1979 RABE HARDWARE

Cut Costs and Grow Your Operation with

SOLAR







Agricultural Solar Guide

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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



IOWA FARMERS ARE TURNING TO SOLAR ENERGY

Solar energy offers Iowa farmers a stable alternative to rising energy costs and unpredictable revenue streams. A Solar PV (Photovoltaic) system can generate enough electricity from the sun to significantly offset operating costs, create greater business predictability and reduce pollution. Whether drying crops, heating buildings or powering watering pumps; Rabe Hardware's knowledge and experience will ensure you get the greatest return on your solar investment.

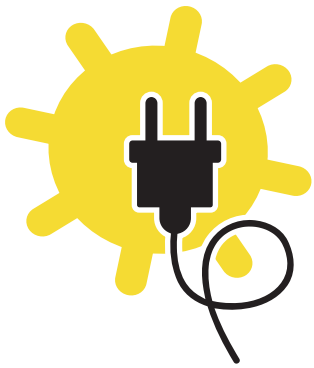
When you're ready to invest in a custom solar system for your operation call Rabe Hardware, Eastern Iowa's leader in agricultural and farm applications. From start to finish, the team at Rabe Hardware will make the entire process easy and hassle free.



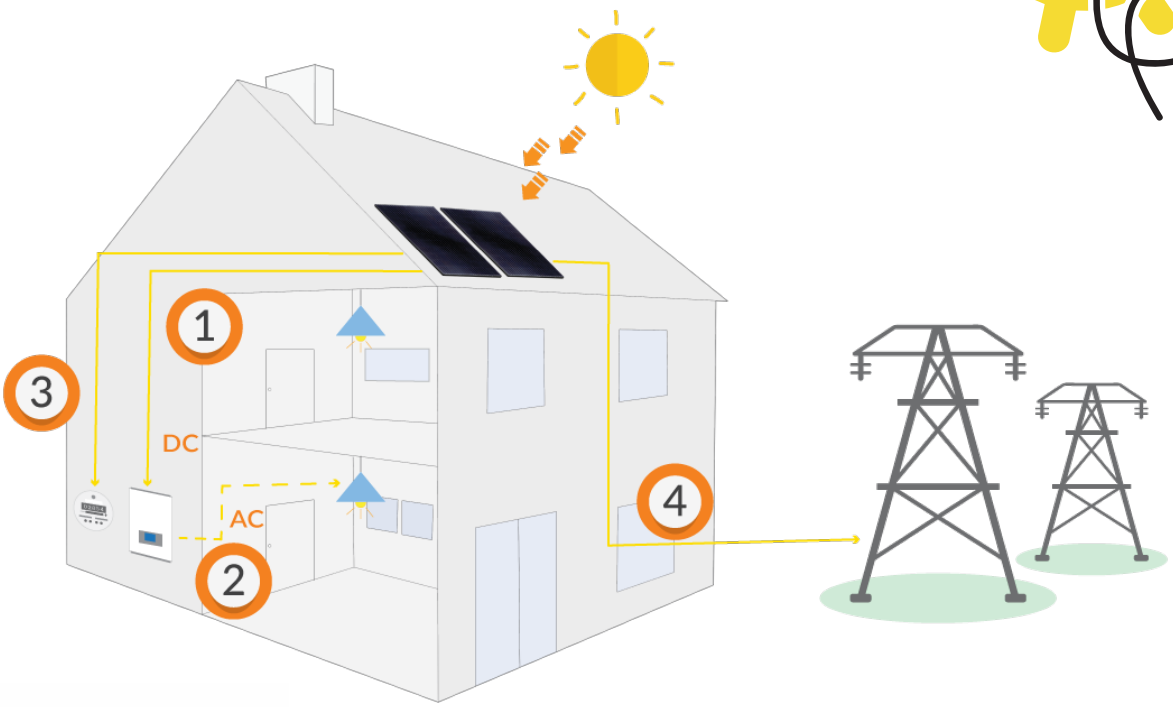
- Lock in energy costs for 25–30 years
- Rabe's power production guarantee
- Iowa sales tax exemption
- 5 year property tax exemption
- Up to 25% USDA REAP grant
- Commercial/ag rapid depreciation
- Produce 500 kWh/year per panel
- Flexible financing options
- 25-30 year panel warranty
- 12-25 year inverter 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 HOG FACILITY SETUP



SOLAR ARRAY



BACKUP GENERATOR



DISCONNECT



AUTOMATIC TRANSFER SWITCH



BI-DIRECTIONAL METER

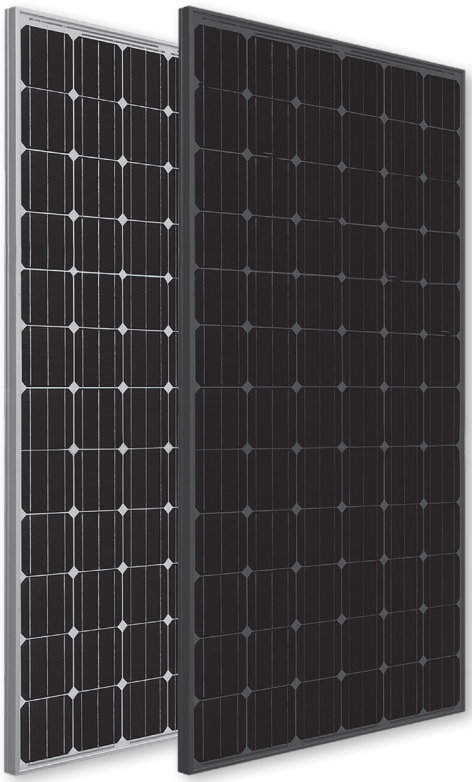


UTILITY GRID



HOG BARN

CUSTOM SOLAR DESIGN



HOW MANY SOLAR PANELS DO I NEED?

The number of solar panels varies depending on several factors including, but not limited to:

- Average annual kW usage
- Seasonal conditions
- The angle of the panel relative to the sun
- Number of daylight hours
- Atmospheric contaminants (i.e. dust, humidity, forest fires, etc.)
- Cloud cover and elevation

ORIENTATION, TILT & SOUTHERN EXPOSURE

- In Iowa, the sun is visible in the southern sky. Orienting a solar array due south will provide the highest energy output.
- Arrays oriented east or west will have a 15-20% drop in performance while solar arrays oriented to the north will have an energy generation reduction of 30-45% as compared to an equally sized array that faces south.







SOLAR ARRAY MOUNTS & RACKING

- Both **Roof Mount** and **Ground Mount** are available. In either case, panels should be clear of buildings, trees or any other obstructions that may cast a shadow.
- Ground-mounted systems are typically near the building or point of consumption.
- Durable all aluminum racking.

WARRANTIES

- 25-30 Year Panel Warranty
- 12-25 Year Inverter Warranty
- 5 Year Rabe Parts & Labor Warranty

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.

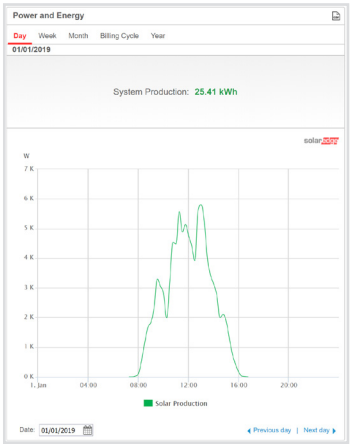
View historic and real-time energy production of your optimized system on the go with your smart phone.

EASY TO USE CHARTS SHOW YOUR PV PERFORMANCE.

Compare today's production to past measurements.

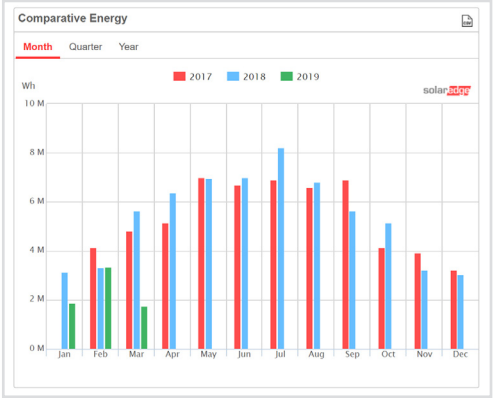
WANT TO KNOW HOW YOUR PV SYSTEM STACKS UP AGAINST YOUR FRIENDS?

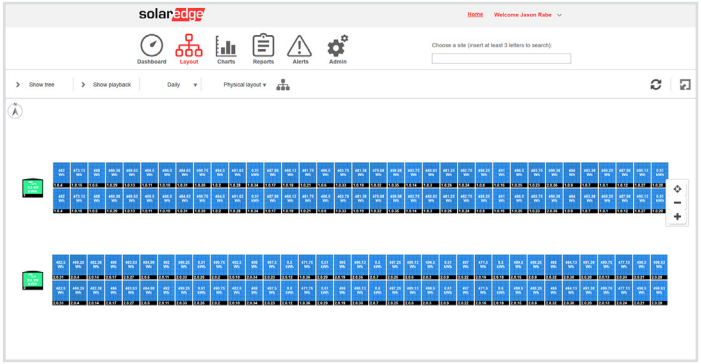
You can share real-time system performance details with your friends across many social platforms: email, messaging apps and more.



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 farms and ag operations 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**

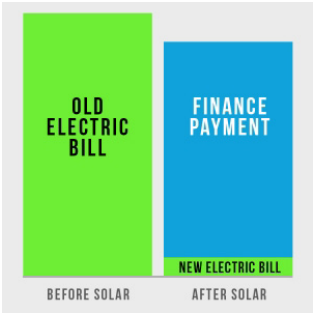
Iowa offers a 6% sales tax exemption on solar equipment, which lowers the upfront cost of your system.

- **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.

▷ USDA REAP GRANT *

The USDA developed this program to provide financial assistance for the purchase and installation of renewable energy systems. Qualifying locations may receive up to 25% of the proposed system cost; $2,500 minimum, $1,000,000 maximum.

**** Qualifications and FAQ's detailed on the next page.***

USDA REAP GRANT FAQ

What is it?
REAP helps small, rural businesses and agricultural producers lower the cost of energy efficiency upgrades and renewable energy systems. The program provides guaranteed grant funding to support eligible projects and improve long-term energy independence.

How much can I get?
Up to 25% of eligible costs.

Who is eligible?
Agricultural producers and rural small businesses.

What is an agricultural producer?
Operation with at least 50% of gross income coming from agricultural operations.

What is a rural small business?
Small businesses (an entity or utility, as applicable, that meets Small Business Administration's (SBA) definition of Small Business) in eligible rural areas (an area other than a city or town with a population of greater than 50,000 inhabitants and the urbanized area of that city or town.)

How/when do I get funds if awarded?
REAP grant is a reimbursement grant that is paid to awarded applicants once project is operational.

What costs are eligible?
Eligible Project Costs are only those costs incurred after a Complete Application has been received by the Agency.

These include but are not limited to:

(1) Purchase and installation of new or refurbished equipment.

(2) Construction, Retrofitting, replacement, and improvements.

(3) EEI identified in the applicable Energy Assessment or Energy Audit.

(4) Fees for construction permits and licenses.

(5) Professional service fees for Qualified Consultants, contractors, installers, and other third-party services.

(6) For an eligible RES in which a residence is closely associated with the Rural Small Business or agricultural operation the installation of a second meter to separate the residence from the portion of the project that benefits the Rural Small Business or agricultural operation, as applicable.

What costs are ineligible?
Ineligible project costs for RES and EEI projects include, but are not limited to:

(1) Agricultural tillage equipment, Used Equipment, and vehicles;

(2) Residential RES or EEI projects;

(3) Construction or equipment costs that would be incurred regardless of the installation of a RES or EEI shall not be included as an Eligible Project Costs. For example, the foundation for a building where a RES is being installed, storage only grains bins connected to drying systems, and the roofing of a building where solar panels are being attached.

How can I apply for a grant?
Applications for this program are accepted year round at your local USDA Rural Development office.

After application is submitted, how long until I know?
The notification period has been highly variable, but 6 months is a reasonable expectation.

If I'm not awarded in the first reviewing period, am I done?
No. Your application remains in competition for at least another round of competition for funding.

Can I build my project once the grant is submitted?
YES. Once your application has been submitted to USDA Rural Development and it is complete, your project may be constructed and completed.

Why does USDA Rural Development do this?
This program helps increase American energy independence by increasing the private sector supply of renewable energy and decreasing the demand for energy through energy efficiency improvements. Over time, these investments can also help lower the cost of energy costs for small businesses and agricultural producers.

What do I need to get started?
Use of a grant writing consultant will greatly simplify this process for you. You will need to obtain a Unique Entity Identifier and CAGE Code # through a SAM.gov registration (if you and/or your business do not already have them). There is supporting documentation that you will need to provide to demonstrate your eligibility as an applicant.













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