

**Welcome to Our Solar Power Hour!**



**GROW SOLAR**

JACKSON COUNTY

We will begin our presentation shortly and start with a brief introduction to Zoom

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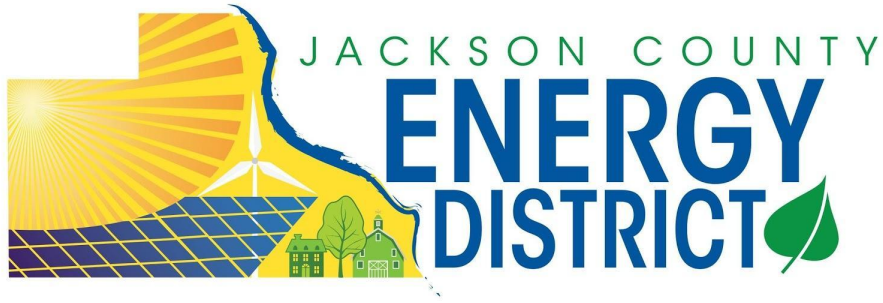


# GROW SOLAR

JACKSON COUNTY

Solar Install  
Rural Monmouth  
Summer 2020





**Chair: Bruce Fisher**

**Rural Monmouth**

**Vice Chair: Bill Hainstock**

**Rural Delmar**

**Treasurer: Megan Andresen**

**Maquoketa**

**Secretary: Ben Davison**

**Rural Hurstville**

**Member: Mike Griffin**

**Springbrook**

**Member: Victoria Putman**

**Bellevue**

**Mission:** *A non-profit organization committed to strengthening our community by leading, implementing and accelerating the INCLUSIVE, LOCAL & CLEAN energy transition.*

By putting boots on the ground in Jackson County we:

- Positively affect the local economy by reducing energy costs.
- Slow the impacts of climate change by promoting wise energy-usage.



# Thank you to our Co-host!



- Bring the community together through nature
  - Promote environmental education and recreation
  - Inspire the community to care about the environment
- \*Interpretive Center Is Part of Grow Solar Program\*



# Thank you to our Co-host!

The Nature  
Conservancy



[www.nature.org/en-us/about-us/where-we-work/  
united-states/iowa/](http://www.nature.org/en-us/about-us/where-we-work/united-states/iowa/)



# Thank you to our Co-host!



[www.maquoketa.lib.ia.us](http://www.maquoketa.lib.ia.us)



# Thank you to our Co-host!



**JACKSON COUNTY**  
**ECONOMIC ALLIANCE**

[www.thejcea.org](http://www.thejcea.org)



# Thank you to our Co-host!



**MAQUOKETA**

STATE BANK

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[www.maquoketasb.bank](http://www.maquoketasb.bank)







# MAQUOKETA

STATE BANK

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## Matt Tranel

563.652.2491

[mtranel@maquoketasb.com](mailto:mtranel@maquoketasb.com)



# Thank you to our Co-host!



[tri-mservices.com/tri-m-bbq](http://tri-mservices.com/tri-m-bbq)



# Today's Agenda

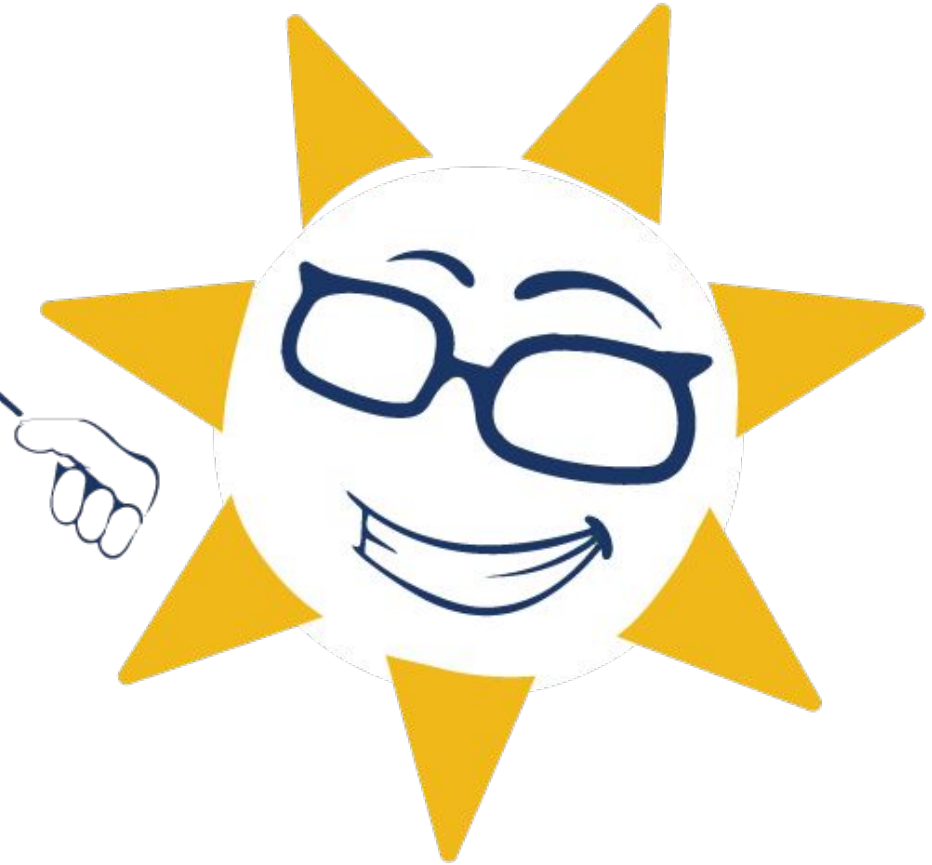
- What is the Grow Solar Jackson County Group Buy Program?
  - How does solar power work?
  - Options & Considerations
  - Costs and cost-saving incentives
  - How to begin your solar journey
- > We hope to simplify a complex topic <



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It's time  
for a  
poll!



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# Why are we here?

To lead the effort in creating more sustainable communities by making solar simple.

# Why are we here?

There are problems with the way you currently buy electricity.

1. Unpredictable rate increases
2. Not building equity
3. Pollution

# What is a group buy?

## Lower Prices through:

1. Competitive Contractor Selection
2. Community-Led Outreach
3. Limited-time Offering
4. Strong Customer Education
5. Economy of Scale

**Everyone wins.**





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## Grow Solar Jackson County Group Buy

- Focused on residences anywhere in Jackson County, Iowa.
- Start with a free, no-obligation site assessment.
- Turn-Key Solar Array. Program Pricing includes design, permitting, components, installation (all-in cost), and warranty (5 years on labor, 12-25 years on equipment).
- Financing & American-made products available

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## Who is the MREA?

- Founded in 1990 with the first Energy Fair
- Promote renewable energy through educational courses in solar PV, solar thermal and small wind
- 42 Solar group buys, 1,900 properties, 14,000 kW of solar

# INSTALLER PROFILE

- **Eagle Point Solar** will custom design your solar array based on your last 12 months of kWh consumption on your electric utility bill. Eagle Point Solar will submit the application to interconnect to your utility company.
- Eagle Point Solar and SiteGen Solar will construct your solar array in conjunction with NABCEP certified designers/installers. No subcontractors will be utilized on any projects in this group buy.
- Your solar array will be connected to your home, business, or farm, by Paulson Electric and Eagle Point Solar's Master Electricians.
- This process is a turnkey solution for everyone.



# Jackson County Conservation Hurstville Interpretive Center

46.28 kW DC

Ground Array





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# *How Does Solar Work? Part 2 of 5*



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# What's a Kilowatt (kW) and a Kilowatt Hour (kWh)?



## **KILOWATT HOUR (kWh)**

a unit of energy used or produced. This is what shows up on your bill.



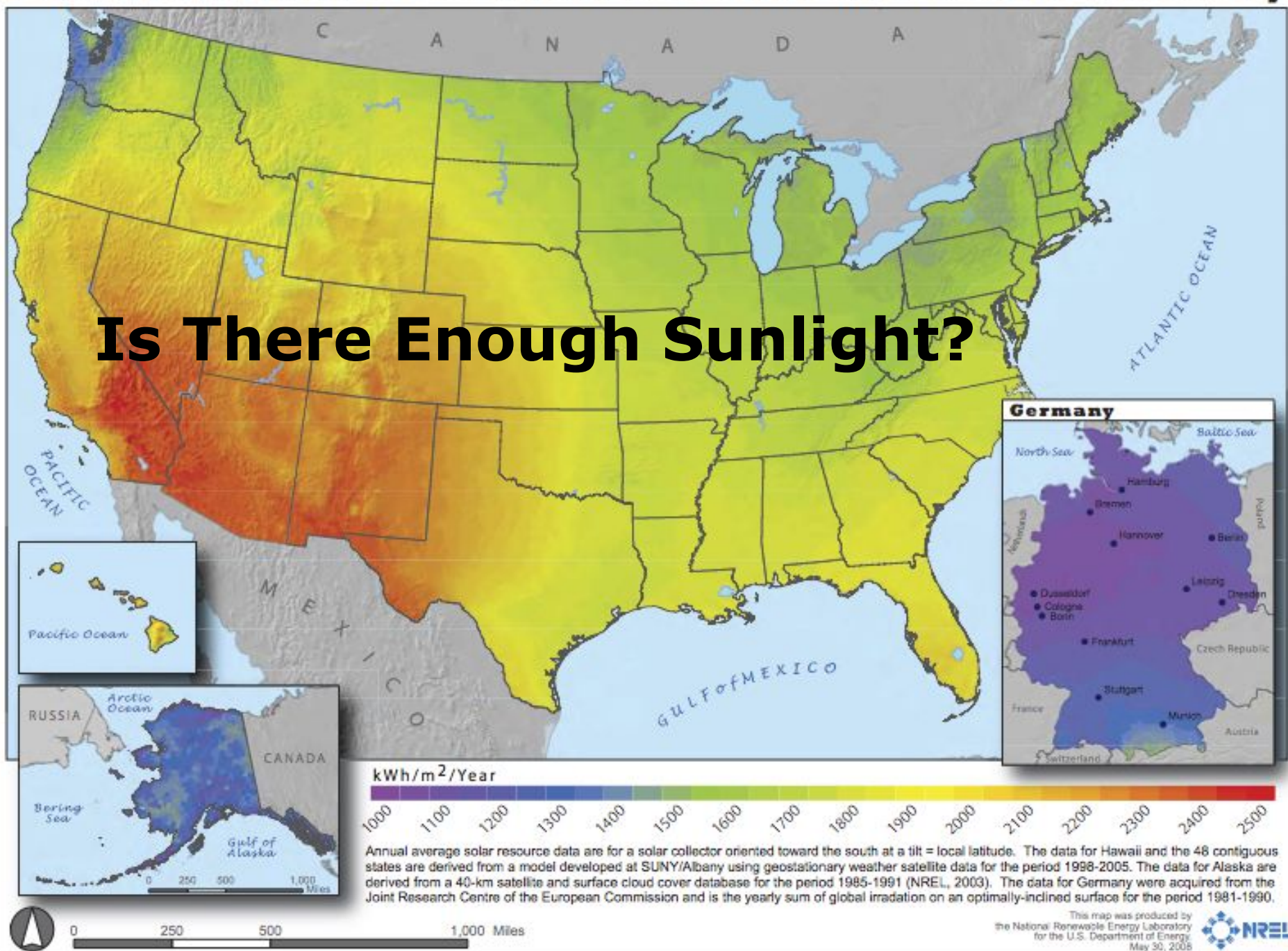
## **KILOWATT (kW)**

a measurement of capacity: how big your array is.



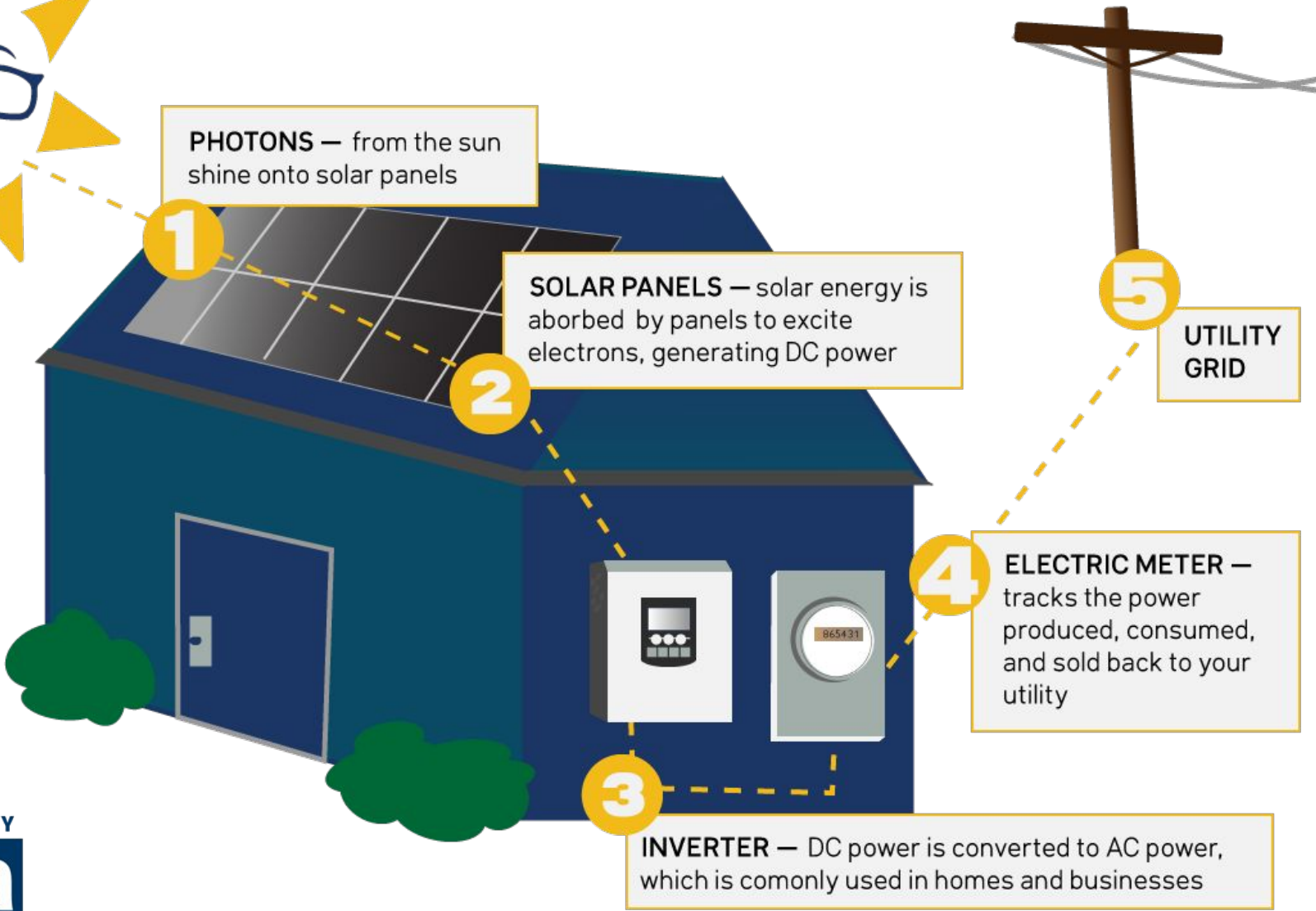
Every home's system size and energy use is different.

# Photovoltaic Solar Resource : United States and Germany





# Configuration: How It Works...



**1** **PHOTONS** — from the sun shine onto solar panels

**2** **SOLAR PANELS** — solar energy is absorbed by panels to excite electrons, generating DC power

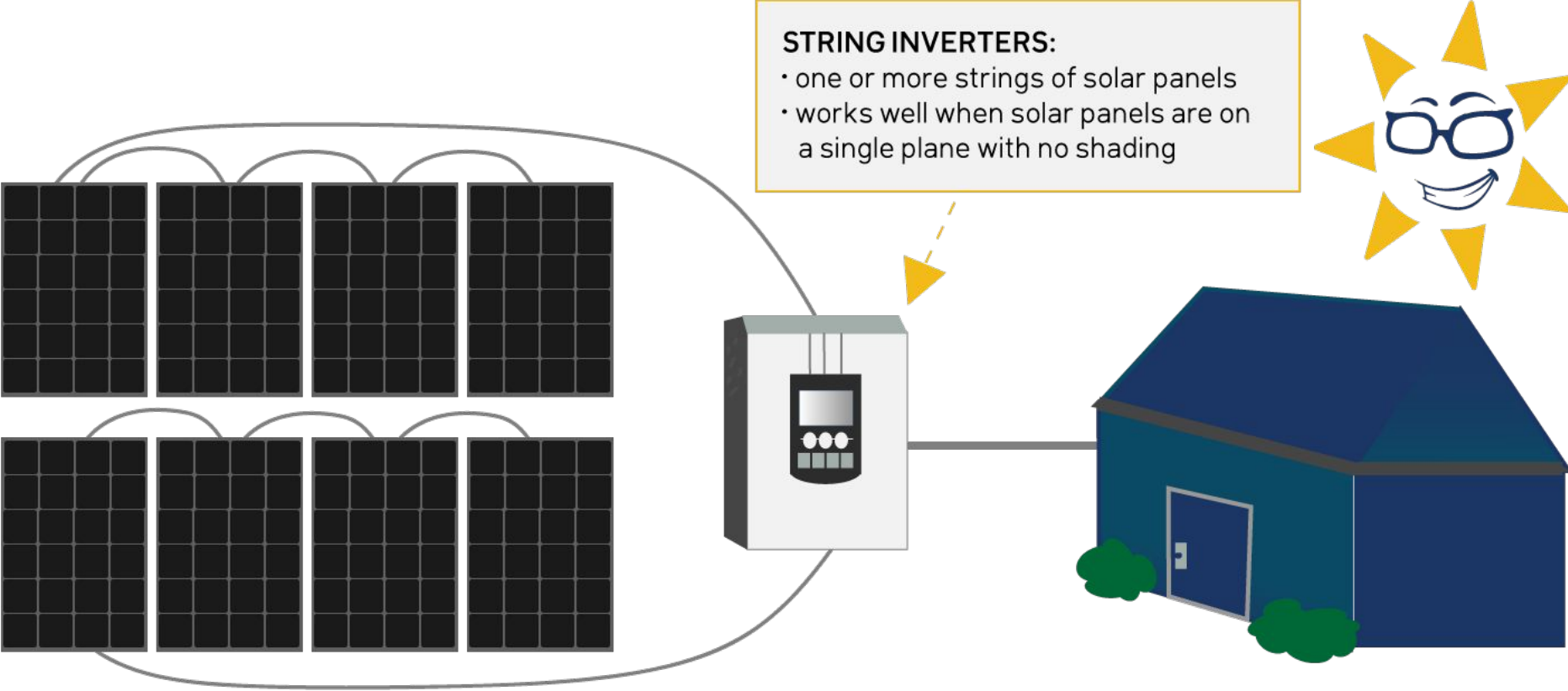
**3** **INVERTER** — DC power is converted to AC power, which is commonly used in homes and businesses

**4** **ELECTRIC METER** — tracks the power produced, consumed, and sold back to your utility

**5** **UTILITY GRID**



# Inverter: The heart of the solar array







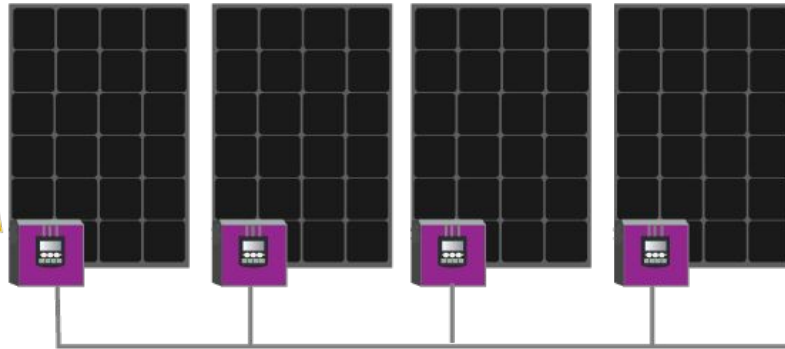
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# Inverter: The heart of the solar array

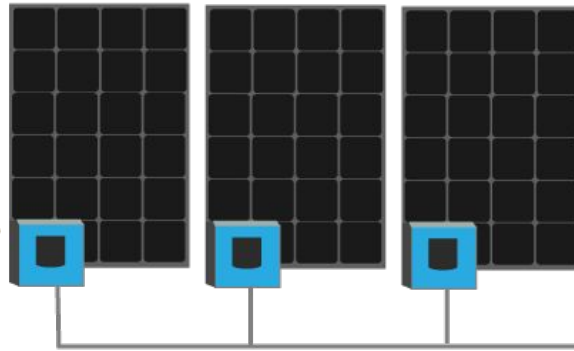
## MICRO INVERTERS:

- one microinverter per panel
- function well on roofs with shade or multiple panel orientations



## POWER OPTIMIZERS:

- one optimizer per panel, plus central string inverter
- function well on roofs with shade or multiple panel orientations



INVERTER



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# Grid-Tied



# Off-Grid

**GRID-TIED DESIGN:**

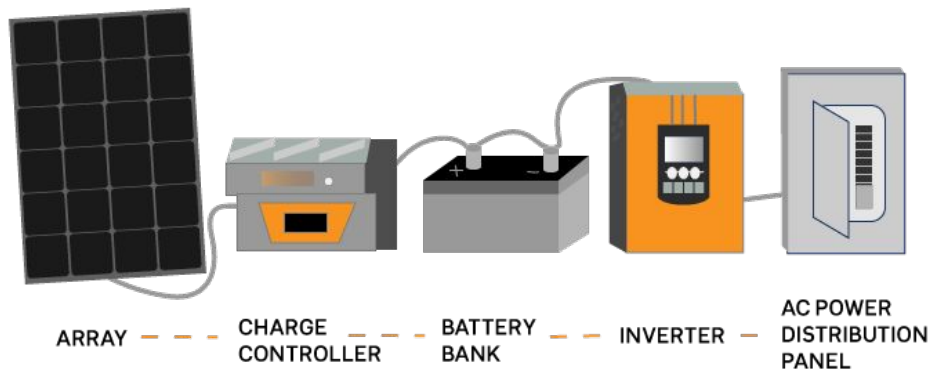
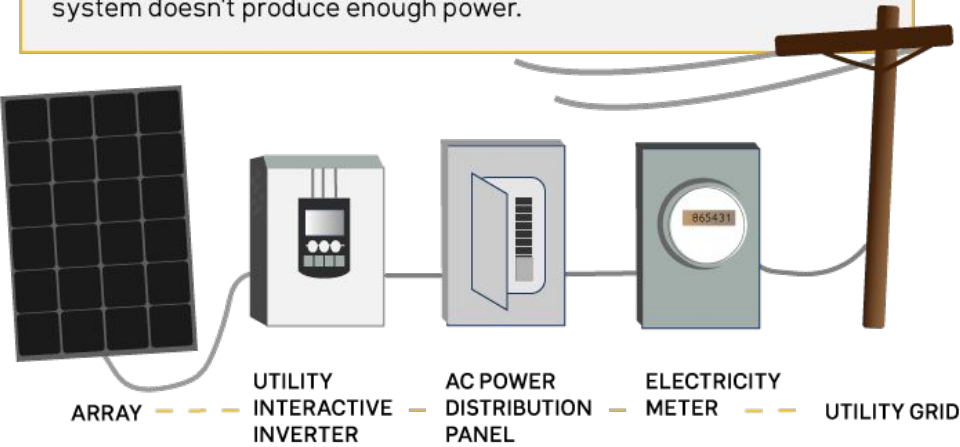
Excess electricity can be delivered to the utility grid, **AND** you can use electricity from the utility grid when your system doesn't produce enough power.

- Least Expensive Option
- Allows for Net Metering
- Grid Off = Solar Off

**OFF-GRID DESIGN:**

A stand-alone PV system that operates autonomously and supplies power to electrical loads independent of the utility grid.

- Requires Batteries & Charge Controller
- Not Connected to the Grid
- Grid Off = Solar On

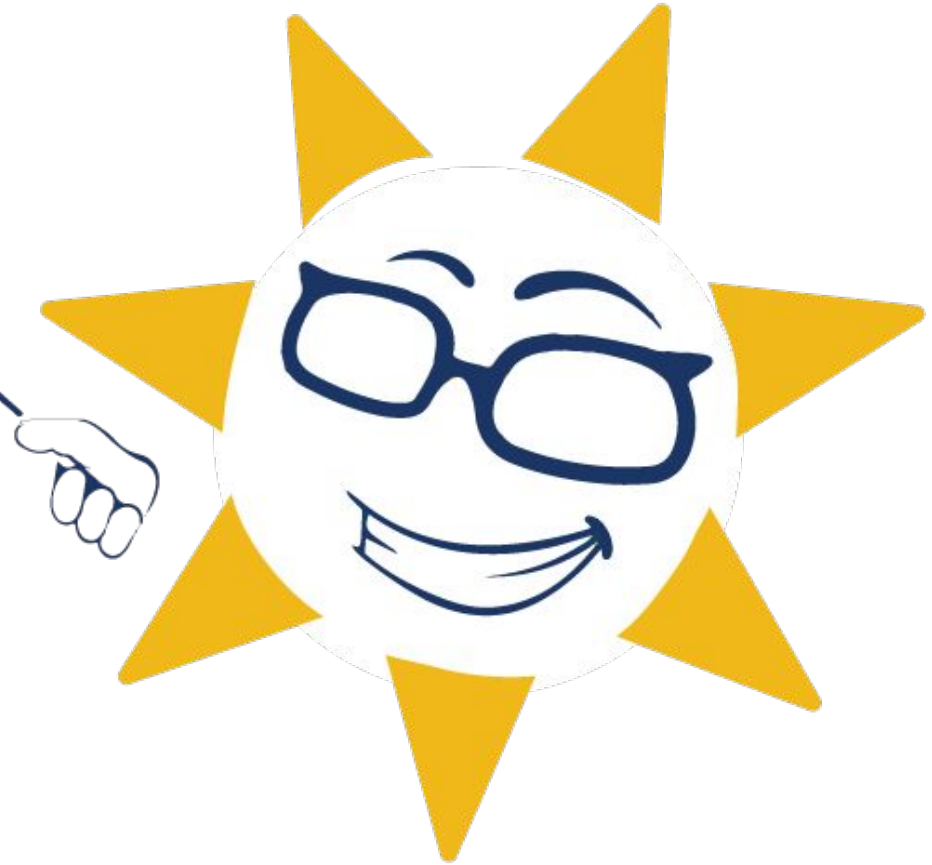




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It's time  
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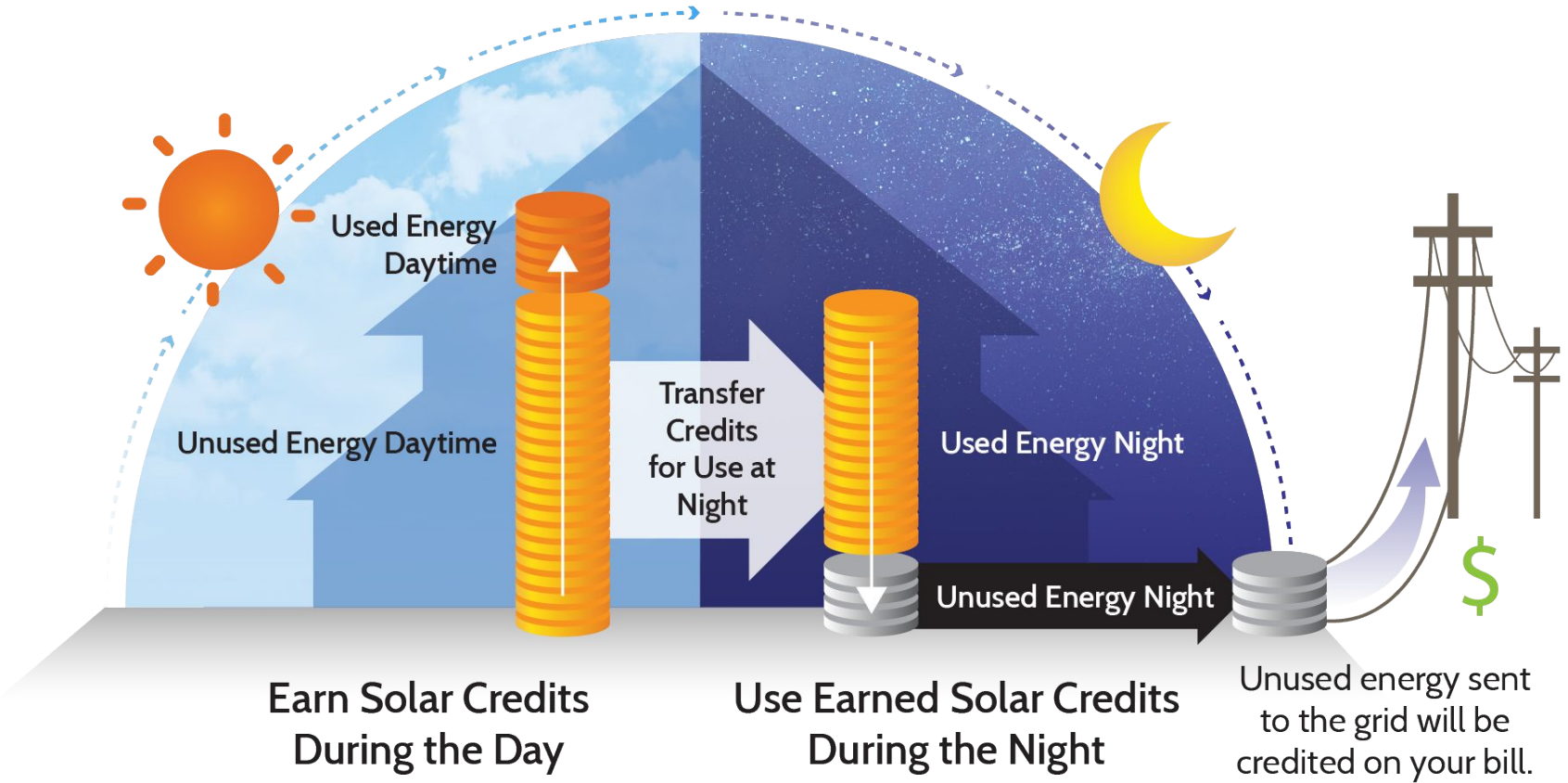


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# How Net Metering Works



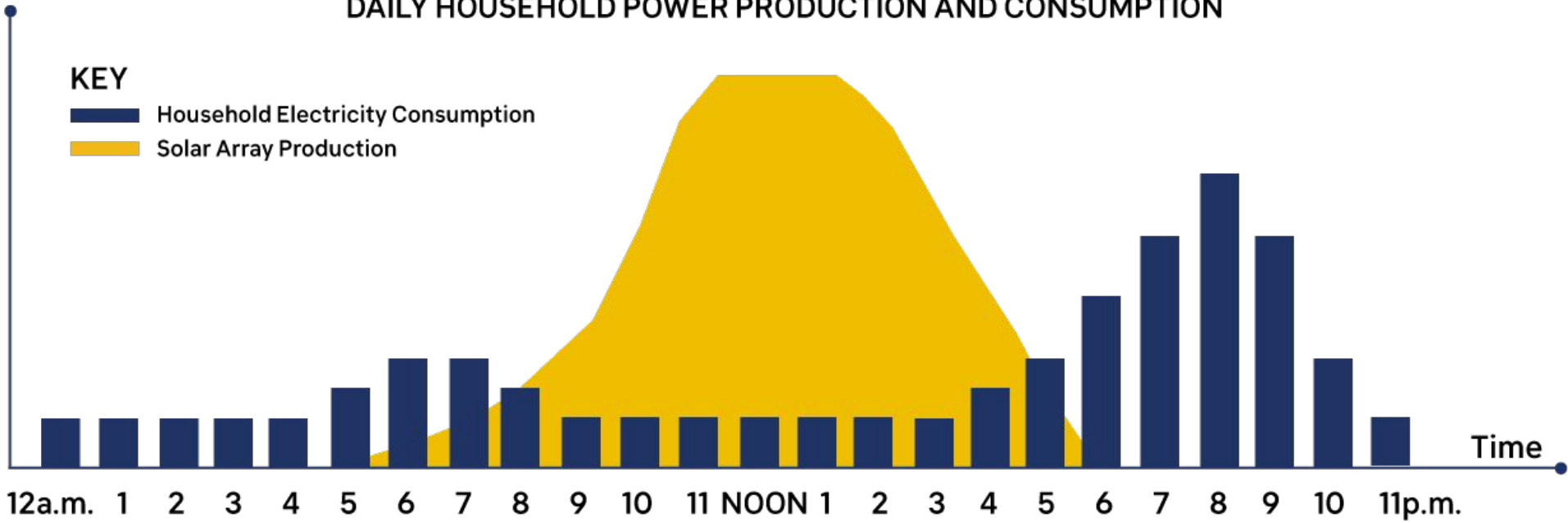


# “A Day in the Life” of a Grid-Tied / Net Metered Home

DAILY HOUSEHOLD POWER PRODUCTION AND CONSUMPTION

**KEY**

- Household Electricity Consumption
- Solar Array Production



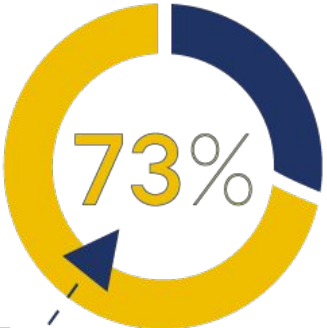
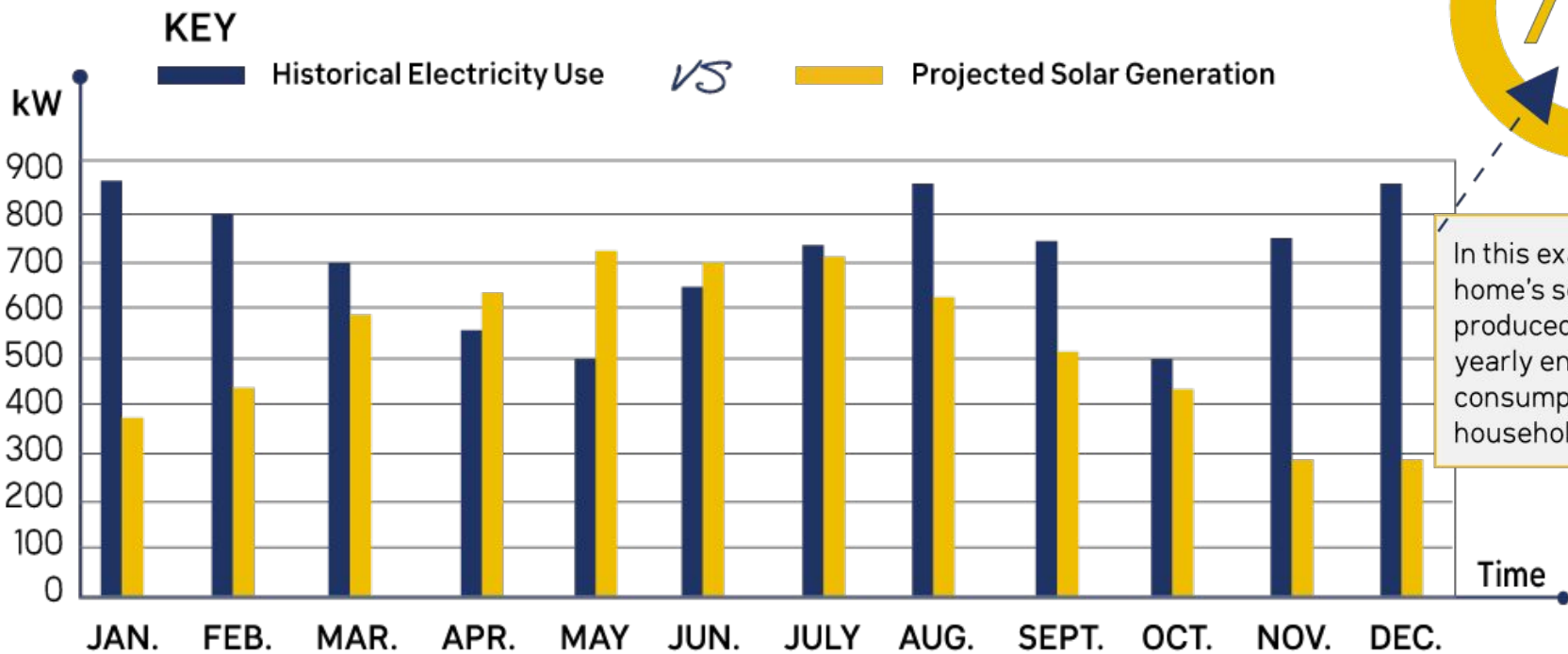
— Net Metering policies vary based on utility

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# “A Year in the Life” of a Grid-Tied / Net Metered Home



In this example, this home's solar array produced **73%** of the yearly energy consumption of the household.





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# *Options & Considerations*

## *Part 3 of 5*



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# Location and Siting

- South-facing with 9am-3pm sun exposure is ideal
- Avoid shading: trees, buildings, poles
- East or West-facing roofs are also workable options







# Roof Mount

- Roof is most common
- Mounted flush to roof using existing pitch and position to the sun
- South-facing pitch is ideal, but East/West-facing are appropriate
- Considerations
  - Hail / snow
  - Shading from trees or nearby obstructions.
  - Wind Loading
  - Roof Condition (age of shingles)



## Ground Mount

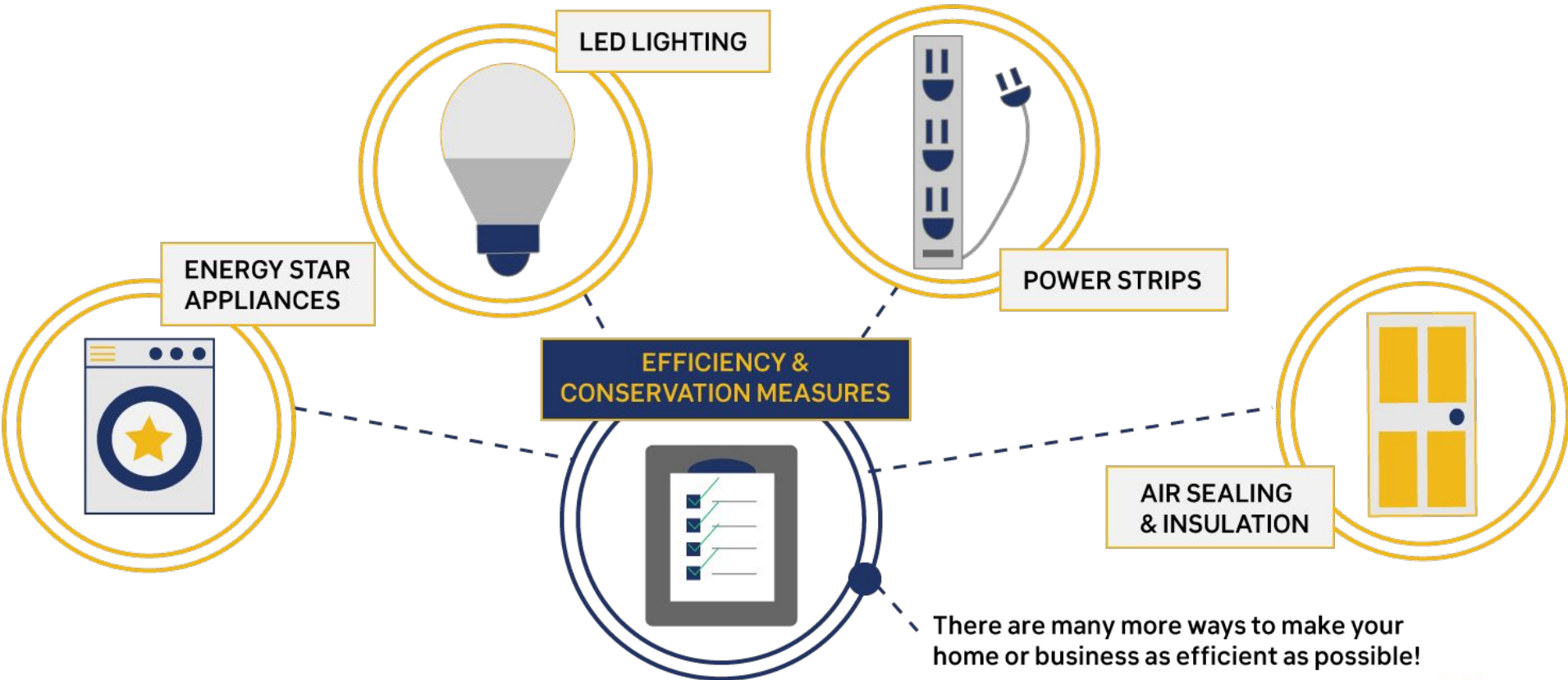
- Good for larger arrays and for properties where house roof is shaded
- Require large un-shaded area
- Take advantage of best solar window
- Solar modules anchored to new structure
- Easy to remove snow and dust (if near farm field)

# Considerations

- System size and design
- Module type
- Inverter type
- Slope, height of roof
- Complexity of electrical interconnection
- Age & type of roof
- Multiple PV arrays
- Need good solar “window”
  - South is ideal, but East + West only reduces production ~20%
- Environment
  - Shading
  - Snow / Hail
  - Wind Loading
  - Squirrels



# Energy Efficiency



There are many more ways to make your home or business as efficient as possible!



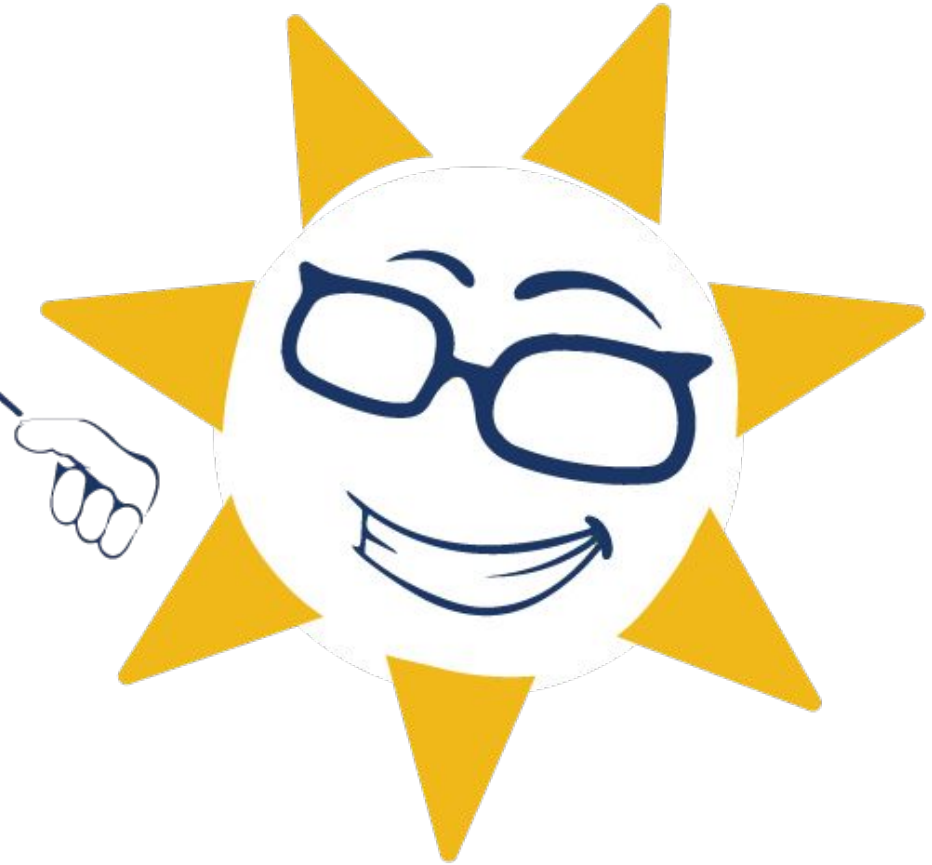
CERTIFIED PROFESSIONAL



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for a  
poll!



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## IS MY PROPERTY WELL SUITED FOR SOLAR?

- Do I have a south facing roof?
- Are there shade issues?
- When do I anticipate re-roofing?
- Is my roof structurally sound?
- Is my building energy efficient?

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# *Solar Costs*

## *Part 4 of 5*



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# How It Works

The more people go solar, the lower the price:

**Competitive Base Price: \$2.12/W**

(Base price is lower than Eagle Point's typical price)

**With Additional Discounts** (assumes avg solar array = 6kW):

>50 kW	>150 kW	>300 kW	>500 kW
-\$0.03/W	-\$0.06/W	-\$0.09/W	-\$0.13/W
-\$30/kW	-\$60/kW	-\$90/kW	-\$130/kW
~8 homes	~25 homes	~50 homes	~83 homes

On a 6 kW array, the maximum *additional*  
Group Buy price break is \$780

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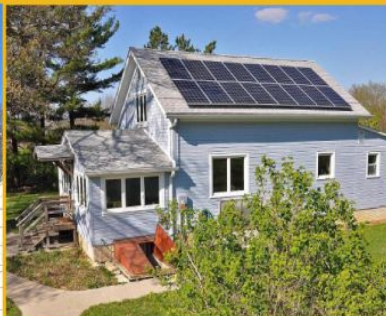
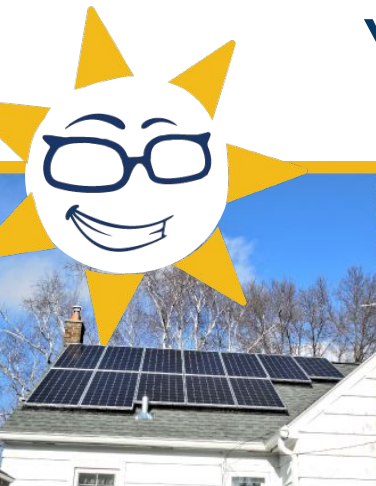






# Every Property Is Different

Your PV System Is Tailor-Made To Fit Your Needs



## Pricing Varies by Site and Needs:

- System Design and Size
- Age and Type of Roof
- Panel Type
- Inverter Type
- Slope and Height of Roof
- Complexity of Electrical Interconnection
- Multiple PV Arrays
- Energy Storage



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# Typical installation



Pictured above is a 22 module, or 7.2 kW DC, solar array.

Estimated annual solar production = **8,585 kWh**

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Photo Credit: Eagle Point Solar



## 7.26 kW DC Residential Roof System

**Starting price: \$2.12/Watt (\$15,392)**

### Site-Specific Adders

- 2 story roof (\$.08/W) + \$580
- 7/12 roof pitch (\$.05/W) + \$363
- Monitoring + \$350

**Final quoted price (\$2.30/W) \$16,685**

**Installed Cost (\$2.30/Watt) \$16,685**

26% Federal Tax Credit (\$4,338)

\*\*11% Iowa Tax Credit (\$1,835)

**Net Cost \$10,512**

**Net Cost w/o IA Tax Credit \$12,347**

## 7.26 kW Solar Array 22 330W VSUN Modules



**Simple Payback: 9 yrs**

**Estimated Year 1 Solar production = 9,253 kWh**

**Year 1 utility \$/kWh = \$.165/kWh**

**Payback = Net Cost / Year 1 electric bill saving = \$1,168**

**Cash Gained Over 25 Years = \$42,100**



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# *Incentives & Next Steps*

*Part 5 of 5*



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# Residential & Commercial Renewable Energy Tax Credit (Federal)

- Tax credit of **26%** on qualified expenditures
  - Includes labor costs, system installation, interconnection wiring
  - Does not include new roof unless roof reinforcement is necessary to support the solar panels
- No maximum credit
- Res: The home must be owned by the taxpayer but does not have to serve as the principal residence
- Ask your tax professional for further details

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## **Iowa's State-Level Incentives**

- No longer available for residential customers
- (formerly 50% of the federal incentive)



## **Iowa's State-Level Incentives**

- Program is phasing out
- Technically Available for 2021 Arrays - BUT
- 2+ year waiting list will cease to exist



# Home Values

Zillow has released a report stating that homes with solar panels sell for 4.1% more than their generation-naked counterparts.

*Zillow Economic Research*

A study by the National Renewable Energy Laboratory found that homes with solar sold faster and for more than equivalent non-solar homes.

*NREL (National Renewable Energy Laboratory)*

In a study across six states, Berkeley National Lab found that home buyers will pay a premium for solar homes.

*Lawrence Berkeley National Laboratory*





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# Environmental Benefits

Over the life of a 5 kW system, the electricity produced is equivalent to 163 tons of carbon dioxide (CO<sub>2</sub>).

That's the CO<sub>2</sub> equivalent of any one of these:



**Planting 3,798 trees.**



**Driving reduced by 326,000 auto miles, or 16,626 gallons of gasoline.**



**Recycling 515 tons of waste instead of sending it to landfill.**



**158,831 pounds (79.4 tons) of coal burned.**



and you will help avoid the use of up to **3,975,500 gallons of water by Thermoelectric Powerplants.**

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# Pollinator Habitat Program

- Opportunity for Ground Mount Arrays
  - **The Bee and Butterfly Habitat Fund** - ‘Seed a Legacy’
  - Free or Reduced Cost Seed
  - Technical Assistance for Planning and Planting
  - Half Acre Minimum Planting Around/Under Array



[www.BeeAndButterflyFund.org](http://www.BeeAndButterflyFund.org)

\*photo credit Peter Berthelsen

  
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# Financing Solar

- Check with your local lenders for options!
- Clean Energy Credit Union
  - 100% clean energy loans - first of its kind, launched 2017
  - Not for profit
  - **Choose one or both of these loan types:**
    - 12-18 month loan for 26% of system cost (covers the 26% Federal Tax Credit)
    - 12-year fixed rate loan up to the remaining 74% solar electric system cost

## **INSTALLATION TIMELINE (approximate)**

**Day 1**

**Sign Contract**

**Week 1-2**

**Engineered design by Eagle Point Solar submitted for permitting and interconnection applications**

**Week 3-7**

**Getting approval for interconnect application from Utility Company**

**Week 8-9**

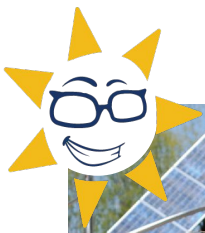
**Construction**

**Week  
10-14+**

**Waiting for inspection/approval and Utility Company Permission to Operate**

# Next Steps

1. **Fill out the form** we're sending to you in the chat AND in a follow-up email right after this webinar.
2. Eagle Point Solar will follow up to get started on a free, no obligation preliminary Solar Analysis. **Prepare to supply a copy of your recent utility bill along with the last 12-months of your electrical usage data.**
3. Eagle Point Solar will set an appointment to review your **free, no obligation preliminary Solar Analysis**. This report can be delivered via online meeting, phone or in person.
4. **Request a detailed site assessment.** Eagle Point Solar will verify your design, update your quote and give you your contract.
5. **Sign contract and pay down payment** with Eagle Point Solar by **August 31, 2021**, to participate in Grow Solar Jackson Counties.
6. Celebrate and enjoy clean energy! Tell your neighbors and friends to participate!



# Become a member of MREA!



**Your support as a member makes a long lasting impact.**

**You help sustain and grow our many programs, including:**

- **Grow Solar Group Buy Program**
- **Solar on Schools Initiative**
- **Solar Professional Training**
- **Solar Ready Wisconsin Workforce Development Project**
- **Solar Corps Internship Program**
- **Rise Up Midwest, and more!**

Everyone who goes solar through the program gets a **FREE Basic Family Membership!**



[www.midwestrenew.org/membership](http://www.midwestrenew.org/membership)



**When there's a huge solar energy spill,  
it's just called a "really nice day"**

Contact: Ann Huberty at Eagle Point Solar  
Ahuberty@eaglepointsolar.com or (877) 357.2555

Support: Marta Monti - Marta@midwestrenew.org  
Solar Program Manager, MREA

