



RENEWABLE ENERGY SUCCESSES & OUTLOOK

TYLER HUEBNER, RENEW WISCONSIN

MEETING OF THE GOVERNOR'S TASK FORCE ON CLIMATE CHANGE • MARCH 10, 2020



ABOUT
RENEW WISCONSIN:

NONPROFIT ORGANIZATION
FOUNDED 1991

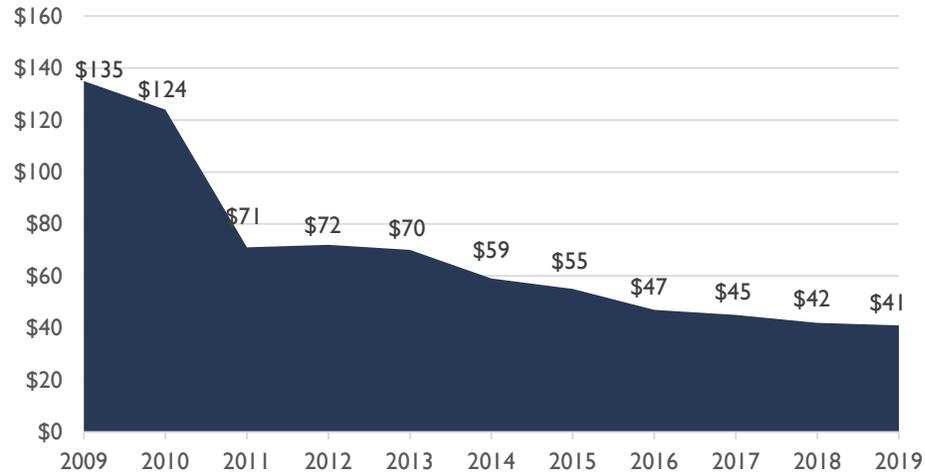
SUPPORT FOR:

- SOLAR
- WIND
- BIOMASS & BIOGAS
- GEOTHERMAL
- HYDROPOWER
- *NEW*: ELECTRIC VEHICLES

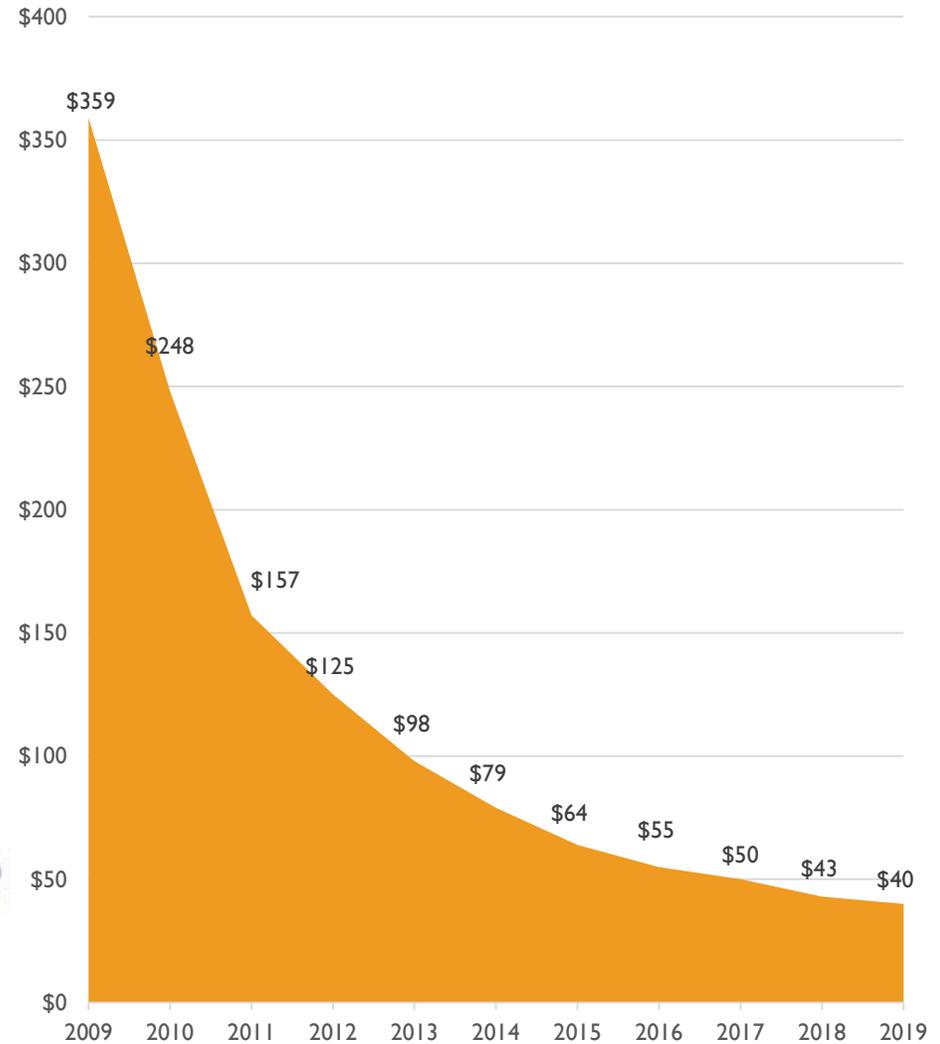


MAJOR TREND:

WIND & SOLAR PRICES HAVE DECLINED DRAMATICALLY



WIND: ▼ 70%



SOLAR: ▼ 89%

WIND & SOLAR ARE ON THE HORIZON

Wisconsin Solar, Wind, and Batteries: In Construction or Development

5,656 MW Solar - (130 MW today)
1,095 MW Wind - (737 MW today)
321 MW Battery - (0 MW today)

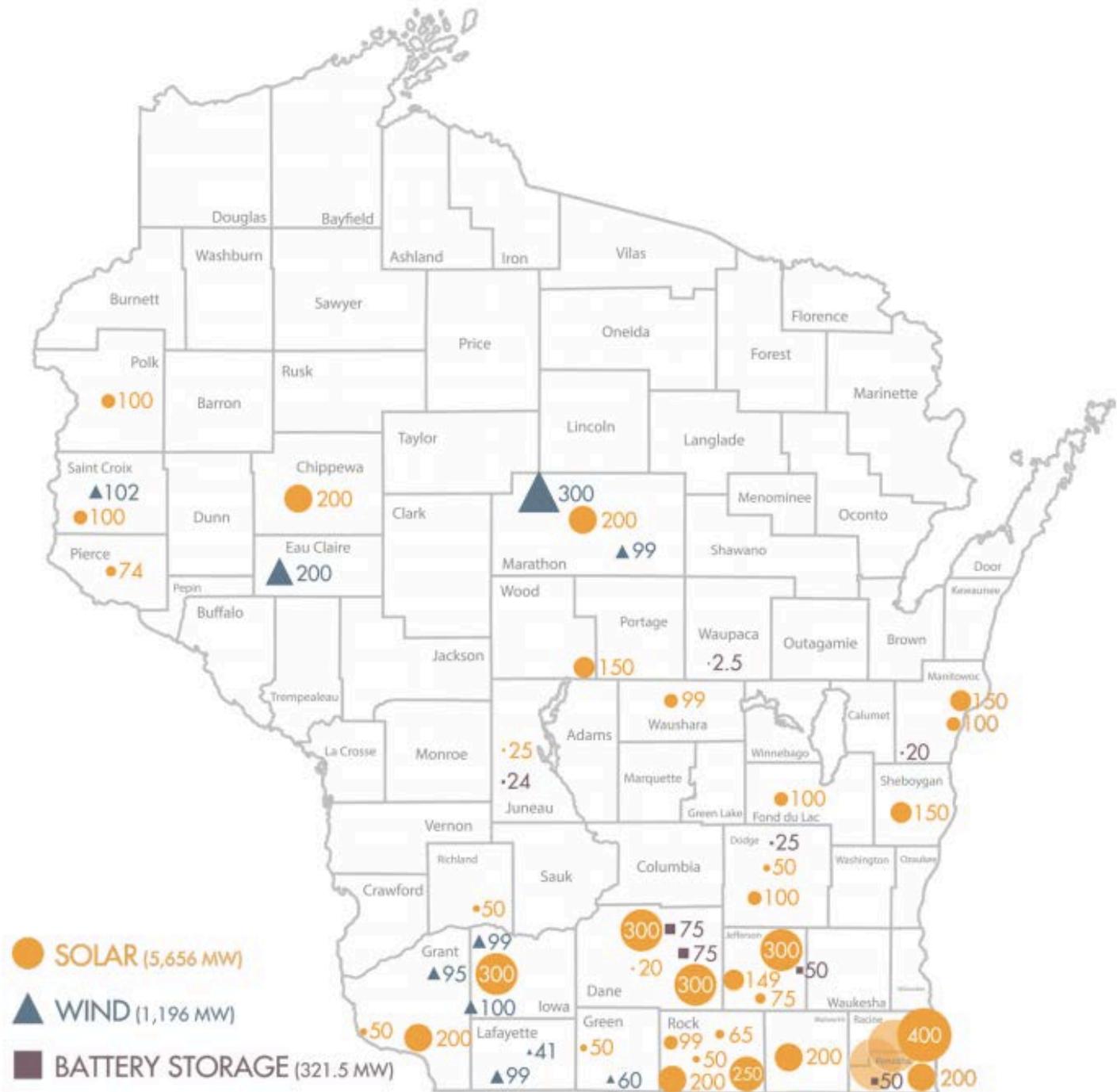
If all this were built:

16.1% Solar

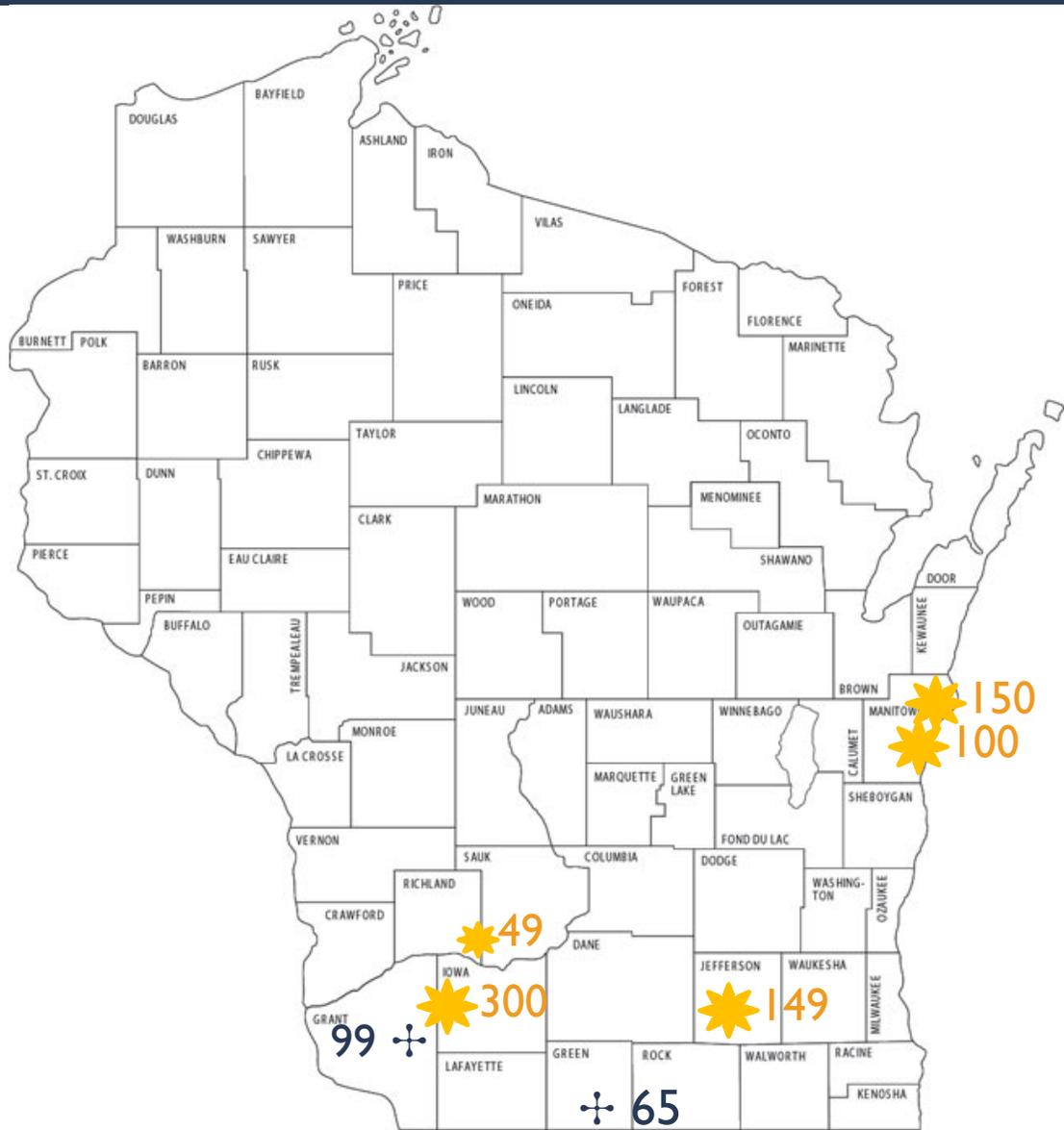
+5.4% Wind

32% Total Renewable Electricity
Consumption

\$29 million to local governments +
~\$33 million to landowners annually



SOLAR & WIND PROJECTS APPROVED IN 2019 & 2020



748

Megawatts of Solar
Across 5 projects

194,000

Equivalent homes
powered annually
(estimated)

164

Megawatts of Wind
Up to 53 turbines

70,000

Equivalent homes
powered annually
(estimated)

NOTE: size of icon is much larger than the geographic size of the project

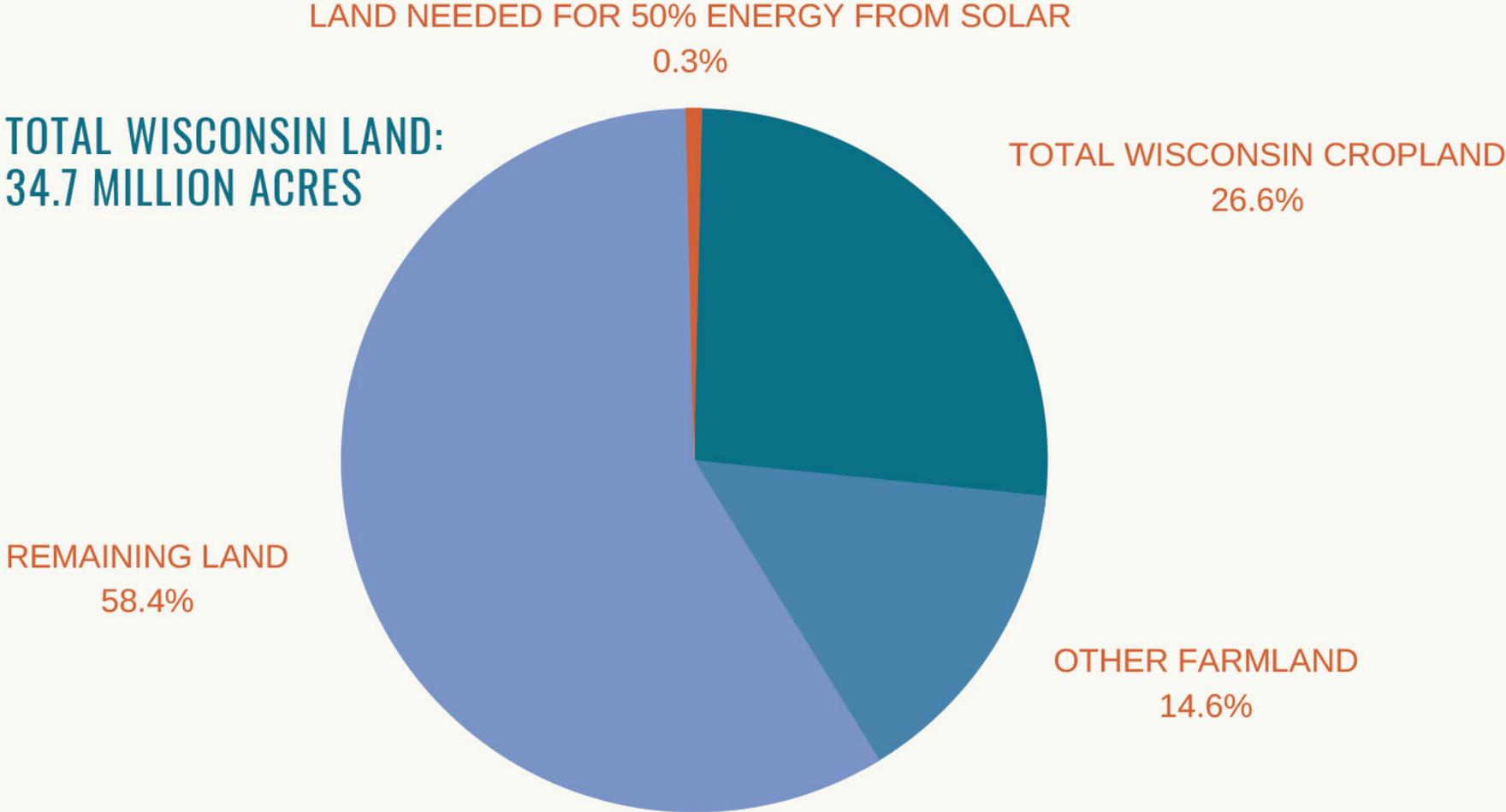
WHAT CAN SOLAR LOOK LIKE?



Clockwise:

- Green Bay
- Downsville
- Elroy
- New Lisbon

HOW MUCH LAND IS NEEDED FOR SOLAR?



WISCONSIN LAND USE

ROOFTOP SOLAR IS GROWING TOO!



American Family Insurance
Aug/Sept 2017
1.2 MW



IKEA
July 2018
1.6 MW

Madison College
December 2018
1.85 MW





Spreading
solar
power's
benefits
across
Wisconsin



Clockwise: Veteran's Outreach (Racine), Escuela Verde (Milwaukee), Pleasant Ridge Waldorf School (Viroqua), Catholic Youth Expeditions (Bailey's Harbor)

BIOGAS UNDERGOING A TRANSFORMATION



**AMERICAN
BIOGAS
COUNCIL**

DTE Energy waste-to-energy initiative wins American Biogas Council's dairy project of the year

The Calumet Renewable Natural Gas Project by ABC member DTE Biomass Energy has been named the 2019 'Project of the Year' in the agriculture, dairy category by the American Biogas Council (ABC). It was recognized 'for the use of an innovative business model to manage dairy RNG through a virtual pipeline.'

BIOGAS UNDERGOING A TRANSFORMATION

Dane County
Landfill

Renewable
Natural Gas
Conversion



LOCAL CHAMPIONS ARE MAKING A HUGE DIFFERENCE

In Chequamagon Bay, local champions are driving major solar change:

- 2016: 300 kilowatt community solar w/ Bayfield Electric
- 2018: 552 kilowatts through solar group buy
- 2017-19: Working with school districts and community: Ashland County Courthouse, Greater Bayfield Wastewater Treatment, Washburn Elementary, and many more
- 2019: ~300 kilowatt solar group buy
- 2019-2020: Electric Vehicles!



CLEAN ENERGY CREATES JOBS

In-state job growth and revenue diversification for farmers drives policymaker support

CLEAN JOBS AMERICA **NEARLY 3.3 MILLION CLEAN ENERGY JOBS¹**

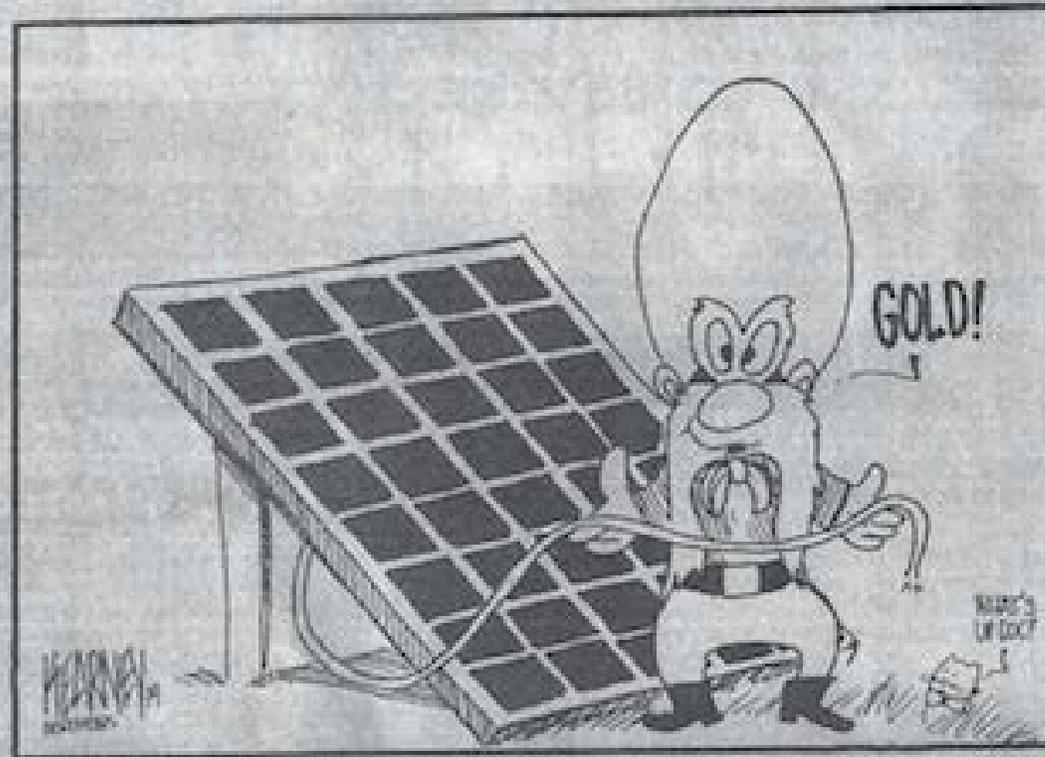
In every region and every state in America, clean energy is creating jobs and
Nationwide, more than 110,000 net new clean energy jobs were created in 2018, total number of Americans who work in clean energy to 3.26 million.

INDUSTRY JOB TOPLINES

- Energy Efficiency – **2,324,865 jobs**
- Renewable Energy – **508,484 jobs**
- Solar Energy – **334,992 jobs**
- Wind Energy – **111,166 jobs**
- Clean Vehicles – **253,599 jobs**
- Clean Storage – **74,569 jobs**
- Grid Modernization – **64,377 jobs**
- ALL US Clean Energy Sectors – **3,264,383 jobs**

DRAWING ATTENTION | By Greg Kearney

Struggling farmers see bright spot in solar





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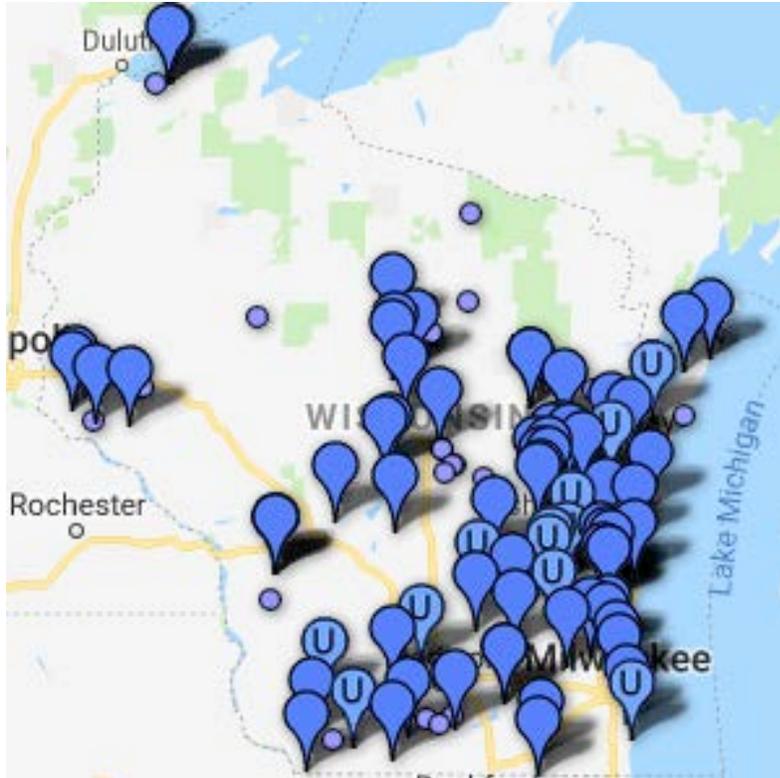


Appendix & Resources

RENEWABLE ELECTRICITY INSTALLATIONS IN WISCONSIN

Wind

12 utility-scale, 736 MW

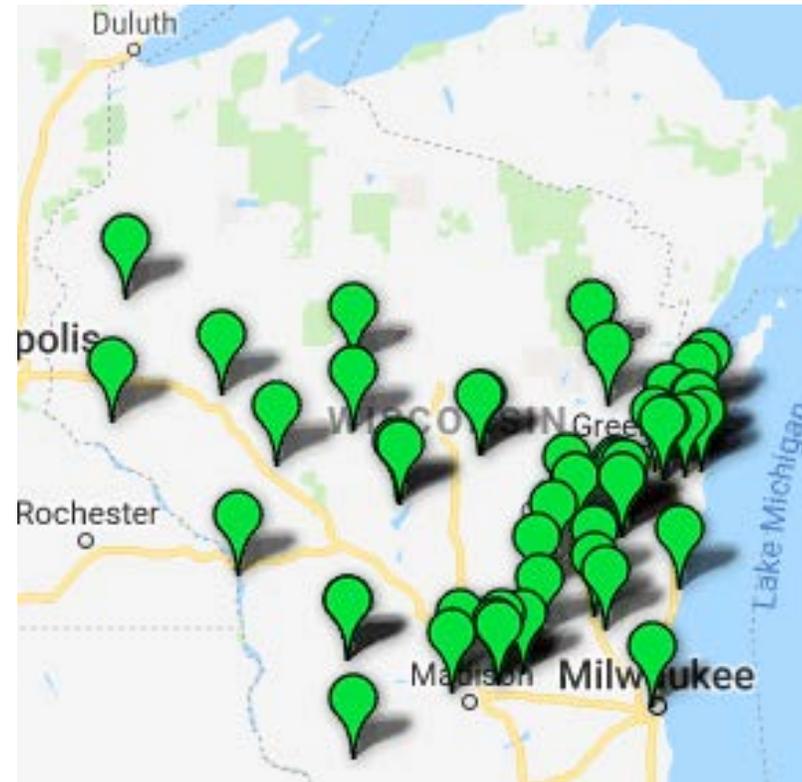


U = Utility Scale Wind Farms / Projects
Others are "small wind"

Biogas

31.8 MW (as of 2017)

(Many are converting from electricity to RNG)

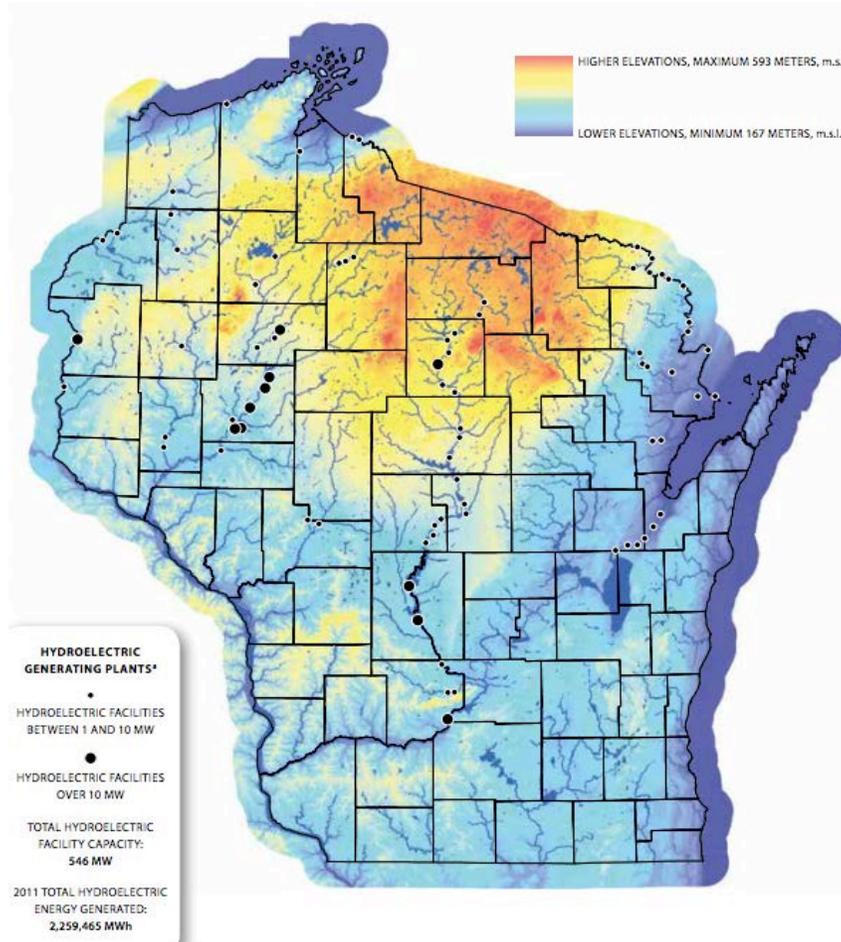


Biogas Electric Generators as of 2017

RENEWABLE ELECTRICITY INSTALLATIONS IN WISCONSIN

Hydropower

75 facilities, 546 MW (2011)



Solar

6000+ sites, 130 MW



Source: State Energy Office Statistics Book, RENEW Wisconsin - <https://www.renewwisconsin.org/wi-renewable-energy-installations/>