

# **Growing Toward A Solution For Energy & Climate Challenges**

April 30, 2013

**Minnesota Renewable Energy Roundtable  
Prepared by the  
Minnesota Bio- Fuels Association  
Minneapolis**



# **Environmental Issues**

## **Biofuels/Ethanol Solves a Problem Short History, Minnesota**

- 1992 – Oxygenated fuel to address CO problem
- 1993 – Law amended to require use statewide by 1997
- 2000 – MTBE banned
- 2007 – Cellulosic goal added
- 2012 – Extended Statute to 2014, Charge Task Force



# **Task Force Charged**

## **Makes Policy Recommendations**

### **See January 10, 2013 Report to NextGen Energy Board**

- Stakeholders included researchers and producers
- Focused on fuels for spark ignition engines
- Recommendations
  - ▶ Keep strong the investment in the ethanol industry
  - ▶ Expand role for more biofuels
  - ▶ Displace more petroleum



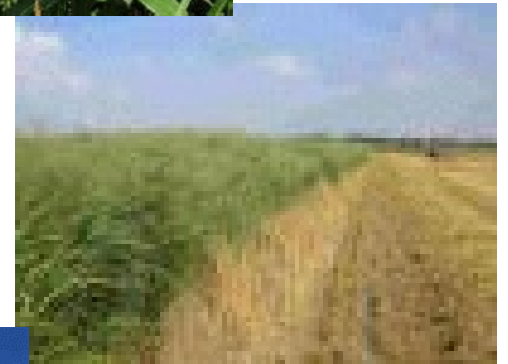
# Continued...Task Force Charged

## . . . Recommendations

- Displace more petroleum
  - 30% by 2025 (Aggregate volume)
    - Ethanol
    - Biobutanol
- Call to provide incentives for advanced biofuels
- Creates advisory group going forward
  - Focus on deployment, availability to consumers...



What are we talking  
about . . .



# Importance of Renewable Biofuels Going Forward

## International Energy Agency April 2013

- GHG Emissions
  - ▶ ~ 7% progress in 40 years
  - ▶ Renewables working, yet problems with availability
  - ▶ Progress hindered as carbon intensity increases
    - “Dirty” energy has been on the rise (See Report)
  - ▶ To stabilize climate
    - By 2020, reduce 6%
    - By 2050, reduce 64%



# Importance of Renewable Biofuels Going Forward

- IEA on Biofuels
  - Double production
    - Advanced
    - Conventional
  - Work on deployment, availability!
- Michael Wang, Well-to-wheels energy use and greenhouse gas emissions of ethanol from corn, sugarcane and cellulosic biomass for US use, December 2012.
  - Corn starch: 48% to 57% fewer GHG emissions relative to petro gasoline





Firefox U.S. States - U.S. Energy Information Administration

www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep\_fuel/html/fuel\_mg.html

Most Visited Getting Started

energy information administration minnesota gasoline

Bookmarks

State	Consumption								Expenditures	
	Commercial	Industrial	Transportation	Total	Commercial	Industrial	Transportation	Total	Prices <sup>a</sup>	Commercial
	Thousand Barrels				Trillion Btu				Dollars per Million Btu	Million Dollars
Alabama	44	636	60,612	61,293	0.2	3.3	316.3	319.8	27.12	6.3
Alaska	128	194	6,312	6,633	0.7	1.0	32.9	34.6	31.60	21.0
Arizona	126	875	60,974	61,975	0.7	4.6	318.2	323.4	26.97	17.7
Arkansas	71	765	32,820	33,656	0.4	4.0	171.3	175.6	27.35	10.2
California	259	5,669	339,231	345,160	1.4	29.6	1,770.1	1,801.0	30.02	40.6
Colorado	43	943	49,335	50,321	0.2	4.9	257.4	262.6	27.21	6.1
Connecticut	41	481	34,147	34,669	0.2	2.5	178.2	180.9	28.99	6.2
Delaware	7	169	9,992	10,168	(s)	0.9	52.1	53.1	28.08	1.0
Dist. of Col.	271	34	2,496	2,801	1.4	0.2	13.0	14.6	29.57	41.8
Florida	946	1,926	193,129	196,001	4.9	10.0	1,007.7	1,022.7	26.82	132.4
Georgia	71	1,299	110,078	111,448	0.4	6.8	574.4	581.5	26.29	9.7
Hawaii	12	147	10,969	11,128	0.1	0.8	57.2	58.1	33.75	2.1
Idaho	24	606	15,380	16,010	0.1	3.2	80.3	83.5	28.50	3.5
Illinois	185	2,054	109,094	111,333	1.0	10.7	569.3	580.9	28.04	27.1
Indiana	645	1,302	69,700	71,647	3.4	6.8	363.7	373.9	26.99	90.8
Iowa	2,139	1,353	37,474	40,967	11.2	7.1	195.5	213.8	27.61	308.2
Kansas	54	626	29,951	30,631	0.3	3.3	156.3	159.8	27.34	7.7
Kentucky	43	746	50,397	51,185	0.2	3.9	263.0	267.1	28.10	6.3
Louisiana	43	1,137	53,245	54,425	0.2	5.9	277.8	284.0	27.13	6.0
Maine	19	309	15,620	15,948	0.1	1.6	81.5	83.2	28.72	2.9
Maryland	34	791	62,057	62,882	0.2	4.1	323.8	328.1	28.20	5.0
Massachusetts	146	948	64,822	65,916	0.8	4.9	338.2	343.9	28.28	21.5
Michigan	79	1,204	104,430	105,713	0.4	6.3	544.9	551.6	27.37	11.3
Minnesota	630	1,319	56,695	58,644	3.3	6.9	295.8	306.0	28.78	94.6

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Motor Gasoline Consumption, Price, and Expenditure Estimates, 2011

Consumption: 2,381,190,000 gallons



Firefox | eia Monthly Energy Review - Energy Inform... | www.eia.gov/totalenergy/data/monthly/#renewable

Most Visited | Getting Started

### Renewable Energy

Topic [PDF \(entire section\)](#)

10.1 Production and Consumption by Source	<a href="#">PDF</a> <a href="#">XLS</a> <a href="#">CSV</a> <a href="#">GRAPH</a>
10.2a Consumption: Residential and Commercial Sectors	<a href="#">PDF</a> <a href="#">XLS</a> <a href="#">CSV</a> <a href="#">GRAPH</a>
10.2b Consumption: Industrial and Transportation Sectors	<a href="#">PDF</a> <a href="#">XLS</a> <a href="#">CSV</a> <a href="#">GRAPH</a>
10.2c Consumption: Electric Power Sector	<a href="#">PDF</a> <a href="#">XLS</a> <a href="#">CSV</a> <a href="#">GRAPH</a>
10.3 Fuel Ethanol Overview	<a href="#">PDF</a> <a href="#">XLS</a> <a href="#">CSV</a>
10.4 Biodiesel Overview	<a href="#">PDF</a> <a href="#">XLS</a> <a href="#">CSV</a>

Notes:

Section Notes [PDF](#)

Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy [PDF](#)

- International Petroleum
- Environment
- Appendices (heat rates, conversion factors, and more)

[Total Energy Experts](#)

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3/18/2013



Ethanol Currently Displacing ~ 10% to 11% (230mm gallons) of petro in Minnesota // Biofuel going forward: need 14% by 2015, 18% by 2017, 25% by 2020, 30% by 2025

# Growing Toward A Solution For Energy & Climate Challenges

Why wait?

- Consider immediate availability of E15
  - Approved by US EPA (substantially similar)
    - 2001 and newer cars & light duty vehicles
  - High octane
  - \$0.07 to \$0.10 less than regular
- Displace another ~100,000,000 gallons of petro - “right here, right now!” – Immediately cut into GHG emissions



# **For More Information, Contact the Minnesota Bio-Fuels Association**

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