



SOLAR FARMS

HEATHER ALLEN, RENEW WISCONSIN



RENEW WISCONSIN:

FOUNDED 1991

SUPPORT FOR:

- SOLAR
- WIND
- BIOMASS & BIOGAS
- GEOTHERMAL
- HYDROPOWER
- ELECTRIC VEHICLES

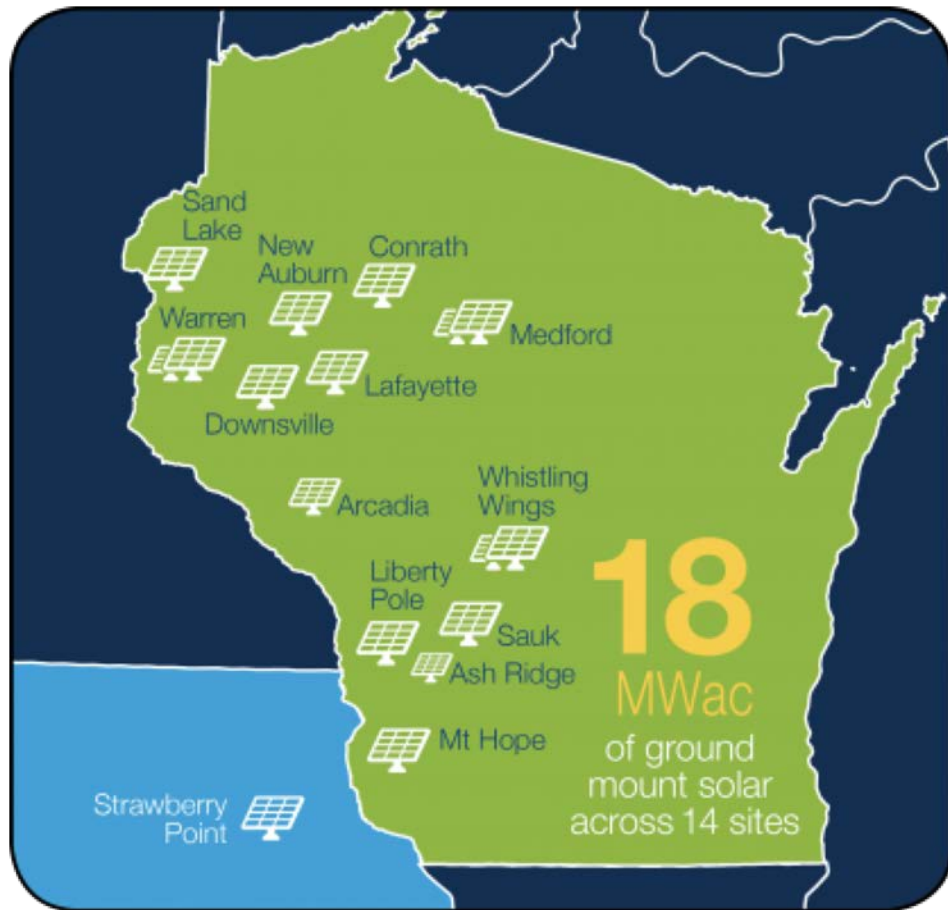


ESSENTIAL INFORMATION

- The industry is changing – costs have plummeted
- Major projects on the horizon
- Utility, corporate and local gov't commitments to renewable energy
- Solar Farms can be a win-win for rural communities



SOLAR FARMS SERVE WI ELECTRICITY NEEDS

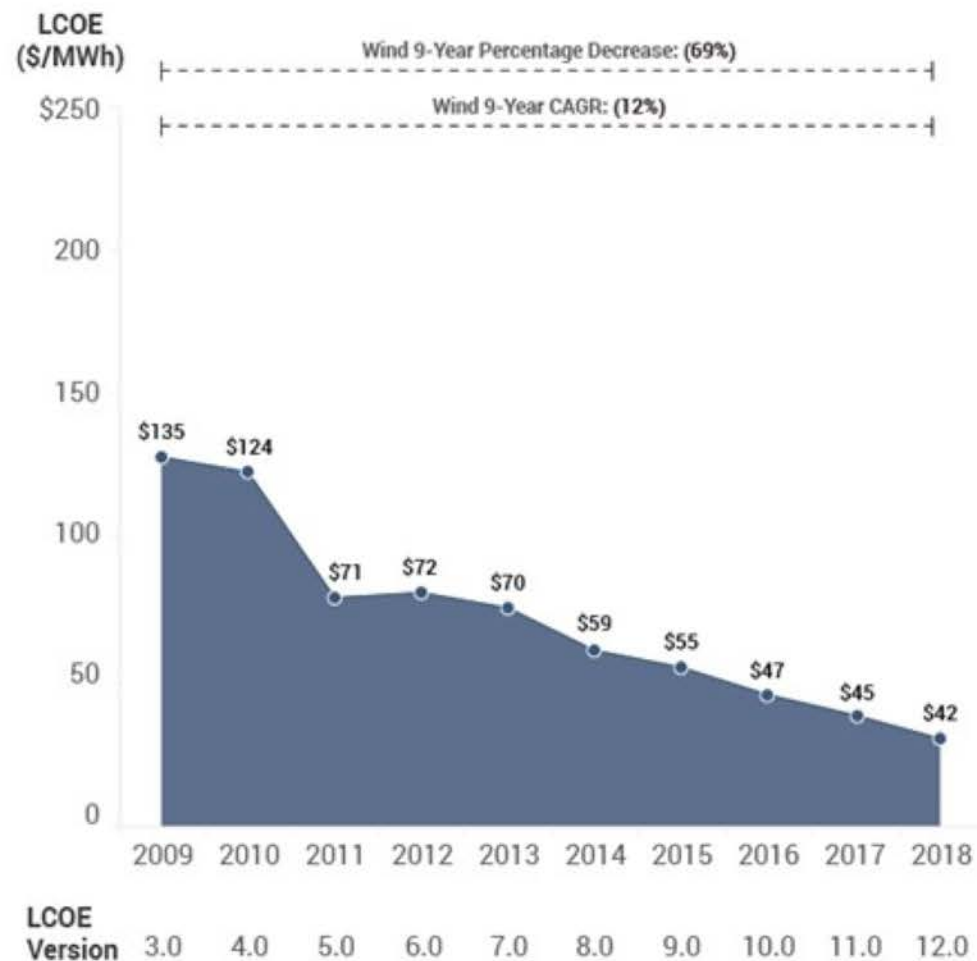


A Touchstone Energy® Cooperative 

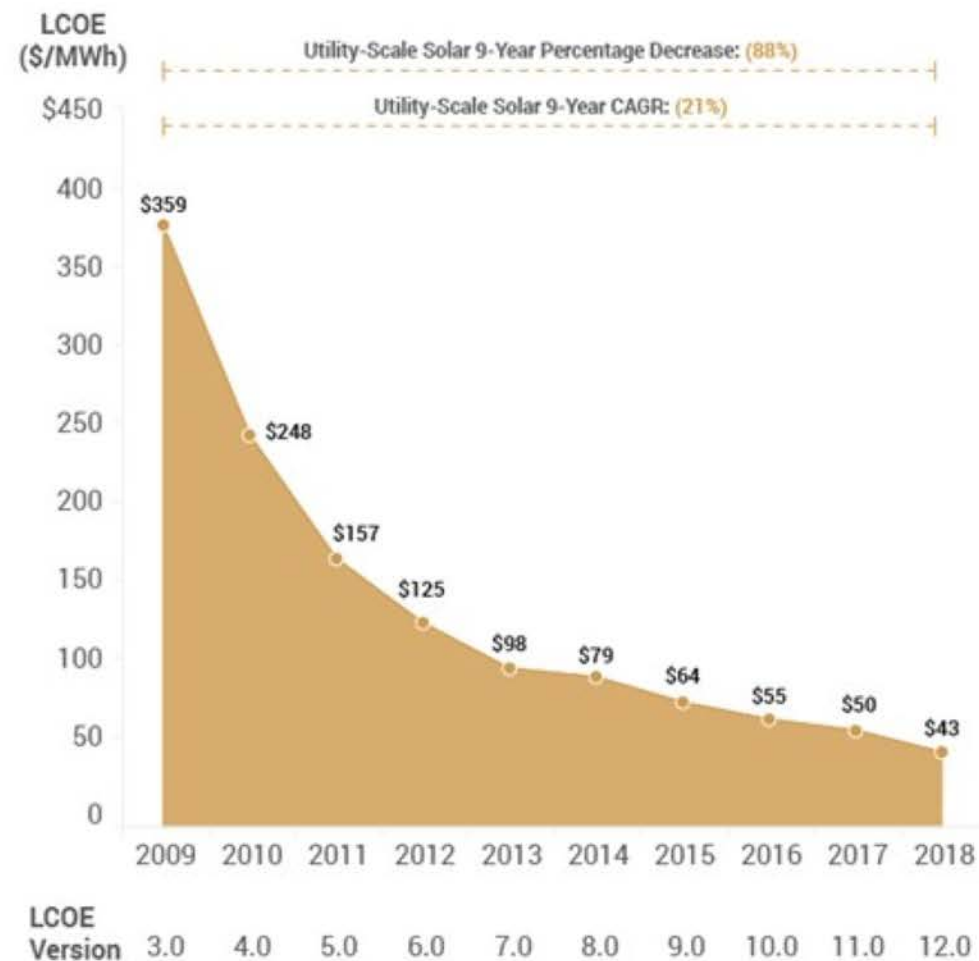


WIND & SOLAR COSTS HAVE DECREASED DRAMATICALLY SINCE 2009

Unsubsidized Wind LCOE



Unsubsidized Solar PV LCOE

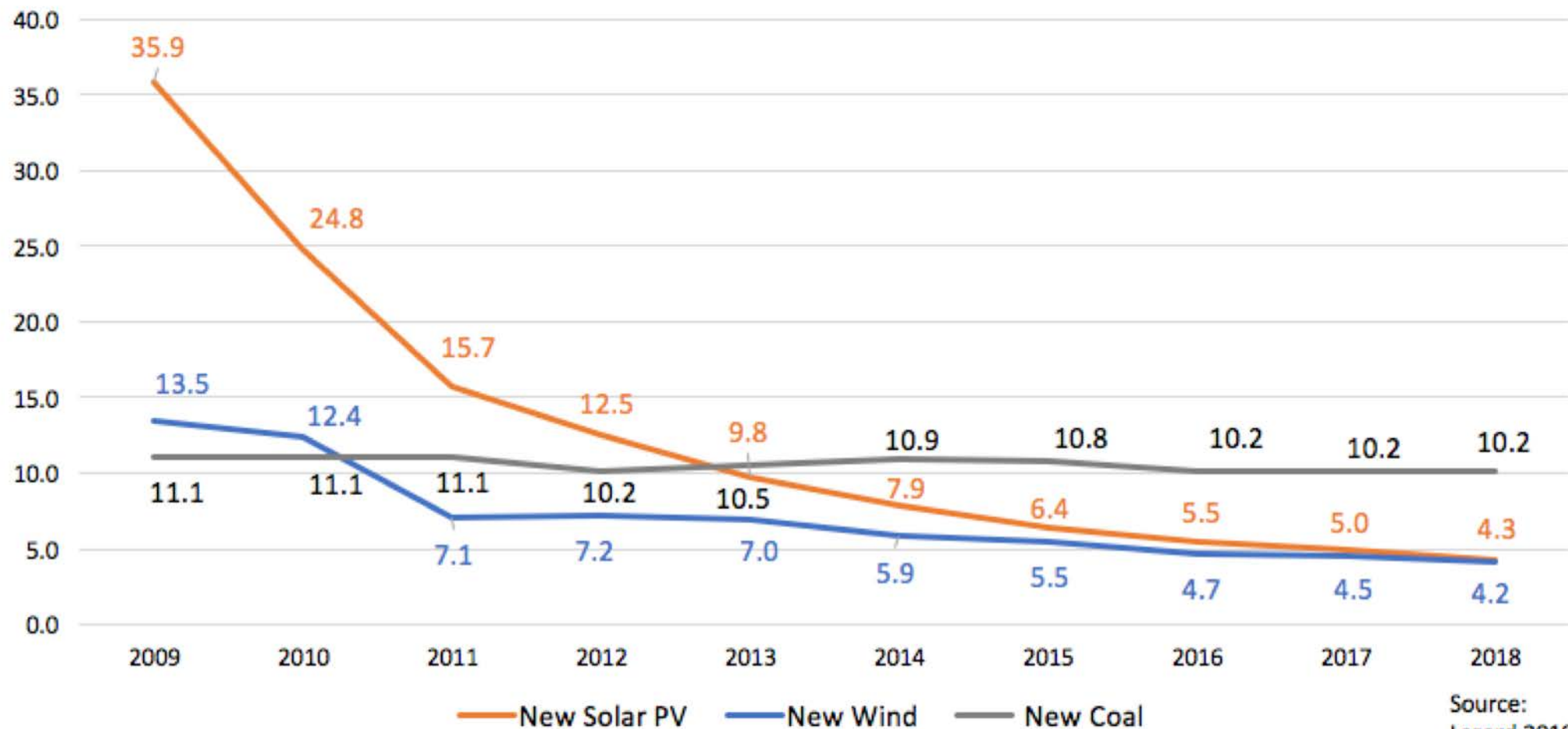


WIND: ▼ 69%

SOLAR: ▼ 88%

Historical Unsubsidized "Levelized Cost of Energy" of Utility-Scale Electric Generation (cents per kilowatt-hour)

Mean LCOE:
Cents / kWh



Source:
Lazard 2018

WIND & SOLAR ARE ON THE HORIZON

Wisconsin Solar & Wind in Sep 2018

MISO Queue:

4,960 MW Solar - (100 MW today)

1,100 MW Wind - (748 MW today)

170 MW Battery - (0 MW today)

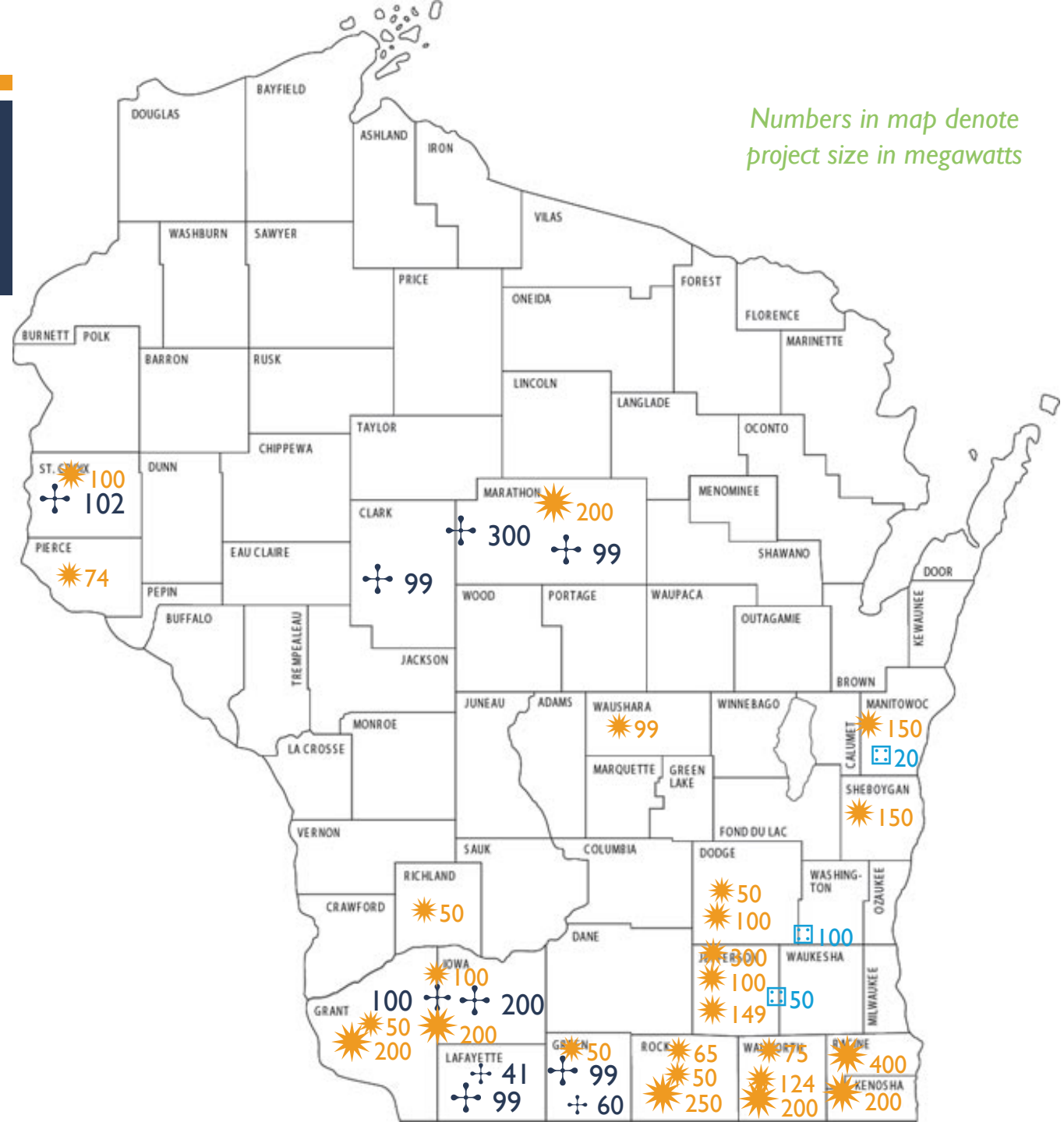
If all this were built:

7.6% Solar

+6.7% Wind

23% Total Renewable Electricity

*\$19 million to local governments and
~\$25 million to landowners annually*



MAJOR UTILITY COMMITMENTS TO RENEWABLE ENERGY BY 2050

Utility Provider	Business Plan	2017 WI Renewables Mix (5-RF-2017) (RPS + GPP)
Wisc. Public Service	80% CO2 Reduction by 2050	7.9%
Wisconsin Electric	80% CO2 Reduction by 2050	7.6%
Alliant	80% CO2 Reduction by 2050	13.5%
MG&E	100% CO2 Reduction by 2050	13.2%
Xcel	80% CO2 Reduction by 2030 + 100% by 2050	28.1%
WPPI	--	15.9%
Dairyland	--	14.5%
Other	--	--
Total WI Mix from RE	--	12.15%

RENEW Wisconsin Estimate:

- Assume “flat load”
- Assuming IOU commitments are met

> 60% renewable / carbon-free electricity by 2050

CORPORATIONS WITH RENEWABLE COMMITMENTS AND WISCONSIN OPERATIONS





PSC Approves 5-fold Solar Expansion in Wisconsin

by Tyler Huebner | Apr 11, 2019 | Public Service Commission, Renewables, Solar, Utilities

Today at its Open Meeting, the Wisconsin Public Service Commission approved five interrelated cases that will lead to a five-fold expansion of solar energy in Wisconsin.



MIDWEST'S LARGEST SOLAR PROJECT PROPOSED FOR IOWA COUNTY

Badger Hollow
Solar | Invenergy



300
megawatts

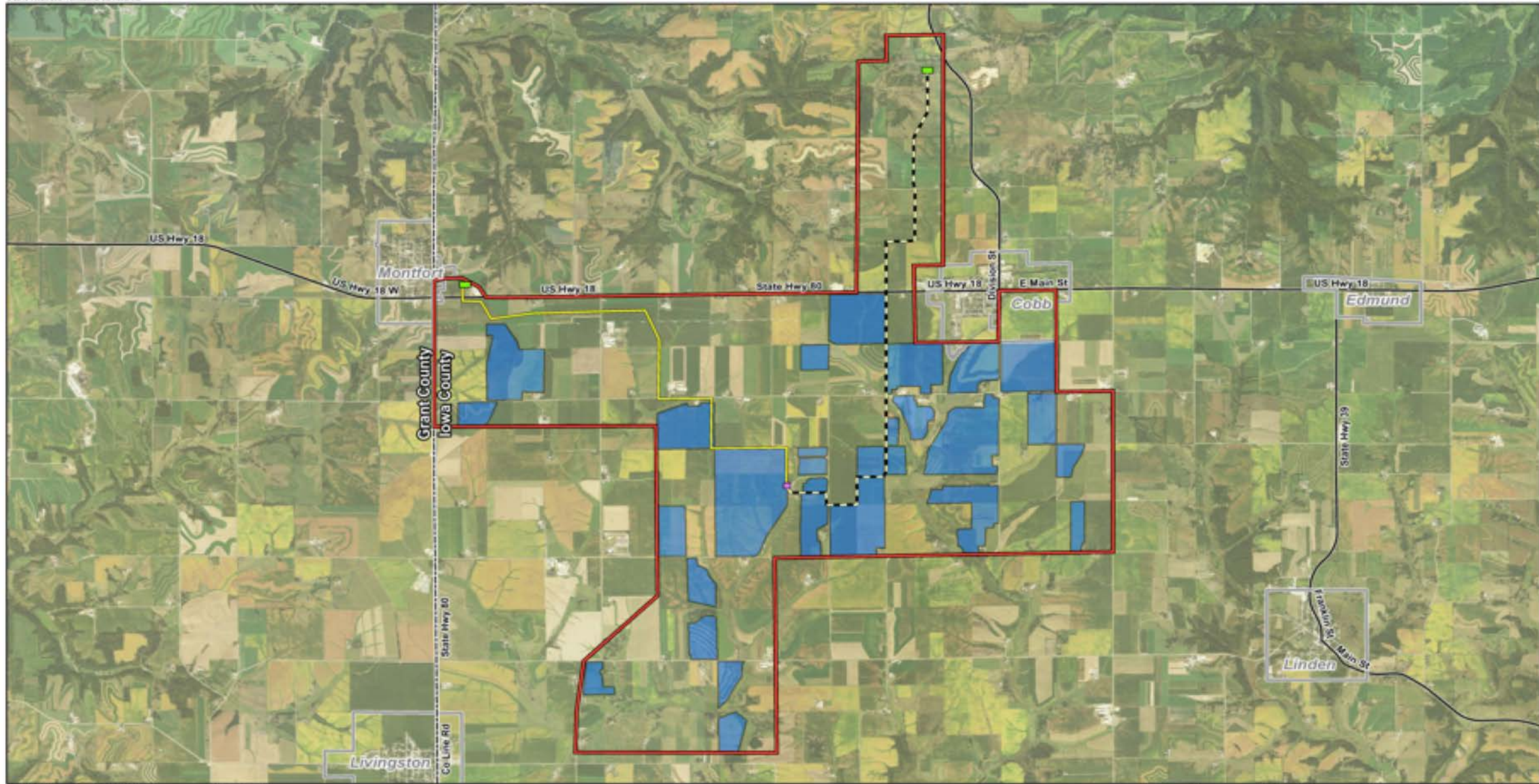


77,100
homes powered
annually



370,000
tons of carbon
removed





Data Sources: Westwood (2018); Wisconsin
NAIP Imagery (Accessed 2018); Census Bureau
(2017).

Legend

- | | | |
|--|--|---|
| Project Boundary | Primary Transmission Line Route | Preliminary Substation Location |
| Preliminary Solar Array Area | Alternate Transmission Line Route | Point Of Interconnect |
| Municipal Boundary | Major Road | |
| County Boundary | | |

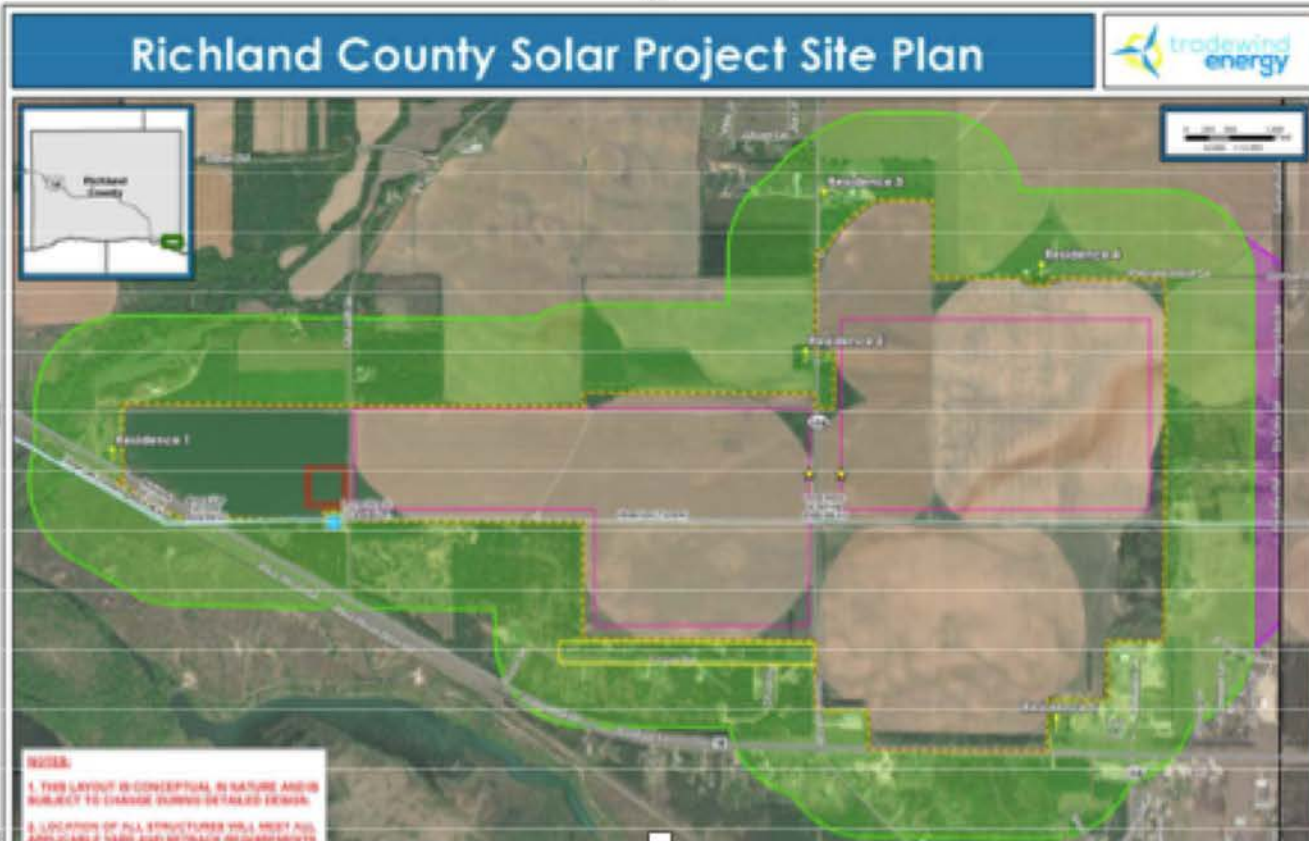


Badger Hollow Solar Project

Iowa County, Wisconsin

Preliminary Solar Array Areas

RICHLAND COUNTY SOLAR PROJECT



QUESTIONS ABOUT SOLAR FARMS

Can hosting solar panels help agricultural land?

Yes. The land that supports solar arrays can be revegetated with a range of low-lying, deep-rooted plants, grasses, and flowers that can rebuild the soil. In addition, these plantings can support honey bees, butterflies, hummingbirds, and other pollinators whose populations are facing threats.

Is the conversion of agricultural land to solar generation permanent?

No. Modern large-scale solar installations use steel posts that are driven or screwed into the ground, but do not use concrete pilings. This means that the land can very easily be converted back to farmland after the life of the solar project. The life of the project is estimated to be 25-40 years. Upon the conclusion of the lease and the decommissioning of the project, the landowner is able to resume traditional agricultural operations on the land.

POLLINATOR FRIENDLY HABITAT



SOLAR FARMS PROVIDE REVENUE TO THE COMMUNITY

COUNTY	TOWNSHIP	TOTAL (PER YEAR PER MW)
\$2,333	\$1 667	\$4000

Badger Hollow Community Revenue Per Year =
\$1,200,000 per year for ~ 30 years





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