

The Big, Bumpy Energy Transition: *The Consumer Perspective*

WASAL Powering Local Leadership Panel

January 24, 2019

A Quick Overview . . .

- Introduction to CUB
- Where We Are, How We Got Here
- Energy World Turning on a Dime
- The Path Toward A Resilient Energy Future



CUB's Background

- The Citizens Utility Board of Wisconsin (CUB)
 - Nonprofit consumer advocate for Wisconsin's residential and small business utility customers
 - Formed in 1979; created by state statute. First in the USA
 - Reorganized as a private nonprofit in the 1980s
 - Advocate for reliable and affordable utility service
 - Tap experts to effectively engage regulators at the Public Service Commission on behalf of residential and small business customers throughout Wisconsin
 - Also practice before the courts and advocate to policymakers

Key Facts About CUB

Through decisions that supported our experts and advocacy, the state has seen savings of more than *\$3 billion* on utility bills since 2008.

CUB is unique. 44 states have some form of state government role.

- In Wisconsin we rely on CUB, a non-profit group with a staff of four

CUB has members across the state, mainly in southeastern Wisconsin and Madison area

- Residential membership \$5 a month / \$40 a year
- Small Business membership \$100

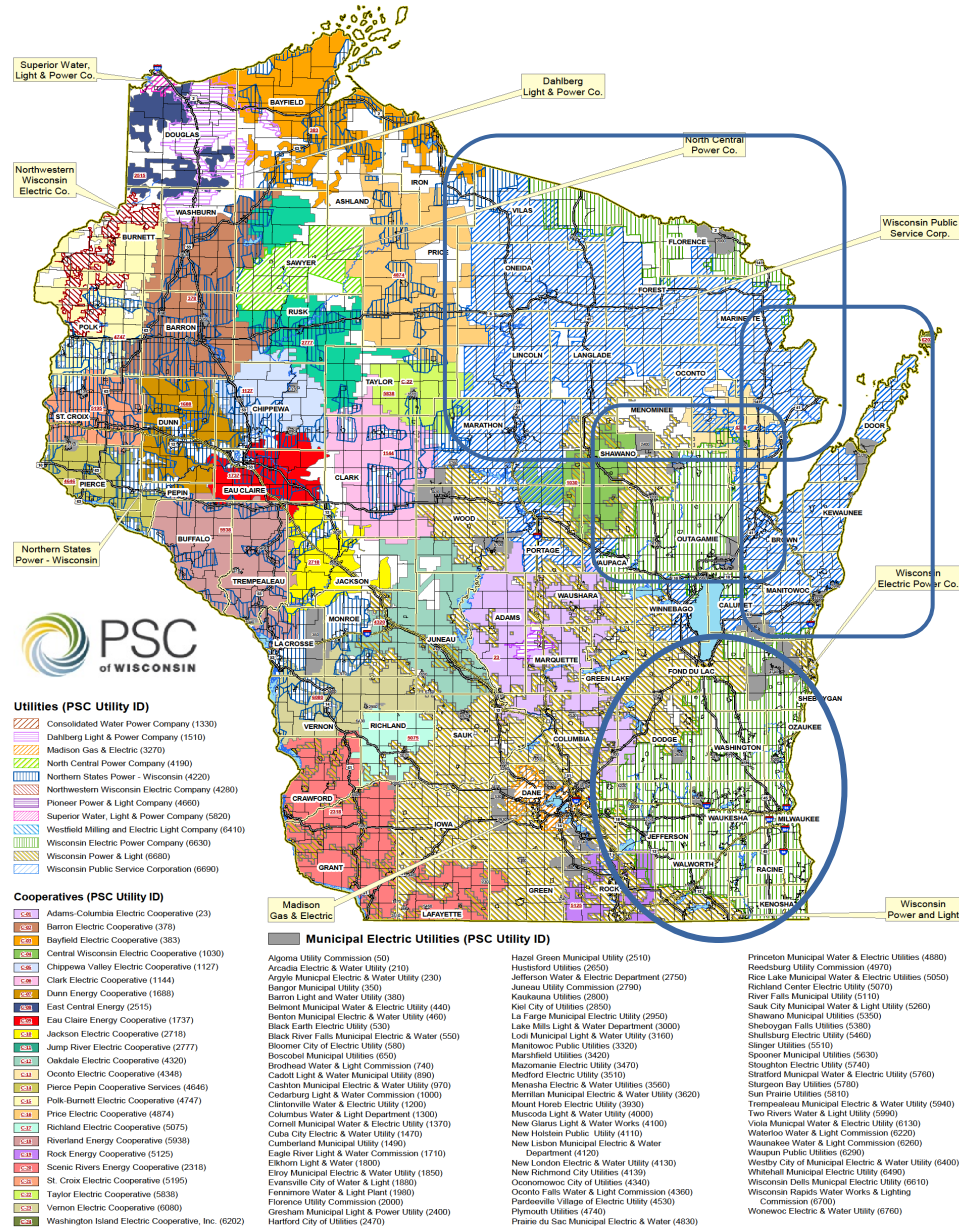
CUB's Work at the PSC

- Intervene in any case that will affect customers' rates
 - Rate Cases (main focus)
 - Fuel Cases
 - Construction applications
- When feasible, in-house analyst or retained expert files testimony
- Participate at hearing
- File briefs



Hills Farms State Office Building, Madison

Wisconsin Electric Service Territories



Utilities Across Wisconsin...

Utilities (PSC Utility ID)

- Consolidated Water Power Company (1330)
- Dahlberg Light & Power Company (1510)
- Madison Gas & Electric (3270)
- North Central Power Company (4190)
- Northern States Power - Wisconsin (4220)
- Northwestern Wisconsin Electric Company (4280)
- Pioneer Power & Light Company (4660)
- Superior Water, Light & Power Company (5820)
- Westfield Milling and Electric Light Company (6410)
- Wisconsin Electric Power Company (6630)
- Wisconsin Power & Light (6680)
- Wisconsin Public Service Corporation (6690)

cubwi.org

Where We Are, How We Got Here

**1990-
2001:**

- ✓ Lowest Electric Rates in Midwest
- ✓ Utilities Distracted/Moving Toward **Deregulation**, Some Got Burned Investing Overseas in Non-Utility Ventures
- ✓ Power Supply Challenges / Enron Collapse / California Crisis

2005-2016:

Fossil Fuel Investments: New Coal, Cleaning Old Coal, New Gas

\$3+ Billion Oak Creek Power Plant



New Plant Opened: 2010, 2011
Old Plant Pollution Controls: 2012

Air Pollution Scrubbers on
Pleasant Prairie Power Plant

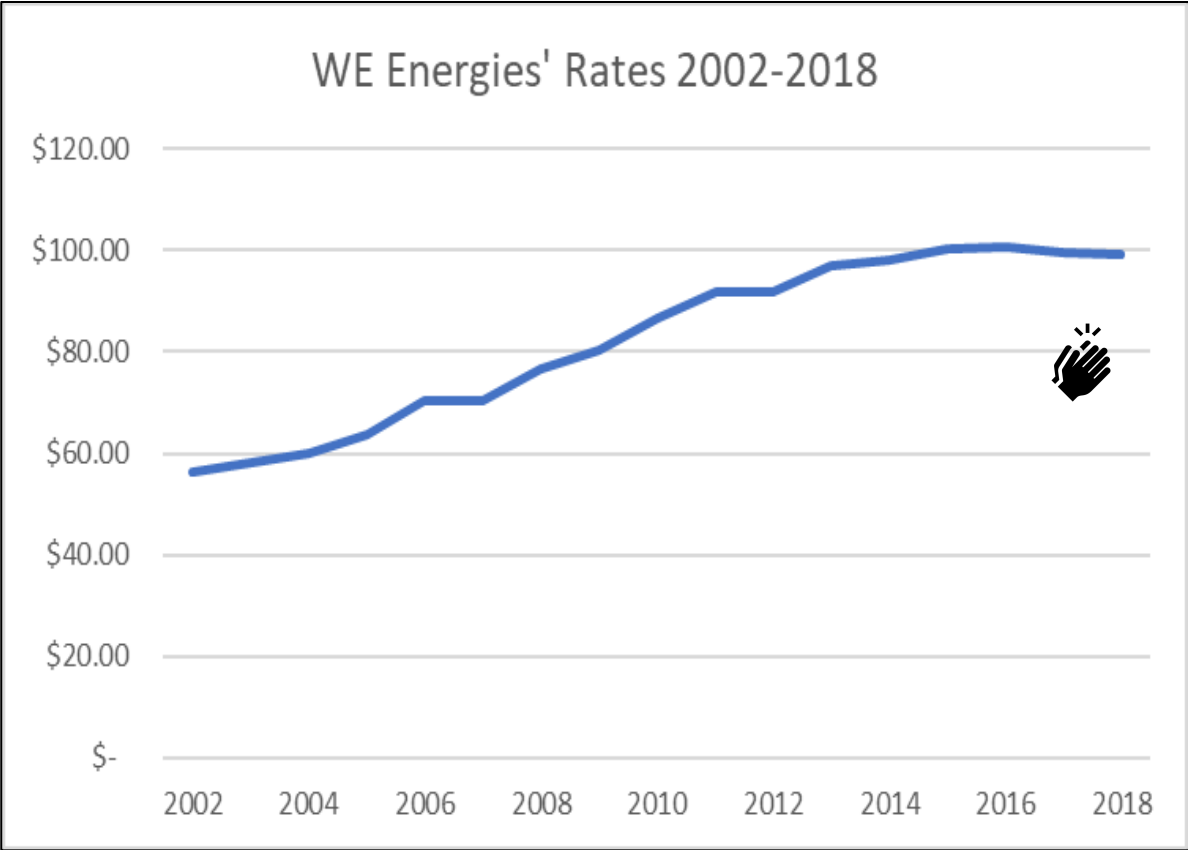
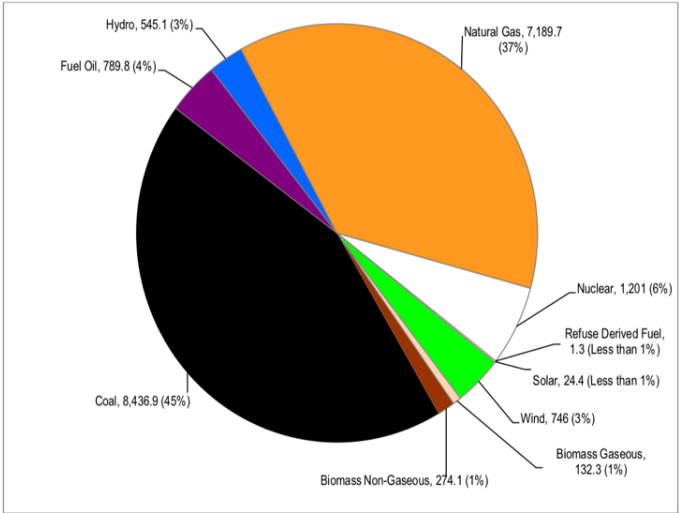


Site of Small Demo
Project for CO₂
Reduction

Rates up 79% since 2001, **much faster** than inflation (42%)

As of January 2018: + 80% of Wisconsin electric capacity is coal or gas

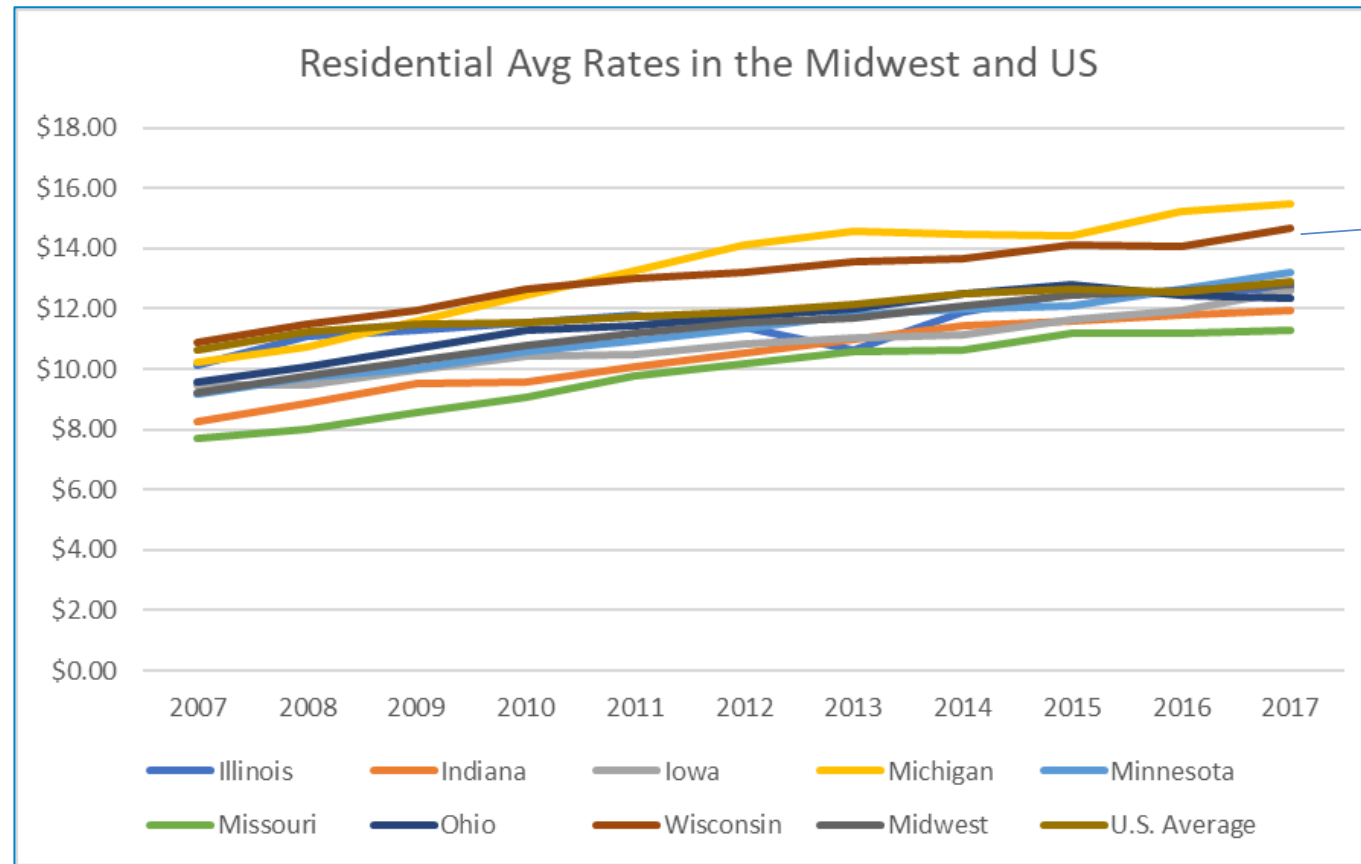
Figure 9 Wisconsin Electricity Generation Capacity by Fuel Source, January 2018 (MW)²⁷



Wisconsin Rates: 2nd Highest in Midwest ;13th in the nation

“We invested first. Other states will catch up and see rates rise as they invest.”

Didn't happen.

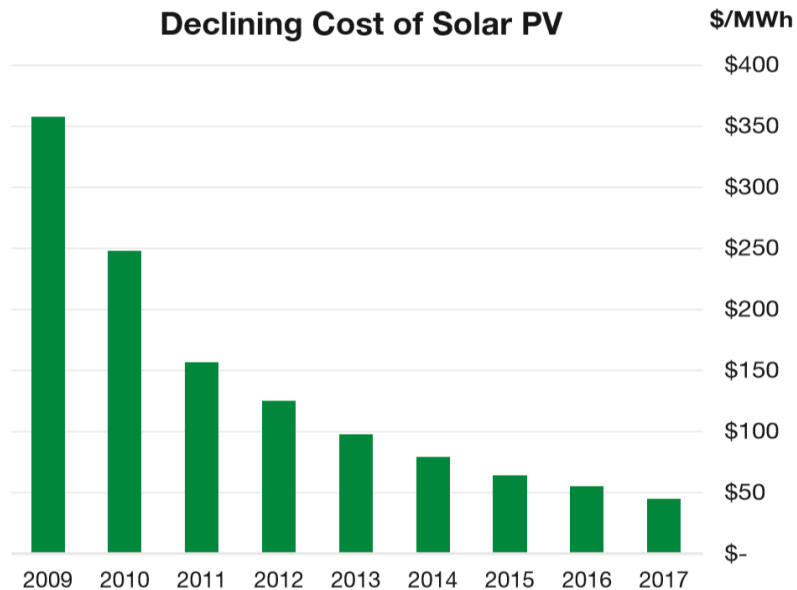


Wisconsin

Source: Strategic Energy Assessment 2018-2024

Energy World Turning on a Dime

Low Natural Gas Prices, Renewables Get Competitive



Source: Lazard Report, 2017

Chart source =
Invenergy

- Economics Rapidly Changing
 - Fracking Drops Natural Gas Prices
 - Renewable Cost Curve: Bigger Wind Turbines
 - Falling Solar Panel Prices
 - Kewaunee Nuclear Plant shuts down (2013)
 - Falling Battery Prices: Solar + Storage
- More Attention to Climate Change
 - PSC Rejects Coal Plant for Alliant (2008)
 - Obama EPA (Clean Power Plan, Fuel Economy Standards)
 - Wis. CO₂ Emissions On The Rise as Economy Recovers
 - Business Leads on Sustainability
 - Investor Pressure on Utilities

Energy World Turns on a Dime

Other Tech / Trends We're Watching

- Falling Price of Energy Storage (Tesla POWER WALL, JCI/EnSync/Wisconsin companies playing a role here via M-WERC)
- Growth of Distributed Generation (Rooftop Solar)
- Energy Efficiency (LEDs and advanced technologies)
- Electrification (Vehicles, Heating, etc.)
- Smart Meters, Smart Thermostats, Smart Refrigerators? (Smart Everything)
- Microgrids

No More Coal: From the Streets to the Boardroom

- SC Johnson scion/billionaire Sam Johnson Leads "No More Coal" Rally in downtown Racine, Wisconsin, 2003

Fast Forward to 2018

Two Wisconsin Utility CEOs Announce Plans to Eliminate ALL Coal

CO2 Pledges: Reduce by 100% by 2050 (Xcel Energy, December 2018)

Reduce 80% by 2050 (Alliant Energy, We Energies, WPS, MGE)

Settlements with activist shareholders concerned about climate change

Utilities Move to Big Solar

- Wisconsin has about 80 MW of Solar Today (vs. 14,000+ MW of Coal/Gas)
- Largest Project = Less than 3 MW
- 4-5 Projects Being Developed = 700-900 MW // \$910 million - \$1.2 billion
 - Badger Hollow (Iowa County) (300 MW)
 - Two Creeks Solar (Manitowoc County) (150 MW)
 - Point Beach Solar (Manitowoc County) (99 MW)
 - Badger State Solar (Jefferson County) 149 MW
 - FoxConn? (Kenosha County) 100-200 MW?

Problem Solved, Right?

Not Quite. Not Yet.

Change Can't Happen Overnight

Hold On To Your Wallets

Big Questions Need Answers

Financing the Big Transition: Who Pays for What We No Longer Want?

Pleasant Prairie Power Plant

Shut Down April 2018

**Not Needed, Wrong Fuel, Too Expensive
to Operate**

**Utility Still Wants to be Paid
\$650 million**



Issue Across the State
Columbia (Portage): Utilities just
spent \$1 billion to add scrubbers...

Toward Resilience / Grid Mod / Utility of Future

Bigger Role for Distributed Energy: On-site Generation

More **Resilient** Following Extreme Weather Events (e.g. Superstorm Sandy)

- New Devices, Big Data, Emerging Tech Drive More Information, More Control, **More Savings**
- Utilities Sell a Service, not just Energy
- Homeowners Charging EVs with Solar Panels

PSC launched a discussion of "**Grid Modernization**" in 2017

- Key Topics : Smart Meters, Distributed Generation, Distribution System Upgrades, **Electric Vehicles**

CUB Concerns/Questions

- **Monopoly Mission Creep** ... Should Customers Pay \$\$\$ for Utilities to **Own** Charging Stations?
- **\$\$\$ for Advanced Meters** ... Is the **Only Goal** to Let Utilities Disconnect Customers Remotely?

The Path Toward a Resilient Future

Become Educated and Informed

["Finding Your Role in Our Energy Democracy"](#)

See WASAL interactive information at

<https://www.wisconsinacademy.org/node/8075>



What Can Local Governments Do Today?

Utility Green Riders / Green Tariffs

- Customers work with utility to buy in to a project.
- Key for CUB – non-participating customers don't pay.
- 3 utilities now have Green Tariffs in place (WE/MGE/Xcel)

Dane County Airport (8 MW)

Southeastern Wisconsin Project TBD (150+ MW?)

(City, County, universities)

DOE Better Buildings Challenge betterbuildingsinitiative.energy.gov

Focus on Energy (www.focusonenergy.com)

PACE Financing for Upgrades (www.pacewi.org)

- Pay-as-you-go clean energy projects financed through an assessment on tax bill

What to do, What to do ? Policy Choices ...

NIX THE FIX

Help CUB Stop and Roll Back Higher Fixed Customer Charges

ENERGY EFFICIENCY FIRST

Strengthen building codes, strengthen Focus on Energy

Encourage ultra-efficient Passive Houses (new Wis. Chapter forming now)

*** Cheapest way to cut CO2 emissions**

SOLAR POLICY

Legislature may be asked to revisit whether solar companies can own the panels on customers' rooftops, now that one utility just won approval to do just that.

Make Your Voice Heard

- File a **public comment** and/or mobilize community members to file many comments (Superior 2018, MGE/WE 2014)
- Participate in **Grid Modernization / EV** policy discussions
- Attend **public hearing** and provide oral testimony
- Follow cases that affect your community and local governments
- **Vote** and support candidates with favorable energy policies

CUB Resources

Keep up to date **CUB BLOG** cubwi.org/blog

Follow/Like **@CUBWI** on Facebook/ Twitter

Sign up for **Email Newsletter** cubwi.org/newsletter

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