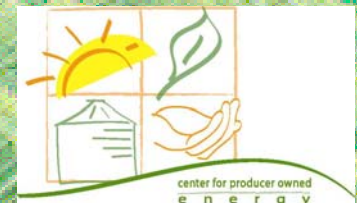


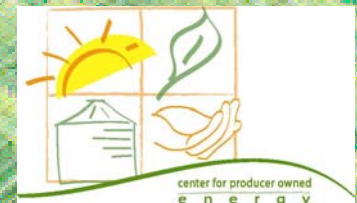
# Center for Producer-Owned Energy

Michael Sparby  
*Agricultural Utilization  
Research Institute*



# AURI

- Created to improve the economy of rural Minnesota through the development of new uses for agricultural commodities
- Focus on renewable energy from ag products and coproducts

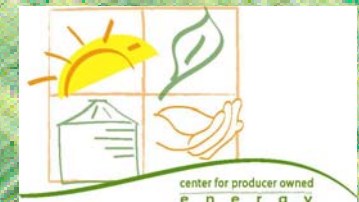


# Why interest in renewables?

Product	Avg. Btu/unit	Units	Approx. Cost per million Btu
Propane	91,333	Gallon	\$22.72
#2 fuel oil	140,000	Gallon	\$20.45
Electricity	3,413	kWh	\$18.12
Soybeans – whole	8,842	lb.	\$14.14
Aspen	7,589	lb.	\$10.35
Natural gas	1,028,000	1,000/ft cu.	\$ 9.73
Corn – shell	7,540	lb.	\$ 8.27
DDG's – raw	8,291	lb.	\$ 6.03



MN Dept. of Energy - source for information on electricity, natural gas, fuel oil, propane, kerosene, & coal



# Center for Producer-Owned Energy

- Established by funds from USDA Rural Development
- Began operating in June, 2004
- Supports farmer-owned renewable energy



# Center for Producer-Owned Energy

- 21 established projects and growing
- Includes ethanol, biodiesel, biomass, biogas, wind and more
- 18 collaborating partners



# In Progress

- Biodiesel Usage in Large Low RPM Engines
- Crystal Sugar
- Ottertail Ag Enterprises
- Small Dairy Methane Digesters
- Central Minnesota Ethanol Coop
- Biomass Derived Oils for Turbo Generation





# In Progress

- Biodiesel/Wind Generation
- West River Dairy-City of Morris
- Grass Screening Gasification-Northern Excellence Growers
- Biodiesel ATV
- Rural Energy Marketing



# Biodiesel Wind Generation

- Evaluating feasibility of biodiesel backup generators for peaking
- Variables:
  - *Fiscally feasible if genset runs less than 400 hours per year*
  - *Favorable site selection*
  - *Policy and payments for peaking capacity for qualified facilities*
  - *Biodiesel price*





# West River Dairy - City of Morris

- Feasibility of utilization of agricultural resources in Stevens County
- Sebesta Bloomberg
- Energy sources analyzed
  - *Manure digestion (biogas)*
  - *Stover combustion (electricity)*
  - *Stover gasification (biogas)*



# Northern Excellence Growers

- Over 40 grass seed growers in NW Minnesota
- Produce about 1.25 million pounds of screenings
- Currently screenings are burned in landfill
- \$46,000 in electrical costs per year
- Capital costs for gasification \$150,000
- Gasified screenings at EERC in Grand Forks
- Superior gas quality



# Biodiesel ATV

- Arctic Cat testing biodiesel in ATVs
- One of first evaluations of biodiesel in small engines
- B20 blend





# Rural Energy Marketing

- Cellulose conversion to ethanol using gasification
- Producer coop  
Luverne, MN
- Assessing proprietary technology



# Center for Producer-Owned Energy Observations

- Renewable fuels will have a place
- Technological advances will help enhance the industry
- Becoming more economically viable as petroleum prices rise
- Identification of win-win scenarios



# Thank You!

Center for Producer-Owned Energy

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[www.auri.org](http://www.auri.org)

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