AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

FUEL MARKETS: UNSTABLE AT ANY PRICE?

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY POLICY, NATURAL RESOURCES AND REGULATORY AFFAIRS

OF THE

COMMITTEE ON GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

APRIL 23, 2002

Serial No. 107–131

Printed for the use of the Committee on Government Reform

Available via the World Wide Web: http://www.gpo.gov/congress/house
http://www.house.gov/reform

U.S. GOVERNMENT PRINTING OFFICE

82–633 PDF WASHINGTON : 2002

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2250 Mail: Stop SSOP, Washington, DC 20402–0001

COMMITTEE ON GOVERNMENT REFORM

DAN BURTON, Indiana, *Chairman*

BENJAMIN A. GILMAN, New York
CONSTANCE A. MORELLA, Maryland
CHRISTOPHER SHAYS, Connecticut
ILEANA ROS-LEHTINEN, Florida
JOHN M. MCHUGH, New York
STEPHEN HORN, California
JOHN L. MICA, Florida
THOMAS M. DAVIS, Virginia
MARK E. SOUDER, Indiana
STEVEN C. LATOURETTE, Ohio
BOB BARR, Georgia
DAN MILLER, Florida
DOUG OSE, California
RON LEWIS, Kentucky
JO ANN DAVIS, Virginia
TODD RUSSELL PLATTS, Pennsylvania
DAVE WELDON, Florida
CHRIS CANNON, Utah
ADAM H. PUTNAM, Florida
C.L. "BUTCH" OTTER, Idaho
EDWARD L. SCHROCK, Virginia
JOHN J. DUNCAN, JR., Tennessee

HENRY A. WAXMAN, California
TOM LANTOS, California
MAJOR R. OWENS, New York
EDOLPHUS TOWNS, New York
PAUL E. KANJORSKI, Pennsylvania
PATSY T. MINK, Hawaii
CAROLYN B. MALONEY, New York
ELEANOR HOLMES NORTON, Washington, DC
ELIJAH E. CUMMINGS, Maryland
DENNIS J. KUCINICH, Ohio
ROD R. BLAGOJEVICH, Illinois
DANNY K. DAVIS, Illinois
JOHN F. TIERNEY, Massachusetts
JIM TURNER, Texas
THOMAS H. ALLEN, Maine
JANICE D. SCHAKOWSKY, Illinois
WM. LACY CLAY, Missouri
DIANE E. WATSON, California
STEPHEN F. LYNCH, Massachusetts

BERNARD SANDERS, Vermont (Independent)

KEVIN BINGER, *Staff Director*
DANIEL R. MOLL, *Deputy Staff Director*
JAMES C. WILSON, *Chief Counsel*
ROBERT A. BRIGGS, *Chief Clerk*
PHIL SCHILIRO, *Minority Staff Director*

SUBCOMMITTEE ON ENERGY POLICY, NATURAL RESOURCES AND REGULATORY AFFAIRS

DOUG OSE, California, *Chairman*

C.L. "BUTCH" OTTER, Idaho
CHRISTOPHER SHAYS, Connecticut
JOHN M. MCHUGH, New York
STEVEN C. LATOURETTE, OHIO
CHRIS CANNON, Utah
JOHN J. DUNCAN, JR., Tennessee

JOHN F. TIERNEY, Massachusetts
TOM LANTOS, California
EDOLPHUS TOWNS, New York
PATSY T. MINK, Hawaii
DENNIS J. KUCINICH, Ohio
ROD R. BLAGOJEVICH, Illinois

EX OFFICIO

DAN BURTON, Indiana
HENRY A. WAXMAN, California

DAN SKOPEC, *Staff Director*
JONATHAN TOLMAN, *Professional Staff Member*
ALLISON FREEMAN, *Clerk*
ELIZABETH MUNDINGER, *Minority Counsel*

CONTENTS

	Page
Hearing held on April 23, 2002	1
Statement of:	
Hutzler, Mary, Acting Administrator, Energy Information Administration; Vicky Bailey, Assistant Secretary for Policy and International Affairs, Department of Energy; and William Kovacic, General Counsel, Federal Trade Commission	9
Montgomery, David, vice president, Charles River Associates; Nicholas Economides, director, Hart Downstream Energy Services; Gordon Rausser, professor of economics, University of California at Berkeley; and A. Blakeman Early, environmental consultant, American Lung Association	171
Letters, statements, etc., submitted for the record by:	
Bailey, Vicky, Assistant Secretary for Policy and International Affairs, Department of Energy:	
Information concerning safe harbors	89
Prepared statement of	39
Early, A. Blakeman, environmental consultant, American Lung Association, prepared statement of	236
Economides, Nicholas, director, Hart Downstream Energy Services, prepared statement of	197
Hutzler, Mary, Acting Administrator, Energy Information Administration, prepared statement of	12
Kovacic, William, General Counsel, Federal Trade Commission:	
Letter dated May 6, 2002	167
List of players	98
Prepared statement of	53
Montgomery, David, vice president, Charles River Associates, prepared statement of	174
Ose, Hon. Doug, a Representative in Congress from the State of California, prepared statement of	4
Rausser, Gordon, professor of economics, University of California at Berkeley, prepared statement of	207
Waxman, Hon. Henry A., a Representative in Congress from the State of California, letter dated April 23, 2002	66

FUEL MARKETS: UNSTABLE AT ANY PRICE?

TUESDAY, APRIL 23, 2002

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY POLICY, NATURAL
RESOURCES AND REGULATORY AFFAIRS,
COMMITTEE ON GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 2 p.m., in room 2154, Rayburn House Office Building, Hon. Doug Ose (chairman of the subcommittee) presiding.

Present: Representatives Ose, Shays, Tierney, Kucinich, and Waxman (ex officio).

Staff present: Dan Skopec, staff director; Barbara Kahlow, deputy staff director; Jonathan Tolman, professional staff member; Yier Shi, press secretary; Allison Freeman, clerk; Elizabeth Mundinger and Alexandra Teitz, minority counsels; and Jean Gosa, minority assistant clerk.

Mr. OSE. Good afternoon. I welcome you to today's meeting of the Energy Policy, Natural Resources and Regulatory Affairs Subcommittee of the Government Reform Committee.

We have two panels today of witnesses. The way we're going to proceed is that I'm going to make an opening statement, any other Members who are here by the time I finish are going to be allowed to enter an opening statement, and, to the extent they arrive after I'm finished and they have opening statements, we will enter them into the record. Each of the committee members is allowed to do that.

Each of the witnesses has submitted written testimony to the committee. We've reviewed that testimony on both panels of all witnesses.

Each of the witnesses is going to be provided 5 minutes to summarize their testimony, and then we will go to questions. If there are no other Members here, we will just have question after question after question from me. If there are other Members, we will rotate back and forth, Democrat, Republican, Democrat, Republican, etc.

Today, we find ourselves in a unique set of circumstances. Across the way in the other body, we find the Senate considering the energy bill, and I'm glad to see that the other body is coordinating its schedule with ours.

Over the last several weeks, gasoline prices have risen more than 25 cents per gallon; and that makes this an extremely timely issue. Recent years have seen dramatic price increases in gasoline during each spring as demand increases and refiners switch from winter

to summer formulations to meet environmental regulations. The double combination has typically led to general increases in prices nationwide as well as regional price spikes.

Last June, this subcommittee held a similar hearing to today's as gasoline prices soared and consumers in some areas of the country were paying more than $2 a gallon for regular unleaded gasoline. Although prices have yet to get that high this year, our gasoline markets still face all the challenges that they did a year ago.

To paraphrase a former President from my home State of California, "Ladies and gentlemen, here we go again."

Recent unrest in the Middle East and labor protests in Venezuela have increased uncertainty over the supply of crude oil. The cost of crude directly affects the cost of refined gasoline products. Imports account for 60 percent of our crude oil that we process. While the United States imports oil from a variety of countries, the bulk of the oil imports come from a small number of oil-exporting countries. Interestingly, both Venezuela and Iraq are among the top five oil exporters to the United States.

However, it isn't just the crude oil markets that are affecting the price of gasoline. Our own domestic refining industry is struggling to meet consumer demands as well as comply with an array of complex Federal and State regulatory requirements. An example of such complexity was reported in the Wall Street Journal on April 4th of this year, when the main terminal for Phillips Petroleum in Phoenix literally ran out of the gas. It got so bad that several filling stations in the Phoenix area also ran out of gas.

One of the problems plaguing the refining industry in recent years has been the balkanization of the gasoline market. Twenty years ago, the Nation was essentially a single market for gasoline. Today, the Nation has been cut up, balkanized, if you will, into dozens of tiny boutique markets with their own specialized blends of gasoline, all done pursuant to Federal statute. As the Phoenix situation shows, when there's a supply problem, prices can go up—imagine that—or worse, areas can literally run out of gas.

If these problems weren't enough, future gasoline markets may become even less stable as refiners deal with the effects of phasing out the fuel additive MTBE and replacing it with ethanol. Under the Clean Air Act, refiners selling gasoline in areas with severe air pollution are required by legislative mandate to add oxygenated fuel additives to the gasoline. Currently, two additives, MTBE and ethanol, constitute nearly all of the oxygenates added to fuel.

You'd think that those of us in Congress since 1990 would want to solve the problem that was created in the 1990 Clean Air Act. However, across the building in the other body today, the Senate is considering Senator Daschle's energy bill, S. 517, which would only make the problem worse. Senator Daschle's bill would ban the use of MTBE outright and replace it with a new national mandate requiring the use of 5 billion gallons of ethanol.

Unfortunately, MTBE does have serious environmental side effects, most notably the pollution of groundwater. We need to resolve these environmental challenges with science, not mandates. If you actually examine the record and the facts, you'll find most of the MTBE pollution stems from leaky storage tanks and leaky transmission lines.

The Federal Government should set the environmental goals that we want out of our automobiles, what is it that comes out of the tailpipe, to achieve the clean air, or the clean water, or clean soil that we desire and then allow science the flexibility to achieve these clean air goals or clean water goals as science finds acceptable, rather than by a legislative mandate. It's the only way to get to the most cost-effective, scientifically sound solution.

The Federal Government should literally not be in the business of micromanaging what goes into our gas tanks. Senator Daschle's bill, unfortunately, will ensure that we face higher gasoline prices and less stable markets in the future.

According to the independent Energy Information Administration [EIA], the provisions of the Senate energy bill banning MTBE and requiring a renewable fuel standard will increase the average cost of reformulated gasoline by between 9 and 10.5 cents per gallon. So everybody here, get ready. When you fill up, you're going to be paying between 9 and 10.5 cents per gallon more due to Senator Daschle's ethanol requirement than you are today.

EIA estimates that the provisions will result in higher annual costs to consumers nationwide of $6.37 billion a year. That's the low number, by the way, because there are other industry experts who predict the cost will be higher, approaching $8.4 billion a year. If either prediction is accurate—well, let's say if either prediction is halfway accurate—it's an expensive proposition. As the late Senator Everett Dirksen put it, "A billion here, a billion there, and pretty soon you're talking real money."

In short, unstable crude oil supply, tight refining capacity, a dizzying array of Federal and State clean air requirements, and, frankly, counter-productive currently-being-considered Senate legislation all lead us to question whether or not our gasoline market is stable at any price.

I want to welcome our witnesses today. I look forward to your testimony. I have, in fact, read it; that probably comes as a surprise, but I have read it.

I want to welcome, on our first panel, the Acting Administrator for the Energy Information Administration, Ms. Mary Hutzler; and the Assistant Secretary for Policy and International Affairs at the Department of Energy, Ms. Vicky Bailey; and the General Counsel for the Federal Trade Commission, Mr. William Kovacic.

Ladies, gentlemen, thank you for coming. We're going to recognize Mr. Shays for the purpose of an opening statement.

[The prepared statement of Hon. Doug Ose follows:]

Chairman Doug Ose
Opening Statement
Fuel Markets: Unstable At Any Price?
April 23, 2002

In the last several weeks, gasoline prices have risen more than 25 cents per gallon. Recent years have seen dramatic price increases in gasoline during each spring as demand increases and refiners must switch from winter to summer formulations to meet environmental regulations. The double combination has typically led to general increases in prices nationwide as well as regional price spikes.

Last June, this Subcommittee held a similar hearing as gasoline prices soared and consumers in some areas of the country were paying more than $2.00 a gallon for regular unleaded gasoline. Although prices have yet to get that high, our gasoline markets face all the challenges that they did a year ago.

To paraphrase a former President from my home State of California, "Here we go again."

Recent unrest in the Middle East and labor protests in Venezuela have increased uncertainty over the supply of crude oil. The cost of crude oil directly affects the cost of refined gasoline products. Imports account for 60 percent of the crude oil processed. While the U.S. imports oil from a wide variety of countries, the bulk of the oil imports come from a small number of oil exporting countries. Both Venezuela and Iraq are among the top five oil exporters to the U.S.

But it isn't just the crude oil markets that are affecting the price of gasoline. Our own domestic refining industry is struggling to meet consumer demands as well as comply with an array of complex Federal and State regulatory requirements. An example of such complexity was reported in the Wall Street Journal on April 4, 2002, when the main terminal for Phillips Petroleum in Phoenix literally ran out of gas. It got so bad that several filling stations in the Phoenix area also ran completely out of fuel.

One of the problems plaguing the refining industry in recent years has been the balkanization of the gasoline market. Twenty years ago, the nation was essentially one single market for gasoline. Today, the nation has been balkanized into dozens of tiny boutique markets with their own specialized blends of gasoline. As the Phoenix situation shows, when there is a supply problem, prices can go up, or worse areas can run out of gas.

And if these problems weren't enough, future gasoline markets may become even less stable as refiners deal with the effects of phasing out the fuel additive MTBE and replacing it with ethanol. Under the Clean Air Act, refiners selling gasoline in areas with severe air pollution are required to add oxygenated fuel additives to the gasoline. Currently, two additives -- MTBE and ethanol -- constitute nearly all the oxygenates added to fuel.

You'd think that Congress would want to solve the problem that they created in the 1990 Clean Air Act. However, Senator Daschle's energy bill (S. 517) would only make the problem worse.

Senator Daschle would ban the use of MTBE and replace it with a national mandate of 5 billion gallons of ethanol.

Unfortunately, MTBE has serious environmental side effects, most notably the pollution of groundwater. We need to resolve these environmental challenges with science not mandates. The Federal government should set the environmental goals to achieve clean air and water and then allow science and industry the flexibility to achieve those clean air goals in the most cost-effective way. The Federal government should not be in the business of micro-managing what goes into our gas tanks. Senator Daschle's bill will ensure that we face higher gasoline prices and less stable markets in the future.

According to the independent Energy Information Administration (EIA), the provisions of the Senate energy bill banning MTBE and requiring a renewable fuels standard will increase the average cost of reformulated gasoline by 9.0 to 10.5 cents per gallon. EIA estimates that the provisions will result in higher annual costs to consumers of $6.37 billion a year. Other industry analysts predict the costs will be even higher, at $8.4 billion a year. If either prediction is accurate, it will be an expensive proposition. As the late Senator Everett Dirksen put it, "A billion here, a billion there and pretty soon you're talking real money."

In short, unstable crude oil supply, tight refining capacity, a dizzying array of Federal and State clean air requirements and counter-productive Senate legislation all lead us to question whether or not our gasoline market is stable at any price.

Today's witnesses include:

Vicky Bailey, Assistant Secretary for Policy and International Affairs, Department of Energy; Mary Hutlzer, Acting Administrator, Energy Information Administration; William Kovacic, General Counsel, Federal Trade Commission; David Montgomery, Vice President, Charles River Associates; Nicholas Economides, Director, Hart Downstream Energy Services; Gordon Rausser, Professor of Economics, University of California, Berkeley, and A. Blakeman Early, Environmental Consultant, American Lung Association.

DAN BURTON, INDIANA,
CHAIRMAN

BENJAMIN A. GILMAN, NEW YORK
CONSTANCE A. MORELLA, MARYLAND
CHRISTOPHER SHAYS, CONNECTICUT
ILEANA ROS-LEHTINEN, FLORIDA
JOHN M. McHUGH, NEW YORK
STEPHEN HORN, CALIFORNIA
JOHN L. MICA, FLORIDA
THOMAS M. DAVIS, VIRGINIA
MARK E. SOUDER, INDIANA
STEVEN C. LATOURETTE, OHIO
BOB BARR, GEORGIA
DAN MILLER, FLORIDA
DOUG OSE, CALIFORNIA
RON LEWIS, KENTUCKY
JO ANN DAVIS, VIRGINIA
TODD RUSSELL PLATTS, PENNSYLVANIA
DAVE WELDON, FLORIDA
CHRIS CANNON, UTAH
ADAM H. PUTNAM, FLORIDA
C.L. "BUTCH" OTTER, IDAHO
EDWARD L. SCHROCK, VIRGINIA
JOHN J. DUNCAN, JR., TENNESSEE

ONE HUNDRED SEVENTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON GOVERNMENT REFORM

2157 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6143

MAJORITY (202) 225–5074
FACSIMILE (202) 225–3974
MINORITY (202) 225–5051
TTY (202) 225–6852

www.house.gov/reform

HENRY A. WAXMAN, CALIFORNIA,
RANKING MINORITY MEMBER

TOM LANTOS, CALIFORNIA
MAJOR R. OWENS, NEW YORK
EDOLPHUS TOWNS, NEW YORK
PAUL E. KANJORSKI, PENNSYLVANIA
PATSY T. MINK, HAWAII
CAROLYN B. MALONEY, NEW YORK
ELEANOR HOLMES NORTON,
DISTRICT OF COLUMBIA
ELIJAH E. CUMMINGS, MARYLAND
DENNIS J. KUCINICH, OHIO
ROD R. BLAGOJEVICH, ILLINOIS
DANNY K. DAVIS, ILLINOIS
JOHN F. TIERNEY, MASSACHUSETTS
JIM TURNER, TEXAS
THOMAS H. ALLEN, MAINE
JANICE D. SCHAKOWSKY, ILLINOIS
WM. LACY CLAY, MISSOURI
DIANE E. WATSON, CALIFORNIA
STEPHEN F. LYNCH, MASSACHUSETTS

BERNARD SANDERS, VERMONT,
INDEPENDENT

April 18, 2002

MEMORANDUM FOR MEMBERS OF THE SUBCOMMITTEE ON ENERGY POLICY, NATURAL RESOURCES AND REGULATORY AFFAIRS

FROM: Doug Ose

SUBJECT: Briefing Memorandum for April 23, 2002 Hearing, "Fuel Markets: Unstable at Any Price?"

On Thursday, April 23, 2002, at 2:00 p.m., in Room 2154 Rayburn House Office Building, the Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs will hold a hearing on gasoline prices and related issues. The hearing is entitled, "Fuel Markets: Unstable at Any Price?"

In the last several weeks, gasoline prices have risen more than 25 cents per gallon. Recent years have seen dramatic price increases in gasoline during the spring as demand increases and refiners must switch from winter to summer formulations to meet environmental regulations. The double combination has typically lead to general increases in prices nationwide as well as regional price spikes.

Last year, the Subcommittee held a hearing on gasoline prices on June 14, 2001. At the time, nationwide prices had reached $1.71 per gallon with some areas of the country experiencing prices over $2.00 a gallon for regular unleaded gasoline.

Crude Oil Markets

Recent unrest in the Middle East and labor protests in Venezuela have increased uncertainty over the supply of crude oil. The cost of crude oil directly affects the cost of refined gasoline products. Imports account for 60 percent of the crude oil processed. While the U.S. imports oil from a wide variety of countries, the bulk of the oil imports come from a small number of oil exporting countries. Both Venezuela and Iraq are among the top five oil exporters to the U.S. (see chart at the end of this memo).

Market Volatility and the Growing Number of Gasoline Types

Another factor that adds to the potential for volatility when inventories are low is the increase in the number of distinct types of gasoline. Today's gasoline market is comprised of many types of gasoline that serve different regional markets to meet varying Federal and State environmental requirements.

While producing specialized products for only those areas with air quality problems is seen as an efficient means of cleaning the air, the increase in boutique fuels adds a level of complexity in production, distribution and storage of gasoline. An example of such complexity was reported in the Wall Street Journal on April 4, 2002, when the main terminal for Phillips Petroleum in Phoenix literally ran out of gasoline.

The result of this targeted approach to air quality has been to balkanize the gasoline market and to create gasoline market islands. The primary examples are California and the Chicago/Milwaukee areas, in which the required gasolines are unique, and only a limited number of refineries make the products. The inventories of gasoline used in these regions can be drawn down rapidly in response to unusually high demand or a supply problem at one of the few refineries producing the specialized products, or in one of the pipelines delivering the products. Prices for gasoline in these regions then surge. If other gasoline markets are not tight, the price surges may be limited to the specialized gasoline regions, as is often the case in California.

Ethanol and MTBE

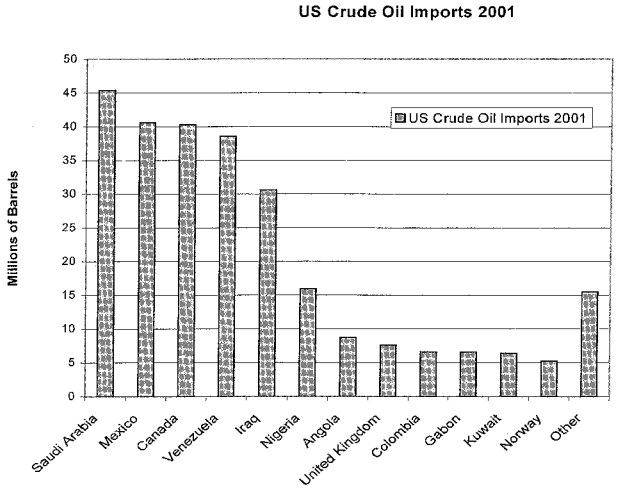
In addition to balkanized markets, future gasoline markets may become even less stable as refiners deal with the effects of phasing out the fuel additive MTBE and replacing it with ethanol. Under the Clean Air Act, refiners selling gasoline in areas with severe air pollution are required to add oxygenated fuel additives to the gasoline. Currently, two additives -- MTBE and ethanol -- constitute nearly all the oxygenates added to fuel. MTBE consumption in the U.S. is nearly 300,000 barrels per day.

The Senate energy bill (S. 517) currently being debated would ban the use of MTBE and require an annual consumption of renewable fuels at 2 billion gallons a year accelerating to 5 billion gallons by 2012.

According to the Energy Information Administration (EIA), the provisions of the Senate energy bill banning MTBE and requiring a renewable fuels standard will increase the average cost of reformulated gasoline by 9.0 to 10.5 cents per gallon. EIA estimates that the provisions will result in higher annual costs to consumers of $6.37 billion a year.

Invited Witnesses

Vicky Bailey, Assistant Secretary for Policy and International Affairs, Department of Energy; Mary Hutlzer, Acting Administrator, Energy Information Administration; William Kovacic, General Counsel, Federal Trade Commission; David Montgomery, Vice President, Charles River Associates; Nicholas Economides, Director, Hart Downstream Energy Services; and Gordon Rausser, Professor of Economics, University of California, Berkeley.



Source: Energy Information Administration, "Year to Date Imports of Crude Oil and Petroleum Products Into the United States by Country of Origin, January -January 2002."

Mr. SHAYS. No opening statement, Mr. Chairman, but just really delighted you are having this hearing. It's very important. Delighted that you have the witnesses you have, and I'm happy to be here. Thank you.

Mr. OSE. We welcome the gentleman.

As is the custom with this committee, we swear our witnesses in. We'll do it on the second panel, too, so you're not getting special treatment here. If you'd all rise and raise your right hands.

[Witnesses sworn.]

Mr. OSE. Let the record show that the witnesses answered in the affirmative.

Ms. Hutzler, we're going to recognize you first for a period of 5 minutes to summarize your testimony. You're on.

STATEMENTS OF MARY HUTZLER, ACTING ADMINISTRATOR, ENERGY INFORMATION ADMINISTRATION; VICKY BAILEY, ASSISTANT SECRETARY FOR POLICY AND INTERNATIONAL AFFAIRS, DEPARTMENT OF ENERGY; AND WILLIAM KOVACIC, GENERAL COUNSEL, FEDERAL TRADE COMMISSION

Ms. HUTZLER. Mr. Chairman, I appreciate the opportunity to appear before you today to discuss the current situation in and the outlook for U.S. gasoline markets.

The gasoline outlook depends on assumptions about certain key factors, including worldwide economic growth, the extent of OPEC supply restriction and non-OPEC supply response and the implications of these factors for world oil balances and crude oil prices.

Economic growth in the United States, while improving, is expected to be relatively modest this year, up a projected 1.6 percent, with more robust overall growth likely in 2003.

Oil demand growth in the United States is expected to be minimal this year, while global demand is expected to begin recovering, rising 600,000 barrels per day. This level of demand, coupled with the cutbacks in production initiated by OPEC, which between December 2000, and today have amounted to approximately 4 million barrels per day, is expected to move industrialized country oil stocks toward the lower end of the average range later this year, as shown in this chart. This change in oil stocks is expected to result in rising crude oil prices in 2002 and into 2003.

World oil prices rose on average by about $4 per barrel in March from February levels, as the benchmark West Texas intermediate crude oil price rose to an average of $24.50 per barrel. West Texas intermediate prices are projected to rise to the high 20's per barrel by the end of 2002, even assuming that production from OPEC will increase from current levels. Uncertainty about overall world oil market conditions, rising tensions in the Middle East and political turmoil in Venezuela pushed prices to levels above $27 per barrel briefly in early April.

However, if OPEC does not increase production during the second half of this year, world oil markets could witness a repeat of 2000 when prices rose sharply during the second half of the year before large production increases eased price pressures.

For the upcoming summer season, rising average crude oil costs are expected to yield above-average seasonal gasoline price in-

creases at the pump. However, pump prices are expected to range below last year's averages, assuming no unanticipated disruptions. Inventories are at higher levels than last year in April, providing a cushion against early season price spikes.

Regular grade retail gasoline prices are expected to average $1.46 per gallon, 5 percent lower than last summer's average of $1.54 per gallon. However, based on the aggregate uncertainties involved in forecasting the world crude oil market and the domestic refining distribution system, prices could average 11 to 13 cents per gallon higher or lower than the baseline forecast during the upcoming driving season.

The projected average summer gasoline price, when adjusted for inflation, is well below the record reached during the summer of 1980, about $2.65 per gallon in 2001 dollars. Gasoline demand is projected to average 8.88 million barrels per day, a new record, up 140,000 barrels per day or 1.6 percent from last summer. The growth comes amid the gradual acceleration of the U.S. economy out of the 2001 economic slowdown. This summer's expected growth rate is almost double last year's rate of 0.9 percent.

Motor gasoline stocks were about 17 million barrels above last year at the end of March. All Petroleum Administration for Defense Districts had higher levels of stocks than last year, and only the Midwest was slightly lower than the historical average as of the end of March.

Total domestic gasoline output is projected to average 8.29 million barrels per day during the summer months, about 115,000 barrels per day above last summer. Higher U.S. output and the greater availability of product in storage at the outset of the season are expected to displace net imports of gasoline. Net imports are projected to be 560,000 barrels per day, down 100,000 barrels per day from those of last summer.

It is important to note that we have always experienced spring gasoline price run-ups. However, they now are appearing more frequently, with larger increases and in a compressed period of time.

Part of the reason for the increased volatility can be traced to declining stock levels. Over the last 10 years, there has been a clear downward trend in the level of gasoline inventories. This trend is exacerbated when it is compared to demand levels that have been increasing. Thus, U.S. gasoline inventory levels cover far fewer days of consumption than they did 10 years ago. With lower inventory levels, there's a reduced ability to quickly increase supply when demand increases unexpectedly or when supplies are impacted either by distribution problems or decreased refinery production.

Spring price run-ups have also occurred following winters with tight distillate fuel markets resulting in refiners maximizing distillate fuel production at the expense of gasoline. Also, refiners typically increase their refinery throughput in the spring as they increase gasoline production and buildup inventories, resulting in increased demand for crude oil, which leads to pressure on crude oil markets. At times this has coincided with decreases in crude oil production, leading to sharp crude oil price increases that eventually lead to higher gasoline prices.

Mr. OSE. Ms. Hutzler, you've used your 5 minutes. I would appreciate your summary. I'm going to give you 30 seconds to summarize.

Ms. HUTZLER. I wanted to mention that there were two more factors in price run-ups. One is the transition from winter grade to summer grade gasoline. The other is the impact that crude oil prices have on gasoline prices. They represent about 40 percent of the gasoline price, and, therefore, they're also a factor.

I thank you.

Mr. OSE. I appreciate it. Thank you, Ms. Hutzler.

[The prepared statement of Ms. Hutzler follows:]

STATEMENT OF

MARY J. HUTZLER

ACTING ADMINISTRATOR

ENERGY INFORMATION ADMINISTRATION

DEPARTMENT OF ENERGY

before the

SUBCOMMITTEE ON ENERGY POLICY, NATURAL RESOURCES AND REGULATORY AFFAIRS

COMMITTEE ON GOVERNMENT REFORM

UNITED STATES HOUSE OF REPRESENTATIVES

HEARING ON THE CURRENT SITUATION IN U.S. MOTOR GASOLINE MARKETS

April 23, 2002

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to appear before you today to discuss the current situation in and outlook for U.S. gasoline markets.

The Energy Information Administration (EIA) is the statutorily chartered autonomous statistical and analytical agency within the Department of Energy. We are charged with providing objective, timely, and relevant data, analysis, and projections for the use of the Department of Energy, other Government agencies, the U.S. Congress, and the public. We do not take positions on policy issues, but we do produce data and analysis reports that are meant to help policymakers determine energy policy. Because we have an element of statutory independence with respect to the analyses that we publish, our views are strictly those of EIA. We do not speak for the Department, or for any particular point of view with respect to energy policy, and our views should not be construed as representing those of the Department or the Administration. EIA's baseline projections on energy trends are widely used by Government agencies, the private sector, and academia for their own energy analyses.

The Subcommittee has requested information about the current situation and outlook for the supply, demand, and prices of petroleum fuels, particularly gasoline, in the United States. Additionally, the Subcommittee has asked that I specifically discuss the implications for petroleum markets of the current unrest in the Middle East, political turmoil in Venezuela, and proposals to ban MTBE as a gasoline additive.

Short-Term Outlook

Overview

The gasoline outlook for this Summer (and for next year as well) depends on assumptions about certain key factors including economic growth in the United States (and around the world), the extent of OPEC supply restriction and non-OPEC supply response, and the implications of these factors for world oil balances and crude oil prices.

Economic growth in the United States, while improving now, is expected to be relatively modest this year, with more robust overall growth likely in 2003 (Figure 1). U.S. real GDP is expected to be up about 1.6 percent this year after posting a 1.2-percent rise in 2001. In recent weeks, economic analysts' expectations for domestic growth this year have become increasingly optimistic and GDP growth projections for 2002 have been revised upward. Despite the sense of increasing optimism about growth, it should be kept in mind that, in contrast to real GDP, indicators of industrial output showed a significant decline in 2001, particularly in the second half of the year. Improvement now in industrial output may not actually yield year-over-year improvements in activity levels until well into the second half of 2002. Thus, it is possible to have no overall gain in industrial output in 2002 compared to 2001. EIA, in fact, projects a slight decline (on an annual basis) for industrial output this year because of the weakness in the first half

of 2002. Thus, the prospects for overall growth in energy demand (including petroleum) in the United States in 2002 are not strong. Growth prospects for U.S. gasoline markets are somewhat different from those for overall petroleum (discussed below). The situation toward the end of 2002 is likely to be one of accelerating growth, and the annual picture for growth in 2003 is quite robust.

Figure 1.

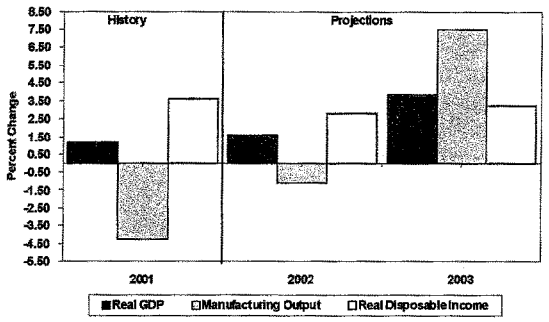
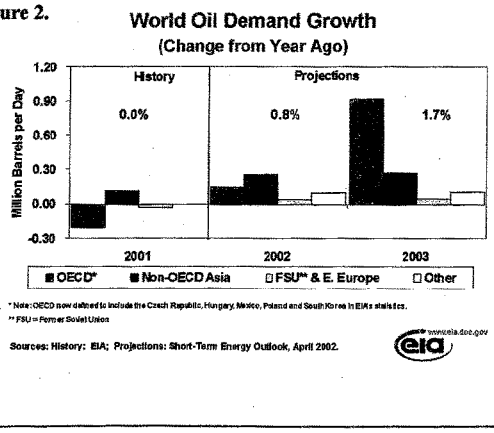
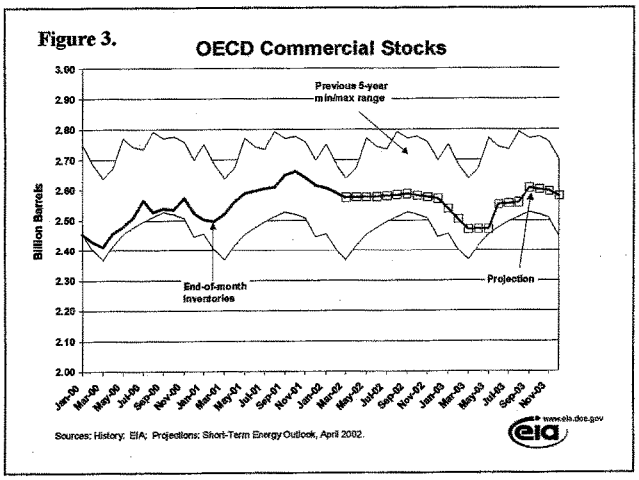
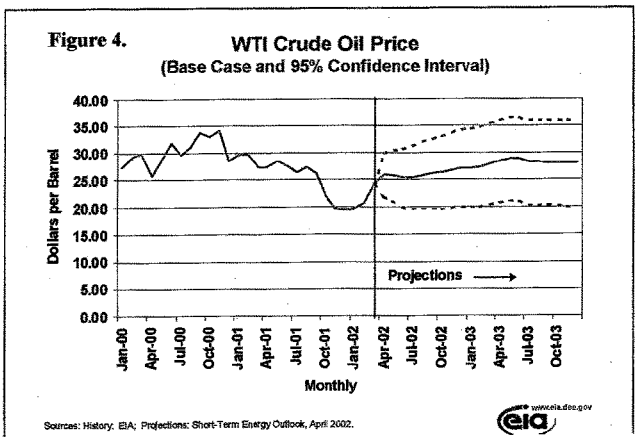


Figure 2.



While oil demand growth in the United States is expected to be about flat this year, demand worldwide is expected to begin recovering from stagnation (no growth) seen in 2001 (Figure 2). This development, in conjunction with cutbacks in production initiated by OPEC (excluding Iraq), which between December 2000 and today has amounted to approximately 4 million barrels per day (about 15 percent of OPEC's fourth quarter 2000 production level), is expected to move industrialized country oil stocks toward the lower end of the average range later this year (Figure 3).





General support for relatively high and rising crude oil prices in 2002 and into 2003 is consistent with such a change in oil stocks. World oil prices rose on average by about $4 per barrel in March from February levels, as the U.S. benchmark West Texas Intermediate (WTI) crude oil price rose to an average of $24.50 per barrel (Figure 4).

The OPEC basket price rose to an average of $23 per barrel, thus exceeding $22 per barrel - the lower end of OPEC's suspended price band - on March 8 for the first time since September. In part, prices rose because markets focused on the uncertain situation in Iraq and the Middle East. World oil prices are expected to rise in 2002, as inventories in the Organization for Economic Cooperation and Development (OECD) countries draw down as a result of supply cuts taking place following the enactment of the January 2002 quota. WTI prices are projected to rise to the high $20's per barrel by the end of 2002, assuming that production from the OPEC 10 (the OPEC countries minus Iraq) will increase from current levels as expected. Uncertainty about overall world oil market conditions and rising tensions in the Middle East have pushed prices to levels above $27 per barrel for WTI. Furthermore, the current political turmoil in Venezuela has increased the volatility in the world oil market. Venezuela is not only a member of OPEC, but is also one of the leading exporters of petroleum to the United States.

However, if the OPEC 10 do not increase production, world oil markets could witness a repeat of 2000, when prices rose sharply during the second half of the year before large production increases eased price pressures. The OPEC 10 succeeded in reducing their oil production by an estimated 1.3 million barrels per day in January-February. Efforts to improve compliance leveled off in March, leaving the OPEC 10 producing at least 700,000 barrels per day above quota levels. If past history is a guide, OPEC compliance should decline over the next few months. Even so, prices should continue to increase despite this overproduction above quota levels. OPEC quotas have been set at low levels, resulting from repeated OPEC 10 quota cuts totaling over 5 million barrels per day over the past year. As a result, OPEC is now in a situation where world oil markets could tighten and oil prices rise even in the event of little or no demand growth and large increases in non-OPEC production. OPEC Secretary General Rodriguez has stated that he doesn't see OPEC raising output this year. However, this scenario is highly unlikely given past experience with OPEC quota compliance. Furthermore, EIA's global oil demand projections for 2002 suggest that world oil demand will continue to grow in 2002 as world economies begin to recover. EIA's current Outlook estimates world oil demand growth of 540,000 barrels per day this year. With the expected recovery of the economies in 2003, particularly in the United States, where GDP growth is projected to reach 3.8 percent annually, world oil demand could increase by 1.3 million barrels per day, with more than half of this coming from the U.S.

Gasoline Markets

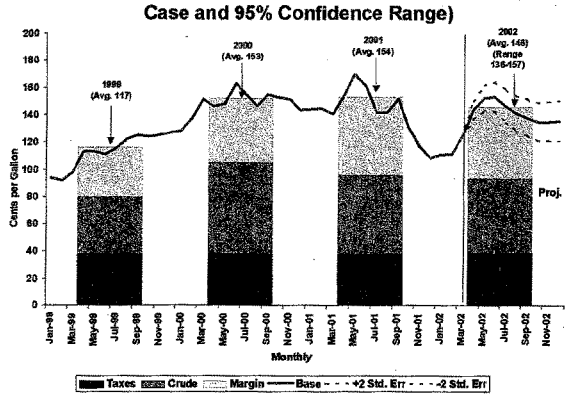
For the upcoming Summer season (April to September 2002), rising average crude oil costs are expected to yield above-average seasonal gasoline price increases at the pump. However, year-

over-year comparisons for pump prices are still likely to be lower this Summer. Inventories are at higher levels than last year in April, so some cushion against early-season price spikes is in place and price levels are expected to range below last year's averages, assuming no unanticipated disruptions. Still, OPEC production restraint and tightening world oil markets now probably mark the end of the brief respite (since last fall) from two years of relatively high gasoline prices.

Retail gasoline prices (regular grade) are expected to average $1.46 per gallon, 5 percent lower than last Summer's average of $1.54 per gallon (Figure 5). Based on the aggregate uncertainties involved in forecasting the world crude oil market and the domestic refining/distribution system, a 95 percent confidence range extends an average of 11 cents, and as much as 13 cents per gallon, to either side of the baseline forecast during the upcoming driving season. The projected (baseline) average Summer gasoline price, when adjusted for inflation, is well below the record reached during the Summer of 1980 (about $2.65 per gallon in year 2001 dollars). Although we expect oil markets to tighten up generally over the course of the next year, there remains a high probability that real gasoline prices will be lower than levels seen last Summer.

Figure 5.

Summer Retail Motor Gasoline Price Cases* (Base Case and 95% Confidence Range)



* Regular gasoline, self-serve cash.

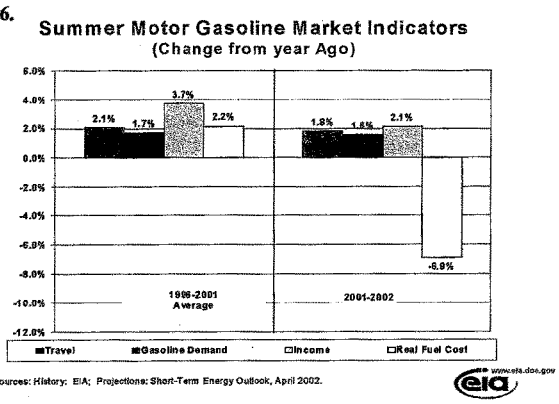
Source: EIA; Summer 2002 Motor Gasoline Outlook.

www.eia.doe.gov

Gasoline demand is projected to average 8.88 million barrels per day, a new record, up 140,000 barrels per day, or 1.6 percent, from last Summer (Figure 6). The growth comes amid the gradual

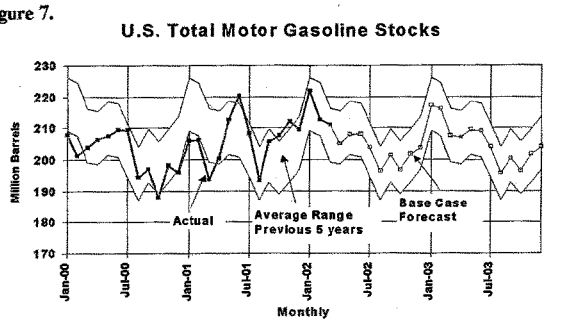
acceleration of the U.S. economy out of the 2001 economic slowdown. This Summer's expected growth rate is almost double last year's rate of 0.9 percent.

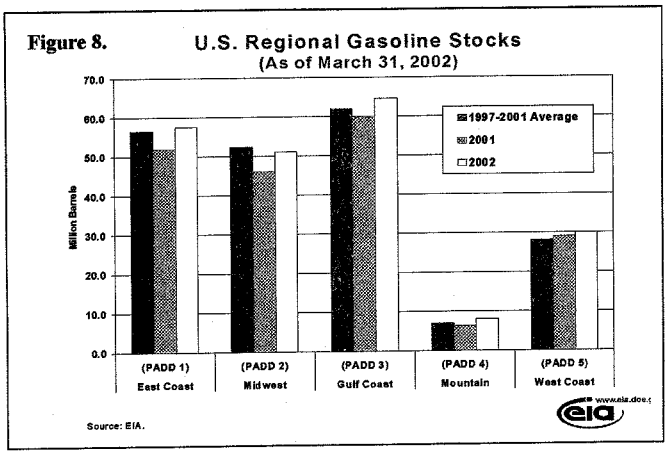
Figure 6.



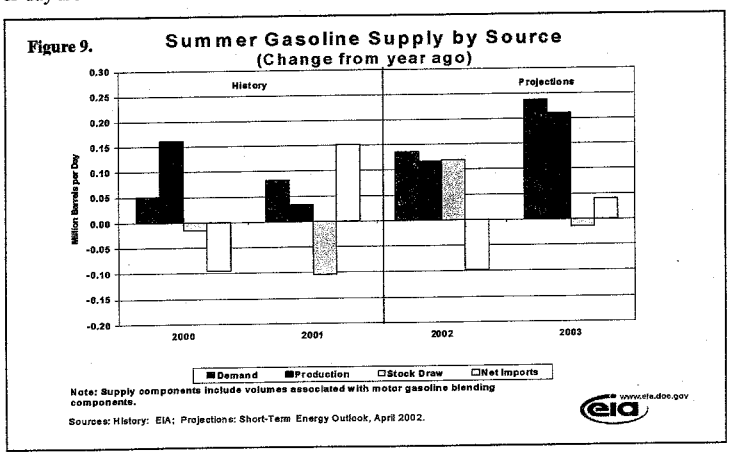
Motor gasoline stocks are about 17 million barrels above last year as of the end of March (Figure 7). All Petroleum Administration for Defense Districts (PADDs) have higher levels of stocks than last year, and only the Midwest is slightly lower than its 4-year historical average (Figure 8). Inventory changes will substitute for much of the new domestic supply requirements this Summer, with some of the substitution appearing in the form of reduced imports.

Figure 7.





Total domestic output (refinery and field production less volumes associated with net imports of and stock changes in gasoline blending components) is projected to average 8.29 million barrels per day during the Summer months, about 115,000 barrels per day (1.3 percent) above last Summer (Figure 9). Higher U.S. output and the greater availability of product in storage at the outset of the season are expected to displace net imports of gasoline. These net imports are projected to be 560,000 barrels per day (including blending components), down 100,000 barrels per day from those of last Summer.



Why Do Gasoline Prices Always Seem To Rise in the Spring?

Between February 11 and April 8 of this year, gasoline prices rose by more than 30 cents per gallon, the second largest consecutive weekly increase since at least August 1990, when EIA began a weekly gasoline price survey. The largest such increase occurred last Spring and the third largest increase occurred in the Spring two years ago. Why do prices seem to rise the most in the Spring?

First, it is important to note that we have always experienced Spring gasoline price run-ups. As Figure 10 and Table 1 show, we have seen at least one significant price run-up each year. The difference is that they now are appearing more frequently, with larger increases, and in a compressed period of time.

Figure 10.

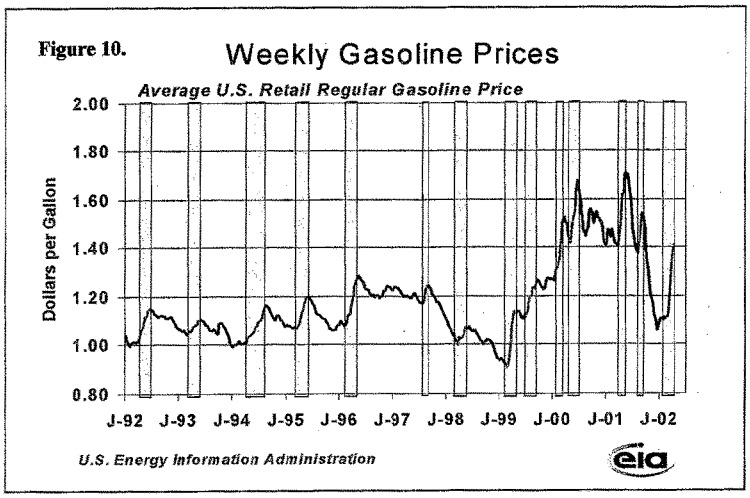


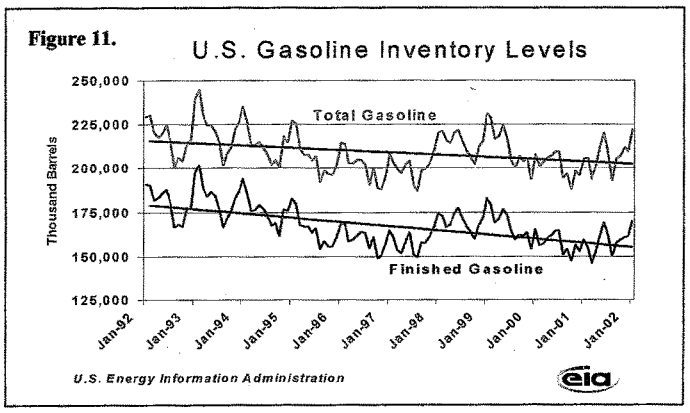
Table 1. Significant Price Increases in U.S. Retail Gasoline Prices

Year	Dates	Length	Price Range (c/g)	Total Increase (c/g)
1992	March 30 – June 22	12 weeks	101.3 – 115.3	14.0
1993	March 1 – May 31	13 weeks	104.2 – 110.7	6.5
1994	March 14 – August 22	23 weeks	100.5 – 116.5	16.0
1995	March 20-May 29	10 weeks	106.8 – 119.9	13.1
1996	February 12 – May 20	14 weeks	108.0 – 128.5	20.5
1997	July 28 – August 25	4 weeks	117.0 – 124.4	7.4
1998	March 23 – June 8	11 weeks	100.0 – 107.5	7.5
1999	February 22 – April 12	7 weeks	90.7 – 114.0	23.3
	June 14 – September 20	14 weeks	110.8 – 126.8	16.0
2000	January 10 – March 20	10 weeks	126.4 – 152.9	26.5
	May 1 – June 19	7 weeks	142.0 – 168.1	26.1
2001	March 26 – May 14	7 weeks	140.4 – 171.3	30.9
	August 6 – September 3	4 weeks	137.6 – 154.5	16.9
2002	February 11 – April 8	8 weeks	110.7 – 141.3	30.6

Part of the reason for the increased volatility can be traced to declining stock levels. Figure 11 shows monthly gasoline inventory levels for both finished gasoline and total gasoline (including gasoline blending components). Over the last 10 years there has been a clear downward trend in the level of gasoline inventories. This trend is exacerbated when it is compared to demand levels, which have been increasing. Thus, U.S. gasoline inventory levels cover far fewer days of consumption than they did 10 years ago. With lower inventory levels, there is a reduced ability to quickly increase supply when demand increases unexpectedly or supplies are impacted either by distribution problems (i.e., refineries or pipelines) or decreased refinery production.

However, crude oil prices also impact gasoline prices. Between January 2000 and February 2002, crude oil prices accounted for between 35 and 50 percent of the retail price of regular gasoline. This represents the largest portion of retail gasoline prices. A combination of State and federal gasoline taxes have represented anywhere from 25 to 29 percent of the retail price of gasoline. What is commonly referred to as the refinery margin (the difference between the spot price of gasoline and the cost of crude oil) can vary substantially depending on the crude oil and gasoline markets at the time, and has ranged between 8 and 32 percent of the retail price of gasoline over the last couple of years. The final component of the retail price, which EIA refers to as the distribution and marketing margin (calculated as the difference between the retail price and the sum of the other components), also has varied greatly, ranging between 5 and 24 percent of the retail price of gasoline. But the crude oil component has always been the largest component in each month over the past 2 years. Therefore, factors that affect the crude oil market, which can

range from fundamental shifts in global supply to fears of impending problems around the globe, also impact gasoline prices. Because analyzing crude oil markets is so important in analyzing U.S. gasoline prices, I will discuss the current situation in the Middle East and Venezuela later in this testimony.



Some of the Spring run-ups occurred following a Winter in which the distillate fuel market was tight. As a result, refiners maximized distillate fuel production at the expense of gasoline, thus reducing the Winter build in gasoline stocks and starting the season with lower inventories than would otherwise have occurred. Another reason is that refiners typically increase their refinery throughput in the Spring as they increase gasoline production and build up inventories for the other fuels so that supply is there when needed. Thus this increased demand for crude oil to be used in refineries leads to some pressure on crude oil markets and at times has coincided with decreases in crude oil production, thus leading to sharp crude oil price increases that eventually lead to higher gasoline prices. And recently, we have seen that the transition from Winter grade to Summer grade gasoline has also encouraged refiners to deplete inventories at the end of Winter in order to make room for Summer gasoline, thus reducing inventories in the Spring.

Gasoline Price Increases in 2000

Gasoline prices rose over 26 cents per gallon in each of two different periods in 2000. The first began in the Winter and went into the first part of Spring. Part of this was a result of very low inventories at the end of 1999, especially for distillate fuel. When a cold weather snap occurred in the Northeast portion of the United States (where the bulk of heating oil is used) towards the end of January, refiners began to produce more distillate, thus reducing gasoline production. The heating oil price pressure also helped put pressure on crude oil as refiners began to scramble for

more crude oil in order to maximize distillate fuel production, since heating oil prices were producing healthy margins for them. From early January 2000 to mid-March 2000, WTI prices increased from $25 per barrel to $32 per barrel. This $7 per barrel increase, if passed on fully at the pump, would represent an increase in gasoline prices of about 20 cents per gallon, representing the vast majority of the 26.5 cents per gallon increase seen over this period.

The second increase, which occurred during the late Spring and early Summer (May 1 to June 19) centered more on problems in the distribution chain in the Midwest as this was the first Summer in which Phase II reformulated gasoline (RFG) was introduced. States in which ethanol was used to make RFG had more difficulty in meeting the new specification. Problems with a key pipeline flowing from the Gulf Coast into the Midwest, and a smaller pipeline in Michigan, exacerbated the problem. But even here, crude oil prices increased substantially over this period, partly due to the problems in the U.S. gasoline market. WTI increased from $26 per barrel in early May to nearly $33 per barrel by mid-June, another $7 per barrel increase that translates to about 20 cents per gallon at the pump.

Gasoline Price Increases in 2001

Similar to 1999 and 2000, there were two gasoline price run-ups in 2001, the first occurring in the Spring while the second occurred sometime later (the end of Summer in 2001). However, unlike in 2000, the price run-up in the Spring of 2001 could not be attributed to crude oil prices, as WTI only increased by about $1 to $2 per barrel over this time period. This increase, totaling 30.9 cents per gallon from March 26 to May 14, is the largest consecutive increase EIA has seen since the inception of our weekly survey, and can largely be attributed to low gasoline inventories at the beginning of the gasoline season, which were the lowest they have been since 1957. In 2001, we saw what can happen when low inventories combine with regional capacity limitations and unique gasoline requirements. First, in the Midwest, the shutdown of the Blue Island refinery in Illinois created a level of concern about RFG supplies in Chicago and Milwaukee. The closure also created the need for greater volumes to move from the Gulf Coast to the Midwest. Economic incentives to build inventories were further eroded as Gulf Coast prices surged in response to strong demand not only from the Midwest and West Coast, but also from the East Coast, where refineries underwent extended maintenance. During April, with little inventory cushion in place, the transition from Winter to Summer grade reformulated gasoline in the Midwest required running tanks down to very low levels, further undercutting stock levels. Just as tanks were beginning to refill, Tosco's Wood River, Illinois refinery had a fire that reduced its ability to produce both conventional and reformulated gasolines for a period of 2 to 3 weeks. While East Coast prices did not surge as much as the Midwest, the East Coast endured extended refinery maintenance in early Spring. In addition, several foreign refineries that are key suppliers of reformulated gasoline to the East Coast had extended outages. There were also pressures in California, which frequently sees price surges due to its tight supply/demand balance, the unique nature of its gasoline, and its long distance from other supply sources. The Spring of 2001 was no exception.

The second price increase in 2001, while much shorter and of lower magnitude than the first, was partly a result of the first increase. Gasoline prices rose so high (without a corresponding increase in crude oil prices) that refinery margins on making gasoline were historically high. This led to a lot of increased supply flooding into the U.S. gasoline market during the Summer of 2001, and after peaking at $1.71 per gallon on May 14, gasoline prices fell even below where they started the first price run-up, at just under $1.38 per gallon as of August 6. Meanwhile crude oil prices remained relatively stable, such that refinery margins plunged over this period. As such, gasoline production was curtailed and refiners switched to making more distillate fuel in preparation for the upcoming Winter season, thinking that enough gasoline supply existed in the system to get through the end of the Summer season. However, gasoline demand remained strong through August, and inventories were drawn down significantly to meet this demand, which put pressure on gasoline prices again. This led to a short-term increase that lasted only four weeks.

The Gasoline Price Rise of 2002

The price rise this Spring, once again, appears to be more attributed to the crude oil market than the gasoline market. Between mid-February and early April, WTI prices rose by $7 per barrel, explaining about 20 cents per gallon of the more than 30 cents per gallon rise seen so far. The additional price rise can mostly be attributed to normal seasonal increases. Of course, a large part of the crude oil price increase reflects a tightening of crude oil markets as decreases in global supply, specifically from OPEC, have more than compensated for any decrease in demand related to the global economy and impacts from September 11. Needless to say, this year's increases relate mostly to the crude oil market. While global supply/demand fundamentals, as described earlier, explain much of the recent rise in crude oil prices, events in the Middle East and in Venezuela have added upward pressure, and could continue to be significant factors through this Summer and beyond.

Oil Supply Disruptions in Venezuela and the Middle East

Venezuela

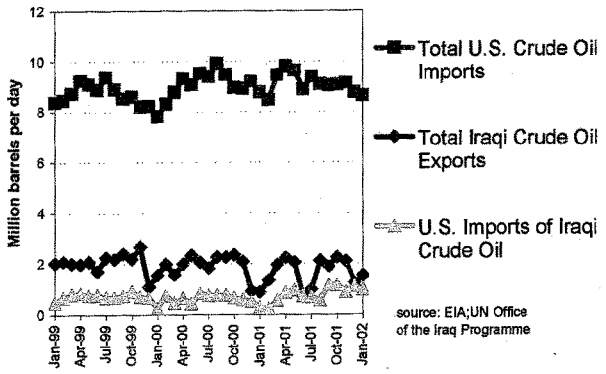
Venezuela, OPEC's only member located in the Western Hemisphere, has ranked consistently in the last several years as one of the four top sources of U.S. oil imports (along with Canada, Mexico, and Saudi Arabia). Venezuelan exports to the U.S. peaked in 1997 at about 1.8 million barrels per day. While total U.S. petroleum imports have risen by about 1.5 million barrels per day since 1997, imports from Venezuela have decreased by about 235,000 barrels per day. In 1997, Venezuelan imports accounted for over 17% of total U.S. imports, whereas they accounted for about 13% of that total in 2001. Recent events in Venezuela have temporarily disrupted exports; however, since Friday, April 12, they appeared to be returning to a normal pace.

Iraq and the Middle East

On April 8, 2002, Iraq announced that it would halt its oil exports for 30 days or until Israel withdrew from Palestinian territories. To date, no other countries have joined in Iraq's embargo action, although Libya and Iran have expressed some sympathy. In fact, some major producers have been quoted as saying that they will make up any shortfall from Iraq, or at least that they will maintain adequate world oil supplies. On the other hand, Iran, with current net oil exports of around 2.2 million bbl/d, and Libya, with net oil exports of around 1.1 million bbl/d, have said that they would join an export cut if other OPEC members also agreed to take part.

In 2001, Iraq was a net oil exporter of around 1.9-2.0 million barrels per day (bbl/d) (Figure 12). Recently, Iraqi exports have been lower -- around 1.7 million bbl/d. This number includes Iraq's exports through the UN "Oil-for-Food" program via the Turkish port of Ceyhan and the Iraqi port of Mina al-Bakr, plus exports to Jordan permitted by the United Nations. In addition, there have been periodic reports that Iraq has smuggled up to 450,000 bbl/d of crude oil and products, worth an estimated $3 billion (or more) per year, via a number of routes. These earnings are outside the UN "Oil-for-Food" program.

Figure 12. **Monthly Iraqi Oil Exports and U.S. Oil Imports, January 1999-January 2002**



According to industry and press sources, Iraqi export routes outside the UN program include: 1) to Turkey (as high as 100,000-150,000 bbl/d, mainly of fuel oil) by truck through the Habur border point (reportedly, this smuggling was stopped from September 18, 2001 through January 7, 2002); 2) to Jordan (possibly 10,000-30,000 bbl/d above domestic needs) by truck; 3) to Syria (150,000-200,000 bbl/d or more), mainly via the Kirkuk-Banias pipeline; 4) to Iran along the Gulf coast and via Qais Island; and 5) to Dubai with the use of small tankers sailing from Umm Qasr. Press reports also have estimated that these shipments may be providing Iraq with as much as $600 million-$2 billion per year in additional revenues, above and beyond the earnings through the UN "Oil-for-Food" program.

The United States is Iraq's largest customer, importing about 778,000 bbl/d of Iraqi oil in 2001, and about 988,000 bbl/d in January 2002. Imports from Iraq accounted for an average 8 percent of total U.S. oil imports in 2001. In 2001, Iraq was the sixth-largest source of U.S. crude oil imports, behind Saudi Arabia, Mexico, Canada, Venezuela, and Nigeria.

The loss of Iraqi oil exports can be made up by spare oil production capacity in other OPEC and non-OPEC countries. Excluding Iraq, OPEC currently has about 6.3-6.8 million bbl/d in spare oil production capacity (Figure 13). Of this, Saudi Arabia has around 2.8-3.3 million bbl/d, which represents between 44 and 49 percent of the OPEC total. So, the loss of Iraqi oil exports could be compensated for fairly easily by surplus capacity in Saudi Arabia and other OPEC countries. OPEC countries have provided the excess crude oil needed during previous Iraq oil export stoppages.

Figure 13. **World Surplus Oil Production Capacity (2Q 2002 – Million Barrels per Day)**

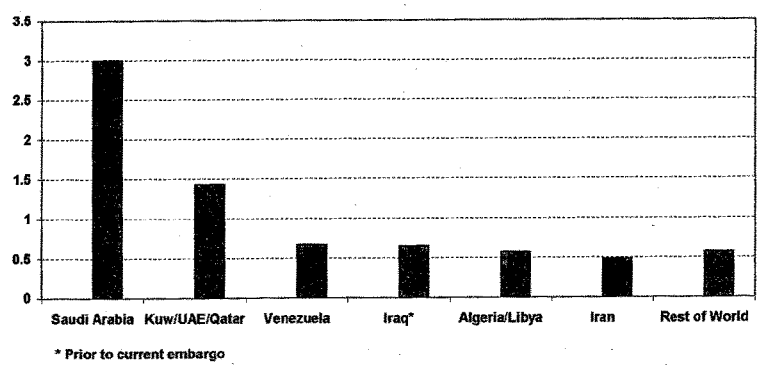
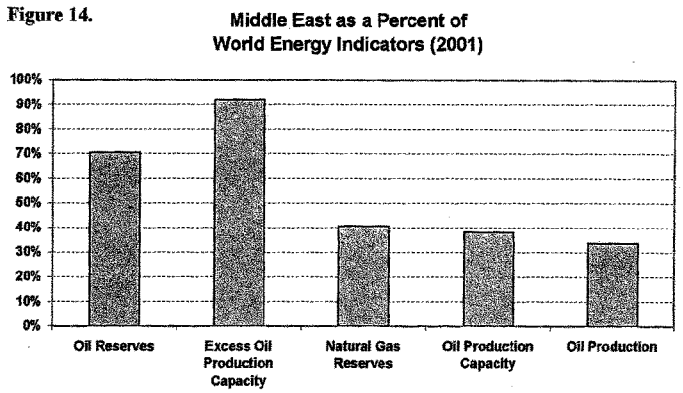


Figure 14.



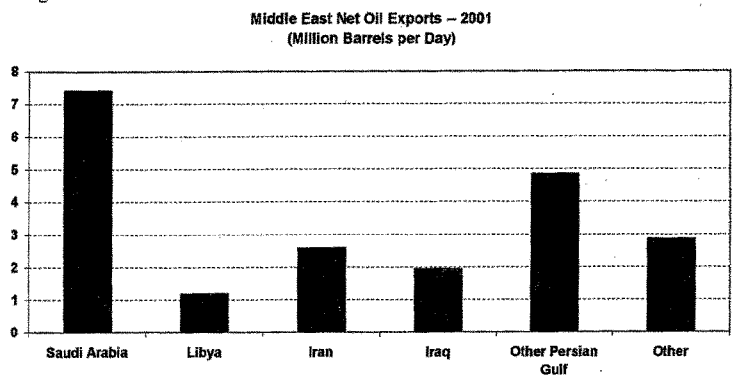
The Middle East (including North Africa) accounts for approximately 71 percent of world oil reserves, 41 percent of world natural gas reserves, 39 percent of the world oil production capacity, 34 percent of world total oil production, and about 92 percent of the world's excess oil production capacity (Figure 14). As of early 2002, world excess oil production capacity was over 7 million bbl/d. This capacity can be brought online in a supply disruption, as long as those countries are not affected by the disruption.

In 2001, Middle Eastern countries had net oil exports of around 20.8 million bbl/d. Of this total, Saudi Arabia accounted for 7.4 million bbl/d, or 36 percent; Iran for 2.6 million bbl/d, or 12 percent; Iraq for 2.0 million bbl/d, or 9 percent; and Libya for 1.2 million bbl/d, or 6 percent (Table 2, Figure 15). Other significant Middle East net oil exporters in 2001 included the United Arab Emirates, with about 2.1 million bbl/d; Kuwait (1.9 million bbl/d); and Algeria (1.2 million bbl/d).

Table 2. Top World Oil Net Exporters, 2001*		
	Country	**Net Exports (million barrels per day)**
1)	Saudi Arabia	7.4
2)	Russia	4.8
3)	Norway	3.2
4)	Iran	2.7
5)	Venezuela	2.6
6)	United Arab Emirates	2.1
7)	Nigeria	2.0
8)	Iraq	2.0
9)	Kuwait	1.8
10)	Mexico	1.6
11)	Libya	1.2
12)	Algeria	1.2

Table includes all countries with net exports exceeding 1 million barrels per day in 2001.

Figure 15.



U.S. gross oil imports from the Middle East during 2001 were around 3 million bbl/d (of which 2.7 million bbl/d was from the Persian Gulf). The vast majority of Middle Eastern oil imported by the United States came from Saudi Arabia (about 1.7 million bbl/d), with significant amounts also coming from Iraq (778,000 bbl/d), Algeria (275,000 bbl/d) and Kuwait (243,000 bbl/d) (Table 3). The United States imported about 100,000 bbl/d from the United Arab Emirates, Yemen, Oman, Qatar, Tunisia, Egypt, and Syria in 2001, and none from Libya.

In 2001, the United States imported more oil on a daily basis from the Persian Gulf (*not* the Middle East as a whole) than in any previous year. The Persian Gulf accounted for 24 percent of U.S. *net* oil imports, and 14 percent of U.S. oil demand, in 2001.

Table 3. Major Sources of U.S. Petroleum Imports, 2001*
(all volumes in million barrels per day)

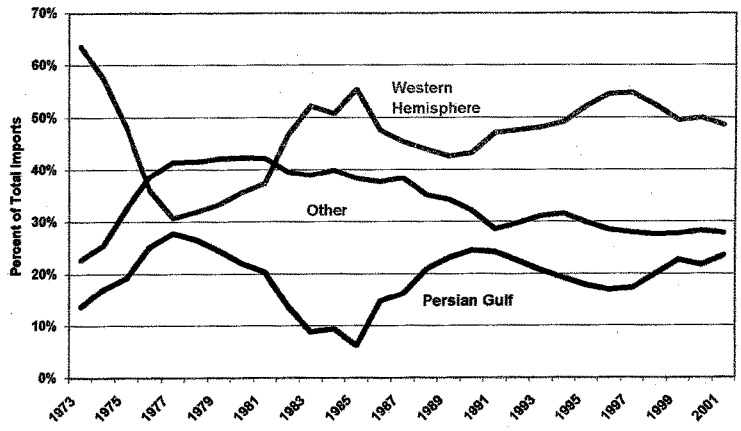
	Total Oil Imports	Crude Oil Imports	Petroleum Product Imports
Canada	**1.79**	**1.32**	**0.47**
Saudi Arabia	**1.66**	**1.61**	**0.05**
Venezuela	**1.54**	**1.28**	**0.26**
Mexico	**1.42**	**1.38**	**0.04**
Nigeria	**0.86**	**0.81**	**0.04**
Iraq	**0.78**	**0.78**	**0.00**
Norway	**0.33**	**0.27**	**0.06**
Angola	**0.32**	**0.31**	**0.07**
United Kingdom	**0.31**	**0.23**	**0.08**
Total Imports	**11.62**	**9.15**	**2.47**

Table includes all countries from which the U.S. imported more than 300,000 barrels per day in 2001

Since 1973, sources of U.S. oil imports have fluctuated greatly. The Persian Gulf, for instance, supplied around 14 percent of U.S. oil imports in 1973 (Figure 16). This increased to 28 percent

in 1977, but then declined rapidly following the Iranian revolution in late 1978. By 1985, U.S. oil imports from the Persian Gulf had declined to 6 percent of total U.S. oil imports. After 1985, a year which saw oil prices collapse, Persian Gulf oil imports rebounded sharply, reaching 25 percent in 1990, the year of the Iraqi invasion of Kuwait. The Persian Gulf share then fell once again, to 17 percent in 1996 and 1997, before rising once again, reaching 24 percent in 2001. U.S. oil imports from the Middle East outside the Persian Gulf come mainly from Algeria. Until 1981, the United States also received significant volumes of oil from Libya. Since 1983, the United States has received no oil imports from Libya.

Figure 16. **U.S. Gross Oil Imports by Source. 1973-2001**



In general, U.S. oil import reliance on the Western Hemisphere -- Canada, Mexico, Venezuela, and others -- followed a pattern during the 1970s and 1980s that was essentially the mirror image of the Persian Gulf oil import share. Since the early 1990s, U.S. oil imports from the Western Hemisphere have been relatively stable, hovering around 50-55 percent for nearly a decade.

Western Europe (defined as European countries belonging to the Organization for Economic Cooperation and Development -- OECD) averaged 2.8 million bbl/d of net oil imports from the Persian Gulf during the first 9 months of 2001. Western Europe also imports heavily from North Africa -- Algeria, Libya, and Tunisia. Japan averaged 4.1 million bbl/d of net oil imports from the

Persian Gulf during the first 9 months of 2001, Japan relied on oil imports from the Persian Gulf to meet about 76 percent of its total oil demand in 2001.

Renewable Fuel Standard and an MTBE Ban

Finally, returning to domestic gasoline markets, I would like to discuss the potential impact of two proposed Federal legislative initiatives: a minimum renewable fuel standard (RFS), and a ban on the use of methyl tertiary butyl ether (MTBE) in gasoline.

Certain assumptions and limitations of this analysis need to be understood, before I present the results:

- This is an annual analysis that does not look separately at the difficulty of making low vapor pressure summer reformulated gasolines in the absence of MTBE, or with ethanol.
- An adequate supply of ethanol is assumed to be available to meet either market or RFS demands and ethanol prices are not affected by possible tight or limited supplies.
- The continued availability of imported gasolines, included reformulated gasoline, is assumed even with the MTBE ban.
- Credit trading and banking was not included in this analysis.
- The new EPA MSAT requirements are not directly captured in this analysis and, therefore, their impact on regional supply is not known.

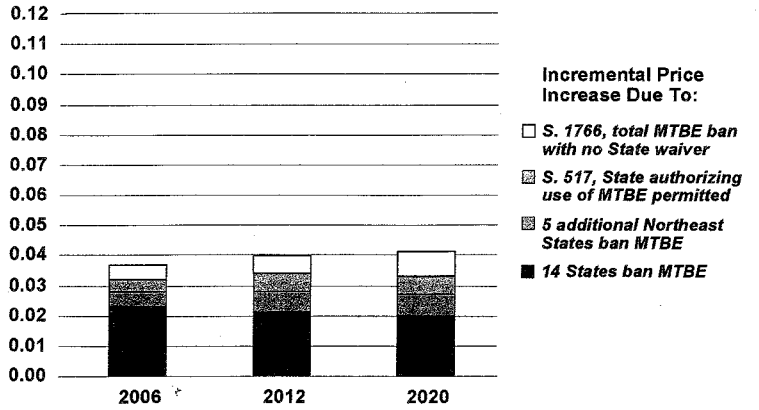
EIA has provided two analysis reports on the impact of the renewable fuels standard (RFS) and methyl tertiary butyl ether (MTBE) provisions of the energy bill. The first analysis looked at provisions of Senate bill S. 1766, an older version of the energy bill, and was done at the request of Sen. Frank Murkowski, the Ranking Minority Member of the Senate Committee on Energy and Natural Resources. A second, more recent analysis looked at provisions of the current bill S. 517, and was done at the joint request of Senators Daschle and Murkowski. Both bills require a 10 year ramp-up in the amount of renewable fuels included in gasoline, reaching 5 billion gallons per year in 2012, and the elimination of the oxygen requirement on reformulated gasoline (RFG). The bills differ in the provisions related to MTBE reduction and the oxygen requirement of RFG. Both bills aim to eliminate the use of MTBE as a gasoline additive but S. 517 incorporates greater flexibility because it includes a provision that would allow States to decide to continue to allow MTBE. As directed in the April 10, 2002 letter from Senators Daschle and Murkowski, EIA's analysis of S. 517 assumes that this provision will result in a net reduction in MTBE of 87 percent, rather than the 100 percent reduction assumed in our analysis of S. 1766. Another difference between the two bills is that S. 517 provides for the elimination of the 2 percent

oxygen requirement, while S. 1766 would have allowed States to waive this requirement. Therefore, our recent analysis reflects no oxygen requirement, while the analysis of S. 1766 reflected an assumption that only States on the East and West Coast waived the requirement. In all the cases, the continuation of the ethanol tax exemption is assumed to continue through 2020. In accordance with the Federal Highway Bill of 1998, the exemption is currently 53 cents per gallon but will be reduced by 1 cent per gallon in 2003 and again in 2005. Legal authority for the tax exemption expires in 2007, but because the exemption has been renewed several times since it was initiated in 1978, this analysis assumes that it will be extended at the 51-cent (nominal) level for 2007 through 2020.

The price impact of these different provisions are discussed as increments from the current state of the market. In the absence of Federal legislation, 14 States have already passed legislation to ban or restrict MTBE that would become effective by 2004; Arizona, California, Colorado, Connecticut, Indiana, Iowa, Illinois, Kansas, Michigan, Minnesota, Nebraska, New York, South Dakota, and Washington. Of these States, only Arizona, California, Connecticut, and New York have RFG markets that rely on MTBE. Our analysis indicates that the implementation of these State-level restrictions results in projected annual average prices of all gasoline that are roughly 2 cents per gallon (2000 dollars) higher than they would have been without these restrictions between 2006 and 2020 (Figure 17); and RFG prices that are 3.5 to 4 cents per gallon higher (Figure 18).

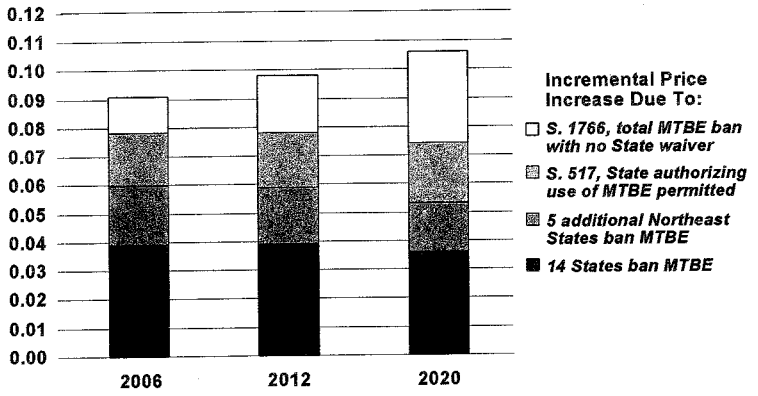
Figure 17.

Average National Gasoline Price Differentials Under Various MTBE Ban Cases, 2006, 2012, and 2020 (2000 dollars per gallon)



Source: Energy Information Administration, National Energy Modeling System runs R1aeo02z.d022702a, RFaeo02A.d041002b, RFaeo02B.d041002b, RFi1m0b0.d041102d, R1i1mobo.d022802b

Figure 18. Average RFG Price Differentials Under Various MTBE Ban Cases, 2006, 2012, and 2020 (2000 dollars per gallon)



Source: Energy Information Administration, National Energy Modeling System runs R1aeo02z.d022702a, RFaeo02A.d041002b, RFaeo02B.d041002b, RFi1m0b0.d041102d, R1i1mobo.d022802b

As requested by Senators Daschle and Murkowski, EIA also analyzed the incremental impact of assuming that additional Northeast States follow suit and ban MTBE. EIA developed a "19-State MTBE Ban" Case, assuming that the other Northeast States with RFG markets, including New Hampshire, Massachusetts, Rhode Island, Pennsylvania, and New Jersey, also ban MTBE in 2004. The average annual price of all gasoline is projected to be another half cent higher with the ban in these additional States, and another 2 cents per gallon higher for RFG. When the RFS and MTBE provisions of S. 517 are implemented, the price projections for 2006 are an additional half cent per gallon for all gasoline, and 2 cents per gallon for RFG compared to the restrictions in the 19-States. Relative to a price path without State bans, the S. 517 projections reflect a total price increase for all gasoline of about 3 to 3.5 cents per gallon, and an RFG price increase of 7.5 to 8 cents per gallon between 2006 and 2020. The higher gasoline prices projected in the S. 517 Case translate into a higher annual cost to consumers of $2.06 billion on average between 2006 and 2020, compared to the Reference Case.

EIA's analysis of S. 1766 resulted in price projections for all gasoline that are an additional 0.5 and 1 cent per gallon higher than the S. 517 between 2006 and 2020; and RFG prices that are 1

cent per gallon in 2006, growing to 3 cents per gallon in 2020 for RFG. The additional price increases in the S. 1766 Case can be mostly attributed to the requirement of a total MTBE ban, as compared to the 87 percent reduction that is assumed in S. 517. The widening RFG price impact in the S. 1766 reflects the difficulty of meeting growing RFG needs without any MTBE production or imports at all.

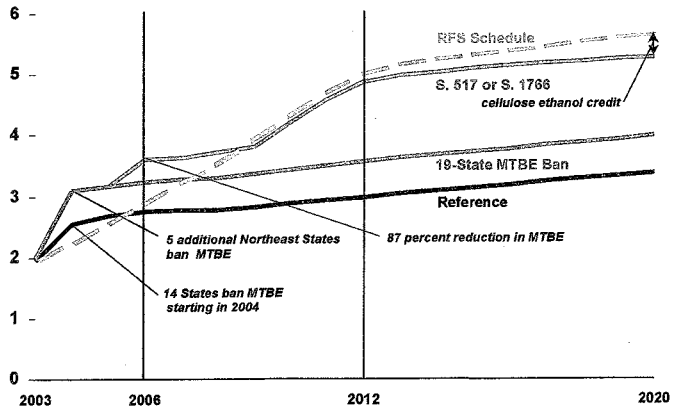
At the request of Senators Daschle and Murkowski, EIA's analysis isolated the impact of the RFS provision by developing an RFS/No MTBE Ban Case that reflects the RFS provision in the absence of an MTBE ban. This Case indicated that the RFS by itself is projected to raise prices of all gasoline by about a half cent per gallon and RFG prices by about 1 cent per gallon between 2006 and 2020.

The higher prices projected in the other cases are largely attributable to the volume and octane loss associated with the MTBE ban. Ethanol can only partially compensate for these blending qualities and often is more expensive to use than MTBE when taking into account the blending characteristics and transportation costs. There is a greater price impact in areas of the country required to use RFG than for areas that can use conventional gasoline. The price impact of the RFS/No MTBE Ban Case is mitigated by the shift of ethanol blending into conventional gasoline and away from RFG blending. The S. 517 and S. 1766 price differentials are higher than those in the RFS/No MTBE Ban Case because the MTBE ban would result in more ethanol blending into RFG to partially offset the loss of MTBE, which is relatively less expensive to blend because of ethanol's adverse impact on vapor pressure. In the RFS/No MTBE Case additional ethanol for RFG blending is not required, and the RFS standard can be met by blending ethanol into conventional gasoline.

These cases only assess changes in the average annual prices of gasoline at the national level and do not analyze any localized or seasonal price changes that could result from such policy changes, which would likely result in some higher price differentials. Given that concerns over the rise in the price of gasoline have occurred primarily with each year's summer season, this is an important issue. On the other hand, the annual average price impacts are likely to be overstated since this analysis does not incorporate the impact of the ethanol credit trading and banking provision. Credit trading and banking was not included in EIA's analysis, due to the requirement for rapid delivery of this analysis. Based on EIA's experience with electric industry analysis that incorporated credit trading and banking for sulfur, credit trading reduced the impact on consumer prices and banking provided greater flexibility for the timing of implementation. Generally speaking, a credit trading and banking program would be expected to facilitate greater market efficiency and probably lower costs of compliance, such as reducing overall transportation and blending costs.

The RFS provision of S. 517 includes an RFS schedule that requires 2.3 billion gallons of renewable fuels by 2004, increasing to 5.0 billion gallons by 2012. After 2012, S. 517 requires renewable fuels to maintain the same percentage of transportation fuels that was achieved in 2012. This analysis projects that the Reference Case market demand for ethanol would be 260 million gallons greater than the amount specified by the RFS schedule in 2004 due to the implementation of State-level MTBE restrictions in 14 States (Figure 19). The 19-State MTBE Ban Case indicates that if other Northeastern States with RFG markets followed suit and banned MTBE in the same year, an additional 540 million gallons of ethanol would be required in 2004, assuming the oxygen requirement were maintained. This analysis projects that the RFS and MTBE provisions of S. 517 Case, assuming an 87 percent reduction in MTBE blending, would result in ethanol blending that is 390 million gallons per year higher than the 19-State MTBE Ban Case and 880 million gallons per year higher than the Reference Case in 2006. The projected level of ethanol blending in the S. 517 Case is 3.62 billion gallons, 720 million gallons above the specified RFS target for 2006. Ethanol blending requirements in excess of the RFS targets disappear by 2009, due to incremental growth of the specified RFS targets. The use of renewable fuels is projected to be below the RFS targets after 2009 due to an S. 517 provision that provides a 1.5 gallon credit for every gallon of cellulose (biomass) ethanol.

Figure 19. Total Renewable Fuels Consumption For Transportation In Three Cases, 2003-2020 (billion gallons per year)



Source: Energy Information Administration, National Energy Modeling System runs RFaeo02A.d041002b, RFaeo02B.d041002b, RFi1m0b0.d041102d

Thank you, Mr. Chairman and members of the Subcommittee. I will be happy to answer any questions you may have.

Mr. OSE. Our next witness, again, is the Assistant Secretary for Policy and International Affairs with the Department of Energy, Ms. Vicky Bailey.

Ms. Bailey, you are recognized for 5 minutes.

Ms. BAILEY. Good afternoon, Mr. Chairman. I am happy to appear before you today to discuss gasoline prices and the complex factors contributing to our current supply and price situation. I would also like to provide some information for your committee on what the administration is doing to address the situation and to assure you that the administration is eager to work with Congress to ensure stable and affordable energy supplies for American consumers and the U.S. economy.

You have just heard testimony and some technical analysis from Mary Hutzler of the EIA on gasoline prices, international markets, and domestic factors that impact gasoline prices. I would like to address some of the broader policy aspects of the international and domestic market.

There are a number of factors affecting gasoline prices and supplies in the United States with both domestic and international roots. No. 1 is the price of crude oil on the world market. Global supply and demand dictate the crude oil price for every consuming nation. In the United States, our economy is rebounding. Demand for gasoline is increasing as we approach the summer driving season, and refiners are making the transition from winter to summer quality gasoline, helping to contribute to upward pressure on prices.

Countering this trend, product inventories are rising, and refining production is increasing.

The NEP was prepared to address our long-term energy needs. It presents a balanced approach to assuring secure and affordable energy supplies to our citizens and our economy. It is comprehensive in addressing energy conservation, energy production, and environmental protection.

The administration is actively involved in the international situation in many ways. We are working to diversify our foreign sources of energy such as in the Caspian region and Azerbaijan.

I attended the inauguration of the Caspian Pipeline Consortium pipeline that took place in Russia last November. This new pipe will bring crude oil directly from landlocked Kazakhstan to the Black Sea and then to world oil markets. We also are pleased that the Baku-Tbilisi-Ceyhan pipeline is moving ahead to supply an additional 1 million barrels per day of oil to global markets by early 2005.

We are increasing cooperation in our hemisphere through the North American Energy Working Group with Canada and Mexico, which is reviewing ways to further integrate the North American energy market. The Secretary of Energy with his Canadian counterpart will lead the dialog at the G–8 Energy Ministers' meeting in Detroit next month.

A number of domestic actions are following the recommendations of the national energy policy. The Clean Air Act's New Source Review program is being reviewed in an interagency process with considerable public comment. The review will be completed in the near future. President Bush has directed us to fill the Strategic Petro-

leum Reserve to its full capacity of 700 million barrels, and we have begun to do so. Since January, we have added 11.4 million barrels of oil. As we did last year, the Department has set up a 24-hour gasoline hotline for consumers, a 1–800 number for consumers concerned about gasoline prices.

In addition, the Secretary of Energy has asked EIA to publish a daily energy situation analysis report to monitor world events that could disrupt supplies, and DOE will continue to collect data and monitor the gasoline market.

We will also need additional actions to assure adequate and dependable energy supplies at affordable prices and use energy more wisely. We need to improve efficiency and develop new transportation technologies. The National Energy Policy aims to optimize energy efficiency and conservation to effectively manage and extend the use of our energy resources while also enhancing our standard of living and advancing our environmental objectives.

The Department is working to implement our long-term vision of both a dramatic reduction in our dependence on petroleum and a dramatic reduction of vehicle emissions through the development and deployment of hydrogen fuel cells in the Freedom Car program.

The administration supports significant tax incentives to reduce the price of highly efficient electric and gas hybrid vehicles now coming to market. We support increased use of biofuels. We need increased domestic energy production, including environmentally sensitive production using the best available technology in the Arctic National Wildlife Refuge.

Finally, I'd like to address MTBE. The MTBE issue creates a challenge for public policy: the inherent need to balance energy supply and price concerns with resolution of environmental concerns for air quality and water quality.

MTBE has played a significant role in improving air quality in areas impacted by transportation emissions and provides important quality and volume benefits for our gasoline supply. However, detection of MTBE in our water supply has raised public concerns. To limit the risks of future price spikes, we must provide certainty to the market and industry to make the investments needed to continue to provide us with sufficient quantities of clean product to power the U.S. economy.

The Department of Energy remains concerned about our current and longer-term energy supply situation. While we fully support the various clean fuel requirements that are necessary to protect our environment, we believe that it is important that any government action be implemented in a way that provides the regulatory certainty to encourage the necessary investments to protect our citizens from price spikes. We are eager to work with Congress to get our Nation's energy house in order so that we have adequate, clean, safe supplies of petroleum at reasonable cost to consumers.

This concludes my testimony, Mr. Chairman, and I would be glad to respond to any questions you may have.

Mr. OSE. Thank you, Ms. Bailey.

[The prepared statement of Ms. Bailey follows:]

STATEMENT OF

VICKY A. BAILEY

ASSISTANT SECRETARY

OFFICE OF POLICY AND INTERNATIONAL AFFAIRS

U.S. DEPARTMENT OF ENERGY

before the

SUBCOMMITTEE ON ENERGY POLICY, NATURAL RESOURCES AND REGULATORY AFFAIRS

COMMITTEE ON GOVERNMENT REFORM

UNITED STATES HOUSE OF REPRESENTATIVES

HEARING ON THE CURRENT SITUATION IN U.S. MOTOR GASOLINE MARKETS

April 23, 2002

Good afternoon Mr. Chairman, I am happy to appear before you today to discuss gasoline prices and the.complex factors contributing to our current supply and price situation. I would also like to provide some information for your committee on what the Administration is doing to address the situation and to assure you that the Administration wants to work with Congress to ensure stable and affordable energy supplies for American consumers and the US economy.

As we are reminded almost daily, world prices for crude oil are on the rise. Since late January, petroleum prices have risen by over $7 per barrel—an increase of about 30-35 percent—adding as much as 15-20 cents per gallon to the retail cost of gasoline. The Energy Information Administration (EIA), an independent arm of the Department of Energy, expects gasoline prices to rise higher this summer, although prices are expected to peak slightly below last summer's highest levels.

The good news is that while nominal prices are currently increasing, real gasoline prices have remained fairly constant in recent decades. The average price for a gallon of gasoline (all grades) in 2001 was $1.49—about the same in real terms as during the 1970s. This is also a lot less than the average price of $1.85 between 1975 and 1985. Since the beginning of 2002, prices (for all grades of gasoline) have averaged just $1.25. Gasoline prices are now substantially lower relative to the prices for food, beverages, and other urban consumer goods, compared to the early 1980s peak.

However, prices are more volatile today than they have been historically. In part, this is a consequence of a supply system that has increased its efficiency by reducing redundancies and

inventories. While this can benefit consumers with lower average prices, it can also contribute to price volatility. Obviously other factors such as strong demand growth driven by the economic rebound and seasonal increases in driving, as well as the switchover to cleaner, but more-difficult-to-produce, summer grade gasolines can lead to short-term price increases, especially in the event of a disruption on a pipeline or at a key refinery. U.S. refinery capacity is less than U.S. demand, making us dependent not only on imported crude oil, but also on imported refined products, particularly gasoline. (We currently import about 9% of our total gasoline.) During the high demand summer season, U.S. refineries will typically run at or very near 100 percent capacity utilization while meeting very tight environmental standards for gasoline quality, leaving no margin to deal with upsets in the system. By comparison, most other industry is considered to be at full capacity when utilization rates reach 82 percent. Limited refinery capacity creates the worst problems in certain regions of the country like the Midwest, where additional supply has to come from the Gulf Coast via a transportation system that is already fully utilized. This can lead to increased and volatile prices until that new supply arrives.

While we expect the market to respond, rising crude oil prices, growing gasoline demand for the spring/summer driving season and the more costly summer quality gasolines, both reformulated and conventional, could contribute to the upward price pressure. However, as I mentioned earlier, a large part of the problem is caused by world oil market conditions. Much of the current rise in gasoline prices is a result of OPEC cutting production last fall and winter, as well as today's concerns about political tensions abroad. Because we import more than half of our oil from foreign sources—and this percentage is increasing—and because the price of crude oil is

set on the world market, we cannot insulate ourselves from supply swings, associated price increases, and their impact on the gasoline market.

Mary Hutzler, Acting Administrator of our Energy Information Administration, has provided you with a technical report of the current world and domestic petroleum situation, and a sound assessment of the factors contributing to our current rising gasoline prices. I would like to address some of the broader policy aspects of the international and domestic situation.

I note that you will also hear testimony from the Federal Trade Commission today, which has powers the Department of Energy does not have to investigate concerns about fair trade and prosecute in the case of violations. Many of these investigative and enforcement powers are related to energy and petroleum markets, for example: FTC has the power to conduct investigations, prescribe trade rules and seek redress in case of unfair trade practices; prescribe requirements for posting of octane ratings; and enforce energy efficiency labeling rules issued under the Energy Policy Act of 1992.

Over the past few weeks, the international situation has contributed to oil price increases. The market has monitored the situation with Iraq, noting Iraq's stoppage of its oil exports under the UN oil-for-food program. Other major producers have rejected the call for use of oil as a weapon. Clearly, market participants will follow Iraq and the international reaction closely over the next few months. The Department of Energy will continue to monitor the market and actions of international participants.

Because of Venezuela's position as the third largest supplier of imported oil to the United States, the oil market has been sensitive to recent events in Venezuela. However, recent events appear to demonstrate that the oil sector and oil trade is returning to normal.

Administration Actions

I'd now like to turn to actions the Administration has recently taken related to crude oil and gasoline. First and foremost, we will continue to depend on the free market to determine energy supply and price. And, indeed, the market has already responded to price signals—witness the recent opening of the 795-mile Centennial Pipeline, which will be able to move more than 200,000 barrels of refined products a day from the Gulf Coast to Midwest markets. Refinery utilization has grown to capture the higher margins brought on by the higher prices.

Nearly one year ago the Administration released the National Energy Policy, a comprehensive and long-term strategy for ensuring that our citizens will have affordable and reliable energy supplies. We must have a balanced and diversified portfolio of energy sources and we must expand energy production and infrastructure to meet ever-increasing energy requirements. This must be accompanied by improvements in the efficient use and conservation of energy and the protection of our environment.

In the long term, one important and appropriate role of the Government is to work to increase and diversify oil supplies. The National Energy Policy contains a number of recommendations to promote international trade and investment, increase diversity of supply, and improve market transparency. We are working in the Caspian region, in Africa, and in our own hemisphere to

bring new supplies to market with increased environmental protection. In the Caspian, for example, I attended the inauguration of the Caspian Pipeline Consortium pipeline that took place in Russia in November of last year. This new pipeline will bring crude oil directly from landlocked Kazakhstan to the Black Sea and then to world oil markets. We also are pleased that the Baku-Tbilisi-Ceyhan pipeline is moving ahead and will supply an additional one million barrels per day of oil to global markets by early 2005. As production in Kazakhstan and Azerbaijan grows over the next several years, this and other pipelines will help feed a growing world oil market with new supplies of oil from stable sources.

We are also carrying out other recommendations from the National Energy Policy that address energy cooperation closer to home. We have launched, with Canada and Mexico, the North American Energy Working Group, which is reviewing ways to further integrate the North American energy market and eliminate regional and local supply disruptions. We are using our Hemispheric Energy Initiative to work with our other partners in the rest of the Americas. We, along with our hemispheric partners, aim to create opportunities for new investment and development of new energy resources and for greater energy conservation.

Furthermore, the National Energy Policy specifically calls for the Administration to hold a meeting with the energy ministers of the Group of Eight nations. Just one year after the release of the National Energy Policy, on May 3, 2002 the United States and Canada will co-chair a meeting of the G-8 Energy Ministers.

We are not only acting in the international arena to address the factors leading to today's rising gasoline prices. The Administration is acting in a number of ways to get our own energy house in order.

As part of the commitments in the National Energy Policy, one of the Administration's actions to improve energy supplies is a review of the impact of the Clean Air Act's New Source Review (NSR) program on energy efficiency, capacity and environmental protection for refineries and utilities. Since its inception, the New Source Review Program has provided considerable health and environmental benefits. However, bipartisan government officials, including State governors and Environmental Commissioners, and industry groups have long expressed the belief that the NSR program is unnecessarily complicated. During the National Energy Policy NSR proceeding, a striking consensus of industry commenters remarked that the program often serves as an unnecessary obstacle to environmentally beneficial projects in the energy sector, such as those that improve energy reliability and efficiency and promote the use of renewable resources. The President's National Energy Policy Development Group tasked EPA in consultation with DOE with investigating whether the NSR program does, in fact, have such impacts. We believe that some parts of the program do have the impacts identified by the industry commenters. This review will be completed in the near future.

As called for by the President's National Energy Policy, the Administration has recently taken three actions to provide flexibility to refiners and distributors that will ease the transition this year from winter-grade to summer-grade reformulated gasoline (RFG). These actions include

the elimination of accounting and reporting requirements associated with refiners' transfer or sale of gasoline blendstocks, a regulatory revision that now allows refiners to upgrade conventional gasoline to RFG if it meets the clean air standards, and finally, increased flexibility in the tank turnover testing tolerance.

To help protect against disruptions in oil supplies, the U.S. government maintains an emergency supply of crude oil in our Strategic Petroleum Reserve (SPR) stored in salt caverns in Louisiana and Texas. In the case of a severe oil supply disruption, the SPR can be used to provide up to 4.2 million barrels of crude oil per day to the U.S. economy for a period of 90 days. This amounts to about 20 percent of total US daily oil consumption. After this period, the drawdown rate will gradually decrease as site inventories are depleted. The entire 561 million barrel inventory would be depleted within 200 days.

In order to increase our protection against disruption, on November 13, 2001, the President directed the Department to fill the SPR to its design capacity of 700 million barrels of oil. In January of this year, the Department issued an initial solicitation for bids to exchange royalty oil produced in the Gulf of Mexico for oil meeting the SPR quality specifications, to be delivered to the SPR sites. In February bids were opened, and a contract was awarded to Equiva Trading requiring delivery of 18.6 million barrels of light, low sulfur oil to the SPR. Deliveries began in April and will be completed by the end of April 2003. The Department plans to conduct another competition this summer and to award contracts for more oil exchanges beginning October 1, 2002. This process will continue until the Reserve has reached its capacity, expected to be in

2005. Administration policy is to use the inventory in the SPR only in the case of physical supply disruptions rather than using the emergency stocks to influence prices.

More specific to the gasoline market, the Department of Energy continuously monitors energy supply and prices to provide information to consumers and the markets. This data assists markets to quickly respond to any supply/demand imbalances. Updates, raw data, and analyses are available through the Energy Information Administration. In addition, each year we conduct a detailed assessment of clean gasoline supplies as the refiners and marketers make the transition to summer gasoline. This assessment provides us information on the status of refinery operations and inventories leading into the summer driving season and the basis for assuring that some aspect of the Federal reformulated gasoline requirements is not unnecessarily limiting gasoline production or distribution.

As we did last year, the Department of Energy will continue to closely monitor gasoline supplies and pricing, and we have again set up a 24 hour Gasoline Hotline—a 1-800 number for consumers concerned about gasoline prices (800-244-3301). In addition, the Secretary has directed the EIA to provide a daily Energy Situation Analysis Report to monitor world events that could disrupt supplies. The Energy Situation Analysis Report is available on the EIA website daily at about 6 p.m. The Secretary recently met with consumer, refining industry and gasoline marketing groups to better understand the situation from their perspectives and to encourage their help to get information out to consumers on the various factors affecting gasoline prices.

But we will also need additional actions to assure adequate and dependable energy supplies at affordable prices and use energy more wisely. We need to improve efficiency and develop new transportation technologies; the National Energy Policy aims to optimize energy efficiency and conservation to effectively manage and extend the use of our energy resources, while also enhancing our standard of living and advancing our environmental objectives. The Department of Energy recently announced the FreedomCAR program, which implements our long-term vision of a dramatic reduction in our dependence on petroleum through the development and deployment of hydrogen fuel cells in automobiles. In addition, the Administration supports significant tax incentives to reduce the price of the highly efficient electric, gas/electric hybrid, and fuel-cell vehicles now coming to market. We will be working with the National Highway Traffic Safety Administration as it moves forward to set future fuel economy standards based on sound science and passenger safety, based on the findings and recommendations of the NAS study.

The renewable fuels standard introduced in the Senate Bill S.517 will greatly increase the use of renewable fuels, such as ethanol and biodiesel, in this nation for the next ten years. The use of renewable fuels is good for our energy security, good for the economy, and good for our environment. It will greatly increase the use of clean burning ethanol, which will reduce vehicle tailpipe emissions (when used in reformulated gasoline). That is something we can all support.

We must also increase domestic oil production through the improvement of exploration and drilling technology and the development of domestic resources like the Arctic National Wildlife Refuge (ANWR). A small portion of ANWR could supply us with the equivalent of about 36

years of the annual imports we currently receive from Iraq. Encouraging the continued diversification of supply from non-OPEC sources of oil like Russia, Latin America, West Africa, and the Caspian region will also help reduce our reliance on oil from the Middle East.

Finally, I would like to turn to the issue of MTBE raised in the Committee's letter of invitation. The MTBE issue creates a challenge for public policy: the inherent need to balance energy supply and price concerns with resolution of environmental concerns, both for air quality and water quality. Congress mandated use of oxygenates to enhance energy security, improve air quality, and support the farm sector in the Clean Air Act Amendments of 1990. Recent EIA analysis has shown that restrictions on the use of MTBE could impact gasoline supplies and increase prices. MTBE has played a significant role in improving air quality in areas impacted by transportation emissions, and provides important quality and volume benefits for our gasoline supply. However, detection of MTBE in our water supply has raised public concerns. To limit the risk of future price spikes we must provide certainty to the market and industry, so that industry has the time and information needed to make investment decisions.

The Department of Energy remains concerned about our current and longer-term energy supply situation. While we fully support the various clean fuel requirements that are necessary to achieve our air quality goals and we share a strong desire to protect the nation's water quality, we believe that it is important that these initiatives be implemented in a way that protects our citizens from price spikes. We are eager to work with the Congress to get our own energy house in order, so that we have adequate, clean, safe supplies of petroleum, at reasonable cost to consumers.

This concludes my testimony Mr. Chairman. I would be glad to respond to any questions you may have.

Mr. OSE. Our third witness on the first panel is the General Counsel for the Federal Trade Commission, Mr. William Kovacic.

Thank you for joining us. You're recognized for 5 minutes.

Mr. KOVACIC. Thank you, Mr. Chairman. I'm grateful to the committee for the opportunity to appear at today's hearing.

The written statement I have submitted represents the views of the Federal Trade Commission, and my comments today and my answers to your questions are my views and not necessarily those of the Commission or its members.

The FTC's experience in enforcing the Nation's antitrust laws and performing competition policy research confirms this committee's view that the performance of the petroleum industry is a matter of special importance in our economy. Since Congress created the FTC in 1914, no sector has commanded greater attention from the Commission.

Today I will summarize three points from the Commission's written statement. First, I will describe the FTC's recent competition policy activities involving the petroleum industry. Second, I will review forces that our work to date has identified as factors that may affect the price of the petroleum products. And, finally, I will address future measures that the FTC intends to take to increase our understanding of pricing patterns to preserve competition and to protect consumers of petroleum products.

Let me begin with recent FTC activities concerning competition policy in the sector.

The Commission's work in recent years falls into three categories: reviewing mergers, non-merger investigations, and research. Perhaps the most prominent of these initiatives is merger review. The Commission scrutinizes mergers to challenge transactions that appear likely to reduce competition. Two recent matters are illustrative.

The first is the merger of Chevron and Texaco. In December 2001, the FTC agreed to a consent order with these companies, requiring numerous divestiture of refining transportation and retailing assets to maintain competition in various areas of the country, particularly in the southern and western United States.

The second transaction is the merger of Valero Energy and Ultramar Diamond Shamrock. These firms are leading refiners and marketers of CARB gasoline. In February of this year, the FTC accepted a consent order requiring Valero to divest assets in California, including an Ultramar refinery in Avon and retailing assets in northern California.

Our second major area of recent activity consists of investigations into possible non-merger antitrust violations. A major example was our inquiry into pricing behavior in the midwestern United States in the summer of 2000. This inquiry did not identify evidence of collusion or other antitrust violations. Nonetheless, the investigation did increase the Commission's understanding of phenomena that cause periodic price increases.

The third activity is research. One major example of our work in this area took place last August when the FTC held a 1-day conference on gasoline pricing patterns. The conference stimulated an informative discussion of possible causes of pricing volatility in this sector.

Let me turn to some preliminary lessons from the Commission's work about factors that influence prices. Taken together, our work has improved our understanding of what causes periodic dramatic price increases. We have learned that pricing spikes result from a complex interaction and phenomenon. The factors include the following: increases in crude oil prices, refinery production problems such as breakdowns, pipeline disruptions, low inventories and the unavailability of substitutes for certain gasoline formulations required by environmental statutes, and regulations. In many respects, this list mirrors the factors that this committee's hearings of roughly a year ago identified.

Let me finish by turning to what we see as the next steps for the Commission in this field.

The first element of our work will be to continue our scrutiny of structural developments that influence the number of market participants, especially mergers.

The second will be to sustain our efforts to increase understanding of the causes of pricing behavior in this sector. On May 8th and 9th we will hold a second public conference that extends the work we did in August with a further examination of petroleum pricing patterns.

And, third, we are monitoring wholesale and retail prices of gasoline in many areas of the United States. This project will assist us in identifying unusual pricing patterns, diagnosing causes, and devising cures for any antitrust problems we observe.

To sum up, energy sector and petroleum industry practices have been the centerpiece of modern FTC enforcement actions. There is every reason to expect they will remain a central focus of our work in the future. Thank you.

Mr. OSE. Thank you, Mr. Kovacic.

[The prepared statement of Mr. Kovacic follows:]

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
WASHINGTON, D.C. 20580

Prepared Statement of the Federal Trade Commission

Factors that May Affect Gasoline Prices

Presented by William E. Kovacic[1]

General Counsel

Before The

Committee on Government Reform
Subcommittee on Energy Policy, Natural Resources, and Regulatory Affairs
United States House of Representatives

April 23, 2002

This written statement represents the views of the Federal Trade Commission. My oral presentation and response to questions are my own, and do not necessarily represent the views of the Commission or any other Commissioner.

I. Introduction

Mr. Chairman and members of the Committee, I am pleased to appear before you today at this hearing on the important topic of factors that may affect gasoline prices, and to present the testimony of the Federal Trade Commission.

The FTC is a law enforcement agency with two related missions: to preserve competition in the marketplace for the benefit of consumers, and to protect consumers from deceptive or unfair practices that may injure them. The Commission's statutory authority covers a broad spectrum of sectors in the American economy, including the energy industry and its various components.

The importance of antitrust law enforcement is particularly clear in the oil and gas industry, where fuel price increases can strain the budgets of many consumers and can have a direct and significant impact on businesses of all sizes throughout the U.S. economy. Enforcement of the antitrust laws helps ensure that the oil and gasoline industries are, and remain, competitive. In recent years, the Bureau of Competition has spent almost one-third of its total enforcement budget on investigations in energy industries, many of them merger investigations.

The Commission, however, performs more than law enforcement functions. Congress established the Commission to be an expert body that can report on important economic trends affecting the American economy. Because of the importance of the oil and gas industries to the American economy, and increased public concern about the level and volatility of gasoline prices in recent years, the Commission is studying the central factors that may affect the level and volatility of refined petroleum products prices in the United States. The Commission held a

public conference on this topic in August 2001, and will hold a second one on May 8th and 9th, just two weeks from now.[2] The Commission expects to summarize and discuss its work in a public report to be issued later this year.

In addition, we are monitoring wholesale and retail prices of gasoline – by far, the largest single refinery product. Members of our staff inspect wholesale gasoline prices for 18 (soon to be 20) cities and retail gasoline prices for 360 cities throughout the United States. We will analyze this data to search for explanations of pricing anomalies.

This testimony will summarize the Commission's recent enforcement activity, review its ongoing work to increase understanding of the factors that may affect the level and volatility of refined petroleum product prices, and will discuss some of the factors that, based on our experience, we believe have an effect on the price of gasoline.

II. Merger Enforcement in the Oil and Gasoline Industries

Much of the Commission's experience with enforcing the antitrust laws in the oil and gas industries has been obtained through the analysis of proposed mergers. Merger enforcement protects a competitive marketplace, because it helps preserve rivalry that brings lower prices and better services to consumers. The Commission has an extensive history of merger investigations in the oil and gas industries, and the FTC has challenged recent proposed mergers that likely would reduce competition, result in higher prices, and injure the economy of the nation or any of its regions.[3]

---

[2] *FTC to Hold Second Public Conference on the U.S. Oil and Gasoline Industry in May 2002*, FTC Press Release (Dec. 21, 2001).

[3] Section 7 of the Clayton Act specifically prohibits acquisitions where the anticompetitive acts affect "commerce in any section of the country." 15 U.S.C. § 18.

Today I will briefly describe two of our most recent merger investigations in this area. One transaction involved Chevron and Texaco.[4] This transaction combined assets located throughout the United States. Twelve states participated in the FTC's investigation. The Commission entered a consent order with Chevron and Texaco requiring numerous divestitures in order to maintain competition in particular relevant markets, primarily in the western and southern United States. The consent order required Texaco to divest to Shell and/or Saudi Refining, Inc. ("SRI") all of its interests in two joint ventures – Equilon[5] and Motiva[6] – through which Texaco had been competing with Chevron in gasoline marketing in the western and southern United States; the refining, bulk supply and marketing of the environmentally mandated gasoline in California[7]; the refining and bulk supply of gasoline and jet fuel in the Pacific Northwest; and the pipeline transportation of crude oil from the San Joaquin Valley, among other things.

Another important oil merger that the Commission investigated last fall was the $6 billion merger between Valero Energy Corp. ("Valero") and Ultramar Diamond Shamrock Corp.

---

[4]*Chevron, Corp.*, C-4023 (Dec. 18, 2001) (consent order).

[5]The Equilon joint venture was jointly controlled by Shell and Texaco, and its major assets included full or partial ownership in four refineries, about 65 terminals, and various pipelines. It marketed gasoline through approximately 9,700 branded gas stations nationwide.

[6]Motiva, jointly controlled by Texaco, Shell, and SRI, consisted of their eastern and Gulf Coast refining and marketing businesses. Its major assets included full or partial ownership in four refineries and about 50 terminals, with the companies' products marketed through about 14,000 branded gas stations nationwide.

[7]The California Air Resources Board mandates that gasoline sold in California meet certain specifications.

("Ultramar").[8] Both Valero and Ultramar are leading refiners and marketers of CARB gasoline in California (gasoline which meets the specifications of the California Air Resources Board ("CARB")). CARB 2 gasoline meets the current Phase 2 specifications in effect since 1996, and is the only gasoline that can be sold to consumers in California. CARB 3 gasoline meets the proposed Phase 3 specifications scheduled to go into effect on January 1, 2003, after which it will be the only gasoline that can be sold to consumers in California. The Commission's complaint alleged competitive concerns in the refining and bulk supply of both CARB 2 and CARB 3 gasoline in California, and the Commission contended that the merger could raise the cost to California consumers by at least $150 million annually for every one cent per gallon price increase at retail.[9] To remedy the Commission's competitive concerns, the consent order settling the case required Valero to divest an Ultramar refinery in Avon, California; all bulk gasoline supply contracts associated with that refinery; and 70 Ultramar retail service stations in Northern California.[10]

III. Recent Commission Research on Factors That May Affect Prices of Refined Petroleum Products

There can be many reasons for volatile prices in any commodity, including gasoline. A

---

[8] *Valero Energy Corp.*, C-4031 (Feb. 22, 2002) (consent order).

[9] The Commission also alleged competitive concerns in the refining and bulk supply of CARB 2 and CARB 3 gasoline for sale in Northern California, contending that even a price increase of one cent per gallon would increase costs to those consumers by approximately $60 million per year.

[10] Also last fall, the Commission considered the likely competitive effects of Tosco's proposed acquisition of Phillips Petroleum. After careful and close scrutiny, the Commission, by a vote of 5-0, declined to challenge the acquisition. The Commission's statement closing the investigation set forth its reasoning in detail. *Phillips Petroleum Corp.*, FTC File No. 001 0095 (Sept. 17, 2001) (Statement of the Commission).

sudden surge in demand, or an unexpected problem in the supply chain, can cause prices to spike almost overnight. Such price changes are disruptive to both consumers and businesses.

Price spikes for gasoline appeared in the spring and summer of 2000 and 2001, particularly for consumers in California and the Midwest, and, as you are all aware, we have been experiencing rapid price increases for gasoline this spring as well. As noted above, we are monitoring wholesale and retail gasoline prices in a number of cities throughout the United States and we will analyze this data to search for explanations of pricing anomalies.

Around this time last year, the Commission issued a report on its nine-month investigation into the causes of gasoline price spikes in local markets in the Midwest in the spring and early summer of 2000.[11] Although gasoline prices increased nationwide during that time, increases in some local markets, particularly in the Midwest, eclipsed those experienced in past years and were greater than those experienced in other U.S. markets. The Commission's extensive investigation uncovered no evidence of collusion or any other antitrust violation.

The Commission instead found a variety of factors that contributed in varying degrees to the price spikes. Primary factors included refinery production problems (e.g., refinery breakdowns and unexpected difficulties in producing the new summer-grade RFG gasoline required for use in Chicago and Milwaukee), pipeline disruptions, and low inventories. Secondary factors included high crude oil prices that contributed to low inventory levels, the unavailability of substitutes for certain environmentally required gasoline formulations, increased

---

[11]Midwest Gasoline Price Investigation, Final Report of the Federal Trade Commission (Mar. 29, 2001). Also in 2001, the Commission concluded its investigation of gasoline price increases in West Coast markets. *FTC Closes Western States Gasoline Investigation*, FTC Press Release (May 7, 2001).

demand for gasoline in the Midwest, and, in certain states, *ad valorem* taxes. Ultimately, the industry responded to the price spike within three or four weeks with increased supply of products, and by mid-July 2000, prices had receded to pre-spike or even lower levels.

A Commission goal is to increase public awareness of competitive and other factors affecting the prices of refined petroleum products. Increased public awareness should help inform consumers and policymakers in the legislative and executive branches about potential responses to address these factors, if necessary. This past summer, the Commission commenced a series of public conferences to study in more detail the central factors that may affect the level and volatility of refined petroleum product prices throughout the United States. A one-day conference was held on August 2, 2001. Participants included representatives of the Department of Energy's Energy Information Administration ("EIA") and the State of California, as well as representatives from all segments of the industry (including exploration, refining, transportation, and marketing), consumer groups, and academia.

The wide-ranging discussion identified a number of factors that may contribute to price volatility and price spikes; we note just a few. EIA has found that, over broad time periods, the price of gasoline at the pump generally tracks crude oil prices; that is, with some time lags, gasoline pump prices generally rise and fall in response to crude oil price increases and decreases.[12] EIA reported that "OPEC cuts and high crude prices affect gasoline prices directly through the feedstock cost but also indirectly by reducing gasoline inventories."[13] Participants

---

[12]Cook (EIA), Aug. 2 transcript at 49-52.

[13]Cook (EIA), Aug. 2 tr. at 52.

also commented that average inventories for refined products have declined over time,[14] contributing to price spikes as additional supply is less available quickly to meet demand.

Participants also noted the high levels of use of portions of the infrastructure necessary to refine and transport refined petroleum products to the pump. For example, current refinery capacity utilization rates in the United States are high, averaging 95 percent or higher.[15] Pipeline capacity also is stretched in some regions of the country, although various pipeline expansion projects are underway to address this situation.[16] In addition, several participants reported that a proliferation of different environmentally mandated gasoline blends has reduced the availability of substitutes to moderate any price spikes.[17] According to one expert, "[t]ight specifications for reformulated gasoline sold in [California] and limited pipeline interconnections . . . isolate the California gasoline market from gasoline markets in the rest of the country,"[18] thus contributing to higher prices in the state.

All of these comments, and many others, were presented in response to the Commission's request that participants identify areas worthy of further study. Perhaps the dominant theme of the August 2, 2001 conference was the complexity of the interrelationships among a large variety

---

[14]Greene (Cal.), Aug.2. tr. at 11 ("[i]n the 1990's, reserves and inventories [in California] have declined roughly 20-plus percent."); Rothschild (Podesta/Mattoon), Aug.2 tr. at 82 (consistently below an average of 5 days of gasoline inventory). Cooper (Cons. Fed. of Am.), written statement at 21.

[15]Murphy (API), written statement, at 2.

[16]Coleman (LECG), written statement at 8-9.

[17]E.g., Felmy (API), Aug. 2 tr. at 26; Cooper (Assoc. of Oil Pipe Lines), Aug.2 tr. at 102.

[18]Gilbert (U. Cal.Berkeley), written statement at 3-4.

of factors and the need for further work in understanding the relative importance of different factors in particular situations. There is much left to learn and to analyze as we proceed in the weeks ahead.

As part of its work to understand better the possible role of environmentally mandated fuels in contributing to price volatility and price spikes, Commission staff provided comments to the Environmental Protection Agency ("EPA") in connection with EPA's Staff White Paper, prepared in response to the President's National Energy Report (May 2001). The President's Report directed the Administrator of EPA to "study opportunities to maintain or improve the environmental benefits of state and the local 'boutique' fuels programs while exploring ways to increase the flexibility of the fuels distribution infrastructure, improve fungibility, and provide added gasoline market liquidity."[19] FTC staff commented that the EPA might find it beneficial to use a framework similar to the one the FTC uses to analyze mergers, to determine the competitive effects likely to be associated with changes in fuel mandates in particular relevant markets.[20] We have offered suggestions to the EPA as to how they might perform such an analysis.

IV. Conclusion

The Commission has a long and continuing history with law enforcement investigations

---

[19]*Study of Unique Gasoline Fuel Blends ("Boutique Fuels"), Effects on Fuel Supply and Distribution and Potential Improvements*, EPA Staff White Paper at 1-2.

[20]The FTC's experience shows that economically relevant gasoline markets are regional for refining and transportation, and local when considering gasoline distribution or retail sales. For example, a refinery that does not, or cannot in the short run, produce the type of gasoline currently in short supply in a certain region cannot be considered to be in that market for purposes of resolving short-run price spikes. FTC Staff Comment to EPA at 4.

in the oil and gas industries. We have expended substantial effort and resources to maintain and study the state of competition in this industry over the years, and will continue to do so in the future.

The Commission's work in this area is ongoing. As noted above, the Commission also has scheduled a follow-up conference on refined petroleum products pricing to take place on May 8th and 9th. This conference will afford an opportunity to learn about additional research on particular issues – such as how price volatility in crude oil may affect gasoline price levels – and to probe further into the issues that have been raised so far, such as a trend toward lower levels of inventories. We do not expect to obtain definitive answers to all the questions that have been raised or to provide definitive data on how all of the factors interrelate and operate. Rather, our goal is to increase the public awareness of competitive and other factors, and to enhance our understanding of factors that may affect the level and volatility of refined petroleum product prices.

I would be pleased to answer any questions that you have.

Mr. OSE. Now we're going to go 5-minute rounds here. I'm going to start, and then we're going to go to Mr. Waxman and back to Mr. Shays until we exhaust the questions that the Members have.

Ms. Hutzler, in your testimony you have an extensive discussion about the effect that the Senate's ethanol mandate would have on gasoline prices, and there is, frankly, a laundry list of assumptions, and reference cases, and provisos, and caveats, and all that. I'm sure that makes sense to economists, but, frankly, when you talk about reference cases and I talk about reference cases, there is a divergence. I talk about the reference case of what does it cost me to go into the gasoline station today and fill my tank, compared—in that context, I want to ask you this specific question: compared to today, what effect would the ethanol requirement in Senator Daschle's bill have on gasoline prices?

Ms. HUTZLER. We looked at a number of different scenarios, one of which looks at an MTBE ban with a renewable fuel standard. If we take a look at that scenario in S. 1766, where we looked at 100 percent MTBE ban, we found that reformulated gasoline prices could be 9 to 10.5 cents higher than today where there is no MTBE ban. That would make average prices about 4 cents a gallon higher.

If you looked at S. 517, which allows waivers within States, and if States chose their waivers so that they could still produce about 13 percent of MTBE in their gasoline, which was what we were asked by Senators Daschle and Murkowski to analyze, we would see RFG prices 7.5 to 8 cents per gallon higher than today and average prices about 3 cents per gallon higher.

Now, if you did not look at an MTBE ban but you had a renewable fuel standard, we'd find that prices would increase far less, less than 1 cent per gallon for RFG and less than a half a cent per gallon for average gasoline.

Mr. OSE. So if you left the decision as to how to meet the mission issue to science under the renewable fuel standard, you'd have roughly a 1 cent increase in the price at the retail pump, versus a 3 or up to 10 cent increase with the ethanol mandate under the two cases you've cited?

Ms. HUTZLER. Well, the cases deal with whether you're banning MTBE and must use other products to blend your gasoline—mostly, that would be ethanol today—or whether you're looking at a renewable fuel standard.

A renewable fuel standard by itself without banning MTBE gives refiners flexibility to use the renewable fuels in all forms of gasoline, not just to ban MTBE and to use it in RFG.

Mr. OSE. And that translates to a 1 cent increase?

Ms. HUTZLER. Yes.

Mr. OSE. OK.

Ms. HUTZLER. For reformulated gasoline.

Mr. OSE. Mr. Kovacic, in your testimony, you talk about concentration in the refining industry; and, frankly, we all are concerned about that. It's my understanding that there's actually an index that somebody has cooked up to calculate how concentrated any industry is, and it's called—and if I get this wrong, I need to be corrected—the Hirschman-Herfindahl Index.

Mr. KOVACIC. That's it exactly.

Mr. OSE. Does the FTC have guidelines for how much scrutiny an industry receives based on how concentrated it is per the Hirschman-Herfindahl Index?

Mr. KOVACIC. The FTC and the Department of Justice have merger guidelines that rely on that index as one factor for evaluating the competitive effects of mergers.

Mr. OSE. It's my understanding that an index reading of less than 1,000 means that FTC's concerns are, frankly, nonexistent; that a reading between 1,000 and 1,800 means that FTC will at least look at it but other factors must be considered; and then a reading over 1,800, FTC is going to apply careful scrutiny.

Mr. KOVACIC. That's a good summary.

Mr. OSE. Now how concentrated is the refining industry today?

Mr. KOVACIC. Basically, when we examine refining industry concentration, we do that on a geographic basis. The amount of concentration typically varies from geographic area to geographic area. So the answer would depend crucially on what part of the country we're examining.

Mr. OSE. Well, let's look at the petroleum defense district 1, 2 and 3. According to my records, the index has a reading of 586 for those three.

Mr. KOVACIC. I'm not certain what the precise numbers are. I know that in several of our principal merger reviews in those areas, we have seen, in examining specific transactions, levels of concentration well above the 1,800 level which defines the zone of our most serious concern.

Mr. OSE. But the nationwide average—you're talking about a regional market.

Mr. KOVACIC. Precisely, and many of the mergers we've looked at have involved markets that for antitrust purposes are generally regional rather than nationwide.

Mr. OSE. All right. My time is expired. I'm going to recognize the gentleman from California, the ranking member on the full committee, Mr. Waxman, for 5 minutes.

Mr. WAXMAN. Thank you very much, Mr. Chairman; and I want to thank you for holding this hearing. I commend you for your opening statement. I share your concerns about the fact that our own domestic refining industry is struggling to meet consumer demands as well as comply with an array of complex Federal, State regulatory requirements. In addition, I agree with you that we have Balkanization of fuel and that we have possible shortages and higher prices as a result of the effect of trying to deal with this MTBE replacement.

Is it the position of the administration that you support the Daschle bill that's being considered in the Senate?

Mr. OSE. I think your question is directed at Ms. Bailey?

Mr. WAXMAN. Yes. You're representing the administration here?

Ms. BAILEY. Yes. Yes. Now you can hear me. Our position——

Mr. WAXMAN. Yes or no, because I wanted to say some other things in the time that I have. If the answer is yes, say yes; if it's not, say no.

Ms. BAILEY. We support the reformulated fuels package that is in the bill.

Mr. WAXMAN. In Senator Daschle's bill.

Well, let me say that I agree with the chairman that we should have solved this problem in a very different way, and it seems to me that last year the Bush administration made a decision which was going to cost Californians dearly. Faced with over 10,000 MTBE contaminated sites in California, Governor Davis decided in 1999 to phaseout the use of this terribly polluting fuel additive. To facilitate this phaseout, the State of California requested a waiver of the Federal oxygenate requirements for reformulated gasoline.

This waiver would have allowed the State to maintain the cleanest fuel standards in the country while shielding California consumers from gasoline price shocks. Without the waiver California's air quality and economy would suffer as massive amounts of ethanol were needlessly imported to comply with the oxygenate requirements.

Now, EPA's technical staff examined the facts, and they found that a waiver was warranted. Unfortunately, the White House reversed EPA's decision after meeting with special interests. As a result of the Bush administration's decision, the Governor has had to delay the ban on MTBE to avoid dramatic price increases at the pump. This means California groundwater will continue to face the threat of contamination and California consumers and refiners will continue to face massive uncertainties.

The President's decision is truly remarkable, because it appears to be bad for consumers, bad for the environment and bad for California's refining industry. So who benefits from this decision? Well, it's been widely reported that the ethanol industry lobbied against the California waiver, and I know the ethanol industry is very much with the administration and Senator Daschle in the bill that's now pending.

Other special interests may have played a role in the administration's decision. Lobbying disclosure documents and press reports provide evidence that companies involved in the MTBE industry, such as Enron, also lobbied against the California waiver. Enron and other MTBE companies took the cynical approach that, without the California waiver, California would have to delay their MTBE ban; and, sadly, they've turned out to be right.

To better understand the extent to which Enron or other companies in the MTBE industry influenced the decision, I've written to Vice President Cheney, the Department of Energy, the U.S. EPA, and OMB Director Mitch Daniels, and I'm going to ask unanimous consent that my letters be attached to my statement today as part of the record.

Mr. OSE. Without objection.

[The information referred to follows:]

2204 Rayburn House Office Building
Washington, DC 20515–0529
(202) 225–3976

District Office:
8436 West Third Street
Suite 600
Los Angeles, CA 90048–4183
(323) 651–1040

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29th District, California

Senior Democratic Member
Committee on Government Reform

Member
Committee on Energy and Commerce

April 23, 2002

The Honorable Christine Todd Whitman
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Whitman:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6] *California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7] Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8] *Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10] *E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Agency, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

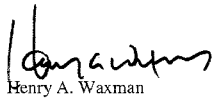
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

2204 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0529
(202) 225-3976

DISTRICT OFFICE:
9436 WEST THIRD STREET
SUITE 600
LOS ANGELES, CA 90048-4183
(323) 651-1040

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29TH DISTRICT, CALIFORNIA

SENIOR DEMOCRATIC MEMBER
COMMITTEE ON GOVERNMENT REFORM

MEMBER
COMMITTEE ON ENERGY AND COMMERCE

April 23, 2002

The Vice President
The Eisenhower Executive Office Building
Washington, DC 20501

Dear Mr. Vice President:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6] *California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7] Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8] *Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10] *E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Office, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

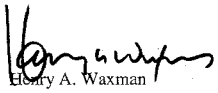
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

2204 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–0529
(202) 225–3976

DISTRICT OFFICE:
8436 WEST THIRD STREET
SUITE 600
LOS ANGELES, CA 90048–4183
(323) 651–1040

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29TH DISTRICT, CALIFORNIA

SENIOR DEMOCRATIC MEMBER
COMMITTEE ON GOVERNMENT REFORM

MEMBER
COMMITTEE ON ENERGY AND COMMERCE

April 23, 2002

Mr. Mitchell E. Daniels, Jr.
Director
Office of Management and Budget
Washington, DC 20503

Dear Director Daniels:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6] *California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7] Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8] *Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10] *E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Office, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

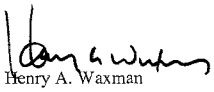
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

2204 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0529
(202) 225-3976

DISTRICT OFFICE:
8436 WEST THIRD STREET
SUITE 600
LOS ANGELES, CA 90048-4193
(323) 651-1040

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29TH DISTRICT, CALIFORNIA

SENIOR DEMOCRATIC MEMBER
COMMITTEE ON GOVERNMENT REFORM

MEMBER
COMMITTEE ON ENERGY AND COMMERCE

April 23, 2002

The Honorable Spencer Abraham
Secretary
Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Secretary Abraham:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6] *California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7] Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8] *Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10] *E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Department, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

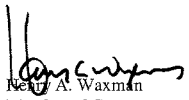
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

Mr. WAXMAN. I expect a considerable discussion in this hearing today and especially from the next panel, regarding the legislation the Senate has designed to ban MTBE and replace it with a renewable fuels standard. I'm hoping we'll hear from others in this hearing on this legislation.

We should be taking a thoughtful approach to this legislation to assure that we don't create new problems in trying to solve existing ones. Ultimately, decisions about our fuel supply need to be made based on the best science; and I noted, Mr. Chairman, you made that point very, very clear in your opening statement.

Our goal should be clear: Minimize air pollution, reduce dependence on foreign oil, and keep costs down. Good science can help us achieve these goals.

What the California delegation did on a bipartisan basis was urge that we not have an ethanol requirement, an oxygenated requirement, an MTBE requirement, that we be allowed to have a reformulated gasoline that would achieve the environmental goals. If California had been allowed to do that, we wouldn't have to be worried about the price hikes in gasoline and the shortages that we may face and all of the other pollution problems and contamination problems resulting from the extended use of MTBE longer than it should be permitted.

So I thank you, Mr. Chairman, for holding this hearing and giving everyone an opportunity to air this issue out, because I think it's an important one.

Mr. OSE. I thank the gentleman.

The gentleman from Connecticut.

Mr. SHAYS. Thank the Chairman. Again, thank you for holding these hearings.

I am representing part of the Northeast. We see a very volatile cost of gasoline; and it, in my own mind, is based on the points made in the second to last paragraph of our chairman: the unstable crude oil supply, tight refining capacity, and dizzying arrays of Federal and State clean air requirements in particular.

But the one thing that happens is we still have the supply. The price changes, but we have a supply. People don't have a shortage of supply in the sense that when they go, they can get what they need, but it costs more at certain times of the year.

What I'm interested in understanding is, it's my understanding—and I want to be corrected if it's not true—that we have different blends, obviously, during different times of the year. Is that correct? Nodding of heads doesn't get recorded.

Ms. HUTZLER. Yes. It's correct.

Mr. SHAYS. And what I then want to understand is, I have been told that when we go from one blend to another, we actually have to have the tanks empty out before we start the new blend. It seems to me that just encourages a shortage of supply and I wonder why we don't allow it to be a blend on a blend. In other words, they put in the new mixture and over time the new mixture becomes the dominant mixture. Why isn't that allowed?

In other words, I don't understand—maybe I'm inaccurate and maybe someone else can answer this question, but I don't understand why we empty a tank, because it just guarantees that you're

going to have shortages. You have to use it all up. Why can't you just start a new blend?

Ms. HUTZLER. Well, the problem with blending the two together is that you would no longer meet the requirement. So there are specific requirements that have to be met——

Mr. SHAYS. But is there something magical at a certain point at a certain date that says you have to go from one absolute blend to another? Why can't it become a graduated change from one blend to another? I don't understand it.

Ms. BAILEY. If I can possibly jump in here for a little bit, I'm wading into an area that I'm not that familiar with from my own personal background. But from the understanding that these transitions happen winter to summer, I think the transition period happens sometime between mid-April through about the end of June, and then of course you have that blend through the summer. Now, these different blends are State, region required, and I think they——

Mr. SHAYS. I know. They may be required, but does it make sense?

Ms. BAILEY. From my reading and what I know, it seems to make sense to that locality and that region and according to EPA requirements——

Mr. SHAYS. Ma'am, I understand the requirements. We're trying to—excuse me, Ms. Bailey. I'm sorry. Ms. Bailey, I understand, I think I understand the requirements. What I don't understand is why we haven't tried to find a way to address it. There's nothing magical about a particular date that all of a sudden you go from one blend to another, and all I'm asking is—and if you don't have the expertise to answer or don't know the answer, that's another issue. I just need to understand why there's something magical about one blend from another and why we have to empty one.

If you told me that one blend counteracts the other and it creates some incredible cocktail that we don't want, that's another issue.

Ms. BAILEY. I——

Mr. SHAYS. If that's the issue, then that would be the answer, but that would be the only answer that would justify it.

Ms. BAILEY. I was trying to share the knowledge that I did have, but I understand that the blends, of course, have to do with the needs of the region as well as the volatility of the fuel, considering it's summer versus, for instance, winter.

Mr. SHAYS. How many different blends do we have?

Ms. BAILEY. I think at one point there may have been, like, 15 or so, possibly.

Mr. SHAYS. Fifteen different—so that means you have to have 15 different tanks devoted to that.

Ms. BAILEY. I don't know that means you have to have different tanks. I think the issue is the refineries—the capacity of the refineries, where the refineries are located. I'm from the Midwest. I know they use ethanol because of the abundance of corn and refineries in that region are able to produce the needed blends. If their blend stocks have to come from the Gulf of Mexico, Gulf Coast area, and it has to go to California, obviously, there are other costs and premiums required because of that.

Mr. OSE. The gentleman from Massachusetts for 5 minutes.

Mr. TIERNEY. Thank you, Mr. Chairman.

I thank the witnesses for being with us today.

I certainly don't profess to be an expert on this, so I hope you'll bear with me a little bit.

Just look at this whole idea about additives. Would you all agree that it appears at least that additives do cause groundwater or drinking water to be unsafe to a certain degree, particularly the MTBE? Is there agreement generally about that?

Ms. BAILEY. I guess that's what the science has found, that there has been—I guess from leakage—some problems.

Mr. TIERNEY. And nobody is generally contesting that? There's nobody claiming that's not the case, am I right?

Mr. KOVACIC. At the FTC we haven't done any work in the area. I'm certainly aware of the work especially that the committee did a year ago where there was extensive testimony on the point.

Ms. BAILEY. From my information on it, I just know that detection of MTBE in our water supply has raised public concern. So I'm——

Mr. TIERNEY. I raised that, because I looked at the provision in the Senate language that would provide a shield for the oil industry from liability for producing the gasoline that poses a threat to clean water or safe drinking water, and it doesn't make sense to me that if we have a very limited number of additives that we can use and some people are eliminating one of those additives and that now we're telling people that they can produce another additive or whatever that pollutes or poses a threat and they won't be held responsible or accountable for it if they do. What does that do in terms of basically giving people no incentive at all to produce any kind of an additive that will, in fact, be good or beneficial and certainly at least not harmful to our clean water and our safe drinking water?

Ms. BAILEY. If I may answer.

Mr. TIERNEY. Please.

Ms. BAILEY. Again, I'm not sure who you're directing——

Mr. TIERNEY. Anybody. Because it doesn't make any sense to me, and I'm wondering if somebody can lend some——

Ms. BAILEY. As I have said in my comments and in my statement, the MTBE issue creates a challenge for public policy. The inherent need to balance the energy supply, price concerns, as you've mentioned, the resolution of environmental concerns that EPA is concerned about, air quality, water quality in the different locations. All we have to go on is our analysis. We have recent EIA analysis that shows that the restriction on the use of MTBE could impact gasoline supply and increase prices. So what the administration is hoping to do is try and balance those issues and come forward with a solution.

We are aware that there are States—California I know is going to ban the use of MTBE, I believe, in 2004. There are other time lines for other phase outs of MTBE through State actions.

Mr. TIERNEY. I don't mean to be rude, but we have limited time. What's the policy basis behind saying that if you get rid of MTBE, whatever else you use, no matter how bad it is, you won't be held liable? I mean, what's the administration's position on that? And explain to me how that makes any sense at all how there would

be a provision that allows the oil industry to just walk away from liability, that does not encourage them, in fact, to have some substitute that, in fact, it protects or at least doesn't injure.

Ms. BAILEY. From what I know, the balance in the bill and the language in the bill and our support for the use of ethanol, our support for the oxygenates that the different blends—obviously, we have to take into consideration the issues of the industry; and not being a part of that negotiation, per se, I'm not quite aware of all of the particulars of the issue, but from the standpoint we're trying to balance the needs of energy security, trying to balance the environment, trying to balance that along with the economy——

Mr. TIERNEY. Well, explain to me any balance at all—you know, we're the government. We're supposed to be protecting citizens. Explain to me the balance where it works to allow the industry to walk away from liability when they produce something that's harmful to our drinking and our water supply.

Ms. BAILEY. Once again, not knowing all of the particulars, I would recognize surely that EPA also has various restrictions and detections there, which I'm sure they cannot walk away from. I'm not, once again, cognizant of all of the particulars of the negotiation.

Mr. TIERNEY. All right. Well, your answer isn't really satisfactory, but I'm not sure whether that's because——

Ms. BAILEY. Well, I'll be glad to get back with you with further information.

Mr. TIERNEY. Would you? I mean, my question is—and I'd like some response in writing, if we're holding this open—what is the administration's policy argument behind supporting a provision that would shield the oil industry from liability when they produce a gasoline that poses a threat to clean water or our safe drinking water? And that would be the question. I'd love to have an answer on that. I really don't think there is one, but I'm more than willing to listen.

Thank you. I yield the balance of my time.

Ms. BAILEY. Get back with you. Thank you.

[The information referred to follows:]

The Administration supports a "safe harbor" provision in order to protect the industry from liability for use of a chemical mandated by an action of Congress, in this case mandated use of ethanol in gasoline. The Administration does not believe an industry should be held liable for the possible adverse effects of a product that has been specifically mandated by the Federal Government.

Mr. OSE. The gentleman yields back.

Mr. Kovacic, I want to go back to this issue on the concentration in the refining industry. I have in front of me an analysis by Charles River Associates, who Mr. Montgomery on the second panel works for, that indicates that the concentration in the East—that would be the Petroleum Administration Defense District 1, 2 and 3 has a rating of 586, keeping in mind the Hirschman-Herfindahl Index ratings, that the Petroleum Administration Defense District 4 and 5 has a rating of 955 and that the U.S. total, the average on a nationwide basis, is 532. Now, I don't know if you've seen that or not. My question is that you've done an investigation on the West Coast having to do with all of the factors that the FTC considers in determining whether something is con-

centrated or not. What was your determination as it relates to PADD 5 as to whether or not it was or was not concentrated?

Mr. KOVACIC. To use the Valero transaction as an example of how regional circumstances can be very important, in the California market Valero and Diamond Shamrock were two of the leading producers of gasoline blends that are acceptable by CARB standards in California. If we focused on the competitive effect of that transaction, we found that allowing the merger would pose a serious danger, unless cures were imposed, for the production of CARB gasoline for the California market.

That's an instance in which the HHI Index would have been well above the threshold of concern that confronted us. It's one example of an instance in which the broader brush that I suspect the CRA study is taking would not have picked up a significant competitive problem within California itself.

Mr. OSE. How you condition that merger accordingly and force the liquidation of certain assets——

Mr. KOVACIC. Precisely.

Mr. OSE [continuing]. And, in the end, the index rating after the fact, so to speak, determined by FTC was acceptable?

Mr. KOVACIC. Yes, that's right; and, in fact, in all of the major transactions we have examined involving the West Coast market—and in many respects we've used a West Coast analysis or a California analysis—we've in fact required divestitures to create competitive conditions that we felt would be acceptable.

Mr. OSE. Now, when you talk about competitive conditions, are you talking about ratings if 1,000—I mean, the HHI Index standard is a rating of 1,000 or less, the industry is unconcentrated, requiring no competitive review. The HHI Index reading of between 1,000 and 1,800 indicates an industry moderately concentrated and that other factors must be considered; and an HHI Index greater than 1,800 indicates an industry that is widely concentrated and needs careful scrutiny for any mergers.

In your analysis, you said that after the conditions were placed, you found that the concentration was at an acceptable level. Does that mean 500 under the index, 800, 999? I mean, where did you find it?

Mr. KOVACIC. I think the crucial point that you mentioned earlier is that the numerical thresholds are a starting point, and we consider qualitative factors that bear upon the likelihood that a single firm will be able to raise prices acting by itself or a collection of firms, acting at arm's length or collusively, we'd be able to raise prices. As a consequence, we tend not to look at a specific numerical threshold as being the decisive criteria. We examine other qualitative factors that would bear upon the acceptability of a specific transaction as well.

Mr. OSE. We are going to examine this until you tell me whether we were really close, down around 500, 800? Where were we? Were there qualitative factors in the West Coast analysis that were required because the HHI index reading was above 1,000?

Mr. KOVACIC. Some of the relevant factors included the possibility that, given the nature of rivalry among firms, whether there would be continued competition among them. Another factor is the

possibility that shipments from outside the area would exercise a constraining influence on the firms.

Mr. OSE. These were precursor considerations, before the fact?

Mr. KOVACIC. That is correct.

Mr. OSE. And after the fact, by virtue of the conditions you placed, you were able to remove the quantitative analysis below the 1,000 threshold?

Mr. KOVACIC. We have in a number of instances permitted mergers that had a post-divestiture or post-remedy HHI above 1,000, or even above 1,800, so that our aim is not always to push the post-remedy HHI below a specific threshold, say below 1,800 or below 1,000. It is to take account of the quality of competition in the market so that we are assured that the number of firms remaining and the quality of the firms will ensure a robust competitive interaction, that there won't be any reduction in the level of competition beyond that existed before the fact.

Mr. OSE. At the end of the day, relative to PADD 1, you found the industry not to be overly concentrated?

Mr. KOVACIC. That is correct. With the solution.

Mr. OSE. Market conditions were satisfactory?

Mr. KOVACIC. That is correct. With the solutions that we imposed.

Mr. OSE. My time has expired. I am going to recognize the gentleman from Massachusetts. And he and I may well have a little conversation here privately.

I thank the gentleman.

Same question on the East Coast. You did an investigation on the East Coast to determine whether or not the refining industry was concentrated to the detriment of the marketplace.

What did you find there?

Mr. KOVACIC. When we examined transactions such as Exxon's acquisition of Mobil several years ago, there the focus of attention was—we were convinced that the refining sector, as such, the refining features of the transaction didn't pose a problem on the East Coast.

There, the concern to us was retailing and distribution. And, in that instance, the focus of the solution on the East Coast was a massive divestiture of retailing assets, terminaling assets, but not refineries.

Mr. OSE. So you found a way to sustain a competitive marketplace with a qualitative adjustment to whatever assets were held after the fact by the parties to the transaction?

Mr. KOVACIC. That is correct. Principally by insisting upon retailing and distribution divestitures that placed selected retail stations and terminals in the hands of a company that would be a robust alternative to the merging parties.

Mr. OSE. So it is the opinion of the FTC, as it relates to PADD 1 and PADD 5, that it would be the littoral regions of the country on the East and the West Coasts, that the refining industry is not overly concentrated?

Mr. KOVACIC. I would say that, subject to solutions that we would impose in individual transactions, we have not permitted a merger to go forward without solutions that we felt brought things to a level that would ensure an adequate level of rivalry.

Mr. OSE. OK. The reason I ask that question is, I have the same series of questions as they relate to the ethanol industry. And if you recall, the Charles River Associates reports, according to the information that I have, for PADDs 1, 2 and 3, the HHI index averaged 586.

On the West Coast for PADDs 4 and 5, the HHI index was 955. The U.S. total of the index was 532. Same index, according to the GAO, the U.S. ethanol industry's rating under Herfindahl-Hirschman is 1,866, indicating a highly concentrated industry that needs careful scrutiny, according to the standards that are in the index itself.

So I would ask you, how concentrated is the ethanol industry? Are these numbers accurate?

Mr. KOVACIC. I have seen the GAO study, and I have looked at their conclusions. I would be interested to know the data on which they built up the conclusions.

But let's assume that they have defined what we would call a sensible, relevant market. And let's assume for purposes of discussion that it is an airtight analysis. Certainly, if we were thinking about future mergers, applying our standard of an HHI at or above 1,800 is where we would begin asking very serious questions.

Mr. OSE. So you would have a red flag waving in the air saying, Federal Trade Commission, look at this, by virtue of this number?

Mr. KOVACIC. We would say that once we have crept into that zone of concentration in looking at future transactions, these are the transactions where we would have the greatest concern, and we would be focusing very carefully on qualitative factors that would either reinforce the tentative conclusion that we would draw from the numbers or disprove them.

Mr. OSE. All right. This particular 1,866 rating is for the U.S. industry as a whole?

Mr. KOVACIC. Yes, sir.

Mr. OSE. In terms of a regional situation in California, how concentrated—or for instance, in my friend's State, Massachusetts, how concentrated is the ethanol industry?

Mr. KOVACIC. We don't have a sense of that right now, Mr. Chairman, and I don't recall that the GAO study tried to break things out on a regional level. But if we were to examine this sector in more detail, that would be precisely the type of question we would ask, which is, for refineries that consumed ethanol or were required to use ethanol, what supply sources could they draw from, how broad a geographic area? In short, who could supply them?

So we would do that kind of analysis on a region-by-region basis.

Mr. OSE. Who is the largest supplier of ethanol in the United States?

Mr. KOVACIC. ADM.

Mr. OSE. ADM. Archer Daniels Midland?

Mr. KOVACIC. Yes, sir.

Mr. OSE. Has ADM ever been fined or prosecuted for conspiring with competitors to fix prices?

Mr. KOVACIC. The Department of Justice prosecuted ADM in the mid-1990's for fixing prices involving the food additive sector, food additives used——

Mr. OSE. Lysine?

Mr. KOVACIC. Lysine for the production of animal feed and, in some instances, for human food supplements as well.

Mr. OSE. Now, the FTC, as you said, has done several investigations of collusion or price gouging in the refining industry, separate and apart from the investigation in the food industry.

Does the FTC take into consideration how concentrated the industry is in terms of conducting those investigations?

Mr. KOVACIC. It is an important variable for us. The reason for that is that the basic economic literature suggests that putting all other factors aside, it is relatively easier for firms to reach agreement, consensus among them, on a course of action the smaller the number of industry participants.

Mr. OSE. In terms of conducting these investigations, what sort of behavior do you look for?

Mr. KOVACIC. We look first of all for a similarity in behavior.

But we also look for a similarity in behavior when we are focusing on collusion, the similarity of behavior that could only be explained if all of the industry participants agreed to take a given course of action; that is, a similarity of behavior by course of action that might be commercial suicide for one firm acting alone, but might make a great deal of sense if everyone joined in the conduct in question.

Mr. OSE. OK. Thank you for that.

My time is way overdue. I didn't see Mr. Shays over there, I was so focused on you. I am going to recognize the gentleman from Connecticut.

Mr. SHAYS. The one thing I don't want to do is blame someone for the price increases. I do believe it is an issue of supply and demand. I believe it is an issue of cost of crude, but obviously refining capacity and so on.

But I was interested to hear our panel—each of you, explain to me why the price seems to jump so quickly, but then when there is a significant drop in crude and so on, the prices seem to go down more slowly.

Why does the spike always seem to be quite significant and sudden, and then the reduction takes so long?

Ms. HUTZLER. In actuality, we believe that on the retail price side the asymmetry you are talking about may actually be more of a consumer perception than reality.

We have done a study called "Price Changes in the Gasoline Market" that tries to track the wholesale costs versus the retail prices, and, in fact, they do track fairly close. The issue is that there is a lag from the time that the wholesale price reaches the retail price. And that lag gives this asymmetry that the public perceives.

Mr. SHAYS. Let me ask you, Ms. Bailey, do you have anything to add to that?

Ms. BAILEY. Aside from what Mary has said, aside from taxes, the other factors that contribute to the differences in prices at different times obviously are proximity of supply, as to the areas further from the Gulf Coast, as I was discussing earlier, any kind of supply disruption, any unplanned refinery outages, that kind of thing.

Competition in the local market, the local area where the——

Mr. SHAYS. The question, though, was, why does price seem to jump so quickly and then gradually decline? And the response was basically that it seems to track the price of crude oil. And so what you are saying is, the crude oil goes up quickly and then seems to fall more gradually?

Ms. BAILEY. The price of crude oil is a huge component of gasoline prices. But in addition to that, the other issues of State taxes and other issues as they relate to refineries and other components of what goes into the gasoline prices, operating costs and all of those were the issues that I was raising.

But crude oil price obviously—any change in that affects the price of the gasoline possibly, as well.

Mr. SHAYS. Do you have anything to add?

Mr. KOVACIC. Congressman, if I can offer a coming attraction, one of the focal points of our conference on May 8th and May 9th at the FTC will be precisely this issue. We have asked several academics to examine whether the perception that you mentioned is borne out by actual practice.

Mr. SHAYS. When is that going to be?

Mr. KOVACIC. May 8th and May 9th at our headquarters in Washington.

We are going to be looking at gasoline prices, and several of the papers we have asked to be presented will examine precisely this question. I am not certain what the researchers will find. I have the impression that some of them are perhaps going to take issue with whether the perception is borne out by actual practice.

But, within a few weeks, we hope to have a fuller perspective about precisely that question from some who have studied actual patterns and detail.

Mr. SHAYS. Thank you.

Last year we wrote a letter requesting that the Department of Energy review the accusations of price manipulations. What was the outcome of that? Is that something that you are familiar with?

Ms. BAILEY. Well, now, I am not sure when you requested that. I was in the Midwest myself last year. I joined the administration in August of last year, and I am not sure if that was during the time of your request for the report.

Mr. SHAYS. How much of the price increase is—again, using Mr. Ose's statement, the unstable crude oil supply and tighter refinery capacity, and also the challenge of meeting the array of different requirements? If you broke up the cost component increase, how much is due to each part of that? Crude oil price, tighter capacity in the Northeast, tight capacity in the United States, but in the Northeast, and the various Clean Air requirements.

When you break down that cost, how does it break down?

Ms. HUTZLER. I have it decomposed slightly differently.

In terms of the price of gasoline, 40 percent is generally from the crude oil price. About 35 percent is from taxes.

Mr. SHAYS. When you say taxes?

Ms. HUTZLER. Yes, Federal, State, local taxes, all of them.

About 6 percent is from distribution and marketing. About 19 percent is from refinery costs. And that also includes the environmental portion.

Mr. SHAYS. OK. Thank you.

I am happy—my time has run out. Sorry.

Mr. OSE. We thank the gentleman.

Mr. Kovacic, let me go back a minute. You told me the largest supplier of ethanol in the United States is ADM?

Mr. KOVACIC. Yes, sir.

Mr. OSE. Do you have any feel for what percentage of the overall market they possess?

Mr. KOVACIC. I would be glad to check on this, But I believe it is 40 percent plus.

Mr. OSE. OK.

Now, I just asked you, in terms of conducting these investigations into collusion or price gouging, what sort of behavior does the FTC look for; and you responded.

What kind of evidence or documents does the FTC look for in trying to determine if an industry is colluding?

Mr. KOVACIC. Two types of evidence: one would consist of company records that on their own face actually bear out the fact of coordination or discussions with competitors.

If we don't have that kind of evidence, we then tend to look at what we can observe from outside of the company. And most interesting to us is a pattern in parallel behavior that can be explained only if, or principally if, there is an agreement where it would be irrational for the firms to act in a given way unless they were absolutely confident that their rivals were going to do the same. This involves looking at pricing patterns. We look at input costs.

For example, if a firm's input costs dropped dramatically, but all of the firms in the sector decided to increase prices, that could be provocative.

Mr. OSE. The clerk is going to hand you a binder containing some documents. The first is document No. 1, titled the "Western Ethanol Memo on BP Bids," which I presume means British Petroleum. This document is a memo written by a Mr. Vind from Western Ethanol, which is a California-based ethanol distributor for LAICA, which is a Costa Rican ethanol supplier that imports ethanol tariff free under the Caribbean Basin Initiative.

The subject of the memo is an auction to sell ethanol to BP in Seattle. I would like to direct your attention to the first paragraph on the second page, to the highlighted section, where it says, "We are prepared to stop bidding should the price drop below $1.38 per gallon."

In an industry as concentrated as the ethanol industry, would such a memo raise concerns for the FTC?

Mr. KOVACIC. Mr. Chairman, if you can give me just a bit of context. This is a memo internal to the company that—is the recipient another executive within the company?

Mr. OSE. LAICA is a competitor to Western Ethanol. And Mr. Vind works for Western Ethanol. And Mr. Wolf works for LAICA.

Mr. KOVACIC. So it is a memorandum from one rival to another rival?

Mr. OSE. From Doug Vind with Western Ethanol to Herbert Wolf with LAICA, saying, we are going to stop bidding—which is on the sale to BP—if the price drops below $1.38.

Is that the kind of behavior that the FTC looks for in determining whether or not collusion or gouging is going on?

Mr. KOVACIC. If you will accept the general caveat that one always would like to see the fuller context. Ordinarily, when one sees one competitor telling another competitor, "this is our bidding strategy; this is how we will bid," that is a very provocative document.

Mr. OSE. Does this qualify as a provocative document?

Mr. KOVACIC. If you will allow me the partial caveat that to study it in more detail and to know more about the context would be helpful.

Were I simply reading this in the abstract and I saw one rival tell another rival, this is my bidding strategy, and this is how I will bid, I would want to have a very good reason for why that was said.

Mr. OSE. Well, you can see why I am so interested. On the floor of the other body, we are debating a proposal by the majority leader of the Senate to, frankly, legislatively embed a monopoly, and we have got competitors who frankly are communicating with each other.

And my question of you is, is this a provocative enough statement or document to merit an investigation? And you are telling me maybe?

Mr. KOVACIC. I would put it at a higher level than maybe.

I would say this is almost invariably the kind of statement that would invite further inquiry.

Mr. OSE. How many such documents do you need?

Mr. KOVACIC. Quite often it is a single document that sets things in motion.

Mr. OSE. Allison, give him the second document.

Document No. 2 on the screen is a memo written by Mr. Vind from Regent International which is the parent company of Western Ethanol, to a Mr. Bok at ADM. ADM, in this reference, is Archer Daniels Midland, regarding a bid for ethanol out of France.

The "Man" referred to in the memo is apparently ED&F Man Alcohols, which is an ethanol supplier based in London. If you could look at the second paragraph, the second sentence, which reads, "In order to avoid a 'showdown' or bidding contest, I agree to this request. Therefore, Man will be bidding on the 75,000 hl out of France at a price of 5.02"—I presume that is French francs; it may be European currency units—"I would suggest that ADM underbid at a price of 4.85. This will serve as a safety net in the event that Man's bid is rejected"—and it says, "is rejected for any reason."

Given the concentration in the ethanol industry, would such a memo, indicating apparent cooperation among three ethanol suppliers, be of concern to the FTC?

Mr. KOVACIC. Yes.

Mr. OSE. Give him the third document. I am not running out of documents, by the way.

Document No. 3 is a second memo from Vind to Bok regarding another purchase of alcohol from the European Union, "This will confirm that ADM will be bidding 5.90 ecu"—European currency units—"on Spanish tender, and somewhat less, (say 5.75) on Italian tender.

"I assume you have discussed with Man, and that all is OK."

Would such a history of cooperation among companies in a concentrated industry concern the FTC?

Mr. KOVACIC. Yes.

Mr. OSE. Would a pattern of such cooperation going back several years concern the FTC?

Mr. KOVACIC. Yes.

Mr. OSE. Would you like the documents one by one or would you like them in toto?

Mr. KOVACIC. Any order you like, sir.

Mr. OSE. Allison, give him the binder. We are going to submit these to you for your consideration. We would be happy to go through them one by one with you.

[The information referred to follows:]

LIST OF PLAYERS

Entity	Location	Primary Persons/Members
1. Archer Daniels Midland (ADM)	Decatur, Illinois	Ed Harjehausen
2. ADM Ingredients	Kent, England	Dirk Bok
3. CBI Producers Group	Various	Gasohol/Jamaica Ethanol (JEPCO)/LAICA/Man/Petrojam/WPI
4. ED & F Man Alcohols	London, England	Jeff Tuite
5. European Union (DG VI)	Brussels, Belgium	Rudy Van der Stappen, Russell Mildon and Alexander Tilgenkamp
6. Gasohol	El Salvador	Gerry Balzaretti Kriete
7. IOP Associates	Gainesville, VA	George Fitch
8. LAICA/Hogan & Co.	Costa Rica	Herbert Wolf/Tony Hogan
9. Petrojam	Jamaica	Byron Shirley
10. Regent International/ Western Ethanol Co. (WEC)/ Western Petroleum Importers (WPI)	Brea, California/ El Salvador	Dick Vind Doug Vind

Western Ethanol Company LLC

Memo

To: Herbert Wolf
From: Doug Vind DGV
Date: September 29, 2000
Pages: 2 + 3
Re: Sales Opportunity – **REQUIRES IMMEDIATE ATTENTION / RESPONSE**

Further to our telephone conversation of today, I am writing to inform you of the details of a sales opportunity for LAICA's anhydrous alcohol. In order to participate in this opportunity, **I must hear back from you by no later than close of business on Tuesday October 2nd.**

British Petroleum ("BP") has scheduled an on-line reverse auction to be conducted via the internet next week. They are requesting pre-qualified ethanol suppliers to bid on supplying product into the Ohio and Washington State markets beginning November 2000 and running through January 2001. We are interested in bidding to supply a portion of the volume requested into Washington State. This Lot is broken into partial supply percentages of 10,25,50 and 100%. The total volume requested for Washington State is 9,600,000 gallons over the 3 month period.

I am specifically recommending that LAICA consider committing to this reverse auction the 38,000 HL it has scheduled to receive from Europe. I believe this feedstock will arrive Costa Rica sometime during the month of November and be available for delivery into the US in December.

The delivery of denatured ethanol to BP into Washington State can only be made by either Railcar or Barge. Direct deliveries of undenatured ethanol cannot be accepted. For this reason, WEC is prepared to source railcars of domestic ethanol in order to supplement the volume coming from LAICA. This would allow us to bid on up to 25% of the requested volume, for a total of 2,400,000 gallons. We are also in discussion with Man with regard to their participation for a small piece of this business.

I expect that the winning bid for the 25% volume will be somewhere in the upper $1.30's to low $1.40's. We are prepared to stop bidding should the price drop below $1.38 per gallon. As I mentioned above, the delivery mode into Washington State allows for only barge or railcar. In view of this, it will be necessary to first discharge and denature the imported ethanol. We then will schedule a barge to transport the denatured ethanol to BP's terminal in Seattle. I am in the process of verifying the barging, terminaling and denaturing costs but I have been given a range of $.03 - $.04 per gallon. I should have this information on Monday.

I believe that the BP "Request for Quotation" presents a very good sales opportunity for LAICA's anhydrous alcohol. However, in order to participate in the on-line auction, WEC needs to receive LAICA's commitment to supply the 38,000 HL. **We must obtain LAICA's commitment to this program by no later than close of business next Tuesday.**

For your guidance, I have enclosed a listing of the Lots to be included in the Reverse Auction. As you will notice, we will be required to participate in a "Qualifying Round" of bidding on Wednesday September 3rd. This will enable us to move on to the competitive bidding event scheduled for Friday September 5th.

I greatly appreciate your presenting this proposal to your Board of Directors on Monday. I will be in my office and be prepared to answer any further questions regarding this matter.

Best regards,

Douglas Vind

REGENT INTERNATIONAL

Sent Via Fax

November 20, 1995

TO: Dick Bok
ADM Ingredients

FROM: Dick Vind

Finally received a phone call from Tuite at 3:30 PM PDT USA. Jeff stated he had at last been successful in talking to the Kriete's and they have agreed to split the tender with us.

Jeff's only reservation was that Kriete insisted that Man be the purchaser of the tender. In order to avoid a "show down" or bidding contest, I agreed to this request.

Therefore, Man will be bidding on the 75,000 hl out of France at a price of 5.02. I would suggest that ADM underbid at a price of 4.85. This will serve as a safety net in the event Man's bid is rejected for any reason. As a reminder, bids are due in this Thursday, November 23.

With regards to the sharing, I made it explicitly clear to Jeff that we (ADM & Western) would be purchasing the product FOB Port-la-Nouvelle from Man on a totally transparent basis. We would then assume responsibility for our own shipping which presumably we would be able to coordinate jointly in the future.

I would suggest you contact Tuite tomorrow at your convenience to confirm and request a signed agreement between both parties in order to assure compliance with this accord.

Best regards,

Dick

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

001383

Date: June 17, 1996

To: Dick Bok via fax

From: Dick Vind

Subject: EU Wine Alcohol Tender-- Due date: June 24

This will confirm that ADM will be bidding 5.9 ecu on Spanish tender (194-96) and somewhat less, (say 5.75) on Italian tender (195-96).

I assume you have discussed with Man, and that all is OK. Please call if this is not the case.

Hope all is well.

Best regards,

Dick

Dick

cc: Doug Vind

REGENT INTERNATIONAL

Tande

MEMORANDUM

Sent Via Fax
217/424-5978

March 18, 1992

TO: Ed Harjehausen
Archer Daniels Midland Co.

FROM: Doug Vind

Per our previous discussion, I have prepared a price and cost comparison demonstrating the sensitivity of the proposed bid price options and the resulting "out turned" finished ethanol costs FOB Acajulta, El Salvador.

FOB COST CALCULATION

Bid Price (ECUs) Per Hectoliter	4.2	4.3	4.4
Bid Price ($ per gallon)	.2336	.2392	.2448
Fobbing	.1700	.1700	.1700
Ocean Freight (in)	.1350	.1350	.1350
Inland Truck Freight (in)	.0147	.0147	.0147
Raw Material Cost	.5533	.5589	.5645
Processing Costs	.3800	.3825	.3850
FOB Value Plant	.9333	.9414	.9495
Inland Truck Freight (out)	.0147	.0147	.0147
FOB Cost Port (Acajulta)	.9480	.9561	.9642

2910

310 S. BIRCH STREET • P.O. BOX 1400 • ERIE, CALIFORNIA 92809 • (714) 990-5555 • FAX (714) 990-[illegible]

Page 2
Price & Cost Comparison
March 18, 1992

VALUE ADDED CALCULATION

Direct Costs	.3450	.3475	.3500
Divided By FOB Val. Plant	.9333	.9414	.9495
Value Added	36.9%	36.9%	36.9%

Ed, as the previous example illustrates, a .1 ECU per hectoliter change in our bid price results in approximately a $.008 per gallon change in total FOB out turned value. For purposes of this analysis, I have targeted a value added percentage of 36.9%. This percentage should be adjusted to reflect our mutual comfort level in order not to jeopardize duty free qualifications. As one further observation, please note the difference between "processing costs" and "direct costs". This difference results from customs guidelines limiting only certain types of costs as "direct" and applicable to the Value Added calculation.

Recommendation: In reviewing the three lots being offered by the EC for this tender, I suggest we bid "competitively" on lot number 77 and submit lower priced bids on lots 75 and 76 as "back up" bids in the event other potential purchasers fail in their attempt to secure these two lots.

I recommend our bid price on lot number 77 should be 4.15 ECUs per hectoliter. I recommend our bid price on lots number 75 and 76 should be 4.10 ECUs per hectoliter each.

As you are aware, our bids must be formally submitted by Friday, March 20, 1992. It will, therefore, be necessary to communicate this pricing information to your office in London by our close of business on Thursday.

Please give me a call with your recommendations after you have reviewed this memo.

Regards,

PETROJAM LIMITED

95 MARCUS GARVEY DRIVE, P.O. BOX 241, KINGSTON, JAMAICA
Cable Address: Petrojam 2119, Tel: (809) 923-8011-3/923-4740-9/923-8814-18, Fax: (809) 923-5698

May 6, 1992

IOP Associates Inc.
418 Deporan Drive
Gainsville, Virginia 22085
U.S.A.

ATTN: Mr. George Fitch

Dear Sirs:

Re: April 30 Meeting in Miami between Representatives of Regent International and Petrojam Limited

I tried getting you by phone to discuss your May 2 letter which contained matters discussed at the subject meeting. For purposes of clarification, we wish to state the conclusions that Petrojam understood from the discussions:

Those were:

- The meeting was worthwhile and constructive and established a basis for a relationship based on cooperation, trust and respect.
- The proposal to form a council or formal association of CBI ethanol producers was rejected on the basis that such an association would not be appropriate at this time.
- Agreement was reached with regard to cooperation on matters related to the EC tenders and bidding.
- Each CBI producer would continue to maintain its individual contact with the Commission.
- More information was needed re the status of Tropicana, the GATT negotiations, the alleged 4.8 million HL of alcohol that may be available in Europe, the amount of alcohol available to the EC for tendering for 1993 and 1994 and the 35% value added criteria required on alcohol imports into the U.S.A.
- We will continue to share information and cooperate on areas of mutual interest on an informal basis.

DIRECTORS: Colin Campbell, Noel daCosta (Chairman), Fernando dePeralta, H.J. Preston (Managing), Karl James, Dr. Vincent Lawrence, Mrs. Andrea Neanbhard, Godfrey Perkins, Derrick White

06-06-92 10:12 PETROJAM LTD 10+809 923 5698 P.02

As discussed, it was Petrojam's position that joint representations or joint communiques should be avoided, except in specific areas of mutual interest where there was the explicit agreement of each of the CBI producers.

We would suggest also that any correspondence between ourselves be limited to the CBI producers to avoid the possibility of misunderstandings or misinterpretations by others.

Petrojam is in the process of seeking further information of some of the areas identified during our meeting and we look forward to sharing this with you as we move toward taking a position on them. In this regard, we look forward to receiving data on the 35% value added criteria that Dick Vind promised to provide.

It was indeed a pleasurable occassion meeting with both you and Dick Vind and we look forward to a mutually beneficial relationship in the future.

Yours very truly,
PETROJAM LIMITED

Byron Shirley
Ethanol Coordinator

BCS:mp

Copy to: Mr. A. Hogan - Hogan & Co.
Mr. R. Vind - Regent Intl.

E D & F MAN ALCOHOLS

FAX TRANSMISSION FORM

To	Regent International Brea	Fax No.
Attn.	Mr Dick Vind	01017149900418
From	Jeffrey Tuite	
Date	13th May 1993	
Copy :		No. of pages to follow : -

El Salvador

On Tuesday evening I talked to the Kriets and here is what was said.

They were still keen to make a bid on these tenders.. I cautioned once more against this. I said that Man would be able to offer a compromise wherein Man offered 1 million gallons when thier plant was up and running. This would come from these tenders and they would buy from Man and the alcohol would be supplied equally by Vind and Hogan. Ideally it would be swap deal with them returning the ethanol next time around. In return it was expected that they did not interfere with these tenders.

The Kriete response was that they were still very nervous about being outmanouvered and that we would block any alcohol for them from the next round of June/July tenders. I said that this was not the case and that if they could persuade the Commission to call five lots next time we would support them.

In summary Kriete is prepared to stay away from these tenders if Man can guarantee that they will get 1.4 million gallons from these tenders on a straight sale basis. I said that 1 million gallons was more realistic. Tony Hogan is prepared to make a straight sale and feels that this commits him less to Krite and there is the point that Kriet may not get any alcohol to return for one reason or another. My recommendation to you is to make available a straight 500,000 gallons sale (preferrably 750,000 !) without strings and I feel this will mend things.

Sugar Quay Lower Thames Street London EC3R 6DU
Tel 071-283 3000 Telex 885431 EDFMAN G Fax 071-338 0623
Registered in England No 2097027
A member of the E D & F Man Group

18:54 FAX 071 867 0774 MAN ALCOHOLS

Can I please have your agreement to do this. I already have Tony`s agreement. Naturally Man will secure ADM`s P Bond risk for this sale.

I talked to George Fitch in Brussels today who is suffering the usual frustration one gets in Brussels. He had little to add to your fax of yesterday.

I will call you latter when I get home.

Best Regards

E D & F MAN ALCOHOLS

To Patrojam
Rm Byron Shire

To	IOP Associates	Fax No
Att	Mr George Fitch	
From	Jeffrey Tuite	
Date	21st February `94	
Copy :	CBI Group	No. of pages to follow : +

Good Day

Very many thanks for your fax today.

A couple of comments without to much thought.

Firstly it may suit us to take all the alcohol at one go. It seems that we can find enough storage either in the Caribbean or Europe to match the task. I would suggest that it may be possible at a European oil terminal to have the alcohol technically exported from the EC for GATT purposes and held in suspense in a customs free zone but I can check on this. I know that Byron has identified some storage in the Caribbean and we looked at the Bahamas but the price was extortionate. naturally it would be better to try to negotiate the liftings between now and July `95 from a cost point of veiw but we could make a gesture and remove a good chunk straight away because we all probably want to gear up for supplies for the rest of `94 anyway. We must also bear in mind that we must push for the normal sales in addition to the 3.5m. All in all we could have to ship 6m Hl in one year and that`s why I`m convinced that Israel will get 1m at least.

Regarding the point on buying as a Group how do we operate the mechanics of this ? Do we set up `CBI Group Europe Limited` which makes a bid, is equally owned by all the players and has subcontracts with each of the players to supply alcohol ? How would such a company be funded ? Who would place the bonds, we are talking USD 95m ! The cost and fobbing comes to another USD 35m. Then there`s financing ! This is only the 3.5 remember. I think our company would consider funding the operation if invited but of course on commercial terms. My opinion is that to have one company to bid would be to transparent for the EC and would

Sugar Quay Lower Thames Street London EC3R 6DU
Tel 071-285 3114 Telex 885431 EDFMAN G Fax 071-867 0774
Registered in England No 2697807
A subsidiary of the E D & F Man Group
A division of E D & F Man Liquid Products Ltd

give them a legal problem so we may have to go back to a couple of bidders or bidding in the usual way. Certainly we could push for interchangebility between East coast and West coast to facilitate swapping etc..

Certainly I think it`s vital to tie the deal up so that we do not attract more Caribbean players into the business at the last moment.

In terms of price the EU have to understand that the costs of this operation will be greater than our normal costs and this will impact on the price. On the other hand we ackolwedge that they will give us security of supply. Fortunatly, or unfortunatly, depending on your veiw, we are in the pits of the US market at the moment and this is probably a good time to negotiate the price based on the current market and the idea of a formula would be difficult for us to work if the EU want lifting within say twelve months.

I`m afraid these are not constructive thoughts, just first thoughts along obvious lines and I will be back with more !

Incidently, it would be better to have the meeting with Commission in the middle of the week ie 3rd March. This gives us more time to travel, get organised and meet prior to the EU.

Best Regards

REGENT INTERNATIONAL

Sent Via Fax

April 6, 1994

MEMORANDUM

TO: DICK BOK

FROM: RICHARD VIND

SUBJECT: CBI TENDERS

EEC

I appreciate your quick response. Given the politics in the EU, I agree we should prepare "bids as usual".

As mentioned in our conversation this AM, I will have price information for you on or before April 14.

My travel plans now are to go to Europe the week of April 18. Meetings in Brussels probably 19/20.

I will not know my exact travel plans until probably April 12 so I will communicate my itinerary along with pricing information prior to April 14 to your office.

Best regards,

Dick

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

Monday, July 13, 1998

Western Petroleum Importers Inc.

Fax

To:	Jeff Tuite	From:	Doug Vind
Fax:	44-1-71-285-3655	Pages:	1

I had hoped to hear from you today regarding the situation that has developed in the Northwest. You can imagine my surprise and disappointment today to learn that the "deal" I have been discussing with you for the past several weeks involving the shipment out of Costa Rica and El Salvador had already been concluded last week. You can also imagine my embarrassment with my customer when I called them today to firm up the transaction only to learn that they had been offered product which I had been previously told was not available.

My current frustration with the recent sequence of events is matched only by the humiliation of relying on what was indicated as timely and accurate information, representing that information as fact, and having my credibility at risk when the "facts" changed.

As you are aware, I have been actively working with your office in seeking a vessel to accommodate the delivery of both parcels. Because the sale was to involve a direct contract between Man and the customer, I revealed the targeted value for the product to you for your concurrence, which you provided. Late last week I attempted to reach you several times to discuss this matter but did not receive the benefit of a return call. As it turns out, you had already concluded this transaction but elected not to inform me. A simple call would have saved me from looking foolish today.

At this point I need to reconfirm your commitment to providing the 900,000 gallons out of El Salvador in a joint shipment sometime on or after mid August. As I have already actively represented this volume as available for delivery, I would prefer to avoid a repeat of today's confusion in the event you have made other unilateral arrangements.

Additionally, I wish to discuss this entire situation with you in greater detail in order to try and understand exactly how things got off track. Please call me at your soonest opportunity.

Date: November 13, 1995

To: George Fitch

From: Dick Vind

Subject: DGVI "Doublespeak"

Please review the enclosed articles from a recent [October 20, 1995] issue of *Agra Europe* Magazine.

This article seems to completely refute Alex's comments made to us at our meeting of last week. Although the lead paragraph is not easily readable because the fax machine "ate' it, what it says is that The Commission is increasing the amount of compulsory distillation for this coming year [1995-96] versus last year [1994-95] by 137,000 HL. Although small, it nonetheless is a definite increase, and shows that the total amount of alcohol to be distilled via compulsory distillation for the three primary countries of Italy, Spain and France for this coming year will be a total of 5,400,000 HL.

It must be further noted that this year's total wine production for these three countries is estimated to be 131,900,000 HL versus last year's 130,927,000 HL. With compulsory distillation being 4% of the total, if you take the total EU wine production of 155,400,000, this means that a total of 6,216,000 HL will be available for EUstocks this coming year.

It is apparent that there will continue to be significant overproduction in the EU for years to come, in that the Commission's efforts to reduce production have failed.

On a related matter, I have reviewed your memo to the CBI group. Your suggestion on opening up future tenders to avoid the GATT limits are troubling unless we couple it with some type of end-use restriction. This is because, as you can also see from the second article, notwithstanding what Tuite said at the meeting, it appears that the Brazilians will be back into the market in a big way next year. Unless we place some type of restriction on end-use, they'll easily outbid us for the entire EU output.

What happened to our end-use language we discussed with Olsen last year?

I would appreciate your investigating these matters as soon as possible and giving me the benefit of your thoughts. Also, I want to report the results of my meeting with the SENPA folks.

Dick

cc: J. TUITE
T. HOGAN
B. Shirley

ADM INTERNATIONAL LTD

SUBSIDIARY OF ARCHER DANIELS MIDLAND COMPANY

EXECUTIVE OFFICES

T E L E F A X

TO:	Mr. Dirk Vind Regent International	FROM:	G. Allen Andreas
DATE:	28th November 1991	FAX NO:	0101 714 990 0418

Dear Dick,

Arrangements for dinner at 9.30 p.m. at Le Carroche. 43 Upper Brook Street have been confirmed for Tuesday 3rd December. I have invited Dirk Rok to join Mr Vicente and us for the evening.

Dirk and myself will meet you at the Dorchester at 8.00 for cocktails and a discussion regarding CBI ethanol strategy as the restaurant is near the Hotel.

I look forward to our meeting and working again with you on this mutual opportunity.

Best regards,

G. ALLEN ANDREAS

Lindsay - (Allen's Secretary)

CHURCH MANORWAY
SIDCUP
KENT DA9 1DL
TEL: 44-3224 41133
FAX: 44-3224 37536

Deals -
Tender -

REGENT INTERNATIONAL

MEMORANDUM

Sent Via Fax
217/424-5978

March 18, 1992

TO: Ed Harjehausen
Archer Daniels Midland Co.

FROM: Doug Vind

==========

Per our previous discussion, I have prepared a price and cost comparison demonstrating the sensitivity of the proposed bid price options and the resulting "out turned" finished ethanol costs FOB Acajulta, El Salvador.

FOB COST CALCULATION

Bid Price (ECUs) Per Hectoliter	4.2	4.3	4.4
Bid Price ($ per gallon)	.2336	.2392	.2448
Fobbing	.1700	.1700	.1700
Ocean Freight (in)	.1350	.1350	.1350
Inland Truck Freight (in)	.0147	.0147	.0147
Raw Material Cost	.5533	.5589	.5645
Processing Costs	.3800	.3825	.3850
FOB Value Plant	.9333	.9414	.9495
Inland Truck Freight (out)	.0147	.0147	.0147
FOB Cost Port (Acajulta)	.9480	.9561	.9642

810 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-0333 • FAX (714) 990-0338

Page 2
Price & Cost Comparison
March 18, 1992

VALUE ADDED CALCULATION

Direct Costs	.3450	.3475	.3500
Divided By FOB Val. Plant	.9333	.9414	.9495
Value Added	36.9%	36.9%	36.9%

Ed, as the previous example illustrates, a .1 ECU per hectoliter change in our bid price results in approximately a $.008 per gallon change in total FOB out turned value. For purposes of this analysis, I have targeted a value added percentage of 36.9%. This percentage should be adjusted to reflect our mutual comfort level in order not to jeopardize duty free qualifications. As one further observation, please note the difference between "processing costs" and "direct costs". This difference results from customs guidelines limiting only certain types of costs as "direct" and applicable to the Value Added calculation.

Recommendation: In reviewing the three lots being offered by the EC for this tender, I suggest we bid "competitively" on lot number 77 and submit lower priced bids on lots 75 and 76 as "back up" bids in the event other potential purchasers fail in their attempt to secure these two lots.

I recommend our bid price on lot number 77 should be 4.15 ECUs per hectoliter. I recommend our bid price on lots number 75 and 76 should be 4.10 ECUs per hectoliter each.

As you are aware, our bids must be formally submitted by Friday, March 20, 1992. It will, therefore, be necessary to communicate this pricing information to your office in London by our close of business on Thursday.

Please give me a call with your recommendations after you have reviewed this memo.

Regards,

MMM ALCOOLS S.A.

MMM ALCOOLS.A.
Avenue Louise 534
B 1050 BRUSSELS
BELGIUM

PHONE 32 2 640 07 20
FAX 32 2 640 06 78
TELEX 22239 MMMALC B

N° OF PAGES : 4

April 7, 1992
2:38 PM cl F0637

STRICTLY CONFIDENTIAL

FAX OUT N° : 1957

TO : ADM Corn Processing, Decatur

ATTENTION : Mr Edward A. Harjehausen

FROM : Philippe Meeus

RE : E.C. wine alcohol for the Caribbeans (C.B.I.)

We refer to our fax of April 2.

Herewith enclosed you will find a draft of Letter of Intent confirming the general agreement outlined during our meeting in Chicago.

As you will observe, we are compelled to introduce in the text a subject regarding the authorisation to be obtained from the E.C. to ship the material to the Caribbeans, which requires a formal modification to the conditions of the tender imposing the use in the E.C. only, as motor fuel. For good order's sake, we have also mentioned a subject regarding the agreement to reach with U.C. regarding the cancellation of the balance of our contract with them.

As regards the Union Carbide subject, we of course do not anticipate a real problem as basically it is the wish of Union Carbide to withdraw from this deal, for several internal reasons.

The E.C. authorisation might be more difficult to achieve, notwithstanding the fact that, thanks to our lobby, the attitude of the responsible officers seems positive. As a matter of fact any modification of the tender regulation requires consultations of the Committee of the representatives of the Member States, the assent of the interested Commissioners and, last but not least, the consensus of the interested Caribbean parties.

11506

P 1/2

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 4
To Dick Vind	From Ed Harjehausen
Co.	Co.
Dept.	Phone #
Fax # 314/990-0418	Fax #

MMM ALCOOLS S.A.

It is our task now to convince all parties that there is an increasing demand in the U.S. for ethanol supplied in the frame of the C.B.I. agreement and that, whereas the small usual tenders for Caribbeans should be maintained, the additional quantity which would be diverted from the E.C. carburation tender would be more than welcome and upset no one's interest. As a matter of fact the additional quantities thus made available to the Caribbeans would be complementary to such tenders. They would constitute an indispensable buffer, assuring continuous and satisfactory supply with the additional advantage that, in the frame of our tender, we dispose of quite larger quantities and have a total flexibility in the rate and size of shipments.

It is our intention to visit your London office after Easter to discuss not only the sole matter of the sale of this alcohol but also other issues related thereto.

Meanwhile, we are

Yours very truly

Philippe Meeus
Managing Director

April 7, 1992
2:44 PM cl LI634

DRAFT

LETTER OF INTENT

ADM Corn Processing, a Division of Archer Daniels Midland company, Decatur, IL 62525, U.S.A., hereafter called "ADM"

and

MMM ALCOOLS S.A., avenue Louise 534, B 1050 Brussels, Belgium, hereafter called "MMMA"

herewith confirm their intention to execute the following :

WHEREAS

ADM is a major producer of fuel ethanol for use in the U.S.A. and is interested in having access to ethanol originating from the European Community to be treated in the Caribbeans in the frame of the C.B.I. agreement, in order to complement its own production, in view of the expected increased demand for fuel ethanol in the United States.

MMMA detains a large quantity of surplus European wine alcohol destined for the use as motor fuel in Europe, which is committed to Union Carbide Europe. MMMA however expects to obtain the required authorisations to ship part of this alcohol to the Caribbeans in the frame of the C.B.I. agreement.

SUBJECT TO :

MMMA obtaining the authorisation from the E.C., to ship the said alcohol to the Caribbeans, succeeding in cancelling the balance of the contract with U.C. and ADM and MMMA finding an agreement on terms and conditions to their mutual satisfaction,

the parties agree to enter into a long term agreement covering the following :

MMMA agrees to sell and ADM agrees to purchase

Material

Wine alcohol of E.C. origin for final use in the U.S.A. as motor fuel after due treatment in the Caribbeans countries covered by the C.B.I. agreement.

allow a 50% of 4.8 to go to CBI

3.2 = 80,000,000
50%
40,000,000
2½ yrs

? ± 2½% At buyers option

Quantity/delivery schedule

1992 (second half)	:	7 million gallons sellers'option	+/-	10%	at
1993	:	15 million gallons sellers'option	+/-	10%	at
1994	:	15 million gallons sellers'option.	+/-	10%	at

The first delivery could take place within about 30 days after the abovementioned subjects have been formally lifted.

Size of shipments

Shipment in lots of about 2 million gallons each +/- 10% at sellers'option.

Delivery place

CFR Acajutla, Guatemala EL SALVADOR

Pricing

The parties agree to negotiate the price, on basis CFR Acajutla, in relation with the price for MTBE as published in the U.S.A. By ARCO.

The price formula, thus linked to MTBE, will be revised annually.

The payment terms will be mutually agreed upon.

Validity

The present Letter of Intent is valid for a first provisional period expiring on June 30, 1992. In case the subjects referred to hereabove have not been lifted by that date, the parties will convene of an extension for a further period.

MMM agrees:
① will not sell to anyone else @ lower price or more favorable terms.
②

P 2/2

PETROJAM LIMITED

96 MARCUS GARVEY DRIVE, P.O. BOX 241, KINGSTON, JAMAICA
Cable Address: Petrojam 2119, Tel: (809) 923-8011-5/923-4740-9/923-8814-18, Fax: (809) 923-5698

May 6, 1992

ICP Associates Inc.
416 Deborah Drive
Gainsville, Virginia 22065
U.S.A.

ATTN: Mr. George Fitch

Dear Sirs:

Re: April 30 Meeting in Miami between Representatives of Regent International and Petrojam Limited

I tried getting you by phone to discuss your May 2 letter which contained matters discussed at the subject meeting. For purposes of clarification, we wish to state the conclusions that Petrojam understood from the discussions:

Those were:

- The meeting was worthwhile and constructive and established a basis for a relationship based on cooperation, trust and respect.
- The proposal to form a council or formal association of CBI ethanol producers was rejected on the basis that such an association would not be appropriate at this time.
- Agreement was reached with regard to cooperation on matters related to the EC tenders and bidding.
- Each CBI producer would continue to maintain its individual contact with the Commission.
- More information was needed re the status of Tropicana, the GATT negotiations, the alleged 4.8 million HL of alcohol that may be available in Europe, the amount of alcohol available to the EC for tendering for 1993 and 1994 and the 35% value added criteria required on alcohol imports into the U.S.A.
- We will continue to share information and cooperate on areas of mutual interest on an informal basis.

DIRECTORS: Colin Campbell, Noel daCosta (Chairman), Fernando deFeraite, H.J. Fenton (Managing), Karl James, Dr. Vincent Lawrence, Mrs. Andrea Nembhard, Godfrey Perkins, Derrick White

2516

As discussed, it was Petrojam's position that joint representations or joint communiques should be avoided, except in specific areas of mutual interest where there was the explicit agreement of each of the CBI producers.

We would suggest also that any correspondence between ourselves be limited to the CBI producers to avoid the possibility of misunderstandings or misinterpretations by others.

Petrojam is in the process of seeking further information on some of the areas identified during our meeting and we look forward to sharing this with you as we move toward taking a position on them. In this regard, we look forward to receiving data on the 35% value added criteria that Dick Vind promised to provide.

It was indeed a pleasurable occassion meeting with both you and Dick Vind and we look forward to a mutually beneficial relationship in the future.

Yours very truly,
PETROJAM LIMITED

Byron Shirley
Ethanol Coordinator

BCS:mp

Copy to: Mr. A. Hogan - Hogan & Co.
Mr. R. Vind - Regent Intl.

REGENT INTERNATIONAL

Sent Via Fax
011/3222308195

February 5, 1993

MEMORANDUM

TO: Jose Manuel Rodriquez Molina

FROM: Dick Vind

SUBJECT: Meeting of CBI Producers Group with A. Tilgenkamp
Re: Wine Alcohol

==========

In anticipation of the upcoming meeting of the Committee and Commission on February 17, and following on my personal meeting with Tilgenkamp in El Salvador last Tuesday, it's extremely important that the CBI Producers Group (the four of us) meet with Mr. Tilgenkamp prior to February 17. I am suggesting if at all possible that we all meet on Tuesday, February 16, in Brussels.

Could you please do whatever you can to try to arrange this meeting with Mr. Tilgenkamp for the 16th? Those persons scheduled to attend would be myself, Jeff Tuite of Man Alcohols, Tony Hogan representing Costa Rica and Byron Shirley representing Petrojam.

I am still in the process of finalizing the preparation of the letters and notes to Tilgenkamp. I should have these to you by next Tuesday or Wednesday latest.

Meeting with Tilgenkamp is vitally important so we can schedule details on 4.8 million issue as well as long term supply contract which I linked together when I talked with him in El Salvador.

This meeting is very important to pre-empt a planned visit the following week (February 24 and 25) by Ricardo Kriete, a Salvador beverage distiller who evidently is working closely with Sofecia to try to build a fuel ethanol plant at the Port of Acajutla, El Salvador. I can emphasize that this plant has <u>not</u> been built, does not exist, and is only in the planning stages at this time. We must prevent Kriete from bidding on any tenders unless or until he can demonstrate that he truly has a plant at Acajutla. He might try to convince Brussels that he can bid because he has

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

a dehydration plant in El Salvador. This is true, but it is very small, only operates during Zafra (sugar cane season) (which is 4 1/2 months a year) and is located more than a three hour drive from the Port.

One further important point I wish for you to think about: Because so many people are contacting Brussels in speculation about buying wine alcohol for plants they want to build, this is having a very unsettling impact on the four existing Producers who have not yet been able to purchase even their own minimum required stocks. My idea is to present a concept to the EEC of imposing a Moratorium on the sale of wine alcohol to any new customers. The rationale being that there is not enough alcohol for their existing customers and further that there is a significant possibility for potential reductions of supplies under the proposed GATT treaty. In other words, the four plants would have their allocations severely reduced and any new plants proposed could not rely upon sufficient feedstocks to guarantee their economic viability.

Please give me your thoughts on this matter and let me know what you are able to do as far as setting up a meeting with Tilgenkamp for the 16th.

Best regards,

Dick

E D & F MAN ALCOHOLS

FAX TRANSMISSION FORM

To	Regent International Brea	Fax No.
Attn.	Mr Dick Vind	01017149900418
From	Jeffrey Tuite	
Date	13th May 1993	
Copy :		No. of pages to follow : -

El Salvador

On Tuesday evening I talked to the Kriets and here is what was said.

They were still keen to make a bid on these tenders.. I cautioned once more against this. I said that Man would be able to offer a compromise wherein Man offered 1 million gallons when thier plant was up and running. This would come from these tenders and they would buy from Man and the alcohol would be supplied equally by Vind and Hogan. Ideally it would be swap deal with them returning the ethanol next time around. In return it was expected that they did not interfere with these tenders.

The Kriete response was that they were still very nervous about being outmanouvered and that we would block any alcohol for them from the next round of June/July tenders. I said that this was not the case and that if they could persuade the Commission to call five lots next time we would support them.

In summary Kriete is prepared to stay away from these tenders if Man can guarantee that they will get 1.4 million gallons from these tenders on a straight sale basis. I said that 1 million gallons was more realistic. Tony Hogan is prepared to make a straight sale and feels that this commits him less to Krite and there is the point that Kriet may not get any alcohol to return for one reason or another. My recomendation to you is to make available a straight 500,000 gallons sale (preferrably 750,000 !) without strings and I feel this will mend things.

Sugar Quay Lower Thames Street London EC3R 6DU
Tel 071-285 3000 Telex 885431 EDFMAN G Fax 071-338 0623
Registered in England No 2597807
A member of the E D & F Man Group

Can I please have your agreement to do this. I already have Tony`s agreement. Naturally Man will secure ADM`s P Bond risk for this sale.

I talked to George Fitch in Brussels today who is suffering the usual frustration one gets in Brussels. He had little to add to your fax of yesterday.

I will call you latter when I get home.

Best Regards

REGENT INTERNATIONAL

May 13, 1993

Sent Via Fax
011/44718670774

MEMORANDUM

TO: Jeffrey Tuite

FROM: Dick Vind

==========

I am in agreement with Hogan re: direct sale from Man to Kriete for alcohol from May 18 tender.

Condition would be that Kriete must have a plant at Acajutla in operating condition prior to alcohol being delivered and that this must be verified to our satisfaction.

Further, any "sale" must have iron-clad performance guarantees from Kriete so that there can be no backlash resulting from the sale of alcohol back to the EEC if Kriete fails to perform.

In addition, we must demand a Contract of Sale that would include Kriete's indemnification and warranties to Man and through Man to Regent/ADM that the alcohol will be dehydrated in El Salvador for fuel use and, further, that the alcohol will not be diverted for any other purpose. And that Kriete will comply completely with all of the provisions of the Tender Regulations as required by the EEC.

This offer to sell should have an expiration date which I would recommend should be not later than July 31, 1993 and, further, that your, Man's, (ADM/Regent) performance would be subject to performance by EEC and the intervention agencies re: lifting of alcohol on a timely basis from May 18 tender.

In other words, Jeff, we don't want to have to sell alcohol we can't get if for some reason AIMA fails to perform under the tender agreement.

You can confirm to Kriete that we (Regent/ADM) will cooperate and request that the upcoming June/July tender be split into more

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

lots to accommodate new dehydrators. Please also indicate to the Kriete's that we will be willing to cooperate in other areas such as fobbing and shipping as I had previously discussed in my meeting with Ricardo Kriete in El Salvador.

Please keep me advised on any communication you might have on this matter which is of utmost interest to me and the other producers.

Best regards,

Dick Mer

P.S. Please understand, and this is for your information, that this deal will be subject to my convincing ADM and they will only be convinced if Kriete/Man are able to provide the iron-clad performance guarantees mentioned above. This is a deal breaker if the appropriate guarantees cannot be provided. I am sure you understand my concern in this regard.

W

GFitch 5/17/93

Watson — didn't know that much about GTOG
— GATT — wanted more info
"He should encourage Kruetz to talk to GF".
"— will Kruetz join group?
will advise Kruetz to join group
— (Kruetz has put 60% down on plant) —
WATSON: (S/B ready to operate mid-July)
will be in Brussels 1st week of June
K. (What do we have to do to bid on next tender
June 15? — Tender
(will do day after this one is closed on May
— (will not bid on May tender)
"Diversion" —

Rudy agreed w. Mole Sieves not same as azeotropic!

Mon 6/5 —

5107

cc: Fitch
Doug

REGENT INTERNATIONAL

EXTREMELY CONFIDENTIAL

October 13, 1993

MEMORANDUM

TO: JOSE MANUEL RODRIQUEZ MOLINA

FROM: DICK VIND

SUBJECT: U.S. DOMESTIC ETHANOL INDUSTRY REACTION AND CONCERNS REGARDING POSSIBLE ISRAELI WINE ALCOHOL PURCHASE

The Chairman of Archer Daniels Midland Company (ADM), Dwayne Andreas, was contacted yesterday by the Chairman of Dreyfus (parent company of SOFICIA) and notified that an Israeli company, GODOT, was seeking "approval" of the U.S. domestic ethanol industry to the proposed purchase by Israel of wine alcohol to use in a proposed dehydration plant to be build in Israel.

The U.S. ethanol industry and, more importantly, the very politically powerful U.S. National Corn Growers Association, cannot agree to the sale of wine alcohol to be processed into fuel ethanol in Israel for duty-free entry into the United States. The reason is because the Israeli ethanol production would not fall under the 7% limit governing the CBI ethanol industry. In other words, Israel would have no limit and could potentially flood the market in the U.S. with duty-free processed wine alcohol.

The real problem would be the political backlash that would occur in the U.S. whereby the entire offshore wine alcohol dehydration industry could be destroyed if the Corn Growers were to reopen this issue and demand congressional action.

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

E D & F MAN ALCOHOLS

To Petrojam
For Byron Shirley

To	IOP Associates		Fax No
Att	Mr George Fitch		
From	Jeffrey Tuite		
Date	21st February `94		
Copy :	CBI Group	No. of pages to follow : +	

Good Day

Very many thanks for your fax today.

A couple of comments without to much thought.

Firstly it may suit us to take all the alcohol at one go. It seems that we can find enough storage either in the Caribbean or Europe to match the task. I would suggest that it may be possible at a European oil terminal to have the alcohol technically exported from the EC for GATT purposes and held in suspense in a customs free zone but I can check on this. I know that Byron has identified some storage in the Caribbean and we looked at the Bahamas but the price was extortionate. naturally it would be better to try to negotiate the liftings between now and July `95 from a cost point of veiw but we could make a gesture and remove a good chunk straight away because we all probably want to gear up for supplies for the rest of `94 anyway. We must also bear in mind that we must push for the normal sales in addition to the 3.5m. All in all we could have to ship 6m Hl in one year and that`s why I`m convinced that Israel will get 1m at least.

Regarding the point on buying as a Group how do we operate the mechanics of this ? Do we set up `CBI Group Europe Limited` which makes a bid, is equally owned by all the players and has subcontracts with each of the players to supply alcohol ? How would such a company be funded ? Who would place the bonds, we are talking USD 95m ! The cost and fobbing comes to another USD 35m. Then there`s financing ! This is only the 3.5 remember. I think our company would consider funding the operation if invited but of course on commercial terms. My opinion is that to have one company to bid would be to transparent for the EC and would

Sugar Quay Lower Thames Street London EC3R 6DU
Tel 071-285 3114 Telex 885431 EDFMAN G Fax 071-867 0774
Registered in England No 2607807
A member of the E D & F Man Group
A division of E D & F Man Liquid Products Ltd

3419

give them a legal problem so we may have to go back to a couple of bidders or bidding in the usual way. Certainly we could push for interchangebility between East coast and West coast to facilitate swapping etc..

Certainly I think it's vital to tie the deal up so that we do not attract more Caribbean players into the business at the last moment.

In terms of price the EU have to understand that the costs of this operation will be greater than our normal costs and this will impact on the price. On the other hand we ackolwedge that they will give us security of supply. Fortunatly, or unfortunatly, depending on your veiw, we are in the pits of the US market at the moment and this is probably a good time to negotiate the price based on the current market and the idea of a formula would be difficult for us to work if the EU want lifting within say twelve months.

I'm afraid these are not constructive thoughts, just first thoughts along obvious lines and I will be back with more !

Incidently, it would be better to have the meeting with Commission in the middle of the week ie 3rd March. This gives us more time to travel, get organised and meet prior to the EU.

Best Regards

REGENT INTERNATIONAL

Sent Via Fax

April 6, 1994

MEMORANDUM

TO: DICK BOK

FROM: RICHARD VIND

SUBJECT: CBI TENDERS

EEC

I appreciate your quick response. Given the politics in the EU, I agree we should prepare "bids as usual".

As mentioned in our conversation this AM, I will have price information for you on or before April 14.

My travel plans now are to go to Europe the week of April 18. Meetings in Brussels probably 19/20.

I will not know my exact travel plans until probably April 12 so I will communicate my itinerary along with pricing information prior to April 14 to your office.

Best regards,

Dick

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

I O F Associates, Inc.
International Business Advisors

George B. Fitch
President

April 28 1994

TO: CBI ETHANOL GROUP

RE: FROST FUELS PETITION

At this moment, a decision is being made whether to proceed more slowly or continue full speed ahead on the letter ruling. Sandra Gethers, and perhaps some of her colleagues, along with Frost and his attorney are meeting in the office of John Simpson, Deputy Assistant Secretary of Treasury. Eric Vaughn of the Renewable Fuels Association told me he knows Simpson and he will now call him right away. Steve Urbanzyk of Williams & Connolly and ADM's attorney says he will immediately call Harvey Fox at U.S. Customs and tell him not to make a decision until he has carefully considered the contents of a letter he is drafting right now and will have to him by COB today. (Sandra Gethers got our letter this morning and a faxed copy two days ago)

Later this afternoon, Frost and his attorney will meet with Eric Vaughn to ostensibly ask for the support of the NCGA & RFA, but I suspect to propose a compromise where they will accept a cap of 24 million gallons annually. Vaughn says if that happens he will unequivocally reject any compromise.

Vaughn is drafting a letter - unfortunately it hasn't been sent - from the NCGA to the who's who in Washington, i.e. Senate leaders Dole and Mitchell, House leaders Gephardt and Michael, several Cabinet secretaries, etc that says a favorable ruling would destroy the fragile compromise between US industry and CBI ethanol producers as well as damage the CBI. (We should send Tilgenkamp a copy of this letter, since he claims to so mindful of the U.S. industry's concerns).

The letter from Williams & Connolly will be multi-dimensionsal. Besides hurting the CBI, it will also mention the BP ruling, certain technical points from my letter, the simplistic nature of molecular sieves, and conclude by requesting that Customs be more deliberate and issue a notice for public comments. The letter will go to George Weise, the Commissioner of Customs.

Rogers & Wells, who are representing Hogan & Co and I believe E D & F Man will have letters out today to George Weise and Harvey Fox mentioning the CBI ethanol compromise and how Congress did not consider ethanol dehydration to be substantial

418 Deborah Drive • Gainesville, Virginia 22065 • Telephone (703) 347-5283 • FAX (703) 349-4102

transformation. They will also call for a go slow approach since the ruling will have tremendous ramifications.

From discussions yesterday afternoon at a meeting with Urbanzyk and Vaughn, our strategy from this point on should be slightly diverse - to avoid appearing collusive. However, the objective will be the same - either grant a notice for public comment or rule against the petition. We will all seperately request a formal meeting with Customs. In the meantime, since we - according to the others - know the issue the best, we should keep the pressure on Customs with snippets of information and letters. This would include obtaining a letter from the EU saying it classifies alcohol, or the product referred to by Frost in his position as HS2207.10, a letter from us providing details on how we would be damaged by having to give up 24 million gallons of our feedstock, more reminders about misclassifying products in unusual tariff categories. In other words, let Sandra Gethers and her colleagues know we are their worst nightmare because we are watching them very carefully and will pounce on any of their missteps or actions biased towards the petitioner.

The others, Vaughn and Urbanzyk, as well as perhaps Rogers and Wells will use their stronger political connections and take the political track to fixing this problem. Their job should be easier since it looks like we are not up against the Israel lobby but up against a good-old-boy Texas connection, Secretary of Treasury Lloyd Bentsen helping out some Texas constituents.

As soon as I know the results of the meeting in Simpson's office as well as the Frost meeting with Vaugh, I will be back to you.

There is another matter which requires your attention. The attached is a draft for a letter that Ricardo Kriete will try to have the President or Vice President of El Salvador sign and send forward. Byron Shirley has been working to get government officials over to Brussels and so perhaps does not need to send a similar letter. However, the strategy should be the same -get a meeting with the Commissioners who signed the agreement to give Costa Rica 1.2 million HL. I think the Costa Rica/EU deal, bananas for alcohol, et al, can be beneficial to the Group because it will break the logjam.

E D & F MAN ALCOHOLS

To	Hogan + Co Petrojam Ethanol, Regent International IOP Associates	Fax No
Att	Mr Tony Hogan Mr Byron Shirley Messers Dick and Doug Vind Mr George Fitch	
From	Jeffrey Tuite	
Date	3rd May `94	
Copy :		No. of pages to follow : +

EC Tenders - Decision Pending

A matter of great concern is that it appears there is a debate within the DG`s concerning the levels of the last bids. There is an air of pessimism as to whether an award will be made. It is necessary to send the Commission a defence of the bids. I have mentioned the exchange rates, alcohol price and fright rates relevent to the previous tender in November `93 but the EC remain unconvinced. I also mentioned the loss of the Pacific NW which happened after the last tender. If you can I suggest a fax from each operator to Mr Van Der Stappen by tomorrow. The Management Meeting will now take place Thursday 5th May and not 6th May.

Also of concern is that the Brazilian Embassy has been in contact with the Commission expressing interest in alcohol. I think this is because of the uncertainties at AIMA. With Fugaro in prison and Galli finding his way with his new political masters there may be no decision to sell the 1.6 M hl that was on the verge of being concluded a week ago so now the Brazilians are back to the EC. Naturally I pointed out that nothing had changed concerning our arguments against sales to Brazil. I have not been able to find out specifically who`s behind it except thats it`s `traders`. It`s probably to soon to assume that MMM have given up with Israel and are now turning thier attention to Brazil !

All the information that George Fitch provided on the Israel ruling has been passed to Tilgenkamp. He has made no comment other than `Israel will have to prove its qualification before the EC sells`.

Kind Regards

Sugar Quay Lower Thames Street London EC3R 6DU
Tel 071-285 3114 Telex 885431 EDFMAN G Fax 071-867 0774
Registered in England No 2087807
A member of the E D & F Man Group
A division of E D & F Man Liquid Products Ltd

3370

03/05 '94 14:50 FAX 071 867 0774 MAN ALCOHOLS 001/001

WESTERN PETROLEUM IMPORTERS, INC.

RICHARD B. VIND
PRESIDENT

bcc: Doug
Hogan
Fitch
Tuite
Bok
Molina

Sent Via Fax
011/32/22959252

May 3, 1994

Rudy Van der Stappen
Wine And Alcohols Division
DG VI

Dear Mr. Van der Stappen:

I have been advised that certain persons within DG VI have expressed concern as to why CBI dehydrators have tendered bids below the prices which were paid in last November. While I cannot speak for the other bidders, I can pass on my information which I feel will be helpful to you in analyzing the economics of ethanol purchased for dehydration. I feel these facts more than justify the reduced bid by ADM Ingredients on behalf of Western Petroleum's El Salvador operation.

I. **DEVALUATION OF DOLLAR**

Since last November the dollar value has fallen as shown below versus the three applicable correncies:

	FF	PESETA	LIRE
November, 1993	5.9175	1.3920	1689.75
Today (May 3, 1994)	5.6200	1.3440	1588.50
Difference	.2975	.048	101.25
% Drop	6.37%	3.44%	5.99%

Average percent drop in value of Dollar = 5.266%

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

II. DROP IN U.S. DOMESTIC GASOLINE PRICES

As everyone knows, the value of a CBI dehydrator's end product, fuel ethanol, is directly related to the U.S. gasoline market. In our case, the main market for our finished products out of El Salvador is Los Angeles. The following shows the actual drop since November 1, 1993.

	Average Price - Unleaded Gasoline Los Angeles
November 1, 1993	$.6486
Today (5/3/94)	.5661
Difference	$.0825
% Drop	12.71%

III. LOSS OF STATE OF WASHINGTON MARKET

Last month the Legislature passed and the Governor signed a total repeal of the Washington State tax exemption. This exemption was for $.368 per gallon. The vast majority of our finished product was sold into this market. Now, with the loss of this incentive, and because there are no oxygen mandate seasons in place, nor will there be until next October, our sole market is in the Gulf Coast (Houston area) where ethanol prices are significantly lower than the former Washington prices. In fact, prices in the Gulf are down more than $.40 per gallon over prices in Washington just 30 days ago. This $.40 equals approximately 7.5 ECUS PER HECTOLITRE!

When you compare our actual bids versus last November, they are down on average about 12% or virtually the same as the drop in gasoline prices. As you can see, even with this modest price reduction, it does not come close to equaling the other significant reductions in revenues and increased costs associated with declining dollar and loss of tax incentives.

I hope this information will assist you and other Committee members in evaluating our bids. In addition, I would like to point out that as it specifically relates to El Salvador, the actual tender document refers to the additional freight costs

incurred by West Caribbean dehydrators. This must also be taken into account when our bids are compared, especially to East Caribbean dehydrators whose ocean freight costs are more than .2 ECU per HC lower than West Coast freight rates.

If our bids are rejected, it would represent a severe financial problem to my company. For this and the above reasons, I respectfully request that our bids be accepted.

Best regards,

Richard B. Vind
Chairman & CEO

REGENT INTERNATIONAL

ICHARD B. VIND
CHAIRMAN
CHIEF EXECUTIVE OFFICER

Sent Via Fax

January 26, 1995

Mr. Jeffrey Tuite
ED&F Man Alcohols
London, England

Dear Jeff:

I will be traveling to El Salvador next week in order to ascertain first hand the extent to which my competitor has damaged and disrupted our business operations there.

You should be aware, that following our phone conversation of last Friday, four additional calls were made from the Minister of Economy to my El Salvador General Manager attempting to force us to allow three Kriete employees into our plant.

This blatant attempt to use the Ministry to steal trade secrets is repugnant, offensive and unprecedented.

I feel quite sorry that I was the one that recommended these people to you as customers because it has evidently put a great strain on what I had always felt was a good relationship between you and me.

However, I will put my personal feelings aside in the spirit of attempting to cooperate for the benefit of the CBI Producers Group as a whole and for the benefit of my company, in particular. Be assured, however, that I feel no reason to cooperate to the benefit of The Krietes because it's obvious that they have only my worst interests at heart.

5463

910 E. BIRCH STREET • PO. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-5333 • FAX: (714) 990-0418

In regard to the CBI Group, however, we must try to present to DG VI a united front with relation to two key issues before us now:

1. How and when to allocate the 1,000,000 Hl (or 775,000 Hl if Costa Rica is deducted) and;

2. the last date for export of this 1,000,000 Hl.

My information indicates that if we each attempt to lobby on our own behalf without some sort of a general agreement, then we stand the possibility of DG VI "running for cover" because they would then be forced to make a decision by themselves with five competing interests. This is certainly a less than desirable scenario.

Please give me your thoughts on this matter by return fax.

Sincerely,

Dick

Richard B. Vind
Chairman & CEO

bcc: George Fitch

Date: November 13, 1995

To: George Fitch

From: Dick Vind

Subject: DGVI "Doublespeak"

Please review the enclosed articles from a recent [October 20, 1995] issue of *Agra Europe* Magazine.

This article seems to completely refute Alex's comments made to us at our meeting of last week. Although the lead paragraph is not easily readable because the fax machine "ate" it, what it says is that The Commission is increasing the amount of compulsory distillation for this coming year [1995-96] versus last year [1994-95] by 137,000 HL. Although small, it nonetheless is a definite increase, and shows that the total amount of alcohol to be distilled via compulsory distillation for the three primary countries of Italy, Spain and France for this coming year will be a total of 5,400,000 HL.

It must be further noted that this year's total wine production for these three countries is estimated to be 131,900,000 HL versus last year's 130,927,000 HL. With compulsory distillation being 4% of the total, if you take the total EU wine production of 155,400,000, this means that a total of 6,216,000 HL will be available for EUstocks this coming year.

It is apparent that there will continue to be significant overproduction in the EU for years to come, in that the Commission's efforts to reduce production have failed.

On a related matter, I have reviewed your memo to the CBI group. Your suggestion on opening up future tenders to avoid the GATT limits are troubling unless we couple it with some type of end-use restriction. This is because, as you can also see from the second article, notwithstanding what Tuite said at the meeting, it appears that the Brazilians will be back into the market in a big way next year. Unless we place some type of restriction on end-use, they'll easily outbid us for the entire EU output.

What happened to our end-use language we discussed with Olsen last year?

I would appreciate your investigating these matters as soon as possible and giving me the benefit of your thoughts. Also, I want to report the results of my meeting with the SENPA folks.

Dick

cc: J. TUITE
J. HOGAN
B. Shirley

REGENT INTERNATIONAL

Sent Via Fax

November 20, 1995

TO: Dick Bok
ADM Ingredients

FROM: Dick Vind

Finally received a phone call from Tuite at 3:30 PM PDT USA. Jeff stated he had at last been successful in talking to the Kriete's and they have agreed to split the tender with us.

Jeff's only reservation was that Kriete insisted that Man be the purchaser of the tender. In order to avoid a "show down" or bidding contest, I agreed to this request.

Therefore, Man will be bidding on the 75,000 hl out of France at a price of 5.02. I would suggest that ADM underbid at a price of 4.85. This will serve as a safety net in the event Man's bid is rejected for any reason. As a reminder, bids are due in this Thursday, November 23.

With regards to the sharing, I made it explicitly clear to Jeff that we (ADM & Western) would be purchasing the product FOB Port-la-Nouvelle from Man on a totally transparent basis. We would then assume responsibility for our own shipping which presumably we would be able to coordinate jointly in the future.

I would suggest you contact Tuite tomorrow at your convenience to confirm and request a signed agreement between both parties in order to assure compliance with this accord.

Best regards,

Dick

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

REGENT INTERNATIONAL

Sent Via Fax

June 4, 1996

MEMORANDUM

TO: DIRK BOK

FROM: DICK VIND

It was a pleasure talking to you today. I am glad your move was successful and hope you are happy in your new environment.

As we discussed, it's very important that you do everything reasonably within your power to try to convince DG VI to issue a new tender prior to June 30, 1996, the end of this GATT year. We have received conflicting views as to whether or not any product under-lifted can be "rolled over" to next year. We should not take the risk.

Notwithstanding what Rudy told you and me last month, it appears he is backing away from his commitment to issue this tender, as evidently he is being pulled in too many different directions by Jamaica, Costa Rica and El Salvador.

You will recall when we met with Alex that he was willing to have a new tender before the end of June, but that the Italian quantity was suspect. George Fitch was in Rome last Friday and confirmed with the EU's Feoga people that in excess of one million Hl of EU wine alcohol is in storage in Italy.

There remains approximately 500,000 Hl of under-lifted wine alcohol available to be tendered within the quota during this GATT year. Please ask Jose Manuel to lobby Alex and Rudy, along with all of the other members of the DG VI Wine Alcohol Management Committee for a 500,000 Hl tender to be approved in the June 26 Management Committee meeting. Tank locations can always be submitted later, but what is most important is that the tender be approved prior to end of June, therefore, beating the GATT deadline.

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92822 • (714) 990-3333 • FAX: (714) 990-0318

Also, you should be advised that the forecast for the crop this year is very good. Therefore, it should be incumbent upon DG VI to sell as much as possible prior to June 30, 1996 so as to avoid it becoming part of a huge surplus which they will be unable to sell next year.

I also ask that you urge Jeff Tuite to lobby aggressively on this issue as well, as it will reduce the competition which could well arise for the bidding on the existing tender.

Tell Jeff that we would ask that one-third of the tender go to El Salvador and two-thirds to Jamaica, given the assumption that Costa Rica still will not bid because of the large quantity still remaining to be processed from their special one million HI tender. If Costa Rica decides to bid, then we ask that the new tender be split 50/50 East-West.

As always, I appreciate your efforts.

Best regards,

Dick | Mu

001380

Date: June 17, 1996

To: Dick Bok via fax

From: Dick Vind

Subject: EU Wine Alcohol Tender-- Due date: June 24

This will confirm that ADM will be bidding 5.9 ecu on Spanish tender (194-96) and somewhat less, (say 5.75) on Italian tender (195-96).

I assume you have discussed with Man, and that all is OK. Please call if this is not the case.

Hope all is well.

Best regards,

Dick

Dick

cc: Doug Vind

I O P Associates, Inc.

International Business Advisors

George B. Fitch
President

October 16, 1996

TO: R VIND
D VIND

1. **EIMA:**

Spoke with Lazzareschi. He said he's still waiting on Chiappone to make a decision on the performance bond. Once he does, the contract can proceed immediately. He suggested I ask Chiapppone to hurry it up. Chiappone wants a peformance bond of L 140,000 per hl since he believes it could be denatured outside of Europe. Lazzareschi will accept a performance bond of L 60,000 and believes it should be denatured in Europe. (Our offer was L50,000).

Until I speak with Chiappone, I won't know why Chiappone is ignoring EIMA's preference to have it denatured in Europe. However, this does provide you with another option: denature outside of Europe. I'll contact Jeff and ask for his preference.

I called Renata and told her that we would like her to attend the meeting with EIMA to assess the location of the 300,000 hl which they will be providing. I told her we were trying to speed things up. She said she would be in Rome only on Tuesday and Wednesday of next week. However, she should be in most of the following week.

2. **RUDY:**

I've not been able to talk to Rudy about Jamaica processing some of your 100,000; expediting notification to SAV to release the alcohol; and the next tender, i.e., 100,000 or 150,000. He's in London today and hopefully Jeff knows about it, will see him, and raise the issue(s).

6042 Deborah Drive • Gainesville, Virginia 22065 • Telephone (540) 347-5283 • FAX (540) 349-4102

3. **HERBERT:**

Herbert said he had lunch with Rudy on Thursday and told him that he could not agree to giving Jamaica all of the 150 until his board discussed and approved it, which would be next Tuesday. He said the Board wants to colloborate with the others, join a CBI Group and be unified. The Board will agree to the 5 points of the Brussels m.o.u. He said he has been trying to reach Jeff to have him send a formal m.o.u. on these five points which LAICA would sign. He said he could call Rudy and tell him to give all the 150 to Jamaica. I told him it would delay things too much, but if he is sincere, he must agree not to bid on the next tender. He agreed. As one of the 5 points, he agreed to accept - after the next tender - the old formula of 50-50 East and West. He said as soon as he gets a formal m.o.u., he will present it to the Board to sign.

Byron Shirley and Petrojam are so vexed now with Herbert and LAICA, I doubt Petrojam will sign the m.o.u.

Regards,

E D & F MAN ALCOHOLS

FAX TRANSMISSION

To	:	Regent International
For	:	Messers Vind
cc	:	
Fax Number	:	
From	:	**Jeffrey Taite**
Tel	:	44 171 285 3172
Fax	:	44 171 285 3655
Date	:	30th December '96
Pages	.	

EU Ethanol

Following our conversation a week ago I talked to Mr Balzarreti regarding the idea of the Gasohol plant being sold to you. His comment was that it was an interesting idea. He did not comment further. If you are serious you should talk directly to him. He is quite prepared to toll process ethanol for you and to be competitive with LAICA.

Regarding the tanks in Acajutla, Balzaretti also thinks that they are overpriced but does point out that to build that volume from new including the land would cost something in the same region of the asking price. At least that was Gasohols' experience he said.

I do think that there are possibilities to develop at least the idea of the toll processing and hiring Gasohols' Acajutla tanks for your feed stock imports in the short to medium term.

Herbert Wolf has been in contact and mentioned he had talked to you regarding the upcoming allocations from the one lot available in Europe. Would you have any objection to Man buying the lot and disbursing it to the interested parties ?

When can I expect the first sample of the ethanol for Europe !

If we do not correspond prior to 31st December may we wish you all a good New Year and may 1997 be a fruitful year.

Kind Regards

Sugar Quay Lower Thames Street London EC3R 6DU
Tel 0171-285 3114 Telex 885431 EDFMAN G Fax 0171-867 0774
Registered in England No 2697877
A member of the E D & F Man Group
A division of E D & F Man Liquid Products Ltd

4485

WESTERN PETROLEUM IMPORTERS, INC.

Sent Via Fax

December 31, 1996

TO: JEFF TUITE
MAN ALCOHOLS

FROM: DICK VIND

RE: YOUR FAX - DECEMBER 30, 1996 BCC: Fitch

We will pursue Gasohol arrangement. I will be in El Salvador next week.

Regarding upcoming wine alcohol lot, we agree to Man buying the lot and disbursing it to the three parties. We agree to a ¼ allocation, i.e. 12,500 Hl.

George Fitch will be in Europe beginning January 9 with samples in hand. He will contact you.

Best regards and Happy New Year,

Dick

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

I O P Associates, Inc.
International Business Advisors

George B. Fitch
President

February 26, 1997

TO: R VIND
D VIND

RE: TELECON WITH TUITE

1. Jeff will try to reach you today.

2. He'll know by the end of this week about going to Salvador. He's got to be in Jamaica sometime between March 10 - 14, and could go on to Salvador if it was worthwhile. I said you thought it was worthwhile so as to (a) continue discussions about the Kriete's leasing their facility (b) continue discussions about his buying industrial alcohol from you, (c) discuss a common strategy for sharing EC wine alcohol.

3. He did receive my brief on rules of origin.

4. He believes his purchase from you of 1,200 T plus of industrial is for all intent concluded.

5. He shared his thoughts on how Rudy viewed future sales to the CBI, which were more skeptical than mine. I didn't tell him that I had just talked to Rudy, just that I would give him a call and let him know if Rudy told me anything substantially different than what Jeff believes.

6. He said he talked to Balzaretti last night and though not wild about the idea of leasing, did not dismiss it and left it were he would discuss it with Ricardo.

7. He said he could help with Mexico, though did not know any of the distributors. Presumably his help then would be to ask the Krietes for the name of their buyer

6048 Deborah Drive • Gainesville, Virginia 22065 • Telephone (540) 347-5283 • FAX (540) 349-4102

file FITCH

RETAINER AGREEMENT

This agreement made effective as of April 17, 1997 by and between LIGA AGRICOLA INDUSTRIAL DE LA CANA DE AZUCAR (LAICA), GASOHOL DE EL SALVADOR, WESTERN PETROLEUM IMPORTERS, PETROJAM, JAMAICA ETHANOL PROCESSING CO., JAMAICA ALCOHOLS, hereinafter referred to as the CBI Ethanol Producers Group ("GROUP") and GEORGE B. FITCH, t/a IOP ASSOCIATES, hereinafter referred to as "CONSULTANT."

WHEREAS, the GROUP faces a severe problem with the attempt in the U.S. Congress to change the U.S. tax incentive for ethanol through H.R. 161;

WHEREAS, the GROUP desires to act collectively to encourage the European Union to tender a maximum amount of wine alcohol for the Caribbean Basin and has agreed on a formula for the distribution of such alcohol to individual members;

WHEREAS, the GROUP desires to act collectively to encourage the European Union to remedy the GATT restriction on exports of wine alcohol;

WHEREAS, the GROUP desires to engage the CONSULTANT because of his knowledge and previous work on these issues;

THEREFORE, for valuable consideration acknowledged by execution of this Agreement, the GROUP and CONSULTANT hereby agree as follows:

I. CONSULTANT shall implement a strategy to supplement the efforts of the Renewable Fuels Association(RFA), and any lobbyist the Group might engage, to prevent the passage of H.R.161 by:

(i) lobbying members of the Subcommittee on Trade of the House Ways & Means Committee as well as the Administration;

(ii) co-ordinating the efforts of government officials, i.e. ambassadors, of the Group member countries in lobbying the U.S. Congress and Administration, which would include preparing briefing papers and talking points for such officials;

(iii) responding to further requests for assistance as they arise by the RFA.

II. CONSULTANT shall encourage the European Union, principally DG6, DG1 and DG8 to tender as much surplus wine alcohol to the Caribbean Basin in a timely and consistent manner, which is derived from 1996 by-product distillation and the transfer of approximately 1 million hectoliters from EIMA.

III. CONSULTANT shall encourage and assist EU officials to seek and adopt a solution to the GATT problem, having previously identified several solutions. As required, CONSULTANT will work with government officials of the countries of the Group members.

CONSULTANT shall be compensated as follows:

I. Consultant shall receive a retainer of $6,000 per month, inclusive of administrative and communication expenses, from the Group; i.e, $1,000 from each of six members; payable $12,000 immediately and $6,000 on June 17, 1997 and on the same date of each month thereafter through September 17, 1997.

II. Consultant shall be re-imbursed for travel expenses, which is anticipated to consist of two trips to Brussels at an estimated cost of $4,500 per trip, the first of which is likely to occur in May when the EU receives written notification from EIMA that approximately 1 million hectoliters has been transferred. Actual travel expenses incurred shall be submitted for payment with the next monthly invoice for the retainer fee. Any additional travel which may be required shall require the pre approval of the designated member of the Group, Jeffrey Tuite.

This AGREEMENT shall be for a period of six months and each party indicated below has caused it to be executed:

LAICA
By:_____

PETROJAM
By:_____

Gasohol de El Salvador
By:_____

Jamaica Ethanol Processing Co
By:_____

Western Petroleum Importers
By:_____

Jamaica Alcohols Ltd.
By:_____

IOP Associates
By:_____

Fil

I O P Associates, Inc.

International Business Advisors

George B. Fitch
President

July 16, 1997

Mr. Jeffrey Tuite
ED & F Man Alcohols
Sugar Quay
London, England

Dear Jeff:

I spoke with Dick last night after our conversation and he agrees that the two of you should meet as soon as possible to spend "quality" time to not only discuss but reach agreement on several issues. From his side, the issues will be: (1) finalizing the contract to buy your alcohol to sell Pollock, although this could be concluded before the meeting: (2) how to work together to sell his T-2 alcohol to European spirits producers for at least the next two years; (3) a joint venture for his operation in El Salvador and quota of EC alcohol; (4) the purchase and re-sale of the EIMA 150,000 hl if it comes about and what more can be done to bring it about. I have asked Dick to elaborate on these issues, and any others he might have, for your review before the meeting. I told him that you would identify issues you wish to raise so between the two an agenda can be established to make the meeting as productive as possible.

I told him that you would be in a better position after Monday to discuss #2 above, so the meeting should be soon thereafter, i.e., Tuesday or Wednesday and be held as you prefer in New York. If you both desire, I can attend the meeting. You might decide that you woukl like to use me to assist in any of the issues the two of you agree to.

Best regards,

George Fitch

cc: Dick Vind

4799

6048 Deborah Drive • Gainesville, Virginia 22065 • Telephone (540) 347-5283 • FAX (540) 349-4102

WESTERN PETROLEUM IMPORTERS, INC.

July 16, 1997

Mr. Jeffrey Tuite
ED & F Man Alcohols
Sugar Quay
London, England

Dear Jeff:

George Fitch has relayed to me your agreement to meet sometime next week (preferably in New York) to discuss a variety of issues of mutual interest to us both.

He recommends that we prepare an agenda, so we can be best prepared to discuss these matters. Here are the matters I would like to discuss in detail with you:

1. Finalizing the contract re: purchase by Man of our current alcohol production from El Salvador into the brandy and/or industrial alcohol markets.

2. The sale by Man to WPI of a quantity of T-2 GNS for delivery to Allied on a short term basis, leading to the creation of a long term contract to supply Allied with T-2 GNS from El Salvador.

3. Establishing a joint marketing relationship for Man to distribute our El Salvador GNS production within the U.K. and elsewhere in Europe.

4. Creating a joint venture between Man and WPI on our El Salvador distilling, terminalling and marketing operations , which could include the joint marketing of ADM GNS throughout Central America for which WPI has an exclusive arrangement.

5. Formalizing an agreement on the purchase and resale of EIMA alcohol from Italy.

6. Joint Marketing efforts on fuel ethanol production from the CBI.

.....and, any other matters which could be of mutual interest and benefit.

Please let me know your schedule and availability, and I'll coordinate with you.

Best regards,

Dick

Dick Vind

cc: George Fitch

910 E. BIRCH STREET • P.O. BOX 1400 • BREA, CALIFORNIA 92622 • (714) 990-3333 • FAX: (714) 990-0418

FILE –
– COSTA RI
LAI
– ADM E
– EU W
ACC

LAICA

Dick Doug Vind
LAICA AGREEMENT.

December 26, 1997

Dick

ADM BIOPRODUCTS

Mr. Dirk Bok
ADM Ingredients
Elbewig 125
3198 LC Europort
The Netherlands

Dear Mr. Bok:

LAICA is a qualified CBI ethanol dehydrator located in Punta Morales, Costa Rica

This shall serve as confirmation that LAICA agrees to process hydrous wine alcohol purchased by ADM from the European Union intervention agencies into finished anhydrous ethanol for sale in the United States as motor fuel, according to EU regulations governing the sale of wine alcohol for dehydration in the Caribbean Basin.

Sincerely,

Herbert Wolf Bebout
Export

Liga Agrícola Industrial de la Caña de Azúcar
Tel.: (506) 257-9711 Fax: (506) 221-7836 Apdo.: 2330 - 1000 San José, Costa Rica

5732

I.O.P. Associates

13 Main Street
Warrenton, Virginia
20186

International Business Advisors

Phone 540-347-5283
Fax 540-349-4102
iop@mnsinc.com

FAX MESSAGE

March 5, 1998

TO: CBI ETHANOL PRODUCERS GROUP

Jeffrey Tuite - Man Alcohols
Byron Shirley - Petrojam
Dick Vind - WPI
Herbert Wolf - LAICA
Gerry Balzaretti - Gasohol

Results of CBI Group Meeting:

The Group agreed to the following, with regard to:

1. **Lobbying HR 2175 - extension of ethanol subsidy to 2007.** Group members will alert ambassadors in Washington that I will be contacting them. By Friday, I will provide you with talking points to use in your request for assistance from your ambassadors.

2. **Contribution to California effort.** Group members tentatively agreed to contribute $5,000 each to a fund to a hire a California public relations firm to lobby for the ethanol bill before the California legislature. See attached from Doug Vind.

3. **Joint marketing program.** Group agreed to consider pooling a certain amount of ethanol for a collective sale to a certain customer. Doug Vind will pursue identifying the best customer in the best marketplace and the amount to be pooled for this customer. With regard to joint marketing of wine alcohol, Jeff Tuite will develop a cost formula for equitably sharing the different fobbing costs from different tenders, so that the cost of fobbing to each member will be the same, regardless of origin.

4. **Member's share of wine alcohol.** Members present re-affirmed the formula for distributing wine alcohol amongst themselves. Jeff Tuite and, if necessary, George Fitch will consult with Gasohol to get their concurrence.

5. **EU tenders.** George Fitch will step up efforts to secure another tender of 400,000 to 500,000 hl in late April/May and then a tender of as much as possible of the 700,000 hl of

"EIMA surplus" in late June/July; such efforts to include a visit with Mildon and Rudy in April, where he will also raise the issue of extending the destination restrictions to include CBI internal markets. He will also explore mounting a campaign to discourage DG6 from selling up to 400,000hl for industrial uses in Europe.

6. **EIMA.** Rather than continue to hope that EIMA will eventually be desperate and tender to the CBI at the low price of 10,000 lira/hl, Group members will now consider whether to get in the industrial alcohol business and pay 30,000 lira/hl to EIMA. Jeff Tuite is to inform the Group, after a visit to Sweden, what are the market prospects for selling industrial alcohol in Sweden, and perhaps elsewhere.

Regards,

Monday, July 13, 1998

Western Petroleum Importers Inc.

Fax

To:	Jeff Tuite	From:	Doug Vind
Fax:	44-1-71-285-3655	Pages:	1

I had hoped to hear from you today regarding the situation that has developed in the Northwest. You can imagine my surprise and disappointment today to learn that the "deal" I have been discussing with you for the past several weeks involving the shipment out of Costa Rica and El Salvador had already been concluded last week. You can also imagine my embarrassment with my customer when I called them today to firm up the transaction only to learn that they had been offered product which I had been previously told was not available.

My current frustration with the recent sequence of events is matched only by the humiliation of relying on what was indicated as timely and accurate information, representing that information as fact, and having my credibility at risk when the "facts" changed.

As you are aware, I have been actively working with your office in seeking a vessel to accommodate the delivery of both parcels. Because the sale was to involve a direct contract between Man and the customer, I revealed the targeted value for the product to you for your concurrence, which you provided. Late last week I attempted to reach you several times to discuss this matter but did not receive the benefit of a return call. As it turns out, you had already concluded this transaction but elected not to inform me. A simple call would have saved me from looking foolish today.

At this point I need to reconfirm your commitment to providing the 900,000 gallons out of El Salvador in a joint shipment sometime on or after mid August. As I have already actively represented this volume as available for delivery, I would prefer to avoid a repeat of today's confusion in the event you have made other unilateral arrangements.

Additionally, I wish to discuss this entire situation with you in greater detail in order to try and understand exactly how things got off track. Please call me at your soonest opportunity.

E D & F MAN ALCOHOL

file
CBI

FAXTRANSMISSION

To	:	Wester Petroleum Importers / LAICA/Gasohol De El Salvador
For	:	Messers Vind – Mr Herbert Wolf – Mr Byron Stirley
cc	:	
Fax Number	:	
From	:	**Jeffrey Tuite**
Tel	:	44 171 285 3172
Fax	:	44 171 285 3655
Date	:	3rd February 1999
Pages		

East Coast – West Coast

Good Day

I address the question which Doug raised regarding pooling costs in the recent tenders which we understand to have been awarded to CBI operators. Personally, I think the proposition is not unreasonable given that the next tenders are likely to be all Italian and the West Coast may not have a chance to be compensated. I think its on the agenda for Las Vegas. I have not really discussed the issue with Byron of SOFECIA in depth but my view is that the matter is not really an issue and Man would go along with averaging. However, I cannot usurp the other East Coast opinion.

I just don't want you sitting there thinking my silence is a negative note !

Kind Regards

Sugar Quay Lower Thames Street London EC3R 6DU
Tel 071-285 3114 Telex 885431 EDFMAN G Fax 071-867 0774
Registered in England No 2697807
A member of the E D & F Man Group

4720

03/02 '99 16:11 FAX 0171 285 3655 MAN ALCOHOL → MESSRS VINDS 001/001

A001020

Confirmation Report - Memory Send

Time : Sep-14-2000 10:16am
Tel line : +7149900418
Name : MEC REGENT

Job number	:	349
Date	:	Sep-14 09:59am
To	:	15062217836
Document pages	:	002
Start time	:	Sep-14 10:04am
End time	:	Sep-14 10:16am
Pages sent	:	000
Status	:	NG 80

Job number : 349 *** SEND FAILED ***

Subject: Re: Agreement to always export 2/3 LAICA and 1/3 WEC
Date: Thu, 14 Sep 2000 10:52:51 -0700
From: Donna Henderson <Rabbit9@earthlink.net>
To: Mercadeo <laicaexp@sol.racsa.co.cr>
CC: Doug Vind <dbvbres@aol.com>

ATTN: HERBERT WOLF
JOSE JIMENEZ

Jose / Herbert -

The 2/3-1/3 split has been an effective guideline in determining export percentages up until now. Our agreement with Laica regarding the 2/3 - 1/3 split was based on receiving feedstock in on a 2/3-1/3 basis. This is no longer the case as demonstrated by the fact that Laica is done processing until mid November and 2/3 of the product does not belong to Laica. Its that simple.

If you look at your own inventory figures that you gave me, as it stands right now, LAICA has processed all of the feedstock in inventory. This processed feedstock will be loaded aboard two vessels for export before the next delivery of feedstock arrives sometime in ~~NOVEMBER~~. As I explained in my memo to you dated September 13th, and resent again to you today. If you look at the total quantity of alcohol processed you will find that 62.3042% of it belongs to LAICA and 37.6958% of it belongs to WEC. In order to ship proportionately and evenly based upon the total processed gallons available at this time, you must ship using these percentages otherwise LAICA would be shipping more product than they own. Please see my example:

Total inv. per Jose 9/14: 144,616.75 hlpa
WEC share of product: 54,514.50 hlpa = 37.6958%
LAICA share of product: 90,102.25 hlpa = 62.3042%

If Laica ships 2/3 on A. Swan = 75,656.91 hlpa
If Laica ships 2/3 on the Dxin = 20,553.29 hlpa
96,210.20 hlpa

Laica only has avail. 90,102.25 hlpa total to ship, so how is it that you can justify a 2/3 -1/3 split, when you do not own 2/3 of the product ?

Mercadeo wrote:

> Dear Doug and Donna: Please update me with your position regarding the 2/3 and 1/3 agreement between LAICA and WEC. Herbert has explained to me that no matter you the alcohol came into Punta Morales, we will always export under this agreement.The product that came on the Maria Ne, which was processed first than the one for the Silver River, is the one that is going to be exported on the Atlantic Swan.This is why the percentages are 66.66% LAICA and 33.33% WEC. We don't understand why do you want to include more product from Lot 288 of Silver River on the Exportation of the Atlantic Swan. Your proposal right now to export 62.3042% for LAICA and 37.6958 % for WEC is not rational to us. Please explain to us this situation.If we export on the Atlantic Swan:
> LAICA 1) 75,659.01 HLPA (66.66%) of
> 2) 37,829.61 HLPA (33.33 %) of WEC

9/14/00 10:53 A

RUN DATE: 26-Sep-00 | Load Valencia: eta: late Feb 2000 | Arr Costa Rica: eta: late Mar 2000

-Projection- Wet Cargo #50

Man Ten no. (273/99) "Dzintari" Purchase from ADM/Man

16,667.00	WPI	Man Tender no.273/99		
1,466.67	mt		est. Euro/$ exchange:	1.01

Pure Gallons:		**COST OF PRODUCT:**			Total:	
440,342		Cost of Product	6.30	DN000208	$106,052.12	$
est. gals to be processed:		**FOBBING:**				
427,132 wpi		Trucking/T3		DN000238	$32,205.62	$
Yield Rate:	97.000%	Senpa Storage			$0.00	$
Production loss:	3.000%	Tepsa Storage		DN000298	$17,798.75	$
	(13,210)	Credit for DN000255		CN000160	($77.99)	-$
		Tepsa-Extra Storage Costs		DN100010	$1,670.08	$
		Tepsa extra rotation		DN000255	$756.33	$
		SGS Inspection etc.		included in Iberluso fee	$0.00	$
					$52,352.79	$
		Man Alcohols Fee($.30/hlpa)		DN000239	$4,995.48	$
		Adm Ingredients Fee (5%)			$5,302.61	$0
		Adm Ing.-Consulting JRML			$1,060.52	$0
		Iberluso Commission		DN000238	$5,000.00	$0
					$16,358.61	$0
		Cargo Insurance			$460.00	$0.
		AVAL Handling-Customs			$500.00	$0.
				$0.00	$960.00	$0.
		Bid Bond			$166.67	$0.
		VAT Bond			$666.67	$0.
		Removal G'Tee (4 months)			$166.67	$0.
		Performance Bond (7 months)			$4,333.33	$0.
				$5,333.33	$5,333.33	$0.
		Interest charge thru 2/00-8/00 est.			$7,000.00	$0.
				TOTAL:	$188,056.85	$0.4
		Ocean Freight ($40/mt) PAID TO HOGAN			$58,489.53	$0.1
	TOTAL Cost CIF Costa Rica				**$246,546.38**	$0.5

Western Ethanol Company LLC

Memo

To: Herbert Wolf
From: Doug Vind DGV
Date: September 29, 2000
Pages: 2 + 3
Re: Sales Opportunity – **REQUIRES IMMEDIATE ATTENTION / RESPONSE**

Further to our telephone conversation of today, I am writing to inform you of the details of a sales opportunity for LAICA's anhydrous alcohol. In order to participate in this opportunity, **I must hear back from you by no later than close of business on Tuesday October 2nd.**

British Petroleum ("BP") has scheduled an on-line reverse auction to be conducted via the internet next week. They are requesting pre-qualified ethanol suppliers to bid on supplying product into the Ohio and Washington State markets beginning November 2000 and running through January 2001. We are interested in bidding to supply a portion of the volume requested into Washington State. This Lot is broken into partial supply percentages of 10,25,50 and 100%. The total volume requested for Washington State is 9,600,000 gallons over the 3 month period.

I am specifically recommending that LAICA consider committing to this reverse auction the 38,000 HL it has scheduled to receive from Europe. I believe this feedstock will arrive Costa Rica sometime during the month of November and be available for delivery into the US in December.

The delivery of denatured ethanol to BP into Washington State can only be made by either Railcar or Barge. Direct deliveries of undenatured ethanol cannot be accepted. For this reason, WEC is prepared to source railcars of domestic ethanol in order to supplement the volume coming from LAICA. This would allow us to bid on up to 25% of the requested volume, for a total of 2,400,000 gallons. We are also in discussion with Man with regard to their participation for a small piece of this business.

I expect that the winning bid for the 25% volume will be somewhere in the upper $1.30's to low $1.40's. We are prepared to stop bidding should the price drop below $1.38 per gallon. As I mentioned above, the delivery mode into Washington State allows for only barge or railcar. In view of this, it will be necessary to first discharge and denature the imported ethanol. We then will schedule a barge to transport the denatured ethanol to BP's terminal in Seattle. I am in the process of verifying the barging, terminaling and denaturing costs but I have been given a range of $.03 - $.04 per gallon. I should have this information on Monday.

I believe that the BP "Request for Quotation" presents a very good sales opportunity for LAICA's anhydrous alcohol. However, in order to participate in the on-line auction, WEC needs to receive LAICA's commitment to supply the 38,000 HL. **We must obtain LAICA's commitment to this program by no later than close of business next Tuesday.**

For your guidance, I have enclosed a listing of the Lots to be included in the Reverse Auction. As you will notice, we will be required to participate in a "Qualifying Round" of bidding on Wednesday September 3rd. This will enable us to move on to the competitive bidding event scheduled for Friday September 5th.

I greatly appreciate your presenting this proposal to your Board of Directors on Monday. I will be in my office and be prepared to answer any further questions regarding this matter.

Best regards,

Douglas Vind

ACCRUAL LOG

RUN DATE: 10/10/00

FEEDSTOCK PURCHASE

MONTH:	SUPL.:	TEN. #:	SHIP:	CAR.#:	DEL. DATE:	RECEIVER:	GALLONS:	PRICE:	ACCURED AMOUNT:	PAYMENT DATE:	AMOUNT:	ADJUSTMENT:	MONTH BOOKED
Dec-99	ADM	265/99	B.Pacific	#47	11/28/99	WEC	479,972	$0.61360	$294,509.85				
Dec-99	ADM	265/99	B.Pacific	#47	11/28/99	LAICA	841,028	$0.61360	$516,052.93				
							1,321,000	$0.61360	$810,562.78	1/31 & 2/29	$792,382.82	-$18,179.96	March-00
Jan-00	ADM	271/99	M.Pioneer	#48	1/19/00	WEC	880,658	$0.45560	$401,227.72	31-Mar	$283,723.66		
Jan-00	ADM	271/99	M.Pioneer	#48	1/19/00	LAICA	440,316	$0.45560	$200,607.84	28-Apr	$283,723.66		
							1,320,974	$0.45560	$601,835.56		$567,447.32	-$34,388.24	April-00
											freight paid direct to Hogan		
Jan-00	ADM	271/99	A.Swan	#49	2/28/00	WEC	440,342	$0.46530	$204,891.20				
Jan-00	ADM	271/99	A.Swan	#49	2/28/00	LAICA	880,658	$0.46530	$409,770.10	7-Jun	$391,063.33		
Jan-00	ADM	271/99	A.Swan	#49	2/28/00	FREIGHT	-	$0.14986	$197,964.90	7-Jul	$393,833.36		
							1,321,000	$0.61516	$812,626.20		$784,896.69	-$27,729.51	July-00
Jan-00	ADM/MAN	Man	Dzintari	#50	3/28/00	WEC	440,316	$0.50000	$220,157.86	30-Jul	$188,056.00		
Jan-00	ADM/MAN	Man	A.Swan	#51	5/3/00	WEC	2,201,658	$0.50000	$1,100,828.93	31-Aug	$241,356.67		
Apr-00	ADM/MAN	Man	A.Swan	#51	5/3/00	FREIGHT	-	$0.13984	$123,150.67		$0.00		
Mar-00	ADM/MAN	Man	A.Swan	#51-ADJ	N/A	WEC	(1,321,000)	$0.50000	-$660,500.00	29-Sep	$273,097.05		
							1,320,974	$0.59323	$783,637.46		$702,509.72	-$81,127.74	September-00
Jan-00	ADM	277/99	B.Park	#52	eta 5/30	WEC	1,321,000	$0.48000	$634,080.00	10/30 & 11/	cost of prod, freight paid to Hogan		
Mar-00	ADM	282/99	K.Acid	#53	6/26/00	WEC	1,321,000	$0.50000	$660,500.00	12/30&1/30	cost of prod & fobb only, freight not included		
May-00	ADM	Man	K.Acid	#53-282	6/26/00	WEC	Freight	$0.15584	$205,863.57				
Feb-00	ADM	Man	K.Acid	#53-276	6/26/00	WEC	165,125	$0.50000	$82,562.50				
May-00	ADM	Man	K.Acid	#53-276	6/26/00	WEC	Freight	$0.15519	$25,626.00				
							1,321,000	$0.73774	$974,552.07				
Jul-00	ADM	286/00	Silver River	#54	8/31/00	WEC	1,070,010	$0.50000	$535,005.00	2/28&3/30	cost of prod & fobb only, freight not included		
Aug-00	ADM	286/00	Silver River	#54	8/31/00	FREIGHT	-	$0.15547	$166,353.40				
Jul-00	ADM	286/00	Gold River	#55	eta 10/13	WEC	905,044	$0.50000	$452,521.76	4/30&5/30	cost of prod & fobb only, freight not included		
Sep-00	ADM	286/00	Gold River	#55	eta 10/13	FREIGHT	-	$0.15370	$139,107.40				
							1,975,054	$0.65466	$1,292,987.56				

Mr. OSE. We are directly inquiring of the FTC whether or not these documents constitute a need for an investigation as to the concentration in the ethanol industry.

The inquiry is timely, and it is justified. We are in the process of setting legislative policy for the next 20 years having to do with whether or not to embed in statute a mandate for use of ethanol in an industry that, at least on its face, is extremely concentrated and engaged in price collusion or gouging.

Mr. KOVACIC. We will do that.

And could I ask the chairman's permission, if we find that there are other government institutions perhaps with more formidable remedies that might have an interest in the same materials, would you permit me to pass them along as well?

Mr. OSE. We would welcome that, yes.

Mr. KOVACIC. I would mention, as we were going through the types of evidence that are helpful, I would also mention that certainly where there is the cooperation of a company insider that has also been an indispensable ingredient in pursuing inquiries. In the ADM lysine case that we referred to before, in fact, it was a tip from a company insider that was a crucial piece of evidence for the Department of Justice in its inquiry.

Mr. OSE. I do recall the investigation; that was well reported in the Wall Street Journal and other media. We have no more verbal questions for this panel. We do have some, and we are going to leave the record open for submittal of written questions.

We do appreciate your attendance today. The record will be open for 10 days as it relates to this panel.

Mr. SHAYS. Mr. Chairman, before you dismiss them, I would just like to comment on the questions that you asked, and just say that besides being provocative, they are somewhat alarming. And I would like to know what the response will be.

I would love to know, when you have a chance to look at this information a little bit more, and to inquire when you would be getting back to this committee, so that we could have an assessment of how you evaluate them.

Mr. KOVACIC. Congressman, I don't have an immediate prediction. But, the types of materials we have just discussed briefly are indeed, if not simply provocative, perhaps alarming as well.

Could we perhaps have a day or so to give you a more precise response?

Mr. SHAYS. If you could give the committee—but I think the committee needs to have some dialog back as to what your impression is and what you are doing with this information.

Mr. OSE. We will not only share these items, obviously, with Mr. Kovacic, but we will provide copies to all of the members of the committee. I know we have some over here. But I will be happy to provide that.

I want to thank this panel for attending today. I am sorry we went so long. I apologize for that. We will have written questions and would appreciate a timely response.

Mr. Kovacic, we will hear from you sooner rather than later?

Mr. KOVACIC. Yes, sir.

Mr. OSE. Thank you all. We will take a 5-minute recess.

[The information referred to follows:]

UNITED STATES OF AMERICA
FEDERAL TRADE COMMISSION
WASHINGTON, D.C. 20580

William E. Kovacic
General Counsel

(202) 326-3661

May 6, 2002

The Honorable Doug Ose
Chairman
Subcommittee on Energy Policy, Natural Resources,
and Regulatory Affairs
U.S. House of Representatives
215 Cannon House Office Building
Washington, D.C. 20515

Dear Chairman Ose:

I am writing to report to you on the status of the ethanol industry materials that you provided to me during the Subcommittee's hearing on gasoline prices on April 23. After reviewing these materials, staff of the FTC's Bureau of Competition has transmitted them to the Antitrust Division of the Department of Justice under the liaison arrangement between the Commission and the Division through which we determine which agency will review a particular matter. Staff's action in conveying these materials to the Antitrust Division does not reflect any decision about the existence of an antitrust violation, nor does it mean that the Justice Department necessarily will decide to initiate a formal inquiry.

If you have any questions concerning the FTC staff's review of these materials, please feel free to contact me. If you have any questions regarding further developments in this matter, please feel free to contact the Antitrust Division.

Sincerely yours,

William E. Kovacic

Congress of the United States
Washington, DC 20515

May 17, 2002

The Honorable Charles A. James
Assistant Attorney General, Antitrust Division
Department of Justice
950 Pennsylvania Avenue, NW
Washington, DC 20530

Dear Mr. James:

At a recent hearing before the House Government Reform Subcommittee on Energy Policy, documents were presented to the Federal Trade Commission (FTC) that suggest the appearance of collusion among certain ethanol producers to manipulate market pricing in the United States. On May 6, 2002, the FTC referred these documents to the Department of Justice.

As you may know, the House and Senate will soon begin their deliberations on a comprehensive energy package that contains, among other provisions, language mandating a tripling of the amount of ethanol in the nation's gasoline supply by 2012. While numerous questions have arisen relative to the ability of the ethanol industry to develop sufficient production capacity to meet this increased demand, a concurrent issue has evolved on the question of consumer costs likely to occur as a result of this mandated increase. Of particular interest is the high level of market concentration within the ethanol industry among a small handful of producers; this situation unfortunately creates a favorable environment for price manipulation.

The U.S. General Accounting Office (GAO) apparently shares this concern. A recent report by the GAO discovered that the top eight ethanol producers today control at least 71% of the market. One producer alone, Archer Daniels Midland (ADM), accounts for 41% of the market and this figure may be understated since ADM has marketing partnerships with many small producers. While the ethanol industry is already dominated by a handful of producers, according to testimony from the Subcommittee hearing, the Senate ethanol mandate exacerbates the problem resulting in an even more concentrated industry.

Alarmingly, the documents produced at the recent House hearing involve what appear to be questionable pricing discussions among ethanol industry operatives; discussions that bear a striking similarity to past illegal activities for which some industry executives were convicted and incarcerated. Given the enormity of the market guarantee by the ethanol usage mandated in the Senate legislation, the high degree of market concentration within that industry, and the anti-competitive behavior suggested by the documents in question, we believe that the attention of the Department of Justice is warranted at this time.

PRINTED ON RECYCLED PAPER

Without prejudging either what the documents may be dispositive of, or whether a finding of collusion to fix prices by certain ethanol producers may be justified, we hereby request the formal and immediate attention of the Department of Justice to this developing matter which is of very great concern.

Sincerely,

Rubén Hinojosa

Nick Thompson

Eliot L. Engel

John Cooksey

Melvin Stompson

Mary Bono

Wally Herger

Sophia Hom

Ed Royce

Richard Pombo

Jim Sensenbrenner

[Recess.]

Mr. OSE. We will call this committee back to order. We are going to have the second panel join us now.

As you saw in the first panel, we swear in our witnesses, so if you would all rise, please, and raise your right hands. We are missing someone.

[Witnesses sworn.]

Mr. OSE. Let the record show the witnesses answered in the affirmative.

We have with us today three, soon to be four, panelists for the second panel. The first is the vice president of Charles River Associates, Mr. David Montgomery. Our next, who will join us shortly, is the director of Hart Downstream Energy, Mr. Nicholas Economides. Our third is Gordon Rausser, a professor of economics from my alma mater; and the fourth is an environmental consultant to the American Lung Association, Mr. A. Blakeman Early.

Gentlemen, welcome. We appreciate your taking the time.

We have received your written statements. They have been reviewed here. I have read them. If you could summarize within 5 minutes, that would certainly expedite things.

Mr. Montgomery, you are recognized for 5 minutes.

STATEMENTS OF DAVID MONTGOMERY, VICE PRESIDENT, CHARLES RIVER ASSOCIATES; NICHOLAS ECONOMIDES, DIRECTOR, HART DOWNSTREAM ENERGY SERVICES; GORDON RAUSSER, PROFESSOR OF ECONOMICS, UNIVERSITY OF CALIFORNIA AT BERKELEY; AND A. BLAKEMAN EARLY, ENVIRONMENTAL CONSULTANT, AMERICAN LUNG ASSOCIATION

Mr. MONTGOMERY. Thank you very much, Mr. Chairman and members of the subcommittee. I was honored by your invitation to testify today, and I am very happy to be here. I have a feeling that anything we say might be anticlimactic, so I will be brief. I would like to start by summarizing a little bit of the commentary that I made on crude oil prices.

Crude oil prices have certainly run back up in the last few months due to a number of factors, including OPEC supply cuts and international tensions, but they have not reached the levels they reached even 2 years ago. This has happened before. I think it does serve as an important reminder of how important energy security is as a policy issue and national concern.

At this point, my assessment is that things could get better, or better in the short run, and we need to be prepared for that. But I think maybe the best preparation is realizing in terms of world oil markets that effects of supply disruptions have always been temporary. I see no reason to expect that would not be the case now.

If you could put up figure 1 of my prepared testimony, I just want to refer briefly to this and be sure that the picture is clear. It shows the last 13 years of crude oil prices. What is more important is the general shape than anything that you can't read at this point on the screen. And what it shows is that prices spiked in the Gulf war. They have gone up and down, and then very far down.

They went up quite far. The peak closest to the right, the peak almost to the far right, is in the year 2000. They dropped to about $13 a barrel and they have climbed back up.

They have averaged around $20 a barrel for this whole period and for far further back than that. The price has always returned to something like $20 a barrel with maybe a 1 percent per year trend of growth in current prices.

The other thing that I think is most interesting is what we have plotted here are those little pennants that are blowing to starboard. They indicate what the futures market was saying at each point in time. Where they are attached to the flagpole is the date of the future of the recorded prices; and then there are prices looking forward generally 3 to 5 years, and they show the futures market has always been predicting that prices will come back to $20 a barrel.

It continues to do so, probably a little bit slower than prices have actually collapsed. And this is something to keep in mind as we look at world oil markets and high prices. The first one being, prices certainly have not come back even to the levels we saw 2 years ago, despite horrible tensions in the world markets. And if the supply disruptions disappear, prices are likely to come back down again.

Another comment: I don't think that at this point further price increases are in the economic interest of Saudi Arabia. It has already cut production to the point where, in my opinion, increasing its own production by, say, 10 percent would reduce world oil prices by less than 10 percent; that is, Saudi Arabia has a sufficiently small market share that it actually would be better off by having more production than it does today.

I think that implies a growing incentive to raise production. That also makes me believe that any further tightening of the market that we might see by OPEC is for political and not economic reasons.

By the same token, reductions in U.S. oil imports would tend to lower world oil prices with benefits to the United States and to our allies. And getting back to the point of this hearing, I think policies that restrict supply or increase demand without corresponding environmental benefits simply make matters worse in the world oil markets.

I would now like to say a few words about gasoline prices. I think that was discussed very capably this afternoon, especially by Mary Hutzler from EIA. Gasoline prices have gone up a bit more than crude oil, and if we could show my figure 2, it lists some of the reasons that I think are responsible for that. This is also available at the back of my prepared testimony.

I calculate that the increase in the price of crude oil this year is responsible for about 21 cents per gallon of cost increase. The price of gasoline has gone up about 30 cents a gallon; that leaves about 9 cents that is due to the other factors, including the specific tightness of the gasoline market, the turnaround for producing summer gasoline, the cost of producing reformulated gasoline, which is higher in the summer than the winter, and probably a couple of pennies a gallon for royalties that Unocal is demanding on patents it recently asserted on reformulated gasoline.

Right now, crude and product inventories are near the top of their normal range. I think filling those inventories is also an important cause of the higher gasoline prices. As a precaution against the events on the world oil market, terminals and refineries are holding higher stocks than we have seen as normal for this time of year. That has put some upward pressure on current prices, but it is good thing because it means, in a purely private-market-driven response, we are better capable of weathering future supply disruptions. That is kind of how the market works when it sees unstable prices.

In terms of this refining industry itself, I think that you have already discussed many of the points and calculations that I discussed about in my testimony about concentration in the industry. It is an industry that is a classic commodity industry, petroleum refining. The history of the last 25 years has been long periods of depressed profits with very short intervals of profitability in tight markets. These occasional tight markets are actually all that kept profits positive in the long run for the industry.

When there is excess capacity, as there has been for much of the past decade, gasoline prices are set by competitive forces at something close to the cost of just keeping the refinery running—no return on capital. When demand exceeds capacity, there is a genuine scarcity, and prices rise to the level that it takes to bring demand down to that level. Reformulated gasoline, requirements that balkanized markets make that even more of a potential problem.

Let me say two words about concentration, and then I will stop. The first one is that it strikes me that concentration and refining does not reach levels of concern in the kind of geographic markets I talked about. I think there are reasons for concern in the ethanol industry.

I will stop there. Thank you.

[The prepared statement of Mr. Montgomery follows:]

Prepared Statement of
W. David Montgomery
Before the Subcommittee on Energy Policy,
Natural Resources and Regulatory Affairs
Committee on Government Reform
U.S. House of Representatives
Washington, DC
April 23, 2002

Mr. Chairman and Members of the Subcommittee:

Thank you for your invitation to participate in today's hearing. I am David Montgomery, and I am Vice President of Charles River Associates, where I am co-head of our Energy and Environment Practice. I have been involved in energy policymaking and analysis for over 25 years, and this hearing deals with perennial issues I have studied over that time: energy security, vulnerability to politics and wars affecting oil suppliers, price instability, and the influence of regulatory programs on supply and price. My experience with these issues goes back to the first Arab oil embargo, and a study of oil price regulations that I produced for the Senate Government Affairs Committee in 1978. I was Deputy Assistant Secretary of Energy in the Carter Administration. In 1982 I published the book *Oil Prices, Energy Security, and Import Policy*, an analysis of costs of imported oil to the U.S. economy. During the 1980s I was with the Energy Information Administration, where I was responsible for all integrated data and forecasting activities, including world oil supply, demand and price projections. I also headed an interagency group tasked with providing data and analysis in support of planning for and response to oil supply disruptions, including a regular assessment of their potential magnitude and cost. I led the economic analysis for the Interagency *Energy Security Study* requested by President Reagan in 1987. During the Gulf War, I was Assistant Director for Natural Resources and Commerce at the Congressional Budget Office. Since joining CRA in 1991, I have continued to do studies and testify on world oil issues, the structure and performance of energy markets, and the costs and benefits of regulations affecting energy markets. I have done several studies of the reasons for price increases in energy markets, and a number of studies of the costs and benefits of regulations affecting gasoline.

Summary

I would like to begin my testimony with a review of recent events. On January 22, crude oil spot prices were $18.74 per barrel and the average regular gasoline price was $1.10 per gallon. Since then, both crude oil prices and gasoline prices have risen, crude oil to a peak of $27.56 and gasoline to $1.40 on April 15. These recent prices are still well below levels seen last year, of $37.20 for crude oil and $1.70 for gasoline.

There are a number of reasons for these price increases, including reductions in world oil supply, growth in petroleum product demand, precautionary buying of both crude oil and products for inventory, and the normal seasonal swing in prices that signals refiners to maximize gasoline production, and covers the added cost of producing reformulated gasoline for summer driving.

This combination of normal and unusual factors all came together in the last few months. In my opinion, there is no reason to expect further increases in the price of crude oil unless there are additional disruptions of world oil supplies. Even if there are, experience and economics teach us that any such price spikes will be temporary. Some normal seasonal increases in gasoline prices may be forthcoming. On balance, gasoline prices could rise or fall in the next few months, but unless there is additional pressure on crude oil prices, or outages at domestic refineries or pipelines, further price increases should be relatively small.

Legislative proposals to ban MTBE in gasoline or to mandate the use of ethanol could change this outlook, because these measures would push prices up further and contribute to price instability. Either of the two actions would have essentially the same effect, because requiring the use of ethanol effectively eliminates the possibility of using MTBE. Far from reducing vulnerability, any measure that directly or indirectly leads to the elimination of MTBE from gasoline will increase U.S. oil imports and put upward pressure on world oil prices. The volume of ethanol that can be put in gasoline without violating emission standards is less than the volume of MTBE currently used, and MTBE is made from natural gas, not crude oil. To make up the difference, it will be necessary to import more oil and to run refineries more intensively. Since the increase in gasoline prices, relative to crude oil, is partly attributable to tightness of capacity for producing gasoline, an MTBE ban or ethanol mandate will put additional upward pressure on gasoline prices by tightening supplies further. This would be especially true in California.

Ethanol required under a nationwide mandate will also be more costly than the MTBE it would replace, even with taxpayer subsidies in the form of reductions in the motor fuel tax used to fund highway construction and maintenance that benefit all drivers. Thus the ethanol mandate will increase the cost of producing reformulated gasoline, which is the other important component of increases in gasoline prices. Moreover, if there are concerns about market power, there is a good chance that under an ethanol mandate the fuel ethanol industry will be more concentrated than the refining industry.

Factors affecting world oil prices

Let me return now to the factors that appear to have caused recent price increases, and the reasons why these price increases can be expected to be temporary. The story on recent crude oil prices begins with the decision of OPEC to reduce output early this year, in an effort to shore up prices as the worldwide recession dampened petroleum demand. This was followed in the last few weeks by the disruption of Venezuela's oil exports due to political unrest. Concerns about the situation in Venezuela, and fears that Iraq's announcement of a one-month cessation of

exports would further tighten the market, appear to have led to a precautionary increase in crude oil inventories that contributed to demand pressure and helped drive prices up temporarily.

At present, crude oil prices remain below the levels they reached last year, and significantly below levels they reached 11 years ago during the Gulf War. Figure 1 plots the spot price of oil since January 1, 1989 (the jagged blue line). It shows that over this time there have been three cycles of crude oil price increases, followed by price collapses. It appears that a fourth cycle has started, but it is anyone's guess whether for the next few months crude oil prices will go up or down. Right now, despite all the unrest around the world, crude oil prices are far below last year's values, or the peak of 2000.

Where prices will move in the next few months depends in part on market psychology, and a great deal on political and military developments in the Middle East and Venezuela. There is no question if it were up to any of us, the world's oil supplies would be located in very different places. A very large share of the world's oil is produced in regions that are, to put it mildly, highly vulnerable to supply disruptions. Even Iraq's toothless threat clearly disturbed the market for a while, despite traders' knowing quite well that Iraqi production has moved up and down by at least that much for the past few years, as UN sanctions and Iraqi compliance have waxed and waned, without any real effect. Real disruptions of supply could certainly produce significant price spikes, and it is clear that market participants are taking that into account.

Oil has all the characteristics of a classic commodity market. Oil demand is relatively inelastic, so that it takes a significant price increase to reduce demand when supplies are interrupted, and likewise when supply exceeds demand, prices can fall rapidly. We have seen these forces in operation in both directions recently. In 1998 and early 1999, crude prices collapsed to about $13 per barrel when demand growth failed to keep up with production capacity. Then with an unusual show of discipline, OPEC held the line on production with surging demand in late 2000 (due in part to unusual weather) so that prices rose to levels not seen since the Gulf War. Prices collapsed again in the second half of 2001, as the economic slowdown that began before September 11 held down demand relative to supply. The collapse accelerated until January, when OPEC acted in what I consider a decidedly unfriendly manner to restrict production sufficiently to drive prices back up. Then recent, unexpected events occurred, putting increased upward pressure on prices.

Now to the good news. Oil can be stored, and oil inventories provide an extremely valuable and effective counterbalance to unexpected movements in supply or demand. Sometimes inventory building can put upward pressure on prices, as we have seen recently, with fears of future price increases stimulating precautionary accumulation of inventories. This building of inventories will buffer any future disruption of supplies. In addition, another offset to future supply disruptions is now available: the reductions in output by OPEC (and countries like Norway and Russia) have created substantial excess capacity in the world that can compensate for lost supplies from Venezuela or Iraq.

The best news is that we have faced oil market instability for the last 25 years, but we have never seen price spikes sustained. I see no reason to predict that any current turmoil in world markets will have lasting consequences for prices. We have gone through numerous cycles of crude oil and gasoline prices rising and falling. Oil prices hit levels exceeding current prices in today's dollars in January 1997, and were far higher in today's dollars at the end of 1990, when traders feared Saddam Hussein's ability to conquer or destroy Kuwait and Saudi Arabia.

There are a few things we do well to remember about these problems. In free markets, price increases are not sustained. High prices serve as a signal to oil and gas producers that it is time to invest in new exploration and development, to bring additional supplies to the market. That is what happened last year, and it will happen again if tight market conditions are expected to continue. Higher prices also signal to consumers the need to conserve energy. Under these competitive pressures, even OPEC has proven incapable of the production restraint required to maintain high prices for long periods of time.

The experience of the Gulf War in 1990 and 1991 is also instructive to those who fear or predict sustained high prices. No sooner did the Allies convince markets through military action that Saddam Hussein could not inflict harm on Saudi Arabia, the world oil price collapsed back to pre-war levels. Between October 12, 1990 and February 25, 1991, oil prices collapsed from $40.42 to $18.37 in today's dollars.

Figure 1 shows that oil prices have never taken off permanently. Instead, oil prices have ranged around $20 per barrel, with a slight upward trend less than inflation. When prices have exceeded that level, they have fallen back, and when prices have dropped below that level, they have risen.

For the past several decades, futures markets have provided clear indications of how the market expects oil and gas prices to behave. Futures markets have consistently indicated an expectation that oil prices will trend toward an average of about $20 per barrel in nominal terms. When spot prices have been higher than $20 per barrel, futures prices have predicted they will fall, and when spot prices have been below $20, futures prices have predicted they will rise. This is seen clearly in Figure 1. The lines stretching out from the spot price graph at various points represent the forward price curve at intervals throughout the decade. The forward price curve shows the price of a crude oil futures contract, for delivery at different dates in the future, as of the date at which the curve starts. It can be seen that these curves all point toward about $20 per barrel, from whatever price they start.

This is strong confirmation that the market understands that oil prices will revert to their trend value, growing perhaps 1% per year in current dollars. In fact, oil prices seem to have moved back toward $20 even faster than the forward price curves indicate. Right now, forward price curves suggest a return to trend, about $22 per barrel, in roughly two years. I expect it will be much faster than that.

Policies for addressing oil security

What all this suggests to me is that we should not try to offset temporary price spikes through any policy other than the proven one of maintaining and being prepared to use a large and effective Strategic Petroleum Reserve in conjunction with allies who also maintain and will use such reserves. That policy addresses precisely the problem of protecting the global economy from threats originating in politically unstable parts of the world. It makes it possible to weather a temporary disruption and buy time for a longer-term response, should that ever be required.

Oil imports are not the right measure of vulnerability -- it is how much of the world's supply comes from regions subject to supply disruption, in comparison to excess production capacity elsewhere. That requires, at minimum, co-ordinated policies with our allies since we all share in the benefits and must act together if policies are to be effective. Other policies, from price controls to temporary tax reductions, cannot remove price instability. They only conceal it, and in doing so remove the important market signals that reduce demand, increase supply and ultimately remove price increases.

We need at the same time to understand that policies that unnecessarily restrict energy markets, and artificially hold back supplies or increase demand, have a cost in terms of their effect on world markets. I would include in these categories restrictions on access to Federal lands for oil and gas production that do not have a clear cost-benefit justification, and similarly policies to eliminate MTBE in gasoline (whether directly or by a renewable fuels mandate) that lead to more use of petroleum based blendstocks and therefore drive up oil imports.

Policies that increase oil imports impose harm on the U.S. economy, because the U.S. is a significant buyer on world markets. Oil prices are sensitive to the balance of supply and demand, and U.S. imports prop up the world oil price. In particular, policies that lead to increases in oil imports serve to put upward pressure on the price of oil, leading to a higher price being paid for every barrel of oil the U.S. imports. When the price of imported oil rises, the U.S. must devote more resources to producing the other goods for export in order to keep the U.S. balance of payments in equilibrium. This means that there are less resources to produce goods for U.S. residents, and no more oil (since we are looking at the increase in the price of the oil we were already importing) so that the economy is worse off. This "terms of trade" effect gives rise to the idea of an "oil import premium." Increases in oil imports impose costs on the economy over and above the dollars actually spent to acquire the additional crude oil.

Gasoline price increases are the result of market forces

Now I would like to turn to refined product markets. Crude prices rose from $18.74 in January to $27.56 in April, an increase of $8.82 per barrel or 21 cents per gallon. Normally, we see changes in crude oil cost reflected penny for penny in gasoline prices, with a lag of no more than a couple of months, so that this increase in crude oil prices should have added about 21 cents per gallon to gasoline prices. As of April 15, gasoline prices had risen by about 30 cents per gallon

over the same period of time (see Figure 2). The question then is, what accounts for the 9 cents in excess of the increase in the cost of crude oil?

Let me start with what it is not. This is not profiteering by refiners, withholding of supplies, or other of market manipulation. U.S. refiners don't have that kind of market power. It is the normal course of events in a commodity industry, exacerbated by some environmental regulations and some tightness in the market. First, I will discuss how commodity markets work, and how this explains movements in gasoline prices. Then I will briefly review refinery margins and profitability over the last decade, to show that recent events are neither unusual nor unexpected. Finally, I will discuss briefly the structure of the refining industry, and the lack of evidence of any effort or ability to manipulate prices.

There is clearly an element of precautionary inventory building involved in the current prices. Looking at each product, the inventory levels most recently reported by EIA are up at the top of the normal range and well above last year. Crude inventories are at historically high levels as well. Normally, gasoline prices stay low when inventories are high, and rise when inventories become tight. The market seems to be different this year. There appears to be greater than usual building of inventories, due to fears about the world situation, and with this inventory, building supplies of gasoline appear tight. Recently, EIA has reported that crude availability may also be limiting refinery output, increasing the tightness. EIA also forecasts demand growth, which coupled with the supply picture suggests increasing prices.

Commodity industries deal in fungible products and face intense global competition. They typically have volatile markets, including price spikes that alternate with long periods of depressed prices. Under these conditions, demand or supply shocks produce large price swings. Volatility is increased by another characteristic of commodity markets, which is a combination of high capital requirements and long lead times for investment that make supply response to shocks slow. In most commodity markets, a low demand elasticity also makes demand response slow. This combination of relatively inflexible supply and demand produces large price swings in response to any unexpected changes in demand or supply conditions.

In such markets, profits earned during upswings have to be considered in the context of losses during downswings. During periods of excess capacity, commodity industries experience low or negative profit margins. Without occasional periods of high profitability, the result is sustained losses that lead ultimately to exit from the industry.

Refining is a global commodity industry, and shares the characteristics of such industries. Refined products exhibit the price instability, and periods of severely depressed profits, characteristic of a commodity industry even more strongly than crude oil. The reason is that once petroleum product demand reaches refining capacity, there is no spare capacity to draw on as there is for crude oil. When capacity is in excess, prices are driven down to a level where there is no return on capacity. Thus we have seen dramatic swings in refiners' profits, but generally poor profitability for refining for the last decade or more. We see this clearly in Figure

3, which plots the return on investment to refiners over the past decade (recent data show that the return on investment in refining was just under 10% in 2000).

The refining sector has gone through several cycles of investment, overcapacity, and depressed margins since 1975. In the 1970s, there was an exodus of small, inefficient refiners from the industry, as the small refiner bias that had existed under import quotas and crude oil price controls was ended. Between 1977 and 1983, there was a surge of investment in capacity to upgrade heavy crudes. Refiners worldwide perceived a large spread between the price of heavy, high sulfur crudes and light, low sulfur crudes. A large number of refineries decided simultaneously to take advantage of this spread by building capacity to make gasoline out of the cheap crudes. Naturally, the result was that refiners' demand for light crudes fell and demand for heavy crudes rose, causing the spread that was expected to make upgrading profitable to vanish. Accordingly, the industry went through a period of excess capacity and low profitability. In the 1980s, capacity increases again exceeded demand growth, leading to lower margins and retrenchment.

Throughout the period from 1989 – 2000, refiners were required to make large environmental capital investments, to implement stationary source emission controls, and to comply with several rounds of increasingly stringent reformulated gasoline regulations. In the early 1990s, capacity expansion again outstripped demand growth, leading to lower margins.

For the last 25 years, each round of investment has produced excess capacity, due to intense competition in the industry and a failure by virtually every participant to anticipate that other refiners will react the same way to current market signals. Unexpected market and demand changes have more often produced losses for refiners than gains. As a result, excess capacity has produced chronic low returns on investment for the past two decades, alleviated by brief periods when demand shocks have provided higher profits. Reported returns to refining show that the refining industry has not provided higher returns to shareholders than similar commodity industries (see Figure 4).

Standard measures of market concentration also suggest that the refining industry is competitive, consistent with the evidence that it has had returns below average for comparable industries for most of the last 25 years. Table 1 shows my calculations of the standard Hirshman-Herfindahl Index (HHI) commonly used to measure concentration. It is based on data from approximately August 2001, because I calculated the numbers for a project I was working on at the time, and is meant to be indicative rather than a precise description of the current situation, which is always changing as refineries are bought and sold. It shows that in terms of the thresholds used by the Department of Justice and Federal Trade Commission in reviewing mergers, the industry is not highly concentrated. If we divide the country into three regional markets, the Eastern U.S. (PADD I – III) is clearly unconcentrated, and PADDs IV (Mountain states) and V (Pacific Coast) are at the low end of the moderately concentrated range. I will return in a moment to the concentration figures for ethanol producers, after I establish the connection.

A series of studies and investigations of gasoline and fuel oil pricing, by the Energy Information Administration and by the Federal Trade Commission, has found no evidence of any exercise of market power in recent price spikes. These include an EIA 1996 Midwest gasoline study, an EIA 1997 Gasoline price study, a Department of Justice, Antitrust Division 1997 investigation of "possible anticompetitive conduct concerning retail gasoline prices", an EIA 2000 Northeast heating oil study, an FTC Midwest gasoline investigation completed March 2001, and an FTC Western gasoline investigation completed May 2001.

What then is responsible for the 9-cent increase in the margin between gasoline and crude oil prices? Some is due to increased costs, including costs to produce reformulated gasoline. The rest is due to market tightness, caused by precautionary inventory building and by increased consumption of gasoline. The influence of market tightness follows directly from the economics of how a commodity industry with a limit on capacity works.

Figure 5 describes the basic economics of refined product pricing. The refined product supply curve represents the cost of producing an additional gallon of gasoline, when refinery utilization is at the percentage of capacity indicated on the horizontal axis. Up to something above 90% of capacity, this cost is nearly constant, and is composed largely of the cost of crude oil. At some point around 95% capacity utilization, costs of extracting more gasoline rise rapidly, and once capacity is reached, no more gasoline can be produced at any cost. What gasoline prices will be, and how much profit refiners earn, depends on where demand falls relative to capacity. Price is determined by the point where the demand curve intercepts the aggregate supply curve for refining. In a low demand period, depicted by the lower diagonal line on the chart, the demand curve intersects the supply curve where the supply curve is nearly horizontal. This means that the price, determined by the point where supply equals demand, is very close to the average operating cost for the refiner, and no return on invested capital is being earned. If demand is higher, so that the demand curve intersects where the supply curve is rising rapidly, then prices will exceed average variable cost, and the refiner will earn some return on investment.

The hockey-stick shape characteristic of the marginal cost curve for refineries also makes prices very unstable. Whenever demand is above the point where costs curve up, a small increase in demand (or a small loss in capacity, shifting the supply curve to the left) can produce large price spikes. When the demand is down in the flat part of the hockey stick, demand can move up and down a good bit without changing prices, but all that time the refiner is failing to earn any return on investment.

Overall, the recent increase in the gross margin for gasoline appears to be a combination of upward price pressure, due to precautionary inventory building and market tightness, with the normal seasonal swings in prices to maximize gasoline production for the summer season. The level of gasoline prices in December 2001 was probably down in the flat part of the supply curve, where excess capacity drives prices to variable cost. Thus some firming of the market was required to get the return on investment above zero. In addition, refiners faced higher operating costs moving into summer, due to the requirements of summer reformulated gasoline.

For the first time, terminal operators selling reformulated gasoline (the wholesale dealers who operate storage facilities from which gasoline is distributed) were required to accept only summer reformulated gasoline after April 15. In previous years, their tanks could contain only summer gasoline as of May 1, which was felt to make markets very vulnerable to any kind of disruption in reformulated gasoline production or distribution during their period of rapid fill in late April. The change may have resulted in an earlier impact of summer reformulated gasoline costs on prices, by causing an earlier changeover to production of reformulated gasoline. I do not know that data are yet available to disentangle all this. Gasoline markets do appear to be tightening, and we have now passed the date on which terminal operators must be receiving only summer grade reformulated gasoline. Retail outlets must offer only summer grade gasoline by June 1, so that there may be further cost-driven price increases at the pump unless crude prices abate or tightness in the gasoline market disappears.

In addition, Unocal has begun enforcing and collecting royalties on its patents on reformulated gasoline. These royalties are no doubt also showing up in the price of reformulated gasoline, and are reported to be in the range of 1.2 to 3.4 cents per gallon. The Federal Trade Commission is investigating these patents, but has not issued any findings.

When in the past we have seen gasoline price increases greater than increases in crude oil costs, the reasons have been due to market tightness, and in particular to regional shortages caused by refinery outages and pipeline breaks combined with regulations on fuel composition that prevented gasoline from flowing in from other regions to eliminate the shortage. Thus reformulated gasoline regulations can have a very important effect on the instability of gasoline prices, especially at a regional level.

The 9 cent increase in the gross margin for gasoline, compared to what we have seen in previous years when gasoline demand (for inventory building and driving) pushed against capacity, is consistent with seasonal price movements, the additional cost of producing gasoline for summer use, and the current degree of tightness in the market. At the $1.07 per gallon they received last December, it is unlikely refiners were earning much return on investment. Market tightness may be moving them into a period of profitability, but given the cost increases that they have faced, not by much.

Policies affecting gasoline markets

Tightness in the market, in the sense of demand at current prices that approaches available capacity, appears to be the explanation for increases in gasoline prices in excess of increases in the cost of crude oil. This diagnosis is very simple, but it has profound implications for assessment of policies that could affect the overall market balance. Any actions that will further segment and isolate different regional markets for gasoline, including regional fuel requirements

such as proposed bans on MTBE in California and some Eastern states, and possible national policies that tighten the overall capacity situation, such as a renewable fuels standard that mandates use of ethanol, will put upward pressure on prices and create risks for regional supply disruptions and price hikes.

If the refining industry is competitive, and recent price increases are driven by market forces and likely to be reversed, what is there for policy makers to do? I am inclined to simplify with two aphorisms:

- Let markets work to bring on additional supplies and constrain demand so that prices will fall, and
- Do no harm.

Those sentiments strike me as applying quite well here. Unfortunately, there are some actions that Congress might take that would do harm. These include any ban on the use of MTBE, either directly or through a renewable fuels standard that indirectly eliminates MTBE. These measures, as I have already discussed, will increase oil imports and further buttress world oil prices. They will also tend to tighten the gasoline market further, raise the cost of gasoline, and make the market more vulnerable to normal problems, such refinery outages or pipeline breaks.

A renewable fuels standard could well exacerbate the capacity situation in gasoline markets, because of the conclusion reached by many analysts – including the Energy Information Administration – that there is not sufficient ethanol capacity nationwide to meet the demand such a standard would create. Moreover, replacing MTBE with ethanol actually diminishes capacity to produce gasoline, and requires additional components produced from petroleum to make up the difference in volume. MTBE provides about 11% of the volume of gasoline, while ethanol provides typically something under 6%. To make up the difference, additional gasoline blending components must be processed – increasing demand for oil imports and requiring additional refining capacity.

There is also more of a structural basis for examining the effectiveness of competition in the ethanol industry than in petroleum refining. One firm – ADM -- owns 40% of the capacity in place today, which exceeds the level at which the merger guidelines state concerns about unilateral effects. Concentration is right at the dividing line between moderately and highly concentrated. Capacity reported by the Renewable Fuels Association as being under construction is all in very small units, so that adding in capacity under construction produces concentration in the middle of the "moderately concentrated" range. However, this is an industry where scale matters, and if a renewable fuels standard is created, it will have to expand significantly to meet national ethanol demand. The leading producer stated at its most recent annual meeting that it expected its sales of fuel ethanol to double if a nationwide renewable fuel standard were implemented. I have therefore computed a third set of HHI's for ethanol, assuming that the largest producer increased its capacity by 70%. I choose that number because it

would be sufficient to create total ethanol production capacity equal to about twice the level of ethanol sales in 2001. The result is a highly concentrated industry.

Even without an exercise of market power, I would expect the imposition of a renewable fuels standard to increase ethanol prices, because by requiring the construction of new plants it will drive the price of ethanol up to a level that covers the full cost, including a return on capital, for a new plant. This price will significantly exceed the historical market prices of ethanol.

Regulations on gasoline composition now in place or under consideration also contribute directly to instability in gasoline markets. These regulations include what have become known as boutique fuels requirements, which would be made worse and more pervasive by regional bans on MTBE or mandates for use of ethanol. Figure 6 shows the existing fragmentation of gasoline markets. It was the fact that certain Midwest regions required use of ethanol that made them vulnerable to refinery outages and pipeline breaks a few years ago. Those events could be repeated with the degree of tightness now seen in gasoline markets.

Gasoline prices in the Midwest spiked in the early summer of 1990, due to supply shortages that were attributed by most analysts and the Federal Trade Commission to tight new rules for reformulated gasoline that segmented the market and made those segments far more vulnerable to the inevitable accidents that occur in the refining and distribution system. The ethanol mandates in some Midwestern regions exacerbated this "boutique fuel" problem by preventing the use of plentiful supplies of different flavors of reformulated gasoline available elsewhere. Addressing the boutique fuels problem would be wise to reduce the likelihood of future regional supply disruptions and price spikes.

The current situation with California is not promising in this regard. One of Professor Rausser's colleagues at Berkeley, and an associate of Charles River Associates, Professor Carl Shapiro, testified on April 25, 2001 at the Senate Commerce Committee Subcommittee on Consumer Affairs on these issues. He concluded that California is a relatively isolated market, with barely enough refining capacity relative to demand, high refining costs, and high costs and limited capacity for importing gasoline. Under these circumstances, the proposed MTBE ban or a requirement for use of ethanol in gasoline could seriously disrupt California markets, which are already vulnerable because of the lack of refinery capacity to meet growing demand, and produce additional price spikes.

This concludes my prepared testimony. I want to thank the Committee again for your invitation to testify, and I am prepared to answer your questions.

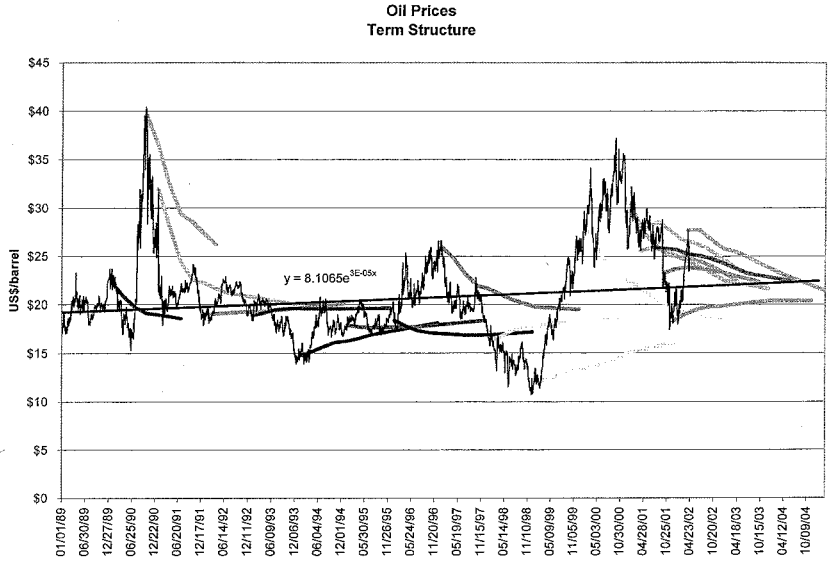
Table 1: Concentration in Petroleum Refining and Fuel Ethanol Processing

Region	Number of Facilities	HHI	Largest Market Share
Refining			
PADD I - III	100	586	14%
PADD IV	15	1,080	22%
PADD V	37	1,127	17%
U.S. Total	152	532	12%
Ethanol			
Existing	62	1,795	40%
Existing and New	76	1,302	34%
Plus Addition to Largest Firm (to reach capacity double 2001 sales)	77	2,411	48%

FTC/DOJ merger guidelines measure concentration by the HHI (Hirshman-Herfindahl Index on a scale from near 0 - 10,000)
HHI < 1000 – "unconcentrated," no competitive review
1000 < HHI < 1800 – "moderately concentrated," other factors must be considered
HHI > 1800 – "highly concentrated," careful scrutiny

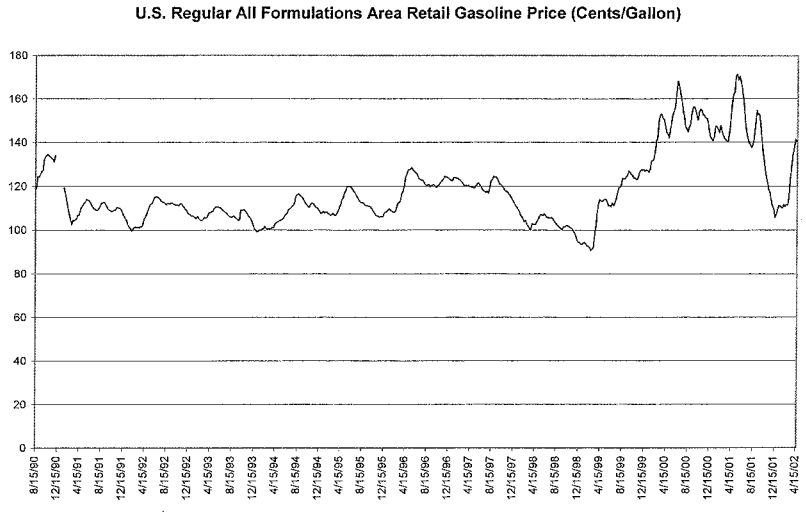
Source: CRA based on Oil and Gas Journal Annual Refinery Survey and EIA Petroleum Supply Annual, Table 20. Renewable Fuels Association

Figure 1: Spot and Futures Prices of Crude Oil



Source: Spot -- Bloomberg CL1 Comdty. Forward: Bloomberg Generic Crude Oil Futures Contract, Bloomberg CL Comdty.

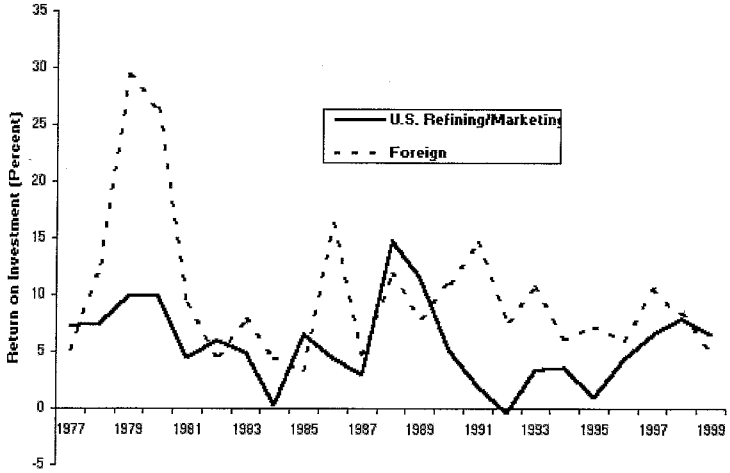
Figure 2: U.S. Retail Gasoline Prices



Source: Energy Information Administration, Retail Gasoline Historical Prices

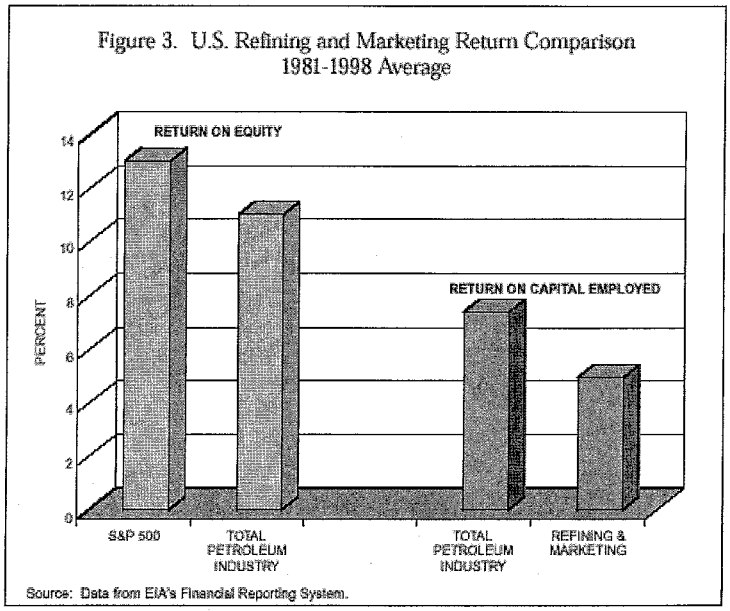
Figure 3: Return on Investment in Petroleum Refining

Figure 10. Return on Investment in U.S. and Foreign Refining/Marketing for FRS Companies, 1977-1999



Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Figure 4: Relative Return on Petroleum Refining versus Other Industries



Source: National Petroleum Council, *U.S. Petroleum Refining*, June 2000

Figure 5: Price Determination in an Industry with Capacity Constraints

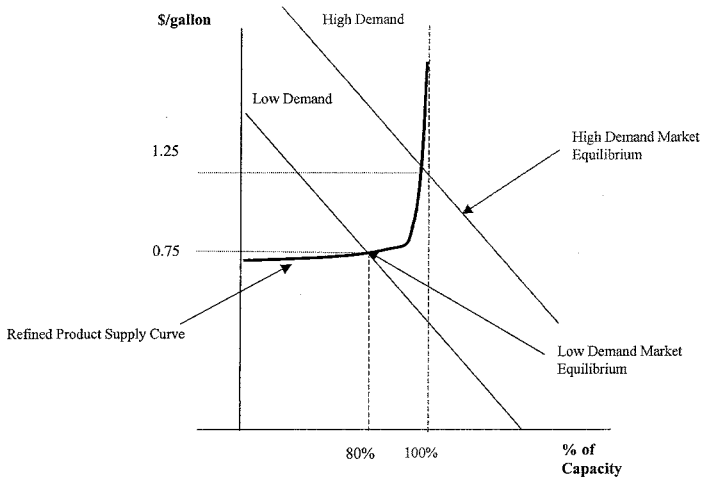
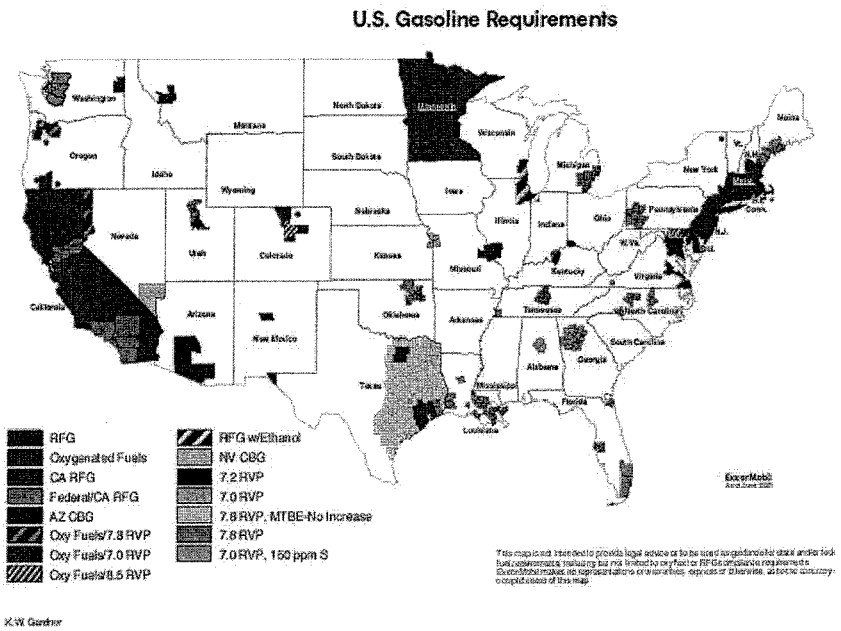


Figure 6: Boutique Fuels Fragment the U.S. Market



K.W. Gardner

1. Crude oil prices have run back up due to international tensions. This has happened before. Energy security remains an important issue. Things could get better or worse in the short run. We need to be prepared for that. The best preparation is realizing that the effects are temporary.

2. Figure 1 shows the last 13 years of crude oil prices. It is a mean reverting process, with a trend of about 1% per year growth. [explain graph] Forward price curves all point toward a little over $20 per barrel.

3. At this point, I don't believe further price increases are in the economic interest of Saudi Arabia. It has already cut production to the point that increasing its own production by, say, 10% would reduce world oil prices by less than 10%, so that a production increase would raise Saudi revenues. This implies growing economic incentive to raise production – and makes me believe further tightening of the market permitted by OPEC has to be politically motivated. By the same token, reductions in U.S. oil imports would tend to lower world oil prices, with benefits to the U.S. and our allies. Policies that restrict supply or increase demand without corresponding environmental benefits make matters worse.

4. Gasoline prices have gone up a bit more than crude [show Figure 2]. There are a number of current conditions responsible for this, which I list on Figure 2. One that I think is particularly important given concerns about market stability is precautionary building of inventories. Right now crude and product inventories are near the top of their normal range. That has put some upward pressure on prices, but it is a good thing. It is an entirely private, market-driven phenomenon, and means that if there are future supply disruptions, our improved inventory situation will make us better able to weather them.

5. There is something more fundamental going on. Refining is a classic commodity industry, with volatile prices and profitability. The history of the last 25 years is one of long periods of depressed profits, with short intervals of profitability in tight markets. Those occasional tight markets are all that keep profits positive in the long run.

6. Commodity industry: demand is relatively inelastic, so that disproportionately large price increases are required to choke off excess demand (in this case, about 100% for 20%) Supply is constrained by overall capacity, which can only be changed slowly. This means that we alternate periods of glut with occasional price spikes. When there is excess capacity, as there has been for much of the past decade, gasoline prices are set by competitive forces at something close to the cost of operating a refinery, with no return to capital. When demand exceeds refinery capacity, there is genuine scarcity and prices run up to the level required to reduce demand to no more than available supply. This doesn't usually happen locally, because supplies can be shifted around the country. That's why comprehensive geographic regions are what matter in refining. However, when rfg regulations balkanize the market, a temporary shortage in one region, due typically to a

refinery outage or pipeline break, cannot be remedied by shipping in supplies that may be ample in another region. This is the boutique fuels issue.

7. Concentration in refining does not reach levels of concern. Even if we the divide the country into 3 regions, it stays in the low end of "moderately" concentrated in the worst cases, and far below the unconcentrated threshold in the East.

8. A ban on MTBE or a renewable fuels standard would significantly increase the cost of gasoline, since any replacement for MTBE will be considerably more costly, and that cost will be passed on to consumers. Moreover, eliminating MTBE will increase oil imports, and thereby put upward pressure on world oil prices and gasoline prices. Eliminating MTBE would hand OPEC the equivalent of a significant cut in world oil production, since MTBE is a natural gas based component that provide about 11% of the volume of reformulated gasoline. It will also tighten refining capacity, because of the more intensive processing required to obtain the components required when MTBE is not used, and make gasoline prices even more volatile.

9. I also think there is reason to examine the structure of the ethanol industry. There is not today enough ethanol capacity in the U.S. to replace all the MTBE now used in gasoline, let alone go beyond that point. Expansion of ethanol production may increase the market share of the largest firm, and concentration in the industry. Concentration could be increased beyond the threshold of a "highly concentrated" industry, and the market share of the largest firm is already above the threshold that signals concerns about unilateral effects in merger review. A mandate for use of ethanol in gasoline would eliminate competition from MTBE and other blendstocks, and without that competition there is little to discipline the ability of a dominant firm in the ethanol industry to raise prices.

Mr. OSE. I thank you, Mr. Montgomery.

Mr. Economides, we need to swear you in as we did the other witnesses. If you would please rise and raise your right hand.

[Witness sworn.]

Mr. OSE. Let the record show that the witness answered in the affirmative.

Mr. Economides, you are recognized for 5 minutes. We have received your written testimony and we have read it. If you could summarize, that would be wonderful.

Mr. ECONOMIDES. Great.

Chairman Ose, I want to thank you for this opportunity to appear before you today to address the issues related to our national fuel markets and the ongoing debate related to gasoline price volatility.

Our country faces significant, ongoing structural problems related to fuel supply and distribution that are likely to cause rapid gasoline price increases to continue to occur in the future, perhaps with even greater frequency and at larger magnitude than those we have experienced so far.

As you said earlier, even today the Senate is debating provisions of an energy bill that is part of our overall national energy policy that could drastically alter the composition of our gasoline supply.

There are many variables that, taken together, create an extremely tight U.S. gasoline supply. They include increased reliance on imported oil, and I think that has been covered sufficiently by previous panelists. Suffice it to say that we have relied not only on imported oil, but also on imported product. And this additional imported fuel has helped the United States meet growing demand without adding significant new refining capacity. However, the combination of increasingly complex U.S. fuel specifications and the potential ethanol mandate will likely significantly diminish the availability of imported refined products.

The second area is the contraction of U.S. refining capacity. Since 1981, the total number of refineries in the United States has fallen from 324 to only 149. I think this subject has also been covered, but it is important to also note that without new refining capacity, the combination of fewer gasoline components and diminishing fuel imports could result in fairly severe supply shortages and price spikes in the future.

The proliferation of the variety of gasoline blends has also been brought up in front of this committee. We have over 16 different categories of gasoline blends in the United States; even if we assumed that premium and regular unleaded are blended at the pump to make mid-grade, that means 32 different products are moving through different parts of our supply system in the country. We need to start working on getting that down, and we are pleased to see both API and MPRA recognize that need in recent months.

Environmentally beneficial gasolines have been brought up, especially the seasonal transition to make summer gasoline and what that entails. There are legitimate reasons why it costs refiners more to produce summer gasoline. Volatility controls require that summer gasoline exhibit a lower tendency to evaporate. Lighter components, such as butanes, that are included in the fuel in the wintertime must be removed in the summer. This removal of light

compounds for volatility control is rapidly compounded into additional volume loss as refiners move to rebalance the fuel.

The bottom line is this. While summer gasoline clearly offers superior smog-fighting characteristics, we can make less of it. Nearly all of the steps required to produce it involve volume reduction. We normally lose sense of this summer volume loss because we deal with the issue preferentially in terms of increased refiner production cost. We make the mistake of not recognizing that cost to produce has very little to do with the actual price rise seen in the market.

It is the supply shrinkage, real or anticipated, that causes gasoline prices to advance rapidly. Short term refiners do seek the handsome reward of increased prices by trying to squeeze every barrel that they can during such periods. That is as it should be.

The problem lies with the long term outlook. After years of excess capacity, low prices, and underperforming assets, refiners are hesitant to invest in capacity through increases; even though the excess capacity has vanished, prices are now higher, and a reasonable case for return on investment can be made.

I would like to close with a few comments on 517 and the ethanol situation. Hart, my company, has long held that ethanol has a role in our Nation's gasoline supply, particularly in the Midwest. The questions that are remaining are, what are the costs associated with ethanol use and what are the implications on gasoline supply and price volatility?

As it now stands, the provisions of 517 would mandate the use of ethanol and ban the use of MTBE, among other fuel composition changes. We believe that 517 will likely cause gasoline supplies to shrink significantly, causing more price volatility than the EIA study predicts. There are three major areas that we want to highlight. The first area involves the proposed ban on MTBE.

MTBE comprises significant volumes in the Nation's gasoline. DOE has pointed out that MTBE is the equivalent of 400,000 barrels of gasoline production——

Mr. OSE. Mr. Economides, we are going to give you 40 seconds to wrap up.

Mr. ECONOMIDES. That will be more than sufficient. Thank you.

The second important area involves the renewable fuel standard. This is probably a step in the wrong direction as far as the stability of the Nation's gasoline supply is concerned. Ethanol does not extend summer gasoline supplies, at least not if one performs the analysis on the basis of equal environmental performance and constant vehicle miles traveled.

We must also recognize that the reduced volume and added costs will come in trying to get summer gasoline blended with ethanol to perform equivalently in areas such as drivability, and to recognize the reduction in its energy content measured in BTU, where it has at least 2 to 3 percent less energy content than nonoxygenated gasoline.

Many of these points are conveniently finessed in most ethanol studies to date. As a result, the estimates we have seen and have been generated are at the very low end of the range of what can actually happen in the marketplace.

With that, I will conclude and thank you.

Mr. OSE. Thank you, Mr. Economides.

[The prepared statement of Mr. Economides follows:]

Testimony of Nicholas Economides
Managing Director, Technical Services
Hart Downstream Energy Services
Before the Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs,
Committee on Government Reform
United States House of Representatives
2154 Rayburn House Office Building
April 23, 2002

Chairman Ose, Representative Tierney, Representative Otter, and other Members of the Committee, I want to thank you for this opportunity to appear before you today to address issues related to our national fuel markets and the ongoing issues related to gasoline price volatility. For more than 20 years, Hart Downstream Energy Services has provided technical and market analysis to assist members of Congress, Federal Agencies and the motor fuels industry. Hart is a leading petroleum, refining and automotive industry analyst. Today, we have meaningful consulting and business relationships with more than 100 organizations worldwide, including members of the petroleum and refining industry, automakers, refining technology suppliers, MTBE and fuel additive manufacturers, ethanol producers, Wall Street financiers, and government organizations throughout the world. These broad and diverse relationships allow us to maintain our open, independent and comprehensive perspective on the many market variables that impact gasoline price and supplies. It is with that independence in mind that we appear before you today. I would like to make a few brief comments and ask that my more extended written remarks be submitted as part of the Committee record.

Mr. Chairman, this hearing is a timely one, as gasoline prices have recently begun their annual pre-Memorial Day climb. Our country faces significant ongoing structural problems related to fuel supply and distribution that are likely to cause rapid gasoline price increases to continue to occur in the future, perhaps with larger frequency and at greater magnitudes than those we have experienced so far. Consumers, as well as businesses dependent on motor transportation, demand that our leaders take a reasoned and responsible approach to addressing fuel issues.

In the past 12 to 16 months, we have heard much about the concept of "boutique" fuels, and gasoline "fungibility". The President's National Energy Plan called for an exploration of "ways to increase the flexibility of the fuels distribution infrastructure, improve fungibility, and provide added gasoline market

liquidity." Even today, the Senate is debating provisions as part of that body's version of the Energy Bill that would drastically alter the composition of our nation's gasoline supply, quite possibly, in our opinion, further exacerbating our gasoline supply situation.

There are many variables that, taken together, create an extremely tight U.S. gasoline supply system, leading to the rapid and often unexpected gasoline price increases. In our opinion, if left uncorrected through a comprehensive and well-crafted National Energy Policy, the future of U.S. gasoline supply and prices will likely become even more volatile. Some of these variables include:

Increasing Reliance on Imported Oil:

U.S. demand for readily available and inexpensive gasoline continues to increase and so does U.S. dependency on imported oil. This dependency now amounts to about 57 percent of U.S. oil consumption. The Department of Energy projects that 64 percent of oil demand will be met by imports by 2020. As we all know, a substantial percentage of those imports come from nations in the Middle East, a region embroiled in political turmoil and from other nation's that have unstable political situations. Additionally, over the past 10 years, the U.S. has been importing a larger percentage of finished gasoline. More than 5 percent of the motor gasoline used in the U.S. today is imported, nearly all of that directed to the sensitive Northeast market. This additional imported fuel has helped the U.S. meet growing demand without adding significant new refining capacity. However, the combination of increasingly complex U.S. fuel specifications and a potential ethanol mandate will likely significantly diminish the availability of imported refined products – much of which currently come from stable European fuel manufacturers. The end result is that the overall U.S. gasoline supply is becoming increasingly susceptible to the regional and political volatility that comes with imports of crude oil and will have less availability of imported refined product from Europe.

Contraction of U.S. Refining Capacity:

Since 1981, the total number of refineries in the U.S. has fallen from 324 to only 149. U.S. refining capacity is likely to continue to contract in the coming years as a result of new environmental regulations, such as new lower sulfur fuel specifications. Several smaller refineries, in the U.S. Midwest, East Coast and Rocky Mountain region could close down as a result of these ever tightening and expensive regulations. At the same time, other stationary source regulations are making it increasingly difficult to permit new or expanded refining operations. U.S. regulations that directly or indirectly decrease the quantity of blendstocks refiners have available to make gasoline will also impact future supply outlook.

Some of these regulations make it more difficult for refiners to meet increasingly stringent environmental requirements while maintaining production volume. An example of such a regulation is the recently promulgated Mobile Source Air Toxics Rule which caps gasoline toxic emissions, effectively limiting refiners' ability to import high octane aromatic blendstocks, such as toluene. Another example is the proposed limitation on the oxygenate MTBE. At the same time these changes are being implemented or proposed, the U.S. refining capacity is stretched is to its limits, running at greater than 95 percent during the peak demand summer driving season. Without new refining capacity, the combination of fewer gasoline components and diminishing fuel imports could result in severe supply shortages and price spikes in the near future.

Proliferation of a Variety of Gasoline Blends:

The current regulatory structure for gasoline should be more uniformly organized, with certain limits on what individual states can do to regulate and control gasoline composition. In our opinion, individual state regulatory authority over gasoline specifications makes the product more expensive and less fungible. Over the past several years, the lack of federal authority over gasoline specifications have led to the proliferation of "boutique fuels" or special state or local gasoline blends. In fact a map of specific fuel recipes required in different regions reveals that over 16 distinctive categories of gasoline blends exist throughout the U.S. Even if we acknowledge that premium and regular gasoline are blended to make midgrade at the pump, there are at least 32 distinct types of gasoline moving through various segments of our strained gasoline distribution system. The vast majority of today's gasoline supply is transported throughout the United States via a pipeline system. Absent a compelling state interest, having one state require a certain gasoline blend that is different from its neighboring states is both impractical and commercially more expensive since it makes the overall distribution of gasoline more complex and cumbersome. Such individual requirements penalize ALL the states. While some in the refining industry may favor this approach because it helps maximize profits, we were pleased to see that the American Petroleum Institute recently called for limiting the total number and variety of gasolines sold in the U.S. from today's approximate 15 different blends to only 5. It is, therefore, more appropriate, in our view, to have a federal agency – such as the Department of Energy, with the advise and consent of the Environmental Protection Agency and the various states – maintain and oversee the type and amount of gasoline compositions sold throughout the United States. Because of regional and environmental issues involved, we would suggest that the proper number of gasolines sold throughout the country should be between 3 and 6. The National Petrochemical & Refiners Association also recognizes the problem and its impact on gasoline supply and prices. NPRA recently testified to this Subcommittee that "the many

different fuel requirements have led to increased volatility in gasoline markets and to reduced flexibility in shifting available supplies to areas that need fuel the most."

Environmentally Beneficial Gasolines:

In 1995, much of the nation – about 30 percent – was introduced to a new, more environmentally friendly gasoline, called Reformulated Gasoline. The new gasoline helped those cities, such as New York, Chicago, Houston, Los Angeles, and Washington, DC – with the worst air quality, conveniently and cost-effectively reduces the amount of harmful pollutants emitted into the atmosphere. After 7 ½ years, the RFG program has, in the almost unanimous consensus of everyone, been an unqualified success. More importantly, Phase 1 of the RFG program cost approximately 1 to 2 cents per gallon in most areas of the country and Phase 2 added another penny or so. We are generally concerned that some suggested changes to the RFG formula may hinder the overall effectiveness of the program and possibly increases gasoline prices.

Be that as it may, there are legitimate reasons why it costs refiners more to produce summer gasoline. Volatility controls require that summer gasoline exhibit a lower tendency to evaporate and, thus, lighter components such as butanes that are normally included in the gasoline pool in the winter are removed in the summer. The removal of light components for gasoline volatility control is rapidly compounded into additional volume loss: Heavy-boiling components must be removed in turn, to rebalance the fuel and maintain its driveability characteristics. Next, for summer RFG gasoline, the absolute barrels of oxygenate (ethanol or MTBE) that must be added to the fuel are reduced, since the base amount of gasoline is less. Progressively, range of what "fits" into summer gasoline becomes narrower and narrower... For example, with lower oxygenate addition comes lower dilution of the environmentally problematic gasoline blendstocks that precipitates further blending adjustments. The bottom line is this: while summer gasoline clearly offers superior smog fighting characteristics, we make less of it. Nearly all of the steps required to produce it involve volume reduction. Assuming refinery throughput is maximized in summer, perhaps the only knob refiners have to increase volume quickly during summer supply shortages is to maximize oxygenate blending. We have observed precisely such a pattern in California in the past.

We normally lose sense of this summer volume loss because we deal with the issue preferentially in terms of increased refiner production cost. We quote figures such as 4 or 5 or 8 cents per gallon higher gasoline cost-to-produce and we lose sense of the 2 or 3 or 5 volume percent reduction that we face. Most importantly, we make the mistake of not recognizing that cost-to-produce has very little to do with the

actually price rise seen in the market. It is the supply shrinkage, real or anticipated, that causes gasoline prices to advance rapidly. Moreover, the magnitude of the price spike that accompanies a supply shortage has little connection to the base gasoline production cost at the time the supply imbalance occurred.

Two final points on the subject of tight gasoline supply demand balances during the summer season. First summer gasoline shipments must begin at refineries long before what the public considers the summer driving season. Shipping summer gasoline in February is hardly unusual. Secondly, some have made the point that refiners have no particular incentive to relieve the pressure of a tight supply demand balance, that refiners obviously like periods of elevated retail pricing, particularly if their corresponding input and processing cost increases are modest over the same period. This is a point subject to considerable further public debate, particularly in the face of the ongoing industry consolidation… Short term, refiners will obviously seek the handsome reward of increased prices by attempting to squeeze extra barrels out of their system. And that is as it should be. The problem lies with the long term outlook: after years of refining excess capacity, low prices, and under-performing assets, refiners are hesitant to invest in capacity throughput increases even though the excess capacity has vanished, prices are higher and a reasonable case for return on new investments can be made…

Observations on S 517 Fuels Provisions.

Turning to the question of ethanol use in gasoline, Hart has long held that ethanol has a role in our nation's gasoline supply – particularly in the Midwest where is it readily available. The questions that have yet to be fully determined are: 1) what are the costs associated with ethanol use? and 2) What does blending ethanol into gasoline do to gasoline supply and volatility? The Senate has recently been debating fuels provisions as part of the comprehensive energy bill S517. As it now stands those provisions would mandate the use of ethanol and ban the use of MTBE, among other fuel composition changes. Based on our evaluation of S517's fuels provisions, it is our opinion that some of the publicized cost impact figures appear to yield results that are likely at the low end of the range. In particular, while it appears to provide some good information, the analysis performed by the Energy Information Administration (EIA) does not seem to fully consider the cumulative weight of all the eventual retail costs to the consumer associated with the entire fuels provisions of S517.

Hart's technical analysis indicates that S517 will likely cause gasoline supplies to shrink significantly causing more gasoline price volatility than EIA's study seems to predict. There are three major areas that

we can point to in discussing the impact of S517 on gasoline supplies:

- The first area involves the proposed ban on MTBE use. For a variety of environmental, commercial, and performance-related reasons, MTBE has become the oxygenate-of-choice for making RFG outside the Midwest. MTBE is used in 80-85 percent of all the RFG produced today and comprises significant volumes of the national gasoline supply. As the Dept. of Energy points out, MTBE is valuable not only from the standpoint of its benefit to cleaner air, it is contributing over 400,000 barrels of gasoline production which is equal to the output of 5 US refineries. This production is equal to about 3 to 5 percent of the U.S. gasoline supply, but more importantly it represents nearly 11 percent of the total gasoline supply in most RFG areas.

- The second important area involves the proposed institution of a Renewable Fuels Standard (RFS) which is for all intents and purposes a mandate to increase ethanol use from the current 1.7 billion gallons per year to over 5 billion gallons by 2012. This may be a welcomed boost to ethanol supporters but it is probably a step in the wrong direction as far as the stability of the nation's gasoline supply is concerned. The reason for this is that, contrary to the rhetoric that has been aired in recent months, ethanol does not extend summer gasoline supplies at least not if one performs the analysis on the basis of equal environmental performance and constant vehicle miles traveled. Ethanol, if used to replace MTBE in summer RFG at the minimum level of oxygen currently required in RFG, will actually shrink the current gasoline pool by approximately 11%. Even if we assume that ethanol will be added to RFG at the maximum level allowed by law - a questionable assumption given the ethanol supply imbalance such a premise creates – we will lose more than 60% of the summer volume expansion we were getting with MTBE. This is why most proposals to expand ethanol use (including S517) clearly attempt to direct the overwhelming majority of it use to conventional gasoline areas where the environmental sensitivity to its summer characteristics may be somewhat less pronounced.

- The basic premise of needing to look at ethanol at constant environmental performance means that we must recognize the reduced volume and added cost associated with: a) reducing summer gasoline vapor pressure when blending ethanol into gasoline and controlling the Distillation Index (DI) of ethanol blended fuels. Similarly, examining the implications of growing ethanol use at constant vehicle-miles-traveled means that we must recognize the reduction in the energy content (measured by BTUs) of conventional gasoline blended with ethanol (approximately 2-3%) and the

likely resulting retail consumer gasoline impact of 2 to 3 cents per gallon.

Many of these points are conveniently "finessed" or entirely avoided through the set of assumptions that EIA was asked to adhere to in the study request. As a result, EIA's initially reported estimates for cost increases are likely to be the very low end of several possible retail cost and price impact ranges for the consumer. In fact, our technical analysis indicates that the cumulative consumer retail cost impact attributable to the fuels provisions of S517 would be at approximately 9.75 cents per gallon for reformulated gasoline and closer to 4.0 cpg for conventional gasoline. Of course, none of this discussion comprehends the impact of supply disturbances and the increased frequency that they are likely to exhibit in the future if S517 is adopted.

In conclusion, there are currently a number of factors in play that are threatening to worsen the U.S. gasoline supply and price volatility situation in the coming months and years. In our opinion, public policy initiatives should seek to extend the supply of clean gasoline product in the U.S. and find long term solutions to the current supply problems. Thank you for this opportunity to testify. I look forward to working with the Subcommittee to address these difficult issues.

Mr. OSE. Dr. Rausser, visiting us from the University of California at Berkeley, you are recognized for 5 minutes.

Mr. RAUSSER. I thank the committee for inviting me to offer an analysis of the social costs and benefits of MTBE used in gasoline and its planned ban in the State of California.

Eighteen months ago I was retained by Lyondall Chemical to assess whether the continued use and/or ban of MTBE in gasoline in California would be a choice that, on balance, served or did not serve the public interest. To answer this question, my colleagues and I performed a comprehensive cost/benefit analysis within the framework of the current Federal and State of California reformulated gasoline requirements.

We have relied on the extensive literature that has been accumulated over the course of the last decade by surveys that we ourselves conducted on the impacts with regard to air, water, and fuel costs. And we have done this not only for MTBE, but for ethanol; and as you would expect, there is much more data, much more science, about MTBE, because of its wide use in the State of California over the last decade relative to ethanol.

We have submitted our analysis for independent peer review and publication. The basis for my opinions that I am going to share with you today is, first, that we look at all of the potential consequences whether they are good or bad of both MTBE and ethanol in gasoline. Each of the effects is quantified in monetary terms to allow us to compare using the same yardstick with regard to both the benefits and cost.

Our focus is on the incremental cost to society of using MTBE or ethanol. For instance, when gasoline is found in groundwater, costs will be incurred to diagnose and clean up the spill whether or not MTBE or ethanol is present. Our concern was to measure the extent to which MTBE and in comparison ethanol influenced those incremental costs.

We also focused exclusively on the annual cost going forward. Clean-ups identified in the past should be irrelevant to policymakers, as those costs will be incurred whether or not MTBE is banned in the future.

As we all recognize, factors that affect the expected cost and benefits, looking out over the next decade or next 20 years, are subject to significant uncertainty. We incorporate in our analysis that uncertainty, reflecting the best available science with regard to each of the major impacts that I briefly outlined.

What are our results? First of all, even though the anticipated air quality benefits of oxygenated gasoline were in fact realized, the large-scale use of MTBE, as we all know, has resulted in adverse impacts on water quality. The use of MTBE exposed in a dramatic fashion the fundamental problem, which is the source control of leaking underground storage tanks.

While the widespread use of MTBE has had adverse impacts on water quality, removal of MTBE from gasoline will impose significant other costs on society, both in terms of gasoline production costs and ultimate prices at the consumer level.

Overall, the continued use of MTBE in California has clear and significant benefits relative to the use of ethanol. The increased annual cost resulting from a ban of MTBE in California when ethanol

replaces MTBE ranges on an annual basis, as I just indicated, from a little less than a billion to about $1.3 billion with an expected or median value of $1.24 billion.

These results are robust to any possible ranges on uncertainty. Even if you take the worst case for MTBE and the best case for ethanol, it still follows that banning MTBE and substituting with ethanol imposes significant costs on society where society is measured not only in terms of the citizens of the State of California, but the citizens in the rest of the United States.

The potential impacts from significantly changing the manufacture of a product as important and pervasive as gasoline is quite obviously and predictably complex. As a result, the cost/benefit analysis that we have conducted is also complex, but it can be decomposed into three major categories: the impacts on fuel costs, the impacts on air quality, and then finally and most importantly, in terms of the general view of the public with regard to MTBE use, the impacts on water quality.

First, the impacts on fuel costs: Substituting ethanol for MTBE in reformulated gasoline will result in increases in fuel cost. Changes in fuel cost can be categorized into six different consequences.

The first and perhaps the most important is an increase in the cost to the U.S. economy due to the increased oil imports to make up the fuel volume lost when switching from MTBE to ethanol.

Also there is an increase in cost to refiners to manufacture reformulated gasoline.

There is an increase in the ethanol tax subsidy payments.

Fourth, there is an increase in gasoline demand due to lower fuel mileage efficiency.

And fifth there is a consumer surplus loss attributable to reduced fuel consumption.

And, finally, there are changes in the market for natural gas that actually work in favor of ethanol as opposed to MTBE.

But if you take all six of those impacts and summarize them, you end up with an expected incremental cost of $1.33 billion per year if you substitute ethanol for MTBE.

The impacts on air quality are basically commensurate. There is a bit of difference in terms of the air toxics associated with reformulated gasoline with MTBE versus ethanol, but the differences are not dramatic.

On the water quality side, here, as I indicated, the focus has to be on the incremental response costs going forward.

Mr. OSE. Dr. Rausser, you need to summarize.

Mr. RAUSSER. Yes.

And looking at those incremental costs and sorting those out, we also have to recognize that there is some recent science suggesting strongly that ethanol has an adverse impact on water quality as well as in terms of delaying the biodegradability of BTEX plumes. If you take all of that into account, the costs that are incurred by banning MTBE and switching to ethanol results in a benefit that ranges anywhere from 5.2 million to 296 million, with an expected value of 59 million.

Now, those results may be a bit surprising for those who think about all of the past consequences and, instead, don't focus on the

incremental cost. If you look at the incremental costs, then the numbers I have presented to you are reasonable estimates.

In addition, it also says that the fundamental problem is source control of underground storage tanks.

Thank you very much, Mr. Chairman. This concludes my brief remarks.

Mr. OSE. Thank you, Dr. Rausser.

[The prepared statement of Mr. Rausser follows:]

SOCIAL COSTS OF AN MTBE BAN IN CALIFORNIA

by

Gordon Rausser

Prepared Statement for the House Committee on Government Reform Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs April 23, 2002

1. INTRODUCTION AND SUMMARY

I am Gordon C. Rausser, the Robert Gordon Sproul Distinguished Professor at the University of California at Berkeley. I served as Dean of the College of Natural Resources at the University of California at Berkeley, from 1994 – 2000. I am widely published and have extensive consulting experience in market analysis, statistical modeling, economic and finance damage analysis, and antitrust analysis. My curriculum vitae is available on my website at U.C. Berkeley, http://are.berkeley.edu/~rausser/. I thank the Subcommittee for inviting me to offer an analysis of the social costs and benefits of MTBE use in gasoline.

Eighteen months ago, I was retained by Lyondell Chemical to assess whether the continued use of MTBE in gasoline in California serves the public interest. To answer this question, my colleagues and I have performed an integrated, comprehensive cost-benefit analysis of the decision to use MTBE. We have relied on the extensive literature now available on the air, water, and fuel cost impacts of MTBE use in gasoline, and ethanol use, and have developed a model to synthesize those impacts for comparison. Our analysis is summarized in a paper, "The Social Costs of an MTBE Ban in California," submitted for peer review and publication.

I offer the following observations to the Subcommittee:

- Even though the anticipated air quality benefits of oxygenated gasoline were in fact realized, the large-scale use of MTBE (methyl tertiary butyl ether) as a gasoline oxygenate resulted in adverse impacts to water quality.

- The use of MTBE exposed in dramatic fashion the fundamental problem of leaking underground storage tanks. Policies put in effect over the last 10 years have significantly reduces releases from underground storage tanks, but unfortunately banning MTBE use in the future does nothing to reduce the cost of cleaning up releases that have already occurred.

- While the widespread use of MTBE has had adverse impacts on water quality, removal of MTBE from gasoline will impose significant costs on society — both in terms of gasoline production costs and prices, as well as possible impacts on air and water quality by ethanol. In light of current concerns about

world oil supplies, it is significant that one of the effects of banning MTBE or replacing it with ethanol will be to increase U.S. oil imports and put additional upward pressure on world oil prices.

- Overall, the continued use of MTBE in California gasoline has clear and significant benefits relative to the use of ethanol. The increased annual cost resulting from a ban of MTBE in California when ethanol replaces MTBE ranges from $0.92 billion to $1.32 billion, with an expected value of $1.24 billion. The model results are robust to reasonable ranges of uncertainty; even under the worst case for MTBE and the best case for ethanol, it still follows that banning MTBE will lead to an increase in the total cost associated with gasoline use in the state of California.

2. OVERVIEW OF COST-BENEFIT MODEL AND RESULTS

The potential impacts from changing the manufacture of a product as important and pervasive as gasoline are predictably complex. A comprehensive cost-benefit model analyzing this choice is necessarily complex as well. Here, I generally describe the structure of the model and the important (i.e., largely determinative) input parameters.

Current Federal EPA and CARB regulations define the feasible gasoline formulation alternatives for refiners. Since California's request for a waiver of the oxygenate requirement was denied, it is generally agreed that either the use of ethanol or MTBE as a fuel oxygenate is required to satisfy those regulations. Accordingly, reformulated gasoline (RFG) with MTBE is selected as the "baseline" in this testimony. Unless denoted otherwise, all costs and benefits reported are relative to RFG with MTBE. Positive values in **Table 1** represent a net benefit of MTBE over ethanol, while negative values represent a net cost of MTBE relative to ethanol. I should note that I have also done an analysis of the costs of eliminating MTBE if there were an oxygenate waiver, and find that in this case the net benefits of continued use of MTBE exceed the net benefits of its replacement with other gasoline blending components.

The costs and benefits of the choice to use MTBE instead of ethanol as a gasoline additive can be decomposed into three broad categories:

(i) Impacts on Fuel Costs
(ii) Impacts on Air Quality
(iii) Impacts on Water Quality

2.1 Impacts on Fuel Costs

Substituting ethanol for MTBE in RFG will result in an increase in the cost to manufacture gasoline. The impact of this substitution includes both direct impacts on gasoline refiners, as well as indirect impacts on the markets for crude oil and natural gas, indirect impacts on U.S. taxpayers, and indirect impacts on gasoline consumers. Changes in fuel costs can be categorized into six components:

(1) the increase in cost to refiners to manufacture RFG with ethanol (i.e., instead of MTBE);

(2) the costs of ethanol production that are paid by U.S. taxpayers due to the ethanol tax subsidy;
(3) the increase in the amount of gasoline that consumers must purchase to meet their driving needs when ethanol is substituted for MTBE (since gasoline made with ethanol has less energy – and thus provides fewer miles per gallon – than gasoline made with MTBE);
(4) the increase in costs to the U.S. economy associated with increased oil imports when ethanol is substituted for MTBE (since ethanol comprises a smaller volume of RFG than does MTBE, use of ethanol requires a larger amount of components produced from crude oil to make the same volume of gasoline);
(5) the consumer surplus loss attributable to reduced fuel consumption when ethanol is substituted for MTBE (since RFG made with ethanol is more costly, consumers will decrease gasoline consumption and lose the benefit of this foregone consumption); and,
(6) net changes in producer and consumer surplus and import costs in natural gas markets, due to the effect the abandonment of MTBE would have on the demand for natural gas (since a reduced demand for MTBE will reduce the demand for natural gas, and thus reduce the price of natural gas).

Our analysis indicates that the total increase in annual gasoline production costs resulting from the replacement of MTBE with ethanol in California would range from $1.22 billion to $1.37 billion, with an expected value of $1.33 billion.

2.2 Impacts on Air Quality

RFG made with either MTBE or ethanol has significant air quality benefits over conventional gasoline. However, the air quality impacts of these two fuel formulations are not identical. The use of MTBE in RFG increases the level of formaldehyde emissions (relative to RFG made with ethanol), while the use of ethanol increases the level of acetaldehyde emissions (relative to RFG made with MTBE). In addition, the higher gasoline prices associated with the use of ethanol will result in a decrease in the demand for gasoline, and thus a decrease in automobile emissions.

The Federal Clean Air Act requires that reformulated gasoline provide specific reductions in emissions for the two ozone precursors, nitrogen oxides and reactive hydrocarbons. Under Federal and CARB regulations, all legal fuels must achieve at least as great a reduction in NOx and hydrocarbon emissions as does a specified reference fuel. Therefore, we do not estimate that any changes in emissions of ozone precursors result from the replacement of MTBE by ethanol. The direct air quality effects that can be expected to result from substituting ethanol for MTBE are reductions in driving due to higher fuel costs and changes in emissions of such air toxics as formaldehyde and acetaldehydes due to specific properties of MTBE and ethanol.

Our analysis indicates that replacing MTBE with ethanol would result in a minor increase in air quality benefits, ranging from $28.9 million to $34.3 million, with an expected value of $31.6 million.

2.3 Impacts on Water Quality

Costs associated with water quality are the incremental costs attributable to the specific formulation of gasoline (i.e., MTBE or ethanol) for the cleanup of gasoline spills. Both of these fuel formulations are expected to increase the water quality impacts of gasoline spills, relative to the impact of conventional gasoline spills. Water quality costs include incremental response costs (due to the presence of MTBE or ethanol in gasoline) at leaking underground storage tank (LUST) sites, costs to treat drinking water wells impacted by these LUST sites, response costs from pipeline leaks for gasoline, and the costs to monitor surface water reservoirs. Expected water quality costs are a function of the number of gasoline releases (which in turn is a function of factors such as the failure rate of underground gasoline storage tanks), and the incremental impact of MTBE and ethanol on the cost to remediate these gasoline releases.

Neither MTBE nor ethanol makes a gasoline release more likely, and releases of gasoline without MTBE or ethanol will still be costly. The "underlying" costs of the gasoline release, which would occur even if neither MTBE nor ethanol were contained in the released gasoline, are not properly counted as costs of either MTBE or ethanol. However, both MTBE and ethanol may increase the water quality costs associated with gasoline releases, because the presence of either MTBE or ethanol may make these releases migrate further and/or be more persistent. It is generally thought that MTBE is likely to have a larger adverse impact than ethanol. In addition, releases of gasoline with MTBE may be more difficult and costly to remove from groundwater than are releases of gasoline with ethanol. The incremental impact of MTBE on the cost of addressing gasoline releases appears to be relatively small, but may well be greater than zero. Therefore, the substitution of ethanol for MTBE may decrease the costs associated with gasoline releases.

It is also important to realize that the clean up costs for releases that have already occurred cannot be avoided by banning the use of MTBE in the future. Therefore, only releases attributable to future use of MTBE should be included in the cost-benefit analysis. These releases, per gallon of gasoline consumed, will be much less than they were in the past because of the programs that have been put in place over the last decade to reduce leakage from underground storage tanks. As a result of these factors, the reductions in clean-up costs attributable to a ban on MTBE at this point are far less than the costs of MTBE clean-up included in many other studies.

The expected savings in water monitoring and treatment costs attributable to switching from MTBE to ethanol range from $5.2 million to $296.7 million with an expected value of $59.0 million.

2.4 Impacts on Refinery Capacity and Consumer Prices

Although not part of the formal cost-benefit analysis, potentially disruptive effects of an MTBE ban on gasoline supply are important to consider. Replacing the 11% of gasoline volume accounted for by MTBE will put increased demands on both refinery capacity and the transportation system. If a ban on MTBE results in inadequate refinery and import capacity to meet gasoline demand at current prices, the inevitable result is an increase in gasoline prices to the point at which demand is reduced to equal available

capacity. Since gasoline demand is relatively inelastic, relatively small mismatches in demand and supply at current prices can result in large price movements. We have estimated the potential price increases if it is not possible to replace the gasoline volume lost when replacing MTBE with ethanol. Such a scenario would require reducing gasoline consumption approximately 6% below current consumption levels. With short-term elasticities of demand between 0.1 and 0.2, the result would be an increase of 30% to 60% in gasoline prices, or at current prices, between 50 cents and $1 per gallon.

3. Structuring the Cost-Benefit Analysis

I will now describe in more detail the issues addressed in my analysis of the costs and benefits of replacing MTBE and the nature of the cost-benefit model that my colleagues and I developed for analyzing these issues.

In the early 1990s, oxygenated gasoline was widely hailed as a solution to many of the nation's air quality problems, especially in the so-called federal nonattainment geographic regions. At that time, it was expected that MTBE would be widely used as a gasoline oxygenate. Even though the anticipated air quality benefits of oxygenated gasoline were, in fact, realized, the large-scale use of MTBE as a gasoline oxygenate resulted in adverse impacts to water quality. As MTBE was detected in water supplies in the late 1990s, public concern intensified and proposals to ban the use of MTBE in gasoline surfaced in several states.

In 1999, the State of California passed the first legislation in the United States that was motivated by the water quality impacts of MTBE. In March 1999, the Governor of the State of California announced that MTBE would be banned in gasoline in California beginning in 2003.[1] Several other states have moved to reduce or eliminate the use of MTBE as well, and a federal ban on MTBE is under debate.

As the pendulum has swung from public concern about air quality to public concern about water quality, the risk has increased that special interests will dominate implementation of policy reforms that ill-serve society. Given the billions of dollars of potential consequences that can be quantified, it is surprising that the proposed banning of MTBE has not been subjected to a serious and internally consistent analysis.

The purpose of my research on MTBE has been to better inform those involved in the policy debate by providing a comprehensive and internally consistent cost-benefit analysis of the gasoline formulation alternatives for California, based on the best information that is currently available. Such an analysis must distinguish between sunk and incremental costs,[2] and must consider both private and social costs.[3] The analysis must also

---

[1] Governor Gray Davis, Executive Order D-5-99, 25 March 1999. The introduction of the ban was recently extended to January 1, 2004.

[2] *Sunk costs* are those costs that cannot be averted by future action. For instance, the **past** use of MTBE may result in **current** sites of groundwater contamination that will result in **future** remediation costs. However, even if MTBE is removed from gasoline now, this will not affect the costs from **existing** contamination sites. Therefore, these remediation costs are not a cost of continuing to use MTBE in gasoline. Only those remediation costs from **future releases** of gasoline containing MTBE are a cost of the continued use of MTBE.

[3] *Private costs* are costs reflected in the market prices of products. The most obvious example is the change in the price of gasoline faced by consumers. Private costs should also take into account effects in related

recognize the economic responses of consumers and firms to changes in prices and costs, and must consider not only costs in the immediate market in question, but also costs from spillovers to other markets.

It is also critical to recognize that the incremental costs and benefits of removing MTBE from gasoline change with the passage of time. The use of oxygenated gasoline in the early 1990s was intended to provide rapid reductions in emissions from the existing fleet of vehicles — reductions that could not be achieved through new car emission standards alone. But as vehicles subject to much more stringent new car emission standards have become a larger share of the fleet, the air quality benefits attributable to the use of oxygenated gasoline have fallen. Moreover, new air quality models adopted by the California Air Resources Board (CARB) for evaluating emissions reductions from reformulated gasoline may also significantly change the estimated air quality impacts of various fuel formulations. The costs of replacing MTBE are also different today than they were a decade ago. The U.S. Supreme Court recently upheld a Unocal patent that covers many of the most cost-effective formulas for producing reformulated gasoline, and this patent will raise costs for other refiners and consumers. Effects on water supply and cleanup costs attributable to future MTBE use are also certainly different today than ten years ago. For instance, older underground gasoline storage tanks that were prone to leaks have almost entirely been replaced by new tanks that are much less likely to leak.

3.1 Federal and California Regulations Affecting Gasoline

Under current law, all gasoline sold in the "ozone non-attainment areas" of California is subject to the federal reformulated gasoline program, and must contain a minimum of 2% oxygen by weight. This requirement can be satisfied by a blend that contains either 5.7% ethanol or 11.5% MTBE (by volume). In addition, gasoline sold during winter months in "carbon monoxide non-attainment areas" of California is subject to the federal oxygenated fuel requirement, and must contain at least 1.8% oxygen.

California is authorized under 42 USC Section 7545(c)(4)(B) to craft its own controls on motor vehicle emission and fuels, as long as they are at least as stringent as the national standards. Under this authority, the CARB has established rules for California cleaner burning gasoline which are more stringent than the federal standards except in the area of oxygenates. The federal RFG oxygenate requirements pre-empt California RFG requirements because they set a more stringent standard for oxygenates.

The original version of the California RFG rule required a minimum of 1.8% oxygen in winter throughout the state, but that rule was revised in 1998 to apply only to areas subject to the federal winter oxygen requirements. CARB recently issued Phase 3 RFG regulations that would allow refiners throughout the state to sell non-oxygenated gasoline even in federal RFG areas should a waiver of the federal requirement be granted. That waiver request has been denied.

---

markets such as natural gas. Other private costs are the less obvious impacts on the effective price of gasoline to consumers, such as changes in the amount of gasoline required to drive a mile attributable to replacement of MTBE with other blending components. *Social costs* are costs not necessarily included in market prices, or considered by consumers and producers in their decisions on how much to buy and sell. The impact of MTBE on water resources is a social cost. The impact of changes in air quality (and thus on human health) is another example of a social cost.

Table 2 lists the counties in California where federal RFG rules currently apply. Since these counties contain a large share of the state's population, the CARB estimates that 70% of the gasoline currently sold in California is subject to the federal RFG regulations, including the minimum 2% oxygen requirement.[4]

3.2 Properties of MTBE and Ethanol

MTBE has several desirable properties as a gasoline oxygenate. To achieve a 2% by weight oxygen content, MTBE is blended in gasoline at approximately 11.5% by volume. Therefore, in addition to adding oxygen to gasoline, MTBE has the effect of diluting other undesirable constituents in gasoline such as benzene and sulfur.[5] Thus use of MTBE contributes to reducing smog-forming emissions, which was the purpose of the reformulated gasoline regulations in the first place. MTBE also increases the octane of gasoline, and does not adversely affect other important gasoline properties such as RVP and cold weather starting performance. Moreover, MTBE is widely available, and RFG made with MTBE is relatively inexpensive and easy to blend, store and transport.[6]

MTBE has another important attribute: it is derived from natural gas by combining methane (the primary constituent of natural gas) and butane (a natural gas liquid). About 70% MTBE used in the United States is produced in refineries and merchant plants from natural gas produced in the United States and Canada.[7] Its use in gasoline reduces, by an equivalent quantity (in energy terms), oil imports, since oil imports are the marginal source of petroleum supplies into the United States.[8] On the other hand, the use of MTBE increases U.S. imports of natural gas from Canada.

Ethanol also has some beneficial properties when used as a fuel oxygenate. Like MTBE, ethanol increases the octane of gasoline. Moreover, ethanol is produced from corn and other plant materials, and is thus a "renewable" fuel. However, ethanol has several undesirable properties as a gasoline additive. Ethanol results in higher VOC emissions from gasoline, and the higher volatility of ethanol makes it harder to meet summertime evaporative emissions criteria for RFG. In order to compensate for the higher volatility of ethanol, while maintaining performance characteristics such as cold weather starting, the "base" gasoline blend stock must be adjusted. This adjustment is costly and increases the production cost of the resulting RFG. Moreover, since ethanol contains considerably more oxygen (by weight) than does MTBE, RFG with ethanol contains only about 5.7% ethanol by volume (compared to 11.5% by volume, for RFG with MTBE). The difference in

---

[4] Jose Gomez, Bill Riddell, Richard Vincent and Tom Jennings, "Staff Report: Initial Statement of Reasons for Proposed Rulemaking," July 1998.

[5] Energy Information Administration, "Issues in Focus: Phasing Out MTBE in Gasoline," *Annual Energy Outlook 2000*, Report DOE/EIA-0383 (2001), 22 December 2000 (http://www.eia.doe.gov/oiaf/aeo/issues.html).

[6] The California Environmental Protection Agency also supported the desirable properties of MTBE. See "California Environmental Protection Agency Briefing Paper on MTBE," 24 April 1997, pp. 1, 4, 7.

[7] Average for the period 1998-2000. See Energy Information Administration, Petroleum Supply Annual, Volume 1, 1998, 1999, and 2000 editions.

[8] Mark Mazur, Director, Office of Policy, United States Department of Energy, statement before the Committee on Commerce, Subcommittee on Health and the Environment, United States House of Representatives,
2 March 2000.

volume must be made up with gasoline, which leads to a decreased dilution effect from ethanol, and ultimately to an increased demand for crude oil and oil imports.[9]

Ethanol also has lower energy density than MTBE, and RFG made with ethanol results in lower fuel economy than does RFG made with MTBE, and higher costs to gasoline consumers. Finally, evaporative emissions can increase substantially when a motorist mixes ethanol-containing gasoline with ethanol-free gasoline in the same vehicle.

Ethanol is also considerably more difficult to transport and handle in the refining system, because it absorbs water and can cause corrosion and other problems in the refinery. Separate storage tanks and handling equipment are required, and ethanol must be transported in dedicated facilities. As a result, ethanol is generally blended into gasoline at distribution terminals rather than at refineries. Ethanol is generally produced in the U.S. Midwest, and transportation costs to California are substantial. Finally, the market price of ethanol is kept artificially low by a federal tax subsidy on ethanol production. The full social cost of ethanol, including the taxpayer cost of the subsidy is significantly higher than the cost of MTBE.

3.3 Fuel Alternatives Considered in the Cost-Benefit Model

The composition of the MTBE and ethanol fuels that satisfy the CalRFG3 regulations is described in **Table 3**. The reference fuel contains MTBE. The ethanol alternative requires both the purchase of different amounts of blending components and the implementation of changes in refinery operations. The relative cost of producing the fuels is estimated using a large refinery linear programming model. **Table 4** describes the properties of each fuel.

For expositional purposes, reformulated gasoline with MTBE is used as the reference fuel in the cost-benefit model. Costs and benefits of substituting ethanol for MTBE are measured relative to continued production of reformulated gasoline containing MTBE.

We concentrate on scenarios where all gasoline in California is of the same formulation (RFG with MTBE or RFG with ethanol. That is, we model a switch from 100% of the gasoline in California containing MTBE to 100% of the gasoline in California containing ethanol.

3.4 Treatment of Uncertainty in Cost-Benefit Model

Factors that affect costs and benefits are usually subject to some degree of uncertainty. Often the degree of uncertainty can be significant, and this uncertainty can affect factors that play an important role in determining the costs and benefits of a decision. In order to properly reflect this uncertainty in the evaluation of a decision, the cost-benefit analysis can include ranges for input values that are subject to significant uncertainty. Many of the factors affecting the costs and benefits of using MTBE or ethanol as a fuel oxygenate are subject to uncertainty. This is particularly true when estimating the

[9] The United States Energy Information Administration identifies similar drawbacks to ethanol. See Energy Information Administration, "Issues in Focus: Phasing Out MTBE in Gasoline," *Annual Energy Outlook 2000*, Report DOE/EIA-0383 (2001), 22 December 2000 (http://www.eia.doe.gov/oiaf/aeo/issues.html).

impacts of fuel additives on water quality.[10] To gauge the effect of this uncertainty, the costs and benefits can be computed with all uncertain inputs set to the upper end of the range, and again when all inputs are set to the lower end of the range. Thus, the estimated costs and benefits of a particular alternative are presented as a range.

Calculation of costs and benefits with all uncertain inputs set at the low (or high) end of their range is helpful in understanding and presenting the effects of this uncertainty on the outcome of a decision. However, this methodology results in a broad range of total costs or benefits for a particular decision, since the total cost-benefit number is calculated on the assumption that *all* uncertain parameters will *simultaneously* be at the low (or high) end of the range. While this outcome is theoretically possible, it is unlikely. Therefore, the analysis also includes a more formal and rigorous "Monte Carlo" treatment of the uncertainty surrounding certain input parameters.

Monte Carlo analysis is a mathematical simulation analysis, where a probability distribution is specified for each of the uncertain parameters, rather than just their respective upper and lower bounds. For each iteration or "run" of the Monte Carlo analysis, a single value for each uncertain parameter is randomly selected from the specified probability distribution, and the cost-benefit calculation is performed using these parameter values. The analysis is repeated for a large number of "runs" (in this case, fifty thousand), resulting in a distribution of outcomes (final cost-benefit totals). This distribution can then be used to estimate the average (or expected) costs or benefits, as well as the range of outcomes likely to occur with, say, greater than 5% probability.

4. RESULTS FROM THE COST-BENEFIT ANALYSIS

The detailed analysis of costs and benefits organized by the three categories of impact:

(i) Impacts on Fuel Costs
(ii) Impacts on Air Quality
(iii) Impacts on Water Quality

4.1 Changes in Gasoline Production Costs

There are a number of factors that go into the cost of producing reformulated gasoline. The additives themselves — MTBE or ethanol — differ in cost to the refiner. Although some MTBE may be produced at a refinery, a market also exists for it. MTBE has generally had the lower market price per gallon, with ethanol costing more, but this order has varied over time with supply and demand. The oxygen content of MTBE is less than that of ethanol, so that more MTBE must be blended with gasoline to meet the same minimum oxygen content level as ethanol.

Both additives have high octane ratings, so that their use makes it possible to cut down on the use of other, costly octane enhancers. Ethanol, even when added in small

[10] For instance, as discussed below, there is significant uncertainty about the degree to which LUST (leaking underground storage tanks) plumes that contain MTBE are longer than LUST plumes from conventional gasoline. This leads to uncertainty about the degree to which LUST plumes that contain MTBE will be longer and more costly to clean up than plumes from conventional gasoline.

quantities, has the unique problem of greatly increasing the volatility of gasoline. In order to meet restrictions on gasoline volatility, ethanol blends must eliminate other volatile compounds in the gasoline blend. Replacing these volatile compounds with other additives, while maintaining easy engine starting and octane, is costly. As an alternative, refiners can make capital investments so that the properties of gasoline feedstocks can be altered within the refinery, and frequently this is less costly than purchasing needed additives outside the refinery.

Ethanol needs to be handled differently from other additives in order to prevent corrosion and other operational problems. Typically, ethanol is blended into a gasoline base (called CARBOB or California Oxygenate Blendstock) after it leaves the refinery. This requires additional blending facilities and storage and handling facilities for ethanol, CARBOB, and finished oxygenated gasoline. Ethanol is produced outside of California, so that its delivered price contains large transportation costs, estimated by the Department of Energy to be about $0.15 per gallon.

Ethanol also contains less energy per physical gallon than MTBE does, so that when ethanol is utilized, the fuel economy experienced by motorists declines. This is a true increase in cost to consumers, and we estimate the increase in the effective price of gasoline due to the loss in fuel economy. An additional cost factor comes from blending formula patents that have been claimed by Unocal. These require either payment of royalties, which two refiners are reported to have agreed to, or incurring additional costs to use more costly blending techniques to avoid violating the patents.

REFINERY COSTS

The cost of producing RFG using ethanol has been estimated to be 5.5 cents per gallon more than the MTBE-based reference fuel. This cost includes all refining costs (4.9 cents per gallon), ancillary and logistics costs (0.4 cents per gallon), and the value to the consumer of lost fuel economy (0.2 cents per gallon).[11] This differential is largely consistent with findings of the U.S. Energy Information Administration and Oak Ridge National Laboratory. The ethanol price used in this estimate was the effective cost to the refiner, which is less than the cost of producing ethanol by the amount of the blender's tax credit.

To estimate the annual increase in production costs to California, the increase in cost per gallon is multiplied by total consumption of gasoline in California, approximately 14.5 billion gallons in 2000.[12] In order to take into account the effect that the higher gasoline prices caused by an MTBE ban would have on demand for gasoline, the estimate of gasoline consumption used in this calculation has to be reduced below the actual amount that is consumed in the absence of an MTBE ban.[13] The expected annual increase in refinery costs attributable to using ethanol in RFG, relative to continued use of MTBE, is approximately $763.1 million per year.

---

[11] California Energy Commission, "Analysis of the Refining Economics of California Phase 3 RFG," Exhibit 6.

[12] Energy Information Agency, *Petroleum Supply Monthly*, April 2001.

[13] Based upon the available literature, a range of price elasticities of demand for gasoline is used to calculate the reduction in demand that would be caused by the higher price if the ethanol option is used.

FUEL ECONOMY

When the effective fuel economy of gasoline falls, consumers must purchase additional fuel to make up for the reduction in fuel economy. A real cost per gallon of oxygenated fuels due to their reduced fuel economy is therefore the percentage reduction in fuel economy multiplied by the price of gasoline. The decrease in fuel economy is calculated from the difference in energy density of conventional and oxygenated gasolines, as stated in **Table 3**. The 5.5 cent per gallon differential between the refinery cost of using ethanol instead of MTBE to produce RFG (discussed above) includes a 0.2 cent per gallon penalty for mileage loss.

GASOLINE DEMAND

The increase in cost of producing RFG with ethanol only applies to the amount of gasoline actually produced and consumed. When we calculate these costs, consumption is reduced below actual levels (since the higher cost of RFG with ethanol will decrease consumption from current levels). However, when a price increase reduces demand, there is an additional loss in consumer welfare equal to the value to the consumer of the foregone consumption. This welfare loss is a real economic cost and must be added to the cost increase calculated above.

ETHANOL TAX SUBSIDIES

The use of ethanol as a fuel additive is subsidized by the federal government (in the form of an exemption from the gasoline excise tax). Therefore, the cost to refiners for ethanol is substantially less than the cost to produce this ethanol. In order to calculate the full social cost of an MTBE ban, it is necessary to include the full cost of producing ethanol, because that cost represents the value of society's resources used to produce ethanol and not available for other purposes. Ethanol currently receives a federal excise tax exemption of 54 cents per gallon, which is scheduled to decline to 53 cents in 2001, 52 cents in 2003, and 51 cents in 2005. Legal authority for the federal tax exemption expires in 2007, but this exemption has been renewed several times since it was initiated in 1978.

The tax exemption from the federal Motor Fuels Excise Tax goes into the Highway Trust Fund and largely serves the purpose of funding highway construction and maintenance. Therefore, the excise tax can be seen as a Pigouvian tax that internalizes the costs of the roads and highways to the motorists who use them. As a result, any reduction in the tax on gasoline containing ethanol provides ethanol users with an inappropriate incentive to drive more, and impose more costs on the highway system. We do not include such costs in our cost-benefit model. We do include, however, the cost of highway construction and maintenance that other taxpayers must make up due to the gasoline tax exemption from the use of ethanol.

It was claimed, in studies done before 1996, that the reduction in federal motor fuel taxes granted to ethanol had either neutral or beneficial revenue impacts, because it raised corn demand and market prices, and reduced deficiency payments to farmers.[14] Even at

[14] United States General Accounting Office, "Ethanol Tax Exemption," GAO/RCED-95-273R, 14 September 1995; John Urbanchuk, "An Analysis of the Full Implications for Federal Government Revenues

the time, that conclusion was dubious, because it was based on a particular set of assumptions about how the Secretary of Agriculture would exercise discretion in managing the acreage reduction program. Moreover, the 1996 Farm Bill effectively made the payments to farmers independent of market prices. Therefore, recent studies all agree that ethanol subsidies have no direct effect on outlays for farm income support.[15] As a result, it is correct to remove the tax subsidy from calculation of the cost of producing ethanol, since it is a pure transfer payment. The real resource cost of producing ethanol is unambiguously the pre-tax cost of production, with no adjustment for the tax subsidy.

The subsidy in 2000 for a 10% blend was 54 cents per gallon. For the 5.7% blend of ethanol that provides 2% oxygen content by weight, the subsidy increases the cost of ethanol-blended RFG by $0.03078 per gallon, which results in a total increase in costs of $449.2 million to $451.3 million per year, relative to the use of MTBE. This cost would be higher with blends containing more ethanol.

OIL IMPORTS

Replacing MTBE with ethanol increases total petroleum use in the United States, and as a result increases oil imports. Many social costs of oil imports have been cited in the literature,[16] but here we only include a cost that has a clear economic rationale. This is the increase in the price of imported oil that is caused by higher levels of oil imports. This price increase is in a sense an externality of oil consumption; because no individual oil consumer (or producer) has an incentive to consider how higher prices affect all other consumers (or producers). In fact, the higher price of oil represents a transfer payment, but the payment is from the United States to foreign oil producers. Therefore, from the point of view of the United States, the additional payments for oil that would have been consumed even at lower prices is a net cost.

MTBE is largely produced from domestically produced natural gas, and ethanol is produced from agricultural products, so that if equal quantities of ethanol and MTBE were used there would be no impact on US oil imports. However, MTBE contains less oxygen by weight than ethanol. Therefore, to produce a fuel containing 2% oxygen requires adding only 5.7% ethanol but a full 11.5% of the final volume of MTBE. The difference, 5.8% of the gasoline sold in California, must be made up with petroleum-based blending components. This increased use of petroleum-based blending components contributes to higher oil imports.

---

and Outlays of the Partial Exemption for Alcohol Fuels from Excise Taxes on Motor Fuels," prepared for Renewable Fuels Association by AUS Consultants, 29 March 1995.

[15] United States Department of Agriculture, Office of the Chief Economist, "Economic Analysis of Replacing MTBE with Ethanol in the United States," 2000, states, 'Under the FY 2000 President's Budget baseline, farm crop prices are expected to strengthen from current levels, which results in increased ethanol use having little to no impact on the cost of farm price and income support programs during the projection period...' and since 1996 Farm Bill production flexibility contract payments are not tied to the level of market prices, these farm program costs do not fall as market prices of corn and other grains increase, compared with the baseline."

[16] See David L. Green and Paul N. Leiby, "The Social Costs of the U.S. Monopolization of the World Oil Market, 1927-1991, Report No. ORNL-6744, Oak Ridge National Laboratory, Oak Ridge, TN, 1993. See also Douglas R. Bohi and W. David Montgomery, "Social Cost of Imported Oil and U.S. Import Policy," *Annual Review of Energy*, vol 7, 37-60, 1982; and Harry G. Broadman and William W. Hogan, "Is an Oil Tariff Justified? The Numbers Say Yes," *Energy Journal*, vol 9, no. 3, 7-30, July 1988.

Two other factors must be taken into account in calculating the effect on oil imports. One is the energy content of the blending components being substituted for gasoline. Lower fuel economy per gallon must be made up for with greater total volume of gasoline purchases. This also increases oil imports. On the other hand, the reduction in total demand for gasoline due to higher gasoline prices will tend to reduce oil imports. All these factors are included in the calculation of the net change in oil imports, in a supply and demand equilibrium.

The calculation of the social cost of increased oil imports includes the following steps:

(i) quantify the amount of petroleum feedstock required to replace natural gas-based MTBE with ethanol;

(ii) estimate the shifts in the demand curve for oil imports attributable to the loss of MTBE, the higher cost of refining, and the change in energy density of delivered fuel, and

(iii) estimate the new equilibrium world oil price and level of U.S. imports.

Based on these results from modeling the impacts of the MTBE ban on world oil markets and U.S. imports, two additional steps are required:

(iv) calculate the wealth transfer from U.S. to oil exporting countries to be the new level of imports multiplied by the world oil price; and

(i) calculate the additional loss in consumer and producer surplus due to the impact of higher world oil prices on domestic oil production and end use consumption.

As a result of the above computations, the increase in the U.S. import bill adds between $228.7 million and $297.4 million annually to the cost of replacing MTBE with ethanol.

NATURAL GAS MARKETS

Since an MTBE ban will tend to reduce natural gas demand, it is also important to take into account this possibly beneficial spillover effect of an MTBE ban. Accordingly, it is necessary to calculate the consumer and producer surplus gain in the remainder of the natural gas market when use of natural gas and natural gas liquids as MTBE feedstocks is eliminated. Although in BTU terms the reduction in natural gas demand is the same as the increase in petroleum demand in each case, the economic consequences are quite different.

Lower demand for natural gas as an MTBE feedstock will lead to a lower price in North American natural gas market. We assume as a worst case that all the MTBE used in U.S. refineries is produced from North American natural gas feedstocks. If some MTBE or methanol as a feedstock were imported from other locations, the benefits we calculate in North American gas markets would be less.

The benefit to natural gas markets is due to eliminating the 11% of gasoline consumption accounted for by MTBE. The expected net gain in producer and consumer

surplus, plus the expected saving on the gas import bill due to lower prices being paid for remaining imports, ranges from a minimum of $109.4 million to a maximum of $326.1 million per year, with a expected value of $180.3 million per year.

OTHER FUEL COST ISSUES

There are a number of qualitative issues, all of which point to the possibility of even greater gasoline price shocks in the event of an MTBE ban. The Supreme Court recently upheld a decision granting Unocal a patent covering most of the cost-effective formulas for blending reformulated gasoline. Since then, there are reports that two refiners, Tesoro and Citgo, will pay 1.2 to 3.4 cents per gallon royalties. Other refiners are planning on "blending around" the patents.[17] A ban on MTBE will make it more difficult to blend around Unocal's patents. Without MTBE, maintaining octane and volatility is much more difficult without using the formulations patented by Unocal.

Issues of capacity and cost will be exacerbated by the new federal standards for sulfur in gasoline that become effective in 2006. Meeting these standards will reduce the volume of gasoline that can be produced from existing refineries, effectively reducing their capacity. MTBE is a critical component that simplifies the task of reducing the sulfur content of gasoline. In the absence of MTBE limitations, more MTBE would likely have been added to gasoline to help replace octane and volume lost due to desulfurization.

Still another issue relates to transportation capacity and the associated costs of switching to ethanol. According to the U.S. Energy Information Administration (EIA):[18]

> "The prospect of increased use of ethanol also poses some logistical problems. Unlike gasoline blended with MTBE and other ethers, gasoline blended with ethanol cannot be shipped in multi-fuel pipelines in the United States. Moisture in pipelines and storage tanks causes ethanol to separate from gasoline. ...
>
> Ethanol supply is another significant issue, because current ethanol production capacity would not be adequate to replace MTBE nationwide."

Concerns have also been expressed about the adequacy of California refining capacity to meet demand for gasoline in the event of an MTBE ban. Demand is expected to increase to over one million barrels per day by 2003, and capacity within the state will fall short by 6%-10%. A California Energy Commission analysis found that if MTBE is banned there may not be adequate refinery capacity or supplies of ethanol to meet gasoline demand, unless gasoline prices rise significantly to ration scarce supplies.[19] The CEC has concluded that the frequency and magnitude of price spikes in California could increase under an

---

[17] "Refiner Bottleneck Key to Rising Summer Gasoline Prices," *World Fuels Today*, 5, 17 May 2001.

[18] Energy Information Administration, "Issues in Focus: Phasing Out MTBE in Gasoline," *Annual Energy Outlook 2000*, Report DOE/EIA-0383 (2001), 22 December 2000.

[19] "Staff Report: Supply and Cost Alternatives to MTBE in Gasoline," California Energy Commission, February 1999; See also, Soo Youn, "Ethanol: California needs it, but can it get it?" *Reuters*, 16 July 2001.

MTBE ban because of reduced flexibility in the system, a potential decline in import availability, and difficulty in obtaining replacement supplies quickly. These factors could make the pump price to consumers significantly greater than the projected production cost increases of an MTBE phase out.[20]

4.2 Impacts on Air Quality

Air quality impacts resulting from a ban on MTBE include only those changes in air quality that occur when moving from RFG containing MTBE to RFG containing ethanol. The basic benefits of RFG satisfying the predictive model for improved ozone air quality are not considered, because these air quality benefits are held to be the same whatever the oxygenate.

However, different formulations of RFG have different impacts on emissions of so-called air toxics — even though all formulations satisfy the predictive model. There are both costs and benefits of banning MTBE. The removal of MTBE from gasoline will reduce emissions of formaldehyde, and reduce slightly emissions of benzene and butadiene. However, the use of ethanol will increase emissions of acetaldehyde. Moreover, the higher cost (and thus price) of ethanol RFG will discourage gasoline consumption by reducing driving, leading to lower emissions of all gasoline combustion byproducts.

Note that we extend this analysis to include the entire country, since a change in crude oil prices will impact gasoline prices both inside and outside of California. We estimate the national benefits of reductions in air pollution due to reduced driving to be from $5.4 million to $10.8 million per year for ethanol. In terms of reductions in air toxics, health benefits from replacing MTBE with ethanol total $23.5 million annually.

4.3 Water Quality Impacts

In evaluating the costs and benefits of using MTBE as a fuel oxygenate, careful evaluation of the water quality costs attributable to MTBE is critical. In performing this evaluation, those additional water quality costs that result from the presence of MTBE in gasoline are distinguished from those total costs associated with any gasoline spill. "Sunk costs" are distinguished from going-forward incremental costs. Future costs that result from past releases of gasoline containing MTBE will not be alleviated by a going-forward removal of MTBE. Such costs are irrelevant to the question of whether MTBE should continue to be used in the future. It is only the future costs associated with future releases of gasoline that can be alleviated by a current ban on MTBE, so only these costs are properly weighed against the cost of MTBE alternatives such as ethanol. Finally, it is important to recognize that ethanol may also have adverse impacts on water quality.

BACKGROUND ON MTBE IMPACTS ON WATER QUALITY

MTBE may impact water sources via several pathways, including:

(i.) deposition of airborne MTBE molecules from the emissions of vehicles burning gasoline that contains MTBE;

[20] Gordon Schremp, presentation at LLNL Workshop, Oakland, CA, 10-11 April 2001.

(ii.) direct spills of "pure" MTBE, as may occur when MTBE is being transported to a refinery for blending into gasoline; and,

(iii.) releases of gasoline that contain MTBE.

While pathways (i) and (ii) are of theoretical interest, the vast majority of MTBE that impacts water resources comes from releases of gasoline that contains MTBE. These gasoline releases may occur as a result of leaking underground storage tanks (LUST's), leaking pipelines that contain gasoline, the release of unburned gasoline from boat motors, and direct spills of gasoline (as may occur from overfilling a vehicle tank or from an auto accident). The overwhelming source of MTBE contamination of groundwater is traced to LUST's.[21]

Most of the MTBE that impacts water resources is blended in gasoline. Gasoline in ground and surface water is a problem in and of itself. While gasoline has many components that are undesirable in water, the primary focus of concern is typically benzene, toluene, ethylene and the xylenes (the BTEX compounds). Benzene is a known human carcinogen; the EPA maximum permissible level of benzene in drinking water is 5 ppb, and the State of California's maximum contaminant level for benzene in drinking water is 1 ppb.[22]

Gasoline containing MTBE may impose additional costs over and above those that would occur had the gasoline not contained MTBE. The incremental impact of MTBE on water resources is a function of several chemical properties of MTBE. These include:

(i.) MTBE does not degrade as rapidly as the BTEX compounds. Therefore, MTBE may persist longer in the environment than BTEX and it may travel further in groundwater than does BTEX.

(ii.) MTBE does not sorb (or bind) to soil (or other carbon substances) as well as BTEX. This characteristic may allow MTBE released into groundwater to travel further than BTEX, and may also make it more difficult to remove from groundwater.[23]

(iii.) Because MTBE does not bind well to soil, it does not get "hung up" in the soil as BTEX can, and therefore may be easier to remove from the subsurface.[24]

(iv.) MTBE is more soluble in water than BTEX, which means that more MTBE than BTEX dissolves in a given quantity of water. This may lead to higher observed concentrations of MTBE than BTEX. This may also make MTBE

---

[21] See, for instance, Fogg et al., "Impacts of MTBE on California Groundwater," *Health and Environmental Assessment of MTBE*, Chapter 4.1, University of California, November 1998.

[22] See, for instance, website of the San Francisco Public Utilities Commission, (http://www.ci.sf.ca.us/puc/wqfs/benzene.htm).

[23] See for instance, "MTBE Fact Sheet #2," United States Environmental Protection Agency, January 1998.

[24] See for instance, "MTBE Fact Sheet #2," United States Environmental Protection Agency, January 1998; J. Thomson, "Prospects for Natural Attenuation of MTBE," *Soil Sediment & Groundwater MTBE Special Issue*, March 2000.

more difficult to remove from water when using technologies such as air stripping.[25]

(v.) MTBE has a low taste and odor threshold.[26] Because of these aesthetic concerns, even water with relatively low levels of MTBE may require remediation.[27]

MOBILITY AND BIODEGRADABILITY OF MTBE

The primary perceived threat to water resources posed by MTBE is related to the belief that MTBE does not degrade (or degrades much more slowly than the BTEX compounds) and that MTBE is much more mobile in groundwater than BTEX. Both of these characteristics are presumed to lead to larger and more lasting areas of groundwater contamination from MTBE-containing gasoline. [28]

Clear scientific results of these issues are not available, and the existing data vary widely on the rate at which MTBE will biodegrade in the environment and the extent to which MTBE increases the length of contaminant plumes from LUSTs. However, researchers are finding that at least under some conditions, MTBE does degrade in the environment;[29] MTBE does not always, or even usually, increase the length of LUST

---

[25] See, for instance, "MTBE Fact Sheet #2," United States Environmental Protection Agency, January 1998; Keller et al. "Cost and Performance Evaluation of Treatment Technologies for MTBE-Contaminated Groundwater," *Health and Environmental Assessment of MTBE*, Chapter 5.3, University of California, November 1998.

[26] California has adopted a secondary maximum contaminant level for MTBE in drinking water of 5 ppb, based on taste and odor considerations (http://www.epa.gov/swerust1/mtbe/dwmap.htm). The United States Environmental Protection Agency issued a Drinking Water Advisory in December 1997 that states that concentrations of MTBE in the range of 20 to 40 ppb of water or below will probably not cause unpleasant taste and odor for most people, recognizing that human sensitivity to taste and odor varies widely http://www.epa.gov/ swerust1/mtbe). The California health based threshold for MTBE is 13 ppb (http://www.epa.gov/swerust1/mtbe/ dwmap.htm). The United States Environmental Protection Agency has stated that there is little likelihood that MTBE concentrations between 20 ppb and 40 ppb in drinking water would cause negative health effects (http://www.epa.gov/swerust1/mtbe). Therefore, while the concern over benzene in ground water is based on health considerations, the concern over MTBE is largely based on aesthetic considerations.

[27] The California health based threshold for benzene is 1 ppb, lower than the aesthetics-based threshold for MTBE. However, in reformulated gasoline made with MTBE, approximately 10-15% of the gasoline by volume may be comprised of MTBE. For conventional gasoline, only about 1.6% of the gasoline by volume is comprised of benzene.

[28] See Renee van de Griend and Michael C. Kavanaugh, "Evaluation of the Effects of Methyl tert-Butyl Ether on Leaking Underground Fuel Tank Investigation and Remediation Programs," 4 November 1996, reporting MTBE plumes are from 100% to 300% as long as BTEX plumes; and "Regional Board MTBE Study Report: Estimation of MTBE Plume Length Using Domenico Analytical Model," Underground Storage Tank Section, California Regional Water Quality Control Board, Los Angeles Region, 15 December 1999, reporting MTBE plumes twice as long as BTEX plumes.

[29] See, for instance, "Gas Wars: Microbes fight water and soil pollution," *ENN News*, 15 August 2000; Renee van de Griend and Michael C. Kavanaugh, "Evaluation of the Effects of Methyl tert-Butyl Ether on Leaking Underground Fuel Tank Investigation and Remediation Programs," 4 November 1996 indicating increasing reports — as of 1996 — of biodegradation of MTBE; Dave Ramsden, "MTBE Bioremediation Studies: Are We Learning Anything?" *Soil Sediment & Groundwater MTBE Special Issue*, March 2000; J. Thomson, "Prospects for Natural Attenuation of MTBE" *Soil Sediment & Groundwater MTBE Special Issue*, March 2000.

plumes;[30] and if MTBE does increase LUST plume lengths, this effect is not always significant.[31]

Because of the considerable uncertainty regarding the impact, mobility, and biodegradability of MTBE, and the import of these issues on the associated incremental impact of MTBE on groundwater, we allow the incremental effect of MTBE on groundwater to vary over a wide range of values in our cost-benefit model. Even under the "worst-case" scenario (where the incremental water quality costs of MTBE are assumed to be high), the incremental water quality costs of MTBE are much less than the increase in costs to manufacture RFG with ethanol.

BACKGROUND ON ETHANOL IMPACTS ON WATER QUALITY

While MTBE's potential impact on water quality, and the cost associated with that impact, have been widely discussed, it is also becoming more accepted that ethanol adversely impacts water quality, too. However, despite the widespread use of ethanol as a fuel oxygenate in other parts of the United States, there has been comparatively little analysis of the impact of ethanol on groundwater, and on the costs of responding to ethanol-containing gasoline releases to groundwater.

Ethanol itself appears to pose little concern in water. The concentrations of ethanol that would result from a spill of RFG made with ethanol are likely to be lower than any level of concern.[32] However, there is a growing body of evidence that suggests that the presence of ethanol inhibits the degradation of benzene in groundwater. As a result, when gasoline that contains ethanol is released into groundwater, the resulting benzene plumes can be longer and more persistent than plumes resulting from releases of conventional gasoline. Research suggests that the presence of ethanol in gasoline will delay the degradation of benzene and will lengthen benzene plumes by between 25%[33] and 100%.[34] This research also appears to suggest that the concentrations of benzene will be greater as well.

---

[30] H. James Reisinger, II, J. Barry Reid, and Philip J. Bartholomae, "MTBE and Benzene Plume Behavior: A Comparative Perspective," *Soil Sediment & Groundwater MTBE Special Issue*, March 2000. These data may understate the effect of MTBE on plume length. Some of the plumes in the data may have resulted from a LUST where the leak began years before MTBE was added to gasoline. In this case, the fact that MTBE is not further ahead of the BTEX components of the gasoline may be because the BTEX components had a head start.

[31] H. James Reisinger, II, J. Barry Reid, and Philip J. Bartholomae, "MTBE and Benzene Plume Behavior: A Comparative Perspective," *Soil Sediment & Groundwater MTBE Special Issue*, March 2000.

[32] Malcolm Pirnie, Inc., "Evaluation of the Fate and Transport of Ethanol in the Environment," November 1998. The taste threshold for ethanol is reported to be near 50 ppm. No health-based threshold appears to exist for ethanol in drinking water, but commentators seem to agree that health effects are unlikely at any ethanol concentration likely to result from a LUST.

[33] Glenn Ulrich, "The Fate and Transport of Ethanol-blended Gasoline in the Environment," Governors' Ethanol Coalition, Lincoln, NE, October 1999; Walter McNab, S.E. Heermann and Brendan Dooher, "Health and Environmental Assessment of the Use of Ethanol as a Fuel Oxygenate," vol 4; Potential Ground and Surface Water Impacts, Ch. 4: Screening Model Evaluation of the Effects of Ethanol on Benzene Plume Length, 1999; Malcolm Pirnie, Inc., "Evaluation of the Fate and Transport of Ethanol in the Environment," November 1998.

[34] M. Schirmer, F.W. Molson and J.F. Barker, "The Potential Impact of Alcohol as a Gasoline Oxygenate on BTEX Degradation at Spill Sites," *Proceedings of the Petroleum Hydrocarbons and Organic Chemicals in Ground Water*, Houston, TX, 17-19 November 1999.

The effect on remediation costs of a greater plume length resulting from the presence of ethanol may be the same (at least qualitatively) as when a longer plume results from MTBE. Unfortunately, at this time little conclusive research has been completed on the relative magnitude of the effects of MTBE and ethanol on plume lengths, or of the effect of those factors on site remediation costs. Whatever the effect on plume length, MTBE may increase water remediation costs (per gallon treated), an effect not anticipated for ethanol. Therefore, it is appropriate to structure the model so that the impact of MTBE on remediation costs is greater than that of ethanol. We allow the degree to which the MTBE impact exceeds the ethanol impact to vary, but generally structure the model such that the impact of ethanol on water quality is likely to be small relative to the impact of MTBE on water quality.

THE IMPACT OF MTBE AND ETHANOL ON WATER QUALITY

The estimated water quality impacts of MTBE and ethanol are comprised of several cost components:

(i.) The cost to investigate and remediate LUST sites;

(ii.) The cost to treat or replace drinking water sources;

(iii.) The cost to investigate and remediate leaking pipelines; and

(iv.) The cost to monitor and treat surface water contaminated with MTBE.

The impacts from each of these components are estimated separately. Of these components, the most significant is the cost to investigate and remediate LUST sites.

4.4 LUST Sites

The calculation of the incremental impact of MTBE and ethanol on the cost to investigate and remediate LUST sites begins with an estimate, for the relevant time period, of the number of underground storage tanks containing gasoline. This population of tanks is then partitioned between upgraded and non-upgraded tanks. This distinction is important, since upgraded tanks are expected to fail (i.e., leak) with less frequency than non-upgraded tanks.[35] The proportion of upgrade tanks has been increasing through time.[36]

Based on the frequency of tank failure, and the number of upgraded and non-upgraded tanks, the number of new LUST sites in each year can be calculated. Some, but not all, of these LUSTs will impact groundwater. The probability that a LUST impacts groundwater is independent of whether the gasoline contains MTBE or ethanol.[37] All

[35] Kevin Couch and Thomas Young, "Leaking Underground Storage Tanks (USTs) as Point Sources of MTBE to Groundwater and Related MTBE-UST Compatibility Issues," Department of Civil and Environmental Engineering, University of California, Davis.

[36] Moreover, the Environmental Protection Agency UST upgrade program — that required the upgrade or closure of most gasoline containing USTs by 1998 — resulted in the closure of approximately half the USTs in California. Therefore, not only is a greater percentage of the tank population becoming less prone to leak, but the total number of tanks that may leak is declining through time as well.

[37] The analysis ignores the sites that do not impact groundwater. While these sites do have to be cleaned up, the cost of cleanup is not sensitive to whether the gasoline contains MTBE or ethanol. See, for instance, Arturo A. Keller, Linda Fernandez, Samuel Hitz, Heather Kun, Alan Peterson, Britton Smith and Masaru

LUST sites that impact groundwater must be investigated. Investigation is a one-time cost, and this cost occurs in the year the tank leak is detected.

Investigation costs for LUST sites where the tank contained gasoline with MTBE are assumed to be greater than for conventional fuel because plumes from tanks that contain MTBE may be longer. Longer plumes may generally take more effort to fully define and characterize. The degree to which investigation costs are increased is uncertain, and so we use a range in the model.

Ethanol appears to increase the length of benzene plumes. Therefore, if MTBE increases site investigation costs because MTBE plumes tend to be longer, then the same should be true for ethanol. The impact of both ethanol and MTBE on investigation costs is modeled consistently.

All LUST sites that impact groundwater require some form of remediation. While costs will be driven by unique, site-specific factors, it is useful to distinguish between two types of sites: those addressed by natural attenuation and those that are actively remediated. Sites addressed by natural attenuation require only source removal and monitoring. Sites addressed by active remediation have some active form of removal of the gasoline components from the groundwater, typically air stripping or carbon filtration treatment. The costs for addressing a site by active remediation are significantly higher than the cost of natural attenuation. If the presence of MTBE or ethanol increases the probability that a site will have to be actively remediated, response costs will increase (even if there is no increase in the actual cost of actively treating the site).

There is little empirical evidence to suggest that plumes from gasoline that contains MTBE or ethanol result in a higher probability that a LUST site requires remediation. A survey of the Regional Water Quality Control Boards in California indicates that MTBE is not a clear factor in determining whether the site will be actively remediated.[38] No RWQCB appears to have either a formal policy or written guidance on which LUST sites to actively remediate. Approximately half the Boards surveyed thought that the presence of MTBE would increase the likelihood that the site would have to be actively remediated, while half the Boards thought the presence of MTBE would have no effect. Given the uncertainty of the impact of MTBE and ethanol on the remediation approach at a site, we assign a range to that variable.

Costs at sites addressed by natural attenuation are independent of whether the site contains MTBE or ethanol. However, response costs at sites that are actively remediated may be higher if the gasoline contains MTBE or ethanol. Response costs may increase because the plume is longer, an effect that would result from the presence of either MTBE or ethanol. However, response costs may also increase because the methods used to

---

Yoshioka, "An integral cost-benefit analysis of gasoline formulations meeting California Phase 2 Reformulated Gasoline requirements," Bren School of Environmental Science and Management, UCSB, Santa Barbara, CA, 1998.

[38] We surveyed the nine California Regional Water Quality Control Boards (RWQCBs) in March 2001. We were unable to reach representatives at one region (Region 6), and representatives from one region (Region 9) declined to participate in the survey. Of the remaining seven regions, three regions reported that the presence of MTBE may increase the likelihood that the site would need to be actively remediated. The remaining four regions reported that the presence of MTBE itself was not a decisive factor in remediation decisions.

remove benzene from water are not as effective at removing MTBE, although recent research suggests that removing MTBE from groundwater may not be as difficult as first thought.[39]

The estimated annual benefit of replacing MTBE with ethanol, in terms of reduced water quality costs associated with gasoline released from LUSTs, ranges from nearly zero to $242.6 million, with an expected value of $37.3 million. The range of incremental costs of MTBE is relatively wide, due to the uncertainty of the impact of MTBE on groundwater. However, even under the worst-case scenario the costs of switching to ethanol still exceed the water quality costs of MTBE.

4.5. Wells

LUST plumes may result in costs other than those to address and remediate the site. If gasoline constituents from the LUST reach a drinking water well, treatment (or replacement) of the well may be required. Both MTBE and ethanol may increase the likelihood that a LUST plume will reach a drinking water well — since both chemicals may result in longer plumes.

In estimating the number of wells that may register a detectable level of MTBE, the population of wells is decomposed across public and private wells. Public wells are fewer in number, and tend to be drilled deeper. Therefore, they are less likely to show detectable levels of gasoline constituents from a LUST plume. However, a public well typically pumps more water than a private well, so public wells are more costly to treat or replace. If a well registers levels of benzene above the regulatory action threshold (1 ppb in California), treatment will be required — regardless of whether MTBE is present. However, the presence of MTBE may increase the cost of treatment of these wells since MTBE may be more difficult to remove from groundwater than is benzene. Similarly, the presence of ethanol may retard the degradation of benzene and lead to higher benzene concentrations and larger benzene plumes — thus leading to higher treatment costs.

Because plumes from gasoline containing MTBE or ethanol may be longer than plumes of conventional gasoline, a particular plume that contains MTBE or ethanol may reach a drinking water well which would not be reached by a plume of conventional gasoline. In this case, the entire cost of treating the well can be attributed to MTBE or ethanol. We understand that most wells that have detectable levels of MTBE also have detectable levels of benzene.[40] For the "MTBE-only" wells, the total cost of treatment is attributed to MTBE. For the remainder of wells (those that have detectable levels of both MTBE and benzene) treatment costs may increase because of the presence of MTBE.

The estimated annual benefit of replacing MTBE with ethanol, in terms of reduced water quality costs associated with impacted drinking water wells, ranges from $1.2 million to $87.6 million, with an expected value of $19.2 million.

---

[39] See, for instance, Keller, Bierwagen, et al., "Advances in Treatment to Remove MTBE," Proceedings of the 31st Mid-Atlantic Industrial and Hazardous Waste Conference, University of Connecticut, Storrs, CT, 20-23 June 1999; Environmental Protection Agency, Office of Underground Storage Tanks, "MTBE Fact Sheet #2," January 1998, stating that at many sites, MTBE will not have any incremental impact on remediation costs, and at 75% of sites the impact will be less than 50%.

[40] See, for instance, "MTBE Treatment Case Studies" developed by United States Environmental Protection Agency, Office of Solid Waste and Emergency Response, (www.ttclients.com/mtbe/summary_table.htm).

4.6 Other

Pipelines that contain gasoline may leak. For the reasons discussed above, the presence of MTBE or ethanol may increase the cost to address these gasoline releases.

The Office of the State Fire Marshall reported that the average number of gasoline releases in California resulting from pipeline leaks ranges from 5 to 10 releases per year.[41] If MTBE is present, response costs may be increased more than they would be with ethanol.

The estimated annual benefit of replacing MTBE with ethanol, in terms of reduced water quality costs associated with pipeline leaks of gasoline, ranges from nearly zero to $1.2 million, with an expected value of $0.3 million.

Gasoline is found in surface water due primarily to the release of un-combusted gasoline from boat motors. If the gasoline contains MTBE, there may be a heightened concern about these releases. Certain surface reservoirs in California are reportedly monitoring for MTBE. We are unaware of any surface water being treated for MTBE.

Due to the heightened concern over MTBE, we assume that all surface water reservoirs in California that allow boating and which are also used as drinking water sources, are periodically monitored for MTBE.[42] The total cost of this monitoring is attributed to MTBE. We do not attribute any incremental cost to MTBE for the treatment of surface water, since, to date, there does not appear to be any such treatment occurring. We also do not attribute any incremental cost to ethanol for surface water monitoring or treatment.

The estimated annual benefit of replacing MTBE with ethanol, in terms of reduced water quality costs associated with gasoline contamination of surface water, ranges from $1.0 million to $3.7 million, with an expected value of $2.2 million.

5. Conclusion

There are few, if any, public policies that do not experience unintended consequences. The federal reformulated gasoline program, created by the Clean Air Act Amendments of 1990, is no exception to this general rule. While the clean air benefits of this program have been largely realized, there has almost certainly been some adverse impact to water resources from the increased use of gasoline oxygenates mandated by this program. While the properties of the chemical MTBE, including the potential for impacts

[41] "A Review and Evaluation of the University of California's Report, 'Health and Environmental Assessment of MTBE,'" SRI Consulting and SRI International, report found at http://www.ofa.net/SRIC-MTBE-report-FINAL.htm.

[42] This assumption is contained in the 1998 University of California analysis of MTBE. See Arturo A. Keller, Linda Fernandez, Samuel Hitz, Heather Kun, Alan Peterson, Britton Smith and Masaru Yoshioka, "An integral cost-benefit analysis of gasoline formulations meeting California Phase 2 Reformulated Gasoline requirements," Bren School of Environmental Science and Management, UCSB, Santa Barbara, CA, 1998. It is not clear, in fact, that all reservoirs in California that both supply drinking water and allow boating are routinely monitored for MTBE. To the degree that some reservoirs are not so monitored, the resulting cost of MTBE would be less, and the benefit of MTBE over ethanol greater.

to groundwater, were well known in 1990, the ultimate scale of its use in gasoline exposed the fundamental problem of leaking underground storage tanks.

Unfortunately, sound governmental intervention to support the upgrading or closure of underground storage tanks did not coincide or sufficiently overlap with the widespread introduction of MTBE. As a result, we are now faced with justified public concern regarding MTBE contamination of drinking water sources in many parts of the country. At the same time, the success of the Clean Air Act Amendments and other state and federal air quality initiatives have tended to make air quality concerns less salient and visible to the public.

Even though the pendulum has now swung toward an emphasis on water quality concerns, sound public policy demands careful analysis of proposals to restrict or ban the use of MTBE. Similar to implementation of the CAAA, such a ban will clearly have large economic consequences — some positive and some negative. In order to assess whether such a policy would have net social benefits requires a comprehensive and internally consistent cost-benefit analysis.

Our analysis indicates that the continued use of MTBE in California gasoline has clear and significant economic benefits relative to either the use of ethanol or the use of non-oxygenated reformulated gasoline. The increased annual aggregate cost (composed of all fuel, air quality and water quality costs) resulting from a ban of MTBE in California when ethanol replaces MTBE range from $0.92 billion to $1.32 billion with an expected value of $1.24 billion. The results favoring the MTBE option are robust; even under the worst case for MTBE and the best case for ethanol, it still follows that banning MTBE will lead to an increase in the total cost associated with gasoline use in the state of California.

TABLE 1: MONTE CARLO (50,000 REPETITIONS) RESULTS FOR COST OF ETHANOL SCENARIO RELATIVE TO COST OF MTBE SCENARIO

Fuel Impacts	Lower Bound	Expected Value	Upper Bound
Effects of MTBE ban on Natural Gas Demand	($326,086,745)	($179,363,894)	($109,436,841)
Ethanol Tax Credit	$449,163,427	$450,224,532	$451,264,006
Change in Oil Import Bill and Consumer Surplus	$1,025,110,636	$1,058,523,674	$1,095,315,645
Total Difference in Fuel Costs	**$1,220,109,155**	**$1,329,384,313**	**$1,365,369,330**
Air Quality			
Air Toxics	($23,462,241)	($23,462,241)	($23,462,241)
Reduced Fuel Consumption	($10,818,645)	($8,125,987)	($5,414,276)
Total Difference in Air Quality Costs	**($34,280,886)**	**($31,588,228)**	**($28,876,517)**
Water Quality			
Surface Water	($3,694,461)	($2,187,870)	($1,022,713)
Ground Water			
LUST	($242,577,157)	($37,305,579)	($6,136)
Pipeline	($1,153,674)	($323,079)	($39)
Wells	($87,635,987)	($19,223,637)	($1,158,311)
Total Difference in Water Quality Costs	**($296,671,387)**	**($59,040,166)**	**($5,208,642)**
Total Incremental Cost	**$920,229,597**	**$1,238,755,919**	**$1,323,907,136**

TABLE 2: FEDERALLY REFORMULATED GASOLINE AREAS IN CALIFORNIA

Los Angeles
— South Coast Air Basin, South East Desert, Ventura
— Los Angeles County
— Ventura County
— Orange County
— San Bernardino County (partial)
— Riverside County (partial)
San Diego
— San Diego County
Sacramento* (newly required area)
— El Dorado County (partial)
— Placer County (partial)
— Sacramento County
— Solano County (partial)
— Sutter County (partial)
— Yolo County

* Reclassification of Sacramento from Serious to Severe was effective June 1, 1995. RFG was required as of June 1, 1996.

TABLE 3: GASOLINE COMPOSITION AND ENERGY CONTENT

Composition (%)	Reference	Ethanol
C4's	0.5	0.5
C5's and Isomerate	4.5	6.7
Naptha	1.5	2.6
Alkylate	14.7	23.1
Hydrocrackate	17.4	12.7
FCC Gasoline	28.5	24.2
Reformate	21.8	23.9
Oxygenate	11.5	5.7
MTBE	10.8	
Ethanol		5.7
TAME	0.2	
Energy Density (MMBTU/bbl)	5.2	5.1
Fuel Economy		-0.4%

TABLE 4: FUEL PROPERTIES USED TO DETERMINE EMISSIONS IN PREDICTIVE MODEL

Property	Unit	Reference	Ethanol
RVP	psi, max.	6.90	6.60
T50	deg, F.	213.00	2.80
T90	deg, F.	305.00	305.00
AROM	vol. %, max.	25.00	24.60
OLEF	vol. %, max.	6.00	4.40
Total Oxygen	wt. %	2.20	2.00
Oxygen as MTBE	wt. %	2.20	0.00
Oxygen as ETOH	wt. %	0.00	2.00
Sulfur	ppmw.	20.00	20.30
Benzene	vol. %, max.	0.80	0.53

Mr. OSE. Our fourth panelist on this panel is A. Blakeman Early, an environmental consultant with the American Lung Association. Welcome. You are recognized for 5 minutes.

Mr. EARLY. Thank you. I am here because the American Lung Association strongly supports the use of clean fuels to reduce air pollution; and we are very concerned that the current situation is untenable, the status quo is untenable, and it is impacting public support for clean fuels programs. And, of course, it is contributing to the whole concern about the price of gasoline.

The American Lung Association participated in a Blue Ribbon Panel on Oxygenates in Gasoline and endorsed their recommendations. And those recommendations, we think, are really a blueprint for the kinds of changes that should be made to RFG and conventional gasoline. Those recommendations start with your getting rid of MTBE.

You can debate the value of MTBE in fuel. It is clearly a valuable product, but the public wants MTBE out of fuel. They don't want to hear any more debate about it; they want it out. That is why 14 States have already banned it, including the State of Connecticut and the State of California, and five more Northeast States are likely to follow suit.

We beliver the existence of MTBE in reformulated gasoline contributes to the proliferation of boutique fuels. According to an EPA study, people want a fuel without MTBE, so they make up their own fuel formula.

If you take MTBE out of gasoline, you are going to have a significant cost hit. To get back to, Mr. Chairman, your opening statement, a fair comparison has to be banning MTBE, which 14 to 19 States have already done, and what that cost is versus S. 517. If you look at figure 17 and 18 in the EIA analysis, half to three-quarters of the costs that they are discussing are from banning MTBE, not from the renewable fuel standard and the other requirements of S. 517. So that is where the cost is, and it is not going to be insignificant.

A very key element that has to be adopted in legislation has to be the elimination of the oxygen requirement, because if you don't eliminate the oxygen requirement, you are back to the status quo of banning MTBE. And in the States that use reformulated gasoline, they are going to have to use massive amounts of ethanol.

Under that scenario, if we don't get rid of the oxygen requirement, California needs 800 million gallons of ethanol every year. The Northeast needs over 700 million gallons.

Now, under the compromise in S. 517, which the American Lung Association supports with one exception, we get rid of the oxygen requirement, we ban MTBE, and we have a renewable fuel standard which enables refiners to use ethanol where it is produced and where it is already used. Rather than forcing massive amounts of ethanol to the East Coast and the West Coast. We think this is a practical approach to dealing with a very difficult political problem, which is maintaining ethanol use, but doing it in a way that has the least adverse impact both on price and the environment.

If you adopt the changes in S. 517, even if every gallon allocated under the renewable fuel standard for ethanol was used in California and in the Northeast, the amount of ethanol used in those two

areas would be one-third the level that would be required under the status quo where you ban MTBE and you maintain the oxygen requirement—one-third the usage.

But, of course, under S. 517, there is a credit trading and banking program which would enable refiners who supply both the Northeast and California to use another substitute instead of ethanol. Our belief is significant amounts of alkylate and iso-octane would be substituted for ethanol, and refiners could meet their RFS requirements by buying credits. That will moderate the price cost impact of the RFS.

To sum up, Mr. Chairman, the Congress has been deadlocked over legislation to eliminate MTBE and improve Federal requirements for RFG and conventional gasoline for years. With the exception of the liability safe harbor in S. 517, we think this legislation represents a compromise that addresses a wide variety of concerns; and the American Lung Association hopes that Congress will grasp this unique opportunity to move ahead and make constructive changes that we need in the law.

I also wanted to introduce for the record an endorsement of the changes in S. 517 by the association of Northeast States air officials. Thank you, Mr. Chairman.

Mr. OSE. Hearing no objection, we will enter that into the record. Thank you, Mr. Early, for your testimony.

[The prepared statement of Mr. Early follows:]

Connecticut Bureau of Air Management, Carmine DiBattista
Maine Bureau of Air Quality Control, James Brooks
Massachusetts Division of Air Quality Control, Nancy Seidman
New Hampshire Air Resources Division, Kenneth Colburn
New Jersey Office of Air Quality Management, John Elston
New York Division of Air Resources, Robert Warland
Rhode Island Office of Air Resources, Stephen Majkut
Vermont Air Pollution Control Division, Dick Valentinetti

April 18, 2002

Mr. Chris Hessler
U.S. Senate Committee, EPW
456 Senate Dirksen Office Building
Washington, DC 20510

Mr. Chris Miller
U.S. Senate Committee, EPW
410 Senate Dirksen Office Building
Washington, DC 20510

Dear Mr. Hessler and Mr. Miller:

A number of recent editorials have criticized the bi-partisan agreement before the U.S. Senate to remove MTBE from gasoline, strengthen current fuel air quality performance requirements and expand the current ethanol sales requirements. As you are aware, the Northeast States for Coordinated Air Use Management (NESCAUM) has worked for over three years to negotiate an agreement that protects air quality, water quality and northeast consumers. Through letter dated March 5, 2002, NESCAUM expressed its support for the compromise in S. 517 that your offices were instrumental in crafting. We recognize that some Northeast legislators would prefer to eliminate the Renewable Fuels Standard (RFS) from the compromise package. While we appreciate their concerns, we also recognize that is politically unrealistic to expect the Congress to lift the existing oxygenate mandate absent the RFS. We fear that efforts to eliminate the RFS will result in further legislative stalemate and perpetuate the status quo of MTBE contamination. We are writing to reiterate our support for the compromise and to urge your offices to maintain your leadership on behalf of the environment and consumers in our region.

By definition, this negotiated compromise fails to fully satisfy the interests of all concerned. Like Democracy, its only attribute is that it is better than all the alternatives. This agreement, painstakingly negotiated for over three years, offers the only viable option to remove MTBE from our fuel supply while maintaining current gasoline clean air performance standards and providing consumers relief from the rigid ethanol mandate in current law.

129 Portland Street
Boston, Massachusetts 02114
Phone (617) 367-8540
Fax (617) 742-9162
www.nescaum.org

The compromise has been crafted and embraced by Northeast environmental regulators, ethanol producers, farm states, the American Lung Association and the American Petroleum Institute – an unusual coalition of interests to say the least. By failing to appreciate and explain the harmful impacts of the status quo and by relying on "independent" critiques of the agreement paid for by the MTBE industry, critics of the agreement have substantially misrepresented the choice facing the Senate later this week.

Ironically, most of the valid concerns raised against increased ethanol use should be directed at the status-quo mandate that the Senate agreement seeks to alter. Absent this legislative compromise, our nation's fuel supply is trapped between the "rock" of continued MTBE contamination of groundwater resources and the "hard place" of the ill-designed ethanol mandate in current law that will take effect as MTBE is eliminated from the fuel supply. Left unchecked, our nation will waste billions of dollars using ethanol in uneconomic ways. Worse still, the current law will force the use of ethanol in a manner that could actually exacerbate summertime smog problems.

Under current law, the reformulated gasoline that comprises one third of our nation's present fuel mix must contain a minimum oxygen content. Only two compounds can presently be produced in viable commercial quantities to satisfy this mandate - - MTBE and Ethanol. Hence, if a state that is required to use clean reformulated gasoline opts to ban MTBE, as a dozen states including California, New York and Connecticut have chosen to do, federal law mandates the use of ethanol in these regions regardless of cost. One would be hard pressed to design a more problematic strategy for using ethanol than to mandate that it be used in polluted coastal cities, far from production facilities during the summer months when ethanol's evaporative tendencies are most pronounced. Members of New York's Congressional Delegation have previously asserted -- through press releases -- that the costs to New York consumers under the status quo could be over 50 cents per gallon.

In contrast, the national Renewable Fuel Standard (RFS) embodied in the Senate agreement promotes the climate change benefits of ethanol, especially ethanol produced from biomass like wood waste, and provides a host of additional clean air and consumer protections absent in current law. Under the proposed RFS, oil refiners and gasoline marketers get to decide where and when to market ethanol, which allows important considerations like transportation costs to be factored into their marketing plans. The RFS also contains a market-based implementation approach enabling gasoline suppliers to bank and trade credits to ensure lowest cost compliance. Together these factors considerably reduce the costs of using ethanol.

The Energy Information Administration (EIA) recently assessed the cost of the proposed RFS to be between one-half-cent and one-cent per gallon. EIA characterizes these numbers as conservative because they do not include the cost optimization that will result from the market-based approach contained in the compromise. EIA's figures square with the one-third cent per gallon additional costs predicted by the oil industry. The only figures wildly outside this range are the predictions offered by the so-described "independent consultant Hart Downstream Energy Services." Some will be interested to

learn that Hart works under contract for the MTBE industry - - the one industry that truly stands to lose if this agreement becomes law.

While mistrust of Archer Daniels Midland (ADM) is sometimes well deserved, this bias has apparently caused a number of editorial pages to stumble over critical facts. Far from the nefarious implication that ADM somehow snuck this provision into the energy debate, this agreement has been arduously negotiated for over three years. The effort to lift the current rigid ethanol mandate and replace it with a more flexible Renewable Fuels Standard has been the focus of numerous legislative hearings, was endorsed by organizations representing 32 states, and was a central feature of S. 2962, introduced by Sen. Bob Smith (R-NH) and passed by the Senate Environment and Public Works Committee last year. Interestingly, this bill languished on the Senate floor due to opposition from major ethanol producers and oil companies. This paper has published several thoughtful articles describing the political stalemate and noting the harms awaiting consumers and air quality under the current law, which mandates the use of ethanol in areas that ban MTBE. Ironically, for many states that have or may ban MTBE, the Status Quo of federal statute would force the sale of about three times as much ethanol as the Senate compromise – without the cost benefit of the market mechanisms or the public health protections that the latter guarantees.

Contrary to suggestion, convincing farm state Senators and major ethanol producers to replace the current oxygen mandate with the RFS has not been easy. In fact, much of the last three years have been marked by Senators Daschle and Lugar fighting with ADM and other interests that had -- until recently -- opposed any change to the existing mandate whatsoever. All parties to this compromise would relish the opportunity to "improve" upon the agreement if granted unilateral power for a day. However, like the democratic process that delivered the agreement, the compromise now before the Senate is highly imperfect except when one considers all the alternatives. Absent this compromise, the concerns about unchecked market power of ADM, challenges moving ethanol to coastal markets, gasoline shortages, resulting price spikes and continued groundwater contamination from MTBE – in short, the Status Quo -- will sadly persist.

The legislative posturing that has prevented Congress from addressing the MTBE problem for over three years must end. We urge your offices to continue your leadership in advancing the compromise in S. 517.

Sincerely,

Kenneth A. Colburn

Kenneth A. Colburn

Testimony of A. Blakeman Early, before the Subcommittee on Energy Policy, Natural Resources and Regulatory Affairs, Committee on Government Reform

April 23, 2002

Mr. Chairman, my name is A. Blakeman Early. I am pleased to appear today on behalf of the American Lung Association to discuss the use of MTBE in Reformulated Gasoline (RFG) and conventional gasoline. The American Lung Association has long been a supporter of the use of RFG as an important tool that many areas can and should use to reduce unhealthy levels of ozone and toxic air pollutants.

Clean Fuels Help Reduce Smog

As has been demonstrated in California, "clean" gasoline can be an effective tool in reducing car and truck emissions that contribute to smog. Based on separate cost effectiveness analyses conducted by both the U.S. EPA and the State of California, when compared to all available control options, reformulated gasoline (RFG) is a cost-effective approach to reducing the pollutants that contribute to smog.[1] Compared to conventional gasoline, RFG has also been show to reduce toxic air emissions from vehicles by approximately 30 percent.[2]

The American Lung Association Supports the Phase Out of MTBE in All Gasoline

As a member of the Blue Ribbon Panel on Oxygenates in Gasoline, the American Lung Association learned of the significant threat that MTBE poses to the nation's water supplies. We also came to understand that the continued use of MTBE in RFG would contribute to the undermining of public support for the RFG program. Based on these two factors, we have

1 U. S. Environmental Protection Agency, Regulatory Impact Analysis, 59 FR 7716, Docket No. A-92-12, 1993

2 Report of the Blue Ribbon Panel on Oxygenates in Gasoline, September 1999, pp. 28-29

supported the Blue Ribbon Panel recommendation that MTBE be phased out of all gasoline, not just RFG. We believe there is a broad consensus in support of the MTBE phase out. But the Blue Ribbon Panel also recognized the usefulness of MTBE as a constituent in RFG in meeting the air pollution reduction goals of the fuel, especially toxic air pollutants. The Blue Ribbon Panel recommended that any phase out of MTBE in RFG be accompanied by "anti-backsliding" provisions to the Clean Air Act that ensure refiners achieve the same reduction in air toxics as they remove MTBE and substitute other additives.

Clearly, any discussion of federal fuel changes must start with the elimination of MTBE. As the testimony from EIA has already reviewed, 14 states have already banned MTBE and 5 more Northeast states are poised to do so. In addition, EPA found in its boutique fuels study that the antipathy toward MTBE has lead many states to adopt "boutique fuels" in lieu of federal RFG in order to avoid high amounts of MTBE dictated by the mandatory oxygen requirement.[3] In short, removing MTBE from our nation's fuel supply is both a political and environmental imperative that must accompany any other fuel changes that Congress adopts.

As you may know, the Senate energy bill, S. 517, contains provisions to phase out MTBE in gasoline along with "anti-backsliding" and other provisions that would implement recommendations of the Blue Ribbon Panel. We believe this legislation represents a unique opportunity to legislate constructive changes to RFG and conventional gasoline. The legislation enjoys the support of a wide variety of disparate interests. The fuel changes in S.517 should not have unacceptable impacts on the price of gasoline especially compared to maintaining the status quo.

As the EIA analysis previously presented shows, removing MTBE from the nation's fuel supply significantly reduces the volume and thus has the potential to adversely impact the price of gasoline. S. 517 provides the refining industry with a four year lead time. The API has testified

3 Study of Boutique Fuels & Issues Relating to Transition from Winter to Summer Gasoline, Office of Transportation and Air Quality, U.S. Environmental Protection Agency, October 24, 2001, p. 10.

numerous times that this should be a sufficient time for them to develop substitutes. S. 517 also eliminates the mandatory oxygenate requirement in the Clean Air Act that applies to federal RFG. This enables refiners to use substitutes for MTBE that provide less or no oxygen to the fuel. **Eliminating the oxygen requirement in RFG is absolutely critical to a rational phase out of MTBE use.** We believe that in many instances current producers of MTBE will, with low capital investment, convert these operations to produce iso-octane or alkylates. These gasoline additives are relatively clean sources of octane. S. 517 contains provisions that authorize Department of Energy to provide federal grants to merchant MTBE producers in order to maximize the supply of iso-octane and alkylates in the first years of the MTBE phase out.

Ethanol Use in Gasoline and RFG Will Grow

Much discussion has been generated about mandating the use of ethanol in conventional gasoline as a substitute for the demand the ethanol industry expects from the RFG program maintaining a mandatory oxygen requirement while phasing out MTBE. S. 517 contains a renewable fuels standard requirement, referred to as a RFS, which increases the amount of renewable fuels refiners must sell each year. Much of the fuel that will be supplied to meet this mandate will be ethanol.

The American Lung Association believes there will be a large role for ethanol in gasoline with or without any mandate for one simple reason: **octane.** Assuming that MTBE is eliminated from gasoline, which the American Lung Association supports, refiners face a dramatic shortage in clean octane **even if every MTBE plant in the nation is converted to produce iso-octane or alkylates,** the most logical substitutes for MTBE. This is because MTBE plants converted to produce iso-octane or alkylates lose about 30% volume and produce a product that contains 15 percent less octane per gallon.

A rough calculation indicates that demand for ethanol needed to supply octane in gasoline should increase to **3.8 billion gallons per year** by 2006. (See Tab 1) This calculation is consistent with the analysis presented by the EIA As the EIA analysis demonstrates, the demand for ethanol to supply octane will far outstrip the demand generated by the Renewable Fuel Standard (RFS) in the early years of the transition away from MTBE, until approximately 2008.

Without the S. 517 Changes, Massive Amounts of Ethanol Must be Used in California and the Northeast

As the EIA analysis demonstrates, in a world where 14 to 19 states individually ban MTBE but oxygen requirement is maintained in federal RFG, large amounts of ethanol will be needed. The difference between this scenario and implementing S. 517 is that the ethanol demand is inflexibly centered on California and the Northeast where ethanol is not currently produced or used in any significant volumes. According to analyses circulated by the American Petroleum Institute, if MTBE bans in California and the Northeast take effect with no changes to federal RFG requirements (EIA's 19 state scenario), California would need 843 million gallons of ethanol and the Northeast would need 713 million gallons.(See Tab 2 and 3) We believe the cost and price spike impact of maintaining the status quo will be much more significant than under S. 517. This is because ethanol must be transported and stored separately from the base gasoline it is mixed with until it reaches consumer distribution. Under S.517, the RFS credit and banking provisions allow some refiners to use ethanol in the most economically efficient manner and sell credits to those who cannot. We believe much more ethanol will be sold

where it is already made and used. We expect that octane for RFG used in the Northeast and California will be met substantially by the use of iso-octane and alkylates. Refiners supplying these regions would then be obligated to purchase RFS credits from refiners using ethanol in mid-West markets where it has been traditionally sold. Such an approach is far more practical than the "forced" ethanol use under the status quo scenario. Even if California and the Northeast were to use every gallon of their RFS allocation in fuel sold in state, it would only need 252 and 261 million gallons of ethanol, respectively, a volume one third the level required under the status quo.(See Tab 2 and 3)

We Must Adopt the Blue Ribbon Panel's Recommendations

The Blue Ribbon Panel adopted a variety of recommendations that address numerous areas. Among them include, augmenting EPA's authority to test and regulate gasoline constituents, expanding EPA's authority to address MTBE groundwater contamination, and using EPA's existing authority to track the impact changes in gasoline will have on air quality and the environment in future years. S. 517 contains provisions that address the recommendations I have just described.

ALA Opposes A Liability "Safe Harbor" for Renewable Fuels

S. 517 does contain one provision that the American Lung Association cannot support. Section 819(e) provides that no renewable fuel can be deemed to be defective in design or manufacture "by virtue of the fact that it is, or contains such a renewable fuel." Many people consider MTBE and gasoline containing it to be a defective product. I understand that last week a court in a product liability lawsuit brought over contamination in Lake Tahoe so ruled. I think we can all agree that we do not want to

make another MTBE-type mistake in the future as we continue to improve gasoline. The liability shield in this provision reduces the incentive renewable fuel producers and purveyors have to be vigilant and provide a safe product. Therefore, the provision increases the likelihood of another MTBE situation developing rather than decreasing it. Indeed, we fear that the provision could be interpreted to shield ETBE from defective product liability. ETBE is a cousin to MTBE containing ethanol instead of methanol. According to the Blue Ribbon Panel it exhibits many of the same water contamination characteristics.[4] Clearly this product, and others in the same family of "ethers" as MTBE should not receive any sort of liability shield. More importantly, neither should other renewable fuels that may be used in the future, some of which have not even been invented.

Congress Must Adopt Needed Fuel Changes As Soon As Possible

The Congress has been deadlocked over legislation to eliminate MTBE and improve federal requirements for RFG and conventional gasoline for years. With the exception of the liability safe harbor, the provisions in S. 517 represent a compromise that addresses widely varying concerns in a reasonable fashion. The American Lung Association hopes Congress will grasp this opportunity.

4 Report of the Blue Ribbon Panel on Oxygenates, September 1999, p. 86,88.

TAB 1

BILLION-GALLONS/YEAR

		US EX-CAL	CALIFORNIA	TOTAL US	% OF TOTAL US
CURRENT GASOLINE VOLUME		100	20	120	
CURRENT MTBE VOLUME		2.26	1.54	3.8	
CURRENT ETHANOL		1.5	0	1.5	1.25%
MTBE OCTANE	110				
ETHANOL OCTANE	115				
ISO-OCTANE OCTANE	100				
TOTAL MTBE VOLUME LOST		2.26	1.54	3.80	3.2%
TOTAL ISO-OCTANE VOLUME-70% OF MTBE VOL IF ALL MTBE UNITS ARE CONVERTED		1.58	1.08	2.66	2.2%

VOLUME BALANCE		OCTANE BALANCE	
MTBE VOLUME LOST	3.80	MTBE OCTANE LOST	418.00
ISO-OCTANE	2.66	ISO OCTANE GAIN	266.00
VOLUME LEFT FOR ETHANOL	1.14	ETHANOL VOLUME TO BALANCE OCTANE	1.3

BILLIONS GALLONS PER YEAR REQUIRED TO BALANCE MTBE OCTANE LOSS IF ALL MTBE UNITS ARE CONVERTED TO ISO-OCTANE		1.3	1.10%
EXISTING ETHANOL REQUIREMENTS		1.5	1.25%
TOTAL ETHANOL REQUIRED TO MAINTAIN GASOLINE POOL OCTANE		2.8	2.35%
ADDITIONAL ETHANOL REQUIREMENTS TO GET TO 30 PPM SULFUR INCREASED MTBE USAGE FROM MATHPRO 40 PPM STUDY USING OCTGAIN 125	1.06		
EQUIVALENT ETHANOL VOLUME ON OCTANE BASIS		1.01	0.84%
TOTAL ETHANOL REQUIRED TO MEET OCTANE REQUIREMENTS BY 2006 WITH ALL MTBE UNITS CONVERTED TO ISO-OCTANE		3.8	3.20%

TAB 2

California Will Not Experience Market and Supply Volatility Under the Renewable Fuels Standard of S. 517

- There is no need to delay implementation of the renewable fuels program of S. 517 or adjust the required level of renewable fuels use.1

- Current annual ethanol use in California is approximately 100 million gallons (CEC/Stillwater).

- A recent study for the California Energy Commission concluded that, in the absence of federal legislation, a state ban on MTBE (effective 12/31/02) coupled with the existing federal reformulated gasoline (RFG) oxygen content requirement, California ethanol use would increase to 843 million gallons in 2004.

- Under S. 517, the amount of ethanol likely to be used in California is far less than would be used without the bill. With an MTBE ban, repeal of the federal RFG oxygen content requirement and a national renewable fuels standard (RFS), refiners and importers would need to use or purchase credits for 252 million gallons of ethanol in 2004, which would be California's pro rata share under the RFS2.

- The Renewable Fuels Association reports that there will be at least 2.7 billion gallons of ethanol capacity available nationwide by 2004. In contrast, the RFS only requires the use of 2.3 billion gallons. Taking into account the use of ethanol in all States under the RFS, including California's projected use of 252 million gallons, there would still be 400 million excess gallons of ethanol available in 2004.

- **These facts indicate that there would be sufficient supplies of ethanol for CA under the RFS and that there is no need to delay its implementation beyond the 2004 start date or reduce the volume of renewable fuels required. In fact, CA refiners are likely to voluntarily use more ethanol than required under the RFS.**

- Despite all these indications that there will be sufficient supplies of ethanol to meet CA's needs, S. 517 includes additional safeguards:
    - Prior to 2004, DOE is to conduct a study to determine if the RFS is likely to result in significant adverse consumer impacts in 2004. If this is determined to be the case, then EPA shall reduce the volume of the renewable fuels mandate for 2004.
    - Also, upon petition of a State or by EPA's own determination, and in consultation with DOE and USDA, EPA may waive the RFS, in whole or in part, if it determines the RFS would severely harm the economy or environment of a State, a region, or the United States or there is an inadequate domestic supply or distribution capacity to meet the requirement.

---

1 The recent GAO and California Energy Commission/Stillwater reports predicted price volatility and supply shortfalls in California (CA), but these reports do not reflect the provisions in S. 517 which would repeal the federal reformulated gasoline oxygen content requirement.
2 This figure is derived by multiplying the projected 2004 CA gasoline consumption, from the CEC/Stillwater report, of 1026 thousand barrels per day, or 15.7 billion gallons per year, by the RFS standard expressed as a fraction of projected U.S. gasoline demand, or .016 (1.6%).

TAB 3

Fuels Agreement vs. Status Quo
Where's the Better Deal for the Northeast?

The fuel provisions in S. 517 will allow for a uniform phase-down of MTBE, remove the oxygen content requirement for RFG and put in place a nationwide renewable fuels standard (RFS) that will phase-in gradually over a number of years. These provisions provide for a more orderly and cost-effective solution to the MTBE issue than state-by-state action. Because individual states are banning or are considering banning the use of MTBE, the existing federal oxygenate requirement for RFG will increase the cost of complying with these bans and lead to an inefficient pattern of fuel-type by state. The provisions in S. 517, which phase-down MTBE use and eliminate the federal RFG oxygenate requirement, provide a more balanced and efficient result. DOE/EIA and other data indicate that under S. 517 there will be sufficient supplies of ethanol available for all States, including NY. Calls for implementation delays beyond 2004, or a reduction in required renewable fuels volumes, are not supported by the data.

- With a January 2004 MTBE ban on the books in NY and a continuation of the federal RFG oxygen requirement (status quo), 184 million gallons of ethanol will be required in that year according to DOE/EIA data1.

- Under S. 517 in 2004, the amount of ethanol likely to be used in New York would be far less than what would be required under the status quo. Refiners and importers would be required to use or purchase credits for 92 million gallons of ethanol in 2004, which is NY's pro rata share under the RFS2. Actual use may be less due to the banking and trading provisions in the bill.

- The Renewable Fuels Association projects that at least 2.7 billion gallons of ethanol capacity will be available nationwide by 2004. In contrast, the RFS requires 2.3 billion gallons by 2004. This implies that there would be 400 million gallons of excess capacity available in 2004 (taking into account ethanol use in all States under the RFS, including New York's projected use of 92 million gallons).

- Despite all indications of sufficient ethanol supplies to meet NY's needs, S. 517 includes additional safeguards:
    - Prior to 2004, DOE is to conduct a study to determine if the RFS is likely to result in significant adverse consumer impacts in 2004. If this is determined to be the case, then EPA shall reduce the volume of the renewable fuels mandate for 2004.
    - Also, upon petition of a State or by EPA's own determination, and in consultation with DOE and USDA, EPA may waive the RFS, in whole or in part, if it determines the RFS would severely harm the economy or environment of a State, a region, or the United States or if there is an inadequate domestic supply or distribution capacity to meet the requirement.

---

1 This assumes all reformulated gasoline supplied in New York State would contain 5.7 volume % ethanol and is based on EIA *Petroleum Marketing Annual 2000* sales volumes.
2 This figure is derived by multiplying the projected 2004 NY gasoline consumption, based on EIA *Petroleum Marketing Annual 2000* sales volumes, by the RFS standard expressed as a fraction of projected U.S. gasoline demand, or .016 (1.6%).

- Should other Northeast States follow the lead of NY and CT in banning MTBE, their required ethanol use would be substantially larger if S. 517 is not enacted.

Projected 2004 Ethanol Use in the Northeast (million gallons)

	Ethanol volume under RFS	Ethanol volume under Federal RFG oxygen content requirement and MTBE ban1
Connecticut	24	84
Maine	12	0
Massachusetts	43	153
New Hampshire	10	25
New Jersey	68	241
New York	92	184
Rhode Island	8	28
Vermont	5	0
Totals	261	713

Source: Based on data from EIA's *Petroleum Marketing Annual 2000*.

1 To date, Connecticut and New York have MTBE ban legislation on the books, the former to take effect on October 1, 2003, the latter on January 1, 2004. The 3rd column of the table assumes that all other Northeast States, in addition to CT and NY, ban MTBE.

Mr. OSE. Mr. Economides, in your testimony, you state that you think that the EIA analysis understates the cost to consumers; and that is referring to the cost of having ethanol as the oxygenate in the fuel.

In your opinion, how much more will consumers pay at the pump if Senator Daschle's proposal on fuel provisions is passed and signed by the President?

Mr. ECONOMIDES. At the pump, sir, is clearly a matter of gasoline supply and impact, shrinkage or shortfall. The numbers from EIA and from our organization have dealt almost exclusively in the differences to produce gasoline. And we are higher than EIA; we think that a number of factors involved in the assumptions that EIA has made tend to produce an estimate on the low side.

Mr. OSE. EIA was at $6.37 billion. You were at $8.4?

Mr. ECONOMIDES. We were at $8.4. And that was again in the difference in cost to produce gasoline.

Your inquiry regarding at the pump, you need to factor in things such as the potential shrinkage in gasoline supply of having a switch from MTBE to ethanol, which could be as much as 5 or 10 percent of gasoline at that point, depending on the area that we are talking about.

That will dwarf anything that we are talking about from a production cost difference for refiners.

Mr. OSE. Let me make sure I understand what you said.

What you just said is, the cost would be about $6.37 to $8.4 billion, based on these estimates to manufacture the fuel; and that the cost in the marketplace to the consumer will dwarf that?

Mr. ECONOMIDES. Yeah. I think what you are going to see in the marketplace——

Mr. OSE. So it will be higher?

Mr. ECONOMIDES. Will be a function of the overall further shrinking and tightening of gasoline supply, which will create the kinds of spikes and volatility that we heard Mr. Montgomery talking about, which is the type of periods where refineries have traditionally been profitable.

The issue here is not so much production costs. Production cost is significant directionally and it does amount to that large number. I don't want to underestimate the significance of that number.

But I am afraid in terms of retail, in terms of what the consumer might see, we might be looking at something substantially higher than that if we shrink gasoline supply even further.

Mr. OSE. Are you suggesting that people who might otherwise produce or refine the product may incur $6.37 to $8.4 billion in added costs and reap multiples of that in added revenue?

Mr. ECONOMIDES. The market will bear the cost to equilibrate demand with supply. The more we shrink supply, the higher the likelihood that prices will go up, more than offsetting whatever the incremental cost to produce the fuel is.

I called it "dwarfing" a second ago. I still think that is the case.

Mr. OSE. Is that like a 3 to 1 ratio, 2 to 1?

Mr. ECONOMIDES. Well, if we argue about items——

Mr. OSE. I am trying to get a sense.

Mr. ECONOMIDES. Ten cent gasoline, cost to produce, increase, or less 2, 3, 4, 5 for conventional. We can turn to California during

periods of supply shortages. We turned to the Midwest during the year 2000 summer shortage, and you can easily see 35 and 50-cent price increases out there where, you know, your factor becomes obvious at that point.

Mr. OSE. Just the logic that you put forward indicates that the people who would otherwise produce the formulated gasoline would make a pretty good rate of return on that $6.37 to $8.4 billion in added cost.

Mr. ECONOMIDES. For that period of time. For every one of those periods of times, you need to factor the other ones where they're barely keeping their noses above water.

Mr. OSE. I understand. All right. You have already answered my next question, and that is whether there is a price difference between RFG and conventional gasoline, and you said in California it is 10 cents add-on versus 5 cents add-on. Will some people in this country, because they live in areas where reformulated gasoline is required pay more at the pump than others might pay? I think your answer would be yes.

Mr. ECONOMIDES. The answer to that is yes. Most of the studies we've done have identified a broad brush cost for reformulated gasoline and they make a distinction between those two categories, conventional versus reformulated. Within the category of reformulated gasoline, that could very well be a difference in the cost to produce, and in the retail price of that product, depending on what market we're talking about. Clearly California has historically been above the rest of the Nation. Its reformulated gasoline requires additional emissions reductions above and beyond those provided for in the Federal——

Mr. OSE. OK. So we have got all these different provisions in this bill that Senator Daschle has put forward. What is the total price tag?

Mr. ECONOMIDES. We have taken a shot at this point to try to identify the cost of getting MTBE out of the fuel, the cost of getting that much ethanol into the fuel, and partially offsetting that by the benefit of having the oxygen standard be relaxed as a constraint on the system. We have tried to do this at constant environmental performance, because we believe that none of this discussion of taking MTBE out, bringing ethanol in, was ever to be done under the assumption that air quality would deteriorate in any part of the country.

Having done that, the number that you have in front of you represents our mid-case scenario.

Mr. OSE. The $8.4 billion?

Mr. ECONOMIDES. That's correct. However, we at this point do not have factors in there including potential ethanol pricing impacts in the market that is as concentrated as it is and, as we heard earlier, you know, you are really moving into an environment where you have a subsidized ethanol tax subsidy mandated and liability-protected environment. The combination of the three does not speak very well as to what the potential price impact could be, and I hate to take a shot at the high side. I've in fact purposely avoided doing that so far.

Mr. OSE. My time has expired. The gentleman from Massachusetts.

Mr. TIERNEY. Thank you. Mr. Economides, I am not sure about your organization. You represent individual clients?

Mr. ECONOMIDES. Our organization has affiliations with different stakeholders in the air quality emissions arena.

Mr. TIERNEY. Are any of them in the MTBE industry?

Mr. ECONOMIDES. Yes. We have clients in the MTBE industry. We have automaker clients. We have refining industry clients. We have regulatory agency body——

Mr. TIERNEY. Anybody from the ethanol industry?

Mr. ECONOMIDES. Yes.

Mr. TIERNEY. So you cover both of those?

Mr. ECONOMIDES. Yes.

Mr. TIERNEY. Thank you. Mr. Rausser, I was trying to understand your study and, looking at that, and I would assume that in the context of your work, you made some assumption regarding the leaks on the upgraded gasoline tanks. Did you assume that they would been constant or that they would diminish?

Mr. RAUSSER. No. The upgrading was increasing in the State of California, and I took that into account, and there's a different leakage rate with regard to the nonupgraded tanks versus the upgraded tanks. But having said that, there's still a leakage rate with regard to the upgraded tanks as well.

Mr. TIERNEY. And I guess it is quite considerable, by recent accounts. Am I right?

Mr. RAUSSER. No, not in the State of California. The detection rates have fallen rather dramatically over the course of the last few years.

Mr. TIERNEY. You used something about 0.07 percent or whatever as the leakage rate in your analysis.

Mr. RAUSSER. Yes, for the upgraded tanks.

Mr. TIERNEY. Why do I see then that in California the results of their State study found that two-thirds of the upgraded tanks in pipes that were tested in certain counties were leaking MTBE, and in other counties at least a third were leaking? In Silicon Valley at least 40 percent of the tested tanks were releasing MTBE, and that is considerably higher than in fact what you used.

Mr. RAUSSER. No, I don't believe it is because my rate is an annual rate, and the rate that you're referring to is the accumulation of a number of different prior years.

Mr. TIERNEY. Well, actually it cannot be too many prior years to judge from. Right? These are relatively new tanks.

Mr. RAUSSER. Well, but no. The upgrading of underground storage tanks has been going on in the State of California since 1990.

Mr. TIERNEY. And so you say that 40 percent of the new tanks really are somehow interpreted by you as a much smaller percentage?

Mr. RAUSSER. No. What I'm saying is that my rate is an annual rate. If I take that annual rate and accumulate it over a period of time, I'm going to get numbers that are close to those that you've just quoted.

Mr. TIERNEY. You have lost me, but it seems to me if they are leaking, they are leaking, and it is going to continue to leak into the future because these new tanks are not stopping it.

Mr. RAUSSER. The new tanks are decreasing the leakage rate, but, yes, they are continuing to exhibit leaking rates, and that estimate that I gave you, or that I've used in my particular model, is an estimate that's based on a survey that was done at the University of California-Davis on the annual incidence of leaking, not the accumulation of what's been discovered already.

Mr. TIERNEY. So you based it on an older study?

Mr. RAUSSER. Pardon?

Mr. TIERNEY. The study you based it on is somewhat older?

Mr. RAUSSER. Yes, it's 1997, to be precise.

Mr. TIERNEY. And this same report indicates that the cost of MTBE contamination in the soil and water nationwide is going to be at least $29 billion to clean it up.

Mr. RAUSSER. What's the source of this study?

Mr. TIERNEY. This is the study from the State of California.

Mr. RAUSSER. Yes, but it's for the entire United States.

Mr. TIERNEY. It is for the entire United States.

Mr. RAUSSER. I've seen reference to those numbers, and I don't believe that we've got the underlying analysis that they've conducted to see whether or not it can be duplicated, No. 1. But more importantly, that is an estimate that refers to the prior cost of cleanup for what's already taken place. As I indicated, my analysis focuses on the cost going forward——

Mr. TIERNEY. $29 billion to clean up and the new contaminationsites continue to be discovered.

Mr. RAUSSER. That's right.

Mr. TIERNEY. That is not going to end. So if you are at $29 billion now, you are going to have additional moneys to clean up as the new sites are discovered.

Mr. RAUSSER. Right.

Mr. TIERNEY. So you compare that to your slightly $1.2, whatever it was, billion a year cost, that is a lot of money going out.

Mr. RAUSSER. Right. But much of what you just described is the historical occurrence that's already taken place, that is cost that's going to have to be incurred by those who are liable for the remediation. If we're looking going forward and we're comparing the different options that are available for reformulated gasoline, again under the current regulations, the scenario on those costs are much lower than they have been historically, because of the detection methodologies that are out there, because of learning that natural attenuation can work in some cases——

Mr. TIERNEY. I am sorry, but you are still assuming that some 0.07 percent is what is going to leak. Right?

Mr. RAUSSER. Each year the probability is 0.07 that a particular underground storage tank will leak, that's correct.

Mr. TIERNEY. But the recent studies indicate that it is much higher than that.

Mr. RAUSSER. No, I don't believe they do. I don't think that's——

Mr. TIERNEY. All right. So these people are smoking something?

Mr. RAUSSER. No, all I'm saying is that if you look at the data that has been collected by exponent, it's done a lot of analysis with regard to each of the regional water quality districts in the State of California, and they've gone out and estimated the differential leaking rate between upgraded versus nonupgraded tanks. And

they have confirmed the Couch, et al, study that was done that you referred to a moment ago in 1997.

In fact, the detection rates are lower than what that particular study would suggest as of today.

Mr. TIERNEY. I think we disagree, but I am not going to keep going back and forth with you. I mean, I think their indication, the way I am reading it, is that they are still getting significant leakage, and they anticipate continued leakage on well into the future, and that is a cost that is not going to go away and is not going to diminish.

Mr. EARLY. Mr. Tierney, what I'd also——

Mr. OSE. Thank you. Mr. Early, go ahead.

Mr. EARLY. What I'd like to observe, Mr. Tierney, is we learned in participating in the Blue Ribbon Panel that the public wants zero percent leakage of MTBE in the groundwater. The 0.07 is a low number, but it's not low enough in terms of what the American public demands.

And the other thing I would observe is that California has one of the best tank programs in the country. You're not going to achieve this kind of low leakage level in other States.

Mr. TIERNEY. Thank you. Do you want to go back to questioning?

Mr. OSE. I thank the gentleman. Mr. Economides, if I may, I want to return to your testimony, which says, "Ethanol, if used to replace MTBE in summer,"—I love these acronyms—I'm going to say it in English. "Ethanol, if used to"—except for MTBE.

"Ethanol, if used to replace MTBE in summer reformulated gasoline at the minimum level of oxygen currently required in reformulated gasoline, will actually shrink the current gasoline pool by approximately 11 percent." Can you explain how that math works out?

Mr. ECONOMIDES. Well, very simply, if you start with a base gasoline that doesn't contain oxygen—and we call that 100 percent—and we add 11 percent to MTBE, which is basically what is required to satisfy the 2 percent minimum oxygen requirement in RFG, we wind up with a volume of about 111 percent.

Now, if we take out that 11 percent MTBE and we instead insert 5.7 or 6 percent ethanol, which is roughly the amount that you would need to get the same oxygen content of 2 percent, we need to remove roughly the same amount of like components, pentanes and lighter, from the gasoline in order to accommodate the ethanol's volatility characteristics. So you wind up in a 98 point something or 99 point something environment versus your 100 percent starting point as opposed to the 111 percent volume expansion that you have with the addition of MTBE.

Now, the counter argument to that, of course, from an ethanol proponent standpoint is why don't you put the maximum amount of ethanol that one can put in the fuel? And if you do that, then you're talking about adding 10 percent ethanol in. You still need to remove that 5, 6 percent of volatile gasoline components to allow that. So you get a modest expansion at that point, 102, 103, 103½ volume percent. But still that pales by comparison to the 111 that you are currently operating under.

Mr. OSE. So you are doing a comparative volume analysis between——

Mr. ECONOMIDES. Right, right, trying to figure out how much the gasoline pool will shrink.

Mr. OSE. OK. Now, does that mean that the United States is going to have to find more fuel?

Mr. ECONOMIDES. We certainly think that imports are looming larger in our future. They represent 5 percent of our supply now. We think roughly a much larger percentage for the local areas like the Northeast.

Mr. OSE. Talking about refined products?

Mr. ECONOMIDES. Yeah. Refined gasoline imports in the Northeast likely to increase, particularly if the ethanol credit trading provision, which will be required to keep the economics of ethanol in some kind of a reasonable ballpark, keep the ethanol in, what we have called PDDs 2 and 4. If that happens, then to make up the volume shortages, we'll have to be talking about imports hitting New York harbor in much larger quantities than they have in the past.

Mr. OSE. All right. These imported refined products, are they refined from crude produced in the United States?

Mr. ECONOMIDES. Doubtful.

Mr. OSE. So they do not drill here, pump it, ship it overseas, refine it and ship it back?

Mr. ECONOMIDES. Doubtful. We're talking about——

Mr. OSE. Foreign sources of oil.

Mr. ECONOMIDES. Foreign sources of crude being refined most likely in foreign refineries and being brought in tankers.

Mr. OSE. Can I accurately characterize your statement then to be that an ethanol mandate will make the United States more dependent on foreign oil?

Mr. ECONOMIDES. I certainly disagree with a blanket statement that has been made that one of the reasons why we need an ethanol mandate is to reduce our reliance on foreign oil. I see no sanity in that statement.

Mr. OSE. You punctured that logic.

Mr. ECONOMIDES. Well, yeah. Whether or not it will significantly increase our reliance on foreign oil, I think that remains to be seen at what level ethanol will be added or what level refiners will get over their hesitance in expanding their capacity. As I said earlier, we've had a period, Mr. Montgomery pointed out, of underperforming assets and very, very depressed market conditions, and they have been hesitant. We will see a period of increased prices demonstrated consistently before those purse strings are loosened and massive investment takes place.

Mr. OSE. All right. Mr. Montgomery, in your testimony, you state that policies that increase oil imports impose harm on the U.S. economy. Direct quote. Do you agree or disagree that Senator Daschle's fuel provisions will increase our reliance on foreign oil?

Mr. MONTGOMERY. Yes. We've performed essentially the same type of analysis that Mr. Economides described, and I certainly agree with him that the shrinkage—removing MTBE from gasoline, whether it's replaced with enough ethanol to satisfy the requirements for reformulated gasoline or not is going to substantially shrink the gasoline pool. It will, as he stated, require use of additional crude oil to produce the product, the blending products that

are needed to get the volume back up that is lost in MTBE. What that will do is increase oil imports, and the harm that will produce for the U.S. economy will put upward pressure on world oil prices, and it will also put upward pressure on prices by tightening the market and resulting in prices essentially going up, probably more than costs.

Mr. OSE. Will it dwarf the cost?

Mr. MONTGOMERY. Well, actually, there are two pieces to it. Let me try to separate them out.

Mr. OSE. Mr. Montgomery, my time is expired. We are going to come back to that question.

Mr. Tierney.

Mr. TIERNEY. Thank you. I guess this is the wrong panel to talk about just not using as much gasoline, which might not be a bad way of approaching some of this. But since this is not the right group to talk about that, Mr. Early, enlighten me, if you will. The oxygenate requirement, 2 percent, is that absolutely necessary?

Mr. EARLY. No.

Mr. TIERNEY. Why not?

Mr. EARLY. Well, the refiners have demonstrated that they can make reformulated gasoline that reduces air pollution without any oxygen and certainly without a 2 percent oxygen requirement.

Mr. TIERNEY. Why don't they do it?

Mr. EARLY. Because under the Clean Air Act they're required to put 2 percent oxygen in the fuel, and that requirement is at the heart of the problem that we have right now. We need to get rid of that requirement——

Mr. TIERNEY. So if we eliminated that, your belief is that the refineries could produce a clean enough oil to meet the requirements that we are trying to meet with the oxygenate?

Mr. EARLY. Well, you would also have to ask them to make sure that they produce as clean a fuel. The Blue Ribbon Panel included a so-called antibacksliding recommendation that made sure that when refiners take MTBE out of reformulated gasoline, they didn't put something bad back in. In fact we are getting a reduction in air toxics from existing reformulated gasoline that substantially exceeds the requirements of the Clean Air Act. One of the things that Senator Daschle's legislation does is lock in those gains. Those added air toxics reductions are locked in so that refiners under the Senate bill have to meet the same level of air toxics reduction as they do right now, while phasing out MTBE, and that's a very important element of the Senate bill.

Mr. TIERNEY. If we could do that, then why do we bother with ethanol at all?

Mr. EARLY. We bother with ethanol in terms of a renewable fuels standard, mostly because there is a bipartisan block of senators, ranging from Senator Wellstone on the left to Senator Grassley on the right, who will not agree to getting rid of the oxygen requirement unless you replace that requirement with a renewable fuels standard.

Mr. TIERNEY. You are being very polite, extremely polite. But the fact is substantially is there any scientific need to do this? Are we doing politics, which I will save you from saying——

Mr. EARLY. No. I'm happy to say we are talking politics here.

Mr. TIERNEY. Because there is no legitimate reason to have ethanol in there as a clean——

Mr. EARLY. I mean, the bottom line is we can buy ethanol easy, or we can buy ethanol hard. Under the status quo, we're going to buy ethanol hard. We're going to take the ethanol which is made in the Midwest and we're going to ship it to California, and we're going to ship it to the Northeast where it isn't made, at considerable cost and put it in RFG, in order to meet the 2 percent oxygen requirement in existing law.

Mr. TIERNEY. But if we——

Mr. EARLY. The alternative scenario is to get rid of the 2 percent oxygen requirement and have a national ethanol requirement where refiners can use ethanol where it makes sense to use ethanol and they don't have to ship it to California and they don't have to ship it to the Northeast unless they find that it's economically advantageous to do so.

Mr. TIERNEY. Well, if we do not have any real need on the science for ethanol as an additive, where would it make sense to use it other than politically?

Mr. EARLY. Octane. My testimony contains a tab in the appendix, one which shows that when you take MTBE out, refiners have a major loss of octane, and they don't have a whole lot of alternatives. One of the things they can do is convert MTBE manufacturing facilities to produce two substitutes, one of which is called alkylate, and the other is called isooctane. And we believe a lot of refiners and merchant MTBE manufacturers will do that. Senator Daschle's bill actually has a grant program to encourage them to do that. But even if you do that, you lose volume. The net result of the substitute is there's less of it than there is of MTBE.

Mr. TIERNEY. You are back——

Mr. EARLY. And ethanol is basically the only other clean octane substitute. So under any scenario when you're taking MTBE out, ethanol is going to be playing a very important role, and that role all revolves around octane.

Now, I've in the past suggested to the refiners that they do something really innovative and stop making 93 octane fuel for high test and only make 91 octane fuel, and we would reduce substantially the octane demand that you would need, but the refiners don't think that's a very good idea because, of course, they get top dollar for 93 octane gasoline.

Mr. TIERNEY. You know, I am showing some of my ignorance in this field, so again bear with me, but if we do not need MTBE—I assume we do not need ethanol—to meet the Clean Air standards, that they can refine it without either one of those products, and it would be OK. Right?

Mr. EARLY. Well, both MTBE and ethanol are an important source of clean octane, and refiners need octane. They need octane—I'm sorry?

Mr. TIERNEY. They are not the only source of octane?

Mr. EARLY. That's correct.

Mr. TIERNEY. And the industry could go to other sources of octane and produce and refine——

Mr. EARLY. Right, but there are not enough of them. I mean, in the short term the reason ethanol will play a role is there just isn't

enough alternatives unless, of course, the refiners were to go to polluting sources of octane which, of course, we all agree we don't want them to do.

Mr. TIERNEY. And is nobody exploring all the new sources of octane?

Mr. EARLY. Well, there's little question that if we enact legislation that eliminates MTBE and updates the reformulated gasoline requirements, refiners will have a major incentive to engage in research to develop MTBE substitutes that are not ethanol.

Mr. TIERNEY. Of course, if we put the language in that Senator Daschle has about absolving people from liability, we run the problem that they are going to come up with new sources that are in fact not clean.

Mr. EARLY. Yes. We would agree that this particular provision is not very useful in terms of safeguarding public health and the environment.

Mr. TIERNEY. It just gives a free fall for the industry to go out and do whatever they want to do and not have any concern.

Mr. EARLY. Well, the attempt was to draft it narrowly, but I think the attempt did not succeed.

Mr. TIERNEY. I would agree. Thank you. Thank you for the extra time.

Mr. OSE. Gentlemen, Mr. Montgomery, why would we not just eliminate the 2 percent oxygenate requirement? It seems to me it would solve a lot of the issues, let science figure out how to calibrate what comes out of the tailpipe, and be done with it.

Mr. MONTGOMERY. Mr. Chairman, that has always struck me as being an excellent proposal, and I have for decades agreed with your description of how we should be designing environmental policy, which is to focus on the emissions and give industry the maximum flexibility to bring those emissions down to what we care about. I do not see that the oxygenate requirement has any role in doing that.

On the other hand, I'm not convinced that we can save a lot of money by getting rid of the oxygenate requirement if at the same time we are imposing a ban on MTBE, because we have to replace that 11 percent of gasoline with something, and whether we replace it with ethanol or alkylates or ETBE, we are looking at very expensive blend stocks. They're all going to add to the cost of gasoline. The choice is really among which is the lesser of two evils and which do we have enough capacity in the short run to produce. But may not save as much money as people think by——

Mr. OSE. Well, why should the Federal Government decide which solution? I mean, there have to be multiple types of chemical compounds that can give you what you need to calibrate out of the tailpipe.

Mr. MONTGOMERY. And I think that is a very good argument for why we should not have the oxygenate requirement. I'm just cautioning against expecting that by eliminating the oxygenate requirement, we can remove a significant part of the cost of moving away from MTBE——

Mr. OSE. Because you would probably bring something else?

Mr. MONTGOMERY. Yes.

Mr. OSE. Dr. Rausser, do you agree with that?

Mr. RAUSSER. I certainly agree that at this juncture, the motivation for the original requirements are not the same today as they were in the year 1990. The vehicle upgrades that have taken place have changed the emissions that otherwise would have occurred with conventional gasoline even today. But, still, coming back to the points that have been made already, once you've displaced that 11 percent of volume and you have to make it up from some other place, what is the incremental cost of those other potential blending ingredients and what are the consequences of those incremental costs on the ultimate price and cost to the consumers who are purchasing gasoline?

Mr. OSE. Mr. Economides, any thoughts on this?

Mr. ECONOMIDES. Yeah. Trading in one set of concerns for another set of concerns from—let's take the environmental area. If you're looking for no backsliding or equivalent environmental performance in a post-MTBE world and you turn to ethanol for help, then you have volatility concerns regarding its characteristic to evaporate readily. You have driveability concerns, distillation concerns. All these are fixable. They involve additional controls, which bring on additional costs, as Mr. Montgomery indicated.

If, in turn, you go to a nonoxygenated fuel, the oxy standard is gone and we don't have an RFS, let's say, and we go to that world, then we need to protect against what—allow me the liberty to call dirty octane. And dirty octane is aromatics and olefins and, you know, for the benefit of those who have not perhaps settled on this thought, olefins is a real, real cloud in the horizon in that eventuality, I mean, a very active species contributing to summertime smog. So are aromatics, and they are high octane compounds. So are aromatics. Aromatics, of course, are a major culprit on the toxic side because they combust into benzene out of the tailpipe.

So we have a set of concerns that need to be addressed, and one thing I want to emphasize again is that in the work that we are trying to do in this arena, we're trying to keep the environmental bar as level as possible between where we would have been if a bill like 517 was not adopted versus where we may be heading if that bill and its attendant consequences come to pass.

Mr. OSE. From a logical standpoint, it would seem to me that rather than mandate the inputs into the engine chamber that are combusted, you can in turn mandate the exhaust coming out of the tailpipe, including the volatile organic compounds and let——

Mr. ECONOMIDES. Yes.

Mr. OSE [continuing]. Science——

Mr. ECONOMIDES. But there is one small problem. It's called models, and they are not perfect. They are not perfect by any means. They're useful. Some of them are very good in terms of certifying fuels and providing directional guidance, but ultimately what we need to protect is ambient air quality levels, and by the time we get that correlation of fuel quality all the way out to ambient air quality, San Joaquin Valley, New York City, or anywhere else, then we have made a certain number of jumps in that process which make science become less stable than you would have expected or assumed in your statement.

Mr. OSE. Do we not have those problems attaining ambient air quality regardless?

Mr. ECONOMIDES. We do. However, we have a demonstrated record of success with the current reformulated gasoline program which most stakeholders, if not all, rapidly will step forward and say that from an air quality standpoint, the program has done its work. It has done a yeoman's job.

Mr. OSE. That is $6 to $8 billion a year transfer. My time is——

Mr. ECONOMIDES. No, I'm talking about the existing RFG program now.

Mr. OSE. My time is expired. Mr. Tierney.

Mr. TIERNEY. Thank you. I cannot stay much longer, but I do want to ask Mr. Early some questions here. What did the Blue Ribbon Commission recommend with respect to MTBE?

Mr. EARLY. They recommended a phasedown, and most members have recommended a phaseout of MTBE. The thing that's important to focus on is that the concern that the public has about MTBE has eroded the public support for clean fuels programs for a reformulated gasoline program. Part of the reason the Lung Association is here today is we need to make changes in order to increase public support for reformulated gasoline. Because this is a program, as Mr. Economides just said, that has a proven record of effectiveness in reducing smog. We would like to see more communities adopting RFG rather than going to a boutique fuel alternative.

Mr. TIERNEY. What did the Blue Ribbon Commission recommend with respect to ethanol?

Mr. EARLY. The commission acknowledged the fact that there are other reasons for using ethanol and basically punted the question of whether ethanol should be required to Congress.

Mr. TIERNEY. Could we not have one national standard if we really desired to have one?

Mr. EARLY. Well, we could have a national standard. There's no question. But I'm sure that the other gentlemen at this table would observe that if that standard were as effective at reducing air pollution as the Lung Association would like to see, we would shrink our gasoline supply even further, and even the Lung Association——

Mr. TIERNEY. Unless, of course, we stop using as much of it?

Mr. EARLY. I'm sorry?

Mr. TIERNEY. Unless, of course, we stop using as much of it.

Mr. EARLY. Well, of course. But you could also make an argument in areas where you don't have large population concentrations, that you don't have to use the cleanest gasoline that's available. Because you don't have an air pollution problem. We ought to be targeting our resources in the places where the problems are, which is essentially what the Clean Air Act has attempted to do.

Mr. TIERNEY. How do you get away from the boutique fuel problem? I mean, I read studies that tell me that the industry is sort of trying to encourage the States to get into as many boutique situations as they can. Others disclaim that. How do we do what you are saying and have the flexibility——

Mr. EARLY. Well, one of the most important things you can do is get rid of the MTBE in all gasoline. I mean, as an example of how powerful an issue this is, the State of Texas adopted a boutique fuel for the entire eastern half of the State that prohibited

refiners from increasing MTBE levels in the fuel above the levels that were being used at the time of adoption. So MTBE isn't even popular in Texas, let alone anywhere else. So it gives you an idea of how powerful an issue this is and why we need to get rid of MTBE as a starter, and then areas will, I think, look to reformulated gasoline.

The other thing you can do is change some of the other provisions to make RFG more uniform, and we think that the changes in S. 517 move in that direction and will result in a more uniform reformulated gasoline across the country and help relieve some of the price spikes.

For instance, I don't think in the future if you adopted the provisions that are in Senator Daschle's bill that you would see the price spikes that occurred in the Chicago, Milwaukee reformulated gasoline market last summer and the summer before. Because there will be a larger overall national pool of fuel that can be sent to that area in case of a temporary shortage.

Mr. TIERNEY. Thank you. I am going to yield back the balance of my time because I have to go, but I want to thank the panel for their testimony, and thank you, Mr. Chairman.

Mr. OSE. I thank the gentleman.

Mr. Tierney's questions spurred one of mine. I think, Dr. Rausser, you talked about this in your written testimony. In a comparative sense, the air quality improvements that are achievable using ethanol at an 8½ to 10 cent gallon increase in price, are those air quality improvements attributable to the ethanol additive, or are they attributable to the price increase that causes a reduction in use of fuels?

Mr. RAUSSER. They're certainly attributable to the latter. That is to say, with ethanol, the price goes up. There is some response on the demand side. There is a diminution in demand, and with that comes a lower air quality effect or an improved effect in terms of the reduction of air toxics. So that's one effect. But there is a second effect——

Mr. OSE. Before I lose my train of thought. So ethanol creates a benefit of X?

Mr. RAUSSER. Yes.

Mr. OSE. What would have to be the incremental increase in price alone to achieve the same air quality impact that ethanol achieves?

Mr. RAUSSER. With regard to just this component of the increase, or generically?

Mr. OSE. Generically.

Mr. RAUSSER. Generically.

Mr. OSE. If you are going to tell me 8½ to 10 cents a gallon, I am going to say why are we adding ethanol. I mean, that is my question. In terms of a price increase to achieve the same benefit we get from having ethanol as the oxygenate—how much of a price increase do we have to get?

Mr. RAUSSER. Well, that would depend on lots of other factors that I don't believe I have the precise answer for you.

Yes, and I can get an answer for you, but that's not something that we've asked the model to answer, but we could. To get the same effects, are you suggesting through an alternative mechanism

like taxing the gasoline price? That would lower the demand and you would get then as a result of the reduced driving——

Mr. OSE. If I understood your testimony here a minute and a half ago, it was that you raise the price, you reduce the amount of gasoline being used. You achieve air quality improvements because you have less hydrocarbons being combusted.

Mr. RAUSSER. That is correct.

Mr. OSE. All right. Now, compare that without ethanol to the case with ethanol. How much of a price increase do you have to have to achieve the same air quality benefits solely from a price increase——

Mr. RAUSSER. Just that portion of the benefits, not the rest of the air toxic reductions?

Mr. OSE. Right. That is the question I am going to put to you in writing.

Now I want to go back to your second point.

Mr. ECONOMIDES. And while you're doing that analysis, remember to take into account the fact that you use more gallons of ethanol contained in gasoline——

Mr. RAUSSER. Yes.

Mr. ECONOMIDES [continuing]. To travel the same number of miles.

Mr. RAUSSER. I've got that in the model, namely the reduced efficiency, the vehicle fuel efficiency.

Mr. OSE. You also have an improvement in hydrocarbon emission on cold start issues?

Mr. ECONOMIDES. Yes.

Mr. RAUSSER. The second component is the differential between ethanol versus MTBE versus conventional gasoline, and as I indicated in my testimony, the differential between ethanol and MTBE is only with regard to some particular toxics. Formaldehyde, for example, increases with MTBE. Acetaldehyde increases with regard to ethanol, and that results in a differential, too, with regard to the ultimate monetization of the air quality benefits of each of these two different blends.

Mr. OSE. Mr. Economides.

Mr. ECONOMIDES. I'm trying to get into this discussion, because the pollutant that we're talking about comparing these two compounds has a very, very significant impact. If we're talking about organics, hydrocarbons, volatile organics [VOCs], I don't think I would even go so far as to say that ethanol use in summertime gasoline has any benefit whatsoever. If we go now in turn to nitrogen oxides, NO_x kinds of compounds, I think both compounds are in essentially wash versus nonoxygenated gasoline until we get to about 2 percent oxygen content. But ethanol does have a big downside on the NO_x side. When you start increasing ethanol toward the maximum of 10 percent, you're looking at substantially increased NO_x emissions.

In fact, some of those are serving as the basis for California's application on the waiver. The doctor's assessment on the toxic side is on point. However, again, even there you get more dilution when you're adding 11 percent of MTBE versus the 6 percent for ethanol. So you have a differential toxics impact as well as a difference be-

tween more acetaldehyde versus formaldehyde being emitted by the two.

So all in all, I think from an environmental standpoint, you're looking at a rather imbalanced picture here between what one is doing versus the other. Adding that much ethanol to gasoline, frankly, in a simplified condensed way means higher gasoline prices for, at best, equivalent air and most likely dirty air, unless we take the right precautions.

Mr. OSE. Now, this information on MTBE and the implications of its use or ethanol and implications of its use, I mean, we are not talking about new science here?

Mr. ECONOMIDES. I don't believe it is.

Mr. OSE. So it has been in the public domain for a number of years. For instance, the impacts of MTBE probably have been known for at least 4 or 5 years. The situation with ethanol and the consequence of adding it to fuel have been known for a number of years, the pros and the cons. Am I accurate in that?

Mr. EARLY. Well, there's still a lot of argument about the pros and the cons. I mean, obviously if you had an ethanol industry representative here, they would claim greater air quality benefits than have been described by this panel, but generally speaking, you're correct. The bottom line is we've learned a lot since the 1990 Clean Air Amendments required certain components in reformulated gasoline. What we've learned points in the direction that you, Mr. Chairman, have already mentioned, which is the best approach is to mandate the outcome of reformulated gasoline and not how you get to the outcome.

I think there's a much broader consensus that's an approach to take than there was in 1990 when these provisions were adopted.

I would only make one observation as part of this discussion, which is that when EPA evaluated California's waiver request for the oxygen requirement, they determined that even if they had granted the oxygen waiver so that reformulated gasoline could be sold in California and not meet the 2 percent oxygen requirement, 60 percent of the reformulated gasoline sold in California would contain ethanol mostly to provide octane. So I raise that only to point out that the benefits that ethanol brings to gasoline formulations don't have to do with air quality. They have to do with other elements that refiners need also to meet when they're producing gasoline.

Mr. OSE. Mr. Early, some time ago you were over before the Senate Energy and Natural Resources Committee on EPA's renewable oxygenate program, which as near as I can tell from a comparative standpoint is very similar to Senator Daschle's energy bill, and at that time the quote that is in front of me is in sum, we see the renewable oxygenate program as potentially increasing global warming, increasing smog, increasing air toxics, and increasing water pollution and damage to erodible and sensitive habitat areas, all of this at an increased cost to the reformulated gasoline consumer and a significant decrease in Highway Trust Fund revenues. I assert that this proposal is fatally flawed. It is time to focus on the main goal of the reformulated program, which is reducing air pollution, and stop trying to manipulate it for other purposes such as increased ethanol demand.

Now, the thing that I am confused about is that you refer to Senator Daschle's fuel provisions today as constructive changes to RFG and conventional gasoline. I guess my question is, do you believe in mandating the use of ethanol in gasoline as good for the environment? And I think I hear you saying something very similar to what I am saying, which is not that you mandate but that you actually say what your goal is and let people go find a way to it.

Mr. EARLY. Mr. Chairman, I've been pretty consistent in my position on this. I don't believe that an ethanol mandate is necessary for air quality, and I've never supported an ethanol mandate for air quality. There are other reasons to support an ethanol mandate under the circumstances that we're talking with respect to Senator Daschle's bill. One of the most important purposes, from my perspective, is to garner 60 votes.

Mr. OSE. See, what my purpose is, is the past legislation that makes good policy, not good politics.

Mr. EARLY. The Senators who represent the agricultural States would forward other arguments. I'm really not in a position to be judgmental on those arguments regarding the benefit that an ethanol mandate provides.

Mr. OSE. California is the largest agricultural——

Mr. EARLY. To the agricultural economy, to the reduction in oil imports and to global warming. Let me make one note, which is that recent studies would seem to indicate that because of improvements in ethanol production, it is not a global warming loser, and at the time that I testified, the testimony that you have taken, that was not true. There have been some improvements in technology so that you can make modest global warming gains from substituting ethanol for gasoline, but they are, I have to observe, rather modest.

Mr. OSE. All right. Dr. Rausser.

Mr. RAUSSER. Just a clarification. Under the current oxygenated requirements and moving to ethanol as the choice blending ingredient to satisfy those requirements does not reduce oil imports. It increases oil imports. I think that testimony has already been revealed here.

Mr. OSE. I want to thank this panel for coming today. This has been highly educational, and I am appreciative of you taking the time to come down. The facts of the matter are that from where I sit today, it appears that there is a group that got together with somebody in Senator Daschle's office or the Senator himself and cooked up something to basically impose on the rest of the country, mandate to use 5 billion gallons of ethanol over the next number of years at a cost to the American consumer of $6.37 to $8.4 billion a year. That can be good policy, or it can be good politics, or it might be neither. But the fact of the matter is it is money out of the pockets of Californians. It is money out of the pockets of people up in the Northeast, like those that may live in Mr. Tierney's district. It is money out of the pockets of the people who may live in Mr. Shays' district, and it does not have one single thing to do with getting cloture in the Senate. Compromise on bad legislation gives you bad legislation.

Gentlemen, thank you for joining us today, and I appreciate your testimony. If we have questions, we will leave the record open for a period of 10 days.

Timely responses are appreciated. Again, thank you. We will see you again. This hearing is adjourned.

[Whereupon, at 4:43 p.m., the subcommittee was adjourned.]

[NOTE.—The report entitled, "Achieving Clean Air and Clean Water: The Report of the Blue Ribbon Panel on Oxygenates in Gasoline," may be found in subcommittee files.]

[Additional information submitted for the hearing record follows:]

Congress of the United States
House of Representatives
Washington, DC 20515

June 21, 2002

The Honorable W. J. "Billy" Tauzin
Chairman
House Energy and Commerce Committee
2125 RHOB
Washington, D.C. 20515

The Honorable John Dingell
Ranking Member
House Energy and Commerce Committee
2322 RHOB
Washington, D.C. 20515

Dear Chairman Tauzin and Ranking Member Dingell:

We are writing to express our concerns about the renewable fuels mandate in the Senate Energy Bill. The Senate bill takes the important steps of phasing-out MTBE and eliminating the Clean Air Act's oxygenate requirement -- actions which will actually help achieve clean air while protecting our water resources. However, we are concerned that this mandate will be a *de facto* mandate for ethanol, and may prove to be an unworkable burden in the State of California. In addition, greatly increasing the use of ethanol will have mixed environmental results while significantly reducing federal revenues to the Highway Trust Fund. Moreover, rather than a carefully balanced legislative package, this mandate appears to be simply a political triumph of the Midwest over both coasts.

The Senate mandate will commit the United States to tripling the amount of ethanol in our fuel supply over the next decade. Beginning at 2.3 billion gallons of ethanol in 2004, the bill will require increased production in each subsequent year through 2012 when U.S. refiners must blend at least 5 billion gallons of ethanol into their fuel. For every year after 2012, the bill will require refiners to blend a proportional amount of ethanol into the fuel supply. This could result in an ever-growing ethanol mandate.

We have serious concerns about committing the nation to such an ethanol mandate in perpetuity. While this mandate would be a welcome development for midwestern ethanol interests, we are concerned that this mandate may inhibit refiners from finding smarter, cleaner and less expensive ways to reformulate gasoline. For instance, the Energy Information Administration recently testified that these provisions could increase the cost of reformulated gasoline by as much as 10.5 cents per gallon.

PRINTED ON RECYCLED PAPER

Additionally, since the United States only produced 1.77 billion gallons of ethanol in 2001, we are deeply concerned that mandating 2.3 billion gallons to be used in 2004 could disrupt the fuel supply nationwide and cause exorbitant gasoline price spikes. We are very concerned about how these supply disruptions could affect California consumers. We are also concerned with the so-called safe harbor provision which would shield oil companies from liability if ethanol ends up contaminating groundwater. Even the most modest proposals offered by Senator Feinstein, Senator Boxer and others to address these serious flaws were not adequately considered in the Senate. This language must be revisited during conference.

We urge the conference committee to carefully reconsider this ethanol mandate. The needs and concerns of California and other states must be addressed before further legislative action is taken on this mandate.

Sincerely,

Dan Lungren

Jerry Lewis

George Miller

Robert T. Matsui

Mike Thompson

Ellen O. Tauscher

Howard L. Berman

Anna G. Eshoo

Susan A. Davis

Jane Harman

Lois Capps

Mike Honda

Henry A. Waxman

Diane E. Watson

Brad Sherman

Pete Stark

Hilda L. Solis

Ken Calvert

Lucille Roybal-Allard

Zoe Lofgren

Nancy Pelosi

Barbara Lee

Grace F. Napolitano

Tom Lantos

Cal Dooley

Lynn Woolsey

Adam B. Schiff

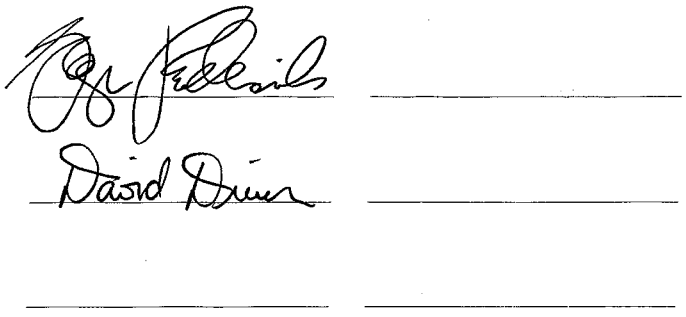
Loretta Sanchez

Maxine Waters

Joe Baca

Howard Berman

Gary A. Miller



2204 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0529
(202) 225-3976

DISTRICT OFFICE:
8435 WEST THIRD STREET
SUITE 600
LOS ANGELES, CA 90048-4183
(323) 651-1040

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29TH DISTRICT, CALIFORNIA

SENIOR DEMOCRATIC MEMBER
COMMITTEE ON GOVERNMENT REFORM

MEMBER
COMMITTEE ON ENERGY AND COMMERCE

April 23, 2002

The Honorable Christine Todd Whitman
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator Whitman:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6] *California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7] Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8] *Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10] *E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11] *EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Agency, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

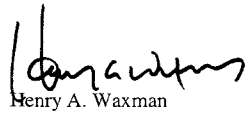
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

2204 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0529
(202) 225-3976

DISTRICT OFFICE:
8435 WEST THIRD STREET
SUITE 600
LOS ANGELES, CA 90048-4183
(323) 651-1040

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29TH DISTRICT, CALIFORNIA

SENIOR DEMOCRATIC MEMBER
COMMITTEE ON GOVERNMENT REFORM

MEMBER
COMMITTEE ON ENERGY AND COMMERCE

April 23, 2002

The Vice President
The Eisenhower Executive Office Building
Washington, DC 20501

Dear Mr. Vice President:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6]*California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7]Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8]*Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9]*EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10]*E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11]*EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Office, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

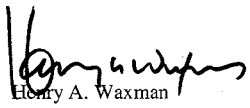
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

2204 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0529
(202) 225-3976

DISTRICT OFFICE:
8436 WEST THIRD STREET
SUITE 600
LOS ANGELES, CA 90048-4182
(323) 651-1640

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29TH DISTRICT, CALIFORNIA

SENIOR DEMOCRATIC MEMBER
COMMITTEE ON GOVERNMENT REFORM

MEMBER
COMMITTEE ON ENERGY AND COMMERCE

April 23, 2002

Mr. Mitchell E. Daniels, Jr.
Director
Office of Management and Budget
Washington, DC 20503

Dear Director Daniels:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6]*California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7]Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8]*Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9]*EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10]*E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11]*EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Office, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

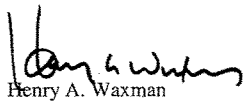
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

2204 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-0529
(202) 225-3976

DISTRICT OFFICE:
8436 WEST THIRD STREET
SUITE 600
LOS ANGELES, CA 90048-4183
(323) 651-1040

Congress of the United States
House of Representatives
Washington, DC 20515–0529

HENRY A. WAXMAN
29TH DISTRICT, CALIFORNIA

SENIOR DEMOCRATIC MEMBER
COMMITTEE ON GOVERNMENT REFORM

MEMBER
COMMITTEE ON ENERGY AND COMMERCE

April 23, 2002

The Honorable Spencer Abraham
Secretary
Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Secretary Abraham:

One of the first decisions of the Bush Administration was to deny California's request for a waiver from the federal reformulated gasoline oxygenate requirement. This decision was a surprise to many, as it reversed the experts at EPA and ignored the bipartisan support for the waiver from California's delegation. It is expected that this decision will balkanize Western fuel supplies and result in worse air quality and higher gasoline costs for consumers in California.

Although it has not been widely known, the Enron Corporation had a significant financial stake in the MTBE industry, and a recent review of lobbying disclosure records reveals that Enron lobbied on this issue. Details have not yet been released on many of Enron's contacts with the Administration, but Enron's influence within the Administration appears to have been substantial. Additionally, as a member of the Administration's transition team, Enron's CEO Ken Lay was in a prime position to influence early Administration decisions such as this one. I am writing to request that you provide all relevant information regarding whether Mr. Lay or any other representative of Enron had a role in the Administration's decision to deny California's waiver request.

The Waiver Denial

As you know, California Governor Gray Davis in April 1999 requested the waiver of the oxygenate requirement of the reformulated gasoline provisions of the Clean Air Act in order to facilitate California's phase out of the fuel additive methyl tertiary butyl ether (MTBE). He took this action because MTBE has contaminated groundwater throughout California.

The state of California provided exhaustive scientific information in support of the waiver. After a lengthy review, EPA's technical and professional staff concluded that a waiver of the relevant part of the oxygenate standard was indeed technically warranted and legally justified.

In fact, EPA prepared a proposed rule granting the needed partial waiver. EPA stated:

We conclude that compliance with the 2.0 weight percent oxygen content

> requirement . . . would interfere with attainment of the [national ambient air quality standards] for ozone and [particulate matter].[1]

EPA stated further that the waiver would allow "the flexibility for the state to achieve the greatest additional NOx reductions possible."[2]

California's request for a waiver had broad bipartisan support within California. On April 6, 2001, every member of the California House delegation requested that the Administration grant California's waiver request. However, the waiver request was opposed by several industries. The most visible opponent was the ethanol industry. The MTBE industry also opposed the waiver.

On June 12, 2001, the Administration decided to deny the waiver request, reversing EPA's previous determination that a partial waiver was warranted. This decision imposed large costs on California. The state of California has estimated that denying the waiver would cost the state an additional $450 million each year.[3] In fact, the Governor of California notified Members of Congress on February 26, 2002, that historical evidence indicated that banning MTBE without a waiver of the federal oxygenate mandate could result in a doubling of the price of gasoline.[4] To avoid this result, the Governor announced a one-year delay in the banning of MTBE on March 14, 2002.[5]

Enron and MTBE

It is well know that the decision by the Bush Administration to deny California's waiver benefitted the ethanol industry. It is much less known, however, that the decision to deny the waiver also provided a significant benefit to Enron and other MTBE producers. But in fact, this is just what has happened. Once California's oxygenate waiver was denied, some in industry

---

[1]EPA, *Regulation of Fuel and Fuel Additives: Waiver of the Reformulated Gasoline Oxygen Content Requirement for California Covered Areas, Draft Notice of Proposed Rulemaking* at 16, (Jan. 2001)(available online at http://www.house.gov/reform/min/inves_energy/index.htm).

[2]*Id.* At 21.

[3]Statement by Governor Gray Davis on Bush Administration Denial of California's Oxygenate Waiver Request (June 12, 2001).

[4]Letter from Gov. Gray Davis to Sen. Tom Daschle (Feb. 26, 2002).

[5]Executive Order D-52-02 by the Governor of the State of California (March 14, 2002).

publicly predicted that California would have no choice but to permit the continued use of MTBE in reformulated gasoline in California.[6] This prediction turned out to be true, and the pro-MTBE lobby hailed California's decision to continue to allow the use of MTBE for an additional year.[7]

Enron was one of the beneficiaries of the waiver denial because it is involved in many aspects of the MTBE industry. MTBE is made from methanol, which is produced from natural gas. Enron had its roots as a natural gas company, and it also owned methanol plants. For example, Enron owned a plant in La Porte, Texas, with a 400,000 barrel per day capacity for producing methanol.[8] In addition, Enron's Morgan's Point plant produced MTBE and was, in fact, one of the largest MTBE plants of its type.[9] Enron also traded MTBE profitably.[10]

In July 2001, Enron sold the Morgan's Point MTBE plant and accompanying pipeline to EOTT Energy Partners (whose general partner is a wholly-owned subsidiary of Enron) for approximately $120 million. EOTT signed a 10-year agreement to sell the production from the MTBE plant to Enron, with a 10-year storage and transportation agreement for the use of the storage facility and pipelines. Under this agreement Enron agreed to provide the feedstock and take the plant's output, paying EOTT a fee for producing the fuel additive. Thus, Enron retained a strong financial interest in the continued use of MTBE.[11]

Enron's financial interest was threatened by California's phase out of MTBE, as well as efforts in Congress to ban MTBE nationally. According to Chemical Market Associates, Inc. (CMAI), "[i]f the phase-out scenario goes ahead, CMAI expects around 7 [million] tonne/year of MTBE capacity will be shutdown, with inevitable repercussions on the US methanol industry.

---

[6]*California Could Delay MTBE Deadline*, Chemical Market Reporter (December 17, 2001).

[7]Oxygenated Fuels Association, Press Release, *OFA Welcomes Davis Delay of MTBE Ban* (March 15, 2002).

[8]*Enron Restarts MTBE Plant*, The Oil Daily (April 16, 2001).

[9]*EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

[10]*E.g., Gulf MTBE Prices Hold up as Big Traders Bat Barrels Around*, Oxy-Fuel News (May 21, 2001).

[11]*EOTT buys MTBE plant from Enron / Natural gas storage facility, pipelines also part of $120 million deal*, Houston Chronicle (July 3, 2001).

On-purpose MTBE production will either convert to alternate products or shutdown."[12]

Enron's MTBE Lobbying

Not only was Enron a significant MTBE producer, it also lobbied vigorously on MTBE issues. According to the *Financial Times*, Enron Clean Fuels Company and other MTBE producers "revived" the Oxygenated Fuels Association (OFA), the principal pro-MTBE lobbying group.[13] At the time of the denial of California's waiver request, it was reported that the OFA had lobbied the White House to deny the California waiver.[14]

Moreover, Enron itself lobbied on at least thirteen bills addressing MTBE. Most of these would have banned MTBE or allowed states to opt out of the oxygenate requirement, which would have substantially reduced the use of MTBE and allowed it to be phased out.[15] In addition, Enron lobbied on related issues such as tax credits for ethanol and alternative fuel vehicles.

While it is impossible to identify the amounts that Enron spent on MTBE lobbying versus other lobbying activities, Enron reported spending over $1.5 million on lobbying activities in 2000, and over $2.9 million in the first six months of 2001.

Requests for Information

In order to understand the role played by Enron in the decision to deny California's MTBE waiver, I request that you provide the following information:

1. Did you, any other person in your Department, or to your knowledge any other official in the Administration have any communications with Mr. Lay or any other Enron or OFA

---

[12]*Market put out by shutdowns*, Chemical Market Reporter (April 2, 2001).

[13]*Bills may pave way for rise in ethanol output*, Financial Times (December 20, 2001).

[14]*Gas Prices at Stake in State's Ethanol Feud Policy: Agriculture vs. oil as California seeks a waiver on corn-based additive*, Los Angeles Times (May 4, 2001).

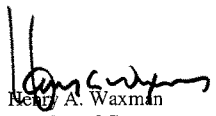
[15]*See* Lobbying Reports filed with the Clerk of the House of Representatives for lobbyists retained or employed by Enron for the years 2000 and 2001. Specific bills listed are: S. 2233, H.R. 3536, H.R. 4011, H.R. 4120, S. 1037, S. 2723, H.R. 11, H.R. 1367, H.R. 1368, H.R. 1705, S. 645, H.R. 4303; H.R. 3798. Entities lobbied include: the Council on Environmental Quality; the Department of Energy; the Department of Interior; the Environmental Protection Agency; the U.S. House of Representatives; and the U.S. Senate.

officials or representatives regarding the issue of California's waiver request or issues relating to MTBE?

2. For each communication identified in question 1, please provide the names of the persons involved, the dates of the communication, the form of communication, a summary of the information exchanged or matters discussed during the communication, and copies of any written materials or electronic communications provided by Enron or OFA or their representatives.

I request that you respond to this letter by May 17, 2002. Thank you for your attention to this matter.

Sincerely,



Henry A. Waxman
Member of Congress

Citation Search Result Rank 1 of 1 Database
5/13/01 MLWK 13A ALLNEWS
5/13/01 Milwaukee J. & Sentinel 13A
2001 WL 9355753
(Publication page references are not available for this document.)

The Milwaukee Journal Sentinel
Copyright 2001

Sunday, May 13, 2001

News

Energy investments likely to boost supplies
JOSEPH KAHN AND JEFF GERTH
New York Times

Energy investments likely to boost supplies

Industry activity seen even as Bush prepares call for less regulation

By JOSEPH KAHN AND JEFF GERTH

New York Times

Sunday, May 13, 2001

Washington -- The energy industry is drilling for natural gas, building gas pipelines and constructing power plants at an unprecedented pace as companies respond to high energy prices by significantly boosting investment.

The intense activity comes as President Bush prepares to unveil a national strategy to address what he has called an energy crisis. The policy is expected to emphasize streamlining of regulations, many of them intended to protect the environment, that Bush administration officials say have caused an alarming gap in energy supplies.

Vice President Dick Cheney, who leads the task force charged with drafting the energy plan, has cited a litany of statistics -- a shortage of refineries, power plants, natural gas pipelines and other energy resources and infrastructure -- to warn of a trend toward supply shortages. The solution, he says, is urgent government action.

But the latest statistics from government and industry analysts show the energy industry shifting into high gear, investing heavily in areas that were seen as unattractive just a few years ago. Thus even before the government has eased any regulations, even as high energy prices create a sense of crisis in Washington, the investment

Copr. © West 2002 No Claim to Orig. U.S. Govt. Works

boom promises a cyclical increase in supplies that is expected to stabilize or reduce prices in coming months, many industry executives and private analysts say.

"Prices go up, and we start drilling," says Jerry Jordan, whose company in Columbus, Ohio, plans to dig 10 to 20 natural gas wells this year. Washington has a role to play, Jordan said, in opening restricted land for gas exploration down the road. For now, he says, there is plenty of natural gas available, and "we're going to get it to the market."

Adding capacity

Big oil companies plan to invest about $41 billion to expand natural gas supplies this year, while new drilling rigs in operation have hit an all-time high of 955. That is indicative of what is going on broadly in the industry.

Power companies, reacting to high electricity prices in California and elsewhere, plan to add 90,000 megawatts of electricity generating capacity in the next 18 months, one industry estimate says. That is nearly one-fourth of what the Department of Energy says is needed to meet growth in demand through 2020.

Rising natural gas demand has prompted companies to build transportation pipelines at a frenzied pace. The federal Energy Information Administration says 1,895 miles of new pipelines were added last year. It expects companies to complete 4,300 miles this year and 4,650 miles next year, record increases in capacity.

Bush said Friday that gasoline prices were high because refineries, which administration officials said had been hobbled by environmental laws, could not increase output. "The reason why we have problems at the gas pump is that we have not built any more refineries," Bush said.

While some experts agree with Bush, others on Wall Street see it differently. Several investment analysts recently downgraded the stocks of refining companies because they have produced so much gas recently, possibly sending prices south by midsummer.

Bush and Cheney often have cited high prices as evidence that the industry cannot meet demand because regulations make it too hard to increase supply. Industry officials have applauded the focus on streamlining regulations that they consider costly to comply with. But many acknowledge that those complaints have little to do with the price of gas today.

Copr. © West 2002 No Claim to Orig. U.S. Govt. Works

5/13/01 MLWK 13A
(Publication page references are not available for this document.)

Politics overtakes markets

The reality of energy markets has gotten lost "in the politics of the moment," says Ken Cohen, vice president of public affairs for Exxon Mobil Corp. in Irving, Texas. The company would like to see environmental regulations become more predictable, he said. "But the market isn't broken. If you let the markets work, the markets will clear," or meet demand.

Jay Hakes, who until recently was director of the Energy Information Administration in Washington, said that the recent surge in activity by energy companies shows there is no chronic supply deficit. The problem, Hakes said, is not that companies cannot respond to demand, but that newly deregulated energy companies, denied the certainty of earning a return on investments that state and federal regulators once provided, tend to respond all too rapidly.

Oil, gas, pipeline and utility companies shelved investment plans and shuttered operations when energy prices slumped in the 1990s. Demand growth accelerated by the late 1990s, prompting companies to embark on a fresh investment binge that is starting to close the gap today.

"Washington seems bereft of solutions to the real energy problem," Hakes said. "Deregulation cut the fat out of the system and left people vulnerable to very volatile markets."

Hakes said that the government's toughest task is finding a way to buffer the swings between surplus and scarcity. He said such policies might use the Strategic Petroleum Reserve to reduce oil market gyrations. Another possible role for the government would be to offer refiners and electricity providers a tax incentive to build extra capacity that could come on line when supplies are short.

To date, the Bush administration has argued strongly against market intervention, especially when it comes to deregulated electricity and natural gas prices.

Yet while the Bush team rules out any action on prices, it treats supply shortages as a national emergency requiring prompt attention. It was a failure of government policy, especially the spread of environmental restrictions, that has left Americans vulnerable to what "Californians are experiencing now, or worse," as Cheney said late last month.

Industry executives have been pressing for years to get relief from environmental laws -- notably the Clean Air Act and land-use

Copr. © West 2002 No Claim to Orig. U.S. Govt. Works

restrictions. But such regulations are viewed by many executives as nuisances rather than as barriers to meeting demand.

Refineries have to satisfy dozens of fuel-grade standards that states set to meet federal pollution-control goals, impinging on economies of scale. Environmental laws and "not in my backyard" attitudes also make it difficult to build a new refinery, although no companies in recent years have tried to do so.

---- INDEX REFERENCES ----

NAMED PERSON: CHENEY, DICK; HAKES, JAY

NEWS SUBJECT: English language content; Deregulation; Corporate and Industrial News; Energy Department; Electricity Markets; Commodities; Regulation and Government Policy; Executive Government; Government Bodies; Domestic Politics; Political and General News; Energy Markets; Commodity Markets; Market News; Routine Market and Financial News (ENGL CDEREG CCAT GVERG MELEC CMD C13 GVEXE GVBOD GPOL GCAT M143 M14 MCAT NRMF)

MARKET SECTOR: Utilities; Energy (UTI ENE)

INDUSTRY: allUtilities, Electric: Deregulationall; Electric Utilities; allUtilities, Gas: Deregulationall; Gas Utilities; Pipeline Operators (IAER ELC IAPR GAS PIP)

PRODUCT: Utilities; Oil & Gas (DUT DGA)

EDITION: FINAL

Word Count: 1023
5/13/01 MLWK 13A
END OF DOCUMENT

Copr. © West 2002 No Claim to Orig. U.S. Govt. Works

Copyright 2002 / **Los Angeles Times**
Los Angeles Times

March 9, 2002 Saturday Home Edition

SECTION: California Metro; Part 2; Page 1; Metro Desk

LENGTH: 1015 words

HEADLINE:
Upgraded Gas Tanks Are Still Leaking

BYLINE: SEEMA MEHTA, TIMES STAFF WRITER

BODY:
After the federal government ordered gas stations nationwide to replace underground tanks that were leaking a possible carcinogen into the ground water, state officials now find many of the new tanks also leak.

Environmentalists say the newly discovered leaks bolster their arguments that Gov. Gray Davis should not delay phasing out the use of the gasoline additive **MTBE.** Davis has been considering putting off the ban, which is supposed to take effect Dec. 31.

Preliminary results of a state study found that two-thirds of the upgraded tanks and pipes tested in Yolo and Sacramento counties are leaking **MTBE.** In Orange, Riverside and San Bernardino counties, water officials found that of 60 new double-sided tanks they monitored, a third are still leaking gasoline. In addition, some built-in sensors supposed to warn them about leakage aren't working.

In the Silicon Valley, at least 40% of tested new tanks are releasing **MTBE.** At one station in San Jose, vapor leakage resulted in 2,000 pounds of **MTBE** contaminating soil and ground water.

"**MTBE** is a very significant threat to the ground water, not only in our county but across the state," said Jim Crowley, a specialist on the tanks who works for the Santa Clara Valley Water District. "The underground storage-tank systems don't appear to be able to contain **MTBE.**"

Leakage Problem Is Widespread in State

The U.S. Environmental Protection Agency has heard of similar reports from other states, including Florida and South Carolina, said Sammy Ng, deputy director of the EPA's office of underground storage tanks. But the agency is watching California closely because the problem has been found to be so widespread in the state.

MTBE, or methyl tertiary butyl ether, was first added to gasoline more than two decades ago to reduce air pollution, and its use became widespread in the early 1990s. It initially appeared to be a silver bullet--a cheap additive that makes gas burn cleaner without harmful side effects.

Further study, however, found that **MTBE** is a suspected carcinogen that spreads quickly through the soil and ground water and that even in small amounts can make drinking water smell like turpentine. To stem the seepage, oil companies replaced single-walled tanks and pipes with double-walled equipment and added sensors. By 1998, under federal order, nearly all of the tanks had been replaced.

"That was supposed to cure the problem," said Ken Williams, chief of the underground storage-tank section at the Santa Ana Regional Water Quality Control Board, which enforces

clean-water laws in parts of Orange, Riverside and San Bernardino counties.

He and other water experts don't know exactly how the gasoline is still escaping. But growing contamination levels in the soil around the tanks indicate it is indeed escaping.

Ng believes the culprits are the vents and pipes that connect the tanks to the gas pumps, rather than the tanks themselves. "There's a lot of piping, a lot of joints. Any time the earth moves, you may have cracks and leaks," he said.

Carolin Keith, spokeswoman for Exxon Mobil Corp., said this is the first she has heard that upgraded tanks or pipes are leaking. "As a matter of course, any soil or ground-water contamination that results from a leak in our equipment, we are both obligated and committed to cleaning up," she said.

MTBE contamination in soil and water nationwide is going to cost at least $29 billion to clean up, according to a study commissioned by Santa Monica and several other cities. And new contamination sites continue to be discovered. In January, officials announced that a plume of tainted ground water has moved close to a well that produces drinking water for 17,000 homes in Rialto, Fontana, Colton and Bloomington.

Officials believe the problem is far more widespread than reports indicate. Many gas station owners do not realize their tanks are leaking, and one common testing method might allow the **MTBE** to decompose before it can be analyzed.

Environmentalists say this is exactly why Davis must not delay the planned phaseout of **MTBE.**

Davis Concerned About Gas Shortages, Prices

In 1999, Davis declared the gasoline additive a threat to the environment and ordered that its use in gasoline be phased out of California by this coming December. But last month, he announced he may delay the phaseout because it could create a gasoline shortage or drive up prices. A final decision is expected in early April.

Bill Rukeyser, deputy secretary of Cal-EPA, a state environmental agency, said Davis will consider the environmental ramifications as well as the economic consequences when making his final decision.

He said the number of leaking tanks has decreased in recent years and the equipment, though imperfect, is much improved.

He reiterated, though, that the Davis administration is not backing off from eliminating **MTBE** use.

"No matter how good the equipment and operators become ... we are not going to reach a situation where we have achieved perfection and where **MTBE** ceases to be a hazard to California's water supply," Rukeyser said.

When **MTBE** is banned, gasoline makers will have to switch to ethanol as an additive.

But the Davis administration has said the state still lacks a way to transport ethanol within the state. In addition, terminals and refineries need to be retrofitted for the new additive.

Davis is considering adjusting "the timetable somewhat to make sure that the transition away from **MTBE** is smooth and doesn't result in shocks to the system in the form of either outright shortages and/or gas price hikes," Rukeyser said.

Environmentalists say such a decision would be extremely shortsighted.

"We strongly believe that allowing **MTBE** to remain in gasoline will lead to additional contamination of ground water and add billions of dollars to an already staggering cleanup bill," wrote Marguerite Young, the California director of environmental group Clean Water Action, in a letter Friday to Davis.

*

Times staff writer Deborah Schoch contributed to this report.

GRAPHIC: GRAPHIC: Underground Storage CREDIT: **Los Angeles Times** PHOTO: Josh Harrison of Lake Forest fuels his car Friday at a Unocal station in Costa Mesa. **MTBE** became a common additive in the 1990s. PHOTOGRAPHER: Photos by FRANCINE ORR/**Los Angeles Times** PHOTO: Liz Beauregard of Huntington Beach pumps gas. Many station owners do not realize their tanks are leaking, and one common testing method might allow **MTBE** to decompose before it can be analyzed. PHOTOGRAPHER: Photos by FRANCINE ORR/**Los Angeles Times**

LOAD-DATE: March 9, 2002

prev Document 3 of 469 next

About LexisNexis™ | Terms and Conditions | Privacy Policy | Support Identifier
Copyright © 2002 LexisNexis, a division of Reed Elsevier Inc. All rights reserved.

The Blue Ribbon Panel on Oxygenates in Gasoline

Executive Summary and Recommendations

Final, July 27, 1999

Introduction

The Federal Reformulated Gasoline Program (RFG) established in the Clean Air Act Amendments of 1990, and implemented in 1995, has provided substantial reductions in the emissions of a number of air pollutants from motor vehicles, most notably volatile organic compounds (precursors of ozone), carbon monoxide, and mobile-source air toxics (benzene, 1,3-butadiene, and others), in most cases resulting in emissions reductions that exceed those required by law. To address its unique air pollution challenges, California has adopted similar but more stringent requirements for California RFG.

The Clean Air Act requires that RFG contain 2% oxygen, by weight. Over 85% of RFG contains the oxygenate methyl tertiary butyl ether (MTBE) and approximately 8% contains ethanol - a domestic fuel-blending stock made from grain and potentially from recycled biomass waste. There is disagreement about the precise role of oxygenates in attaining the RFG air quality benefits although there is evidence from the existing program that increased use of oxygenates results in reduced carbon monoxide emissions, and it appears that additives contribute to reductions in aromatics in fuels and related air benefits. It is possible to formulate gasoline without oxygenates that can attain similar air toxics reductions, but less certain that, given current federal RFG requirements, all fuel blends created without oxygenates could maintain the benefits provided today by oxygenated RFG.

At the same time, the use of MTBE in the program has resulted in growing detections of MTBE in drinking water, with between 5% and 10% of drinking water supplies in high oxygenate use areas[1] showing at least detectable amounts of MTBE. The great majority of these detections to date have been well below levels of public health concern, with approximately one percent rising to levels above 20 ppb. Detections at lower levels have, however, raised consumer taste and odor concerns that have caused water suppliers to stop using some water supplies and to

[1]Areas using RFG (2% by weight oxygen) and/or Oxyfuel (2.7% by weight Oxygen)

incur costs of treatment and remediation. The contaminated wells include private wells that are less well protected than public drinking water supplies and not monitored for chemical contamination. There is also evidence of contamination of surface waters, particularly during summer boating seasons.

The major source of groundwater contamination appears to be releases from underground gasoline storage systems (UST). These systems have been upgraded over the last decade, likely resulting in reduced risk of leaks. However, approximately 20% of the storage systems have not yet been upgraded, and there continue to be reports of releases from some upgraded systems, due to inadequate design, installation, maintenance, and/or operation. In addition, many fuel storage systems (e.g. farms, small above-ground tanks) are not currently regulated by U.S. EPA. Beyond groundwater contamination from UST sources, the other major sources of water contamination appear to be small and large gasoline spills to ground and surface waters, and recreational water craft - particularly those with older motors - releasing unburned fuel to surface waters.

The Blue Ribbon Panel

In November, 1998, U.S. EPA Administrator Carol M. Browner appointed a Blue Ribbon Panel to investigate the air quality benefits and water quality concerns associated with oxygenates in gasoline, and to provide independent advice and recommendations on ways to maintain air quality while protecting water quality. The Panel, which met six times from January - June, 1999, heard presentations in Washington, the Northeast, and California about the benefits and concerns related to RFG and the oxygenates; gathered the best available information on the program and its effects; identified key data gaps; and evaluated a series of alternative recommendations based on their effects on:

- air quality
- water quality
- stability of fuel supply and cost

The Findings and Recommendations of the Blue Ribbon Panel

Findings Based on its review of the issues, the Panel made the following overall findings:

- The distribution, use, and combustion of gasoline poses risks to our environment and public health.

- RFG provides considerable air quality improvements and benefits for millions of US citizens.

- The use of MTBE has raised the issue of the effects of both MTBE alone and MTBE in gasoline. This panel was not constituted to perform an independent comprehensive health assessment and has chosen to rely on recent reports by a

number of state, national, and international health agencies. What seems clear, however, is that MTBE, due to its persistence and mobility in water, is more likely to contaminate ground and surface water than the other components of gasoline.

- MTBE has been found in a number of water supplies nationwide, primarily causing consumer odor and taste concerns that have led water suppliers to reduce use of those supplies. Incidents of MTBE in drinking water supplies at levels well above EPA and state guidelines and standards have occurred, but are rare. The Panel believes that the occurrence of MTBE in drinking water supplies can and should be substantially reduced.

- MTBE is currently an integral component of the U.S. gasoline supply both in terms of volume and octane. As such, changes in its use, with the attendant capital construction and infrastructure modifications, must be implemented with sufficient time, certainty, and flexibility to maintain the stability of both the complex U. S. fuel supply system and gasoline prices.

The following recommendations are intended to be implemented as *a single package* of actions designed to simultaneously maintain air quality benefits while enhancing water quality protection and assuring a stable fuel supply at reasonable cost. The majority of these recommendations could be implemented by federal and state environmental agencies without further legislative action, and we would urge their rapid implementation. We would, as well, urge all parties to work with Congress to implement those of our recommendations that require legislative action.

Recommendations to Enhance Water Protection

Based on its review of the existing federal, state and local programs to protect, treat, and remediate water supplies, the Blue Ribbon Panel makes the following recommendations to enhance, accelerate, and expand existing programs to improve protection of drinking water supplies from contamination.

Prevention

1. EPA, working with the states, should take the following actions to enhance significantly the Federal and State Underground Storage Tank programs:

    a. Accelerate enforcement of the replacement of existing tank systems to conform with the federally-required December 22, 1998 deadline for upgrade, including, at a minimum, moving to have all states prohibit fuel deliveries to non-upgraded tanks, and adding enforcement and compliance resources to ensure prompt enforcement action, especially in areas using RFG and Wintertime Oxyfuel.

b. Evaluate the field performance of current system design requirements and technology and, based on that evaluation, improve system requirements to minimize leaks/releases, particularly in vulnerable areas (see recommendations on Wellhead Protection Program in 2. below)
c. Strengthen release detection requirements to enhance early detection, particularly in vulnerable areas, and to ensure rapid repair and remediation
d. Require monitoring and reporting of MTBE and other ethers in groundwater at all UST release sites
e. Encourage states to require that the proximity to drinking water supplies, and the potential to impact those supplies, be considered in land-use planning and permitting decisions for siting of new UST facilities and petroleum pipelines.
f. Implement and/or expand programs to train and license UST system installers and maintenance personnel.
g. Work with Congress to examine and, if needed, expand the universe of regulated tanks to include underground and aboveground fuel storage systems that are not currently regulated yet pose substantial risk to drinking water supplies.

2. EPA should work with its state and local water supply partners to enhance implementation of the Federal and State Safe Drinking Water Act programs to:

a. Accelerate, particularly in those areas where RFG or Oxygenated Fuel is used, the assessments of drinking water source protection areas required in Section 1453 of the 1996 Safe Drinking Water Act Amendments.
b. Coordinate the Source Water Assessment program in each state with federal and state Underground Storage Tank Programs using geographic information and other advanced data systems to determine the location of drinking water sources and to identify UST sites within source protection zones.
c. Accelerate currently-planned implementation of testing for and reporting of MTBE in public drinking water supplies to occur before 2001.
d. Increase ongoing federal, state, and local efforts in Wellhead Protection Areas including:
   - enhanced permitting, design, and system installation requirements for USTs and pipelines in these areas;
   - strengthened efforts to ensure that non-operating USTs are properly closed;
   - enhanced UST release prevention and detection
   - improved inventory management of fuels.

3. EPA should work with states and localities to enhance their efforts to protect lakes and reservoirs that serve as drinking water supplies by restricting use of

recreational water craft, particularly those with older motors.

4. EPA should work with other federal agencies, the states, and private sector partners to implement expanded programs to protect private well users, including, but not limited to:
   a. A nationwide assessment of the incidence of contamination of private wells by components of gasoline as well as by other common contaminants in shallow groundwater;
   b. Broad-based outreach and public education programs for owners and users of private wells on preventing, detecting, and treating contamination;
   c. Programs to encourage and facilitate regular water quality testing of private wells.

5. Implement, through public-private partnerships, expanded Public Education programs at the federal, state, and local levels on the proper handling and disposal of gasoline.

6. Develop and implement an integrated field research program into the groundwater behavior of gasoline and oxygenates, including:
   a. Identifying and initiating research at a population of UST release sites and nearby drinking water supplies including sites with MTBE, sites with ethanol, and sites using no oxygenate;
   b. Conducting broader, comparative studies of levels of MTBE, ethanol, benzene, and other gasoline compounds in drinking water supplies in areas using primarily MTBE, areas using primarily ethanol, and areas using no or lower levels of oxygenate.

Treatment and Remediation

7. EPA should work with Congress to expand resources available for the up-front funding of the treatment of drinking water supplies contaminated with MTBE and other gasoline components to ensure that affected supplies can be rapidly treated and returned to service, or that an alternative water supply can be provided. This could take a number of forms, including but not limited to:
   a. Enhancing the existing Federal Leaking Underground Storage Tank Trust Fund by fully appropriating the annual available amount in the Fund, ensuring that treatment of contaminated drinking water supplies can be funded, and streamlining the procedures for obtaining funding.
   b. Establishing another form of funding mechanism which ties the funding more directly to the source of contamination.
   c. Encouraging states to consider targeting State Revolving Funds (SRF) to help accelerate treatment and remediation in high priority areas.

8. Given the different behavior of MTBE in groundwater when compared to other components of gasoline, states in RFG and Oxyfuel areas should reexamine and enhance state and federal "triage" procedures for prioritizing remediation efforts at UST sites based on their proximity to drinking water supplies.

9. Accelerate laboratory and field research, and pilot projects, for the development and implementation of cost-effective water supply treatment and remediation technology, and harmonize these efforts with other public/private efforts underway.

Recommendations for Blending Fuel for Clean Air *and* Water

Based on its review of the current water protection programs, and the likely progress that can be made in tightening and strengthening those programs by implementing Recommendations 1 - 9 above, the Panel agreed broadly, although not unanimously, that even enhanced protection programs will not give adequate assurance that water supplies will be protected, and that changes need to be made to the RFG program to reduce the amount of MTBE being used, while ensuring that the air quality benefits of RFG, and fuel supply and price stability, are maintained.

Given the complexity of the national fuel system, the advantages and disadvantages of each of the fuel blending options the Panel considered (see Appendix A), and the need to maintain the air quality benefits of the current program, the Panel recommends an *integrated package* of actions by both Congress and EPA that should be *implemented as quickly as possible.* The key elements of that package, described in more detail below, are:

- Action agreed to broadly by the Panel to reduce the use of MTBE substantially (with some members supporting its complete phase out), and action by Congress to clarify federal and state authority to regulate and/or eliminate the use of gasoline additives that threaten drinking water supplies;

- Action by Congress to remove the current 2% oxygen requirement to ensure that adequate fuel supplies can be blended in a cost-effective manner while quickly reducing usage of MTBE; and

- Action by EPA to ensure that there is no loss of current air quality benefits.

The Oxygen Requirement

10. The current Clean Air Act requirement to require 2% oxygen, by weight, in RFG must be removed in order to provide flexibility to blend adequate fuel supplies in a cost-effective manner while quickly reducing usage of MTBE and maintaining air quality benefits.

The panel recognizes that Congress, when adopting the oxygen requirement, sought to advance several national policy goals (energy security and diversity, agricultural policy, etc) that are beyond the scope of our expertise and deliberations.

The panel further recognizes that if Congress acts on the recommendation to remove the requirement, Congress will likely seek other legislative mechanisms to fulfill these other national policy interests.

Maintaining Air Benefits

11. Present toxic emission performance of RFG can be attributed, to some degree, to a combination of three primary factors: 1) mass emission performance requirements, 2) the use of oxygenates, and 3) a necessary compliance margin with a per gallon standard. In Cal RFG, caps on specific components of fuel is an additional factor to which toxics emission reductions can be attributed.

Outside of California, lifting the oxygen requirement as recommended above may lead to fuel reformulations that achieve the minimum performance standards required under the 1990 Act, rather than the larger air quality benefits currently observed. In addition, changes in the RFG program could have adverse consequences for conventional gasoline as well.

Within California, lifting the oxygen requirement will result in greater flexibility to maintain and enhance emission reductions, particularly as California pursues new formulation requirements for gasoline.

In order to ensure that there is no loss of current air quality benefits, EPA should seek appropriate mechanisms for both the RFG Phase II and Conventional Gasoline programs to define and maintain in RFG II the real world performance observed in RFG Phase I while preventing deterioration of the current air quality performance of conventional gasoline.[2]

There are several possible mechanisms to accomplish this. One obvious way is to enhance the mass-based performance requirements currently used in the program. At the same time, the panel recognizes that the different exhaust components pose differential risks to public health due in large degree to their variable potency. The panel urges EPA to explore and implement mechanisms to achieve equivalent

[2]The Panel is aware of the current proposal for further changes to the sulfur levels of gasoline and recognizes that implementation of any change resulting from the Panel's recommendations will, of necessity, need to be coordinated with implementation of these other changes. However, a majority of the panel considered the maintenance of current RFG air quality benefits as separate from any additional benefits that might accrue from the sulfur changes currently under consideration.

or improved public health results that focus on reducing those compounds that pose the greatest risk.

Reducing the Use of MTBE

12. The Panel agreed broadly that, in order to minimize current and future threats to drinking water, the use of MTBE should be reduced substantially. Several members believed that the use of MTBE should be phased out completely. The Panel recommends that Congress act quickly to clarify federal and state authority to regulate and/or eliminate the use of gasoline additives that pose a threat to drinking water supplies[3].

Initial efforts to reduce should begin immediately, with substantial reductions to begin as soon as Recommendation 10 above - the removal of the 2% oxygen requirement - is implemented[4]. Accomplishing any such major change in the gasoline supply without disruptions to fuel supply and price will require adequate lead time - up to 4 years if the use of MTBE is eliminated, sooner in the case of a substantial reduction (e.g. returning to historical levels of MTBE use).

The Panel recommends, as well, that any reduction should be designed so as to

---

[3]Under §211 of the 1990 Clean Air Act, Congress provided EPA with authority to regulate fuel formulation to improve air quality. In addition to EPA's national authority, in §211(c)(4) Congress sought to balance the desire for maximum uniformity in our nation's fuel supply with the obligation to empower states to adopt measures necessary to meet national air quality standards. Under §211(c)(4), states may adopt regulations on the components of fuel, but must demonstrate that 1) their proposed regulations are needed to address a violation of the NAAQS and 2) it is not possible to achieve the desired outcome without such changes.

The panel recommends that Federal law be amended to clarify EPA and state authority to regulate and/or eliminate gasoline additives that threaten water supplies. It is expected that this would be done initially on a national level to maintain uniformity in the fuel supply. For further action by the states, the granting of such authority should be based upon a similar two part test:

1) states must demonstrate that their water resources are at risk from MTBE use, above and beyond the risk posed by other gasoline components at levels of MTBE use present at the time of the request.

2) states have taken necessary measures to restrict/eliminate the presence of gasoline in the water resource. To maximize the uniformity with which any changes are implemented and minimize impacts on cost and fuel supply, the panel recommends that EPA establish criteria for state waiver requests including but not limited to:

a. Water quality metrics necessary to demonstrate the risk to water resources and air quality metrics to ensure no loss of benefits from the federal RFG program.
b. Compliance with federal requirements to prevent leaking and spilling of gasoline.
c. Programs for remediation and response.
d. A consistent schedule for state demonstrations, EPA review, and any resulting regulation of the volume of gasoline components in order to minimize disruption to the fuel supply system.

[4]Although a rapid, substantial reduction will require removal of the oxygen requirement, EPA should, in order to enable initial reductions to occur as soon as possible, review administrative flexibility under existing law to allow refiners who desire to make reductions to begin doing so.

not result in an increase in MTBE use in Conventional Gasoline areas.

13. The other ethers (e.g. ETBE, TAME, and DIPE) have been less widely used and less widely studied than MTBE. To the extent that they have been studied, they appear to have similar, but not identical, chemical and hydrogeologic characteristics. The Panel recommends accelerated study of the health effects and groundwater characteristics of these compounds before they are allowed to be placed in widespread use.

    In addition, EPA and others should accelerate ongoing research efforts into the inhalation and ingestion health effects, air emission transformation byproducts, and environmental behavior of all oxygenates and other components likely to increase in the absence of MTBE. This should include research on ethanol, alkylates, and aromatics, as well as of gasoline compositions containing those components.

14. To ensure that any reduction is adequate to protect water supplies, the Panel recommends that EPA, in conjunction with USGS, the Departments of Agriculture and Energy, industry, and water suppliers, should move quickly to:

    a. Conduct short-term modeling analyses and other research based on existing data to estimate current and likely future threats of contamination;
    b. Establish routine systems to collect and publish, at least annually, all available monitoring data on:
        - use of MTBE, other ethers, and Ethanol,
        - levels of MTBE, Ethanol, and petroleum hydrocarbons found in ground, surface and drinking water,
        - trends in detections and levels of MTBE, Ethanol, and petroleum hydrocarbons in ground and drinking water;
    c. Identify and begin to collect additional data necessary to adequately assist the current and potential future state of contamination.

The Wintertime Oxyfuel Program

The Wintertime Oxyfuel Program continues to provide a means for some areas of the country to come into, or maintain, compliance with the Carbon Monoxide standard. Only a few metropolitan areas continue to use MTBE in this program. In most areas today, ethanol can and is meeting these wintertime needs for oxygen without raising volatility concerns given the season.

15. The Panel recommends that the Wintertime Oxyfuel program be continued (a) for as long as it provides a useful compliance and/or maintenance tool for the affected states and metropolitan areas, and (b) assuming that the clarification of state and federal authority described above is enacted to enable states, where necessary, to

regulate and/or eliminate the use of gasoline additives that threaten drinking water supplies.

Recommendations for Evaluating and Learning From Experience

The introduction of reformulated gasoline has had substantial air quality benefits, but has at the same time raised significant issues about the questions that should be asked before widespread introduction of a new, broadly-used product. The unanticipated effects of RFG on groundwater highlight the importance of exploring the potential for adverse effects in all media (air, soil, and water), and on human and ecosystem health, before widespread introduction of any new, broadly-used, product.

16. In order to prevent future such incidents, and to evaluate of the effectiveness and the impacts of the RFG program, EPA should:
    - d. Conduct a full, multi-media assessment (of effects on air, soil, and water) of any major new additive to gasoline prior to its introduction.
    - e. Establish routine and statistically valid methods for assessing the actual composition of RFG and its air quality benefits, including the development, to the maximum extent possible, of field monitoring and emissions characterization techniques to assess "real world" effects of different blends on emissions
    - f. Establish a routine process, perhaps as a part of the Annual Air Quality trends reporting process, for reporting on the air quality results from the RFG program.
    - g. Build on existing public health surveillance systems to measure the broader impact (both beneficial and adverse) of changes in gasoline formulations on public health and the environment.

Appendix A

In reviewing the RFG program, the panel identified three main options (MTBE and other ethers, ethanol, and a combination of alkylates and aromatics) for blending to meet air quality requirements. They identified strength and weaknesses of each option:

MTBE/other ethers	A cost-effective fuel blending component that provides high octane, carbon monoxide and exhaust VOCs emissions benefits, and appears to contribute to reduction of the use of aromatics with related toxics and other air quality benefits; has high solubility and low biodegradability in groundwater, leading to increased detections in drinking water, particularly in high MTBE use areas. Other ethers, such as ETBE, appear to have similar, but not identical, behavior in water, suggesting that more needs to be learned before widespread use
Ethanol	An effective fuel-blending component, made from domestic grain and potentially from recycled biomass, that provides high octane, carbon monoxide emission benefits, and appears to contribute to reduction of the use of aromatics with related toxics and other air quality benefits; can be blended to maintain low fuel volatility; could raise possibility of increased ozone precursor emissions as a result of commingling in gas tanks if ethanol is not present in a majority of fuels; is produced currently primarily in Midwest, requiring enhancement of infrastructure to meet broader demand; because of high biodegradability, may retard biodegradation and increase movement of benzene and other hydrocarbons around leaking tanks.
Blends of Alkylates and Aromatics	Effective fuel blending components made from crude oil; alkylates provide lower octane than oxygenates; increased use of aromatics will likely result in higher air toxics emissions than current RFG; would require enhancement of infrastructure to meet increased demand; have groundwater characteristics similar, but not identical, to other components of gasoline (i.e. low solubility and intermediate biodegradability)

Appendix B

Members of the Blue Ribbon Panel

Dan Greenbaum, Health Effects Institute, Chair
Mark Buehler, Metropolitan Water District, So. California
Robert Campbell, CEO, Sun Oil
Patricia Ellis, Hydrogeologist, Delaware Department of Natural Resources and Environmental Conservation
Linda Greer, Natural Resources Defense Council
Jason Grumet, NESCAUM
Anne Happel, Lawrence Livermore Nat. Lab
Carol Henry, American Petroleum Institute
Michael Kenny, California Air Resources Board
Robert Sawyer, University of California, Berkeley
Todd Sneller, Nebraska Ethanol Board
Debbie Starnes, Lyondell Chemical
Ron White, American Lung Assoc.

Federal representatives (Non-Voting):

Robert Perciasepe, Air and Radiation, US EPA
Roger Conway, US Dept. of Agriculture
Cynthia Dougherty, Drinking Water, U.S. EPA
William Farland, Risk Assessment, US EPA
Barry McNutt, US DOE
Margo Oge, Mobile Sources, US EPA
Samuel Ng, Underground Tanks, US EPA
Mary White, ATSDR
John Zogorski, USGS

○