



# The Morris Model

**Presented by:**

Michael Reese, Director - Renewable Energy Program  
Univ. of Minnesota West Central Research and  
Outreach Center  
Morris, MN USA

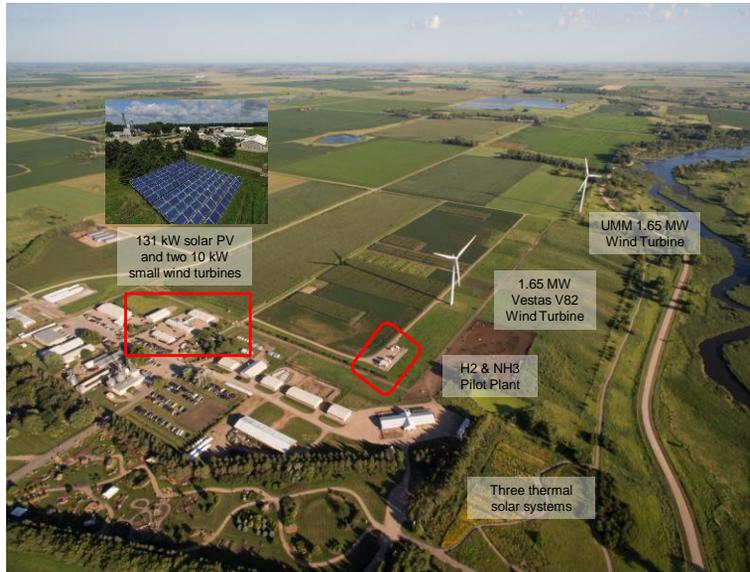
**Presented to:**

Minnesota House Energy and Climate Committee  
St. Paul, MN  
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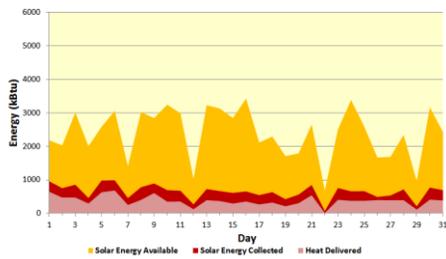


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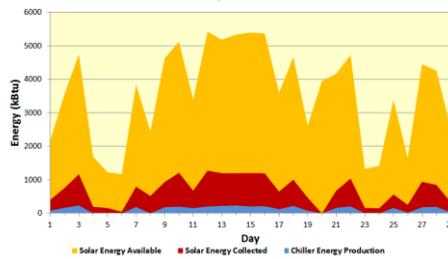
### Solar PV Systems at WCROC



Evacuated Tube Heating Performance  
Mar 2012



Evacuated Tube System Performance & Insolation  
May 2012



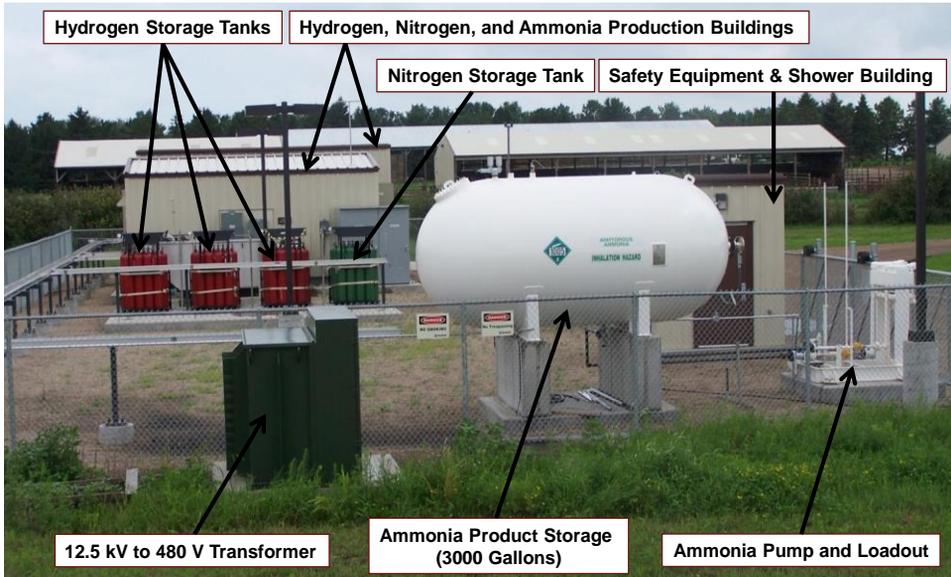
### Sow Cooling and Piglet Heating Pads



### Net-Zero Energy Dairy Parlor



## Renewable Hydrogen and Ammonia Pilot Plant



## DC EV Fast Charger & 220 Level 2 Charger Commissioned – Earth Day 2018



## UMM Biomass Gasification System



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## What is the “Morris Model”?

The Morris Model is a loosely knit group of organizations and stakeholders within the Morris and Stevens County community looking to advance goals in the areas of:

- Energy
- Transportation
- Waste reduction and improved recycling
- Education of these topics



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www.morrisareasc.edu



Stevens County  
**SCMC**

## What are some Significant Outcomes:

- Morris Community Climate Smart Municipality (CSM) Planning Retreat (Oct 2018)
  - Public and private organizations including 35 individuals participated in a two-day retreat at Camp Ripley to develop goals and projects
- Morris Community Climate Smart Municipality Strategic Plan
  - Community goals in energy, transportation, waste reduction / recycling, and education
  - Organizational goals are outlined and the next step is to get formal organizational approval
  - A project list has been developed to prioritize efforts and help achieve goals
- Morris Model Team has provided leadership, conducted educational events, and advocated for renewable energy systems such as a solar PV system for the high school, a \$30 million biogas upgrade plant planned for Stevens County as well as increased use of locally-produced and distributed E-85 ethanol



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## Morris Community CSM Strategic Planning Retreat



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## The Morris Model **Vision:**

*“Our vision is for the Morris community to be nationally recognized as an innovation leader in energy, transportation, and waste reduction and recycling. By leading in these areas, we hope to drive a more robust and vibrant economy within our agricultural and manufacturing sectors creating new businesses, jobs, and wealth for our community. Through this process, our community will become more economically and environmentally resilient. We hope to achieve this vision by:*

- *Producing all energy locally keeping more money within our community,*
- *Providing greater opportunities for local ownership of energy production,*
- *Inspiring a new conservation ethic for saving energy and reducing waste,*
- *Developing innovative educational programming for students and all community members, and*
- *Becoming a destination for those wanting to learn and for businesses wanting to participate.*



## The Morris Model **Big Goals:**

1. *Produce 80% of the energy consumed in the county by 2030*
2. *Reduce energy consumption 30% by 2030*
3. *No land-filling of waste generated within the county by 2025*



## Morris and Stevens County Demographics:

- Morris has 5,297 people in 2,023 households
- Stevens County has 9,634 people in 3,567 households

(US Census Bureau 2017)



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## Total Estimated Farm Energy Cost for Stevens County: **\$95 million/year** (Cotter Et Al., 2018)

- Total Cost of Diesel ~ \$15 million/year
- Total Cost of Electricity ~ \$37 million /year
- Total Cost of Propane ~ \$14 million /year
- Total Cost of Energy Consumed in N Fertilizer Production ~\$29 million /year

Plus Total Estimated Energy Costs for the city of Morris: **\$17.5 million/year**

(Erickson Et Al., 2018)



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Total estimated value of energy consumed across Stevens County farms and City of Morris:

**~\$112.5 million / year\***

\*Fortunately, we export ethanol to capture added value and also hope to export biogas and other forms of renewable energy in the near future



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## What is the “Climate Smart Municipality Partnership”?

The Climate Smart Municipality Partnership is a program led by the University of Minnesota

- Originally 5 and now 6 diverse Minnesota communities are partnered with 6 communities in the German state of North Rhine-Westphalia
- Funded in large part by the German government, community representatives exchange information by visiting partner communities and seeing successes (and failures)
- The City of Morris has signed a second, Partnership Agreement with the City of Saerbeck (perpetual)



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## Saerbeck, North Rhine-Westphalia, Germany

- Small, agricultural community in north west Germany
- Winner of the first European Energy Prize
- Produces locally over 400% of energy consumed within the city
  - Large-scale wind
  - Solar PV
  - Biogas
  - Biomass
  - Local ownership
  - Educational programs - tourism



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## We See Innovation - Saerbeck Energy Park



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# We See Disruptive Technology - Electric Vehicles



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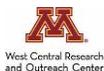
# We See New Approaches to Old Problems – Saerbeck Compost Center



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## They Meet - Local Policy Makers and Utilities



## They Meet - Local Farmers and Business Owners



## They Visit - Public Schools in Stevens County



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## Conclusions

- Educate at all levels to improve awareness and drive cultural change
- Set local goals
- Work together to provide policy, regulatory, financial, and technical framework for successful projects
- Lead the way

Thank you for this opportunity!



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**Contact Information:**

Michael Reese  
 Director- Renewable Energy  
 West Central Research & Outreach Center  
 University of Minnesota  
 Phone: (320) 589-1711  
 Web: <http://wcroc.cfans.umn.edu>  
[reesem@umn.edu](mailto:reesem@umn.edu)

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**And the Renewable Energy Team!**



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