



# Planning for a Clean Energy Future: Wisconsin Communities Power On

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Wisconsin Academy Environmental Breakfast Series

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# Our Programs



- Federally Funded by US DOE
- Currently housed in PSCW: [PSC Home \(wi.gov\)](http://PSCHome.wi.gov) with the statewide, rate-payer funded energy efficiency program [Focus On Energy](#)
- Energy Security
- Grant Programs
- Energy Statistics

- Partnership between UW-Madison Extension & OEI
  - Managed by Extension
- Website:**  
[energyonwi.extension.wisc.edu](http://energyonwi.extension.wisc.edu)
- Newsletter:** enroll on website
- Energy Independence
  - Funding
  - Projects
  - Blog posts
  - Education/training events
  - Resources



- Community Development Institute
- Community Economic Development Program
- Education & Technical assistance
- Clean Energy Planning & Financing
- Sustainable Development
- Green Building
- Climate & Resilience

# Background

## Energy Independence

**25 x '25:** Generate **25%** of Wisconsin power and transportation fuels **from renewable resources locally by 2025**

- **150 Energy Independent Communities**
- Encompasses 3.41 million people
- **58.7%** of Wisconsin's population

## EI Communities 2019 SURVEY

- Gauge activity & progress
- Identify areas of assistance needed
- Share results with communities statewide

*By UW-Madison Extension: Gruder, Shropshire, Pratsch, Chen w OEI / DOE funding*



# Our Sample



**49 EI Communities or 30% responded to the survey from across the state**

28 Cities

10 Counties

9 Towns/Villages

2 Tribal Nations

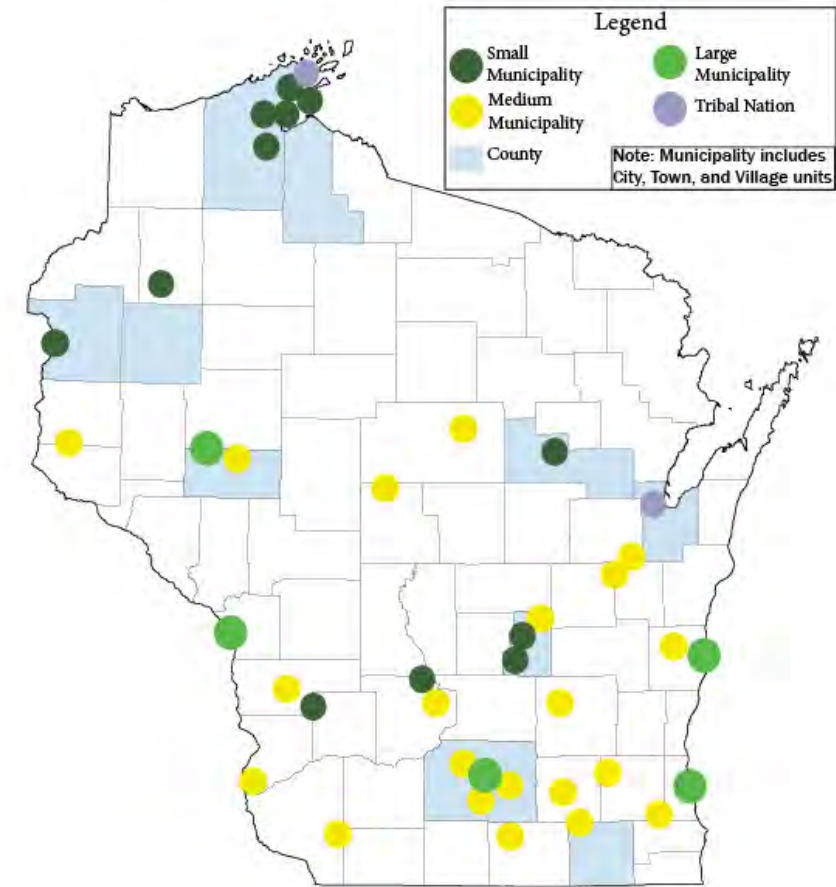
## Among municipalities, towns, and villages

5 Large Municipalities (pop > 40,000)

21 Medium Municipalities (2,501 - 40,000)

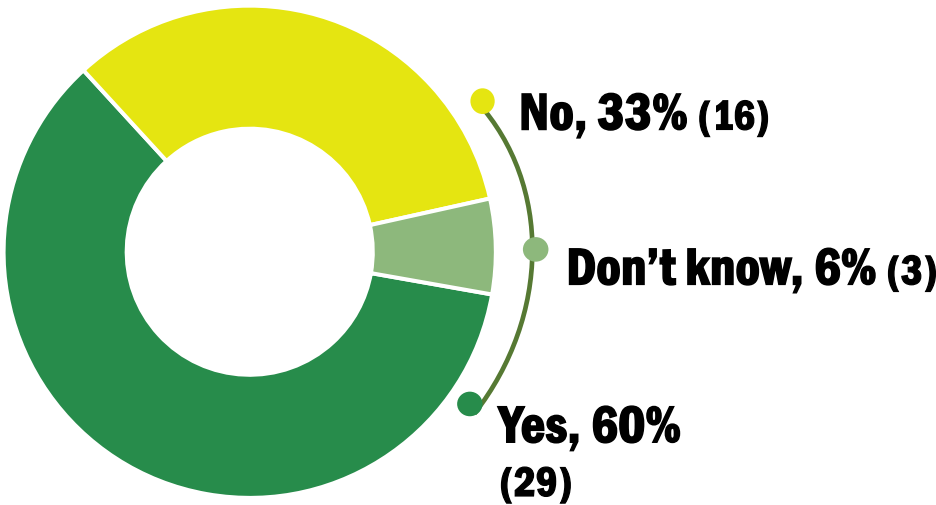
11 Small Municipalities (pop < 2,500)

## Map of Respondent EI Communities



# Active EI Communities Today

Is your EI Community actively working toward its energy independence goal?



**60%** of EI Communities reported still being active

## Active EI Communities:

### MUNICIPALITIES

Altoona  
Bayfield  
Beaver Dam  
Eau Claire  
Evansville  
Fitchburg  
Jefferson  
Kaukauna  
Madison  
Middleton  
Milwaukee  
Monona

Oconomowoc  
River Falls  
Sheboygan  
Viroqua  
Washburn  
Whitewater  
Oconomowoc  
Town of Bayfield  
Town of Berlin  
Town of La Pointe  
Village of Fox Crossing  
Village of Gresham

### COUNTIES

Ashland County  
Bayfield County  
Brown County  
Dane County  
Eau Claire County

### TRIBES

Oneida Nation



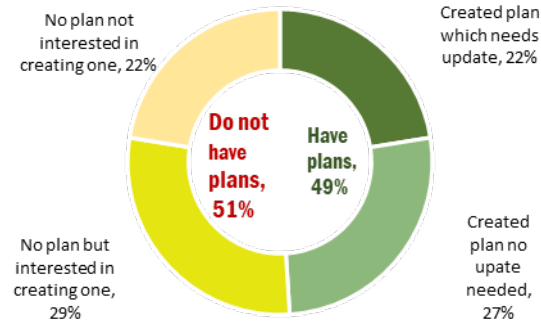
# El Community Planning

**49%** of El communities indicated they **did create** an El plan.

**45%** of these communities believe their plan **will need to be updated**.

**56%** without plan **interested in exploring options to create plan**

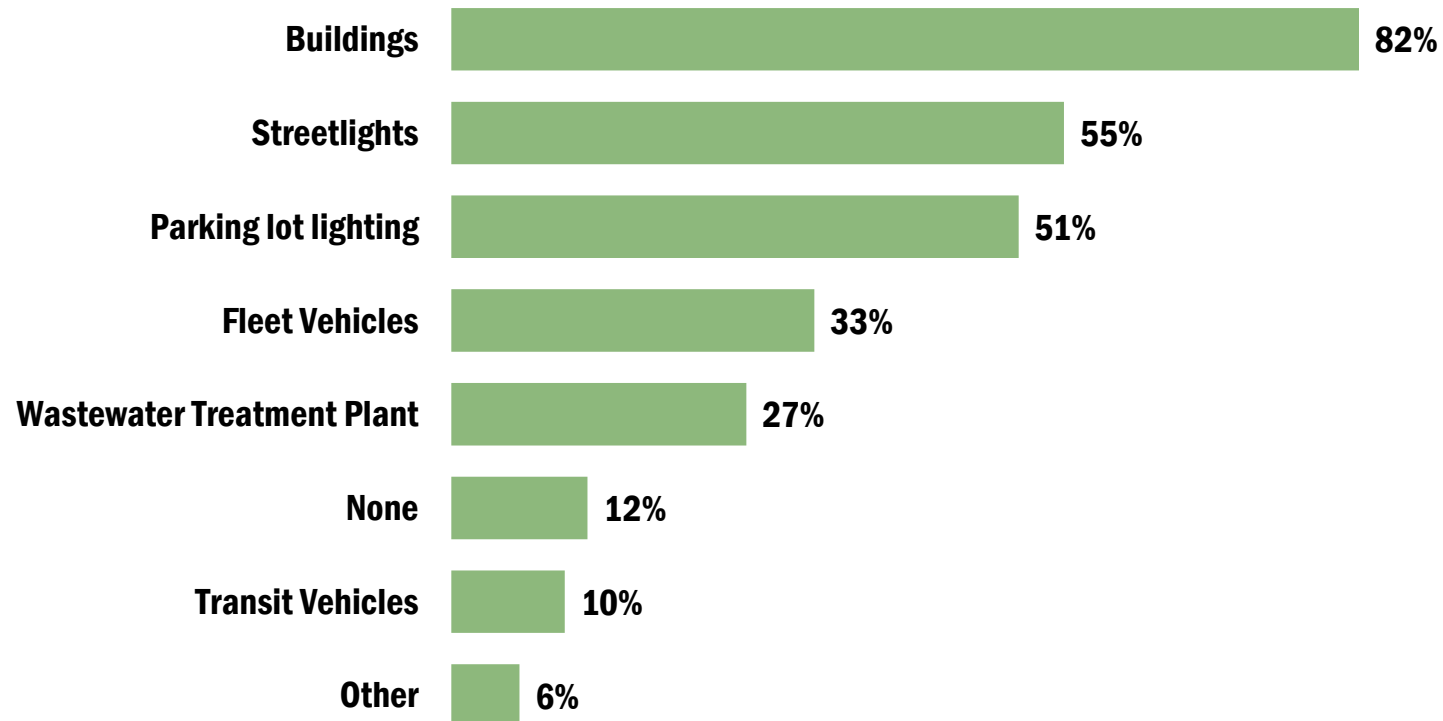
**Overall, 51% of El communities want to create or update a plan**



# Energy Efficiency: Policies and Practices

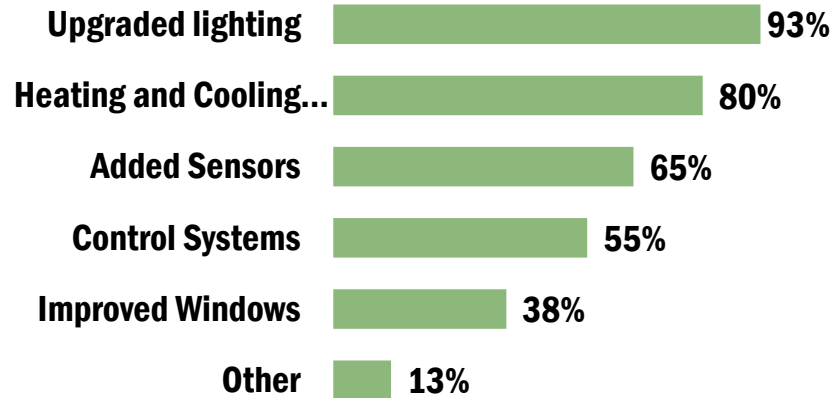
**76% of respondent EI Communities have implemented energy saving policies or practices**

## Projects Completed

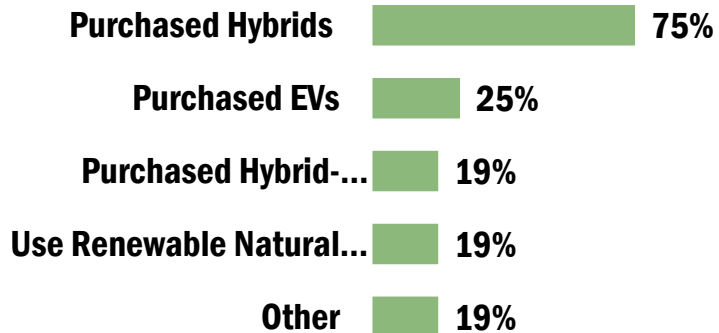


# Energy Efficiency: Building and Vehicle Projects

## Building-related projects



## Vehicle-related projects



Half of the EI communities with estimates were saving over \$50,000 annually.

Three communities were saving over \$100,000.

One at a quarter million dollars saved annually.

## Communities upgrading vehicles:

### Fleet Vehicles

Barron County  
Bayfield County  
Dane County  
Green Lake County  
Polk County  
Walworth County  
City of Eau Claire  
City of Jefferson  
City of La Crosse  
City of Madison  
City of Milwaukee  
City of Monona  
City of Sheboygan  
City of Shell Lake  
City of Wausau  
Red Cliff Band of Lake Superior Ojibwe

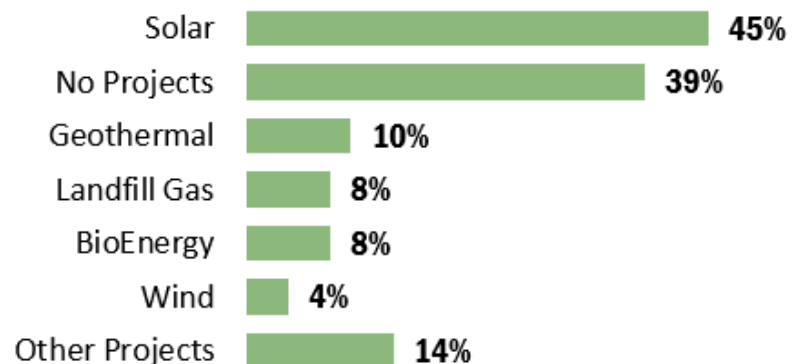
### Transit Vehicles

City of Eau Claire  
City of La Crosse  
City of Madison  
City of Sheboygan  
City of Monona



# Renewable Energy Projects

## What renewable energy projects have you installed?



## What are they powering?

### Geothermal

Municipal Building, Fire Stations, Public Libraries

### Landfill Gas

Hospital for heating

School district

injected in interstate gas pipeline and sold as clean RNG vehicle fuel.

powers a senior living center, a community center and a food pantry and food recovery operation.



## Communities with multiple types of renewable energy projects

**Bayfield County** installed Solar PV and Compressed Natural Gas projects

**Brown County** installed Solar PV, solar thermal, and Landfill Gas projects

**Fitchburg, Kaukauna, and Madison** installed solar and geothermal projects

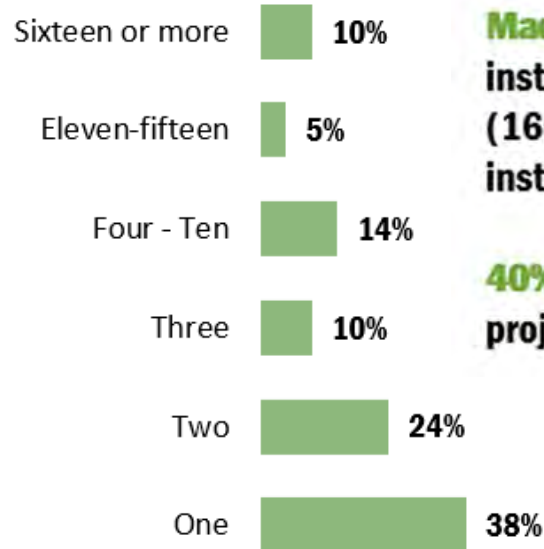
**Milwaukee** installed solar and wind

**Plymouth, La Crosse, and Beaver Dam** installed solar and bioenergy projects

**Dane County** installed solar, geothermal, and landfill gas projects

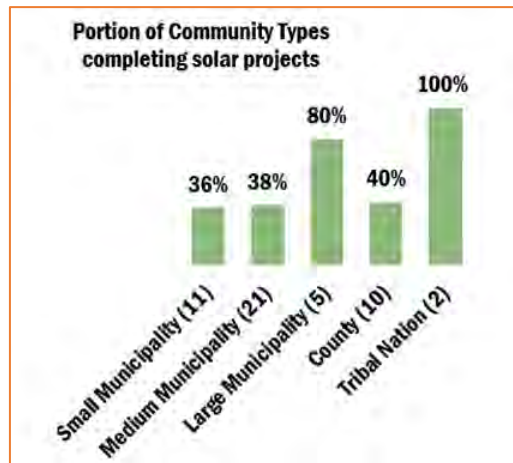
# Solar Projects

## Number of Solar Projects



**Madison and Dane County** installed the most solar projects (16+); and **Bayfield County** installed 11-15 projects

**40%** of EICs that installed solar projects installed **three or more**



## Where are they/What are they powering?

### Projects were located at and powered a range of buildings :

"Energy sold back to (utility) under rate schedule PG-4"

"On a county courthouse"

"Hot water for county jail"

"Municipal Swimming Pool"

"it powers our southeast campus which primarily a main highway garage and the medical examiners office and the RNG fueling station"

"Hot water for (a) Neighborhood Center"

"Municipal building operations"

"On public libraries"

"On a nursing home"

"On a health center"

"Bus garage"

"On a community/bingo center"

"Fire stations"

"It powers our jobs center"



Beaver Dam 105kW

La Pointe 23kW



**Average Size PV System 130 kW**

**25% of the projects were under 55 kW**

**25% were over 185 kW**



# Solar PV Projects & Renewable Energy Status

Just **under half of EI communities** had **confident estimates** for their renewable energy share.



**6% (3) have met their goal**



**22% (10) are unsure of their renewable share**



**10% (5) have more than 20% renewable energy**



**43% (19) have less than 10%**

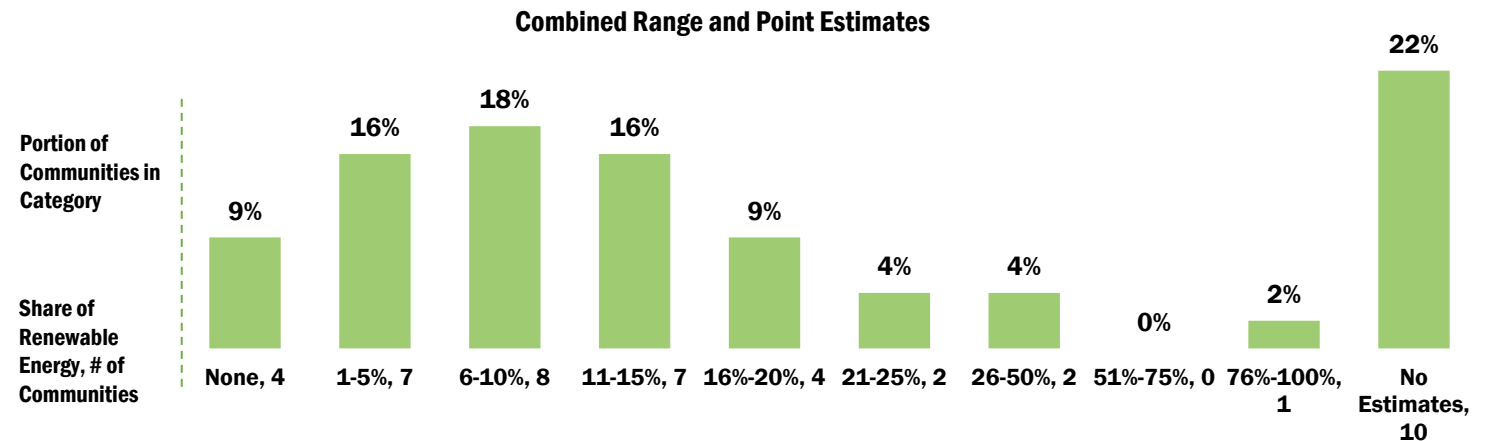
## Calculating Energy Independence

- Energy efficiency savings
- Renewable energy generated
- Renewable energy purchased
  - additionality
- Utility mix - % renewables
- Baseline energy
- Reduced CO2 emissions

## Energy Independence is local energy

Local energy creates resilience, jobs,  
local self-reliance

## What portion of your energy consumption comes from renewable sources as of 2019?



# Telling the Story: Plans associate with more measurement, activity, staffing, & progress

Communities with **plans** are **more likely** to:

Actively work toward their goals

83%

Have designated staff

71%

Measure and have estimates of renewables use

71%

Know how much they spend on energy

62%



Track Progress



Predict success

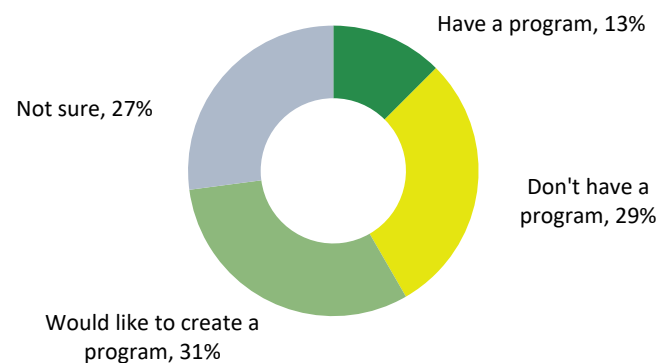
## Make more progress toward their goals

Of communities **without a plan**: **80%** have **not completed any solar projects** compared to **33%** of communities **with plans**.

# Community Engagement

- Over **one third** of EI communities **engaged residents and businesses** in energy efficiency programs and C-PACE.
- Other program engagement through:
  - solar group buy
  - community solar gardens
  - climate resiliency

## Low-Income Assistance Programs



**Communities with Programs:**  
City of Monona,  
Dane County,  
Prairie Du Chien,  
River Falls,  
City of Sheboygan,  
City of Milwaukee

### About the Programs

- *Putting solar power on affordable housing.*
- *We supported solar projects with our Housing Authority. We tried to get the utility to offer community solar to low income residents, but they declined.*
- *PACE for buying community solar*
- *Renew Monona Loan Program*
- *Housing Rehabilitation Loan Programs*



# Overall Findings

## 10 years later, the status of EI communities' progress toward energy independence is mixed

### ❖ The vast majority of communities are making progress toward their goal of developing local renewable energy and improving energy efficiency

- 76% had implemented policies and practices to save energy
- 88% had made energy efficiency upgrades to at least one usage area, while 50% had made upgrades to at least 3 areas
- 45% of communities had installed solar projects

### ❖ Progress toward the goal of 25 by '25 is highly varied and not uniform in how measured and reported

- 25% were below 5% renewable energy
- 10% were above 20% renewable energy
- 22% didn't know their renewable energy

### ❖ Most helpful factors in making progress



### Limiting Factors

#### State Laws or Other Policies

- Restrictive energy procurement laws and interconnection mean we are limited by what our utilities will allow
- Up front costs cannot be absorbed with tax restrictions set by the State.

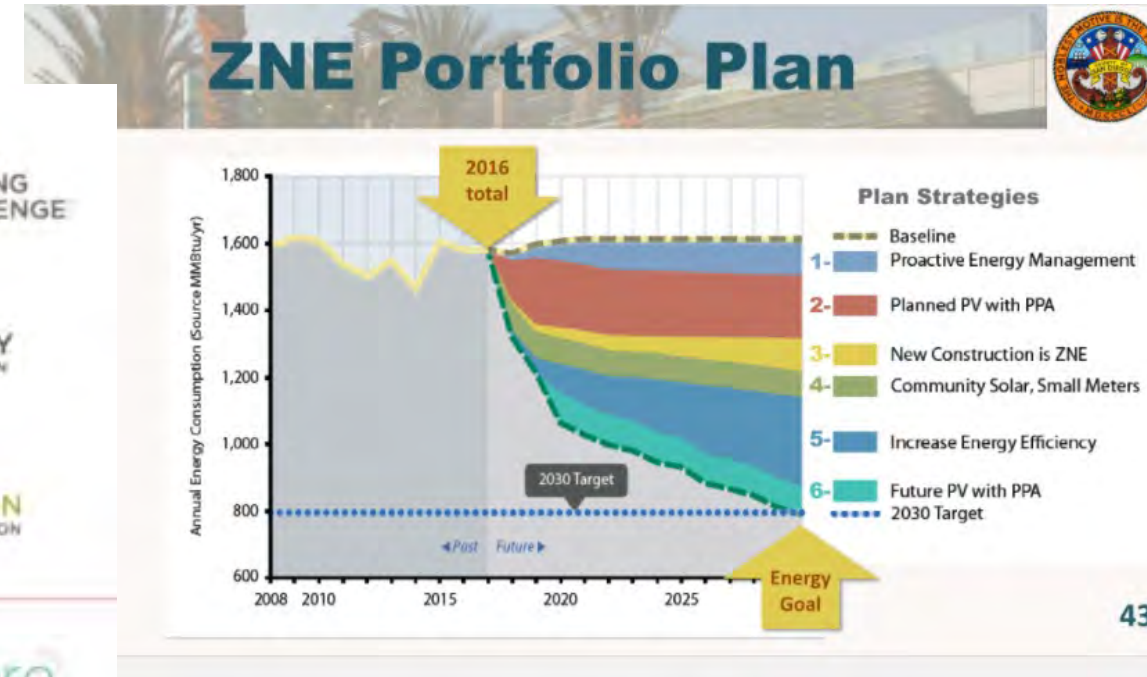
# Conclusions

- **Areas for Improvement Going Forward**
  - ❖ Communities need help with measurement, tracking, and standardized reporting of their renewable energy status
  - ❖ Communities need assistance sustaining these efforts so that changes in staff, elected officials, or other priorities do not stifle progress

“The EIC concept was/is a brilliant platform to normalize actions state-wide and glad is it gaining greater traction again.”

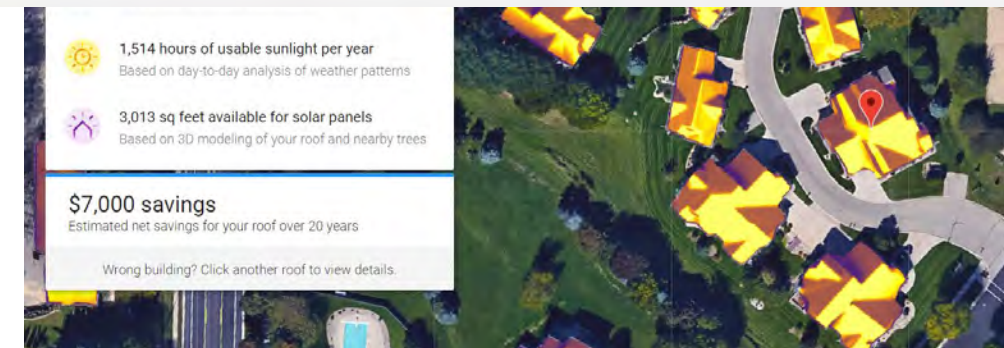
# Q & A Discussion

# From Incrementalism to Transformational Change



LEED Zero  
ENERGY

LEED Zero  
CARBON

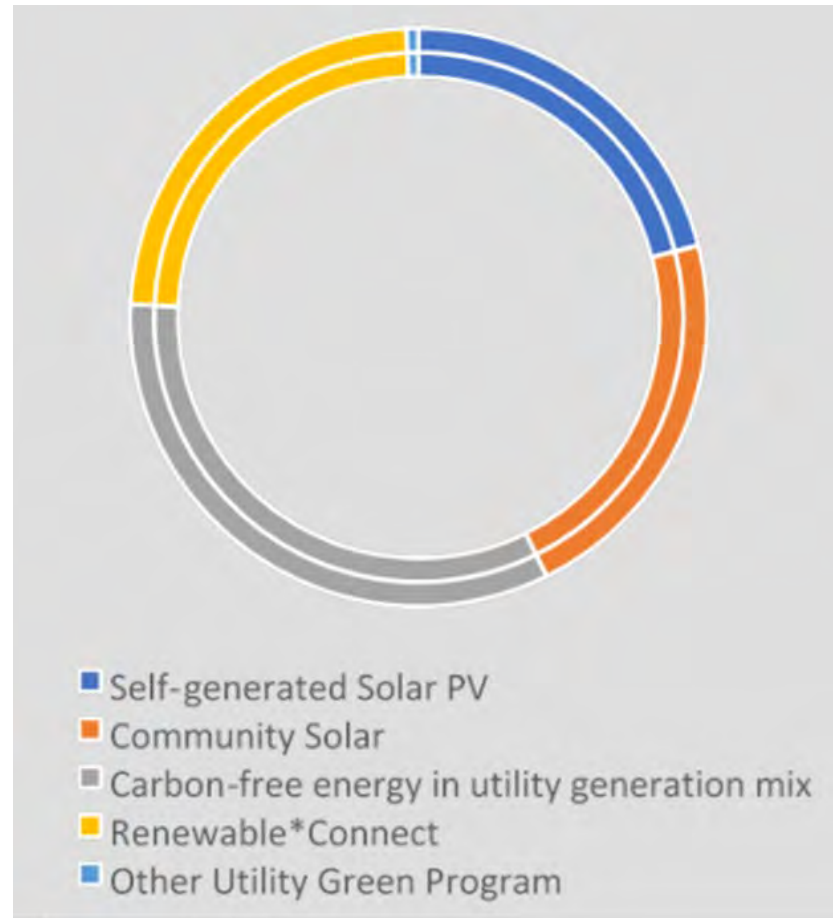




# Case Study: Transformational Change

## Bayfield County Gets to 100% Carbon-Free Electricity

### 100 Percent Carbon-Free Electricity Resolution



### Pathway

- 43% local **on-site generation**
  - Solar installations 174kW
  - Community solar RECs 195kW
- 30% **utility electricity mix** (56% carbon-free – Xcel)
- 26% purchase green-e power from MN
  - From Xcel, \$1600/yr



Demonstrate Strategic Alignment





# Transformational Change



## Key Features

- ☐ Collaboration, partnerships
- ☐ Energy Equity – for LMI, elderly, BIPOC communities
- ☐ Local projects = local jobs
- ☐ Workforce training
- ☐ Carbon sequestration = trees, soils, wetlands



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# Policy Update

- **Governor Evers [Executive Order 38-](#)**  
Creates Office of Sustainability and Clean Energy, sets goal of 100% carbon-free electricity by 2050
- **[Executive Order 52-](#)** Creates Task Force on Climate Change
  - Task Force is led by Lt. Governor Mandela Barnes and features state agencies, Tribal leaders, Indigenous knowledge, utilities, energy and social justice organizations; a wide variety of stakeholders were engaged
    - recommendations delivered December 2020
  - Link to Report  
<https://climatechange.wi.gov/Pages/Home.aspx>
- **Key Energy Recommendations:**
  - Create a Green Bank
  - Create an Office of Environmental Justice
  - Pilot Microgrids for Critical Infrastructure (w/storage)
  - Expand funding for Focus on Energy
  - Update state commercial and residential code
  - Support Community Solar
  - State Facilities could lead by example – hit 100% clean energy for state operations by 2025/26

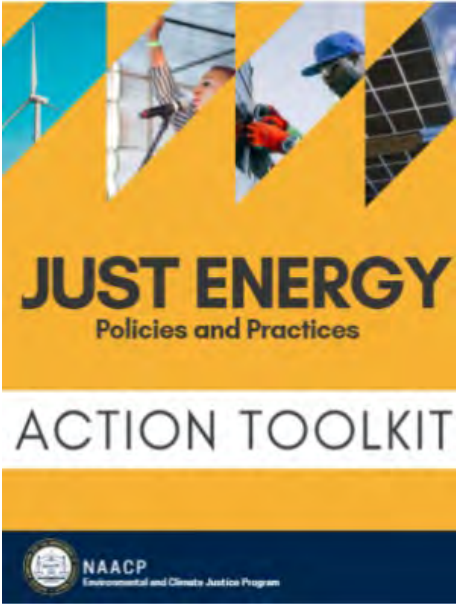




# Energy Justice - A Critical Component of Energy Security



Figure 1 Wind events July 2019 [https://www.weather.gov/grb/071919\\_severe\\_event](https://www.weather.gov/grb/071919_severe_event)



2010 San Bruno Pipeline Explosion

<https://www.naacp.org/climate-justice-resources/just-energy/>



# Grant Programs and Other Opportunities

- **Energy Innovation Grant Program (EIGP)**
- **Critical Infrastructure Microgrid Feasibility Study & Community Resilience Center** grant program (coming in Spring 2021)
- **Wisconsin Inclusive Solar Community Offering (WISCO)** project:
  - OEI will pilot 2 community solar gardens with a special carve out for low-income citizens, deploying innovative financing techniques, with technical assistance from New York's Solar for All program, the National Association of State Energy Officials, and the National Energy Assistance Directors Association





# Questions?



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