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Details:

(FORM UPDATED: 07/12/2010)

WISCONSIN STATE LEGISLATURE ...
PUBLIC HEARING - COMMITTEE RECORDS

2005-06
(session year)

Assembly
(Assembly, Senate or Joint)

Committee on ... Agriculture (AC-Ag)

COMMITTEE NOTICES ...

- Committee Reports ... **CR**
- Executive Sessions ... **ES**
- Public Hearings ... **PH**
- Record of Comm. Proceedings ... **RCP**

INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

- Appointments ... **Appt**
- Clearinghouse Rules ... **CRule**
- Hearing Records ... bills and resolutions
  (**ab** = Assembly Bill) (**ar** = Assembly Resolution) (**ajr** = Assembly Joint Resolution)
  (**sb** = Senate Bill) (**sr** = Senate Resolution) (**sjr** = Senate Joint Resolution)
- Miscellaneous ... **Misc**

AB 15 ?
Date ?

clean air 4 clean water
a cleaner environment

Wisconsin Ethanol Producers Association

11010 161st Street Chippewa Falls, WI 54729
Telephone: 715/382-5268
Fax: 715/382-5325
e-mail: bonanza@execpc.com

Dear Governor Doyle and Legislators:

We are grateful for bipartisan support that the Governor and Legislators have provided in supporting ethanol and its byproducts to reduce energy dependency and provide the state with an alternative energy supply. Currently there are now three ethanol plants producing about 120 million gallons of ethanol per annum. Also, two more plants under construction and when they begin production the state will be producing about 200 million gallons of ethanol per annum. We are now requesting that your good legislative efforts be directed towards enacting a required 10% blend of ethanol in all grades of gasoline sold in the state. We suggest that the legislation emulate the legislation enacted by the State of Minnesota in 1997 as it has many exemptions to satisfy e.g. non-traditional engines by providing one dispenser pump at each retail station that dispenses non-oxygenated gasoline. Also, we propose that the law would not be implemented until such time that the excise taxes received by the state from the Federal High Way Trust Fund would be the same for ethanol blended fuel as unblended fuel.

We are making this legislative request for the following:

- It will decrease the dependency on Persian Gulf oil imports
- It will decrease the balance of payment deficit which are running about 500 million dollars per month and about one-half is from oil imports
- It will improve the environment by reducing auto exhaust emissions by about 30%
- It will provide jobs in the state to grow local economies and it increases the state domestic product
- It will increase farm earnings and expand agribusiness
- It will provide byproducts that create associated value added business
- It will reduce the cost of gasoline by about 6 cents per gallon at the current costs
- It will provide the state with 5 new ethanol plants with a total capital investment of about 280 million dollars

Fundamentally, the question is, is it better to continue to increase our dependency on unreliable Persian oil or is it better to use ready refined ethanol produced by local state farmer?

We are eager to assist you in every way to ensure enactment of this critically important legislation and urge your kind consideration.

Sincerely,

The Kiplinger Agriculture Letter

FORECASTS FOR AGRIBUSINESS DECISIONMAKERS • Vol. 75, No. 15

Dear Client: Washington, July 9, 2004

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Ethanol's economic profile is changing. Big leaps in energy efficiency help, eliminating one of the persistent objections to the alternative fuel for a quarter century.

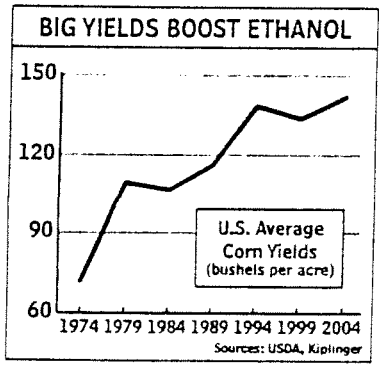
ENERGY

Today, its efficiency ratio is 1.67, according to USDA. It takes 45,800 Btu to make a gallon of ethanol, including energy needed to plant, raise and harvest the corn. A gallon yields 76,300 Btu, including a credit for energy used to produce salable by-products.

That's nearly double gasoline's ratio of 0.81 and the diesel efficiency ratio of 0.84 after extracting, refining and transporting.

And a switch over the 1980s, when ethanol's ratio was under 1.0. The bare energy used to convert corn to ethanol then: Around 120,000 Btu.

What's behind the energy gain? More-efficient production of corn. Today's yield of around 140 bu./acre is a third more than the average of 20 years ago. At the same time, more-targeted applications of nitrogen and other chemicals plus larger trucks, tractors and other farm equipment have helped hold down energy use. So...corn per Btu of energy is rising.



Also, advances in the processing of ethanol: Much larger plants with economies of scale. Recycling of the steam created in distilling to feed power plants. Better heating systems. Since 1981, plants have trimmed the energy used per gallon of output by about three-fifths. Nanofiltration to separate water and ethanol will trim 5% more from energy use in the future.

And more-valuable by-products: Distillers grain, used as a high-protein feed for livestock, plus corn gluten, oil and other food additives. Today, 40% of energy used in the process of converting corn to ethanol is attributed to by-products, which are being produced more efficiently, using 7000 fewer Btu per gallon of ethanol output in 2001 than in 1995.

So does ethanol still need a 52¢ a gallon federal tax credit? Yes. Energy efficiency is a big part of the equation. But... Costs of production remain higher than for traditional fuels. Ethanol contracts remain 10¢-20¢/gal. higher than spot gasoline prices. The scene may change if oil prices climb further. But ethanol advocates won't act hastily. They point out that government supports for oil... tax credits, protections for foreign oil...are greater than for ethanol.

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Wisconsin Transportation Energy Use, in Gallons, by Type of Fuel, 1970-2003

(Millions of Gallons)

Despite higher prices, an increasing state population and stagnant motor vehicle fuel efficiencies resulted in a slight increase in transportation fuel use in 2003.

Year	Motor Gasoline[a]	Ethanol	Diesel Fuel	Aviation Gasoline	Aviation Jet Fuel	Distillate & Residual Rail	Distillate & Residual Vessel	LPG	Total[b]
1970	1,889.1		124.8	5.9	56.7	49.2	17.0	NA	2,142.7
1975	2,142.8		205.1	6.7	72.4	36.6	14.1	NA	2,477.7
1980	2,130.7		307.1	7.0	81.4	44.8	14.8	NA	2,585.8
1985	2,009.7	1.5	356.9	4.5	62.2	27.1	7.4	NA	2,469.3
1990	2,124.4	8.3	471.1	5.0	81.6	28.6	9.0	NA	2,728.0
1991	2,112.0	20.5	494.8	4.9	87.9	29.0	7.7	NA	2,756.8
1992	2,174.4	16.0	518.7	4.9	85.9	28.5	7.8	NA	2,836.2
1993	2,231.3	12.7	552.1	5.3	80.4	31.4	6.8	NA	2,920.0
1994	2,239.0	13.3	587.4	5.5	83.0	34.8	6.8	3.7	2,973.5
1995	2,254.1	48.5	612.5	5.6	78.6	35.1	6.9	6.1	3,047.4
1996	2,307.8	56.8	624.6	5.7	82.0	38.4	3.7	6.0	3,125.0
1997	2,345.5	57.5	657.6	5.8	84.0	34.1	0.0	5.8	3,190.3
1998	2,398.4	71.5	681.0	5.9	85.0	31.9	0.5	5.7	3,279.9
1999	2,461.5	75.4	696.3	6.1	87.4	37.0	0.0	5.1	3,368.8
2000	2,419.4	93.8	691.2	6.0	87.0	35.9	0.0	5.3	3,338.6
2001	2,438.6	85.9	687.7	5.9	85.0	35.2	0.0	4.6	3,342.9
2002	2,523.0	88.2	698.9	5.9	87.2	36.9	0.0	4.0	3,444.1
2003[p]	**2,544.3**	**95.4**	**692.1**	**5.3**	**84.2**	**33.7**	**0.0**	**3.8**	**3,458.7**

[a] Excludes ethanol. See adjacent column for amounts of ethanol mixed with gasoline to form RFG and gasohol.

[b] In addition, in each year from 1994 through 2003, less than 0.4 million gasoline gallon equivalents of compressed natural gas were used for highway transportation in Wisconsin. These amounts are included on page 29 as natural gas sales to the commercial sector.

NA – Not available.

[p] Preliminary estimate.

Source: Wisconsin Department of Commerce, Bureau of Petroleum Inspection, *Report on Petroleum Products Inspected and Delivered to Wisconsin* (1970-1995); Wisconsin Department of Revenue, *Motor Vehicle Fuel Tax Statistics* (1970-2003) and *Petroleum Supply Annual*, DOE/EIA-3340 (1982-2003).

Wisconsin Petroleum Use, in Gallons, by Type of Product 1970-2003

(Millions of Gallons)

In 2003, use of gasoline, middle distillate and LPG increased, with most of the increase coming from gasoline. Middle distillate and LPG use increased because of their increased use as a winter heating fuel. There were 5.5 percent more heating degree days in 2003 than in 2002.

Year	Gasoline[a,b]	Jet Fuel	Light Distillate	Middle Distillate	Residual Fuel Oil	LPG[c]	Total
1970	1,953.0	56.7	260.2	889.7	146.2	269.0	3,574.8
1975	2,203.5	72.4	125.0	962.8	88.8	272.6	3,725.1
1980	2,170.5	81.4	83.4	899.4	73.5	264.1	3,572.3
1985	2,033.3	62.2	99.2	798.2	15.5	241.5	3,249.9
1990	2,139.5	81.6	80.1	882.2	52.7	260.2	3,496.3
1995	2,266.6	78.6	72.3	946.4	50.5	323.8	3,738.2
1996	2,319.8	82.0	77.3	982.2	45.2	357.9	3,864.4
1997	2,357.3	84.0	79.4	990.5	45.6	332.9	3,889.7
1998	2,410.3	85.0	80.8	976.6	32.8	285.9	3,871.4
1999	2,473.7	87.4	82.9	1,024.3	33.1	307.7	4,009.1
2000	2,431.2	87.0	82.2	1,017.4	35.4	317.5	3,970.7
2001	2,450.1	85.0	82.9	1,025.6	37.2	306.1	3,986.9
2002	2,534.7	87.2	82.3	1,020.3	28.8	314.7	4,068.0
2003[p]	**2,555.5**	**84.2**	**82.0**	**1,026.7**	**26.4**	**322.6**	**4,097.4**

[a] Includes both vehicle and aviation gasoline.

[b] Does not include the ethanol component of reformulated gasoline or gasohol; refer to page 27 of this chapter and the Renewable Energy chapter.

[c] Liquefied petroleum gas (propane).

[p] Preliminary estimates.

Source: Wisconsin Department of Commerce, Bureau of Petroleum Inspection, *Report on Petroleum Products Inspected and Delivered to Wisconsin* (1970-1995); Wisconsin Department of Revenue, *Collection of Petroleum Inspection Fees* (1996-2003) and *Fuel Tax Statistical Report* (1996-2003) and Form EIA-782C, "Monthly Report of Petroleum Products Sold into States for Consumption" (1983-2003).

Petroleum Product Deliveries to Wisconsin, by Month 2003

(Thousands of Gallons)

In general, gasoline sales peaked during the summer vacation months, while sales of fuels used for heating (off-road distillate and LPG) peaked during winter months.

Month	Residual	Off-Road Distillate[a]	On-Road Distillate[b]	LPG[c]	Gasoline[d,e]
January	2,124	54,060	50,945	53,387	204,672
February	3,433	41,679	50,159	48,649	179,526
March	2,086	43,962	52,240	29,247	186,848
April	2,763	47,979	55,199	18,345	241,839
May	1,838	39,667	59,154	12,972	215,354
June	1,060	43,181	56,366	11,618	224,615
July	2,214	31,818	61,928	12,794	225,445
August	1,767	43,256	60,167	14,793	292,410
September	1,323	38,313	62,931	19,061	186,898
October	1,575	41,449	64,440	27,342	205,730
November	1,979	37,138	57,718	29,559	180,722
December	4,198	43,679	60,809	44,806	206,189
Total	**26,360**	**506,180**	**692,057**	**322,571**	**2,550,247**

[a] Kerosene, No. 1 and No. 2 fuel oil used for heating and processing, and kero jet and aviation gasoline used for flying.

[b] No. 2 and No. 1 oil used as an on-road diesel fuel.

[c] Liquefied petroleum gas (propane).

[d] Vehicle gasoline only; does not include aviation gasoline.

[e] Does not include the ethanol component of reformulated gasoline or gasohol; refer to page 27 of this chapter and the Renewable Energy chapter.

Source: Wisconsin Department of Revenue, *Collection of Petroleum Inspection Fees* (2002) and *Fuel Tax Statistical Report* (2003); U.S. Department of Energy, Form EIA-782C, "Monthly Report of Petroleum Products Sold into States for Consumption" (2003).

Wisconsin Use of Ethanol in RFG, Gasohol and E-85 1994-2003

(Thousands of Gallons)

In 2003, ethanol use in Wisconsin increased 8.1 percent primarily because of increased sales of gasohol.

Year	RFG[a]	Gasohol[b]	E-85[c]	Total
1994	NA	13,331	9	13,340
1995	38,048	10,461	17	48,526
2000	70,724	23,080	43	93,847
2001	67,449	18,458	32	85,939
2002	71,152	17,026	48	88,226
2003	**71,755**	**23,536**	**76**	**95,367**

[a] RFG is reformulated gasoline. Starting January 1, 1995, the federal government mandated its sale in six southeastern Wisconsin counties to comply with the Clean Air Act. Ethanol can be used to provide the oxygenate required in RFG.

[b] Gasohol is a motor fuel blend consisting of 10 percent ethanol and 90 percent conventional gasoline (non RFG).

[c] E-85 is a motor fuel consisting of 85 percent ethanol and 15 percent gasoline.

NA – Not Available.

Source: Wisconsin Department of Revenue; Wisconsin Department of Administration, Division of Energy; West Shore Pipeline.

Sales of Reformulated Gasoline and Gasohol 1985-2003

(Thousands of Gallons and Percent of Total Motor Fuel Sold)

Year	Reformulated		Gasohol	
1985	NA	NA	15,069	(0.8%)
1990	NA	NA	82,961	(4.0)
1995	565,922	(24.4%)	104,614	(4.5)
2000	707,240	(28.1)	230,799	(9.2)
2001	674,486	(26.7)	184,583	(7.3)
2002	711,515	(27.2)	170,259	(6.5)
2003	**717,545**	**(27.1)**	**235,364**	**(8.9)**

NA – Not available.

Source: Wisconsin Department of Commerce, Bureau of Petroleum Inspection, *Report on Petroleum Products Inspected and Delivered to Wisconsin* (1985-1995); Department of Revenue, "Motor Vehicle and General Aviation Fuel Tax Statistical Report" (1985-2003).

THE REAL COST OF IMPORTED OIL

{A Summary of Washington Times, by Milton Copulus, July 23, 2003)

As the 30th anniversary of the 1973 Arab Oil embargo approaches, the United States finds itself even more vulnerable than it was three decades ago. In 1972, the year before the embargo, U.S. Oil imports were 27.6 percent of consumption. Last month, they stood at 56.8 percent, more than twice the 1972 level.

As long as there is no shortage and prices are within reason, most Americans are indifferent to the level of imports. As long as they do not feel personally affected, however, they remain complacent. What they do not understand is the flood of foreign crude imposes an economic penalty at the gasoline pump. It is a penalty that costs jobs, drains investment capital and inflates the nation's defense burden. It is a cost that we cannot pay forever.

The National Defense Council Foundation has been engaged in a detailed analysis of the "hidden" cost of oil, the cost of lost employment and investment resulting from the diversion of financial resources and the cost of the periodic "oil shocks" the nation has experienced.

When these three elements are combined, they total $304.9 billion annually, nearly six times what we are spending in Iraq.

The breakdown of these elements is instructive.
The most obvious imported-related costs are the expenditures associated with defending the shipment flow of Persian Gulf oil. Roughly $42.8 billion of Central Command's budget goes to defending Persian Gulf oil. When one-time costs and contingency funds are included, the total rises to $49.1 billion. This alone translates an amount equal to adding $1.17 to the cost of a gallon of gasoline.

But that's just that's tip of the iceberg.

The loss of economic activity resulting from the diversion of financial resources is even larger. Direct economic losses come to $36.7 billion annually and indirect to a $123.2 billion for a whopping total of $159.9 billion- each and every year.
To put this in human terms, this loss of economic activity results in:

- A loss of 828,400 jobs in the U.S. economy
- A loss of $13.4 billion in tax revenues and royalty payments that state and federal treasuries do not receive.

An additional element that must be included: The cost of periodic "oil shocks" to the U.S. economy. The NDCF analysis puts the combined cost of the 1973-74, 1978-80 and 1991 "oil shocks" at between $2.3 trillion and $2.5 trillion. Least you think the figures are inflated, Oar Ridge National Laboratories places the figure at $4 trillion. When amortizing these cost over the past three decades if still yields an annual penalty of from $74.8 billion to $82.5 billion.

When all of these elements are taken together, they demonstrate just how expensive imported oil really is. When added to the most recent nominal price for a barrel of imported oil (at $30 a barrel) it can be anticipated that the real prices would be about:

- $101.40 to 103.224 per barrel
- $5.01 to 5.19 for a gallon of imported gasoline
- $90.18 to $93.42 to fill an average auto gasoline tank.

The economic toll that oil imports take on the U.S. economy can only be eliminated if the need to import oil itself disappears. The time to get serious about achieving this goal is now. Otherwise, all future holds is in greater peril in both economic and military terms and a further drain on the U.S. and states economy.

Federal #	Terminal Name	Address	City	Ethanol	Offsite Availability
T-39-WI-3064	Cenex Energy	2331 N Prairie View Rd	Chippewa Falls	Yes	N/A
T-39-WI-3082	TransMontaigne - Chippewa Falls	3689 State Hwy 124	Chippewa Falls	No	Yes
T-39-WI-3066	CITGO - Green Bay	1391 Bylsby Avenue	Green Bay	No	Yes
T-39-WI-3077	ExxonMobil Oil Corp.	410 Prairie Ave	Green Bay	No	Yes
T-39-WI-3070	Halron Oil Co., Inc.	2020 N Quincy St	Green Bay	No	Yes
T-39-WI-3075	MAPLLC Green Bay	1031 Hurlbut Street	Green Bay	No	Yes
T-39-WI-3078	Shell Oil Products US	1445 Bylsby Ave	Green Bay	No	Yes
T-39-WI-3061	U S Oil - Green Bay Fox	1124 North Broadway	Green Bay	No	Yes
T-39-WI-3091	U.S. Oil Co. - Green Bay East	1910 N. Quincy St.	Green Bay	No	Yes
T-39-WI-3089	U.S. Oil Co. - Green Bay West	1075 Hurlbut Ct	Green Bay	Yes	N/A
T-39-WI-3071	Flint Hills Resources, LP-Junction City	Junction US 10 & 34N	Junction City	Yes	N/A
T-39-WI-3069	Terminal Oil Group Ltd.	3910 Terminal Road	Madison	Yes	N/A
T-39-WI-3088	U.S. Oil Co. - Madison	4402 Terminal Dr	Madison	Yes	N/A
T-39-WI-3065	Cenex Energy	4103 Triangle St	McFarland	Yes	N/A
T-39-WI-3083	Center Terminal Company - Madison	4009 Triangle St Hwy 51 S	McFarland	Yes	N/A
T-39-WI-3067	CITGO - McFarland	4606 Terminal Drive	McFarland	No	Yes
T-39-WI-3079	ExxonMobil Oil Corp.	4516 Sigglekow Road	McFarland	No	Yes
T-39-WI-3072	Flint Hills Resources, LP-Madison	4505 Terminal Drive	McFarland	Yes	N/A
T-39-WI-3092	Aircraft Service Intern'l Group	4792 S Howell Ave	Milwaukee	NA - Airport	N/A
T-39-WI-3062	BP Products North America Inc	9101 North 107th Street	Milwaukee	Yes	N/A
T-39-WI-3068	CITGO - Milwaukee	9235 North 107th Street	Milwaukee	Yes	N/A
T-39-WI-3073	Flint Hills Resources, LP-Milwaukee	9343 North 107th Street	Milwaukee	Yes	N/A
T-39-WI-3081	Kaneb Terminals-STO-Milwaukee	1626 South Harbor Drive	Milwaukee	Yes	N/A
T-39-WI-3076	MAPLLC Milwaukee	9125 North 107th St	Milwaukee	Yes	N/A
T-39-WI-3090	U S Oil Co - Milwaukee Central	9451 North 107th Street	Milwaukee	Yes	N/A
T-39-WI-3084	U.S. Oil Co. - Milwaukee	9135 North 107th Street	Milwaukee	Yes	N/A
T-39-WI-3086	U.S. Oil Co. - Milwaukee-North	9521 North 107th Street	Milwaukee	Yes	N/A
T-39-WI-3087	Magellan Pipeline Company, L.P.	2007 Old Highway 51	Mosinee	No	No
T-39-WI-3080	Murphy Oil USA, Inc. - Superior	2407 Stinson Ave	Superior	Yes	N/A
T-39-WI-3074	Flint Hills Resources, LP-Waupun	Route Two	Waupun	Yes	N/A
T-41-MN-3416	Magellan Pipeline Company, L.P.	1331 Hwy 42 Southeast	Eyota, MN	Yes	N/A
T-41-MN-3403	Kaneb Pipe Line - Roseville	2288 West County Road C	Roseville, MN	Yes	N/A
T-41-MN-3402	BP Products North America Inc	2 Miles East of U S 16	Spring Valley, MN	Yes	N/A
T-41-MN-3415	Magellan Pipeline Company, L.P.	2451 W County Rd C	St Paul, MN	Yes	N/A
T-41-MN-3404	MAPLLC Refinery St. Paul	100 West Third Street	St. Paul Park, MN	Yes	N/A
T-41-MN-3407	Flint Hills Resources, LP-Pine Bend	Junction Highways 52 & 55	St. Paul, MN	Yes	N/A
T-42-IA-3458	BP Products North America Inc	15437 Olde Highway Rd.	Dubuque, IA	Yes	N/A
T-42-IA-3460	Magellan Pipeline Company, L.P.	8038 St Joe's Prairie Rd	Dubuque, IA	No	Yes
T-36-IL-3315	Buckeye Terminals, LLC - Argo	8600 West 71st. Street	Argo, IL	Yes	N/A
T-36-IL-3305	Kinder Morgan Liquids Terminals LLC	8500 West 68th Street	Argo, IL	Yes	N/A
T-36-IL-3304	CITGO - Mt. Prospect	2316 Terminal Drive	Arlington Heights, IL	Yes	N/A
T-36-IL-3311	ExxonMobil Oil Corp.	2312 Terminal Drive	Arlington Heights, IL	Yes	N/A
T-36-IL-3307	MAPLLC Mt. Prospect	3231 Busse Road	Arlington Heights, IL	Yes	N/A
T-36-IL-3318	CITGO - Des Plaines	2304 Terminal Drive	Des Plaines, IL	Yes	N/A
T-36-IL-3316	Shell Oil Products US	1605 E. Algonquin Road	Des Plaines, IL	Yes	N/A
T-36-IL-3301	BP Products North America Inc	2201 South Elmhurst Rd	Des Plaines, IL	Yes	N/A
T-36-IL-3302	BP Products North America Inc	4811 South Harlem Avenue	Forest View, IL	Yes	N/A
T-36-IL-3320	Magellan Pipeline Company, L.P.	10601 Franklin Avenue	Franklin Park, IL	Yes	N/A
T-36-IL-3317	CITGO - Lemont	135th & New Avenue	Lemont, IL	Yes	N/A
T-36-IL-3375	ExxonMobil Oil Corporation	12909 High Road	Lockport, IL	Yes	N/A
T-36-IL-3306	Buckeye Terminals, LLC - Rockford	1511 South Meridian Road	Rockford, IL	Yes	N/A
T-36-IL-3308	MAPLLC Rockford	7312 Cunningham Road	Rockford, IL	Yes	N/A

ETHANOL
A BETTER CHOICE

A BETTER CHOICE FOR THE ENVIRONMENT

- Ethanol is made from corn and corn is a renewable resource that comes from farms
- Ethanol reduces air pollution by cutting carbon monoxide and hydrocarbon emissions up to 30%
- Ethanol reduces the formation of ozone, which can lead to global warming

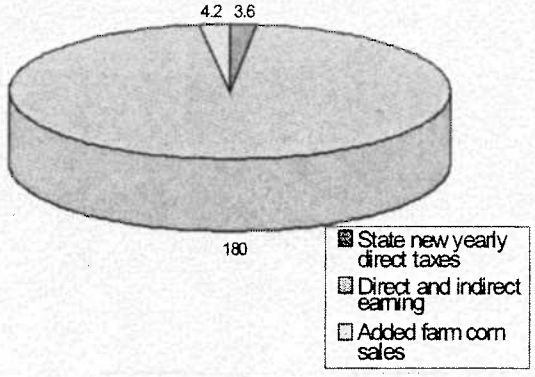
A BETTER CHOICE FOR YOUR ENGINE

- Ethanol boosts fuel's octane by an average of two points
- Ethanol-blended gasoline burns cleaner for a smoother running engine
- Ethanol blended up to 10% is approved by every auto manufacturer in the world under warranty coverage

A BETTER CHOICE FOR THE ECONOMY

* Ethanol reduces foreign oil dependency and decreases the export of U.S. dollars
* One acre of corn can replace about ten barrels of oil

Economic Impact of an Ethanol Plant Producing 40 Million Gallons Of Ethanol in Millions of Dollars



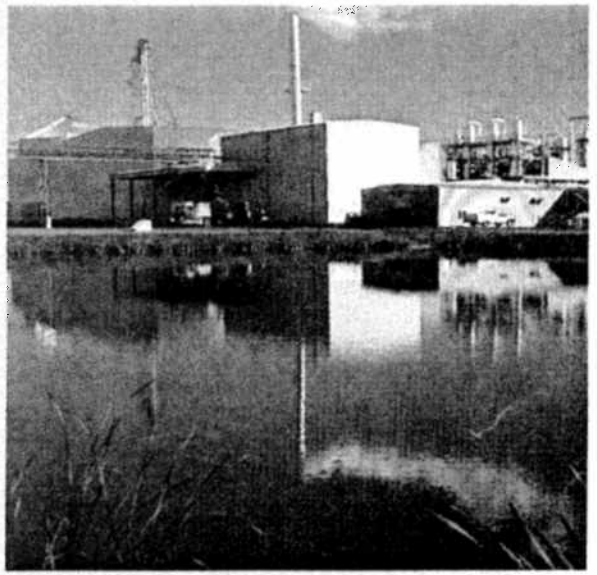
<u>General impact to the country and Wisconsin</u>

- Reduction of 40 million gallons per year of foreign oil.
- Overall creation of about 9,200 new jobs.

clean air 4 clean water
a cleaner environment
Wisconsin Ethanol Producers Association

Wisconsin Ethanol Plants

Ace Ethanol, Stanley
Badger Ethanol, Monroe
Utica Energy, Utica



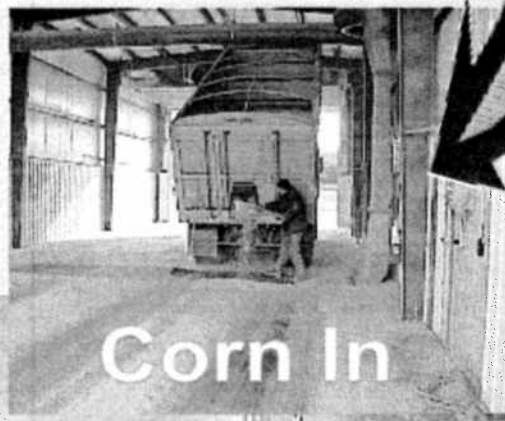
Cleaner Air for Wisconsin
Better Performance
with ethanol
UP TO 10%

The Ethanol Story

Manufacturing and Construction Jobs

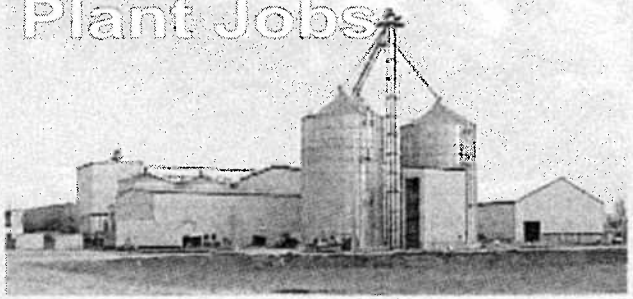
Agriculture Growth

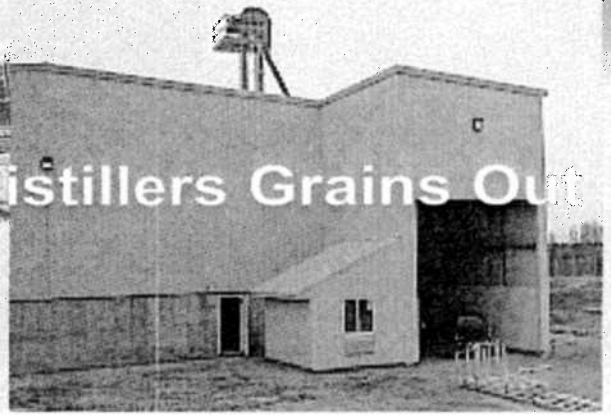
Beef and Dairy Feed



Corn In

Plant Jobs





Ethanol and Distillers Grains Out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Ethanol's Air Impact

Latest Findings

Gary Z. Whitten, Ph.D.
Smog Reyes

Qualifications

- B.S. in Physics, Ph.D. in Gas Phase Chem
- 40+ years in Photochemistry, 30 Smog
- Over 60 peer reviewed papers and talks
- Congressional testimony '88, 1 psi Waiver
- Over 20 times testimony at hearings
- Invented Carbon Bond Mechanism (CB4)
- Studied ethanol in fuels, bakeries, wineries, and consumer products

Five Ethanol Air Quality Areas

- Global Warming
- Fine Particulates
- Carbon Monoxide
- Toxics
- Ozone

Toxics

from Automobiles

- Main toxic is benzene.
  - Mainly from exhaust (90%)
  - Higher aromatics make benzene (65%)
- Ethanol reduces benzene.
  - Dilution
  - Substitution for aromatic octane
  - Cleaner combustion (especially high emitters)
- Acetaldehyde has low potency.
- 13% total mass reduced, 21% as potency
  - When E10 is used (Complex Model)

Global Warming Gases

- Ethanol is the only gasoline component that can reduce GHG gases.
- Latest Argonne study (850,000 cars)
  - Carbon Dioxide
  - Methane (cows)

↳ Eq. of taking these off the road...

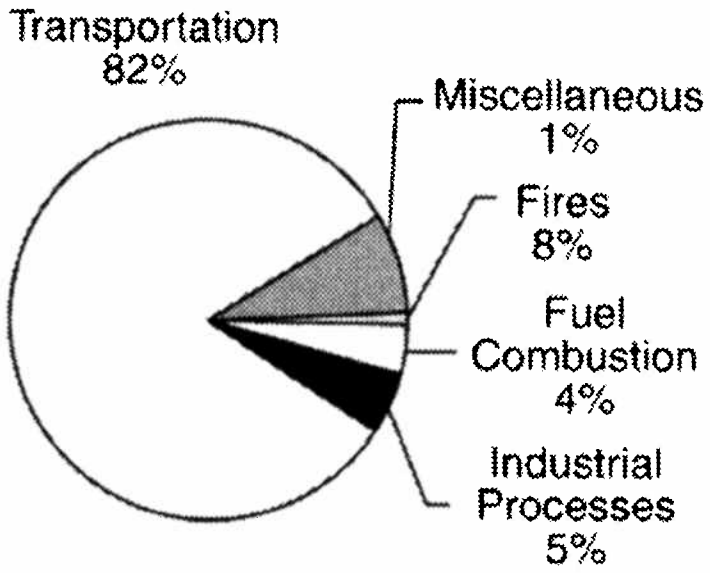
Fine Particulates: $PM_{2.5}$

- Studies show primary emissions reduced by 50 percent using 10 percent blends.
- Primary linked to aromatics which ethanol can replace.
- Primary linked to deposits, which are also linked to aromatics.
- Secondary organic formation linked to aromatics which ethanol can replace.

Carbon Monoxide

- Gas engines main source
- Ethanol significantly reduces emissions
  - Widely recognized
  - On-road 19 percent for high emitters
  - On-road normal emitters --- varies
  - Non-road 22 & 23 percent (4 & 2 stroke)
- Important ozone precursor
- Trends not so good

Figure 2-5. CO emissions by source category, 2002.



EPA Trends Report 2003
National CO Emissions (tons/yr)

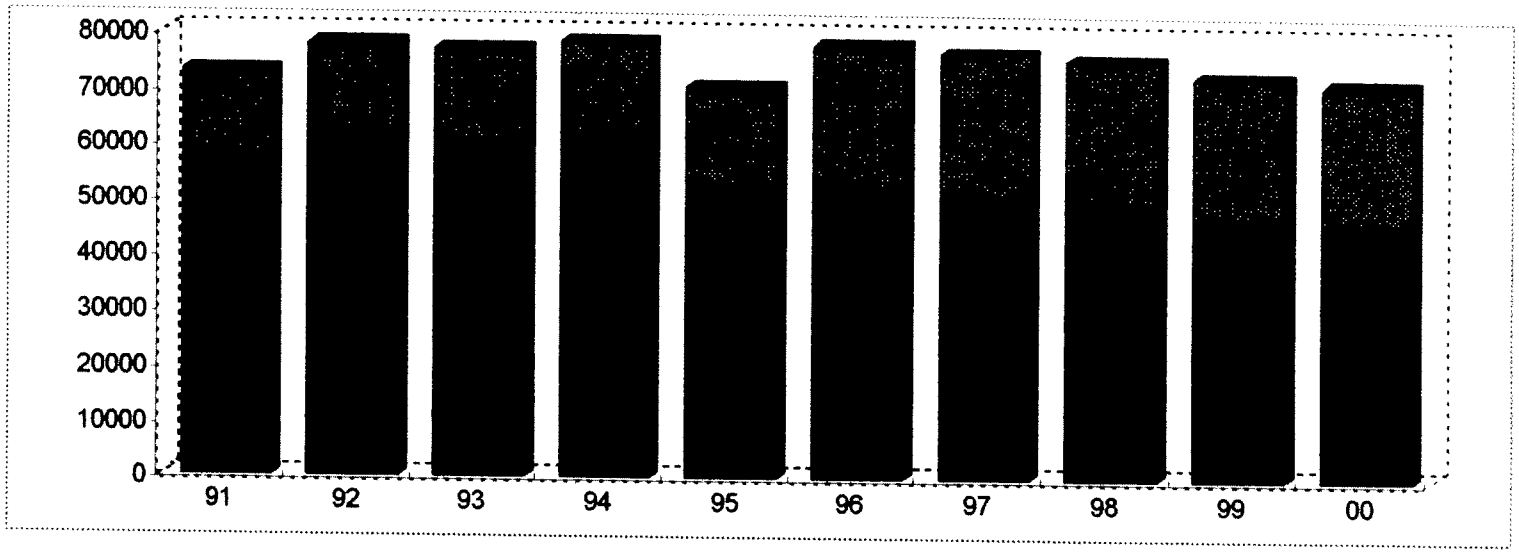
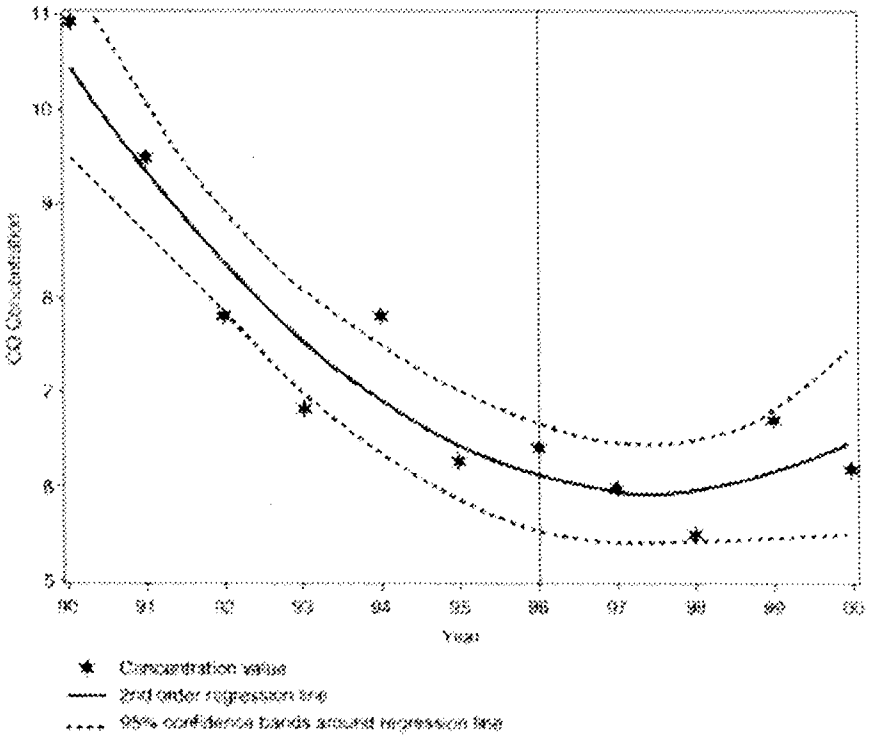
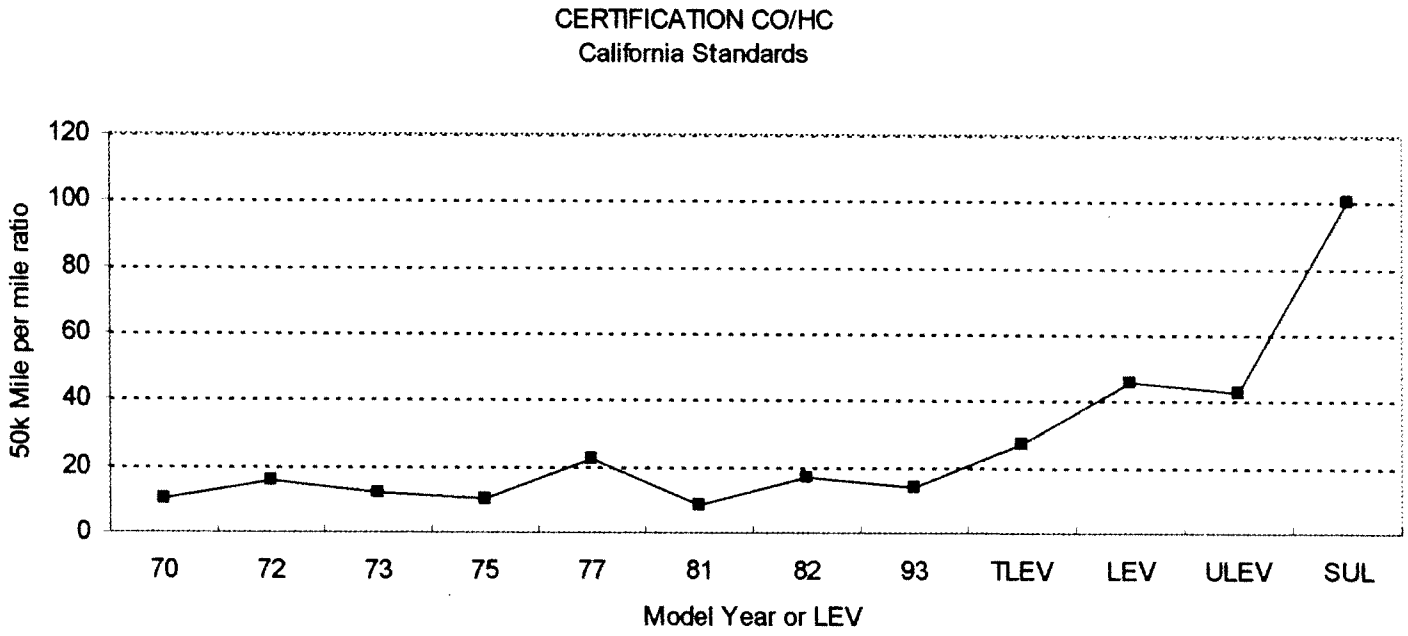


Figure 6. Example of a site with increasing trend in recent years. The vertical line indicates the year that the oxygenated gasoline requirement ended.



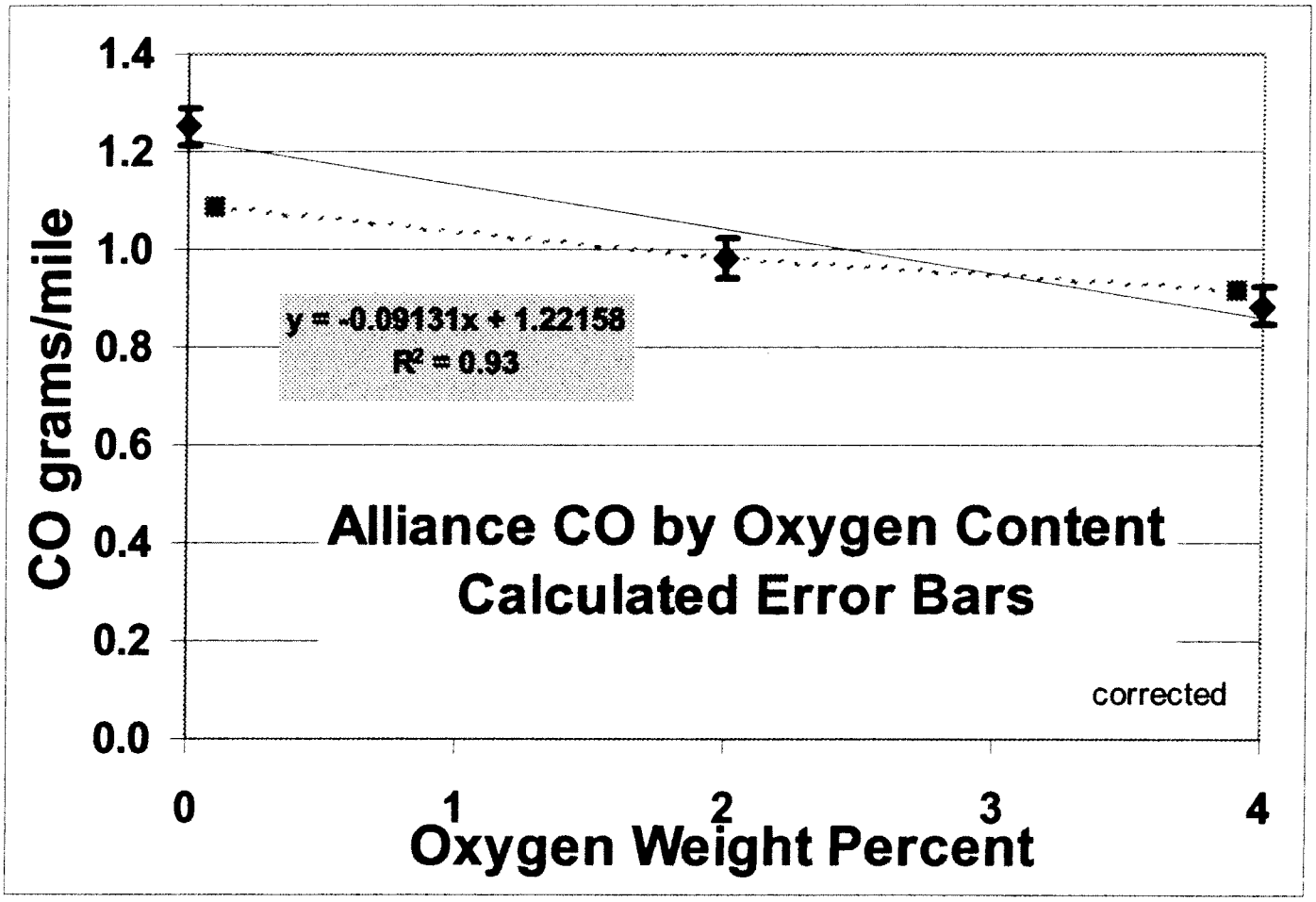

CERTIFICATION CO/HC
California Standards
120
100
80
60
40
20
0
50k Mile per mile ratio
70
72
73
75
77
81
82
93
TLEV
LEV
ULEV
SUL
Model Year or LEV

CO From Normal Emitters

- MOBILE6 and CARB use zero impact from 1994 plus vehicles
  - Yet new data show 26 percent impact from 10 percent ethanol blends
- EPA claims new car oxygen sensors negate impact
  - Air oxygen is not ethanol oxygen
  - Data show zero before but big after catalyst
  - Therefore ethanol seems to help catalyst

CO makes Smog

- In 1999 the National Academy noted that CO accounts for 20% of the combined impact of VOC and CO
- However, that NAS estimate used a simplistic 1-day box model.
- New studies using multi-day grid models show that CO can account for as much as 60%.
  - CO is one molecule, VOC represents many.

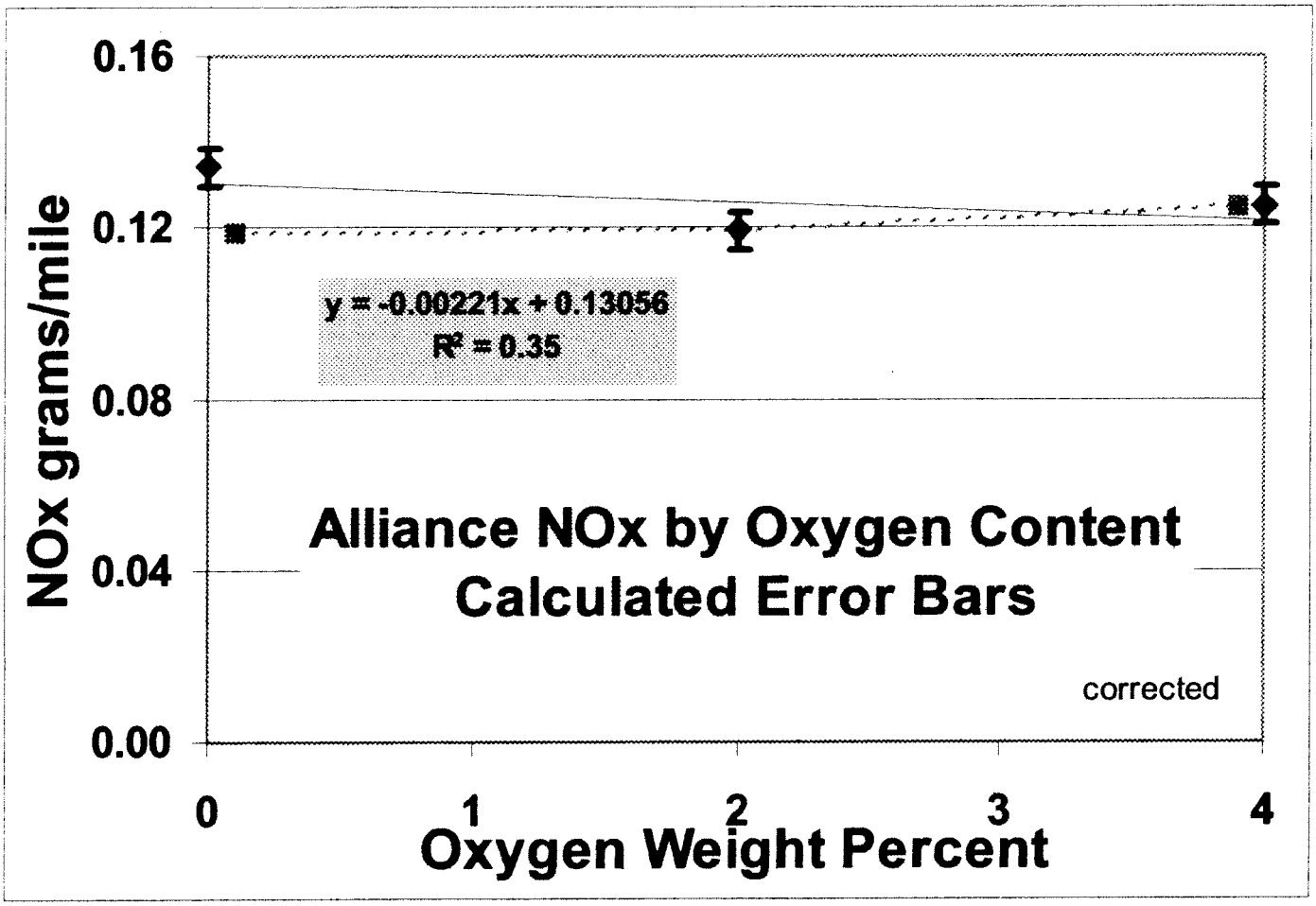

1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
CO grams/mile
y = -0.09131x + 1.22158
R² = 0.93
Alliance CO by Oxygen Content
Calculated Error Bars
corrected
0
1
2
3
4
Oxygen Weight Percent

SMOG

- Conventional gasoline
  - 1 psi RVP waiver with 10 percent ethanol
    - Justified mainly by CO effect
  - MOBILE6 problems for ethanol
    - Uses zero CO impact for new ('94+) vehicles
      - New data show 26 percent CO reduction
    - High RVP impact vs. little data
- Federal Reformulated Gasoline
  - Does not credit CO (except in Chicago-Milwaukee with 0.3 psi RVP credit)

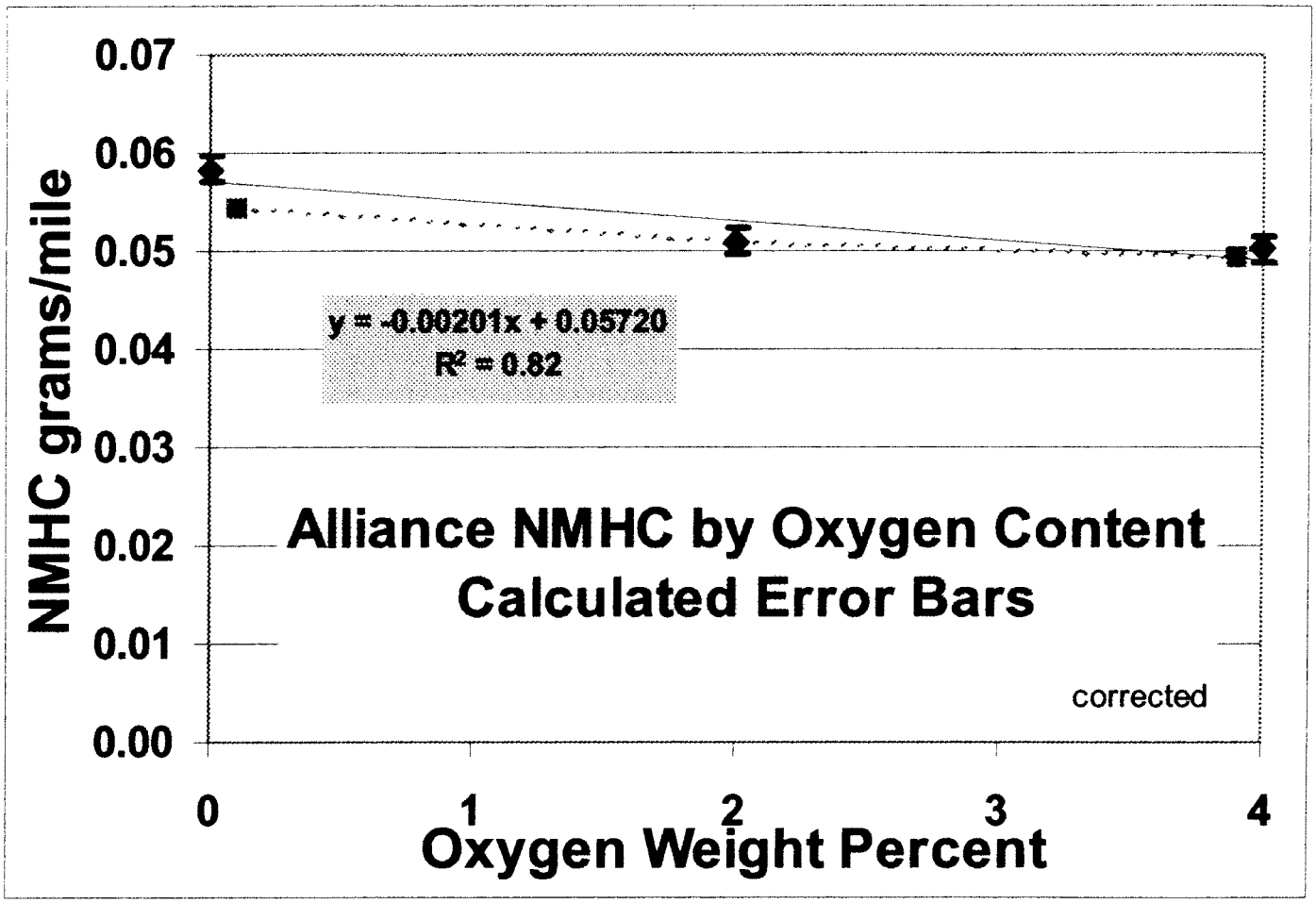
Ethanol and NOx

- New Alliance data show, if anything, a NOx reduction from new vehicles (94+)
- In Calif. 2005 53% of NOx from new veh.
- EPA Complex Model shows neutral NOx with fuel oxygen
  - Comes from cancellation between high and normal emitters (high emitters negative)
- NOx-limited condition in grid models suspect (can be artifact of grid size).


0.16
0.12
0.08
0.04
0.00
NOx grams/mile
y = -0.00221x + 0.13056
R² = 0.35
Alliance NOx by Oxygen Content
Calculated Error Bars
corrected
0
1
2
3
4
Oxygen Weight Percent

New Data on VOC

- New Alliance data show 12 percent VOC exhaust reduction from E10 from 94+ vehicles
- Calif. Predictive Model shows significant VOC (exh.) reduction from ethanol


0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
NMHC grams/mile
y = -0.00201x + 0.05720
R² = 0.82
Alliance NMHC by Oxygen Content
Calculated Error Bars
corrected
0
1
2
3
4
Oxygen Weight Percent

Highlights to Remember

- Ethanol does not increase NOx.
- CO reduction compensates for VOC volatility increase
- Carbon Monoxide is THE biggest single (and growing) contributor to ozone
  - New studies support more CO credit for ethanol
    - Ethanol seems to help the catalyst, not the A/F ratio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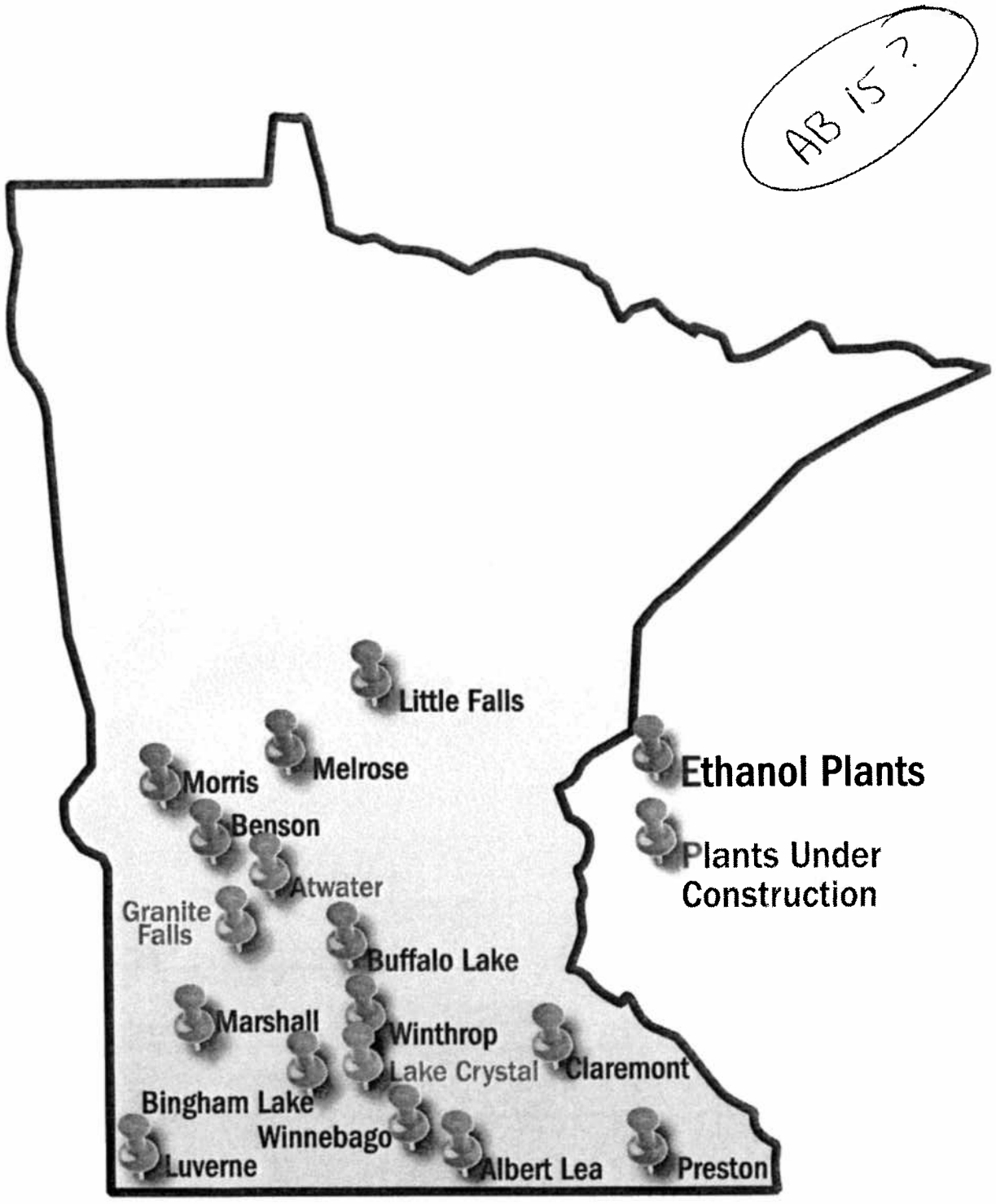
Ethanol Plants in Minnesota

January, 2005

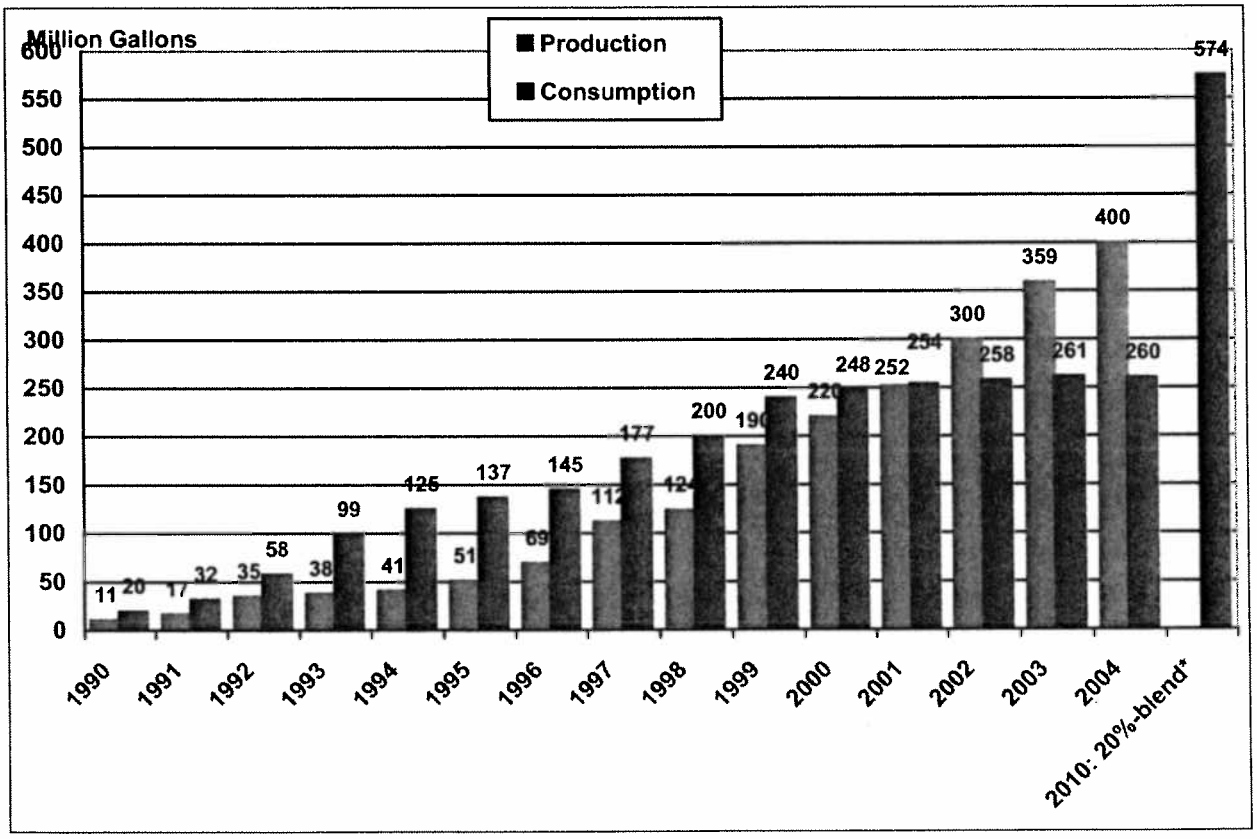


www.mda.state.mn.us/ethanol

Minnesota Ethanol:
Production, Consumption, and Economic Impact

- Minnesota annually produces 400 million gallons of ethanol from 14 plants. About 260 million gallons are consumed in the state and the rest – 140 million gallons or 35% of Minnesota's total annual ethanol production – is exported.
- To meet the requirement of 20%-blend ethanol in all gasoline sold in Minnesota by 2010 as proposed by Governor Pawlenty, Minnesota would need 574 million gallons of ethanol. (This number is based on projected annual gasoline consumption growth trends from 2004 to 2010.)
- The proposed 20%-blend would require Minnesota to increase its ethanol production by 174 million gallons by 2010, about 44% increase over the current production level. The three new ethanol plants currently under construction have a combined production capacity of 150 million gallons, which would come into production by the end of calendar year 2005. That would bring Minnesota's ethanol production capacity to 550 million gallons five years before the 20%-blend implementation.
- Minnesota's ethanol industry generates an estimated $1.36 billion in total economic impacts and 5,300 jobs. The proposed 20%-blend ethanol by 2010 is projected to generate a total of $1.58 billion in economic impacts and 6,157 jobs.

Minnesota Ethanol Production and Consumption



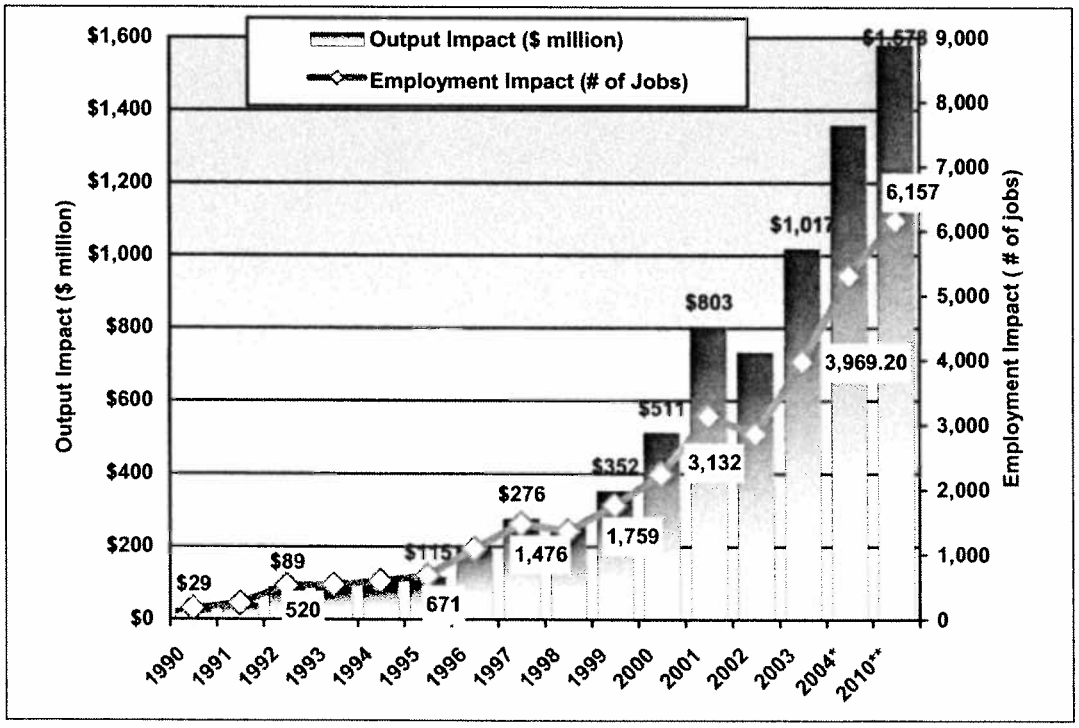
**Estimated consumption based on Gov. Pawlenty's proposed 20%-blend ethanol by 2010.*

Source: AMS, MDA

Minnesota Ethanol: Economic Impact

	Production (Million Gallons)	Output Impact ($ million)	Employment Impact (# of Jobs)
1990	11	28.51	166
1991	17	42.38	247
1992	35	89.30	520
1993	38	90.96	529
1994	41	101.45	590
1995	51	115.26	671
1996	69	203.51	1,089
1997	112	275.66	1,476
1998	124	254.38	1,362
1999	190	352.47	1,759
2000	220	511.48	2,231
2001	252	802.60	3,132
2002	300	732.24	2,858
2003	359	1,017.09	3,969
2004*	400	1,358.05	5,300
2010 (20%-blend)*	***574***	***1,577.68***	***6,157***

Minnesota Ethanol: Output Impact & Employment Impact



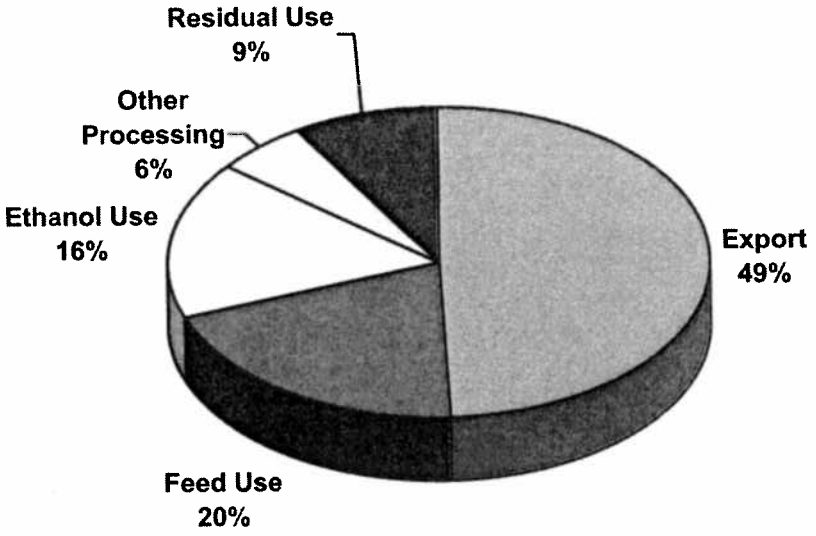
*Projected **Estimates based on Gov. Pawlenty's proposed 20%-blend ethanol by 2010

Source: AMS, MDA

Minnesota Ethanol: Corn Utilization

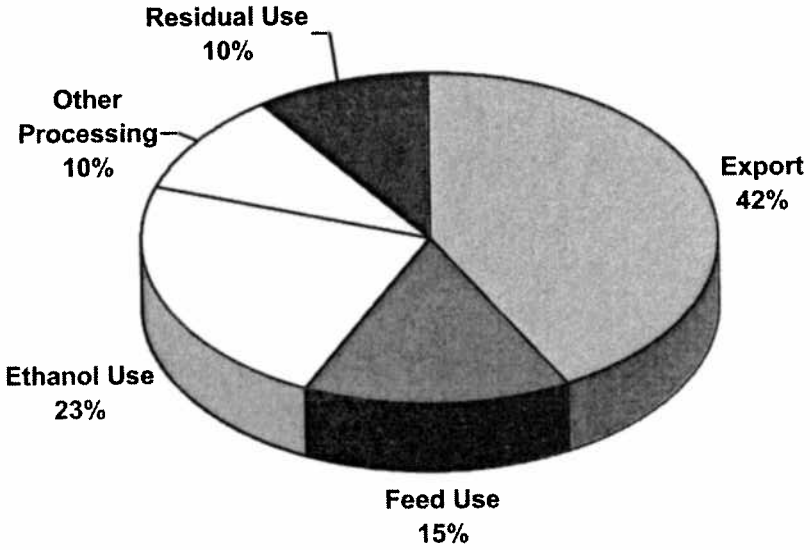
- In 2004, about 160 million bushels of corn was processed into ethanol, or one-sixth of Minnesota's total annual corn crop.
- By 2010, the proposed 20%-blend ethanol would require 230 million bushels of corn. If Minnesota's corn production remains at around 1 billion bushels per year, that would be about a quarter of the annual crop.

MN Corn Utilization (2004)



Source: PRX and MDA

MN Corn Utilization (2010 Projection*)



**Based on PRX data and MDA estimates*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Appendix C Non-Automotive Uses of Ethanol Blends

With the advent of oxygenated fuels programs, questions have arisen about the suitability of gasoline/ethanol blends for such uses as lawn mowers, weed trimmers, snowmobiles, boats, and other non-automotive, recreational and utility applications.

Until recently very little data had been compiled on this subject. Although some manufacturers had, in the past, expressed concern about such issues as materials compatibility and lubricity, very little testing had been done to justify or refute these concerns.

Recent testing has served to dispel some of these concerns. A field test completed in 1989 monitored the use of gasoline/ethanol blends in six different use applications representing seven different manufacturer's products. (Six sets of equipment were 2-stroke cycle). This test included chain saws, weed trimmers, portable generators, blower/vacs, lawn mowers, and water transfer pumps. Identical unit pairs were operated with one unit on a control fuel and the other unit on the same fuel with 10% ethanol. The units were used in real time applications, mowing lawns, trimming trees, etc. Some simulated use was utilized to increase operating hours. Each test and control unit accumulated operating hours equating to 3 to 5 seasons of use. The total hours logged on test units exceeded 1300 hours of operation.

During the operation, logs were kept to document any operating difficulties or unusual repairs. At the end of the operating period, both test and control units were disassembled, inspected, and compared.

The test report authors note that all test units were operating at the conclusion of the test. No catastrophic failures were experienced and no service or repairs (beyond manufacturer recommended services) were necessary.

Also in 1989, Valvoline Oil Company had a test conducted, at a major testing facility, to determine the effect of gasoline/ethanol blends on both lubricity and materials compatibility. Although these tests were relatively small in scope, they found that materials compatibility was comparable to the reference fuel and that the gasoline/ethanol blend actually performed better on the lubricity test.

In 1987 a test was completed at Mercury Marine Company's MACABO Test Center in Florida. This test was undertaken to determine the suitability of gasoline/ethanol blends in various marine applications. This test included over 40 watercraft (30 different models) which accumulated in excess of 12,000 hours of operation. Test results were positive, indicating that during the 12 month test, there were no malfunctions or operational difficulties attributed to ethanol blends. Also, no phase separation problems were experienced during the test.

Though these tests are favorable and indicate that earlier concerns may have been overly conservative, the tests do not encompass all makes and models, nor do they extend

to older models of the same equipment. If you are uncertain about a fuel's suitability for use in a specific type of equipment, the owner's manual should be consulted.

Mainstream manufacturers and distributors, such as Briggs & Stratton, Tecumseh, Sears, Ski-Doo Snowmobiles, and Evinrude have all indicated that gasoline/ethanol blends are suitable for use in their products.

Precautionary statements against the use of gasoline/ethanol blends or other fuel formulations, by some manufacturers, does not necessarily indicate that their products are of lower quality. It may merely indicate they have had insufficient time or resources to conduct an adequate test program on their products.

AB 15 ?


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Robert Wildenmuth
WI RFD

Ethanol Web Info Pages

RFA
Renewable Fuels Association

AB is ?
Date ?

http://www.ethanolrfa.org/factfic_ensec.html

http://www.ethanolrfa.org/factfic_econ.html

http://www.ethanolrfa.org/factfic_enperf.html

http://www.ethanolrfa.org/factfic_envir.html

http://www.ethanolrfa.org/factfic_ag.html

http://www.ethanolrfa.org/factfic_market.html

http://www.ethanolrfa.org/eth_prod_fac.html

http://www.ethanolrfa.org/links.shtml

Wisconsin

http://www.badgerstateethanol.com/