

# What's Working?!

## *Turning Waste to Cash in Wisconsin*



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# History of IEE and CHP



A long history with heavy industry

- Logging
- Paper Mills
- Manufacturing

Modernization of industry

- Policy initiatives for energy efficiency

**Terms:**

IEE = Industrial Energy Efficiency

CHP = Combined Heat and Power

AD = Anaerobic Digestion

TWTC = Turning Waste to Cash



# History of IEE and CHP

Late 1990s and early 2000s



- “Focus on Energy empowers the people and businesses of Wisconsin to make smart energy decisions with enduring economic benefits.”

Large Energy Users program:

- In 2015, \$5.14 for every \$1 spent

# History of IEE and CHP



New industry and hospitals with CHP

- Gundersen Health – La Crosse, Wisconsin
- Barron, Wisconsin School District
- Rothschild Biomass Cogeneration Plant



# History of IEE and CHP



## Forest County Potawatomi AD System

- Provides all space and water heating
- 2MW electricity generation capacity
- Takes in food waste from nearby industry

# WI and Competitive Award

Many active industry advocates for IEE and CHP



Recent challenges encourage collaboration

- Rising energy costs
- Increasing global industrial competition

Other economic sectors getting involved...

# WI and Competitive Award





# WI and Competitive Award





# WI and Competitive Award



# *Turning Waste to Cash*

## 2013 SEP Competitive Award

### Program Description:

- \$75,000 from USDOE
- Assemble inclusive IEE and CHP stakeholder group to evaluate state of play and avenues for project implementation
- Objective 1 – Increase awareness of cost-effective IEE and CHP programs
- Objective 2 – Assist with sustainable IEE and CHP project implementation



# Industrial Energy Efficiency

## Project Partners:





# Industrial Energy Efficiency

## Primary Activities:

- Identify Barriers to IEE Project Development
- Evaluate Successful IEE Projects around Wisconsin and the Midwest
- Circulate IEE Best Practices



- Convene Stakeholders



# Industrial Energy Efficiency

## Wisconsin Action Plan (IEE):

- Increase Funding and Support for Strategic Energy Management (SEM)
- Establish an IEE Recognition Program
- Engage Business Associations and Trade Allies to Highlight IEE Project Development

# Combined Heat and Power

## Project Partners:



**WISCONSIN**  
UNIVERSITY OF WISCONSIN-MADISON

**LOCKHEED MARTIN**





# Combined Heat and Power

## Primary Activities:

- Identify Barriers to CHP Project Development
- Circulate CHP Best Practices
- Convene Stakeholders



# Combined Heat and Power

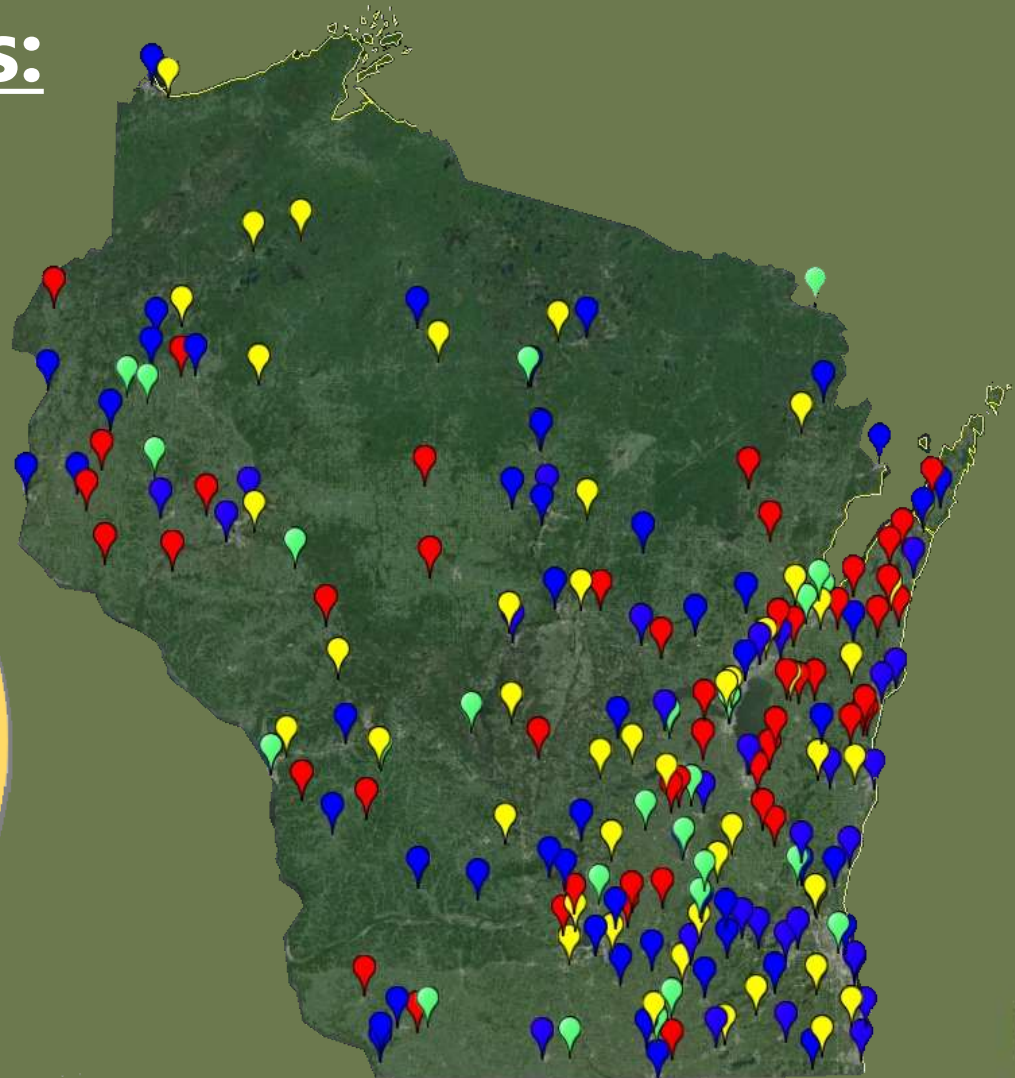
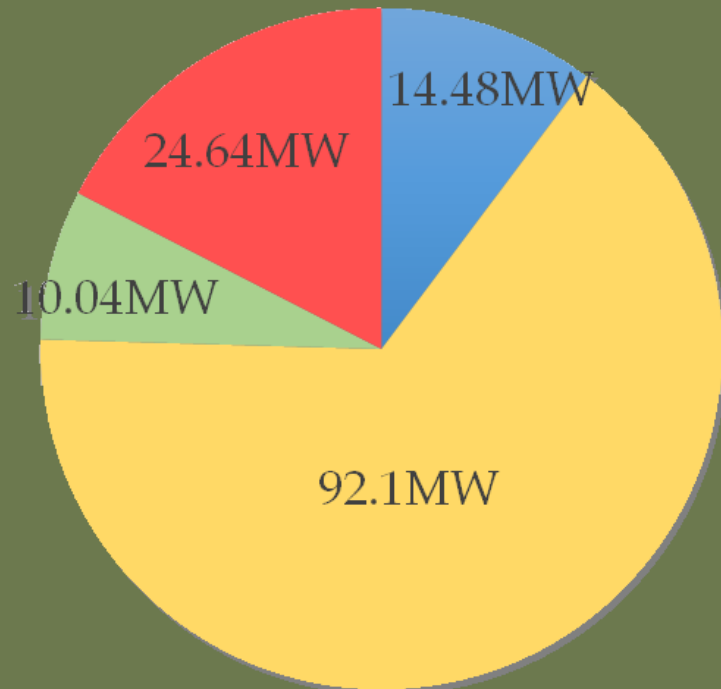
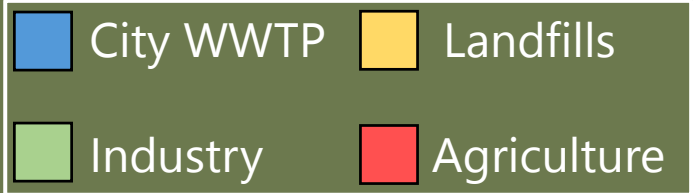
## Primary Activities:

### Wisconsin Biogas Survey Report



# Combined Heat and Power

## Primary Activities:





# Combined Heat and Power

## Primary Activities:

## Major Findings of the Survey



### Setbacks and Challenges:

- Managing Foaming and Complex Digestate Chemistry
- Electricity Generation Equipment Endurance
- Project and Operational Financing
- PPAs and Interconnection
- Other Non-Financial Barriers

### Potential Solutions:

- Pre-Mixing and Feedstock Storage Tanks
- Biogas Scrubbing and Improved Contaminant Removal
- Advanced Training
- Diversification of Ownership Models
- Information Sharing and Annual Conference
- Excite Biogas Research and Development



# Combined Heat and Power

## Wisconsin Action Plan (CHP):

- Evaluate Challenges and Opportunities with Standby Rates and Interconnection Costs
- Engage with and Harness Capacity of Utilities
- Develop Options and Action Plan for EPA's Clean Power Plan

# Concluding Thoughts

Big challenges and *opportunities* remain in IEE and CHP project development.

It is a time of transition for one of the strongest IEE programs in Wisconsin, Focus on Energy

Again, there is *enormous* untapped potential for bioenergy and CHP in Wisconsin

# Thank you!

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