The Morris Model

Presented by:
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Presented to:
Minnesota House Energy and Climate Committee
St. Paul, MN
January 31, 2019

University of Minnesota West Central Research and Outreach Center
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

- Hydrogen Storage Tanks
- Hydrogen, Nitrogen, and Ammonia Production Buildings
- Nitrogen Storage Tank
- Safety Equipment & Shower Building
- 12.5 kV to 480 V Transformer
- Ammonia Product Storage (3000 Gallons)
- Ammonia Pump and Loadout

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

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)
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

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)
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

We See Innovation - Saerbeck Energy Park
We See Disruptive Technology - Electric Vehicles

We See New Approaches to Old Problems – Saerbeck Compost Center
They Meet - Local Policy Makers and Utilities

They Meet - Local Farmers and Business Owners
They Visit - Public Schools in Stevens County

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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Acknowledgements:
MN Environmental and Natural Resources Trust Fund through LCCMR
U of MN MnDRIVE
U of MN IREE
U of MN Rapid Agriculture Response Fund
State of Minnesota
US Dept of Energy ARPA-E REFUEL
West Central Initiative
Xcel R0F
And the Renewable Energy Team!