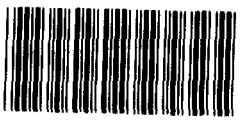
United States General Accounting Office 144117

GAO

Testimony



144117

For Release
on Delivery
Expected at
10:00 a.m. EDT
Wednesday
June 12, 1991

GASOLINE MARKETING: Consumers May Not Be Receiving the Octane They Are Paying for or May Be Unnecessarily Buying Premium Gasoline

Statement of
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Development Division

Before the
Subcommittee on Energy and Power
Committee on Energy and Commerce
House of Representatives

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss two of our reports. One, issued in April 1990, addresses gasoline octane mislabeling, and the other, issued in February 1991, addresses possible consumer overbuying of premium gasoline.[1] Consumers can purchase several grades of unleaded gasoline with different octane ratings--regular (87 octane), mid-grade (89 octane), and premium (91 octane or above). A major concern of consumers buying gasoline is that they purchase gasoline with an octane rating that meets their vehicles' octane requirements.

In summary, we found that consumers may unknowingly be purchasing gasoline with lower octane than needed because octane ratings are mislabeled on gasoline pumps. At the same time, other consumers, believing they may get better performance, may be knowingly buying higher priced premium gasoline when regular gasoline would meet their vehicles' needs. These practices could be costing consumers hundreds of millions of dollars each year.

My statement today will cover the following points, some of which were covered in earlier GAO testimony:[2]

-- Neither the Federal Trade Commission (FTC) nor the Environmental Protection Agency (EPA) have implemented a system of regulatory controls to ensure the accuracy of gasoline octane ratings, as required by the Petroleum Marketing Practices Act.

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[1]Gasoline Marketing: Consumers Have Limited Assurance That Octane Ratings Are Accurate (GAO/RCED-90-50, Apr. 16, 1990).

Gasoline Marketing: Premium Gasoline Overbuying May Be Occurring, but Extent Unknown (GAO/RCED-91-58, Feb. 26, 1991).

[2]Consumers Have Limited Assurance That Octane Ratings Are Accurate (GAO/T-RCED-90-90, June 20, 1990).

-- Octane mislabeling is occurring--and it is costly to consumers--but the extent of mislabeling nationwide is unknown.

-- According to the FTC, not all motor fuels are covered by the act--particularly newer alternative fuels used to combat automotive air pollution. The act should be amended to include octane posting and certification requirements for such motor fuels. It should also be amended to allow states more latitude in taking enforcement actions against octane mislabelers.

-- Ensuring the accuracy of octane ratings need not be entirely a federal effort. Options are available for involving the states more in implementing the act, which could provide greater assurance that consumers receive the octane they pay for. In April 1990, we reported that only 20 states had octane testing programs. Currently, 32 states have octane testing programs, and several other states are considering such programs.

-- Government and industry studies indicate that consumers may be buying premium gasoline when it is not needed. These studies show a 3- to 26-percentage-point difference between premium gasoline sales and the automotive fleet needing premium gasoline.

FTC AND EPA HAVE NOT EFFECTIVELY ENFORCED OCTANE LABELING REQUIREMENTS

The 1978 Petroleum Marketing Practices Act provides for a uniform nationwide system for ensuring that octane ratings are posted at the gasoline pump to help assure consumers that they are getting the correct octane gasoline for their vehicles. The act

requires FTC to set and define gasoline certification and octane posting requirements. The act also directs EPA to (1) inspect retail stations nationwide to ensure that octane ratings are correctly posted and (2) test the gasoline sold to ensure that the posted ratings are accurate. EPA is to report inspection and test results to FTC, which is authorized to prosecute violators and monitor compliance with the act.

In 1989 consumers purchased over 117 billion gallons of gasoline. As gasoline is refined and transported through a complex distribution system to retail stations, gasoline octane ratings can be accidentally or intentionally mislabeled. Using gasoline with too little octane can damage an engine, lower engine efficiency, reduce mileage, and increase polluting emissions. On the other hand, using gasoline with too much octane does not increase performance if the engine does not require it, and it is wasteful to consumers.

Our review showed that octane ratings were generally posted on the pump. However, EPA had not tested octane ratings at retail stations since 1981, and FTC had not ensured that the act's octane testing requirements were being met, nor had it prosecuted any violators. EPA and FTC officials cited staff and budget cuts as reasons for not implementing these requirements. Although no federal programs are in place to ensure the accuracy of octane ratings, FTC has recently begun taking some actions, such as surveying gasoline distributors to determine compliance with octane certification and posting requirements.

MISLABELING OCCURS, BUT EXTENT IS UNKNOWN

Although current information did not exist at the federal level on the nationwide extent of mislabeling, we did obtain industry and state information that indicates that mislabeling is occurring. While the information was not sufficient to determine

the extent or source of octane mislabeling nationwide, it indicated that consumers could have paid millions of dollars for gasoline octane they did not receive.

During our review, we asked EPA to analyze data it compiles from biannual gasoline quality surveys conducted by the Motor Vehicle Manufacturers Association (MVMA). MVMA is a trade association that tests gasoline characteristics nationwide. EPA's analysis of surveys conducted between 1979 and 1987 revealed that an average of about 9 percent of the gasoline sampled in markets representing over 90 percent of total domestic consumption was mislabeled by more than six-tenths of a point below the posted octane rating. In addition, the analysis showed that mislabeling occurred more frequently in premium (higher octane) gasoline. About 11 percent of the premium samples tested were mislabeled.

In our June 20, 1990, testimony before your Subcommittee, we included data obtained from EPA on MVMA's 1988 test results, 1988 being the most current full year for which data were available. The results of the 1988 tests showed an overall decrease in mislabeling by about 2 percent from the 1979-87 average. Although the statistics are better for 1988 when compared with prior years, the data continued to show that mislabeling is occurring.

In April 1990, we reported that only 20 states had octane testing programs. We obtained test results from 11 of the 20 testing states and found that in the majority of these states, mislabeling was less than 2 percent for the 1985-88 period. Officials from the testing states attributed the low rate of mislabeling to their state octane testing and enforcement programs.

On the other hand, officials in the seven states we visited that did not have an octane testing program believed that mislabeling was a problem in their states. One-time tests of gasoline octane levels in four of these seven states revealed that

mislabeling of gasoline samples ranged from 22 (Tennessee and Oregon) to about 52 (Michigan and Missouri) percent. These tests included tests conducted for GAO by EPA in two areas in Michigan and Missouri where samples were collected from retail stations suspected of selling mislabeled gasoline. (See attach. I.)

Officials from both testing and non-testing states agree that testing octane ratings to ensure that posted ratings are accurate is an effective deterrent to mislabeling.

After our field work was complete, Missouri and Tennessee began octane testing programs in October 1989 and March 1990, respectively. Missouri officials reported mislabeling of 11.4 percent during the last quarter of 1989 and 5.8 percent during 1990. Tennessee officials reported about a 17-percent mislabeling rate in March 1990, and about a 1-percent rate in April 1991. Officials of both states reported that the presence of an octane testing program has helped decrease the rate of mislabeling.

In addition, Michigan, which began octane testing in April 1991, reported test results showing a 22.5-percent mislabeling rate for April and May 1991. Other states that have started testing have generally conducted limited sampling and found mislabeling rates ranging from about 5 to 25 percent. Currently, 32 states test gasoline octane ratings through their own initiative. Attachment II shows the states that test for octane, as of June 1991.

Impact of Mislabeling on Consumers

When consumers buy gasoline with an octane rating lower than the rating posted on the pump, they are paying for octane they do not receive. The amount of money can be significant on a nationwide basis. For example, in our report and earlier testimony, we assumed that 9 percent of the 113 billion gallons of

gasoline sold in 1988 was mislabeled--which is the amount found in the MVMA data--by just one-half octane number and that each octane number represented 3 cents. This would mean that in 1988, consumers could have paid about $150 million for octane they did not receive. Since more gasoline was sold in 1989 than in 1988, and the difference between regular and premium gasoline prices was greater in 1989 than in 1988, costs to the consumer would have been even greater.

LIMITATIONS OF THE PETROLEUM MARKETING PRACTICES ACT

During our review, we found that FTC interpreted the Petroleum Marketing Practices Act as applying only to traditional gasoline fuels and excluded the newer gasoline-alcohol blends from the act's octane posting requirements. In 1979, an FTC staff opinion exempted gasohol, which is a blend of 90-percent gasoline and 10-percent ethanol, from the act's octane certification and posting requirements because the statutory definition of gasoline did not include such fuels.[3] FTC officials told us that other alternative fuels would also be exempt, following the same rationale used in 1979. As federal, state, and local governments increasingly require the use of these and other alternative fuels in urban areas to reduce air pollution, consumers could be without information on the octane levels of these newer fuels.

We are also concerned that the act appears to preempt any applicable state or local enforcement provisions differing from those of the act. Officials from states that test octane ratings believe other remedies and penalties can be more effective and cost-efficient in ensuring that posted octane ratings are accurate. For example, state officials believe that stop-sale orders, which

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[3]During hearings before this Subcommittee last year, FTC stated that it now takes the position that gasohol is covered by the act, but also indicated that proposed changes to the act would clarify this matter.

some states use to immediately halt the sale of mislabeled gasoline, can be more effective in ensuring compliance with the goals of the act. The act would seem to preempt such actions, and state officials were concerned that these actions could be challenged as being outside the act's authority.

Our April 1990 report recommended that the Petroleum Marketing Practices Act be amended to (1) include octane certification and posting requirements for gasoline-alcohol blends and other alternative motor fuels that may become available to reduce air pollution and (2) make it clear that states may employ a range of remedies broader than those available under the act to enforce octane posting requirements. Legislation being developed by this Subcommittee would address both of these concerns.

OPTIONS FOR INCREASING THE STATE ROLE

According to FTC and EPA officials, monitoring compliance with the act and prosecuting violators are not possible without additional funds. Over half the states currently have octane testing programs, and several other states are considering instituting such programs. Therefore, we believe options exist to formally involve the states in carrying out the act's objectives. State officials interviewed during our review indicated an interest in such an approach.

Officials we talked to from all of the states we visited were generally in favor of state testing and enforcement. According to officials from the testing states, ensuring that octane ratings are posted accurately and that mislabeling is prosecuted is primarily a local responsibility, and it is more effectively dealt with at the state--not national--level. However, several state officials were against the federal government's mandating state octane testing without providing funds for or sharing the costs of such programs.

Our April 1990 report recommended that FTC and EPA explore options for working with states in ways that should result in greater assurances that the labeling requirements of the Petroleum Marketing Practices Act are being complied with. We pointed out that a number of factors should be considered, such as the benefit and costs of the various options, as well as milestones for their implementation. FTC and EPA have discussed such options, but have not reached a decision on how best to proceed. However, we understand that FTC is conducting octane mislabeling investigations and has encouraged state officials to alert FTC of situations where they believe an octane mislabeling problem exists. In addition, in March 1991, FTC initiated a multiyear survey of gasoline distributors to determine compliance with octane certification and posting requirements. This survey will initially focus on gasoline distributors in states that have no octane-testing program and that suspect that they may have octane mislabeling problems.

POSSIBLE CONSUMER OVERBUYING OF PREMIUM GASOLINE, BUT EXTENT IS UNKNOWN

In another review, we were asked to determine whether consumers were buying premium gasoline that they may not need for their automobiles. In order to meet this objective, we interviewed officials from the three major domestic automobile manufacturers, oil refiners, the Department of Energy's (DOE) Energy Information Administration (EIA), and gasoline and automotive trade associations. In addition, we obtained and analyzed three studies --an EIA and two industry studies--which compared the percentage of premium gasoline sales with the percentage of cars on the road requiring premium gasoline.

Although not conclusive, the government and industry studies we reviewed indicate that consumers may be buying more premium gasoline than needed. The studies show that sales of premium gasoline, as a percentage of total gasoline sales, exceed the

percentage of vehicles on the road needing premium gasoline. For example, a March 1990 EIA report shows that the percentage of new cars needing premium gasoline decreased from about 27 percent in 1971 to about 6 percent in 1988. Furthermore, the study shows that the total automotive fleet on the road needing premium gasoline--which includes all cars, old and new--decreased from 18 percent in 1983 to 15 percent in 1988. At the same time, according to EIA information, premium gasoline sales increased from 14 percent of total nationwide gasoline sales in 1984 to 23 percent in 1989.

Industry and government studies estimate that the differences between the percentage of premium gasoline sales and the percentage of the automotive fleet needing premium gasoline vary from 3 to 26 percent. One of the studies, which was done by the American Petroleum Institute, showed a 3-percentage-point difference. A second study, done by General Motors Corporation (GM), showed a 26-percentage-point difference. EIA's study showed a 9-percentage-point difference. Methodological differences and data limitations between the studies contributed to the wide range of estimates. Also, the studies do not discuss the different usage patterns or fuel efficiencies that may exist between automobiles using premium and regular gasolines. Attachment III summarizes the findings of these studies.

Although the above studies cannot be used to conclusively demonstrate premium gasoline overbuying, other evidence suggests that some overbuying may be occurring. According to the EIA study and an automobile industry official, the relatively low price of premium gasoline in recent years has spurred its increased use. When premium gasoline prices from 1984 to 1989 are adjusted for inflation, the retail price of premium gasoline was actually lower in 1989 than the price of regular gasoline in 1984. According to EIA officials, the choice for premium gasoline is price sensitive. In 1986, the average price of premium gasoline fell 27 cents to 75 cents per gallon[4] and the premium sales growth rate increased

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[4]Prices do not include taxes.

almost 4 percentage points. In 1989, when premium gasoline prices increased, the sales of premium gasoline decreased.

The August 2, 1990, Iraqi invasion of Kuwait further illustrates the effect of increased gasoline prices on the grade of gasoline purchased. For example, a Washington, D.C., area industry official told us that the average premium wholesale price for eight major brands of gasoline in the greater Washington, D.C., market rose from $1.17 to $1.46 per gallon, during a 2-1/2-month period after the invasion. (The average price of regular gasoline also increased about the same amount.) During this same time period, premium gasoline sales, as a percentage of total gasoline sales, dropped from 40 to 20 percent, a 50-percent loss in the market share--which could mean that consumer overbuying was occurring. Officials of three major U.S. refineries indicated to us that the general increase in gasoline prices has significantly lowered premium gasoline's market share nationwide.

Reasons Why Consumers Use Premium Gasoline

As discussed above, consumers' choice of premium gasoline may in some instances depend on price rather than need. In addition to price, consumers may use premium gasoline because it is perceived as a better product for their vehicle, according to an automobile industry consultant. Some consumers may consider premium gasoline to be a luxury item containing properties that regular gasoline does not. FTC officials told us that advertising also may encourage the use of premium gasoline. According to FTC officials, most gasoline advertising is tied to premium gasoline, which highlights claims of more power and the detergent aspects of gasoline.

Although manufacturers recommend 87 octane gasoline for most automobiles, other factors may point to a need for higher octane gasoline in the vehicles on the road. For example, a Society of

Automotive Engineers' report states that increased octane need can stem from an automobile's aging.[5] In general, as a car ages, its octane requirement increases by about 5 octane points. Most of the increase occurs within the first 15,000 miles, and is due primarily to a buildup of carbon deposits in the combustion chamber. These deposits lead to an increase in the compression ratio and thus increased octane need. Carbon deposits also trap heat and transfer it to the fuel, resulting in premature ignition or engine knock. Industry officials told us that normal variances in manufacturing automotive engines could affect the need for a higher octane than recommended by the manufacturer in some cars. To offset these effects, auto manufacturers design and build most vehicles so that they do not require an octane rating higher than regular.

In addition, factors such as ambient weather conditions, altitude, and driving conditions can also affect octane requirements. The automobile octane requirement, on average, decreases with lower temperature, higher humidity, or higher altitude. Conversely, the automobile octane requirement rises when these conditions are reversed. Octane requirements can also be higher under stressful driving conditions, such as during rapid acceleration or pulling a heavy load up a hill.

Potential Impact of Premium Gasoline Overbuying on Consumers

Premium gasoline overbuying can be costly to consumers when viewed on a nationwide basis. In 1989, gasoline sales amounted to about 117 billion gallons, and the average price difference between premium and regular gasoline was 14 cents per gallon. If one assumes that the 3- to 26-percentage-point differences between premium gasoline sales and fleet requirements shown in the studies

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[5]Trends in Octane Number Requirement Increase, Society of Automotive Engineers Technical Paper Series (Sept. 1989).

we reviewed do in fact represent overbuying, it would mean that consumers may have spent from $491 million to about $4.3 billion in 1989 for premium gasoline that was not required. Again, as pointed out above, these studies do not conclusively prove that overbuying is occurring. The results are used here for illustrative purposes to show the possible consumer cost associated with overbuying.

In January 1991, FTC issued a consumer fact sheet to help prevent consumer overbuying of premium gasoline. The fact sheet explains octane ratings and how consumers can determine the octane they should purchase for their vehicles. Specifically, it points out that most cars do not need a high octane gasoline to perform properly and efficiently. In addition, FTC, EPA, DOE, and the American Automobile Association are discussing the possibility of conducting a nationwide campaign to educate the public on buying the gasoline needed for their vehicles.

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In summary, we believe that consumers need increased assurance that posted octane ratings are accurate and need increased awareness as to the octane required for their vehicles. The increase in the number of states instituting octane testing programs; actions being taken by FTC to enforce octane labeling and to work with states in ensuring the accuracy of octane labeling; your proposed legislation, which addresses our report recommendations to provide greater assurance that posted octane ratings are accurate; and recent FTC initiatives to inform consumers of gasoline octane needs for their vehicles are steps in the right direction toward preventing octane mislabeling and premium gasoline overbuying, which could be costing consumers hundreds of millions of dollars each year.

This concludes my prepared statement. I would be pleased to respond to any questions you or Members of the Subcommittee may have.

ATTACHMENT I

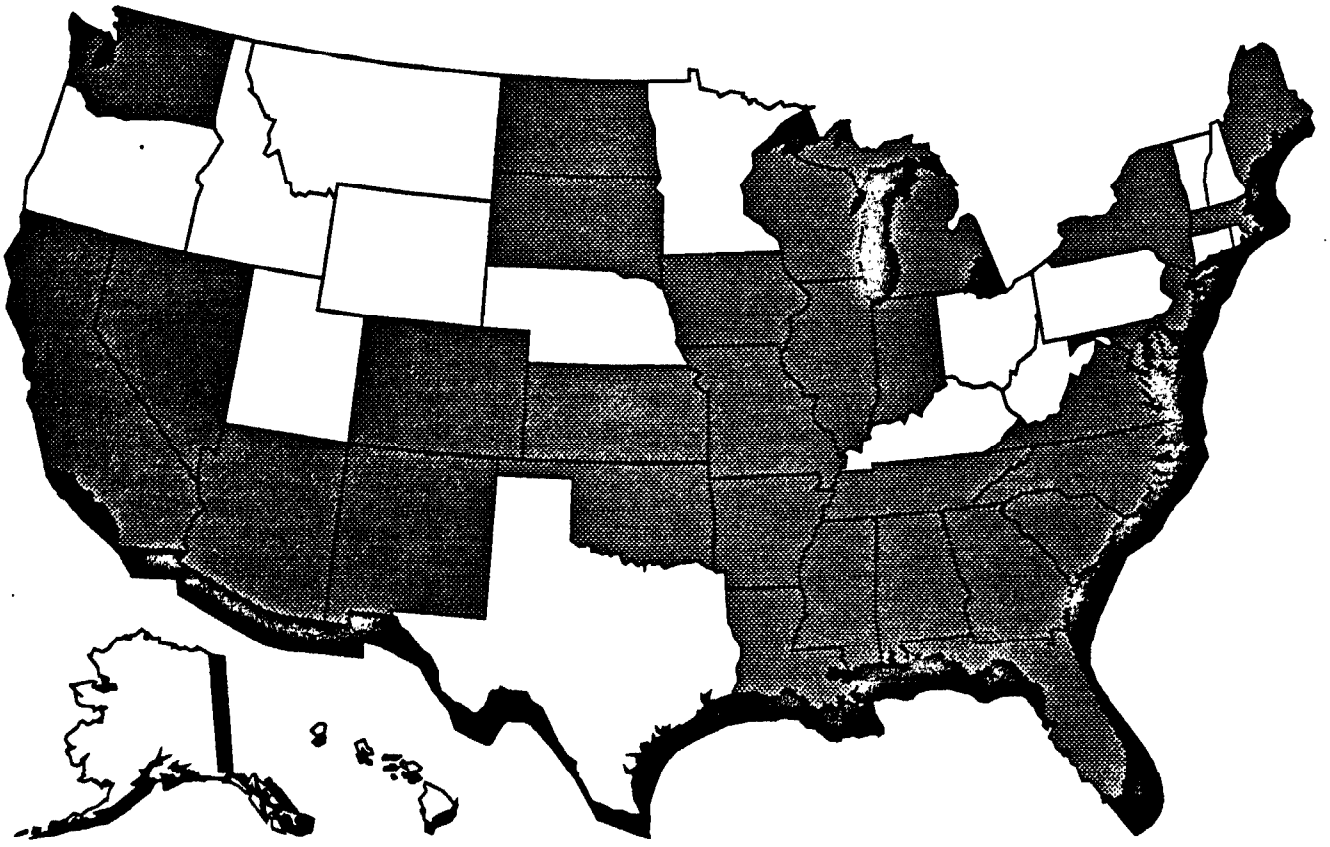
OCTANE TEST RESULTS

State	Total samples	Samples mislabeled	Percent mislabeled	Mislabeling criteria[a]
Oregon	110	24	21.8	0.6
Tennessee	81	18	22.2	0.6
Michigan	27	14	51.9	0.6
Missouri	38	20	52.6	0.6

[a]We applied a six-tenths octane point mislabeling criteria to determine the number of violations based on tolerance levels used by some testing states and the American Society of Testing and Materials in their procedures for testing octane. If posted ratings exceeded actual ratings by this amount or more, a violation occurred.

ATTACHMENT II

GAO States With Gasoline Octane Testing Programs



No Octane Testing Program

Octane Testing Program

Note: Indiana and New York have enacted state laws providing for octane testing programs. Testing is expected to begin in the summer of 1991 in Indiana and as soon as New York's program budget is approved.

ATTACHMENT III

SUMMARY OF THREE STUDIES COMPARING PREMIUM GASOLINE SALES WITH THE AUTOMOTIVE FLEET NEEDING PREMIUM GASOLINE

Table III.1

Estimates of U.S. Fleet Requiring Premium Gasoline and Sales of Premium Gasoline as a Percentage of Gasoline Sales

Study	Percent of premium sales	Percent of fleet needing premium gasoline	Difference (percent)
EIA	24[a]	15[b]	9
API	24[a]	21[b]	3
GM[c]	29[d]	3	26

[a]The EIA and API sales data reflect 1988 premium sales as a percentage of total gasoline sales.

[b]The analysis includes passenger cars only for the 1960-88 model years.

[c]The analysis includes passenger cars, vans, and light-duty trucks for the 1975-86 model years.

[d]GM sales data reflect 1986 premium unleaded sales as a percentage of unleaded gasoline sales only. On the other hand, EIA and API data reflect premium sales as a percentage of leaded as well as unleaded gasoline sold.

ABSTRACT OF STATEMENT BY JUDY A. ENGLAND-JOSEPH
UNITED STATES GENERAL ACCOUNTING OFFICE
June 12, 1991

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss two of our reports. One, issued in April 1990, addresses gasoline octane mislabeling, and the other, issued in February 1991, addresses possible consumer overbuying of premium gasoline.

In summary, we found that consumers may unknowingly be purchasing gasoline with lower octane than needed because octane ratings are mislabeled on gasoline pumps. At the same time, other consumers, believing they may get better performance, may be knowingly buying higher priced premium gasoline when regular gasoline would meet their vehicles' needs. These practices could be costing consumers hundreds of millions of dollars each year.

My statement today will cover the following points:

-- Neither the Federal Trade Commission (FTC) nor the Environmental Protection Agency (EPA) have implemented a system of regulatory controls to ensure the accuracy of gasoline octane ratings, as required by the Petroleum Marketing Practices Act.

-- Octane mislabeling is occurring--and it is costly to consumers--but the extent of mislabeling nationwide is unknown.

-- According to the FTC, not all motor fuels are covered by the act--particularly newer alternative fuels used to combat automotive air pollution. The act should be amended to include octane posting and certification requirements for such motor fuels. It should also be amended to allow states more latitude in taking enforcement actions against octane mislabelers.

-- Ensuring the accuracy of octane ratings need not be entirely a federal effort. Options are available for involving the states more in implementing the act which could provide greater assurance that consumers receive the octane they pay for. In April 1990, we reported that only 20 states had octane testing programs. Currently, 32 states have octane testing programs and several other states are considering such programs.

-- Government and industry studies indicate that consumers may be buying more premium gasoline than needed for their vehicles. These studies show a 3- to 26-percentage-point difference between premium gasoline sales and the automotive fleet needing premium gasoline.

We believe that consumers need increased assurance that posted octane ratings are accurate and need increased awareness as to the octane required for their vehicles. The increase in the number of states instituting octane testing programs; actions being taken by FTC to enforce octane labeling and to work with states in assuring the accuracy of octane labeling; your proposed legislation, which addresses our report recommendations to provide greater assurance that posted octane ratings are accurate; and recent FTC initiatives to inform consumers of gasoline octane needs for their vehicles are steps in the right direction toward preventing octane mislabeling and premium gasoline overbuying.