

## Renewable Energy in Minnesota

2012



**auri**

Agricultural  
Utilization  
Research  
Institute

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aka "Cleantechczar"

**Fredrikson**  
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**the BioBusiness Alliance**  
of Minnesota™

## Who am I?

- Corporate finance attorney
- 14 years experience in renewable energy
- Deepest experience in biofuels, bioenergy and biochemicals
- Fredrikson highly experienced in wind, solar, biofuels, bioenergy, biochemicals, oil & gas, transmission, pipelines, permitting, regulatory, lobbying, cupcake design, oragami
- Frequent speaker and author on industry and legal issues
- Top 100 people in US in BioEnergy
- 200 Minnesotans You Need to Know
- @cleantechczar

## Why Should You Care?

- Four Key Factors for Every Project

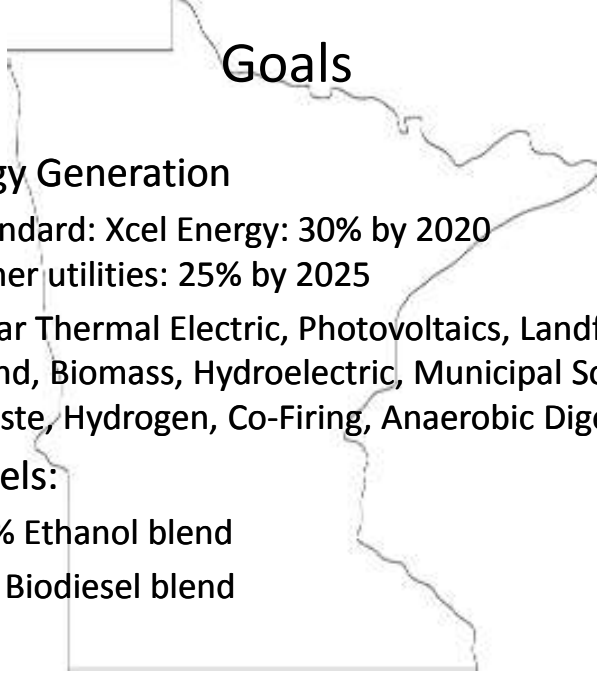
1. Inputs
2. Transformation
3. Finance
4. Customers

All four must be satisfied...but Customer is King

## Success v. Failure

### Gevo v. Range Fuels

- Both have Venture backing
- Both have plants
- Both have advanced processes
- Both have strong management
  
- Range has DoE grant and loan guarantees
- Gevo does not
- Range has significant state incentives
- Gevo does not
  
- Gevo has Customers
- Range did not
  
- Range is bankrupt
- Gevo is not



## Goals

- Energy Generation
  - Standard: Xcel Energy: 30% by 2020  
Other utilities: 25% by 2025
  - Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Municipal Solid Waste, Hydrogen, Co-Firing, Anaerobic Digestion
- Biofuels:
  - 10% Ethanol blend
  - 5% Biodiesel blend

## Energy in Minnesota

- Wind
- Biofuels
- BioEnergy
- Solar
- Geothermal
- Biochemicals
- Energy Efficiency
- Coal
- Natural Gas
- Petroleum

## Strengths

- Strong agricultural industry and resource
- Strong wind industry and resource
- Strong state and private university system
- Popular support for renewables
- First mover advantage
- Active renewable entrepreneurial community
- Active government and non-profit community

## Weaknesses

- Not enough local sources of funding
- Not enough connection to other sources of capital
- Culture that discourages entrepreneurship
- First mover disadvantage
- Lack of entrepreneurship in research academia
- No government funding

## Opportunities

- Resources rule
- Leverage big company expertise
- Energy efficiency
- Biochemicals
- Solar
- Export expertise

## Threats

- Technology with Cash on Coasts
- Entrenched interests
- Other states and countries out spending
- Innovation can stagnate
- Minnesota Nice
- Natural Gas prices
- Partisanship

Questions, Comments, Deep  
Thoughts, Call me a moron,  
challenge me to a duel?

Thank you

- Todd Taylor  
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