is the premium choice in modern solar technology. These tracking systems use a patented technology to track the sun at its maximum irradiation point both vertically and horizontally. As the sun moves throughout the day, the system's patented sensors guide the solar array into the highest point of irradiance, maximizing energy generation.

This is a huge advantage and provides an alternative installation option ideal for many customers unable to utilize utility net metering policies.

Up to 60% increased production with bi-facial solar modules and up to 45% increased production with standard mono-facial modules.



Dual Axis vs. Rooftop Output

DURABLE ▼

Built with a self-healing alloy which allows it to withstand high levels of corrosive atmospheres

SMART TRACKING ▼

Patented Real-Time Sensing Technology guides the system to the maximum point of sunlight throughout the day.

FLEXIBLE INSTALLS ▼

Dual Axis Trackers adapt to any high or low terrain, allowing for maximum flexibility during project planning.

SYSTEM FEATURES



REAL TIME SENSING

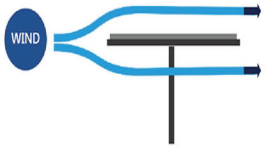
Real Time Sensing Technology is a patented solar tracking sensor developed to provide a more efficient way of solar tracking than traditional solar tracking methods.

MAC STEEL

Magnesium Alloy Coated (MAC) Steel is tested and engineered to be 5-10 times more resistant to corrosive environments compared to standard galvanized steel. The self-healing properties of MAC steel can extend the life of your project and provide further bank-ability to your investment.







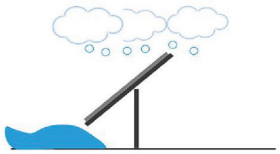
WIND/STOW MODE

When defined wind speed is triggered, Sun Action Trackers move to Stow Mode to protect your project investment. Once the wind speed has returned to normal operational tolerances, Sun Action Trackers will return to work.

Operational Wind Loads support up to 56Mph (25 m/s) before Stow Mode initiates. Once Stow Mode has been initiated, wind loads up to 105 Mph (47 m/s) can be sustained by the tracker safely.

SNOW MODE

Certain environments require the use of snow shedding and other accommodations to keep trackers working year round. With the use of Real Time Sensing, Sun Action Trackers can determine snowy and overly cloudy conditions and move to Snow Mode. Snow Mode sends the tracker into a 60 degree tilt to easily shed snow from the solar panels and keep snow from accumulating.



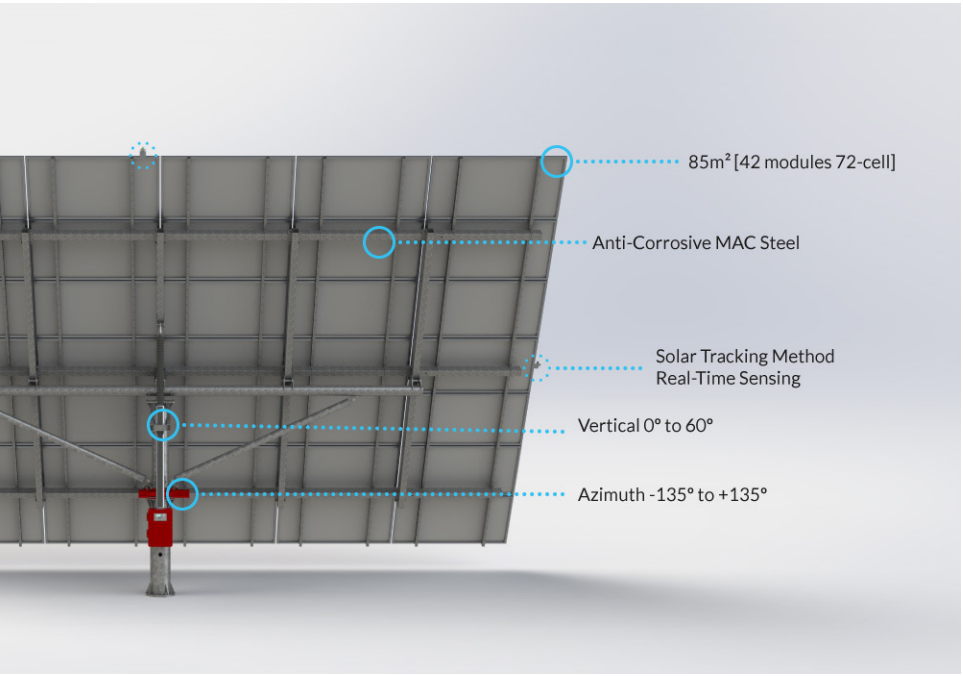




REMOTE MONITORING AND CONTROL

Use communication protocol programmed with wireless capabilities to remotely control and to check your tracker status from anywhere with a WIFI connection. You can track productions, current weather conditions and much more.

SYSTEM COMPONENTS



BENEFITS

- Real Time Sensing
- Low voltage DC motors which require low maintenance and minimum downtime
- Magnesium Alloy Coated Steel*
- Can accommodate any commercially available solar module
- Can be installed on any terrain
- Easy electrical plug and play connection
- Company support during the lifetime of the tracker (Operation & Troubleshooting)

COMPONENTS

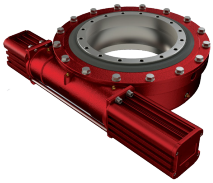
The Sun Action Trackers' Dual Axis Trackers are a fully integrated system featuring smart components that work hand in hand to provide unlimited flexibility, deliver great results and require minimal maintenance.



CONTROL BOX



REAL TIME MONITORING



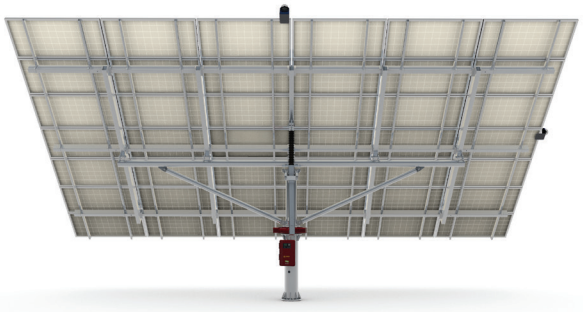
SLEW DRIVE



LINEAR ACTUATOR

SUN ACTION Trackers
Eyeing the Sun

Trace the Sun, Capture the Benefit



REAL-TIME MONITORING

See and share your system's performance on the go: real-time insight to home energy production and usage. Gain visibility into your system performance in real-time with an intuitive, user-friendly app.



KNOW THAT YOUR PV SYSTEM IS PRODUCING TO ITS MAXIMUM POTENTIAL.

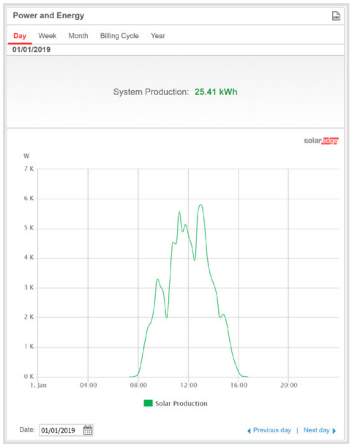
View historic and real-time energy production of your optimized system on the go with your smart phone.

EASY TO USE CHARTS SHOW YOUR PV PERFORMANCE.

Compare today's production to past measurements.

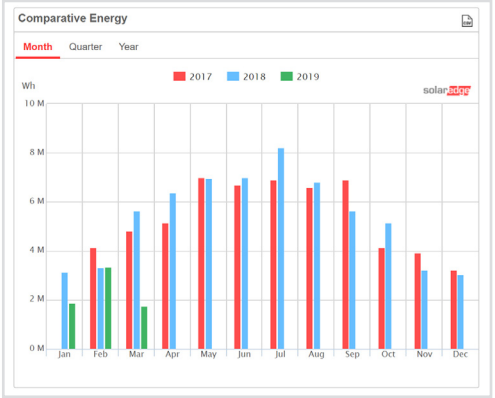
WANT TO KNOW HOW YOUR PV SYSTEM STACKS UP AGAINST YOUR FRIENDS?

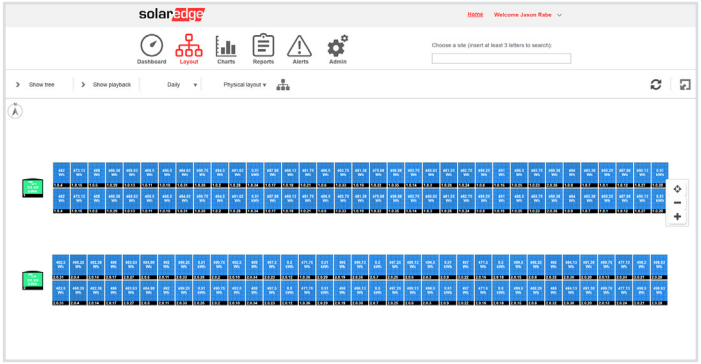
You can share real-time system performance details with your friends across many social platforms: email, messaging apps and more.



REAL-TIME AND FORECASTED WEATHER DATA.

Evaluate your system's performance by understanding what environmental conditions affect energy production.





SAVE WITH SOLAR INCENTIVES

WHY SOLAR IS A SMART INVESTMENT IN IOWA

As electric costs continue to rise across Iowa, solar offers homeowners and businesses a way to lock in energy savings for the next 25–30 years. Rather than being at the mercy of utility rate hikes, solar allows you to take control of what you pay for electricity long-term. If your property has good sun exposure and moderate to high electric bills, solar pays for itself over time - making it a smart long-term investment.

Solar INCENTIVES

▷ TAX EXEMPTIONS & CREDITS

- **Sales Tax Exemption**

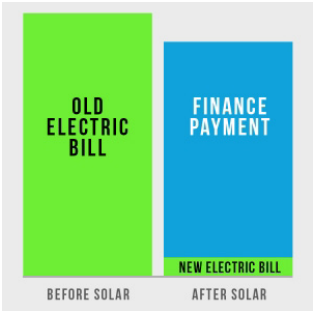
Iowa offers a 6% sales tax exemption on solar equipment, which lowers the upfront cost of your system.

- **Property Tax Exemption**

The Iowa Department of Revenue, under Iowa Code §441.21(8), mandates that the value of a solar system be excluded from the taxable property value for a period of 5 years.

- **Commercial Tax Credits**

Commercial solar systems qualify for the 30% Federal tax credit, but deadlines are firm: start construction by July 4, 2026 and finish within four years, or start later and complete installation by December 31, 2027.



▷ FINANCING

Rabe Hardware makes it possible for you to switch to solar power without incurring the upfront cost of a solar power system. With flexible financing options, you will see immediate savings on your electrical bills.

SAVE WITH SOLAR INCENTIVES

▷ NET METERING IN IOWA

Many Iowa homeowners can also benefit from net metering, which is one of the most valuable solar advantages available.

Why Net Metering Matters
Depending on your utility, system size, and energy usage, net metering can significantly reduce—or even eliminate—your electric bill.

What Is Net Metering*?
Net metering allows your electric utility to act like your maintenance free solar battery. When your solar panels produce more electricity than your home needs, the extra power is sent to the grid. In return, you receive energy credits. When your system isn't producing enough power, like at night or on cloudy days, you can use those credits to offset the electricity you pull from the grid.

**** Net Metering explained in more detail on the next page.***

Who Offers Net Metering?
Most major utilities like Alliant Energy and MidAmerican energy offer annual net metering, where unused credits roll forward month to month and reset once per year. Others, like electric cooperatives and municipal utilities may also offer net metering, though they may only offer monthly net metering, where credits reset from month to month. Either option can greatly shorten your solar payback period.

▷ COMMERCIAL/AG RAPID DEPRECIATION

Also knows as the Modified Accelerated Cost-Recovery System (MACRS), this federal program allows companies to recover renewable investments through depreciation deductions with an additional 50% first year bonus depreciation for systems placed in service before January 1, 2018.

▷ RABE'S POWER PRODUCTION GUARANTEE

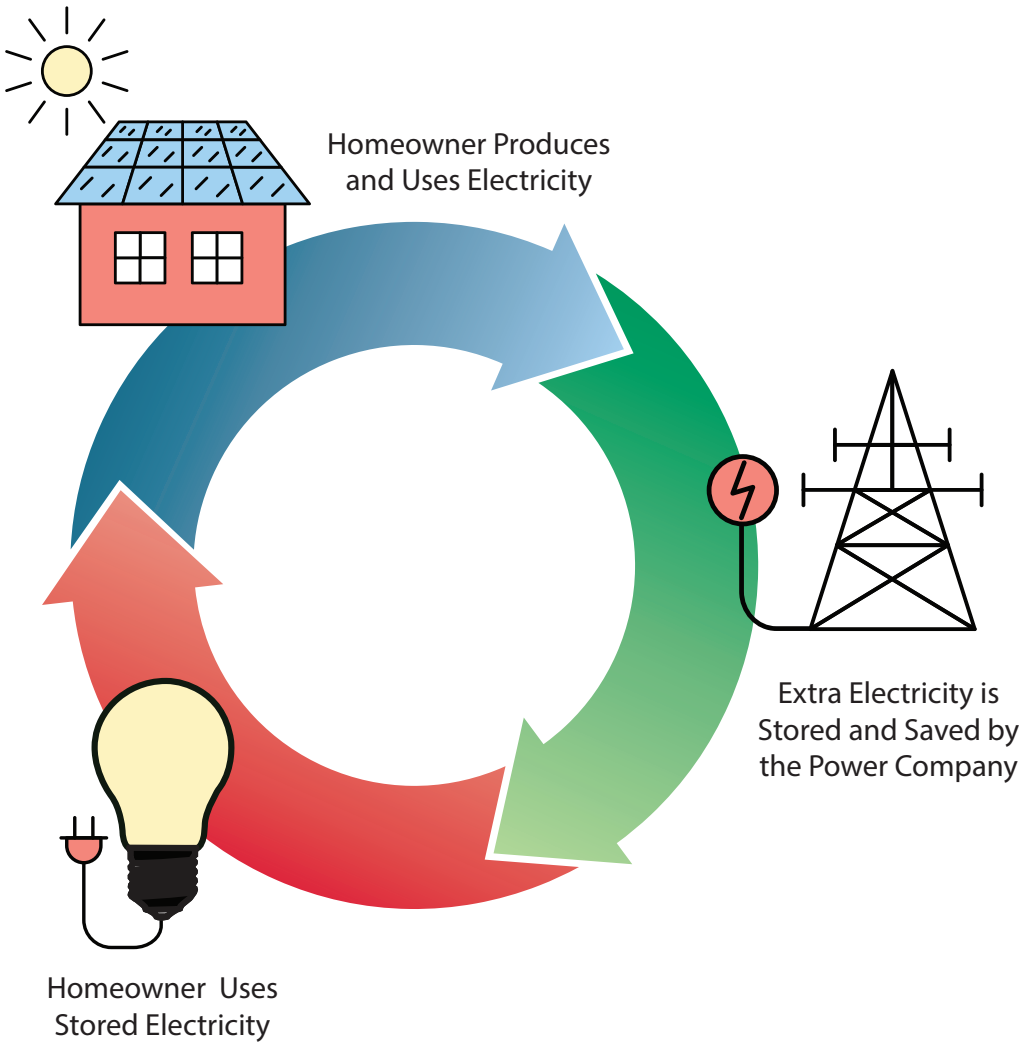
Rabe Hardware is the only Iowa solar provider that personally guarantees the power production of your PV solar system. If your system doesn't produce what we promise, we'll pay you the difference and install additional panels at no cost to ensure it meets the expected output.

NET METERING EXPLAINED

Here in the state of Iowa, homeowners with the option to take advantage of solar "Net Metering" policies see the highest rate of return on their solar investment.

Net Metering allows consumers who generate some or all of their own electricity to use that electricity anytime, instead of just when it's generated. Because the home is connected to the electrical grid via poles and wires, electricity can flow both ways - from the grid to the residence and from the residence to the grid.

That means extra electricity that is produced by your solar system can be sent to the electric utility provider to help power neighbouring homes and businesses. In return, the electric utility offers a credit that can then be used at times when production is low, like when it's cloudy or rainy outside.



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