

Renewable Energy and Energy Efficiency Programs and Initiatives

Andy Kellen

Vice President – Power Supply Resources

Dane County Council on Climate Change

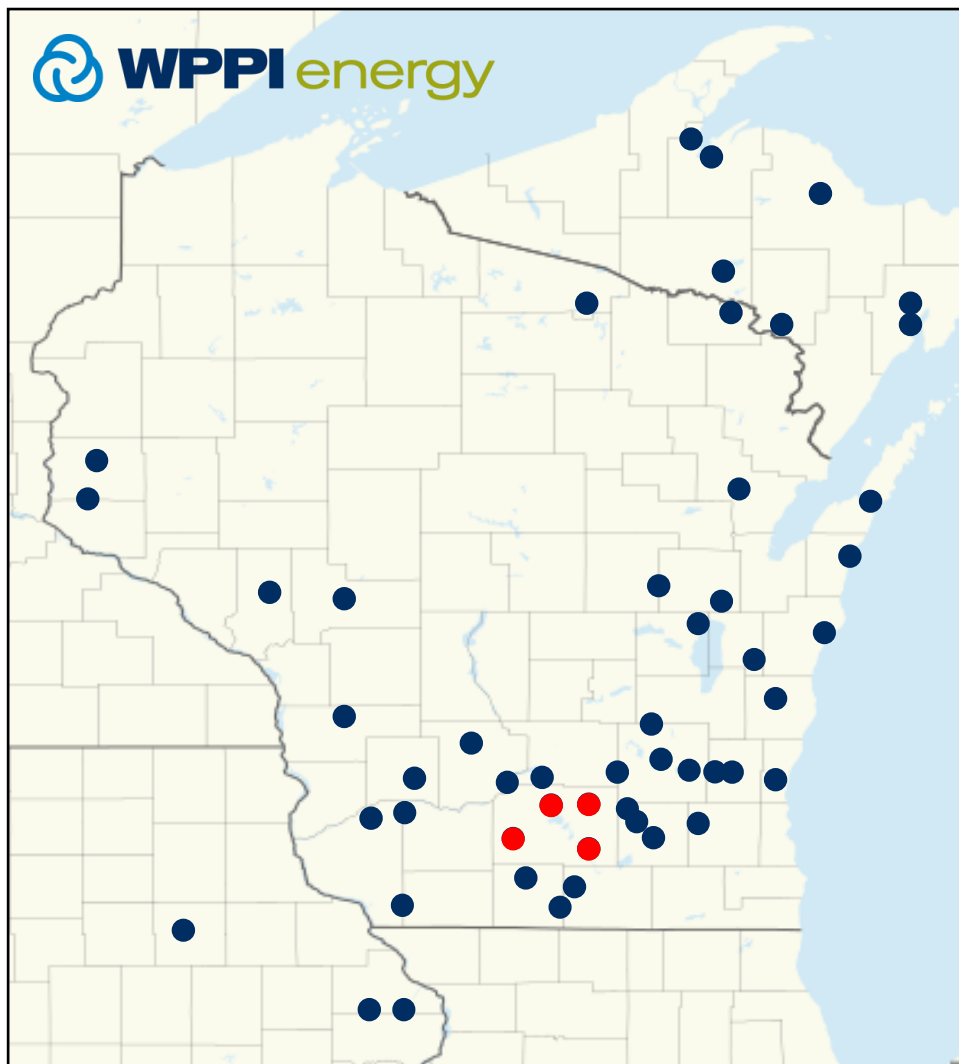
June 8, 2018

Outline

- About WPPI Energy
- Power supply initiatives
- Member programs
 - Energy efficiency
 - Renewable energy
 - Electric vehicles

About WPPI Energy

- Public power joint action agency
- Not for profit
- Formed in 1980
- 51 member utilities
- 200,000 customers
- 939 MW peak demand
- 106 employees



About WPPI Energy

WPPI Energy Dane County Members

Member	2017 Retail Sales (MWh)
Sun Prairie	275,932
Stoughton	139,054
Waunakee	118,531
Mount Horeb	51,602
Total	585,119



~12% of WPPI total

Power Supply Overview

Boswell

System purchases:
We Energies: 50 MW
WI Public Service: 150 MW

Top of Iowa II

Barton

Island Street

South Fond du Lac

Forward

Butler Ridge

Point Beach Solar

Point Beach Nuclear

Elm Road

Bishop Hill III

Nelson

Power Supply Initiatives

Point Beach Solar Energy Center

- Power purchase agreement signed with NextEra January 2017
- 99 MW solar PV
- Sited on Point Beach Nuclear Plant property near Two Rivers, WI
- Scheduled online 2021



Power Supply Initiatives

Bishop Hill III Wind Energy Center

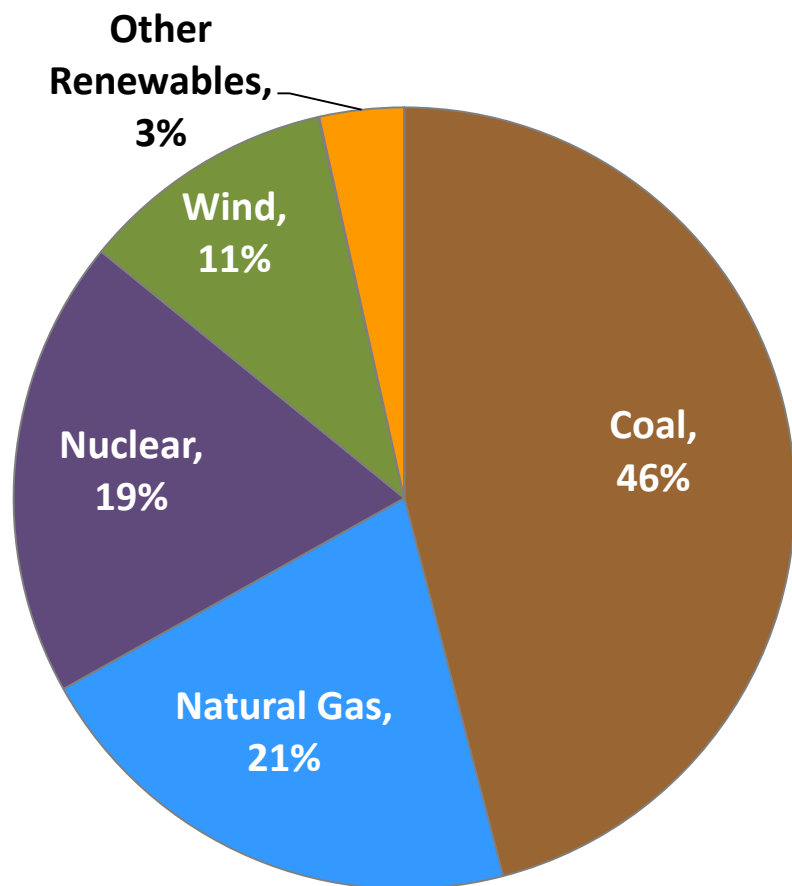
- Power purchase agreement signed with Invenenergy July 2017
- 53 wind turbines
- 132 MW
- Located in Henry County, IL
- Online June 1, 2018



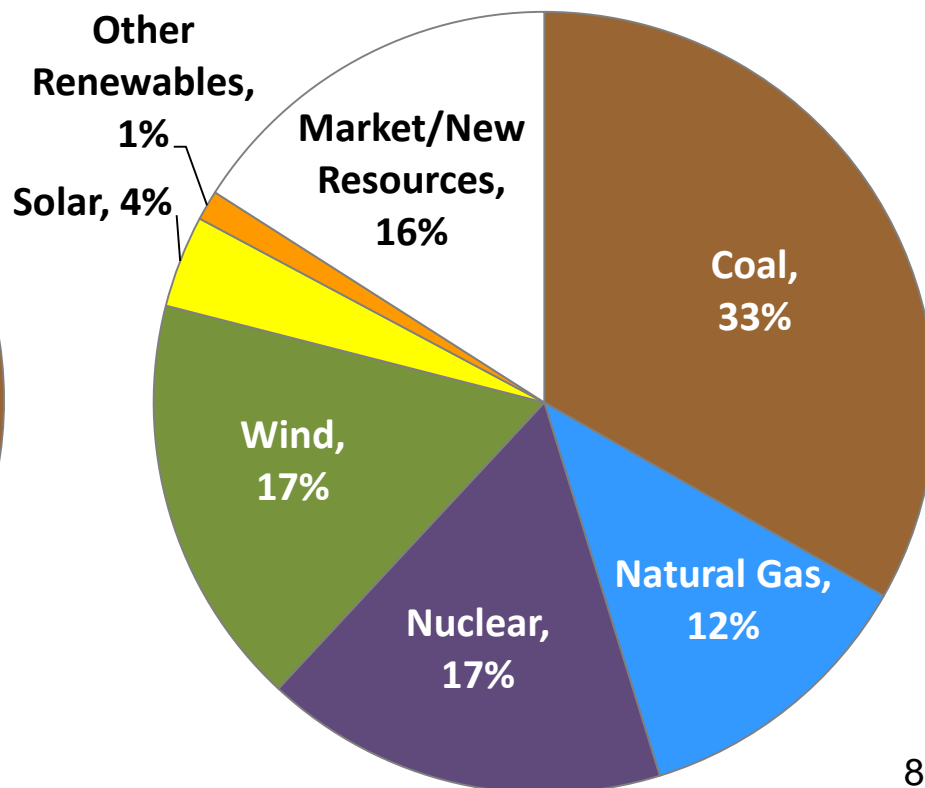
Power Supply Initiatives

Changing Fuel Mix

2017 Preliminary

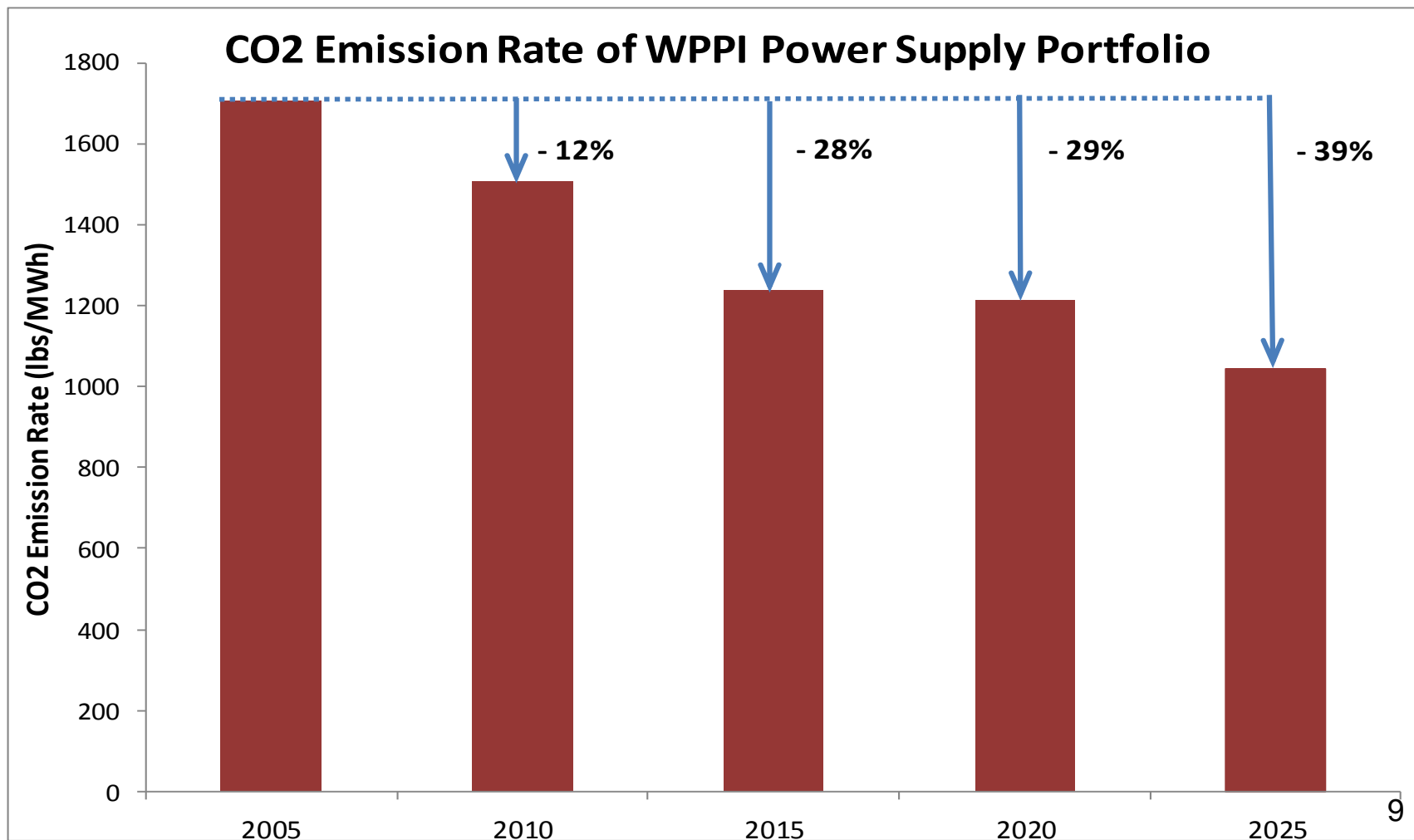


2023 Projected



Power Supply Initiatives

Decreasing Emissions



Energy Efficiency Programs

Energy Services Representative (ESR) Support

- Energy Services Representatives assigned to all member communities
 - 17 ESRs on staff,
 - ~ 12 certified energy managers
 - ~ 5 professional engineers
 - Each ESR serves 1 to 5 WPPI member utilities
- ESRs provide variety of services
 - Promote energy efficiency and guide EE projects to completion
 - Have member community-based annual kWh reduction goals

Energy Efficiency Programs

Statewide & Mass Market Programs

- Focus on Energy
- Local Energy Efficiency Funding
- Technical Training and Educational Outreach
- K-12 Energy Education Program (KEEP)
- National Theater for Children
- My Account Customer Portal

Energy Efficiency Programs

Commercial & Industrial Programs

- Commercial & Industrial Efficiency Support
- Energy Management for Schools
- New Construction Design Assistance
- Request for Proposals (RFP) for Energy Efficiency
- Shared Savings Program
- Utility & Municipal Buildings Program
- Member Energy Efficiency & Renewable Energy Loan Program

Renewable Energy Programs

“Choose Renewable” Green Pricing Program

- Launched in 2001
- Customers able to purchase blocks of renewable energy to offset part or all of their electric usage

A brochure for the CHOOSE renewable program. The top section features a man holding a large yellow sun and the headline "Get renewable energy working for you!". The text describes the program as a "helpful, hard-working fellow" who provides energy from solar, wind, and biogas for \$3 a month. A central section titled "How this works:" shows a calculation: \$3.00 BLOCK = 300 kilowatt-hours (kWh). The bottom section, "Why Choose Renewable?", lists four benefits: IT'S CLEAN (renewable energy reduces fossil fuel use), IT'S SUSTAINABLE (solar, wind, and biogas never run out), IT'S SMART (efficient use of resources), and IT'S LOCAL (resources are homegrown from WI, MI, IA, and WI). A cow is shown on the right side of the brochure. The bottom of the brochure features the Green-e Energy logo and a note about certification requirements.

Renewable Energy Programs

Renewable Demonstration Projects

- Launched in 2006
- 54 projects completed in 45 member communities
 - 51 solar PV (326 MW)
 - 2 wind turbines
 - 1 biogas



Renewable Energy Programs

Renewable Energy Grants for Non-Profits

- Competitive bid program for
 - schools, colleges, universities
 - local governments
 - churches
 - and other community non-profits
- 7 funding rounds since January 2015
- 14 projects installed (460 kW); 5 in process



Renewable Energy Programs

Community Solar Gardens

- Two 250-kW solar PV systems
 - New Richmond
 - River Falls
- Community solar program offering
 - Customers purchase panels
 - Receive bill credit during 20-year subscription period




Electric Vehicle Programs

Leading by Example

- 2007 – 2 WPPI fleet vehicles (Toyota Prius) converted to PHEV
- 2017 – Replaced with commercial PHEV (Chevy Volt) & BEV (Chevy Bolt)
- Public Level 2 EVSE

Say "hello" to the Plug-In Hybrid Electric Vehicle



The first plug-in hybrid electric vehicle fleet in the state of Wisconsin is hitting the road.

WPPI has converted two Toyota Prius cars into PHEVs as part of a national campaign called "Plug-In Prius", to urge automakers to accelerate development of the technology. WPPI's two vehicles are the first PHEVs to join a utility company's fleet in the Midwest. Watch for GAS SIPR and GD IDEA as they make public appearances and travel on routine business all year long.

Both standard hybrids and PHEVs are powered by a combination of electricity and liquid fuels; however, PHEVs draw their charge not only from the engine and captured brake energy but from the electrical grid as well when they are plugged into a standard 120-volt electrical outlet. PHEVs have traditional fuel tanks and internal combustion engines, so they do not face the range limitation of electric-only cars.

The battery takes approximately five hours to charge in a standard 120-volt outlet, which would cost the average electric customer less than 50 cents.

Considering that half the cars on America's roads are driven 25 miles a day or less, a plug-in with a 30-mile range battery could eliminate gasoline use in the daily commute of millions of Americans.

PHEV owners can expect up to an 85 percent reduction in gasoline use. PHEVs also get about twice the fuel economy of a conventional vehicle and 30-50 percent better fuel economy than a standard hybrid.

What is a PHEV?

Basically, PHEVs use the same technology as the popular hybrids on the road today, but have a larger battery that can be recharged by plugging into a standard home outlet. As a result, they can travel up to 30 miles on electricity before using the standard, gas-electric operating system.

Why would a municipal electric company support emerging PHEV technology? WPPI recognizes the potential for PHEVs to help make better use of the existing electric grid's capacity, protect the environment and control energy costs for all consumers.

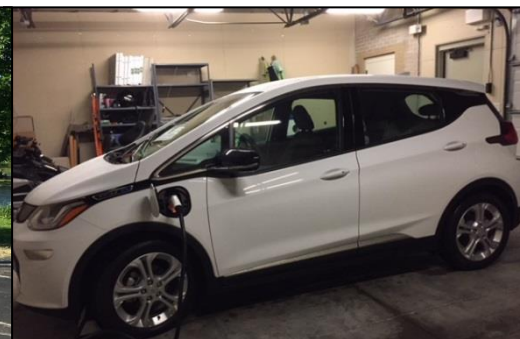
PHEVs get up to 100+ miles per gallon.



Chevy Volt "GAS SIPR"



ChargePoint Level 2 EVSE



Chevy Bolt "GD IDEA"

Electric Vehicle Programs

Incentive Programs

- Residential Customers
 - Incentive for at-home Level 2 EVSE
 - Bonus incentive to enroll in EV-TOU rate
- C&I Customers
 - Incentive for Level 2 EVSE at retail locations & places of employment
- Member Utilities
 - Incentive for utility or municipal-owned EVSE



ANY
QUESTIONS
?

Wisconsin

Algoma	New Richmond
Black River Falls	Oconomowoc
Boscobel	Oconto Falls
Brodhead	Plymouth
Cedarburg	Prairie du Sac
Columbus	Reedsburg
Cuba City	Richland Center
Eagle River	River Falls
Evansville	Slinger
Florence	Stoughton
Hartford	Sturgeon Bay
Hustisford	Sun Prairie
Jefferson	Two Rivers
Juneau	Waterloo
Kaukauna	Waunakee
Lake Mills	Waupun
Lodi	Westby
Menasha	Whitehall
Mount Horeb	
Muscoda	
New Glarus	
New Holstein	
New London	

Michigan

Alger Delta CEA
Baraga
Crystal Falls
Gladstone
L'Anse
Negaunee
Norway

Iowa

Independence
Maquoketa
Preston

