

Testimony of

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before the

**Senate Subcommittee on Research, Nutrition, and General Legislation
of the Committee on Agriculture, Nutrition and Forestry**

**Springfield, Illinois
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Good morning Mr. Chairman and Members of the Committee. I am very pleased to be here to discuss ethanol's continued participation in the federal reformulated gasoline program (RFG) generally, and the RFG oxygen content requirement specifically. These are important issues with far-reaching consequences for both consumers and air quality, and I appreciate the opportunity to provide comments on behalf of the domestic ethanol industry.

The Renewable Fuels Association (RFA) is the national trade association for the domestic ethanol industry. Our membership includes a broad cross-section of ethanol producers, marketers, agricultural organizations and state agencies interested in the increased development and use of fuel ethanol. There are more than 50 ethanol producing facilities in 21 states in operation today, including a growing number of farmer-owned cooperatives that have begun production in just the past five years. The industry currently produces approximately 100,000 barrels of ethanol per day (1.5 billion gallons annually), and utilizes more than 600 million bushels of grain per year.

Background:

Before turning to the RFG program, I would like to provide some perspective as to why ethanol is so critically important to the nation's economic, energy and environmental policies. One need only look at today's headlines to appreciate the need for increased production and use of fuel ethanol. With overall conditions in the farm economy in 2000 expected to be similar to last year and the nation facing record oil prices due to OPEC production cutbacks, ethanol production and use will play a pivotal role in providing value-added processing for grain while helping to constrain gasoline prices and promote competition.

At a recent USDA Agricultural Outlook Forum, USDA Chief Economist Keith Collins stated that the price for corn this year is "expected to average only \$1.90 a bushel, slightly below the 1998 crop." With total supplies predicted to be near 1999 levels and little change in ending stocks, Collins noted that "corn prices are expected to show only modest improvement next season." Collins also predicted that in light of

weak markets, substantial government payments will be made under current programs in 2000. The use of corn for ethanol production not only adds to the price of a bushel of corn, it also helps to reduce government payments.

At the same time, the Energy Department reports oil prices are at the highest levels since the Gulf War, and gasoline prices are expected to top \$1.60/gallon this summer. Blending ethanol with gasoline provides an economically competitive source of octane, helping to constrain gasoline prices. As the Congress considers policies to moderate gasoline prices and assure fuel supplies, providing increased market opportunities for domestically-produced renewable energy, such as ethanol, should be a top priority. In fact, the farm income and energy security benefits of ethanol were principle factors leading to congressional approval of the RFG program and the oxygen content requirement in the Clean Air Act Amendments of 1990. Today's headlines merely reinforce the efficacy of that decision.

The Reformulated Gasoline Program:

First, I think it is important to underscore that the RFG program, *with* its oxygen content requirement, has worked quite effectively. Air quality has improved. Indeed, about 75 million people are breathing cleaner air because of RFG. EPA reports that RFG is reducing ozone-forming hydrocarbon emissions by 41,000 tons and toxic pollutants such as benzene by 24,000 tons annually. That's the equivalent of taking 16 million vehicles off the road each year. A study by the Northeast States for Coordinated Air Use Management (NESCAUM) shows that today's RFG reduces the cancer risk from gasoline by about 20 percent. It is critically important to recognize that these benefits are significantly greater than required by the Clean Air Act's performance standards for hydrocarbons and toxics, at least in part because of the federal oxygen requirement.

At the same time, the decision by refiners to use MTBE in most RFG has had a devastating impact on water quality. The U.S. Geological Survey reports that MTBE has been detected in 27 percent of urban wells nationwide. In RFG areas, where MTBE is more commonly used, the problem is more severe. MTBE is four to six times more likely to be detected in RFG areas than in conventional gasoline areas. USGS reports that 79% of the wells tested in Denver and 37% of the wells tested in New England had detectable levels of MTBE. Indeed, MTBE is now the second most commonly found chemical in groundwater, behind only chloroform.

Leaking underground storage tanks and spills at the land surface are important point sources for MTBE in the environment. But there are many other sources of MTBE water contamination. Potential non-point sources of MTBE include precipitation, urban runoff, and motor water craft. Once MTBE is in water it is expected to move between surface and ground water with the natural movement of water. Indeed, MTBE is very water soluble compared to the BTEX compounds and other components in gasoline; the solubility of MTBE is about 50,000 mg/L (milligrams per liter) whereas the next most soluble component of gasoline is benzene, which has a solubility of 1,780 mg/L. Therein lies the problem; if MTBE is in gasoline it will find its way to water where it is extremely soluble and will eventually contaminate drinking water supplies.

As a consequence of the growing concerns regarding MTBE water contamination, there is interest in amending the Clean Air Act and the RFG program to allow refiners to reduce or eliminate their MTBE use. Refiners claim they cannot eliminate their use of MTBE without the "flexibility" of producing non-oxygenated fuel and have sought the elimination of the oxygen requirement. The domestic ethanol industry has steadfastly opposed efforts which seek only to eliminate the federal RFG oxygen requirement or address the issue for particular states or regions. However, we do not want to hinder legislative efforts to address this serious public health and environmental issue. We want to be part of the solution, not part

of the problem. Toward that end, we have developed the following principles which we believe should guide congressional action on this issue.

- Develop a national solution;
- Address the cause of the problem;
- Protect the environment; and,
- Provide the necessary time and “flexibility” to allow refiners to make a rational transition to increased ethanol utilization.

Develop a national solution.

Regional or state-specific actions will create a patchwork of fuel regulations resulting in increased consumer costs and will encourage MTBE use in areas not using MTBE today – expanding potential MTBE water contamination.

Approximately 4 billion gallons of MTBE are consumed in the United States today, with the vast majority of it used in RFG markets. Approximately one-third of the MTBE used is imported, either as a fuel blendstock or in finished gasoline. In the absence of a national MTBE control program, states will continue to take action phasing out MTBE. Already, California, Iowa and South Dakota have enacted MTBE controls. Missouri, Colorado, Wisconsin and several northeast states have MTBE ban bills pending. In the Congress, H.R. 11 and various other legislative proposals attempt to address this issue regionally. But unless a national control is imposed, MTBE will flow unfettered into areas where MTBE is currently not being used. Saudi Arabia is not going to take its MTBE back. MTBE producers will find other markets. The first place MTBE will flow is Midwest oxygenate markets where MTBE is currently not used. It is logical to assume that MTBE will also flow into conventional gasoline octane markets. In addition to displacing ethanol from these critical markets, this will merely expand potential MTBE water contamination and jeopardize precious water supplies. Only a national control of MTBE will protect *everyone's* water supplies and not disrupt existing oxygen and octane markets for ethanol.

Address the cause of the problem – MTBE.

The use of MTBE in the nation's motor fuel should be reduced or eliminated as expeditiously as possible.

The domestic ethanol industry should not be advising the Congress on how to control the use of its competition in the marketplace. However, we can state with conviction that if the problems associated with the use of MTBE are so serious as to warrant legislative action, Congress ought to be sure to fix them. The problem is not oxygen in gasoline, it is MTBE in water. Congress should determine what controls on MTBE are necessary to protect water supplies and take them. But simply eliminating the RFG oxygen requirement will NOT assure that MTBE use is reduced and WILL undermine the “real world” environmental benefits of the current RFG program with oxygen.

EPA's Blue Ribbon Panel concluded that MTBE use should be “reduced or eliminated.” EPA staff recently went further, stating that MTBE should be removed from gasoline as quickly as possible. The Department of Energy has stated a 3% volume cap on MTBE is appropriate. Because MTBE is bio-accumulative and persistent in the environment, many believe the only sure means of protecting drinking water supplies is to prevent MTBE from getting into gasoline in the first place. In any case, Congress needs to take whatever action it deems appropriate to protect public health and water resources.

We would only suggest that as Congress debates this issue, and if an MTBE phase-out or other control is imposed, that consumers be made aware whether MTBE is being used in the gasoline they purchase. Pump labeling of MTBE is something that can be done quickly and effectively. We would strongly encourage EPA to act expeditiously so that consumers are aware when MTBE is being used. Consumers have a right to know.

Protect the Environment.

The air quality gains provided by RFG with oxygenates should not be sacrificed as MTBE use is reduced, i.e., the toxic and carbon monoxide emissions benefits of oxygen should be preserved.

The RFG program assures air quality benefits through the combined application of emissions performance standards and an oxygen requirement. As a result, the RFG program has provided toxic reductions in excess of those required by the performance standards alone. The oxygen standard has also provided reductions in carbon monoxide for which there is no performance standard at all. Congress should not reward the disastrous decision of the oil industry to utilize MTBE as the oxygenate of choice in RFG by allowing them to increase pollution.

Industry analysts have concluded that given the opportunity to produce non-oxygenated RFG, refiners will dramatically increase their use of aromatics and other petroleum-derived octane such as alkylate. The environmental consequences of alkylates is not known. The environmental impacts of aromatics certainly is known, and it is troubling. Increased aromatics will lead to higher toxic emissions and increased ozone pollution.

It is ironic that the RFG program was initiated largely in response to environmental concerns about the rising levels of aromatics in gasoline. Increased aromatics, including benzene, toluene and xylene (BTEX), resulted from the congressionally-mandated lead phase-down of the late 70's. To replace the lost octane associated with lead, refiners dramatically increased aromatic levels. By the mid-80's, some premium gasolines had BTEX levels as high as 50 percent. Seeing this, Congress created the RFG program in the Clean Air Act Amendments of 1990, including a specific cap on aromatic levels. That cap was forfeited by EPA in the regulations implementing the RFG program in favor of a complex model, with the understanding that the use of oxygenates in RFG would supply the octane and volume provided by aromatics. Congress should assure that as MTBE use is reduced, the cap on aromatics originally included as an RFG specification is re-established.

In addition, EPA should conduct a rigorous analysis of the "real world" emissions benefits of oxygen, including the impact on higher emitting vehicles, off-road and off-cycle driving (areas where the impact of oxygen is more critical) to assure there is no backsliding from these effects. EPA should also compare the potency-weighted toxic affects of oxygenated and non-oxygenated RFG.

Finally, it is critical that the carbon monoxide (CO) benefits of oxygenates not be ignored. The oxyfuel program worked and CO has been dramatically reduced nationwide. Several CO non-attainment areas have been reclassified into attainment based in part on maintenance plans which include the oxygen content benefits of RFG. If the RFG oxygen requirement is repealed, the CO attainment status of these areas will be jeopardized. In addition, the National Academy of Sciences concluded last year that as much as 20% of the ozone coming from automobiles was attributable to carbon monoxide. EPA should assess this beneficial impact and either 1) incorporate a CO performance standard into the program or 2) promulgate a CO offset so that refiners can balance CO reductions with VOC increases.

Provide Flexibility to Refiners.

The expeditious removal of MTBE should not result in dramatically increased gasoline prices or supply shortages. Refiners and gasoline marketers should be given some flexibility in meeting this challenge.

Refiners claim the only way to eliminate MTBE without increasing consumer gasoline costs is to eliminate the oxygen standard itself. Indeed, some see the two as synonymous. At a time when gasoline prices across the country are soaring, Congress must consider the economic implications of reducing MTBE use. MTBE currently represents about 3% of the nation's transportation fuel supply. If it is

precipitously eliminated without providing for a replacement of that supply, gasoline prices will clearly rise. Indeed, this fact has been established by both the Department of Energy and the California Energy Commission, which concluded a non-oxygenated fuel scenario in California (with no ethanol used) was the most expensive option available to the state in addressing MTBE. It is therefore critical that if MTBE volume is to be reduced, it is replaced with safe alternatives such as ethanol. Following the oil companies' "flexibility" agenda of no oxygen requirement and an all-hydrocarbon fuel supply will increase consumer gasoline costs.

But we believe there are ways to provide increased flexibility in meeting the oxygenate standard such that replacing MTBE with ethanol will not result in price spikes or supply shortages. Certainly, a gradual phase-out is the best way to protect against potential consumer impacts.

The U.S. Department of Agriculture has completed a comprehensive analysis demonstrating that ethanol can effectively replace MTBE by 2004 without price spikes or supply shortages. The Department's analysis shows that total ethanol production capacity will have to increase roughly 50%, to approximately 3 billion gallons by 2004, in order to supply the oxygenate demands of RFG while maintaining the existing ethanol octane markets in conventional gasoline.

USDA also analyzed the transportation affects of increased ethanol RFG.

The Department concluded that ethanol would be shipped by barge or rail cost-competitively, and that there would be "no transportation impediment to the use of ethanol as a replacement for MTBE."

S. 2233, The MTBE Elimination Act

On March 9, Senator Peter Fitzgerald, along with seven of his colleagues, introduced S. 2233, the MTBE Elimination Act. This bill clearly meets the principles we have established for addressing the MTBE crisis and the domestic ethanol industry is pleased to announce its support. By amending the Toxic Substances Control Act, the bill addresses MTBE water contamination directly and on a national basis. By phasing down the use of MTBE, the bill provides refiners with the flexibility and time necessary for an orderly transition. And by retaining the federal RFG oxygen requirement, the bill assures that the air quality benefits of RFG will be preserved. We applaud Senator Fitzgerald's effort to provide a solution to the growing MTBE water contamination crisis while retaining the federal oxygen content requirement. This provision has been tremendously important to the growth of the domestic ethanol industry and to air quality. While some are clamoring to abandon the oxygen requirement, we continue to believe it provides unique environmental benefits, including emissions reductions in exhaust hydrocarbon, carbon monoxide and fine particulates that could not be achieved without oxygenates. The oxygen requirement also assures emissions reductions in off-road engines that are critical to maintaining air quality.



The Ethanol Solution

The primary concern with maintaining the oxygen standard appears to be the industry's ability to supply the increased demand for ethanol. But such concerns are unfounded. It is important to understand that because ethanol has twice the oxygen content of MTBE, it will only take half as much ethanol to satisfy the oxygen

Source: U.S. Department of Agriculture

Washington state, and production from forest residue is not far behind. None of this will happen, however, without the assurance of increased market opportunities for ethanol in RFG. If the oxygenate requirement itself is repealed, there will be little increased ethanol production in the coming years. On the other hand, maintaining the oxygen requirement as MTBE use is phased out will stimulate tremendous new economic development across the country.

**Ethanol Production Capacity
March 2000**

Company	City	State	Primary Feedstock	Capacity (MGY)
A.E. Staley	Louden	TN	Corn	45.0
Ag Power, Inc	Commerce City	CA		2.0
AGP	Hastings	NE	Corn	45.0
Agri-Energy	Luverne	MN	Corn	18.0
Al-Corn	Claremont	MN	Corn	18.0
Alchem	Grafton	ND	Wheat	12.0
Archer Daniels Midland	Decatur	IL	Corn	750.0
	Cedar Rapids	IA	Corn	
	Peoria	IL	Corn	
	Clinton	IA	Corn	
Broin Assoc	Scotland	SD	Corn	8.0
Company	City	State	Primary Feedstock	Production Capacity (MGY)
Cargill	Eddyville	IA	Corn	70.0
	Blair	NE	Corn	35.0
Cent MN Ethanol Coop	Little Falls	MN	Corn	18.0
Chief Ethanol	Hastings	NE	Corn	62.0
Chippawa Valley	Benson	MN	Corn	20.0
Corn Plus	Winnebago	MN	Corn	17.5
DENCO	Morris	MN	Corn	15.0
Eco Products of Plover	Plover	WI		4.0
ESE Alcohol	Leoti	KS	Corn	1.1
Ethanol 2000	Bingham Lake	MN	Corn	15.0
Exol	Albert Lea	MN	Corn	18.0
Farm Tech USA	Spring Green	WI	Corn	0.5
Georgia Pacific	Bellingham	WA	Waste	3.5
Golden Cheese of CA	Corona	CA	Cheese/Whey	2.8
Grain Processing Corp	Muscatine	IA	Corn	10.0
Heartland Corn Prods	Winthrop	MN	Corn	17.0
Heartland Grain Fuels	Aberdeen	SD	Corn	8.0
	Huron	SD	Other	12.0
High Plains	Portales	NM	Corn	14.0
	Colwich	KS	Corn	20.0
	York	NE	Corn	40.0
J.R. Simplot	Heyburn	ID	Potato Waste	3.0
	Caldwell	ID	Potato Waste	4.0
Jonton Alcohol	Edinburg	TX		1.2
Kraft	Melrose	MN	Cheese/Whey	3.0
Manildra Energy	Hamburg	IA	Corn	7.0
Midwest Grain	Atchinson	KS	Corn	8.0
	Pekin	IL	Corn	100.0

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Agri-Energy	Luverne	MN	Corn	18.0
AI-Corn	Claremont	MN	Corn	18.0
Alchem	Grafton	ND	Wheat	12.0
Archer Daniels Midland	Decatur	IL	Corn	750.0
	Cedar Rapids	IA	Corn	
	Peoria	IL	Corn	
	Clinton	IA	Corn	
Broin Assoc	Scotland	SD	Corn	8.0
Company	City	State	Primary Feedstock	Production Capacity (MGY)
Cargill	Eddyville	IA	Corn	70.0
	Blair	NE	Corn	35.0
Cent MN Ethanol Coop	Little Falls	MN	Corn	18.0
Chief Ethanol	Hastings	NE	Corn	62.0
Chippawa Valley	Benson	MN	Corn	20.0
Corn Plus	Winnebago	MN	Corn	17.5
DENCO	Morris	MN	Corn	15.0
Eco Products of Plover	Plover	WI		4.0
ESE Alcohol	Leoti	KS	Corn	1.1
Ethanol 2000	Bingham Lake	MN	Corn	15.0
Exol	Albert Lea	MN	Corn	18.0
Farm Tech USA	Spring Green	WI	Corn	0.5
Georgia Pacific	Bellingham	WA	Waste	3.5
Golden Cheese of CA	Corona	CA	Cheese/Whey	2.8
Grain Processing Corp	Muscatine	IA	Corn	10.0
Heartland Corn Prods	Winthrop	MN	Corn	17.0
Heartland Grain Fuels	Aberdeen	SD	Corn	8.0
	Huron	SD	Other	12.0
High Plains	Portales	NM	Corn	14.0
	Colwich	KS	Corn	20.0
	York	NE	Corn	40.0
J.R. Simplot	Heyburn	ID	Potato Waste	3.0
	Caldwell	ID	Potato Waste	4.0
Jonton Alcohol	Edinburg	TX		1.2
Kraft	Melrose	MN	Cheese/Whey	3.0
Manildra Energy	Hamburg	IA	Corn	7.0
Midwest Grain	Atchinson	KS	Corn	8.0
	Pekin	IL	Corn	100.0

Minnesota Clean Fuels	Dundas	MN		1.5
MMI/ETOH	Golden	CO		1.5
MN Corn Processors	Marshall	MN	Corn	32.0
	Columbus	NE	Corn	90.0
MN Energy	Buffalo Lake	MN	Corn	12.0
New Energy Co of IN	South Bend	IN	Corn	88.0
Pabst Brewing	Olympia	WA	Bev Waste	0.7
Parallel Products	Rancho	CA	Food Waste	2.0
	Cucamonga			
	Louisville	KY	Corn	10.0
Permeate Prods	Hopkinton	IA		1.5
Pro-Corn	Preston	MN	Corn	19.0
Reeve Agri-Energy	Garden City	KS	Corn	10.5
Stroh's Brewery	Winston Salem	NC	Bev Waste	1.0
Sunrise Energy	Blairstown	IA	Corn	5.0
Vienna Correctional	Vienna	IL	Corn	0.5
Williams Energy	Aurora	NE	Corn	30.0
	Pekin	IL	Corn	100.0
Wyoming Ethanol	Torrington	WY	Corn	5.0
Total				1,837.8

Source: Bryan and Bryan, Inc.

Ethanol Production Under Construction, March 2000

Company	City	State	Capacity MGY	Feedstock
Golden Triangle	Craig	MO	14.0	Corn
Adkins Energy	Lena	IL	30.0	Corn
BC International	Jennings	LA	20.0	Bagasse/rice hulls
Nebraska Nutrients	Sutherland	NE	15.0	Corn
Dakota Ethanol	Wentworth	SD	40.0	Corn
NE Missouri Grain Proc	Macon	MO	15.0	Corn
Total			134.0	

Source: Bryan and Bryan, Inc.

Ethanol Plants Under Development, March 2000

City	State	Capacity (MGY)	Feedstock
Grain			
Undisclosed	CO	20.0	Corn
Central Iowa	IA	15.0	Corn
NW Iowa	IA	40.0	Corn
L. Cascade	IL	100.0	Corn
Pratte	KS	15.0	Corn/milo
Undisclosed	KS	40.0	Corn
Undisclosed	KY	20.0	Corn
Central State	MI	40.0	Corn
St. Paul	MN	30.0	Corn
SE Missouri	MO	30.0	Corn
Great Falls	MT	75.0	Wheat/Barley
Neely	NE	15.0	Corn
Central State	NJ	10.0	Corn
Clatskanie, OR	OR	80.0	Corn/wheat
Milbank	SD	40.0	Corn

Platte	SD	15.0	Corn
Rosholt	SD	15.0	Corn
Undisclosed	TX	30.0	Corn
Moses Lake	WA	40.0	Corn/Barley
Lacrosse	WI	20.0	Corn
Subtotal		690.0	
Biomass Conversion			
SE Region	AK	8.0	Wood Waste
NE Region	CA	15.0	Forest Residues
Gridley	CA	20.0	Rice Straw
Mission Viejo	CA	8.0	Rice straw
Chester	CA	20.0	Forest Residues
Onslow County	NC	60.0	Sweet potatoes
Greene County	NC	60.0	Sweet potatoes
Martin County	NC	60.0	Sweet potatoes
Middletown	NY	10.0	MSW
Central Region	OR	30.0	Wood Waste
Philadelphia	PA	15.0	MSW
Black Hills	WY	12.0	Forest Residues
Subtotal		318.0	
TOTAL NEW CAPACITY		1,008.0	

Ethanol RFG will provide a tremendous economic stimulus to rural America by creating value-added demand for 500 million bushels of grain. According to USDA, replacing MTBE with ethanol in RFG nationwide would:

- increase net farm income \$1 billion annually;
- create 13,000 new jobs;
- enhance our balance of trade \$12 billion by 2010; and,
- reduce farm program costs more than \$1 billion for each \$0.10 increase in corn price.

Thus, replacing MTBE with domestically-produced renewable ethanol will provide a tremendous economic stimulus to rural America while protecting air quality, preserving water resources and maintaining stable consumer gasoline prices and supply.

Conclusion:

The domestic ethanol industry understands that the Congress is faced with a daunting challenge, i.e, how to protect water supplies by reducing the use of MTBE without sacrificing air quality or increasing fuel prices. We see ethanol as a solution. Increasing ethanol use in this program will allow MTBE to be phased out cost-effectively while protecting precious water resources and air quality. Stimulating rural economies by increasing the demand for grain used in ethanol production will help farmers left behind by our booming economy. Encouraging new ethanol production from biomass feedstocks will provide additional environmental benefits and take a positive step toward a sustainable energy future and global climate change. The bottom line is that we need to protect both air quality and water quality. With ethanol, we can.

Thank you.