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2020 RENEWABLE ENERGY SUMMIT 2020 VISION: THE PATH TO 100% CLEAN ENERGY

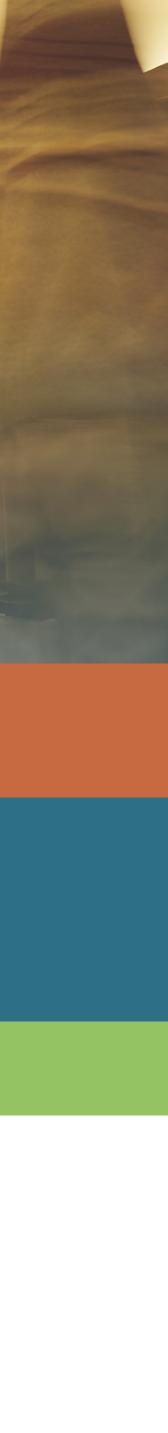
THURSDAY • JANUARY 16, 2020

RENEW WISCONSIN

PRESENTED BY









2019 YEAR IN REVIEW Michael Vickerman



2020 RENEWABLE ENERGY SUMMIT 2020 VISION: THE PATH TO 100% CLEAN ENERGY

RENEW WISCONSIN



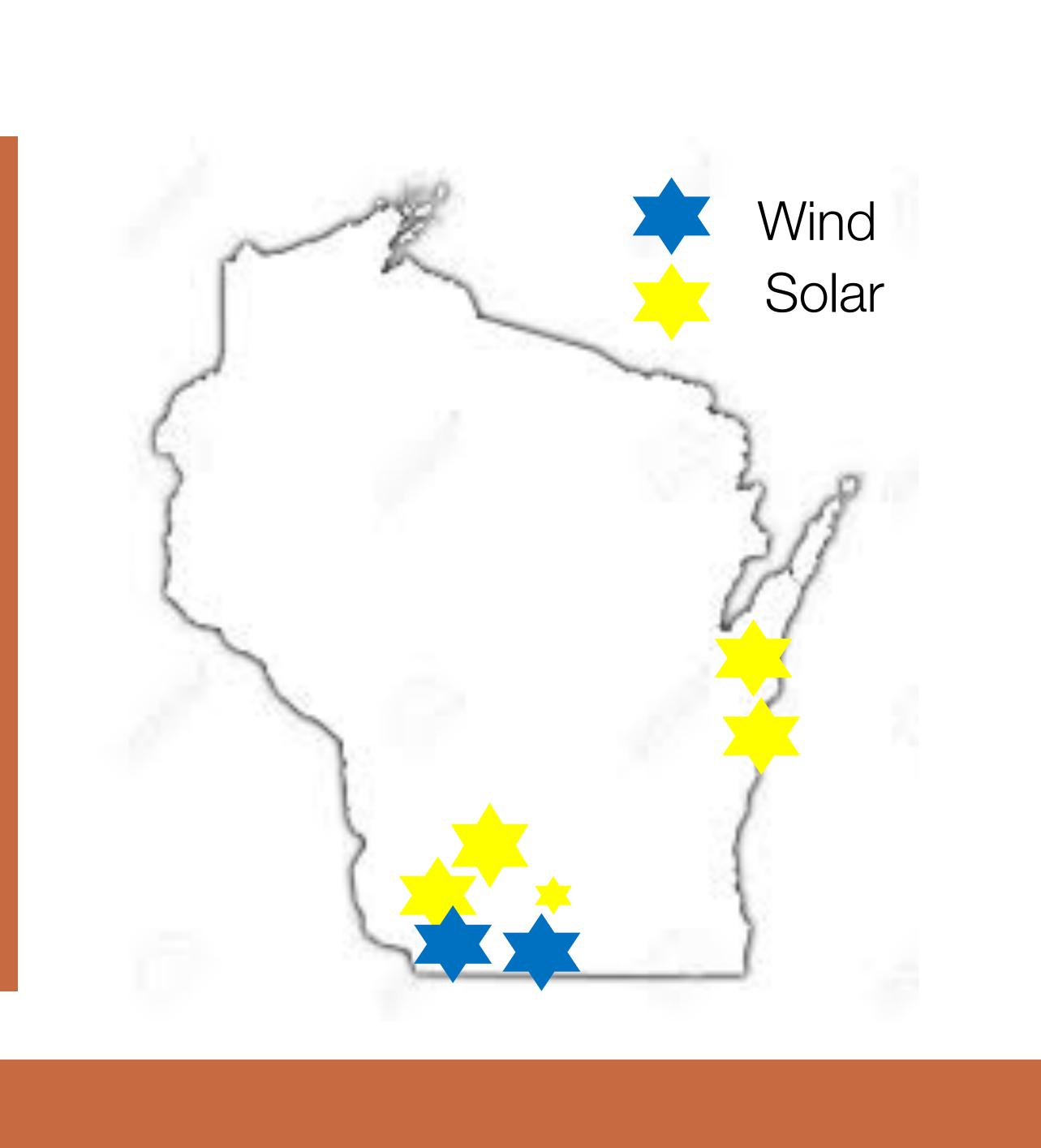
BIG PICTURE • 2019

Renewable capacity installed in WI 33 MW (AC)

Renewable capacity permitted in WI 799 MW (AC)







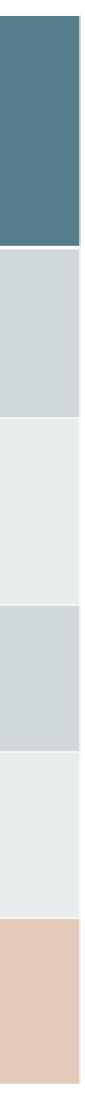
To put 2019's totals in perspective, let's compare them with this slide from last year's summit.

SOLAR PV GROWTH IN WISCONSIN





YEAR	CUMULATIVE CAPACITY (IN MW)	RATE OF INCREASE
2015	25	25%
2016	42	68%
2017	80	90%
2018	103	29%
2019	138	34%



NEW FACES IN 2019



Richland County Solar 49.9 MW



Sugar River Wind Farm 66 MW

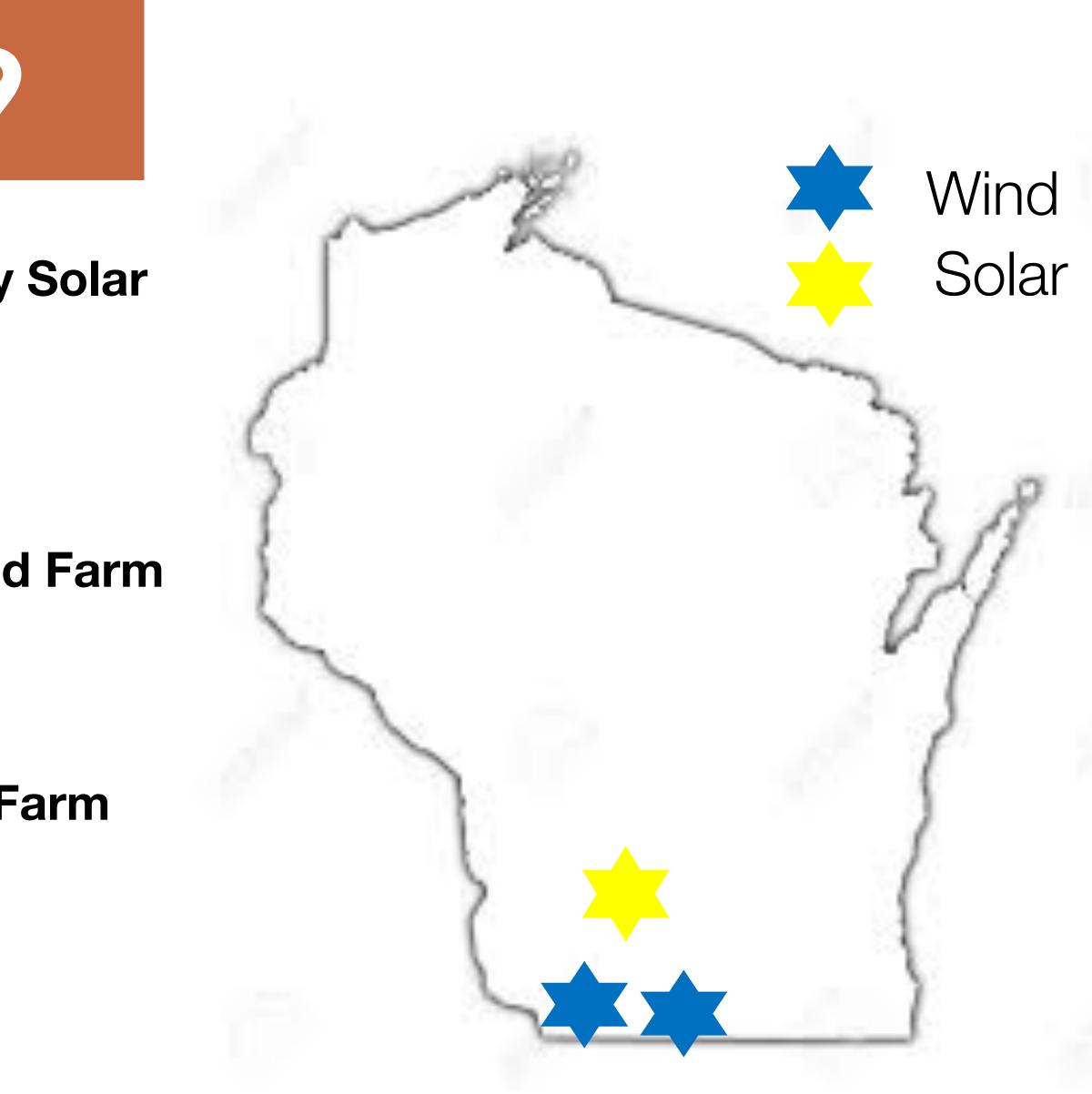


Red Barn Wind Farm 99 MW

All three projects locally permitted











CASHTON

LARGE SOLAR FARMS



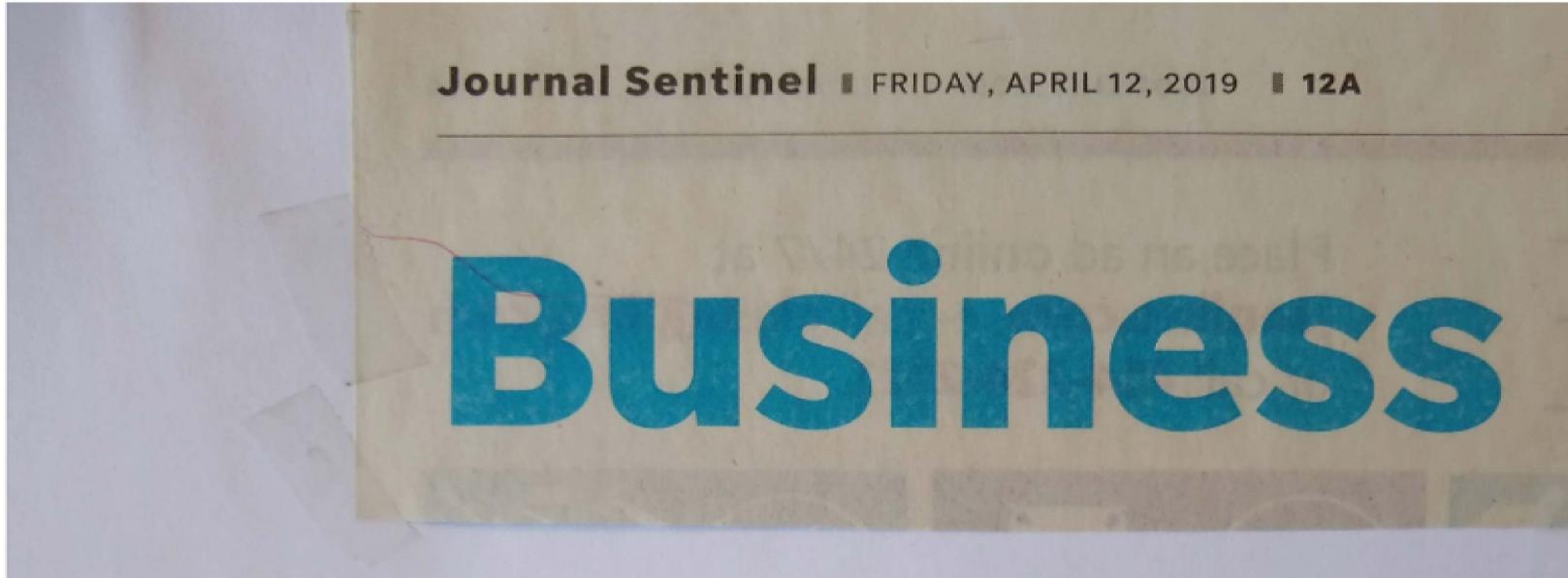






WARREN ARRAY – ST. CROIX COUNTY





2 giant solar projects approved

State will produce 5 times as much power from sun

Guy Boulton Milwaukee Journal Sentinel **USA TODAY NETWORK - WISCONSIN**

Wisconsin will produce five times as mate, with the addition of two solar projects approved Thursday.

"It is a landmark day for solar energy in Wisconsin," Tyler Huebner, executive director of Renew Wisconsin, said in a statement.

PSC Commissioner Mike Huebsch, much power from the sun, by one esti- while supporting the projects, raised concerned about how future solar projects will affect utilities' investment in



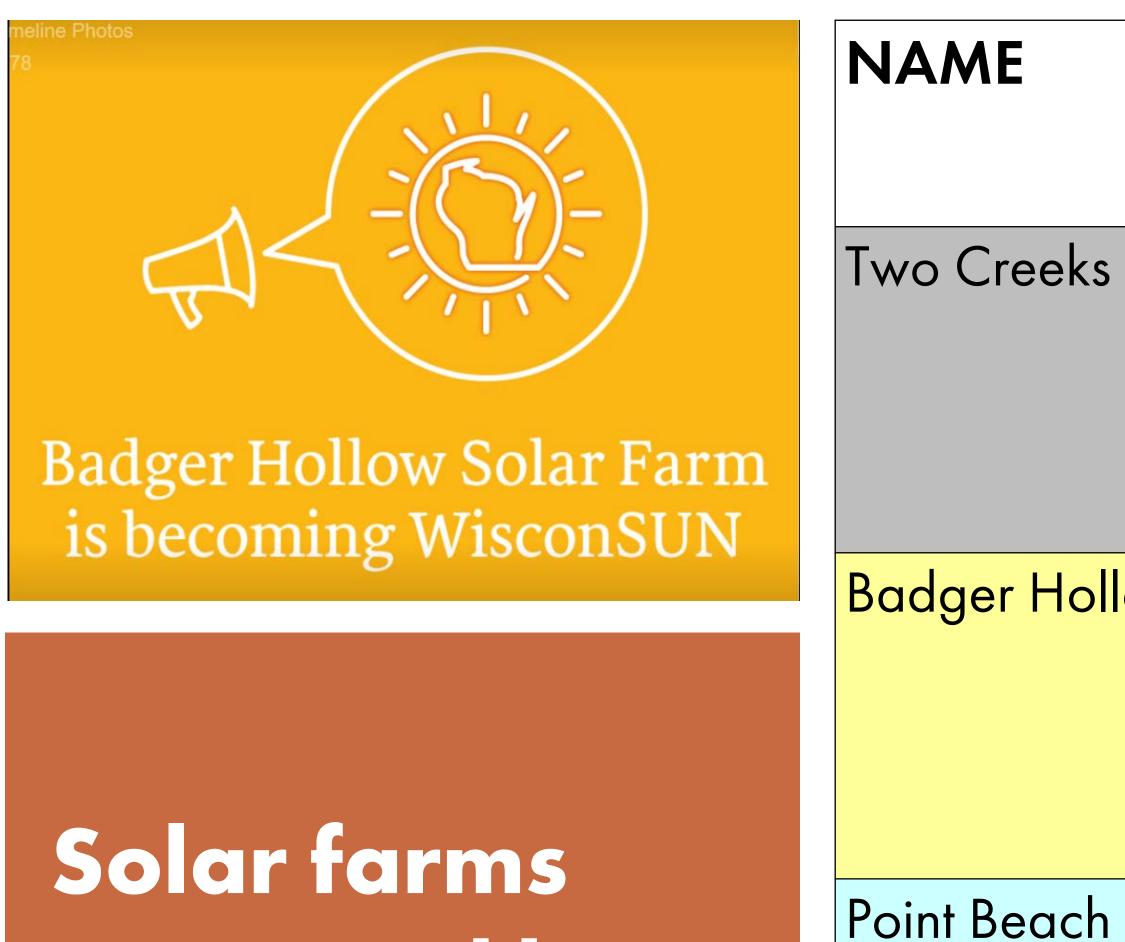


watts.

The commission denied a request by WPS and MG&E to allow cost overruns of up to 10% on the projects.

The Citizens Utility Board opposed the request.

"We were concerned about the risk to customers from these projects and wanted some kind of protection," said



approved by the PSC in 2019





	LOCATION (COUNTY)	DEVELOPER	CAPACITY (IN MW)
S	Manitowoc	NextEra Energy	150
llow	lowa	Invenergy	300
ן	Manitowoc	NextEra Energy	100





www.badgerstatesolar.com





THE NEXT PROJECT IN THE PSC'S PIPELINE

The PSC is about to rule on another solar farm application, the 149 MW Badger State Solar proposal in Jefferson County.

PFAS aren't accounted for

Wisconsin DNR says he Air Force has more do in assessing the vironmental impact -35s at Truax

CAL&STATE. A4

CELEBRATING DEXTER GORDON Saxophonist Hanah Jon Taylor joins tonight's tribute concert

WEEKEND, C1

I in a la a la la

COLD AND CLOUDY 37 . 29 FORECAST, A10

Alliant has big solar plans

Utility to add up to 1,000 megawatts in four years

CHRIS HUBBUCH chubbuch@madison.com

Alliant Energy announced

If built, it would generate a transition to clean energy enough electricity to meet the sources. That's nearly 10 times the annual needs of about 250,000 state's current solar-generation typical Wisconsin households.





Badgers men's hockey team routed

No. 7 UW gives up four power-play goals in 6-1 loss at No. 12 Penn State

It was indeed a snowy October

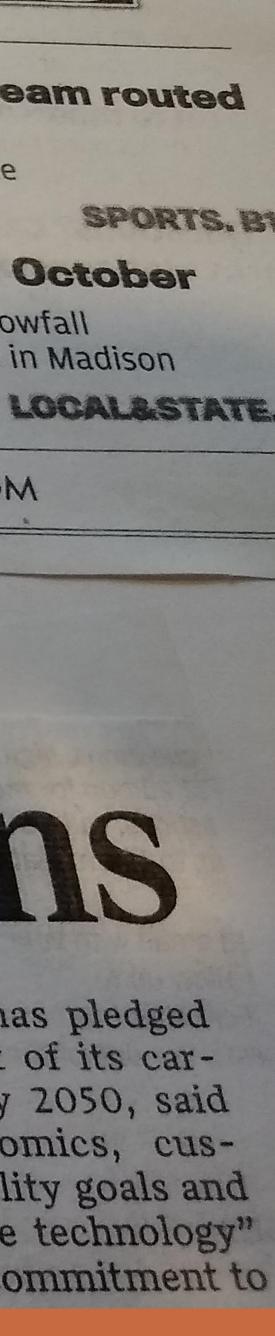
Two storms combined to set a snowfall record of 8 inches for the month in Madison

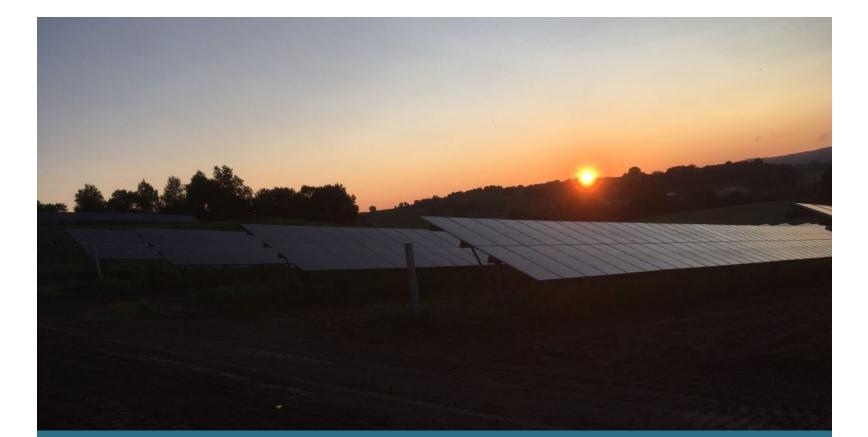
MADISON.COM

FRIDAY, NOVEMBER 1, 2019

capacity and more than double The company did not specify the amount expected to come how or where it would develop better renewable technology" online within the next couple of the solar energy or whether it are driving the commitment to

Alliant, which has pledged to cut 80 percent of its carbon emissions by 2050, said "changing economics, customer sustainability goals and





ARCADIA

BUTTER SOLAR seven arrays in western Wisconsin

17 MWAC







One Energy RENEWABLES





HOST UTILITIES

Argyle Arcadia Cashton Cumberland Elroy Fennimore New Lisbon

PARTICIPATING UTILITIES

La Farge Merillan Viola



FARMER-OWNED









BluEarth RENEWABLES





BUTTER SOLAR





WIND FARMS









QUILT BLOCK

PROJECTS PERMITTED IN 2019

PROJECT NAME	LOCATION (COUNTY)	DEVELOPER	CAPACITY (MW)
Red Barn	Lafayette	Project Resources Corp.	99
Sugar River	Green	EDF Renewables	66







TIM MCCOMISH • LANDOWNER



CALUMET RENEWABLE NATURAL GAS PROJECT • NEWTON, WI **OWNER/OPERATOR: DTE Biomass Energy**

RENEWABLE NATURAL GAS





Dane County begins turning gas from landfill's trash into vehicle fuel

From the Fave 5: Business reporter Shelley K. Mesch shares top stories from 2019 series

Shelley K. Mesch | Wisconsin State Journal Apr 26, 2019

Photo Credit: Shelley Mesch, WI State Journal



- And Cal

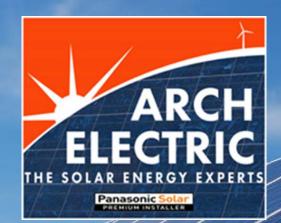












Ore Dock Solar, Ashland

COMMUNITY SOLAR





Solar*Connect COMMUNITY **Generating Clean Energy Since July 2019**

Ashland County **Health & Human Service**

> Ashland County Sheriff Department

Banbury Place

Bayfield County

City of Ashland

City of Bayfield

City of Eau Claire

City of Washburn

Kwik Trip, Inc.

Lake Altoona Park and Dam

Marshfield Medical **Center-Eau Claire**

Mathy **Construction Company**





LOCAL&STATE

MGE breaks ground on Middleton solar farm

Utility also plans 20-megawatt project in Fitchburg

MIDDLETON - Madison Gas the utility's largest Keebler d Electric announced the start solar farm - but

ton project, to be constructed at the Middleton Municipal Airport, s expected to be

year and will be

burg to provide clean energy for School District and the city of bon-neutral electricity by 2050, million over the life of the project. Customers. Middleton, which last year ap- said the project represents "an- He said the city is also putting so-

tion to power all ergy goals." energy by 2035. said.

city operations "We're working as quickly as opments. with renewable we can toward that goal," Keebler "I think we're a leader in sus-

The rest will be The school district expects its a lot more we can do." vailable to resi- 1-megawatt share of the solar MG&E expects to complete a ential customers farm will save more than \$28,000 9-megawatt solar farm later nex through the com- in energy costs in its first year and year at the Dane County Region pany's Shared So- more than \$1 million over the next Airport to provide power for Dan

0-megawatt project in Fitch- to the Middleton-Cross Plains nounced a goal to produce car- solar farm is expected to save \$1.2 come online in early 2021.

proved a resolu- other step toward our shared en-tion to power all ergy goals." lar panels on its buildings and is open to other large-scale devel-

WEDNESDAY, OCTOBER 30, 2019 | A3

tainability," Brar said. "But there's

of construction Tuesday of a not for long. 5-megawatt solar farm in Mid-dleton and is planning another percent of the power generated by the power generated b

Please see SOLAR, Page A5



of business development clean energy. for EDF Renewables, said Once completed, the and to break ground in the generation capacity.

MG&E spokesman Steve Schultz said the project, known as the The utility also has O'Brien Solar Farm, plans to purchase a would likely be built in 20-megawatt solar farm stages and made available being developed near Lacy through Renewable En-Road and South Seminole ergy Rider, which allows Highway in Fitchburg. commercial and industrial Sterling Root, manager customers to contract for

the company plans to ap- announced solar projects ply for a conditional use will account for more than permit early next year a third of MG&E's owned





Now under construction, MGE's 5 MW solar array will set aside 3.5 MW for its Shared Solar customers.







Madison Gas & Electric's **RENEWABLE ENERGY RIDER**













6, 2019 CAL&STATE

Deal on solar power a first

Energy from panels to serve Middleton, school district and others

EMILY HAMER

ehamer@madison.com

As interest in clean energy increases, many local governments, school districts, technical colleges and large corporations want to get power from largescale renewable energy plants located nearby, but don't have the means to access them.

A first-of-its-kind agreement in Wisconsin between Madison Gas & Electric, the city of Middleton and the Middleton-Cross

proved the partnership on a



Plains School District – which A field next to the Middleton Municipal Airport will be home for a large solar array with 17,000 panels if a Madison Gas & Electric solar project Wisconsin Public Service Com- receives final approval from the Federal Aviation Administration. The mission - will allow for just that. city of Middleton and the Middleton-Cross Plains School District would The PSC unanimously ap- use some of the power generated.

is set to be built on a field next trict will pay to get access to 1.5 by the array will be 5 megawatts. growing clean energy in our to Middleton Municipal Airport. megawatts of energy - enough The city and the school dis- community," Freiman said. Under the agreement, MGE energy to power 475 homes in a trict will be the first-ever cuswill build the solar array, and year - from the panels. The to- tomers in Wisconsin to contract

17,000-panel solar project that Middleton and the school dis- tal amount of energy produced



Middleton - Cross Plains Area School District

inclusive. innovative. inspiring.



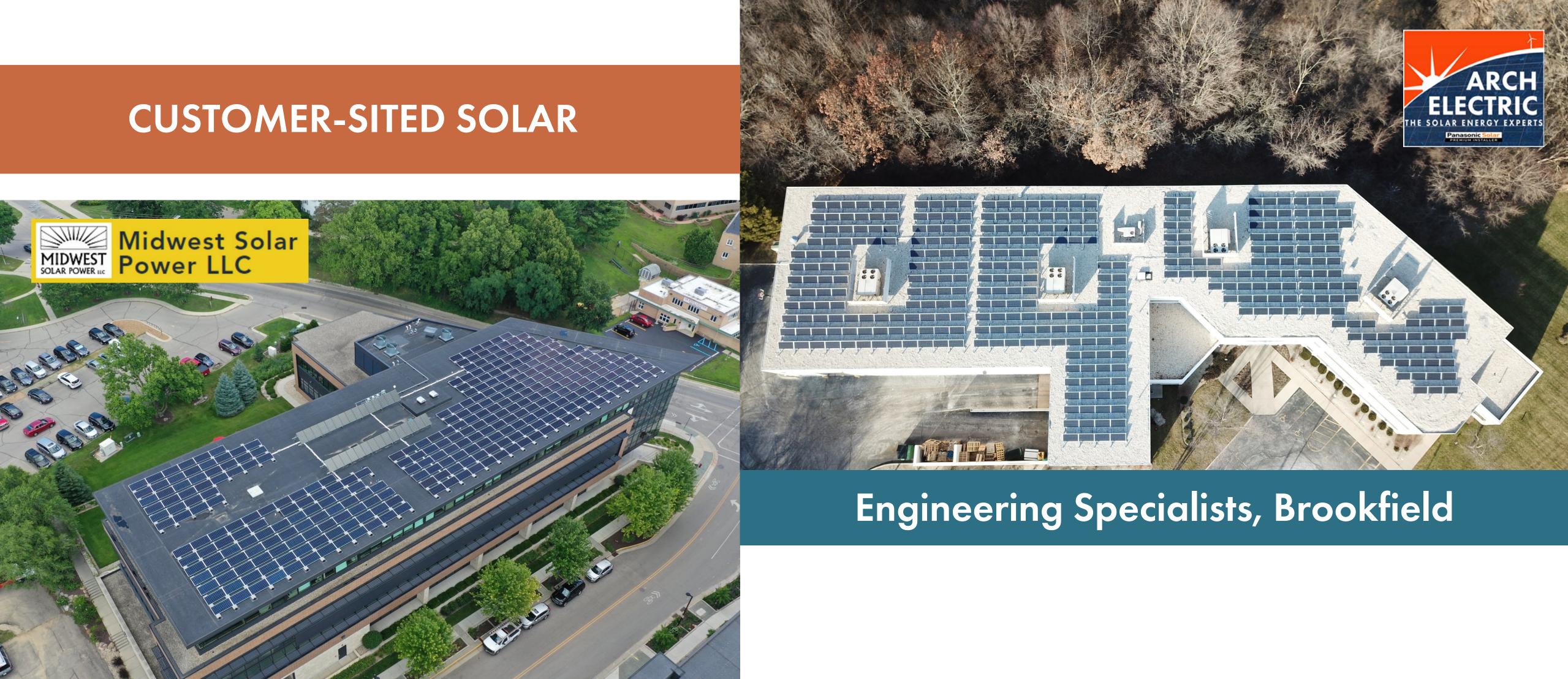
with their local power utility to receive clean energy from an off-site solar plant, according to Renew Wisconsin. The partnership opens the door for other organizations to do the same, said Renew Wisconsin executive director Tyler Huebner.

"This approval blazes a path that state government, local governments, and companies all across Wisconsin can follow to voluntarily increase their renewable energy usage in a cost-effective manner," Huebner said in a statement.

The new agreement, called a Renewable Energy Rider, allows large energy users with multiple PHIL LEVIN facilities - such as governments, school districts or large companies - to source their energy from a nearby solar plant. MGE spokeswoman Kaya Freiman said this is MGE's first-ever Renewable Energy Rider.

"It's an innovative model for

Please see SOLAR, Page A5



800 University Bay Drive, Madison









C.D. Smith, Fond du Lac





Residential Customer, Milwaukee





2019 RESULTS (SOLAR)

	NO. OF INSTALLATIONS	INCENTIVES AWARDED	AGGREGATE CAPACITY (KW)	AVERAGE CAPACITY (KW)
Solar - residential	768	\$1,374,129	5,545	7.22
Solar - Nonresidential	135	\$2,909,690	10,149	75.18
Total	903	\$4,283,819	15,693	





Average capacity in 2018: residential 6.2 • nonresidential 48.19



2019 RESULTS (GROUND SOURCE HEAT PUMPS)

	NO. OF INSTALLATIONS	INCENTIVES AWARDED	ANNUAL OFFSET (KWH)
GSHP (residential)	75	\$48,750	382,650
GSHP (nonresidential)	2	\$6,801	28,080
Total	77	\$55,551	410,730





SOLAR GROUP BUYS

Hanson Farms; Bloomer, WI 43.6 kW Wooden Ground Mount - RTI

HEART-OF

THE-NORTH

GROUP BUY









Good Earth Gardens; Bayfield, WI 12.32 kW Wooden Ground Mount - RTI

CHEQ

GROUP BUY

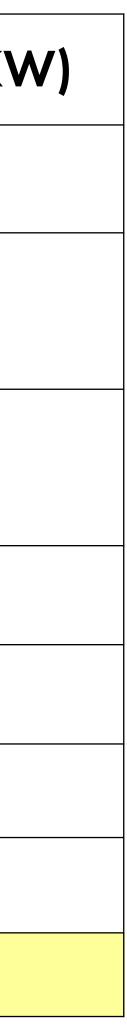


WISCONSIN SOLAR GROUP BUYS - 2019

PROGRAM	CONTRACTOR	SIGNED CONTRACTS	CAPACITY (KV
Solar Central WI	North Wind Solar	54	377
Attic Angels - Prairie Point Community	SunVest Solar	40	133
MadiSUN	Full Spectrum Solar Midwest Solar Power	38	198
Solar SE Wisconsin	Arch Electric	20	135
Grow Solar Milwaukee	Arch Electric	48	256
Heart of the North	Next Energy Solution	35	376
Chequamegon Bay	Next Energy Solution	75	508
All-time	highs for the fourth year in c	row! 310	1,983















Developing • Renewable • Relationships www.sunvest.com











James A. Peterson Veterans Village, Racine





Bethel Horizons, Dodgeville









LF Carlson Electric

SOLAR FOR GOOD 2019 **BY THE** NUMBERS

No. of completed projects • 27 Aggregate capacity (in kW) • 1,088 Total grants awarded (\$) • \$288,466



Walnut Way, Milwaukee





Sisters of St. Francis, Green Bay

Legacy Solar Co-op



2019 HONOR ROLL



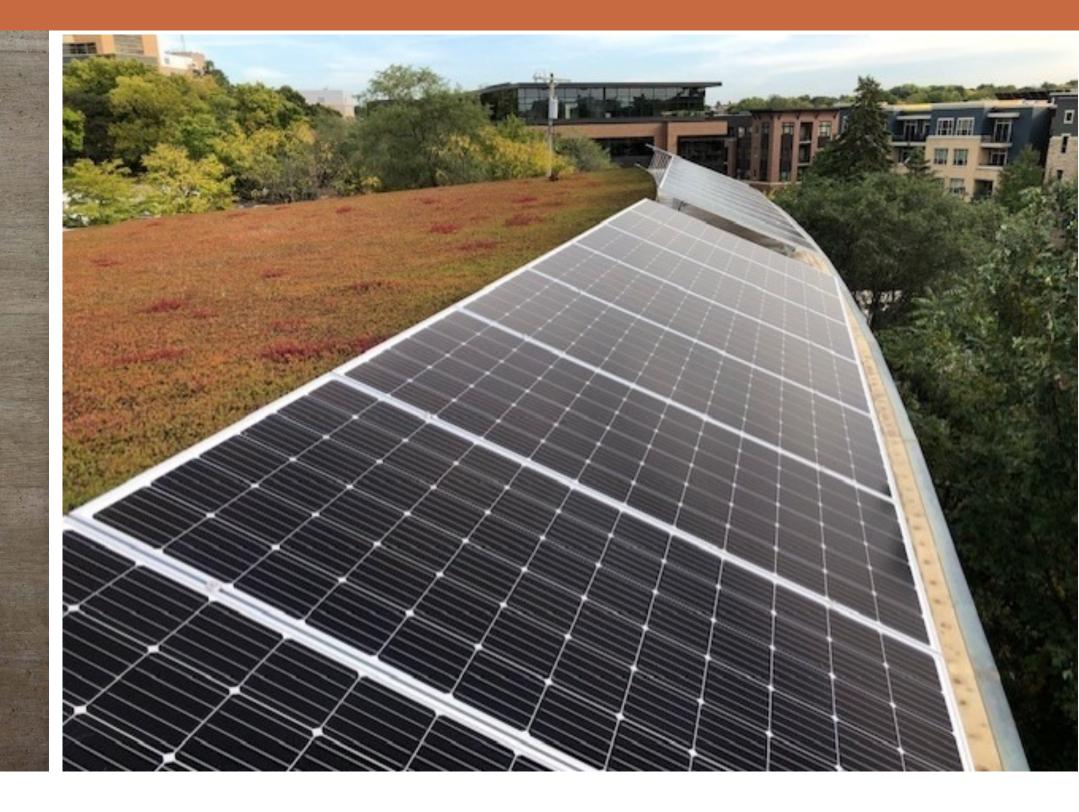
First Unitarian Society, Madison



Legacy Solar Co-op



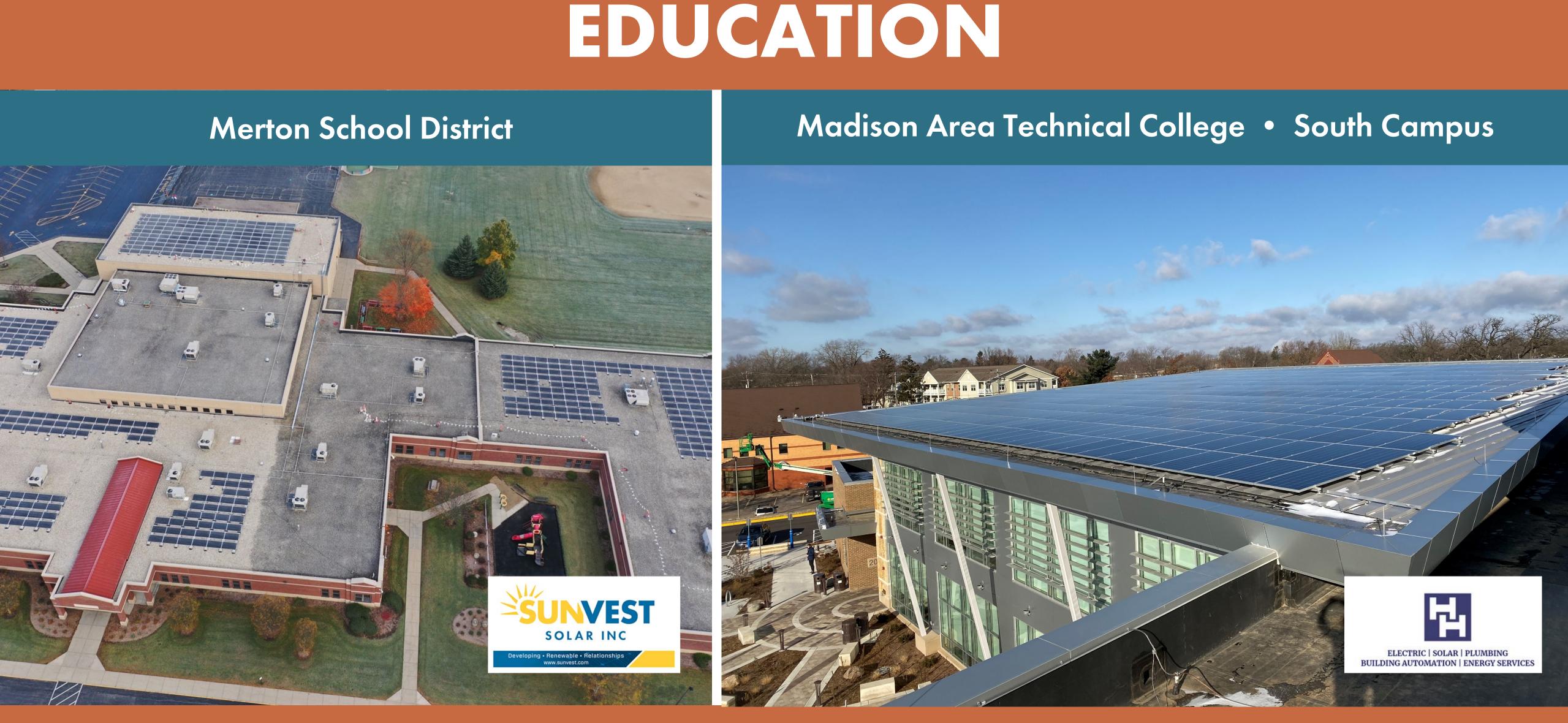








EDUCATION







FAITH COMMUNITIES

Redeemer Lutheran, Milwaukee









Tim Dilley **Director of Business Development Garlson Electric LLC** 715-245-2759 www.gosolarwi.com

② Rohland Imagery

Northland Lutheran HS, Kronenwetter











Baumgartner's Cheese, Monroe



Aspirus Hospital, Wausau



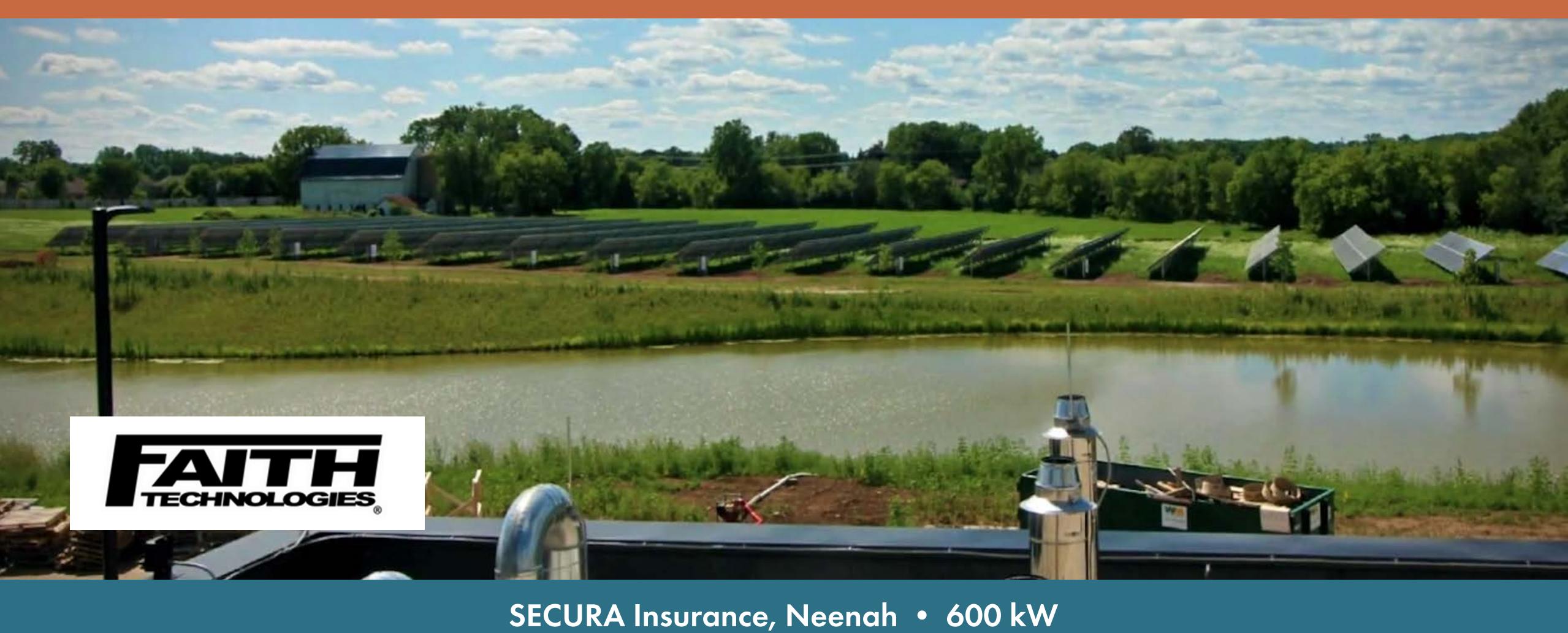


HEALTH CARE



Gundersen Health System, Tomah

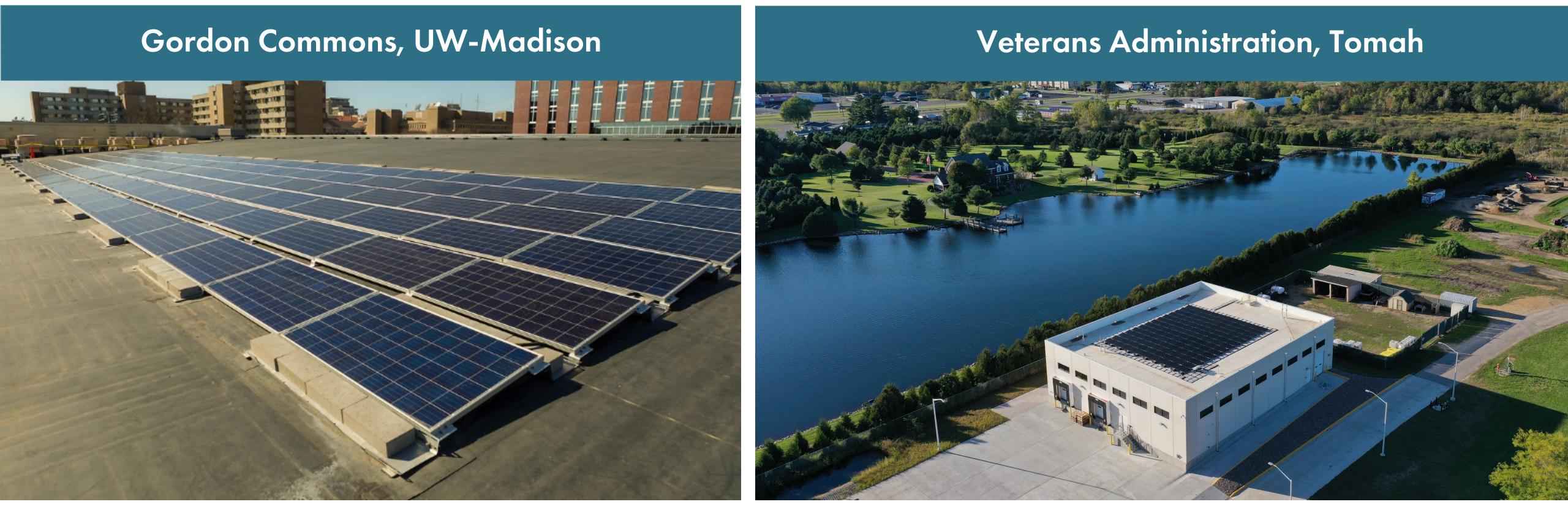
INSURANCE COMPANIES











INSTITUTIONAL





LOCAL GOVERNMENT







MANUFACTURING (PROBIOTICS)











Milwaukee Central Library • 122 kW in 2019



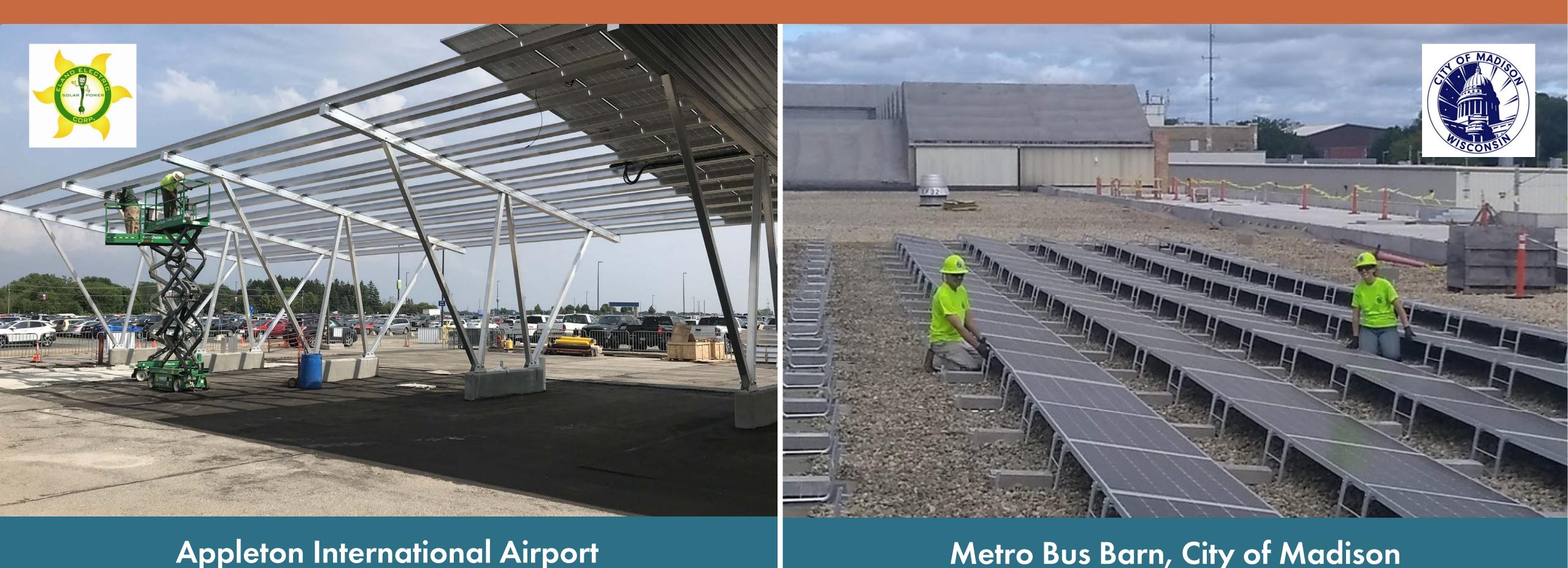


PUBLC LIBRARIES



Lawton Memorial Library, La Farge

TRANSPORTATION



Appleton International Airport





Metro Bus Barn, City of Madison

WASTEWATER TREATMENT







City of Washburn













RENEWABLE ENERGY SUMMIT 2020 VISION: THE PATH TO 100% CLEAN ENERGY









THANK YOU!





