



# Solar-Friendly Planning & Zoning Workshop

**NOVEMBER 30, 2023**

Fitchburg Public Library



# Agenda

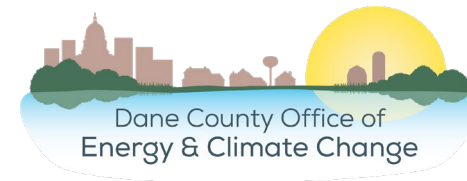
- 1:00** Purpose and Logistics
- 1:10** Welcome and Introductions
- 1:20** *Group Exercise #1*
- 1:40** Solar Ready Community Basics
- 2:10** Comprehensive and Neighborhood Plans
- 2:40** **BREAK**
- 2:55** The Zoning Code
- 3:35** *Group Exercise #2*
- 3:50** Planning & Zoning: An Installer's Perspective
- 4:20** Wrap-Up Discussion
- 4:30** Adjourn



## GROUP EXERCISE #1

**Where are you at with incorporating solar into your planning or zoning work?**

**What do you hope to learn today to support your efforts?**





# Break





## GROUP EXERCISE #2

**Identify an immediate opportunity to apply knowledge or ideas you learned today, discuss, and get started!**





# Solar Ready Community Basics

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Nick Hylla

Executive Director

Midwest Renewable Energy Association (MREA)





**A Non-Profit Organization  
Founded in 1990 and  
Incorporated in Wisconsin  
with a Mission to  
“Promote Renewable  
Energy, Energy Efficiency,  
and Sustainable Living  
through Education and  
Demonstration.”**



# The Biggest Machine on Earth

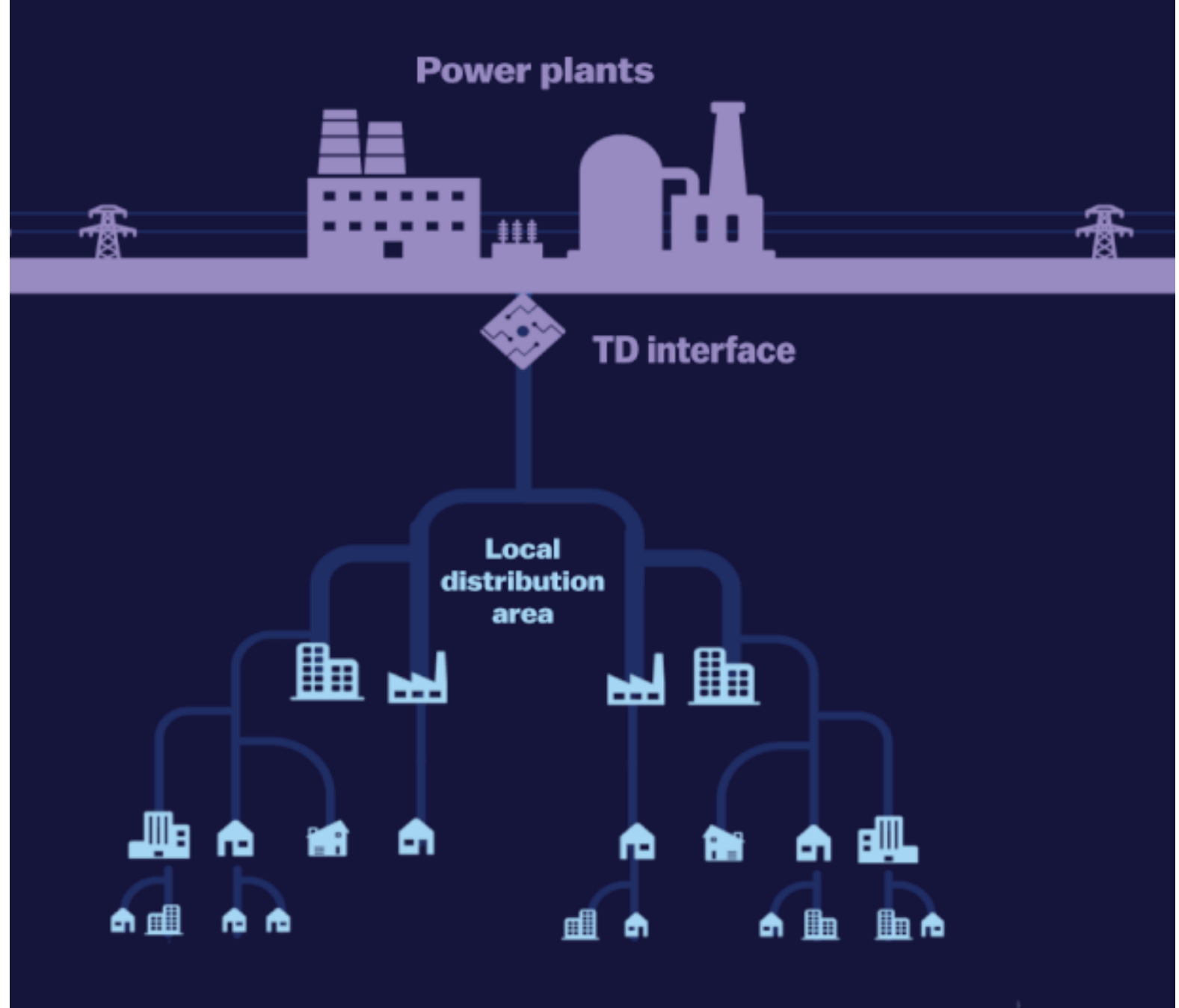
The US electricity system is the second largest in the world (China has the largest), serving approximately 150 million customers with over 3,859 terawatt-hours (TWh) of electricity from over 1,190 gigawatts (GW) of generating capacity, routed through 476,000 miles of transmission lines, 55,000 substations and 6.3 million miles of distribution lines.



# The Grid As We Have Known It:

Supply Must Equal Demand or Failure Occurs.

Must Overbuild Capacity to Meet an Unmanaged Demand.

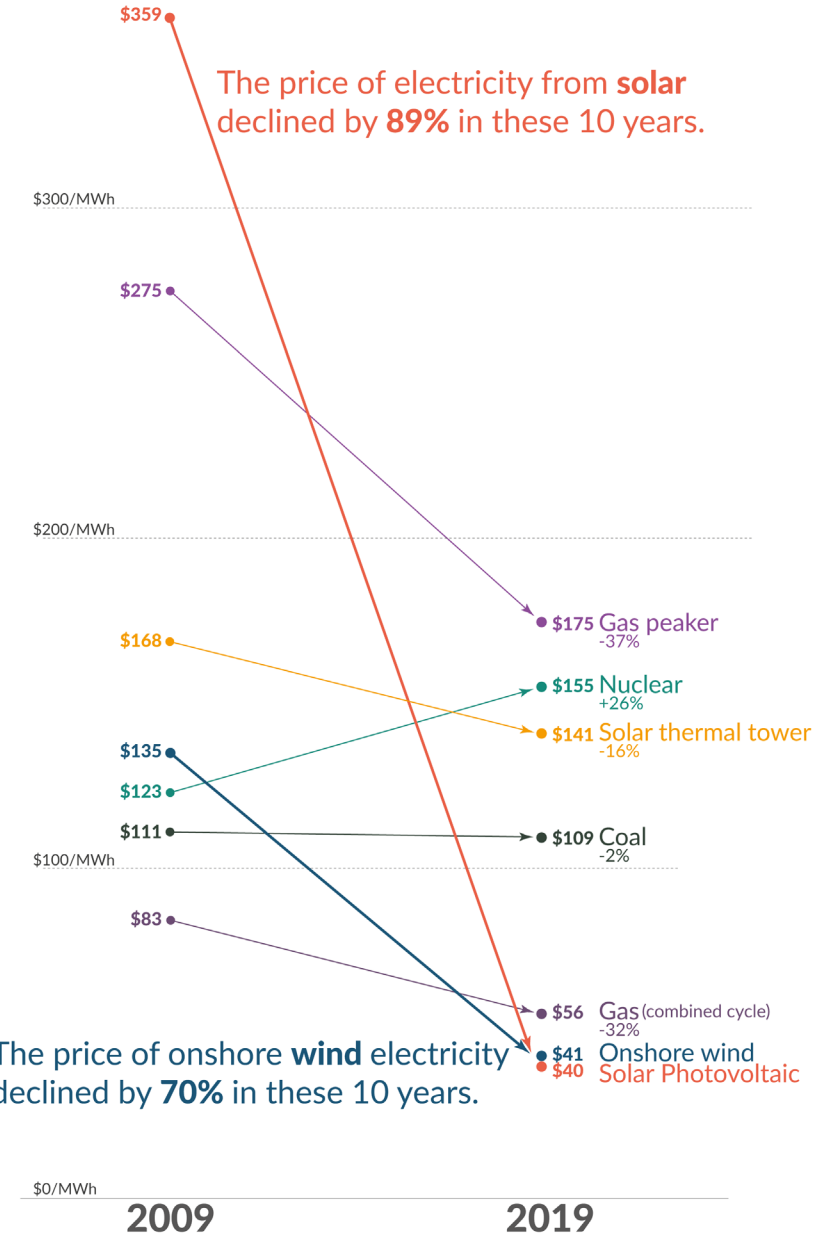


The price of electricity from new power plants  
 Electricity prices are expressed in 'levelized costs of energy' (LCOE). LCOE captures the cost of building the power plant itself as well as the ongoing costs for fuel and operating the power plant over its lifetime.

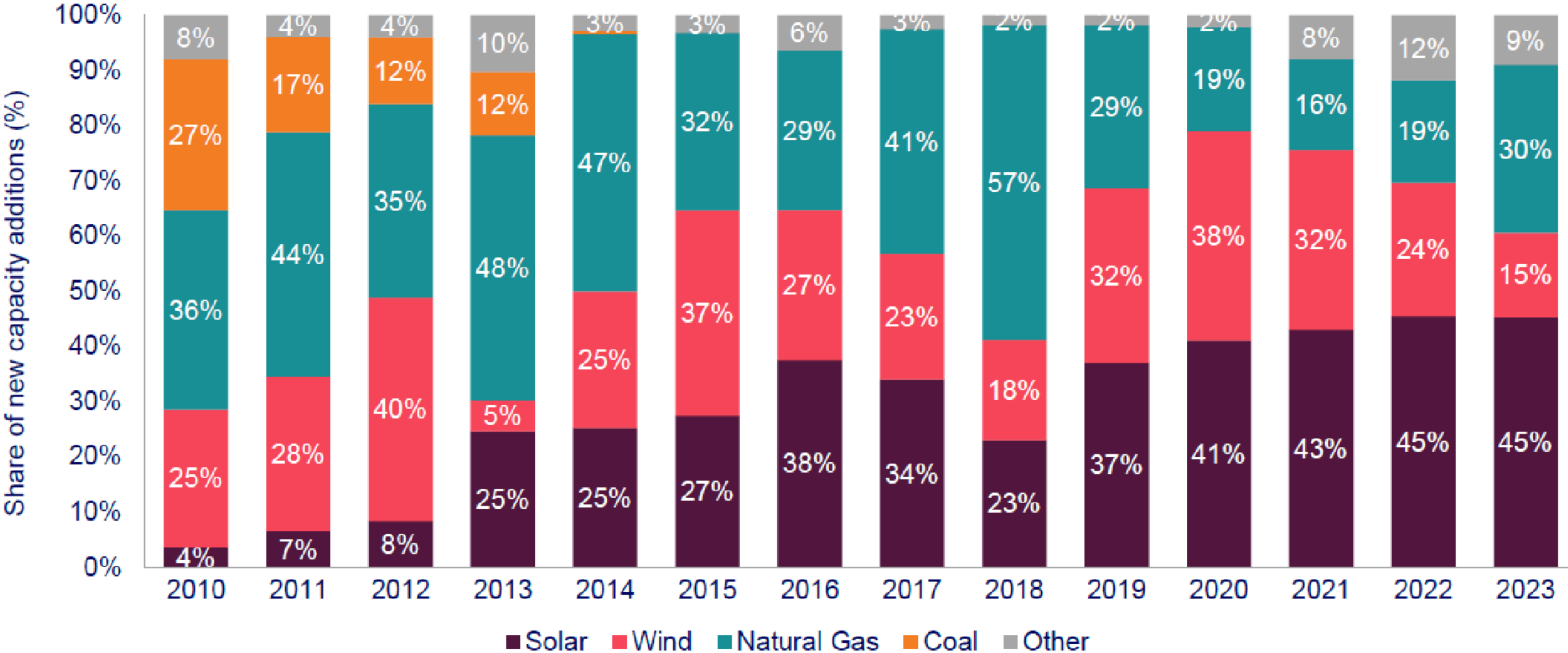
Electricity from utility-scale solar photovoltaics cost \$359 per MWh in 2009. Within just one decade the price declined by 89%.

It's hard to overstate what a rare achievement these rapid price changes represent. Imagine if some other good had fallen in price as rapidly as renewable electricity: Imagine you'd found a great place to live back in 2009 and at the time you thought it'd be worth paying \$3590 in rent for it. If housing had then seen the price decline that we've seen for solar it would have meant that by 2019 you'd pay just \$400 for the same place.

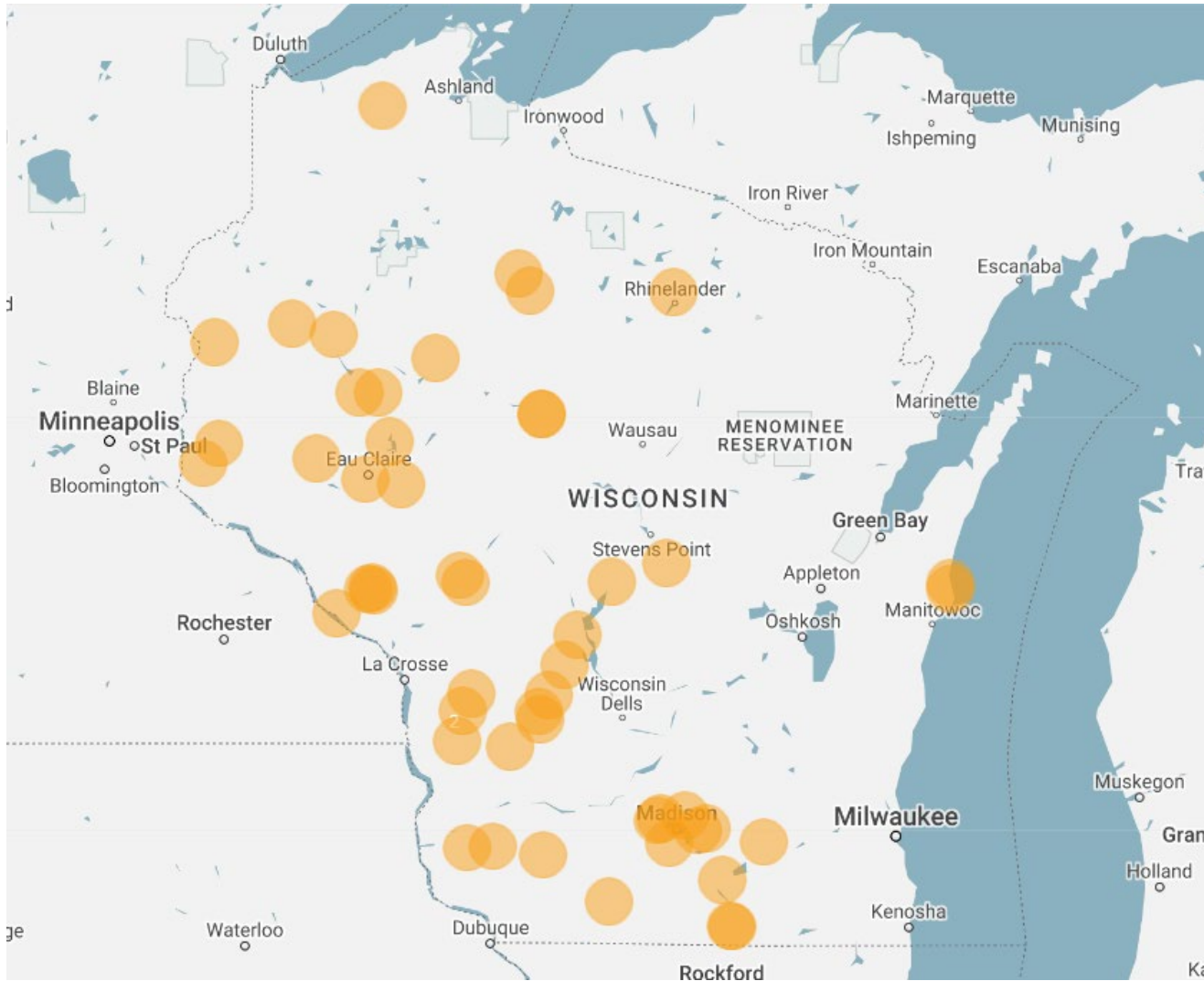
[Why did renewables become so cheap so fast? - Our World in Data](#)



# New U.S. electricity-generation capacity additions, 2010 – H1 2023



# Large Scale Solar in Wisconsin



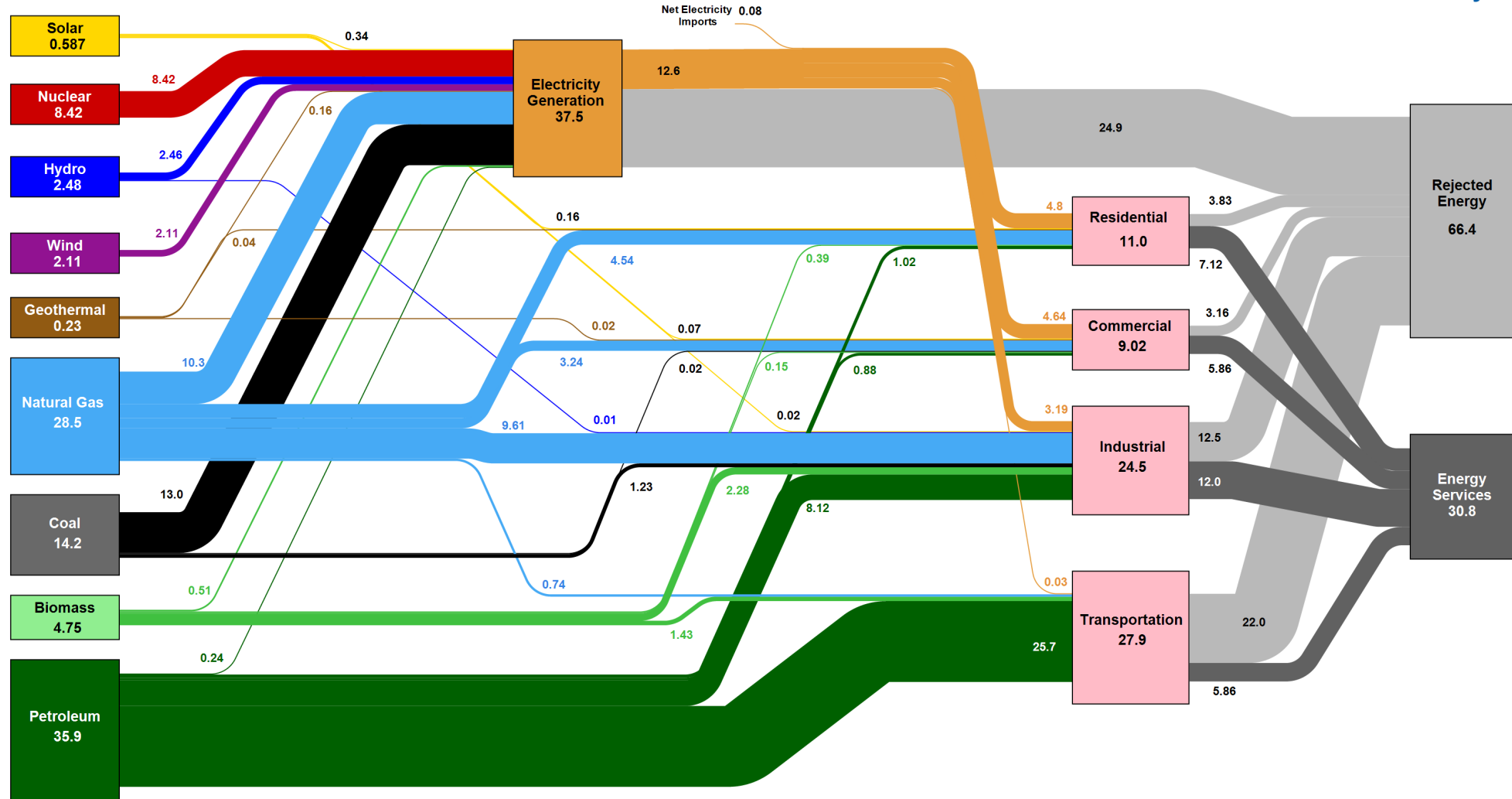
Solar farms 50 Megawatts and larger will contribute \$2,333 per megawatt (MW) per year to the county and \$1,667 per MW to the township(s) hosting the project, for a total of \$4,000 per MW per year.

<https://www.renewwisconsin.org/solarfarms/>



# The Waste (67%)

Estimated U.S. Energy Consumption in 2016: 97.3 Quads



Source: <https://flowcharts.llnl.gov/>

# The Energy (and Cost) Savings of Efficiency and DER

Energy inefficiency for typical pumping systems

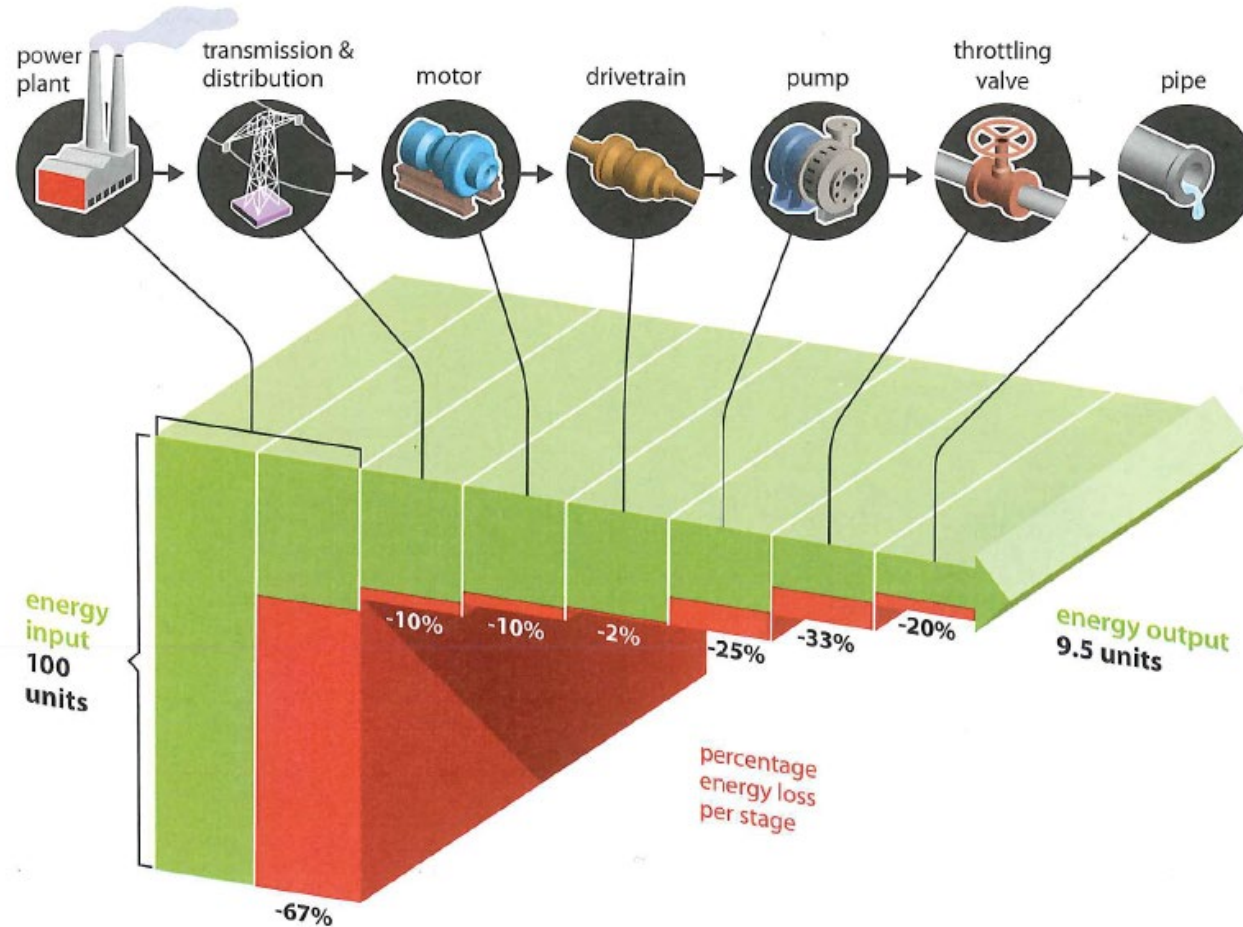
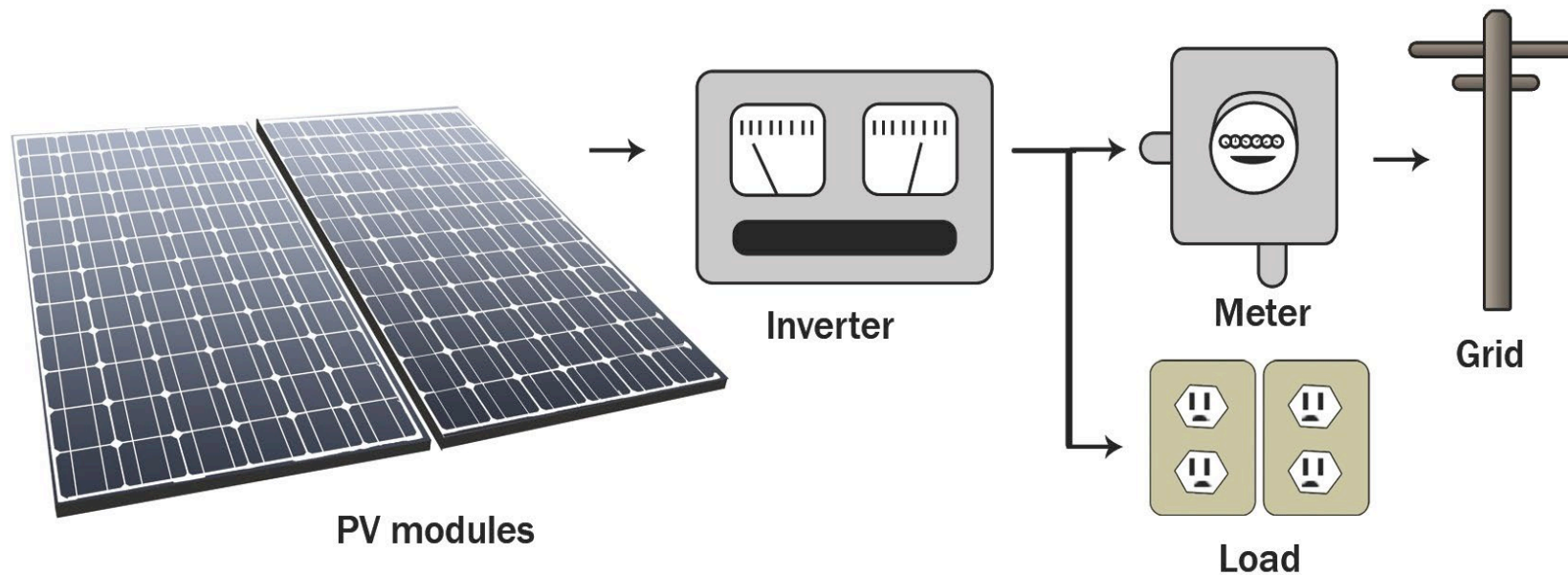


FIG. 4-10. Saving energy starting all the way downstream, at the end use—like flow from a pipe in this pumping system—turns compounding losses (left to right) into compounding savings (right to left) of both energy and capital.

# “Rooftop” Solar Produces Power Where It’s Needed



Source: Midwest Renewable Energy Association.

# Distributed Energy Resources (DER)

1. Solar Photovoltaics (PV)
2. Energy Storage (Li-based, fuel cells, flywheels, etc.)
3. Electric Vehicles and Vehicle to Grid (V2G)
4. Demand response for load reduction (smart meters, smart inverters, building energy management)
5. Demand reduction (energy efficiency)



<https://www.sunrun.com/ev-charging/ford-f150-lightning>

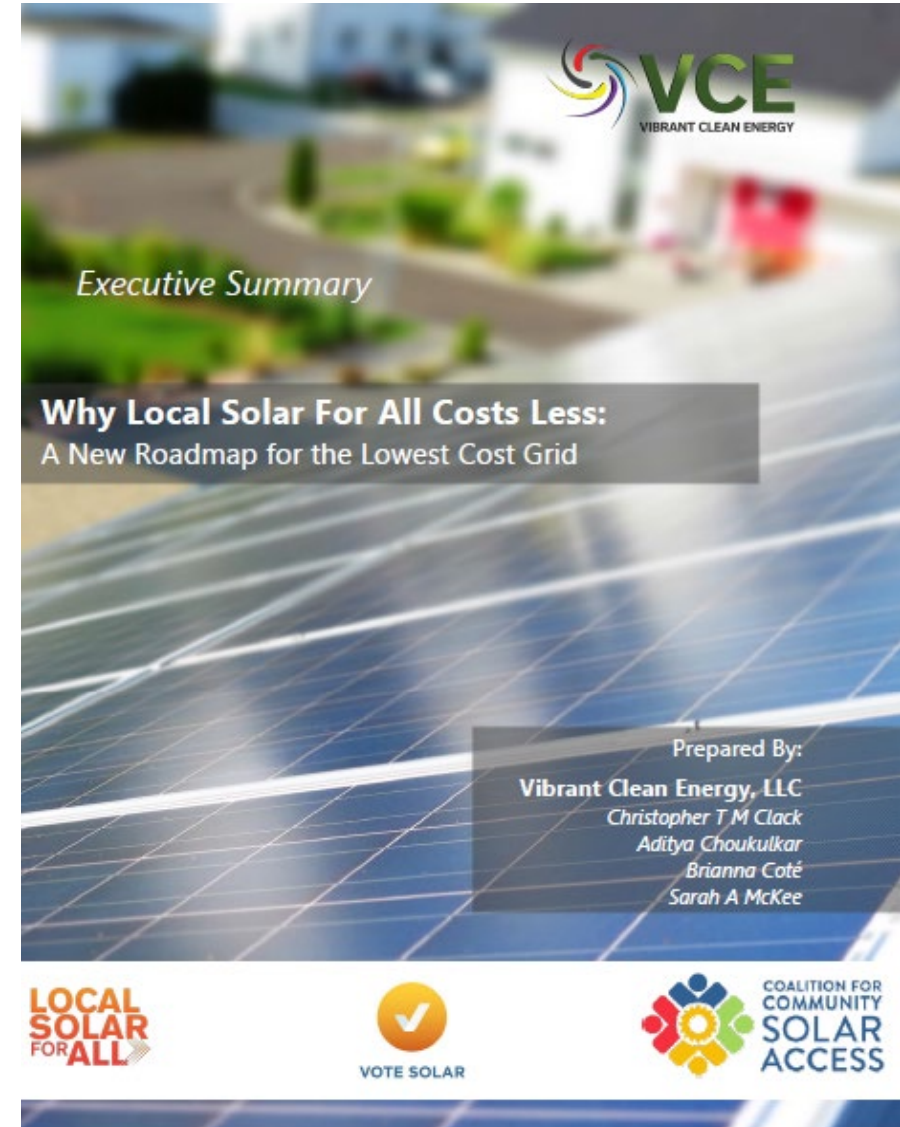
# The Transition Grid of Today (DER Optimized)

Grid connected  
distributed energy  
resources are owned by  
ratepayers and producing  
power where it is used.



# Distributed Energy Can Decrease E Costs for All

Deploying distributed energy resources in the US electricity system would save US ratepayers \$115 billion by 2035.

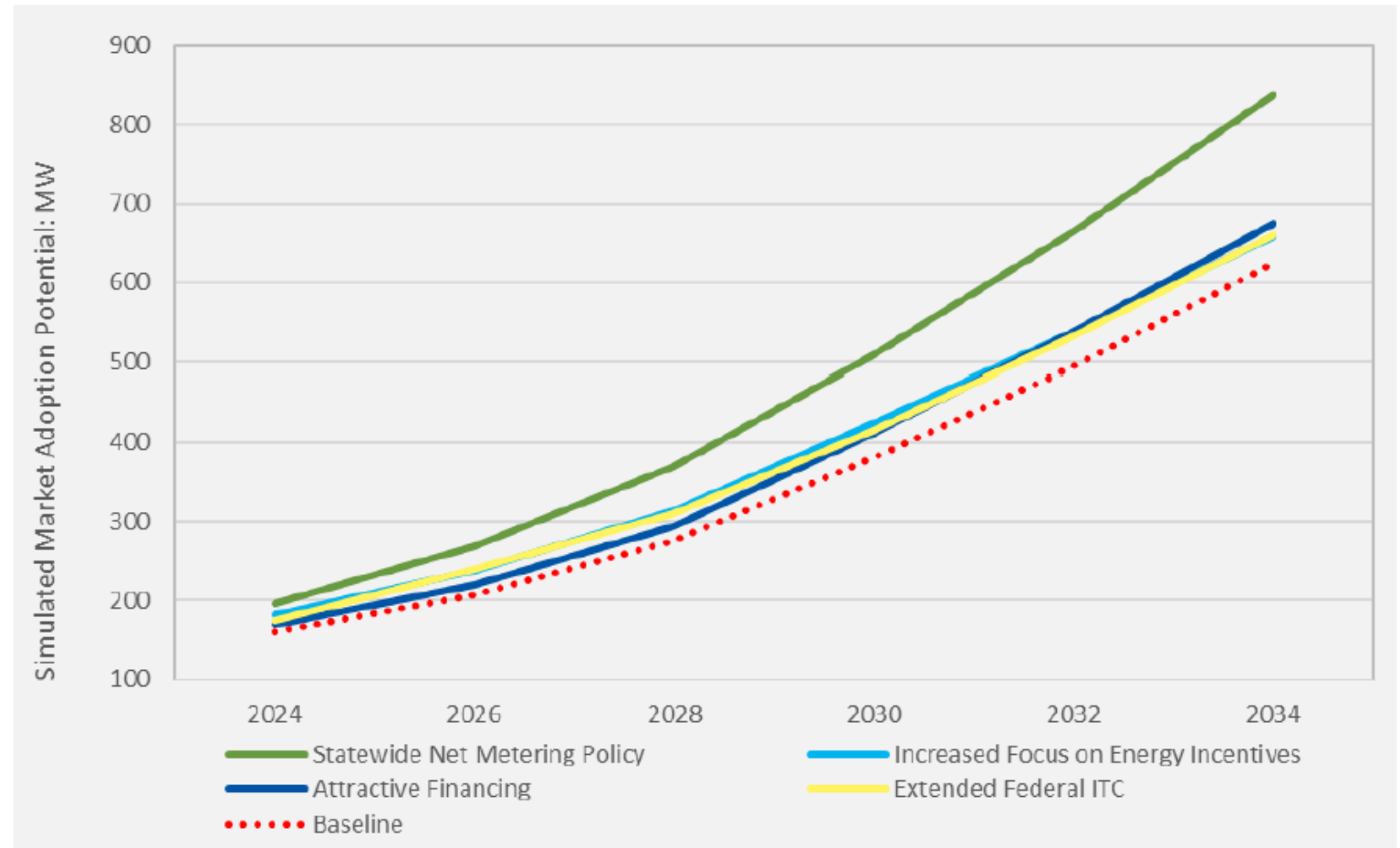




# Wisconsin Rooftop Solar Potential

- Technical potential of up to 70% of Wisconsin's historical electricity use.
- Only 1.6% of the technical potential assumed to be adopted by 2034 under current market conditions.

Rooftop Solar PV Potential Scenarios – MW (Nameplate)



# Average residential solar install is 6.5kW

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27 Panel system - Image Credit: Windfree Solar

Estimated to produce **9,000 kWh** in the first year

**Kilowatt (KW)** = a measure of power

System size is measured in KW

**Kilowatt hour (kWh)** = a measure of electricity generated or used

Your system will produce kWhs of solar energy!



# Unshaded, south-facing roofs are best for solar

## Solar window: 9am-3pm.

- South-facing sun exposure is ideal.
- East or West-facing roofs also work for solar, but can require 20% more panels.
- Avoid shading: trees, buildings, poles.

## Project Sunroof: Mapping Solar Potential.

- Search your home.
- Helpful to see your solar exposure, but pricing estimate may be inaccurate
- Talk to an installer for accurate pricing

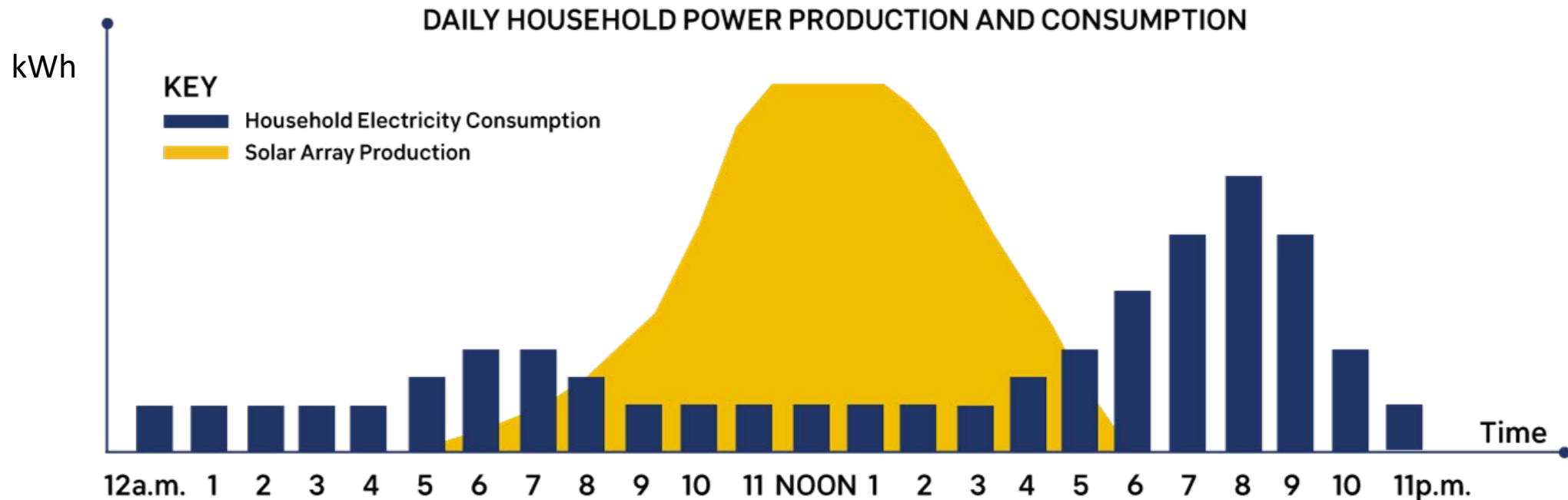


Screenshot of Google's Project Sunroof.

Visit [www.google.com/get/sunroof](https://www.google.com/get/sunroof)

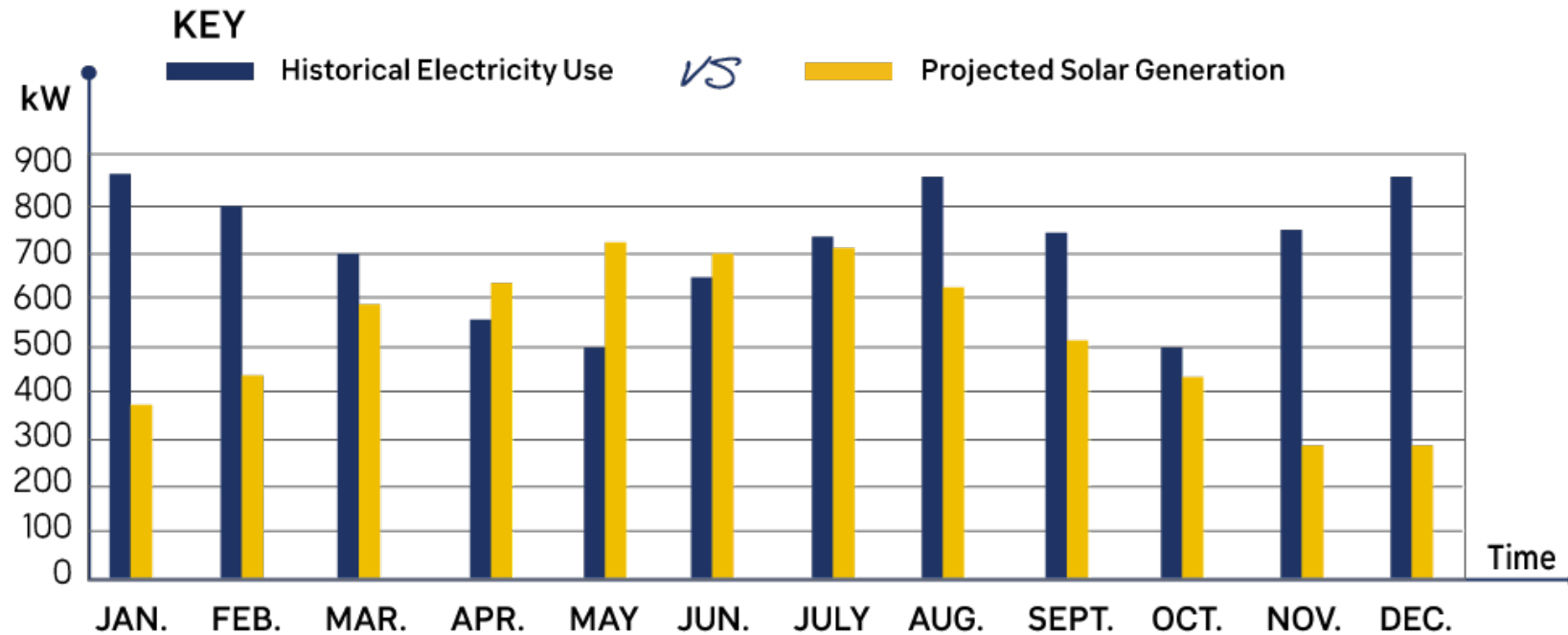
# Net Metering: bill credits for electricity sent to the grid

- Any excess electricity produced by your solar system is exported to the utility grid and you receive bill credits, reducing your overall electricity costs.
- For ComEd customers, you are credited at the same rate that you purchase electricity – 1 to 1 net metering

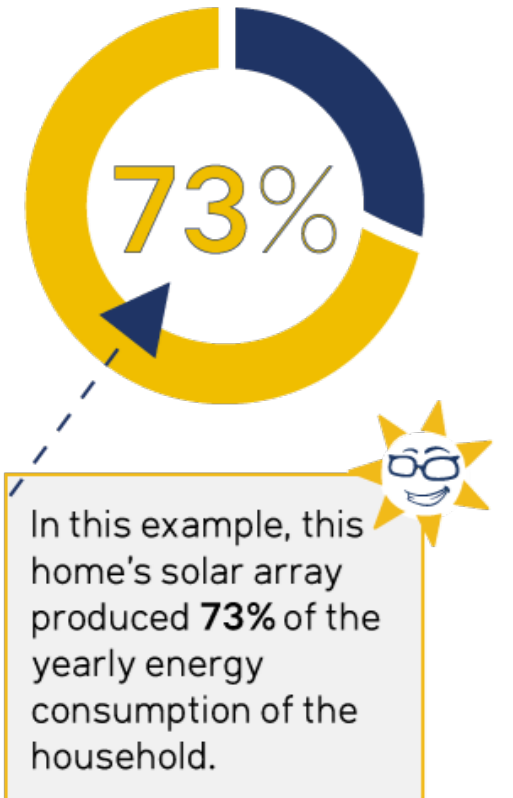


# Net Metering: bill credits for electricity sent to the grid

- Net metering does not \$0 out your electric bill.
- Excess generation, often on a monthly basis, is credited at a lower rate.

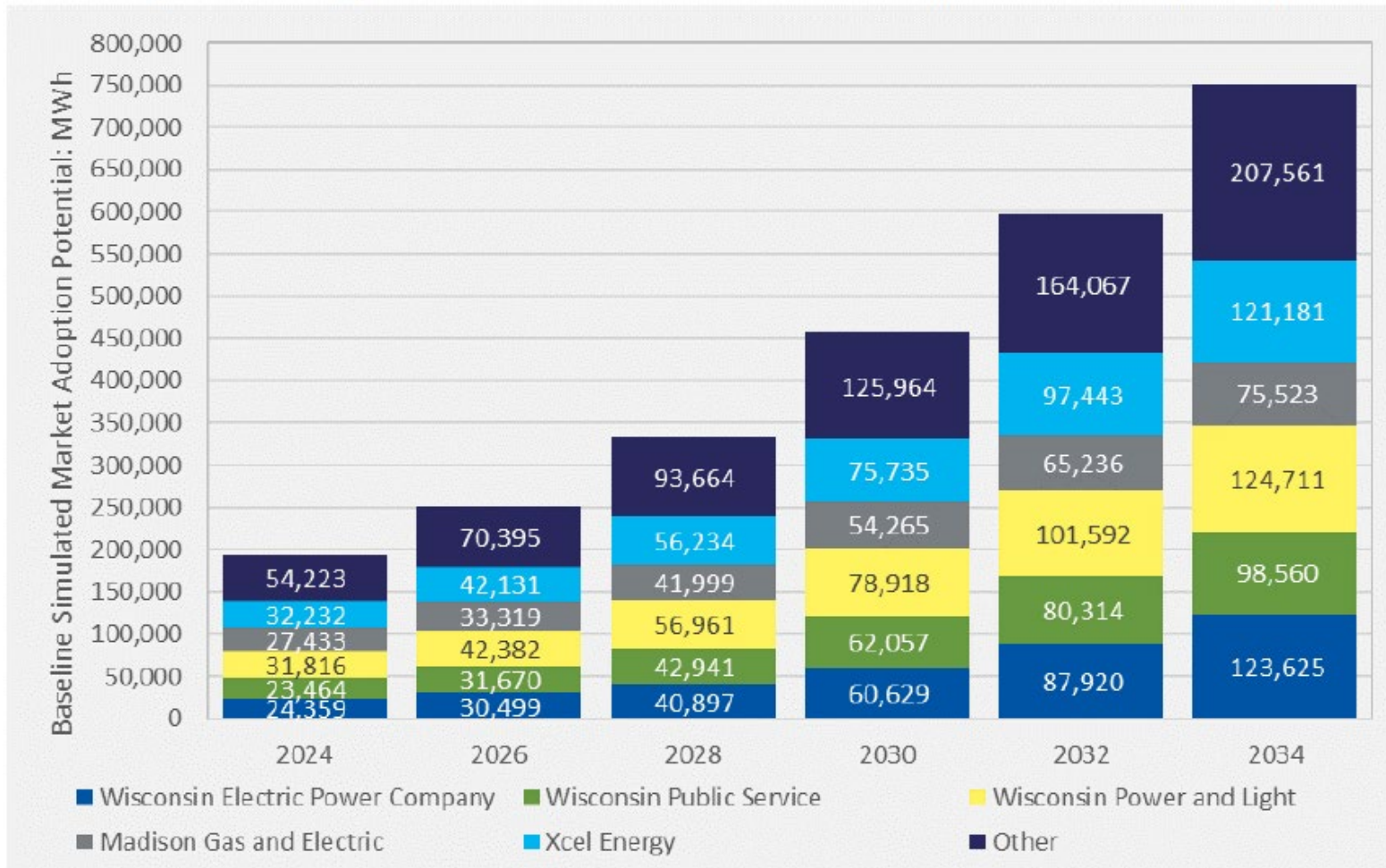


*"A Year in the Life"* of a Grid-Tied / Net Metered Home



# Rooftop Solar Market Potential - Wisconsin

Figure 3. Utility and Statewide Simulated Market Adoption Potential (MWh)



Even if Wisconsin did not adopt a single new policy, we are expected to more than triple our rooftop solar production by 2034.



# Federal Legislative Overview

## 1. Bipartisan Infrastructure Act

- Large-Scale RE Enabling

## 2. CHIPS Act

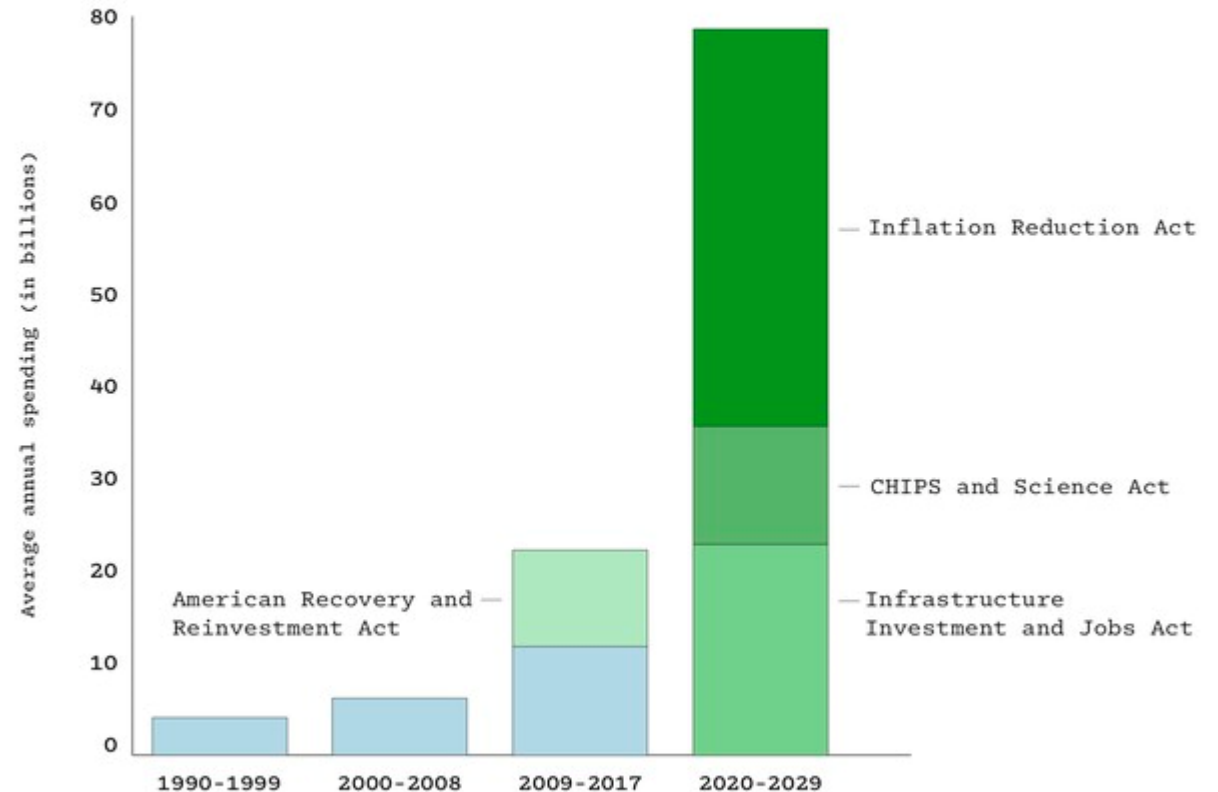
- Future Clean Tech Enabling

## 3. Inflation Reduction Act

- DER Enabling

*“The combined government climate and clean energy spending from the Inflation Reduction Act — along with recently passed laws to fund technology manufacturing and infrastructure — will be about \$514 billion.”*

**A \$500 Billion Investment in a Green Economy**  
*The federal government's average annual climate spending is poised to triple this decade.*



<https://www.theatlantic.com/science/archive/2022/08/chips-act-climate-bill-biden/671095/>

# Electrification Means The Grid Will Get Bigger

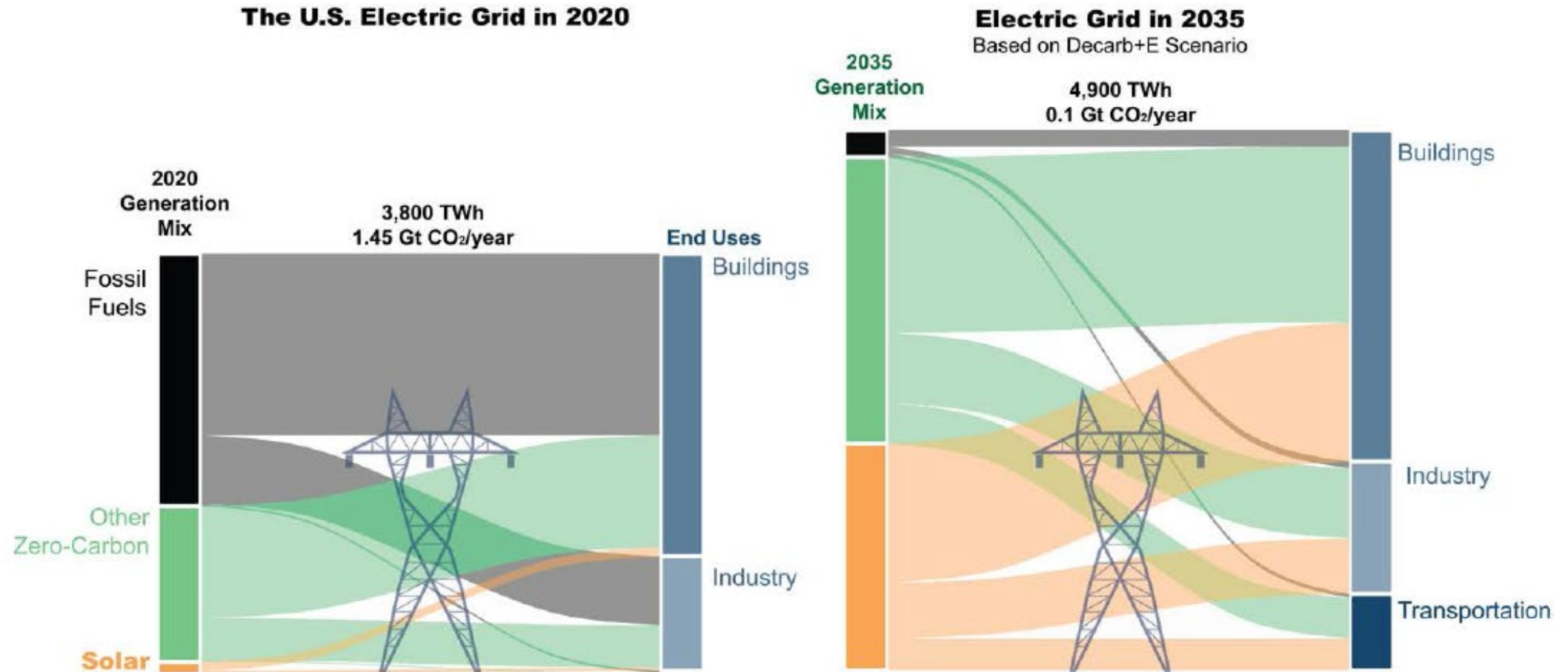
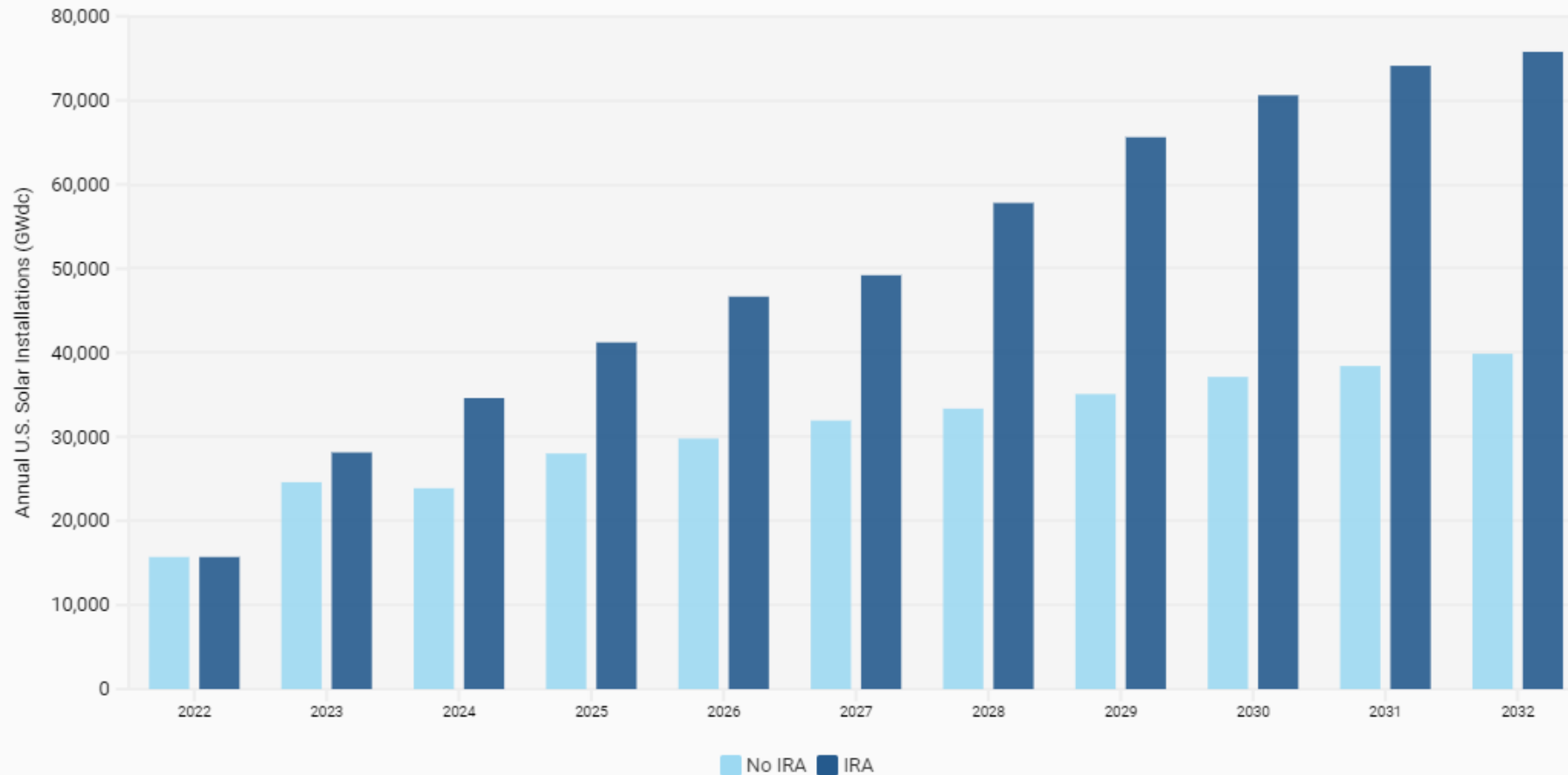


Figure 1 - 4. Grid mixes and energy flows in 2020 and 2035 under the Decarb+E scenario

# Impact of the Inflation Reduction Act

## Impact of the Inflation Reduction Act on Solar Market Outlook

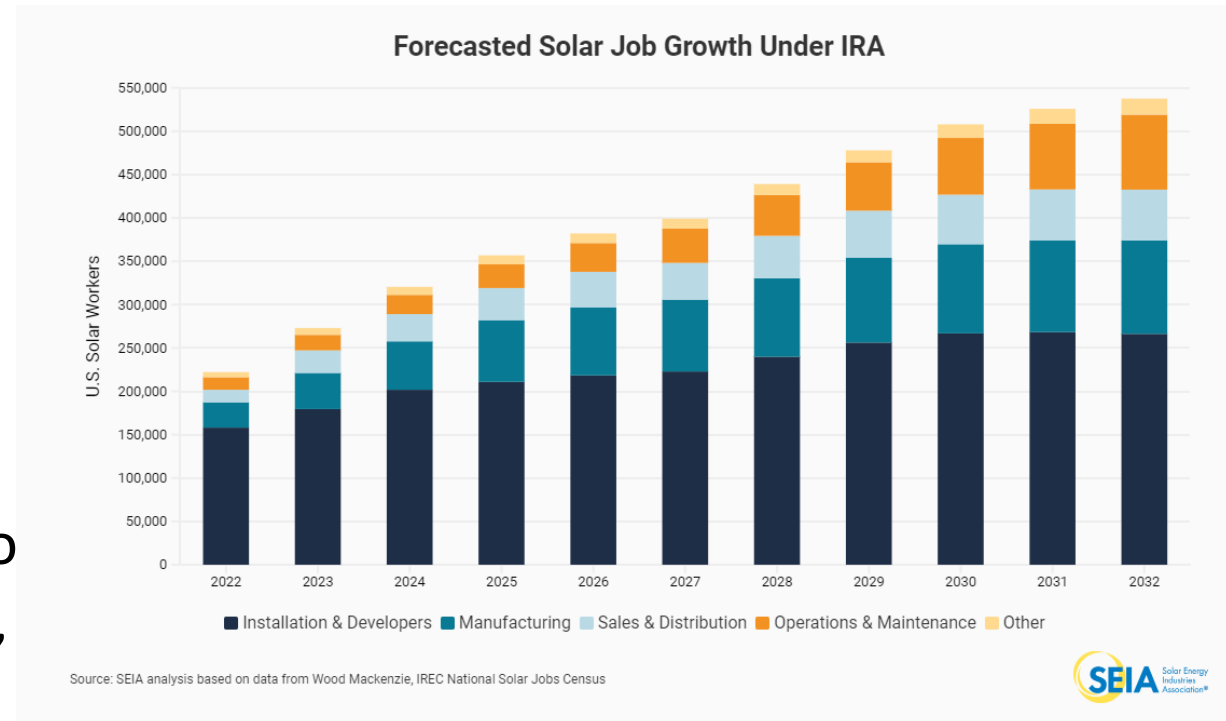


Source: SEIA analysis of Wood Mackenzie forecasts



# Impact of the Inflation Reduction Act

- In ten years: 69% more solar deployment than would otherwise be expected under a no-IRA scenario, 682 GW of total solar capacity, more than 5 times the amount today, and solar energy will produce more electricity each year than all U.S. coal-fired power plants in 2021.
- The IRA will create an additional 200,000 jobs by 2032 when compared with a no-IRA scenario as industry employment will more than double, from 255,000 today to 538,000 by 2032.
- Wisconsin IRA Impact = 90,000 solar homes





# How Will IRA Grow DER?

- **Electrifying 1 million LMI households**
  - \$4.5 billion in direct rebates through the High Efficiency Electric Home Rebate Act (HEEHRA)
  - \$1 billion for affordable housing in grants and loans
- **Tax deductions for electric upgrades, Solar, EVs**
  - Energy Efficient Home Improvement Credits, New Energy Efficient Home Credit, Commercial Buildings Energy Efficient Credit, Solar ITC, Storage ITC, EV (new and used) more
- **Defense Production Act**
  - \$500 million for domestic manufacturing of heat pumps and critical minerals
- **Fossil Transition and EJ Community Support**
  - \$27 billion GHG Reduction Fund with \$15 billion for low-income communities for zero emission technologies and \$3 billion ECJ Block Grants.
- **Loans for Clean Energy Investments**
  - Dept. of Energy loan office will have \$3.6 billion in guarantees and \$40 billion in principal.

# The Solar Investment Tax Credit (ITC)

## - After the Passage of the Inflation Reduction Act -

- ▶ 30% for 10 Years
- ▶ Direct Pay for Governments and Non-Profits
- ▶ Transferability
- ▶ Increased tax credit for low income, 'energy zones', prevailing wage, apprenticeship, domestic content

<https://www.wpr.org/more-90k-homes-could-install-rooftop-solar-wisconsin-under-inflation-reduction-act?eType=EmailBlastContent&eld=f32e95fa-9174-432b-a624-9a2227baeded>

WPR






A garage with rooftop solar panels to generate electricity for a nearby house is seen in Billings, Mont. on Thursday, May 23, 2019. *Matthew Brown/AP Photo*

### More than 90K homes could install rooftop solar in Wisconsin under Inflation Reduction Act

The nearly \$370B law contains incentives for energy upgrades, renewable projects

By Danielle Kaeding

Published: Thursday, September 1, 2022, 6:05pm

SHARE:   

 Listen  Download

# What Does the IRA Mean for You?

## Benefits available to the Nick Hylla household:

- Tax credits: \$16,250
- Annual bill savings: \$1,100
- Includes: storage, geothermal, electric panel/wiring, EV, heat pump, heat pump water heater, rooftop solar, and weatherization

<https://www.rewiringamerica.org/app/ira-calculator>

REWIRING  
AMERICA

YOUR SAVINGS CALCULATOR

## How much money will you get with the Inflation Reduction Act?

Enter your household information to find out.

We do not store this data.

Zip Code ⓘ

90210

Homeowner Status ⓘ

Household Income ⓘ

\$65,000

Tax Filing ⓘ

Household Size ⓘ

Calculate! ⌵

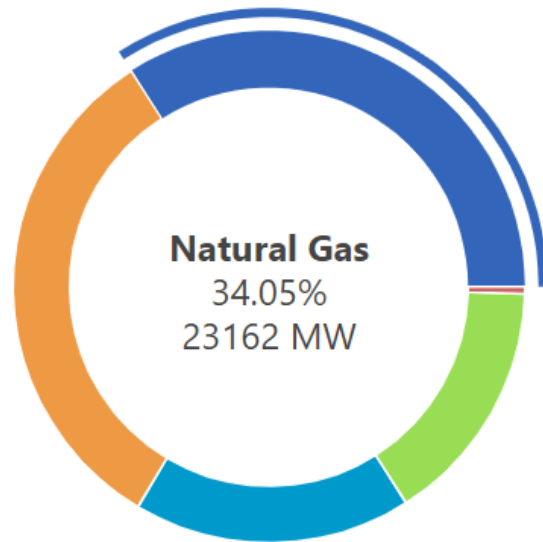
Frequently Asked Questions



# Grid Fuel Mix - Midwest

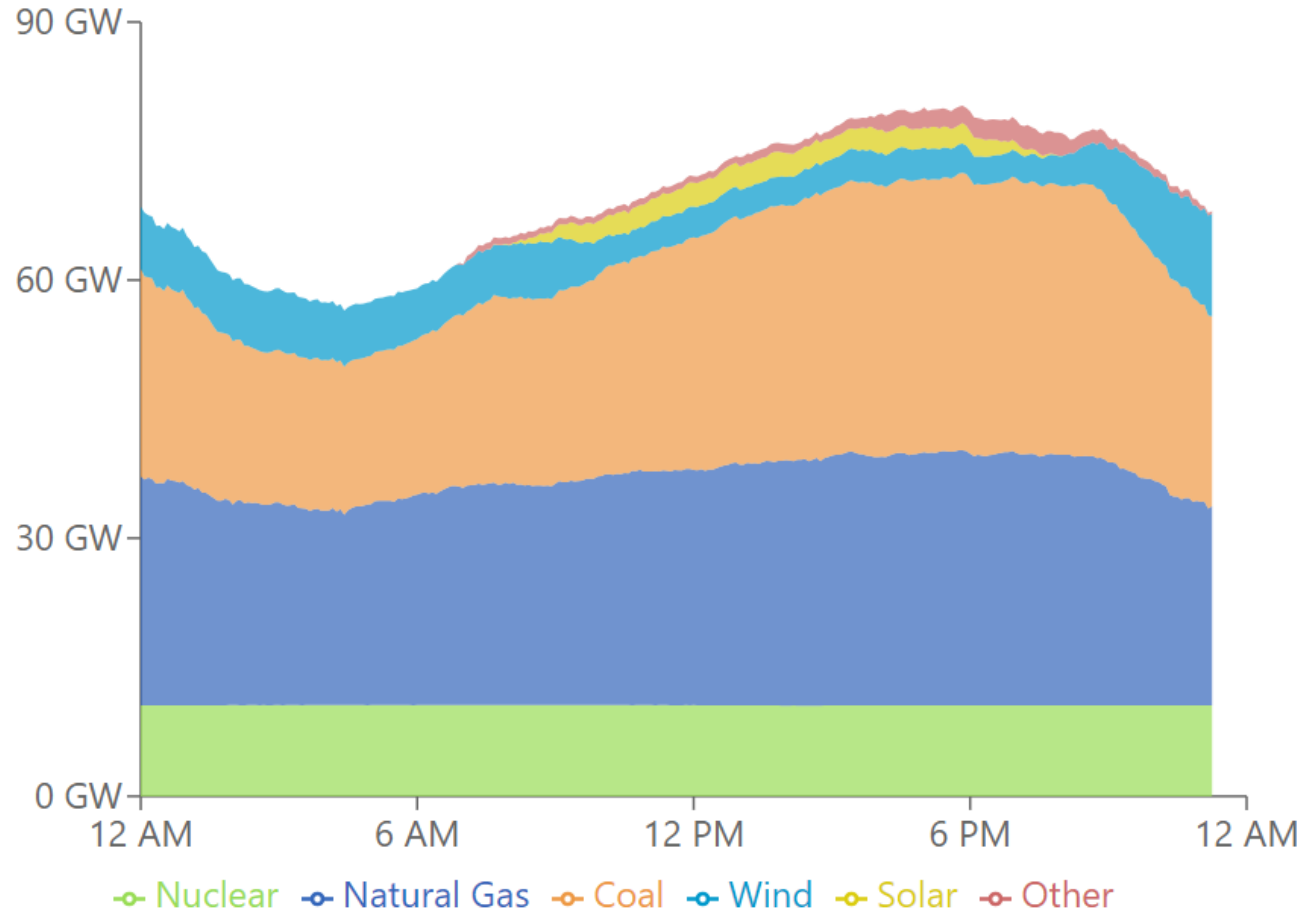
## Current Fuel Mix

Pie | Bar



■ Natural Gas ■ Coal ■ Wind  
■ Nuclear ■ Other ■ Solar

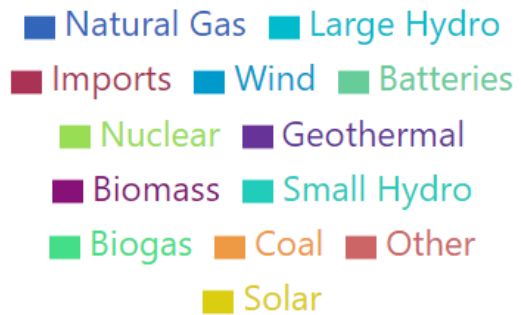
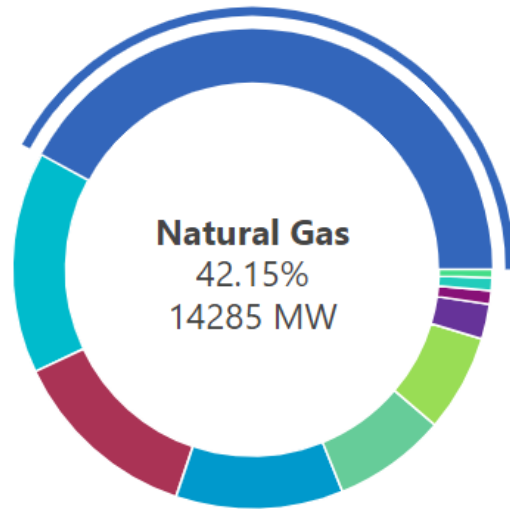
## Fuel Mix - MISO



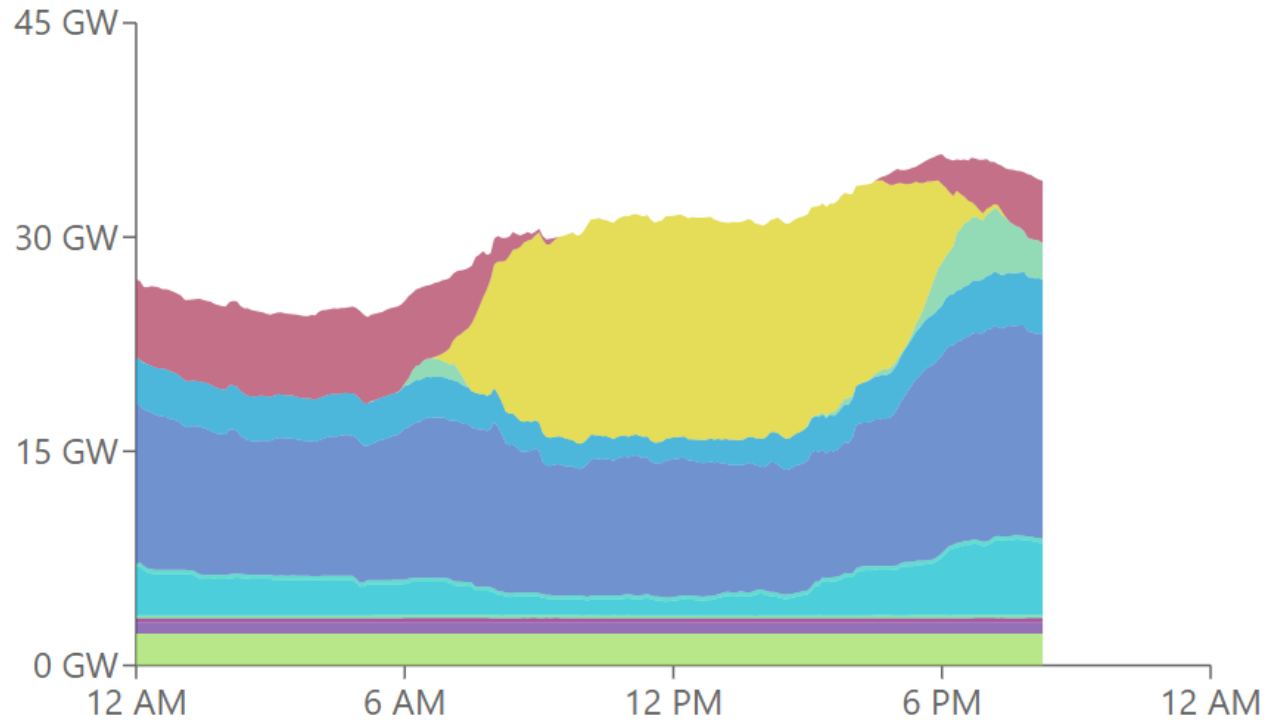
# Grid Fuel Mix - California

## Current Fuel Mix

Pie | Bar



## Fuel Mix - CAISO



# The Future Grid Fully Optimized with DER Aggregation and Microgrids

Both systems operate in parallel with utility and non-utility businesses building and maintaining assets =  
**LESS COST AND MORE JOBS!**





# Good Legislation Does Not Mean Good Implementation

By the end of 2022, there will be over 124 million smart meters installed in 78% of U.S. households... But less than 3% of today's smart meters fulfill 2009 promises of customer savings...

Utilities used federal and state funds to deploy smart meters and many explicitly promised to empower customers to lower bills and earn rewards for supporting system peak demand reductions...

The public policy failure is that utilities benefited from returns on capital expenditures and reduced operational costs but did not deliver those customer benefits...

[https://www.utilitydive.com/news/97-of-smart-meters-fail-to-provide-promised-customer-benefits-can-3b-in/632662/?utm\\_medium=email](https://www.utilitydive.com/news/97-of-smart-meters-fail-to-provide-promised-customer-benefits-can-3b-in/632662/?utm_medium=email)

**UTILITY DIVE** Deep Dive Opinion Podcasts Library Events Topics ▾

DEEP DIVE

## 97% of smart meters fail to provide promised customer benefits. Can \$3B in new funding change that?

Less than 3% of 2009's taxpayer- and ratepayer-funded smart meters now deliver full customer benefits, a recent study shows.

Published Oct. 5, 2022

By [Herman K. Trabish](#)  
Contributing Editor



Front view of electric meters on building facade onurdongel via Getty Images

# DER Customer Investment Models

## 1. On-Site: Direct Ownership

- Load reduction

## 2. On-Site: Partnership

- On-bill Financing
- Third-Party PPA
- Operating Lease
- Land Lease with Utility

## 3. Off-Site

- Virtual Net Metering
- Community Solar



<https://cleantechnica.com/2020/10/26/us-energy-dept-aims-for-affordable-solar-power-with-a-little-help-from-friends/>



# Points of Contact with Authorities Having Jurisdiction (AHJ)

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- ❑ Information: Website, solarize program presentation (Municipality and County)
- ❑ Permitting (Municipality)
- ❑ Interconnection (Utility)
- ❑ Zoning (County)
- ❑ Restrictions (HOA)



Image Credit: Windfree Solar

# Local Jurisdiction Opportunities

1. **Public Facing Consumer Information**
2. **Clear and Expedited Permitting Process**
3. **Solar Development Goals in Comprehensive Plan**
4. **Clear Zoning for Solar Facilities**
5. **Deployment of Solar and Efficiency on Public Building and Properties**
6. **Participation In and Support for Local Workforce Development Efforts**
7. **Support for Enabling Policies through Statewide Associations**



To date, we've helped a total of 18 communities achieve SolSmart designation!



City of Eau Claire  
City of Stevens Point  
City of Wisconsin Rapids  
Johnson County, IA



Ashland County  
City of Ashland  
City of La Crosse  
City of Wauwatosa  
Village of Amherst  
Village of Egg Harbor  
Village of Plover



Bayfield County  
City of Bayfield  
City of Racine  
City of Sheboygan  
La Crosse County  
Portage County





Since 2016, MREA  
has led 60 solar  
group buy  
programs with  
support from 120  
jurisdictions in 6  
Midwest states.



Grow Solar Greater Milwaukee is an Education and Group Purchasing Program for Residential and Small Commercial Solar.

*Grow Solar has returned to Milwaukee! Home and small business owners throughout Milwaukee County may participate in this program to help pool their buying power to secure significant discounts that make installing high-quality solar more affordable.*

We offer free education about solar to help people figure out if solar is right for them. Do you own a property? Is it relatively free from shade? Do you want to lower your electricity bills and claim your energy independence? Solar might be right for you!

**Start by attending a Solar Power Hour.** Our free information session teaches you the basics of solar, its financial implications for your property, and how the Grow Solar Greater Milwaukee program works. **Then, get a free, no obligation site assessment** and cost estimate from our competitively-selected installers, **Full Spectrum Solar** and **Arch Solar**.

Want to stay up to date on the program, or get in the queue for a site assessment? Sign up below!



<https://www.growsolar.org/>

# Solar Toolkits

- Relevant Statutes
- Comprehensive Planning
- Model Solar Zoning
- Model Solar Ordinance
- Solar Permitting
- Local Examples and Templates

MINNESOTA  
TOOLKIT



WISCONSIN  
TOOLKIT



IOWA  
TOOLKIT



ILLINOIS  
TOOLKIT





# Questions?

Nick Hylla

Executive Director

Midwest Renewable Energy Association

[nickh@midwestrenew.org](mailto:nickh@midwestrenew.org)







# Solar-Friendly Planning

## Comprehensive and Neighborhood Plans

**01**

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# **WI Comp Plan Law & Solar Energy**



**02**

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# **State and Regional Plans**



# Regional Development Framework

“Reduce greenhouse gas emissions and fosters community resilience to climate change.”



# Dane County Comprehensive Plan

“Develop and promote appropriate applications of renewable energy and support utilization of onsite distributed energy generation”





**03**

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# **Dane County Climate Action Plan**



# Dane County Climate Action Plan

**Plan Goal: One third (1/3) of electric energy demand met with solar...**

- Energy storage development
- Solar education program for businesses
- Incentives for solar in housing projects
- Help local governments meet their goals
- Lead by example



**04**

# **Local Comp Plans**



# Quantify Solar Resources

## Stevens Point

- Nesting in the proper elements of a comprehensive plan
- Identifying total amount of opportunity in very localized regions



**05**

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# **Authoring Plans: Better Practices**





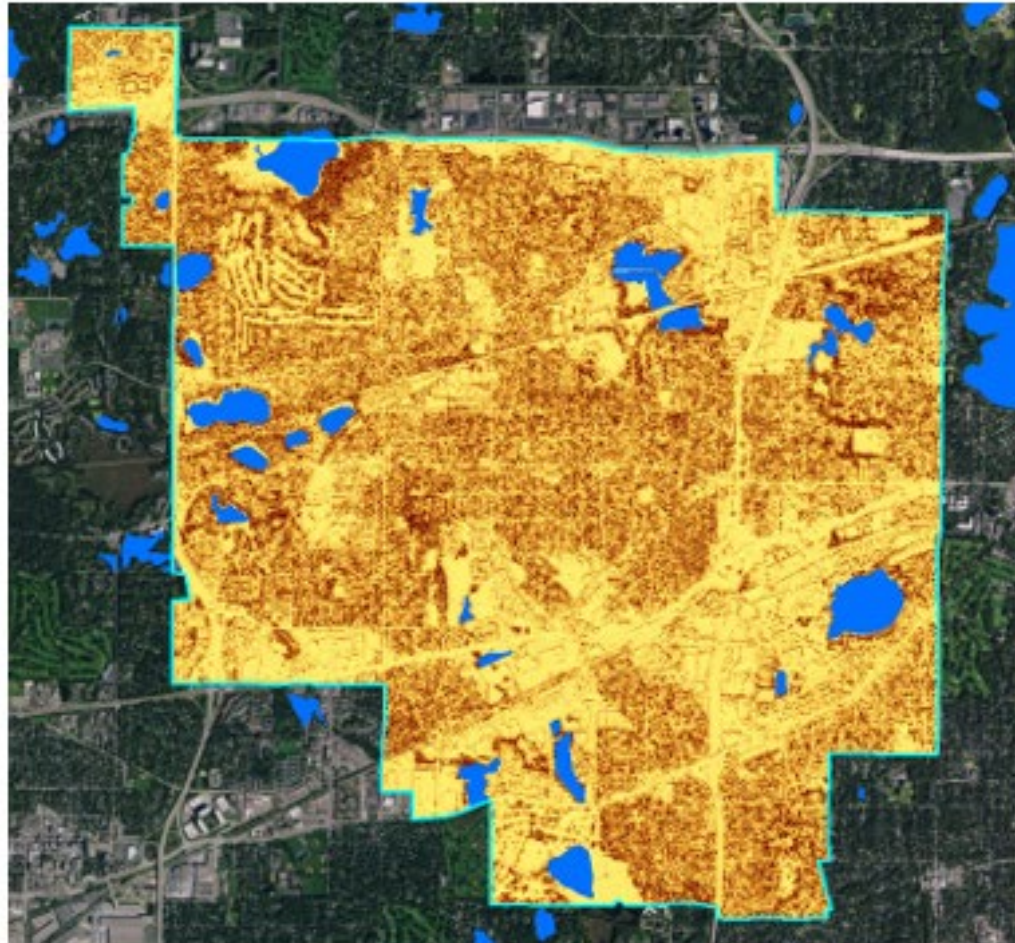
# Quantify Solar Resources

## Metropolitan Council—MN State Law Requires:

1. Solar suitability map
2. Calculations of gross solar and rooftop solar resource
3. Policy or policies on development of access to direct sunlight for systems
4. Strategies to implement the policy/policies



# St. Louis Park, MN



Annual electricity consumed – 498 GWh  
(Regional Indicators Initiative)

## Gross reserves

- ✓ 1,217 GWh of electricity,
- ✓ Approximately 940 MW of generating capacity.

## Rooftop reserves

- ✓ 216 GWh of electricity (43% of electric use)
- ✓ approximately 170 MW of generating capacity.



# Acknowledge Benefits, Co-Benefits

## Economic benefits might include:

- Job diversification
- New markets
- Home - owner income diversification
- Local resources/Import substitution



# Acknowledge Benefits, Co-Benefits

Ecosystem service benefits might include:

- Habitat value
- Water quality
- Agricultural practices



# Address Conflicts... Identify Opportunities

- Solar as land use vs. development practice
- Address real vs. perceived nuisances
- Value trade-offs





# Setting Appropriate Goals & Targets

- Total amount of property ownership for types of solar
- Quantify public utility opportunity
- Identify capacity to generate new local programming with expected co-benefits



# Pursuing and Modifying Goals

- Administrative responsibility to the goals
- Diligent program monitoring and ability to embrace entrepreneurial mindset





City of Stevens Point  
**Solar and the Zoning Code**

November 30, 2023

*Adam Kuhn, Associate Planner & Zoning Administrator*

*Chris Klesmith, Neighborhood Planner*

*Maria Mohr, Community Development Technician*

# Community Development & Inspection Department Structure

We are broken into 6 different divisions:

1. Economic Development
2. Permits and Inspections
3. Historic Preservation
4. Neighborhood Improvement
5. Planning and Zoning
6. Property Assessment

**Total staff: 11**

# Commissions and Boards

## **Department Purview:**

Age Friendly Commission (NEW)

Bicycle-Pedestrian Street Safety Commission

City Plan Commission

Historic Preservation/Design Review Commission

Joint Review Board

Redevelopment Authority

Zoning Board of Appeals

## **Heavy Involvement:**

Housing Task Force

Business Improvement District (Downtown Stevens Point – NEW)

# Solar and the Zoning Code

- Adoption timeline
  - Definitions
  - Accessory Use
    - Height
    - Setbacks
- Historic and Special-use Districts
  - Non-conforming uses
- Aesthetics, Lot coverage, and Glare
  - Legal
  - Assessing
- Example Installation



# Adoption Timeline

## 2019

- February
  - Internal kick off meeting.
- April
  - Wisconsin SolSmart Community Cohort Training webinar.
- June
  - Solar landing page creation.
  - Solidifying permitting and review process, including conversations for amendments to permit fees, separate applications, fact sheets, etc.
- July
  - Public Hearing and action on request from the City to amend the Zoning code to clarify solar uses and add solar definitions.
    - There was no public comment.
    - Commission concerns stemmed largely around whether there was a clear enough distinction between a solar array and solar farm, as they differ greatly in size. Motion to approve was unanimous.
- September
  - Stevens Point received SolSmart Gold Designation (yay, go us!)

# Definitions

**SOLAR ARRAY** – is an accessory system or device that is roof-mounted or ground-mounted with poles or racks used to collect radiant energy directly from the sun for use in a solar collector's energy transformation process.

**SOLAR COLLECTOR** – is a device, structure, or part of device, the substantial purpose of which is to transform solar energy into thermal, mechanical, chemical, or electrical energy.

**SOLAR FARM** – is an array of multiple solar collectors on ground-mounted racks or poles that transmit solar energy and is the primary land use for the parcel on which it is located.

# Accessory Use

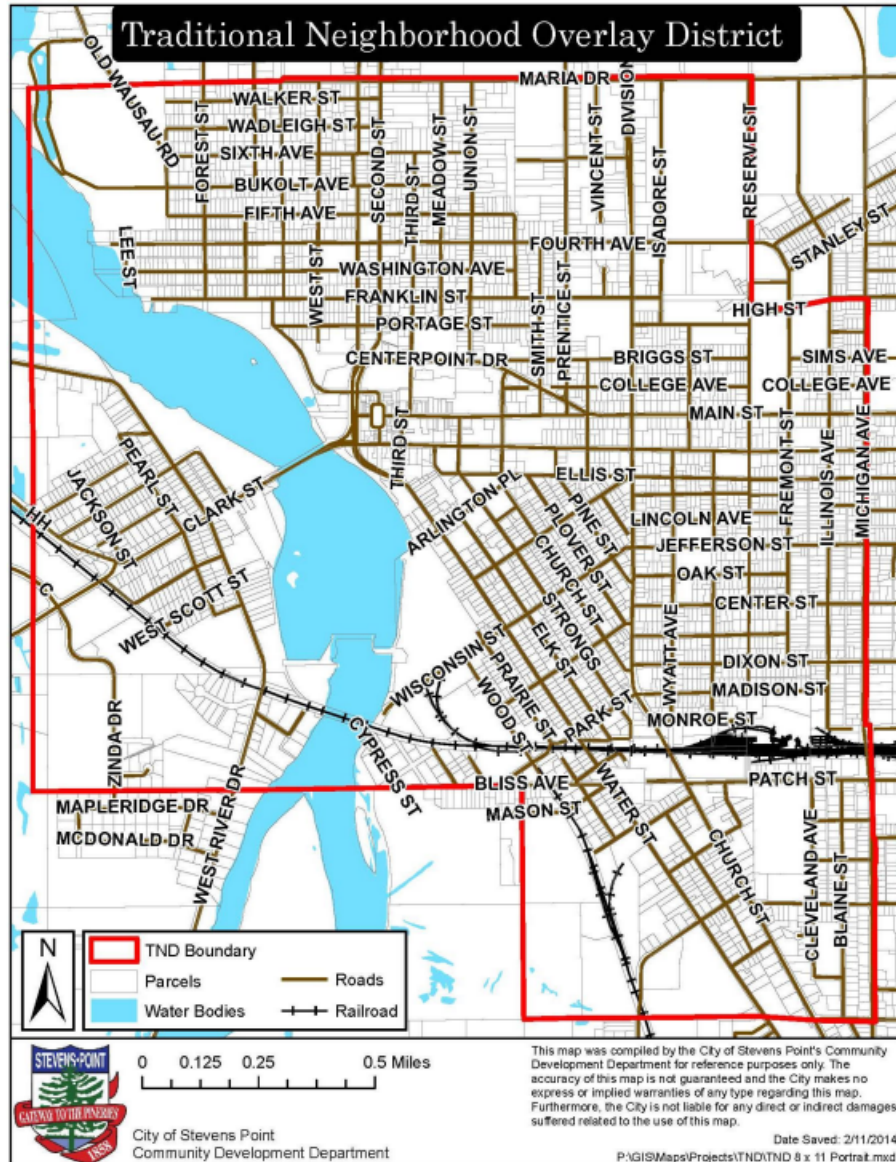
**ACCESSORY BUILDING OR USE** is a building, use, or activity which is conducted or located on the premises or immediately across the street from the principal use served, clearly incidental to, subordinate in purpose to, and clearly operated and maintained solely for the comfort, convenience, necessity, or benefit of the occupant, employee, customer, or visitor of or to the principal use. The accessory use may not be located on a parcel where the principal use is not permitted. Any accessory use which is not on the site of, or is across the street from, the principal use must be reviewed and approved by the Common Council.

**SOLAR ARRAY** – is an accessory system or device that is roof-mounted or ground-mounted with poles or racks used to collect radiant energy directly from the sun for use in a solar collector's energy transformation process.





# Setbacks



- 2) An accessory building which is located ten or more feet from the principal building may be located in a rear or side yard provided it is not more than 15' high and is not nearer than 3 feet to any lot line unless otherwise stated, except that when an accessory building has an entrance on an alley, such entrance shall be located not less than 10 feet from the nearest alley right-of-way line.



# Historic and Special-use Districts

2. Health and safety features including fire escapes and access ramps should be designed so there is minimal visual impact to the historic structure. If possible, they should be located on rear elevations where they are not visible from the public right-of-way.

3. Health and safety features that are visible from the public right-of-way should be constructed so that the scale, materials, and details are compatible with the historic structure.

4. Fire escapes and access ramps should be constructed in such a way that they can be removed with minimal damage to the historic structure. If feasible, new doors for fire escapes should be located in existing openings.



*Fire escape and access accommodations should be placed on rear elevations if possible.*

## Sec. 3.14 Mechanical and Communication Equipment

Installation, rehabilitation, or replacement of mechanical equipment should be planned to minimize changes to the appearance of a structure. Building systems include mechanical and electrical equipment, distribution lines; plumbing pipes and vents; and communication systems, such as telephone and television. Conformance with local building codes and utility company standards and practices is required for the installation, upgrading, or replacement of building systems.

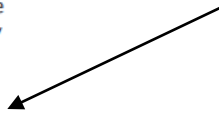
Communication systems such as television antennae, satellite dishes, and cellular phone towers can dramatically affect the character of the historic environment. Care should be given so that the installation of these systems minimize their visual and physical impact to historic districts.

### Mechanical and Communication Equipment Guidelines

1. Some historic mechanical equipment such as plumbing, early lighting fixtures, and vents are important architectural features and should be retained and preserved whenever possible.
2. Mechanical fasteners used for equipment should be installed within the mortar joints and not within the masonry.
3. New mechanical equipment should be installed in areas and spaces that will require the least possible alteration to the plan, materials, and appearance of a building.
4. Mechanical equipment including utility meters and heating and air-conditioning equipment should be located at the rear of a structure if feasible. Mechanical equipment which can be seen from the street should be screened with shrubbery or appropriate fencing.
5. Mechanical equipment on historic commercial structures should be screened from public view on rear elevations or behind parapet walls on the roof.
6. Install new air-conditioning units so that excessive moisture does not accumulate and increase the chance of deterioration of historic materials.
7. When installing window air-conditioning units, place them in windows on the rear elevations not easily seen from a public right-of-way. Install them in such a manner that there is no damage to the existing window sill and sashes.
8. If feasible, mechanical supply lines and ductwork should be located inside buildings. Exterior mechanical supply lines and ductwork should be disguised by architectural elements compatible with the character of the building and should be located as inconspicuously as possible.
9. Plumbing vents and solar collectors should not be visible from the street.
10. Attaching exterior electrical, telephone, television, etc. cables to the principal elevations of the buildings is not recommended.

SolSmart Criteria PZ-17: Provide clear guidance for the installation of solar PV in areas such as historic properties, flood zones or special overlay districts.

Solar was passively included within Historic Design Review Guidelines at the time of adoption in 3/17/2014. No further amendments needed.



# Historic and Special-use Districts

## Solar Panels on Historic Properties

### Installing solar panels and meeting the Secretary of the Interior's Standards for Rehabilitation

Solar panels installed on a historic property in a location that cannot be seen from the ground will generally meet the Secretary of the Interior's Standards for Rehabilitation. Conversely, an installation that negatively impacts the historic character of a property will not meet the Standards. But what about the grey area between out-of-sight and obviously obtrusive installations?

### See examples of solar panels on historic properties

- [Solar panels on a new addition](#)
- [Solar panels on a flat roof](#)
- [Pole-mounted array of solar panels](#)
- [Solar panel on a low-slope gable](#)
- [Solar panels on a cross gable](#)
- [Solar panels on a rear porch roof](#)
- [Avoiding the impact of solar panels on a cultural landscape](#)

Although every project is different and must be evaluated on its own merit, the National Park Service has developed this information on how to apply the Standards to the installation of solar panels.



This "invisible" installation of solar panels on a historic industrial building—hidden behind a low parapet—meets the Standards for Rehabilitation.

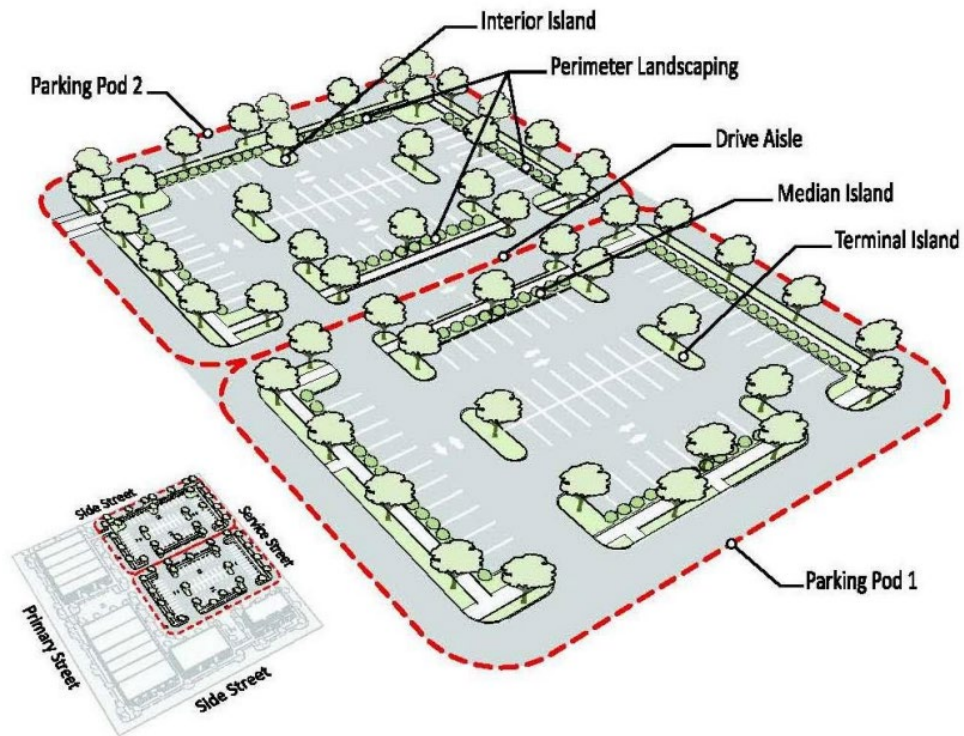
# Non-conforming uses

**NON-CONFORMING USE** - is any use of land, buildings, or structures, lawful at the time of enactment of this ordinance, which does not comply with all of the regulations of this ordinance or of any amendment hereto governing use of the zoning districts in which such use is located.

Existing Nonconforming Uses. A nonconforming use existing at the time of the adoption or amendment of this ordinance may be continued, but no use on such premises shall be enlarged, increased, extended, reconstructed, resumed, substituted, or altered unless the nonconformity is changed to conforming except as follows:

- 1) If a nonconforming use is discontinued for a period of less than 12 months, the previous use may be resumed.
- 2) Minor modifications on nonconforming uses may be approved by Zoning Administrator such as permitting substitution of a more restricted use; permitting ordinary maintenance repairs such as interior and exterior painting, decorating, paneling, and the replacement of doors, windows, and other nonstructural components; or permitting minor deviations from parking, yard, setback, height, lot width, area or density where there are special circumstances caused by the nonconformity which would deprive the subject property of privileges enjoyed by other property in the vicinity under the same zoning classification. Minor modifications are permitted only after the Zoning Administrator finds the modifications are not contrary to the public health, safety, or well-being, the modifications are compatible with surrounding uses, the modifications would not injure the neighborhood.
- 3) Additions to structures not conforming with floodway standards are permitted provided they will not increase the amount of obstruction to flood flows, are flood-proofed by means other than the use of fill to the floor protection elevation, and would not, over the life of the structure, exceed 50 percent of the present equalized assessment value.

# Aesthetics, Lot coverage, and Glare



13) Principal: The privacy of the neighboring development and the proposed development shall be maintained as much as practical. Guidelines:

- Mechanical equipment including refuse storage shall be screened from neighboring properties.
- Lighting shall be located to minimize intrusion onto the neighboring properties.
- Sources of noise shall be located in a manner that minimizes impact to neighboring properties.
- New multifamily sites which abut single or single-and-two family zoned lands shall increase that sideyard and/or rear yard setback requirement(s) that abuts the single or single-and-two-family zoned area by 50% but need not exceed the maximum rear-yard setback requirements of the district.



## REGULATION

### 66.0401 Regulation relating to solar and wind energy systems.

**(1e)** DEFINITIONS. In this section:

- (a)** "Application for approval" means an application for approval of a wind energy system under rules promulgated by the commission under s. 196.378 (4g) (c) 1.
- (b)** "Commission" means the public service commission.
- (c)** "Political subdivision" means a city, village, town, or county.
- (d)** "Wind energy system" has the meaning given in s. 66.0403 (1) (m).

**(1m)** AUTHORITY TO RESTRICT SYSTEMS LIMITED. No political subdivision may place any restriction, either directly or in effect, on the installation or use of a wind energy system that is more restrictive than the rules promulgated by the commission under s. 196.378 (4g) (b). No political subdivision may place any restriction, either directly or in effect, on the installation or use of a solar energy system, as defined in s. 13.48 (2) (h) 1. g., or a wind energy system, unless the restriction satisfies one of the following conditions:

- (a)** Serves to preserve or protect the public health or safety.
- (b)** Does not significantly increase the cost of the system or significantly decrease its efficiency.
- (c)** Allows for an alternative system of comparable cost and efficiency.

**(2)** AUTHORITY TO REQUIRE TRIMMING OF BLOCKING VEGETATION. Subject to sub. (6) (a), a political subdivision may enact an ordinance relating to the trimming of vegetation that blocks solar energy, as defined in s. 66.0403 (1) (k), from a collector surface, as defined under s. 700.41 (2) (b), or that blocks wind from a wind energy system. The ordinance may include a designation of responsibility for the costs of the trimming. The ordinance may not require the trimming of vegetation that was planted by the owner or occupant of the property on which the vegetation is located before the installation of the solar or wind energy system.

**(5)** PERMIT GRANT.

**(a)** The agency shall grant a permit if the agency determines that:

1. The granting of a permit will not unreasonably interfere with the orderly land use and development plans of the municipality;
2. No person has demonstrated that she or he has present plans to build a structure that would create an impermissible interference by showing that she or he has applied for a building permit prior to receipt of a notice under sub. (3) (b), has expended at least \$500 on planning or designing such a structure or by submitting any other credible evidence that she or he has made substantial progress toward planning or constructing a structure that would create an impermissible interference; and
3. The benefits to the applicant and the public will exceed any burdens.

**(b)** An agency may grant a permit subject to any condition or exemption the agency deems necessary to minimize the possibility that the future development of nearby property will create an impermissible interference or to minimize any other burden on any person affected by granting the permit. Such conditions or exemptions may include but are not limited to restrictions on the location of the solar collector or wind energy system and requirements for the compensation of persons affected by the granting of the permit.

# Assessing

- In Wisconsin, any value added by a biogas, or synthetic gas energy system, solar-energy system, or a wind-energy system is exempt from general property taxes. The exemption applies regardless of whether the equipment is deemed real property or personal property. NOTE: Personal Property will no longer exist as of 1/1/2024.
- Property owners submit PR-303 to local assessor by March 1.
- Wis. Stats. 70.111(18)

**(18) ENERGY SYSTEMS.** Biogas or synthetic gas energy systems, solar energy systems, and wind energy systems. In this subsection, "biogas or synthetic gas energy system" means equipment which directly converts biomass, as defined under section 45K (c) (3) of the Internal Revenue Code, as interpreted by the Internal Revenue Service, into biogas or synthetic gas, equipment which generates electricity, heat, or compressed natural gas exclusively from biogas or synthetic gas, equipment which is used exclusively for the direct transfer or storage of biomass, biogas, or synthetic gas, and any structure used exclusively to shelter or operate such equipment, or the portion of any structure used in part to shelter or operate such equipment that is allocable to such use, if all such equipment, and any such structure, is located at the same site, and includes manure, substrate, and other feedstock collection and delivery systems, pumping and processing equipment, gasifiers and digester tanks, biogas and synthetic gas cleaning and compression equipment, fiber separation and drying equipment, and heat recovery equipment, but does not include equipment or components that are present as part of a conventional energy system. In this subsection, "synthetic gas" is a gas that qualifies as a renewable resource under s. 196.378 (1) (h) 1. h. In this subsection, "solar energy system" means equipment which directly converts and then transfers or stores solar energy into usable forms of thermal or electrical energy, but does not include equipment or components that would be present as part of a conventional energy system or a system that operates without mechanical means. In this subsection, "wind energy system" means equipment which converts and then transfers or stores energy from the wind into usable forms of energy, but does not include equipment or components that would be present as part of a conventional energy system. Until the tax incremental district terminates, the exemption under this subsection for biogas or synthetic gas energy systems does not apply to property in existence on January 1, 2014, and located in a tax incremental financing district in effect on January 1, 2014.

Cross-reference: See also s. Tax 12.50, Wis. adm. code.

Form PR-303	Energy System Exemption Request	Due Date March 1
<b>Form Instructions</b>		
<ul style="list-style-type: none"> <li>• Complete this form with supporting documents to help determine what property may qualify for exemption from property tax</li> <li>• Submit completed form to your <a href="#">local assessor</a> by March 1</li> <li>• <b>Note:</b> Make sure to submit supporting documents (ex: energy system specifications, manufacturer information, capacities, operating requirements)</li> </ul>		
<b>Resources</b>		
<ul style="list-style-type: none"> <li>• State law (<a href="#">70.111(18), Wis. Stats.</a>) – Energy Systems include biogas or synthetic gas energy systems, solar energy systems, and wind energy systems. Exemptions do not include equipment or components that would be present as part of a conventional energy system.</li> <li>• <a href="#">Wisconsin Property Assessment Manual</a> – Chapter 12, pages 51-60 and Chapter 20, pages 28-35</li> </ul>		
<b>Property Owner Information</b>		
Name (please print)		
Address		
City	State	Zip
Phone ( ) -	Fax ( ) -	Email
<b>Property Information</b>		
County	Taxation district (Check one) <input type="checkbox"/> Town <input type="checkbox"/> Village <input type="checkbox"/> City	
Municipality	Local Assessor	
<b>System Description (Attach additional sheets if needed)</b>		
<b>System Type</b>		<b>System Construction</b>
Check the one that applies:		Check the one that applies:
<input type="checkbox"/> Biogas <input type="checkbox"/> Synthetic gas <input type="checkbox"/> Solar <input type="checkbox"/> Wind		<input type="checkbox"/> Homebuilt <input type="checkbox"/> Manufactured by (enter name) _____ <input type="checkbox"/> Combination (please explain) _____
Date installed _____		
<b>System Usage</b>		
Check all that apply:		
<input type="checkbox"/> Electrical <input type="checkbox"/> Space heating <input type="checkbox"/> Water heating <input type="checkbox"/> Other (please explain) _____		
<b>Signature Statement</b>		
I hereby certify the above information is true, correct and complete to the best of my knowledge.		
Property owner signature		Date



# Example: Ground Mount Installation (residential)

- 8/19/2021 – Application intake
- 8/20/2021 – Electrical Inspector review, no issues. Zoning review, required action:

Site plan shows (2) separate lots as combined. Ground-mounted solar systems that are accessory to the primary use of the property (i.e., solar arrays on the same lot as the house) are a permitted use within all zoning districts. Ground-mounted solar systems that are the primary land use for the parcel (i.e., solar farms) are a conditional use within all residential and commercial zoning districts.

With the ground mount being the sole use of the property and lot being undeveloped – the scope would require a conditional use permit as proposed.

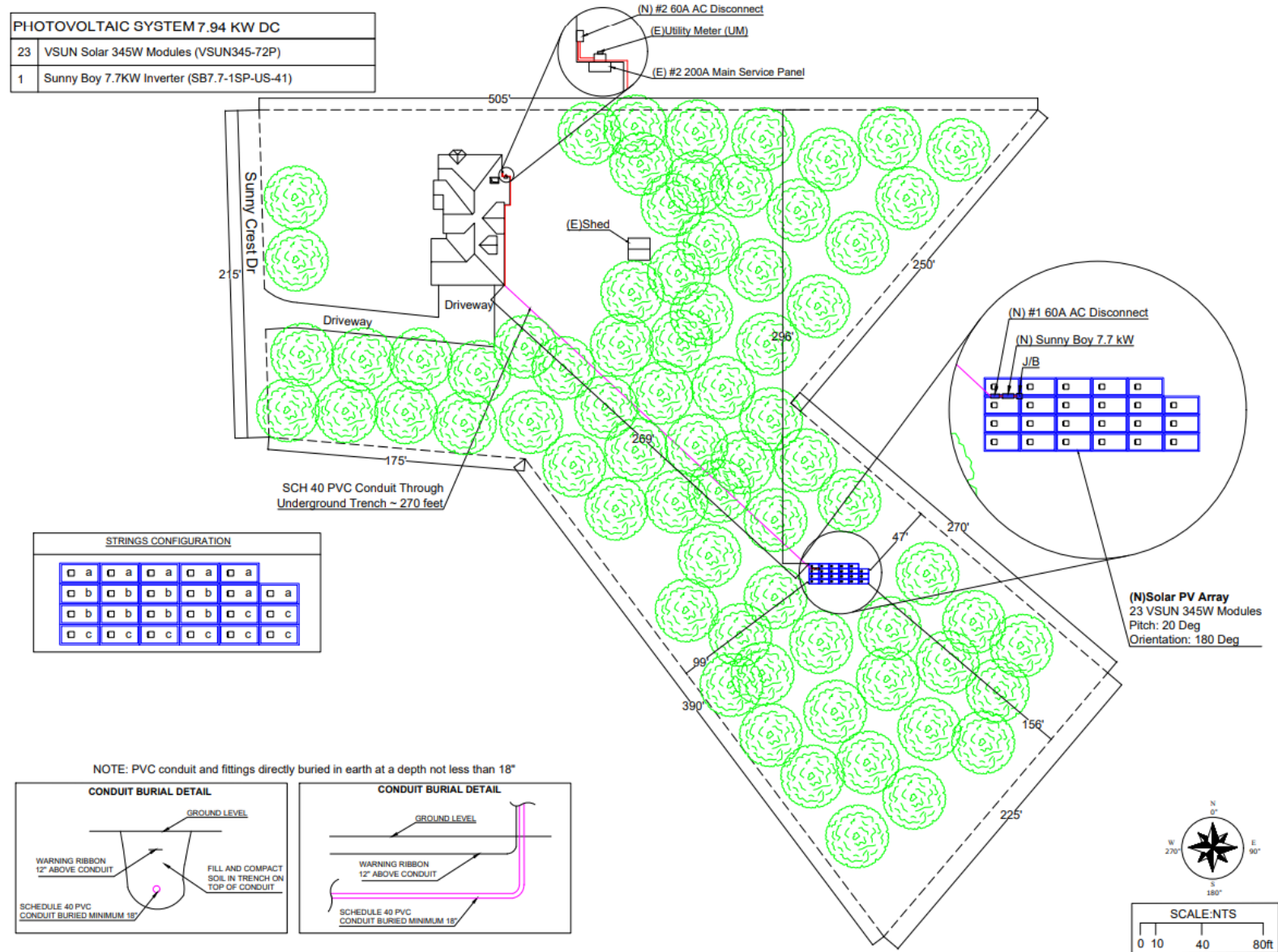
Restrictive covenants tied to both lots.



# Example: Ground Mount Installation (residential)

- Options presented to applicant:

1. Obtain a conditional use permit as proposed.
2. Relocate the ground mount system to the same parcel as the residence, which would fall under a permitted use so long as setbacks were met.
3. Combine both parcels.

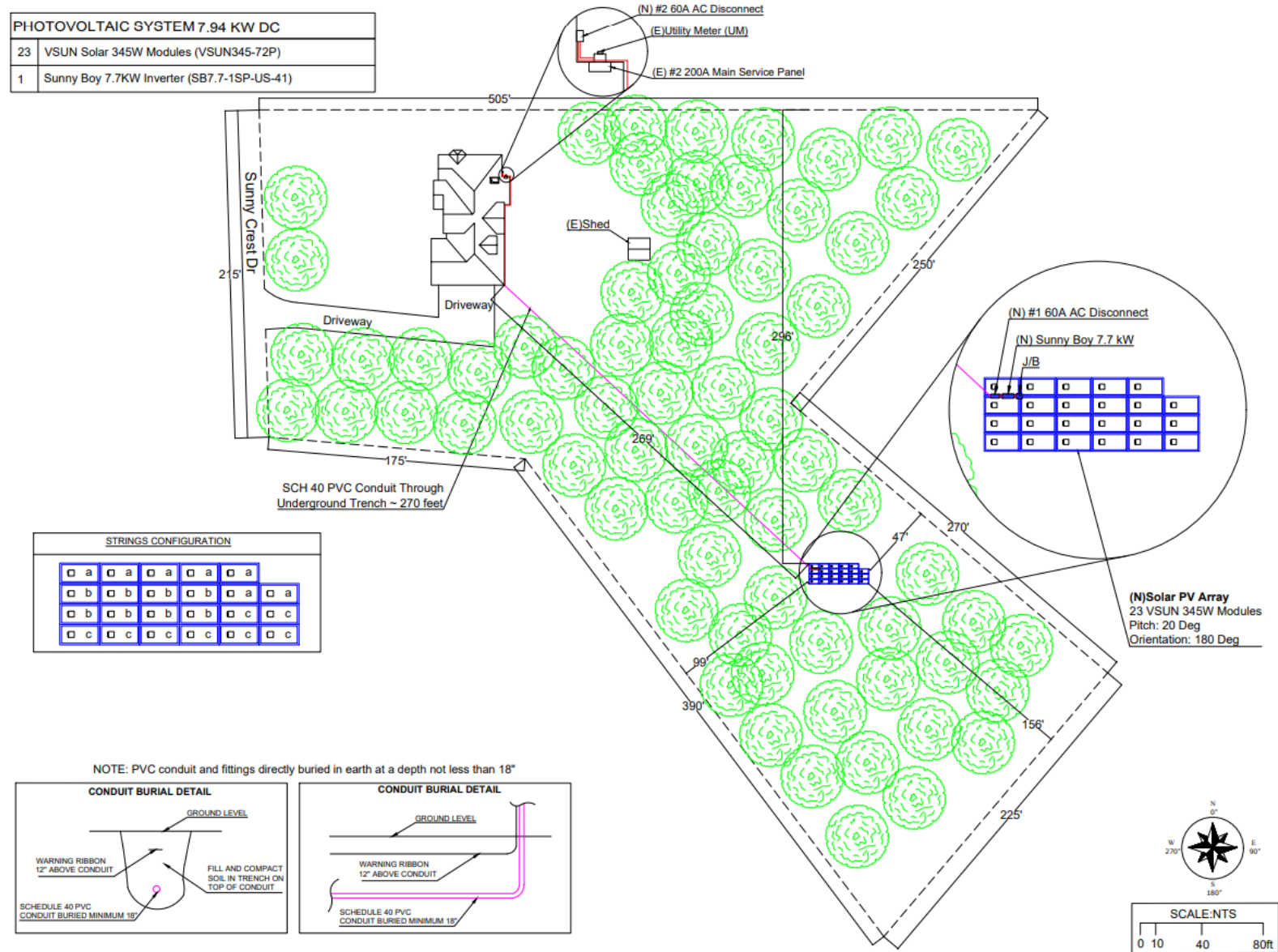




# Example: Ground Mount Installation (residential)

- 8/31/2021 – Lot Combination officially recorded.
- 9/1/2021 – Zoning sign-off. Permit issued to applicant.
- 9/7/2021 – Electrical Inspection performed. Failed, pending corrections.
- 9/20/2021 – Electrical Inspection performed. Passed. Permit closed.

Time to closure: 1 month



# Where do we go from here

- Local market development
  - RFPs
  - Publicity
  - Homeowner programs
    - Housing Modernization Loan Program (adopted February 2023)
- Involvement with Green Tier and Wisconsin Local Government Climate Coalition (WLGCC)
- SolSmart Platinum Designation
  - February – Internal kick off meeting and updating of solar landing page.
  - October – Meeting with designation representative to discuss goals.
  - November – Meeting with designation representative to comb through scorecard.
    - Discussing challenges, gaps.
    - Pursing internal changes regardless of potential future designation.

# Zoning and Permitting, Installer viewpoint:

Five main Areas:

1. Access to material (access to and clarity of forms for permitting / zoning)
2. Requirements and costs
3. Submission methods
4. Timeframe
5. Inspections



1. Access to Material:

- A. Spell out permitting/zoning requirements for solar on your website.
- B. Make forms easily accessible.
- C. Provide forms in a computer fillable document.
- D. Indicate where to submit forms where you list the requirements.





2. Requirements and costs:
  - A. Make all permitting/zoning costs as low as is reasonable.
  - B. Only require Zoning when necessary, e.g. a ground mount.
  - C. Make solar as, or less difficult to permit than work with similar safety and engineering concerns.
  - D. Asking for contractor license numbers is a reasonable request.
  - E. If a form is required, have one short form for solar permits, and one short form for solar zoning.
  - F. Standard additional documents that are normal and expected:
    - i. Site plan
    - ii. One line / Electrical Drawing
    - iii. Structural / Layout drawings
    - iv. Spec sheets for modules / inverters



### 3. Submission methods:

- A. If possible, accept forms on the municipality website (with an automated e-mail reply).
- B. Permit/Zoning submissions by e-mail is another great choice.
- C. Having forms mailed in is not ideal but can be reasonable in some cases.
- D. Requiring submission of forms or payments in person should be avoided.



#### 4. Timeframes:

- A. 1-2 weeks for an initial permit is ideal. Longer than a month is unusually long.
- B. Provide inspection reports to the contractor within three days of inspection. Most utilities require these reports for interconnection, would be beneficial to be standardized.



## 5. Inspections

- A. If a permit is provided, an inspection, with report, is expected.
- B. Inspections, unlike permit submissions, are highly beneficial to be in person. Having an inspector be inside the house and look at the bulk of the work performed is recommended. Inspecting for labels on the outside of property, or inspecting solely by pictures submitted by the contractor, is inspection theatre, and provides little benefit.
- C. Have inspectors give a time, or a rough time of day, for the inspection if possible.
- D. Inspections should prioritize in the following for solar:
  - I. Outages
  - II. Digging / trenching (e.g. conduit depth)
  - III. Other inspections