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MOTOR FUELS

Stakeholder Views on Compensating for the Effects of Gasoline Temperature on Volume at the Pump

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Highlights

Highlights of GAO-08-1114, a report to the Chairman, Committee on Science and Technology, House of Representatives

Why GAO Did This Study

The volume, but not the energy content, of hydrocarbon fuels, such as gasoline and diesel, varies in response to changes in temperature. Thus, because of expansion, the energy content per gallon of 90 degree fuel is less than that of 60 degree fuel. States and localities adopt and enforce weights and measures regulations, often using the model regulatory standards published by the National Institute of Standards and Technology (NIST). Although technology now exists to compensate for the effects of temperature on gas volume, the costs of doing so at the retail level have become the subject of much debate among weights and measures officials, consumer groups, and representatives of the petroleum and fuel marketing industries.

GAO was asked to provide information on (1) the views of U.S. stakeholders on the costs to implement automatic temperature compensation, (2) the views of U.S. stakeholders on who would bear these costs, and (3) the reasons some state and national governments have adopted or rejected automatic temperature compensation. To do this work, GAO reviewed NIST and other documents and congressional testimony; interviewed stakeholders from 3 federal agencies, 17 states, and 15 groups representing a variety of interests, including consumers, truck drivers, and the oil and gas industry; and interviewed officials in 5 other nations.

Various stakeholders and officials provided technical and other comments, which were incorporated in the report as appropriate.

To view the full product, including the scope and methodology, click on GAO-08-1114. For more information, contact David Maurer at (202) 512-3841 or maurerd@gao.gov.

What GAO Found

The costs to implement automatic temperature compensation are unclear. Most stakeholders said that implementing automatic temperature compensation for retail sales would involve the cost to purchase, install, and inspect new equipment on pumps, as well as costs to educate consumers about the change. Some stakeholders said the costs to adopt automatic temperature compensation ranged from $1,300 to $3,000 per pump, but none had estimated the total costs nationwide, in part because complete data are not available. Estimates of the cost to inspect the new equipment varied. Officials in a small number of states said inspection times would increase by 20 to 50 percent, while officials in three other states said the costs would not be significant. No stakeholders had developed estimates of the costs to educate consumers.

Stakeholders differ on whether retailers, consumers, or both would ultimately bear the costs of implementing automatic temperature compensation at the retail level. Some stakeholders, including state officials and industry representatives, said that the costs would be passed on to consumers through higher prices for fuel or other goods sold at retail stations. Others, such as consumer groups, said that retailers and consumers would share the costs and benefits. That is, some retailers could use funds they receive from major oil companies for remodeling to pay for the equipment. These stakeholders also said the benefits include consistent energy content for consumers and improved inventory management for retailers. Stakeholder views were largely based on professional judgment and general economic theory rather than on studies or other data, and most stakeholders said that a comprehensive cost-benefit analysis would provide policymakers with important information.

Governments that have adopted or permitted automatic temperature compensation for retail fuel sales cited improved measurement accuracy and greater equity between retailers and consumers as reasons for making the change; those that have prohibited it largely cited concerns that the costs would outweigh the benefits. Hawaii adopted temperature compensation more than 26 years ago because it provided purchasing equity for the industry and consumers. In 2008, Belgium mandated temperature compensation to help ensure more consistent energy content for consumers. Canadian officials cited improved measurement equity and accuracy as reasons for allowing retailers to sell temperature-compensated fuel in the early 1990s. In the United States, officials from eight states that have laws or regulations that prohibit automatic temperature compensation said the decision should be based on an analysis of the costs and benefits, with some expressing concern that the costs would outweigh the benefits. None of the governments that have adopted automatic temperature compensation have studied its impact.