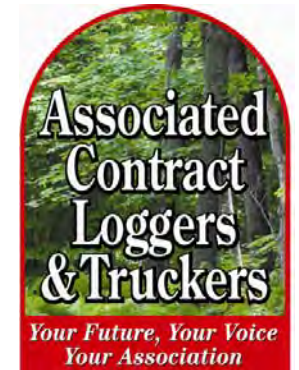


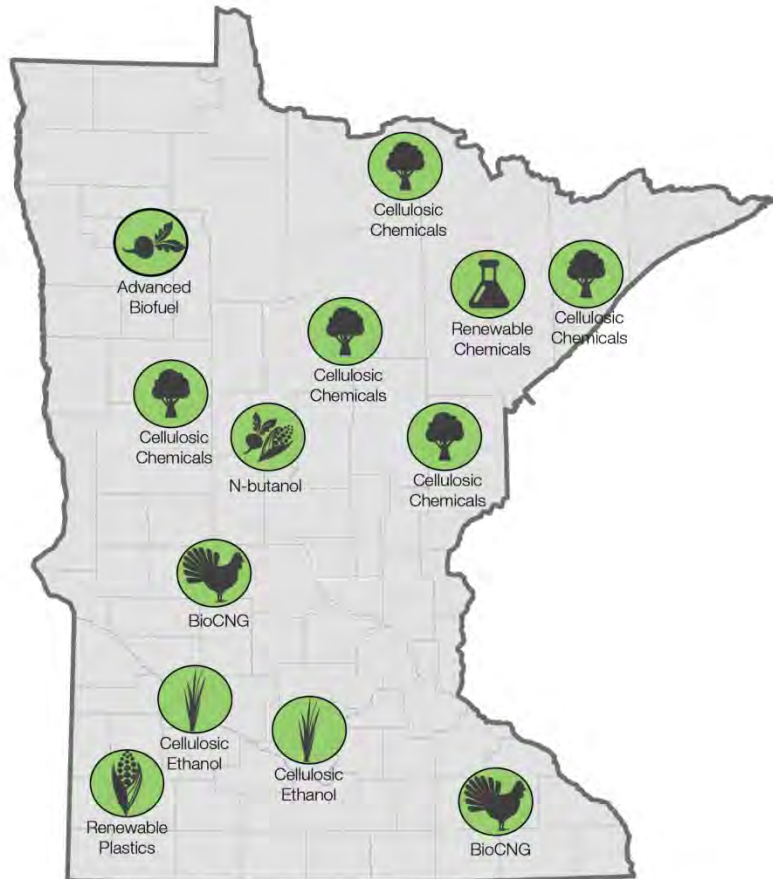
Mission of the Bioeconomy Coalition of Minnesota

Articulate and implement a Minnesota state policy and regulatory agenda to expand biobased chemical, advanced biofuel, and biomass thermal energy industries, along the entire value chain from R&D through commercial production and use.

Coalition Partners



Bioeconomy Case Studies - 2. A Growing Industry



Example project types and locations are hypothetical and for purposes of modeling economic impact of possible projects

Scenario 2. A Growing Industry

14 hypothetical facilities:

- 1 x Renewable Chemicals from Sugar
- 1 x Renewable Plastics from Corn Sugar
- 2 x Cellulosic Ethanol from Ag. Residue
- 5 x Cellulosic Chemicals from Wood
- 1 x N-butanol from Corn and/or Beet Sugar
- 2 x BioCNG from Ag. and Livestock Waste
- 1 x Advanced Biofuel from Beet Sugar

\$ 23.8 million temporary annual government investment*

\$ 870.8 million permanent annual economic impact

\$ 1.5 billion temporary construction economic impact

Economic Impact

	Type	Employment	Labor Income (millions)	Output (millions)
Annual	Direct	590	\$ 36.8	\$ 513.4
	Indirect	2,100	\$ 111.4	\$ 294.1
	Induced	450	\$ 21.5	\$ 63.3
	Total	3,140	\$ 169.7	\$ 870.8
Construction	Direct	4,380	\$ 303.4	\$ 867.8
	Indirect	1,690	\$ 112.7	\$ 306.2
	Induced	2,620	\$ 122.1	\$ 357.4
	Total	8,690	\$ 538.2	\$ 1,531.4

Impact estimates based on University of Minnesota Extension Economic Impact Analysis

*Over 15 years

www.mnbioeconomy.org

The screenshot shows a web browser window displaying the website www.mnbioeconomy.org. The browser's address bar shows the URL and several tabs are open, including www.netl.doe.gov/en... and www.guidestar.org/FI.... The website header features the logo for the BIOECONOMY COALITION OF MINNESOTA and a CONTACT link. The main content area is set against a background image of a rural landscape at sunset. On the left, three circular navigation buttons are labeled POLICY, THE COALITION, and RESOURCES. On the right, a dark grey box contains the following text:

The Coalition

The Bioeconomy Coalition of Minnesota is a multi-sector partnership between members of the conventional and advanced biofuels industries, biobased chemicals and products companies, nonprofit organizations, environmental groups, as well as consulting, investment and legal firms. [Learn More](#) ▶

In order to establish a next generation industry in Minnesota, the coalition believes the following steps should be taken:

- Broaden Minnesota's Biofuel Mandate
- Support bioproduct pilot and demonstration projects
- Support the commercial scale up of bioproduct facilities
- Help create early markets for bioproducts
- Provide bonding for biomass heating projects

The footer of the website includes the copyright notice © 2013 BIOECONOMY COALITION OF MINNESOTA and a SITEMAP link. The Windows taskbar at the bottom shows the Start button and several open applications, including Microsoft Office Word, PowerPoint, and a screen capture utility, with the system clock showing 3:55 PM.

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Producer Incentive

- Summary: Provide production-based incentives for production of biobased chemicals, advanced biofuels, and biomass thermal energy.

Producer Incentive

- Why do this?
 - Make Minnesota a world-class destination for building commercial-scale advanced biofuel and biobased chemical plants
 - Production incentive can be included in financing, and will attract projects to Minnesota.
 - Legitimate government role in helping to build “first-of-a-kind” facilities, for which other forms of financing do not exist.
 - Protection for the state. No payment occurs until production occurs. No risk of boondoggle projects.
 - State government doesn’t pick technology winners. They simply award the projects that cross the finish line.
 - Minnesota has history with this approach, through the state’s ethanol producer payment.

Producer Incentive

- Eligibility and Incentive levels
 - Biobased Chemicals
 - \$0.03/lb
 - Up to \$60,000,000 over 10 years
 - Advanced cellulosic biofuels
 - \$0.20/gal
 - Up to \$60,000,000 over 10 years
 - Certain Biomass Thermal projects
 - \$10/mmbtu
 - Up to \$2,000,000 over 10 years
- Additional sustainability bonus for use of certified feedstocks, or for following state-approved best management practices

Producer Incentive

- Qualified Facilities
 - Must source raw materials (sugar, biomass) from Minnesota
 - Raw material must be from agricultural or forestry sources, or from organic content of municipal solid waste.
 - Facility must be located in Minnesota
 - Facility must begin operation after January 1, 2015 (including existing facilities with significant retrofits to allow new production after January 1, 2015)

Fossil Fuel vs. Biomass

Analysis Matrix

Evaluation Criteria	Propane	Wood Gasification
Adds to Fossil Carbon Loading	Yes	No (ambient carbon)
Creates Local Jobs	No	Yes
Enhances Wildlife Habitat	No	Yes
Annual Cost 2012-13	\$67,000 est.	\$44,000 (\$18,000 wood + \$12,000 loan payment, \$10,000 labor, \$3,600 electricity)
Byproducts	Hazardous Waste (Refinery)	Fertilizer

