Community Decision Makers' Support of Bioenergy

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Overview

- The promise of bioenergy in Michigan and beyond – a quick overview

- The tempered enthusiasm in upper Michigan

- Highlights from analysis of survey

- Observations on Insights

The Promise of Alternative

- According to NREL the "majority of consumers (80%) indicated that they care about the use of renewable energy."

(http://apps3.eere.energy.gov/greenpower/pdfs/50988.pdf)

The Allure of Bioenergy

- Biomass technologies could replace the dirty old technologies of coal (for energy base load) and liquid fuels such as petroleum. Despite having apparently abundant wood and plant material in Michigan, growth in this sector has instead remained stagnant.

MICHIGAN'S CLEAN ENERGY ECONOMY

Clean energy capacity, by sector and year
Actual (2009-13) and projected (2014-23) growth in cumulative capacity

■ HYDRO ■ BIOMASS ■ WIND ■ SOLAR
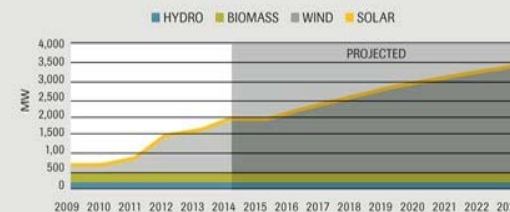
NOTE: Navigant Research provided data and projections of annual capacity additions from 2009 to 2023. These figures were added to baseline 2008 cumulative capacity data from the Energy Information Administration (except for wind and solar, for which cumulative data were available from Navigant Research).

MICHIGAN'S WIND ENERGY
NATIONAL RANKINGS AND STATISTICS: 2013

| 3rd | 3rd | 16th | 300,000 |
| new capacity (175 MW) | private investment ($315 million) | total capacity (1.2 GW) | homes powered by wind |

SOURCES: AMERICAN WIND ENERGY ASSOCIATION, NAVIGANT RESEARCH

NEW CLEAN ENERGY CAPACITY INSTALLED IN 2013 (MW)

Wind	175
Biomass	10
Solar	1
Combined heat and power	1
Hydro	0
Geothermal	0
Marine hydrokinetic	0
TOTAL	187

SOURCE: NAVIGANT RESEARCH

Energy Security;
Environmental Sustainability

- Alternative energy in general, and bioenergy in particular have encountered local resistance.

Resistance to Wood Biomass Bioenergy in Michigan

"A lot of people feel that *we are just now recovering from the massive cuts of one hundred years ago*, and when you look at our forests, you don't see a lot of these massive trees..."

"There is a mass delusion in society that we do not have to exert constraint. *There is not enough trees to supply these plants*. Does society say tighten our belts? No. We develop more resources to continue [growth], lead[ing] to exploitation."
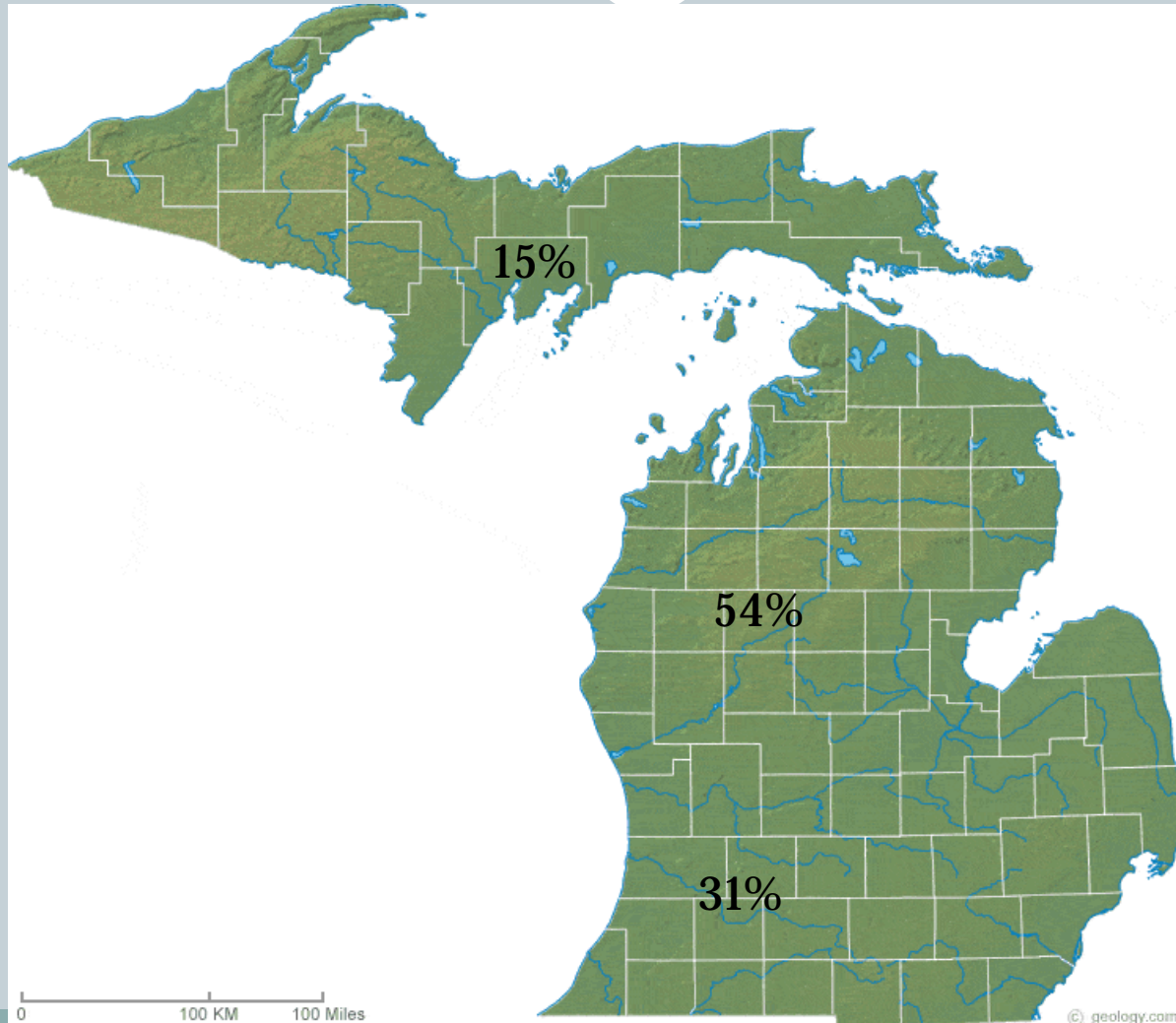
- Baytown Activists

Survey of Community Leaders

- Between Spring 2013 and Fall 2014.

- Identified officials and actors in areas where bioenergy facilities proposed and operational

- 160 community leaders responded across Michigan (of 446 invited to participate in the Survey – 33% response rate).

Geographic Distribution of Respondents

Demographics and Key Characteristics

	UP	NLP	SLP
Median Income	75,000-99,999	50,000-74,999	75,000-99,999
Elected official	38%	33%	38%
Concerned Citizen	50%	30%	30%
Business person	5%	3%	11%
Environment NGO	7%	23%	18%
University scientist	5%	11%	4%
Involved in Bioenergy Decision	90%	84%	78%
Ideologically Neutral	43%	33%	33%
Declared Liberal	48%	40%	20%

Environmental Attitudes

- ## More Environmentally Minded in UP and Northern LP than Southern Michigan

	UP	NLP	SLP
Earth has limited room and resources	90%	82%	75%
Nature is strong enough to cope with the impacts of industrial nations	5%	17%	76%
Ecological crisis is highly exaggerated	5%	25%	40%
The current course could lead to ecological catastrophe	65%	64%	33%
Humans are severely abusing the environment	79%	82%	71%

Attitudes Toward Bioenergy and Feedstocks

Statements	(Median Response)		
	UP	NLP	SLP
Bioenergy in general	SW Positive[a]	SW Positive[a]	Strongly Positive[b]
Using forest derived biomass to produce heat and/or electricity	SW Positive[a]	SW Positive[a]	SW Positive[a]
Using agricultural food crops to produce liquid biofuels	Neutral[ab]	Neutral[a]	SW Positive[b]
Using municipal or urban waste for energy	SW Positive[a]	Strongly Positive[a]	Strongly Positive[a]
Using perennial plants to produce heat and electricity	SW Positive[a]	SW Positive[a]	SW Positive[a]
Using perennial plants to produce liquid biofuels	SW Positive[a]	SW Positive[a]	SW Positive[a]
Using forest derived biomass to produce liquid biofuels	SW Positive[a]	SW Positive[a]	SW Positive[a]

Attitudes Toward Bioenergy Process

Statements	(Median Response)		
	UP	**NLP**	**SLP**
Existing bioenergy facilities in your county	Neutral[a]	SW Positive[b]	**Strongly Positive[c]**
Siting a new bioenergy development in your county	Neutral[a]	SW Positive[a]	SW Positive[a]
The entire planning and siting process in your county	Neutral[a]	SW Positive[a]	SW Positive[a]
The design and technical feature of the facility in your county	Neutral[a]	SW Positive[ab]	Neutral[b]
The people operating facility in your county	Neutral[a]	SW Positive[ab]	SW Positive[b]
Using public funds to develop bioenergy	Neutral[a]	SW Positive[a]	Neutral[a]

Decisions makers' preference for different energy technologies to meet targets

- UP respondents' preferred solar energy, followed by wind, hydro, and bioenergy. NLP respondents preferred wind and solar energy over hydro and bioenergy. SLP respondents preferred wind and bioenergy over hydro and solar energy.

| Renewable Energy Technology	Median Preference Rank		
	UP	NLP	SLP
Wind	2[a]	2[a]	2[a]
Hydro	3[a]	3[a]	3[a]
Solar	1[a]	2[ab]	3[b]
Bioenergy	4[a]	3[b]	2[b]
None of these	5	5	5

(1= most preferred to 5 = least preferred)

Support among community leaders for state government support for alternative energy

- Support for state incentives for bioenergy is strongest in southern lower peninsula of Michigan, weakest in the UP

Renewable Energy Sources	Percentage of the respondents who think that State government should do more to promote renewable energy		
	UP	NLP	SLP
Bioenergy	52%[a]	68%[a]	73%[a]
Wind energy	81%[a]	71%[a]	50%[b]
Solar energy	95%[a]	70%[b]	62%[b]

Support for State Support for Bioenergy
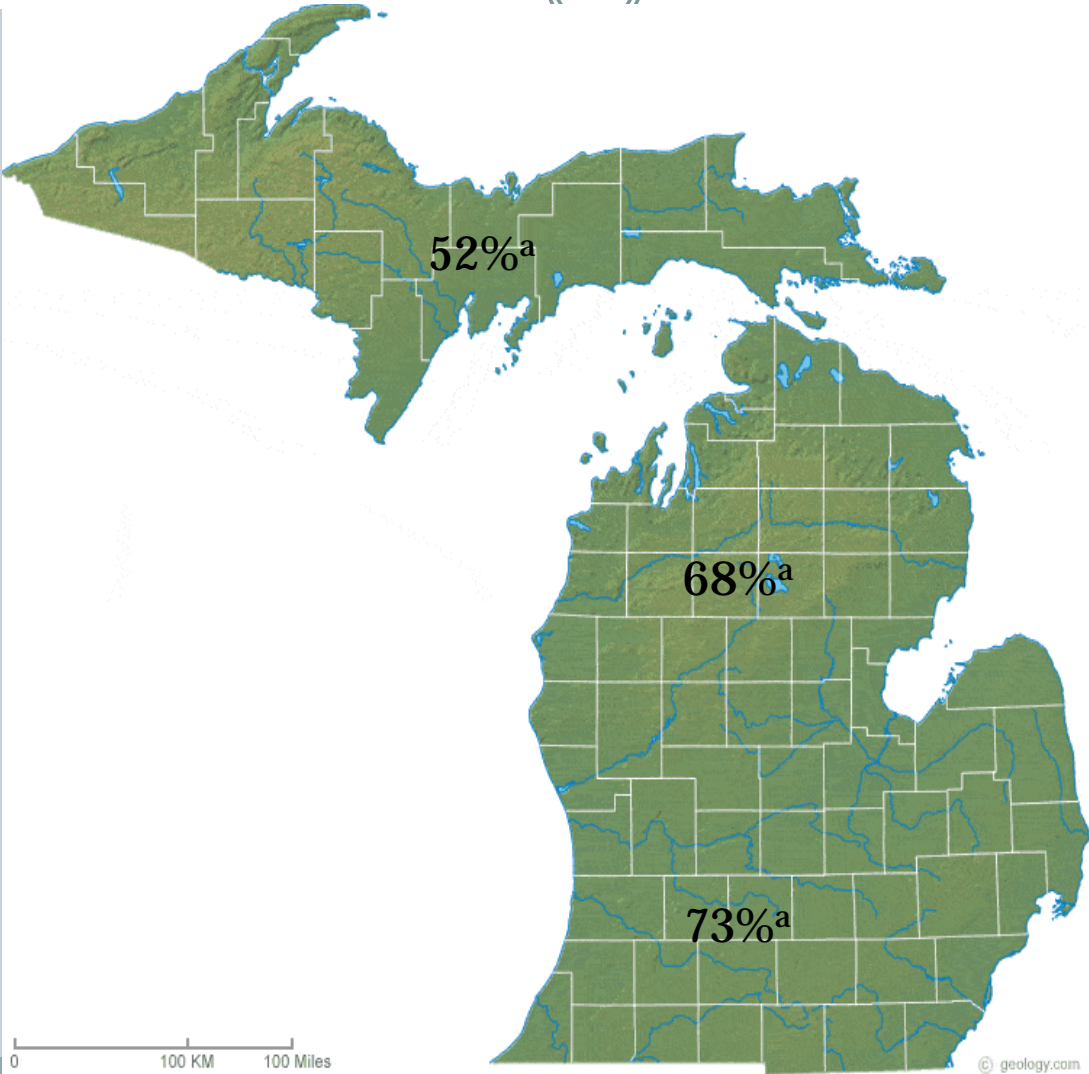
Decision makers' opinion on statements related to bioenergy, humans and the environment

Statements	Percentage agreeing (Median Response)		
	UP	NLP	SLP
Bioenergy provides a novel means to address important environmental and human health issues	Agree[a]	Agree[a]	Agree[a]
Bioenergy has unknown impact on environment and human health	Agree[a]	Neutral[ac]	Neutral[bc]
Bioenergy is in conflict with naturally occurring ecological processes	Neutral[a]	Disagree[a]	Disagree[a]
We ought to maximize the use of locally available biomass resources	Agree[ac]	Agree[a]	Agree[bc]
Using biomass resource can help solve global problem	Neutral[a]	Agree[a]	Agree[a]
Only few people who profit directly see benefits from bioenergy	Disagree[a]	Disagree[a]	Disagree[a]

Decision maker's level of trust/distrust on different sources of information about bioenergy

People/Group	UP	NLP	SLP
People leading the development project; Ag or Forestry related interest groups	Neutral[a]	Neutral[a]	Neutral[a]
DEQ; State & Local Environmental NGOs	Neutral[a]	Somewhat Trust[a]	Neutral[a]
DNR, Conservation district employees, University extension,	Somewhat Trust[a]	Somewhat Trust[a]	Somewhat Trust[a]
County and State Elected Officials and Local Media	Neutral[a]	Neutral[a]	Neutral[a]
Neighbors and friends; Groups of locally concerned citizens; Chamber of commerce	Neutral[a]	Neutral[a]	Neutral[a]
More conservative national media	Somewhat Distrust[a]	Somewhat Distrust[a]	Neutral[a]
More liberal national media	Neutral[ab]	Neutral[a]	Somewhat Distrust[b]
Family members	Somewhat Trust[a]	Somewhat Trust[a]	Somewhat Trust[a]

Conclusions and Implications: Community Leader Support for Bioenergy

- The majority of the respondents in all three regions indicated that it was at least somewhat important to them to work on bioenergy development.

- While national public opinion polls show considerable skepticism about corn bioethanol, community leaders from the ethanol belt were the most supportive of bioenergy.

- Support is very high in the other regions for wind, solar, and municipal waste to energy.

- This correlates with where the process of siting was most conducive.

Conclusions and Implications: Communication

- A couple of notes on communication

- For UP and NLP of Michigan, bioenergy needs to be framed as part of sustainable management of natural resources.

- University Extension, State Department of Natural Resources, Conservation District Employees consistently trusted.

Thanks for Listening. Questions?

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