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Report to the Honorable Tom Udall, House of Representatives:

United States General Accounting Office:

GAO:

June 2003:

Propane:

Causes of Price Volatility, Potential Consumer Options, and Opportunities to Improve Consumer Information and Federal Oversight:

GAO-03-762:

GAO Highlights:

Highlights of GAO-03-762, a report to the Honorable Tom Udall, House of Representatives

Why GAO Did This Study:

More than 4.6 million residential households in the U.S., many with low incomes, rely on propane to heat their homes. Unfortunately, propane prices have been subject to major price spikes in two of the last three winters. Responding to congressional concern caused by these price spikes, GAO undertook a study to address the (1) factors that affect residential propane price volatility, (2) options available to propane consumers to mitigate price volatility, and (3) federal role in the propane market.

What GAO Found:

Propane price spikes are generally caused by the inability of propane supplies to adjust to unusual demand increases, such as those caused by especially cold winters. In addition, the lack of local propane storage and the constrained capacity of the distribution system can create bottlenecks in moving propane to consumers in periods of high demand.

Potential options to help propane consumers deal with price spikes include programs to pre-buy propane at a certain price. Such price stabilization programs help consumers mitigate the impact of price volatility. Participants in such programs may pay higher or lower prices compared to those who buy propane at the market price but would not be subject to price volatility. However, the extent to which such programs have broader potential is unclear. In locations where such options are available, for various reasons, use has been mixed, with low participation rates overall. These options are not available in some markets, and some consumers may not be able to afford to pre-buy propane. Energy assistance programs can help these consumers. But federal funding has declined, and the timing of funding availability generally does not allow participation in price stabilization programs. Improved information on such programs may be useful to consumers not facing other barriers.

A number of federal agencies are involved to some extent in different aspects of the propane market, but some opportunities exist to improve their propane related roles. In 1996, the Congress authorized the establishment of the Propane Education and Research Council to provide programs for propane research and development, safety and training, and consumer education, with oversight from the Departments of Commerce and Energy, but that oversight has been insufficient. Also, the Department of Energy’s Energy Information Administration could study the potential costs and benefits of continuing to improve the propane market information it provides to propane market participants.

What GAO Recommends:

We are recommending that the Departments of Commerce and Energy provide more active oversight of the legislatively established Propane Education and Research Council. In addition, we are recommending that Department of Energy’s Energy Information Administration study the potential cost and benefits of continuing to improve information for propane market participants.

In commenting on the report, the Departments of Commerce and Energy generally agreed with our findings and recommendations. However, the Department of Energy disagreed that it has oversight responsibility for the Propane Education and Research Council. In addition, the council questioned the value of federal oversight of the council’s programs and activities.

[End of section]

Contents:

Letter:

Abbreviations:

CFTC: Commodity Futures Trading Commission:

DOE: Department of Energy:

DOJ: Department of Justice:

DOT: Department of Transportation:

EERE: Energy Efficiency and Renewable Energy:

EIA: Energy Information Administration:

FERC: Federal Energy Regulatory Commission:

FTC: Federal Trade Commission:

HHS: Health and Human Services:

LIHEAP: Low-Income Home Energy Assistance Program:

LPG: liquid petroleum gas:

NPGA: National Propane Gas Association:

PERC: Propane Education and Research Council:

SEC: Securities and Exchange Commission:

SHOPP: State Heating Oil and Propane Program:

United States General Accounting Office:

Washington, DC 20548:

June 27, 2003:

The Honorable Tom Udall
House of Representatives:

Dear Mr. Udall:

More than 4.6 million households in the United States rely on propane

to heat their homes, though some of these households and millions of others also use propane for cooking and heating water. Many of these residential propane users have low incomes, making them particularly vulnerable to large propane price increases. In fact, more than 35 percent of the households using propane to heat their homes are eligible for low-income government financial assistance in meeting energy needs. During the winter of 2000-2001, propane prices reached levels that were about 70 percent higher than average winter propane prices from 1995 to 2000. While prices were lower the following winter, they spiked upward again this past winter. Although propane prices are typically cyclical with higher prices during the winter and lower prices in the summer, figure 1 illustrates the significantly higher price spikes that have occurred in two of the last three winters compared with most previous winters.

Figure 1: Residential Propane Prices--1995 to 2003:

Note: Monthly prices in 2002 constant dollars, January 1995 to March 2003.

[End of figure]

This report addresses (1) factors that cause propane price spikes, (2) options for residential consumers to mitigate the effects of price spikes, and (3) the federal government's role in the propane market.

In addressing these issues, we examined government and industry price data to determine how propane prices have behaved over time and obtained historical propane-price information at the wholesale and retail levels. To determine the reasons for price spikes, we reviewed literature on propane markets and discussed the market with industry experts. We also contacted state energy office officials and state attorney general offices to get their views of propane prices and markets. To identify the uses of and availability of various price stabilization options, we interviewed industry groups, five multistate residential propane corporations, and various independent or corporate retail outlets within three states. To assess whether consumers might benefit from price stabilization programs, we compared wholesale market prices as reported for Mont Belvieu, Texas, (the most widely recognized prices in the world propane market) from June 1998 through March 2003 to comparable fixed price contract values offered by a major multistate propane marketer during the summer months. In addition, we collected and analyzed funding data on state low-income energy assistance programs and talked with state officials regarding how their various low-income energy assistance programs can help mitigate the impact of price spikes. Finally, to examine the federal government's role in the propane market, we obtained documents and interviewed officials at federal agencies responsible for programs that have a role in some aspect of the propane market. We performed our review from July 2002 through May 2003 in accordance with generally accepted auditing standards. A detailed description of our objectives, scope, and methodology is contained in appendix I.

Results in Brief:

Propane price spikes are generally caused by the inability of propane supplies to adjust quickly to unusual demand increases, such as those caused by especially cold winters. Propane is a by-product of two processes: natural gas production and petroleum refining. Thus, there is no readily available source of incremental production that can increase supply when needed. While storing excess propane can provide a cushion against unexpected demand increases, nationwide storage at the local retail level is limited. Much of the available storage is located at two major distribution centers in Mont Belvieu, Texas, and Conway, Kansas. In addition, propane is primarily transported on pipeline systems that have limited capacity. This lack of local propane storage and the constrained capacity of the distribution system can and has created bottlenecks in moving propane to consumers in periods of high demand as occurred in two of the last three winters.

Some propane marketers offer residential consumers purchasing options for mitigating the effects of propane price spikes that are designed to allow consumers to stabilize their propane costs, yet these options are not widely used. Such price stabilization options include advance purchases, fixed-price contracts, and capped-price contracts. In general, these options enable the consumer to purchase, or contract for, propane in advance at a fixed or limited price. Participation in these programs may require some upfront costs, and participants may, depending on whether market prices spike, have a higher or lower propane bill for a given year compared to those who buy propane at the current market price. However, participants in such price stabilization options would achieve a benefit from the certainty associated with paying a fixed price. According to several major multistate propane marketers, few of their customers use these price stabilization options for a number of reasons, including difficulty in educating consumers about these options. Furthermore, in some markets these options may be unavailable or some consumers may not be able to participate because they cannot afford advance payments or are poor credit risks. Low-income consumer assistance programs run by state governments can help these consumers mitigate the impact of energy price spikes, including propane. However, federal funding for these programs has declined (in terms of constant dollars), and the timing of the funding availability generally does not allow participation in price stabilization options.

A number of federal agencies are involved to some extent in different aspects of the propane market. The Federal Energy Regulatory Commission is responsible for ensuring "just and reasonable rates" for interstate transportation of propane through pipelines. The Department of Transportation deals with safety issues regarding different modes of transportation, including motor carrier and pipeline transportation of propane. The Securities and Exchange Commission, the Federal Trade Commission, and the Department of Justice play roles in maintaining competitive energy markets in general through their regulation of firms participating in these markets, while the Commodity Futures Trading Commission is responsible for overseeing the nation's energy commodity futures and options markets. In addition, in 1996 the Congress authorized the establishment of the Propane Education and Research Council (PERC) to provide programs for propane research and development, safety and training, and consumer education, with oversight from the Departments of Commerce and Energy. Finally, the Department of Energy's Energy Information Administration (EIA) is responsible for providing information on energy in general, including

information on propane that promotes sound policymaking, efficient markets, and consumer understanding.

Opportunities exist to improve the performance of some federal agencies in carrying out their responsibilities that are related to the propane market. Specifically, under the Propane Education and Research Act of 1996 (the Act), the Departments of Commerce and Energy have oversight roles and responsibilities for PERC, but that oversight has been insufficient. The Department of Commerce is required to prepare two reports: one analyzing propane prices and the other examining the effects of PERC's operation. According to Commerce Department officials, however, the department has not completed any such reports because it has been unaware of that responsibility. The Act also requires PERC to submit its budget to the Secretary of Energy who may recommend appropriate programs and activities. However, according to Department of Energy officials, the department has not conducted any detailed budget reviews, recommended any programs, or conducted any further oversight because it does not believe it has a role in the propane market. As a result, the federal government has no measure of PERC's effectiveness in conducting its programs, nor is it in a position to recommend appropriate programs and activities.

Moreover, some opportunities may exist for EIA to improve the propane market information it provides. Specifically, although one of EIA's primary purposes is to provide consumers with information on energy, including propane, EIA does not collect consumer propane price information for all states, gather information on price stabilization options, or provide information to consumers on different purchasing options. In addition, EIA is continuing to work to address industry concerns that inventory data are incomplete. According to EIA officials, propane consumers constitute a relatively small portion of energy consumers, and because EIA has to prioritize limited resources, it has chosen to focus its efforts on more widely used energy sources. As a result, opportunities may exist for EIA to further improve the propane market information it provides, although the potential benefit of any improvements must be weighed against the potential cost.

We are recommending that the Department of Commerce complete its required reports analyzing propane prices and examining the effects of PERC's operation. We are also recommending that the Department of Energy conduct more active oversight of PERC in order to be in a better position to recommend appropriate programs and activities. In addition, we are recommending that EIA study the potential cost and benefits of continuing to improve EIA's propane market information. Consideration should be given to improving information for consumers on prices and different purchasing options as well as inventory data.

Background:

Propane, also known as a liquid petroleum gas (LPG), ranks as the fourth most important source of residential heating in the nation and is used to heat over 4.6 million homes. The demand for propane is divided among various sectors, with the residential-commercial sector[Footnote 1] purchasing about 45 percent of total production and the petrochemical industry purchasing about 37 percent in fiscal year 2001. The principal users of propane and their respective shares of total sales are shown in figure 2 below.

Figure 2: Propane Usage by Sector, Fiscal Year 2001:

[See PDF for image]

Notes: GAO analyzed American Petroleum Institute data.

[End of figure]

The residential-commercial sector includes sales to smaller types of businesses (such as motels, restaurants, retail stores) primarily for space-heating, water heating, and cooking.

The agricultural sector includes propane used for space heating, cooking, and heating water in a farmhouse, as well as other agricultural uses, such as crop drying, fuel to heat hen houses and other farm buildings, and irrigation pump fuel.

While these two sectors appear to be competing for the same product, typically petrochemical companies purchase propane during the summer, when prices tend to be lower and residential demand is low. During the winter months when the demand for residential propane increases and prices are at their highest, petrochemical companies switch to other, less expensive types of feedstock or rely on stored propane purchased during the summer months.

Approximately 90 percent of the United States' propane supply, 17.2 billion gallons in 2002, is produced domestically, while about 10 percent is imported from foreign countries, primarily from Canada. Propane is a by-product resulting from both the refining of crude oil and from natural gas processing with approximately equal amounts of total propane produced from each process. After crude oil and gas are extracted from the earth, they are shipped to an oil refinery or natural gas fractionation plant, where propane is one of many products that can be extracted from the oil and gas. Propane is a liquid when kept under moderately high pressure or low temperature and is generally stored at large major distribution centers. When ready for use, propane is released from pressure and at normal atmospheric pressure becomes a gas that can be burned to produce energy. A major purchaser of propane is the petrochemical industry (which may resell this propane at a later date). Propane is then shipped from major distribution centers to terminals primarily by pipeline but also by rail cars, transport trucks, or barges and ships. Once the propane reaches these terminals, local retail marketers transport propane to their local retail plant using highway transport trucks. About 75 percent of the propane is transported by a pipeline-truck combination. Finally, these marketers distribute it to their customers using small delivery trucks called bobtails. Retail propane marketers range in size from small, family-owned businesses to large multistate corporations. While there are approximately 13,500 retail propane outlets throughout the country, the five largest corporate marketers account for about 28 percent of the total retail sales. Figure 3 below illustrates the production, distribution, and utilization of propane.

Figure 3: Propane Production, Distribution, and Utilization:

[See PDF for image]

[End of figure]

Price Spikes Caused by Inability of Supply to Respond to Weather-Driven Surges in Demand:

Propane price spikes are generally caused by the inability of propane supplies to quickly adjust to unusual demand increases, such as those caused by especially cold winters. Since neither propane supply nor propane demand can easily adjust to changes, they are considered "inelastic" and changes in supply or demand can result in significant changes in the market price. Propane supply is relatively inelastic because there is no readily available source of incremental production that can increase supply when needed since propane is a by-product of two processes: natural gas production and crude oil refining. Residential demand for propane is relatively inelastic because propane is a basic necessity used for home heating and switching to alternative sources of heat is usually not practical during the short period of time in which price spikes occur. Weather is the key factor that drives home heating demand, and its unpredictability can lead to wide swings in residential demand that in turn lead to significant changes in market prices, both upward and downward. Compounding the inelastic supply and demand situation, propane storage and transportation systems have limited capacity, which can create bottlenecks in quickly moving propane to consumers, particularly in periods of high demand.

Propane Market Supply and Demand Are Inelastic:

Since propane is produced as a by-product of natural gas processing or crude oil refining, and because there is no readily available source of incremental production that can increase supply when needed, the supply of propane is relatively inelastic. The amount of propane available to the market depends on several factors, including the price of propane relative to the price of natural gas. Some propane must be extracted from the natural gas in order for the natural gas to be transported through the natural gas pipelines; but there is some flexibility in the amount of propane retained. If the price of natural gas is high compared to the price of propane, then it is more economical for producers to leave more propane in the natural gas to take advantage of the price difference, thereby reducing the available supply of propane. Similarly, crude oil manufacturers may retain propane to be used as a heating fuel for crude oil processing rather than purchasing higher-priced natural gas for that purpose.

Within the residential propane market, the demand for propane is also inelastic because propane is a "necessary" good that is used to heat homes. Consumers who heat their homes with propane will require a certain quantity of propane even if propane prices are high. Furthermore, quickly switching between alternative heating fuels is not easily accomplished especially in a short period of time during which the price spikes typically occur. Most homes have invested in one primary heating system, and it is neither easy nor economical to switch among systems using different fuels. For example, an individual may replace an obsolete furnace with one utilizing an alternative fuel, but it may not be easy or economical to switch solely on the basis of current prices of different heating fuels. Alternatives to propane--which include electricity, heating oil and wood--generally require

retrofitting the heating units for the alternative fuel. In addition, some added costs could be incurred in switching among retailers or among heating fuels.

Any market with inelastic supply and demand characteristics --as is the case in the propane market --is more susceptible to significant price fluctuations than a more elastic market. In an inelastic market, relatively small shifts in supply or demand can result in significant price changes. Propane supply is relatively fixed in the short term because it is limited to available storage within the market and cannot be quickly increased to meet increased demand. Thus, increases in demand through such factors as cold weather will result in a greater increase in price than if the supply were more elastic. Also, because demand is inelastic, decreases in supply will result in a greater increase in price than if demand were more elastic. Supply decreases can occur in propane markets when pipelines break, when gas processing procedures do not extract as much propane from the natural gas-propane mix, when crude oil refiners retain propane for fueling the crude oil refining process rather than utilizing natural gas, or when imports are reduced because of world events.

Basically, in the perfectly inelastic supply market, more demand competes for the same level of supply driving prices higher than they would go if supply were more readily available --more elastic. Figure 4 illustrates this example by comparing the smaller price increase in a market with elastic supply (panel A) with the larger price increase in a market with perfectly inelastic supply (panel B) when faced with the same increased level of demand. Figure 5 demonstrates the difference for a market with both inelastic supply and inelastic demand --as is the case with the propane market. Note the comparison between the smaller price increase in a market with both elastic supply and elastic demand (panel A) and the larger price increase in a market with inelastic supply and demand (panel B) when demand increases and supply decreases.

Figure 4: Comparison of Price Impacts of Elastic Supply and Inelastic Supply:

Note: In panel A, assume we have a good with elastic supply; elastic supply is represented by a supply line whose upward slope is relatively not very steep. Initially, the price and quantity settle at PA0 and quantity Q0 as determined by the intersection of supply SA and demand D0. Next, assume that demand increases, as depicted by an outward shift in the demand line to D1. Because supply is somewhat elastic, additional supply is made available to meet the increased demand, albeit at a higher price PA1. The increase in price is represented by DPA --the difference between PA1 and PA0. However, in an inelastic supply situation, the supply response is weaker. A more limited quantity is supplied to the market to meet the increase demand, resulting in a steeper rise in price than in the more elastic case. Graphically, this inelasticity is represented by a supply line that is much steeper than the elastic supply line. Taking an extreme example, assume that supply is perfectly inelastic --that is, supply is fixed no matter what the demand --as depicted in panel B with a vertical supply line SB. The initial price and quantity are the same as in panel A.

Given the fixed supply, in order to meet the same increase in demand to D1, the price would have to increase to PB1 to "choke off" the excess demand. The increase in price from PB0 to PB1 for the inelastic supply case, as represented by DPB, is significantly higher than the increase in price in the elastic supply case, DPA.

[End of figure]

Figure 5: Comparison of Price Impacts of Elastic and Inelastic Supply and Demand:

[See PDF for image]

Note: To provide a more complete picture, figure 5 compares a market with elastic supply and demand with a market with inelastic supply and demand --like the propane market --to further illustrate the greater price response to shifts in inelastic supply and demand. The elastic supply and demand market (panel A) has relatively less steep supply and demand lines, while the inelastic supply and demand market (panel B) is characterized by much steeper supply and demand lines. The primary observation is the difference in the price response to changes in supply and demand in the elastic market in panel A (PA0 versus PA1) compared with the price response in the inelastic market in panel B (PB0 versus PB1). In both examples, supply drops as depicted by an inward shift from S0 to S1. In this market, this drop could be due, for example, to an accident that disrupts a major pipeline. Also, in both examples, demand rises, as depicted by an outward shift from D0 to D1. In this market, this could be the result of an unusually cold winter snap. We have constructed both examples in such a way as to leave the quantity of the commodity unchanged at Q0. As can be seen, in the market with elastic supply and demand, the decline in supply and the rise in demand result in a relatively small price increase (DPA). However, in the market with inelastic supply and demand, the increase in price due to the supply and demand shifts is considerably larger (DPB).

[End of figure]

Weather Is a Major Determinant of Residential Propane Demand:

Because of the influence of the weather on residential demand, total propane demand generally mirrors the seasonal demand in the residential-commercial sector (which accounts for more than 45 percent of total demand), rising during the winter months but falling during spring and summer. During especially cold weather, residential demand can increase quickly. Since the petrochemical industry tends to purchase propane during the non-heating season, it has diminished impact on demand during the winter. While total demand for propane averaged about 52.5 million gallons per day in 2002, monthly levels varied significantly, from a low of about 40.3 million gallons per day during June to a high of about 69.6 million barrels per day during January. Figure 6 shows, from July 1997 through November 2002, the relationship between cold weather, as measured by heating degree days,[Footnote 2] and propane demand for heating and illustrates that as heating degree days increase, so does the amount of propane used.

Figure 6: Demand Compared with Heating Degree Days for July 1997

through November 2002:

[See PDF for image]

[End of figure]

To complicate this market even further, the largest component of the agricultural demand for propane is for crop drying. This demand is not only seasonal but can vary greatly from year to year depending on crop size and moisture content. Ordinarily, agricultural demand for propane does not affect regional propane markets except when the confluence of unusually high and late demand for propane for crop drying and colder-than-normal weather causes greater-than-normal propane stock draws. Since this generally occurs at the beginning of the heating season, many retailers find themselves with low inventory levels at the same time that residential demand is increasing.

Propane Storage and Transportation Infrastructure Is Limited:

There are three propane storage types: primary, secondary, and tertiary. Primary propane storage in the United States is clustered near the domestic propane market's two major distribution centers in Mont Belvieu, Texas, and Conway, Kansas. These areas have become major distribution centers because propane is primarily produced along the Gulf Coast and in the Midwestern portions of the country. In addition, salt dome caverns, which are natural storage facilities with virtually unlimited capacity, are located near these areas. Secondary storage consists mainly of large aboveground tanks with capacity of 18,000 to 30,000 gallons located at approximately 13,500 local retailers. Nationwide storage at the secondary, local retail level is limited. An industry expert estimates total secondary storage at about 3.85 percent of annual retail sales. Industry experts have stated that most retailers maintain only a few days' supply at the secondary level because, for economic reasons, propane retailers employ a "just-in-time" inventory approach. Thus, they must refill their tanks every few days during the peak heating season. These experts have suggested that retailers should maintain up to a 2-week supply to ensure uninterrupted supply. Tertiary storage is the storage capability of end users. Such storage is represented by millions of small (typically 100 gallon to 500 gallon) tanks located mostly at residences.

While storing excess propane could provide a cushion against unexpected demand increases, because much of the available storage is located at the two major distribution centers in Texas and Kansas, it is difficult to get this stored propane out to consumers at the residential level quickly. The key mode of transporting this propane is using pipelines that link these areas to the areas of primary demand, the Midwestern and the Northeastern United States. However, these pipelines have a limited capacity such that during the heating seasons rationing and long waiting lines often exist at distribution points along these pipelines. Lead times for supplying propane to a specific area of the country depend on the distance from the two major distribution centers, pipeline availability to the area, and transport truck capacity and availability. These constraints are illustrated in figure 7, which demonstrates the bottlenecks, limited pipeline capacity, and secondary storage occurring in the propane industry.

Figure 7: Constraints in Quickly Moving Stored Propane to Residential Consumers:

[See PDF for image]

[End of figure]

Some Residential Consumers May Have Options to Mitigate Price Spikes:

Some propane marketers offer residential consumers purchasing options for mitigating the effects of propane price spikes that are designed to allow consumers to stabilize their propane costs. Such programs may include advance purchases, fixed-price contracts, and capped-price contracts, all of which enable the consumer to purchase propane at a known, stable price over the upcoming heating season. While these price stabilization programs offer no guarantee of lower prices in any given year, consumers could benefit from more stable prices and avoid the effects of the price spikes that periodically occur. However, the extent to which these programs can be utilized is not certain due to a number of factors. In some locations, propane marketers do not offer these programs. In locations where these programs are available, consumers either chose not to participate or cannot participate because they cannot afford the upfront costs or do not have the credit required by such programs. For low-income consumers, including those who use propane to heat their homes, access to funding from state-operated assistance programs may help them mitigate the impact of higher energy costs. However, since 1982 federal funding for these programs has declined in real terms, and the timing of the funding availability generally does not allow these consumers to take advantage of price stabilization programs.

Price Stabilization Programs:

Residential consumers in some markets can stabilize monthly bills by participating in propane marketer price stabilization programs as an alternative to purchasing propane at the current market price when it is needed. The programs offered by many propane marketers include advance purchase, fixed-price contracts and capped-price contracts. In general, these options enable the consumer to purchase propane at a fixed price, thus allowing them to remain unaffected by propane price volatility during the next heating season. Advance purchase or prebuy options allow residential consumers to secure propane at a predetermined price for deliveries made throughout the ensuing heating season. Fixed-price contracts ensure guaranteed, "not-to-exceed" prices for the heating season propane purchases. Capped-price contracts, similar to fixed-price contracts, guarantee the fuel price will not exceed a fixed price but may go down on the basis of market price at time of delivery. For a price, this option provides consumers the assurance of taking advantage of lower prices if the market price drops while protecting them from price spikes. Many of these programs also offer budget-paying options where total propane expenses are spread over a monthly payment, but these programs may require an adequate credit rating. According to the propane marketers we contacted, the advanced purchase and fixed-price options were the most common type of option offered while fewer offered the capped-price contract type of option.

Potential Impact of Price Stabilization Programs:

The difference in prices paid by residential consumers who participate in price stabilization programs depends on how low the program price is compared to what would be paid at the going market price. The prices offered under these programs for the upcoming winter are typically tied to the price during the current summer. When market prices increase as a result of a colder winter with high demand, the residential consumers not participating in a price stabilization program may face higher prices than those participating in a stabilization program. However, market prices can also be lower in the winter, especially during a warmer winter with low demand, and consumers participating in a stabilization program may pay higher retail prices. Some programs may involve additional cost considerations, such as interest income that is foregone because of advance payments and service fees that may be required. Although there are no guarantees that these options will provide an overall lower fuel bill, they provide stable, known prices for those who are risk-averse and offer a way to hedge prices, especially when shortages can cause prices to spike, as they did during the winter of 2000-2001.

To demonstrate the potential differences in total costs between consumers who participate in a price stabilization option and those who do not, we conducted an analysis based on a hypothetical consumer and compared purchases under actual market prices and fixed prices actually offered by a large multistate retailer over the last 5 years. We determined the market prices by averaging the daily Mont Belvieu, Texas, prices[Footnote 3] for each month during the 5 years of winter heating seasons. We obtained comparable fixed-price contract prices from a large corporate retailer.[Footnote 4] Based on the profile of an average residential consumer in a significant winter heating region, our hypothetical consumer participating in the price stabilization program purchases 900 gallons of propane per year. For purposes of this example, we assumed that the price stabilization program participant commits to purchasing 900 gallons during the summer each year for a total of 4500 gallons over the 5 years. For the consumer buying at the current market price, we assume the consumer buys the amount of propane actually needed that heating season (which varies with demand). We calculated the amounts purchased each year by dividing the national residential propane demand for each year by the total national demand for the 5-year period to determine the percentage of total demand for each year. We then used the resulting percentages to allocate our hypothetical 5-year consumption of 4500 gallons over each of the 5 years. In both cases, the total propane purchased by both consumers would be the same (4500 gallons).

As table 1 shows, over the last five winters, the hypothetical consumer using a fixed-price contract would have spent more for propane in two winters (1998 to 1999 and 2001 to 2002), but less in three winters (1999 to 2000, 2000 to 2001, and 2002 to 2003). Although there is no guarantee that taking advantage of any of these price stabilization programs will result in a lower heating bill for a given year, this example demonstrates that, depending on the relationship between fixed prices and market prices, consumers may experience higher costs from such programs in some years but may actually have savings in other years. However, consumers who participate in these price stabilization programs may benefit from the certainty associated with paying a fixed,

known price and avoid the negative impact of price spikes.

Table 1: Comparison of the Costs of Typical Consumer Purchases over a 5-Year Period under 2 Purchasing Options:

Winter: 1998-1999; Average fixed-price contract: Gallons purchased: 900; Average fixed-price contract: Price per gallon: $.24; Average fixed-price contract: Total cost: $216; Average winter market price: Gallons purchased: 901; Average winter market price: Price per gallon: $.23; Average winter market price: Total cost: $210; Difference in cost: $6.

Winter: 1999-2000; Average fixed-price contract: Gallons purchased: 900; Average fixed-price contract: Price per gallon: .30; Average fixed-price contract: Total cost: 270; Average winter market price: Gallons purchased: 872; Average winter market price: Price per gallon: .50; Average winter market price: Total cost: 433; Difference in cost: (163).

Winter: 2000-2001; Average fixed-price contract: Gallons purchased: 900; Average fixed-price contract: Price per gallon: .56; Average fixed-price contract: Total cost: 504; Average winter market price: Gallons purchased: 949; Average winter market price: Price per gallon: .65; Average winter market price: Total cost: 621; Difference in cost: (117).

Winter: 2001-2002; Average fixed-price contract: Gallons purchased: 900; Average fixed-price contract: Price per gallon: .40; Average fixed-price contract: Total cost: 360; Average winter market price: Gallons purchased: 877; Average winter market price: Price per gallon: .34; Average winter market price: Total cost: 294; Difference in cost: 66.

Winter: 2002-2003; Average fixed-price contract: Gallons purchased: 900; Average fixed-price contract: Price per gallon: .38; Average fixed-price contract: Total cost: 342; Average winter market price: Gallons purchased: 902; Average winter market price: Price per gallon: .59; Average winter market price: Total cost: 528; Difference in cost: (186).

Source: GAO analysis.

Note: GAO analyzed EIA and industry data.

[End of table]

Price Stabilization Programs Not Widely Used:

According to several nationwide propane marketers, overall, few of their customers use these price stabilization programs in locations where they are available. All of the large nationwide propane marketers that we spoke with indicated that most (83 percent to 95 percent) of their residential consumers purchase their propane at current market prices and do not participate in the price stabilization programs. However, participation can vary widely by region: the local propane outlets that we contacted indicated that the percentage of consumers who purchased their propane using one of their price stabilization

programs varied widely. For example, we talked to five Minnesota propane marketers that all offered price stabilization options and participation among their customers ranged from 25 to 70 percent. All five marketers that we talked to in Vermont offered price stabilization options with participation ranging from 5 percent to 65 percent. In some other markets, the price stabilization options are not widely offered. For example, a New Mexico National Propane Gas Association official was aware of only one propane marketer in New Mexico that offered price stabilization options.

Propane marketers that we talked to identified several reasons that price stabilization programs are not widely used. In some cases, the marketers viewed price stabilization programs as beneficial for their business practice, yet they have had difficulty educating consumers regarding the benefits of price stabilization programs. Some marketers said they find it difficult to convince consumers to purchase propane before they need it, especially in the summer when demand is down. As noted above, in some years consumers may pay more for propane under price stabilization options, which can discourage them from participating in the program in following years. In fact, some consumers may renege on the conditions of a price stabilization program. This type of negative reaction may cause retailers to not offer these options. For example, in the past, one retailer in New Mexico offered a fixed-price contract option to consumers; however, many participants in the program failed to purchase the contracted amounts at the contracted fixed price. When prices fell that year, participating consumers refused to pay the higher contracted fixed price. Thus, under the program, the retailer was stuck with higher priced propane that had already been bought from a supplier. This retailer has decided not to offer this type of contract in the future. The low-income status of many propane consumers can also be a barrier to participation in propane price stabilization options. In general, to participate in price stabilization programs, consumers are required to pay all or part of the cost for the contracted propane upfront or to negotiate for a budget payment arrangement. In some cases, consumers cannot afford to pay the full amount of the contract, and, in order to participate in a budget payment arrange, the consumers need a good credit rating, which some propane consumers do not maintain. Consequently, in some markets either these options are unavailable, or some consumers cannot participate because they cannot afford advance payments or are poor credit risks. Consumers who can qualify for price stabilization programs may want to switch to a propane marketer that offers such an option. Most propane marketers told us that it is easy to change marketers. However, in some cases external factors may make it difficult to change marketers. For instance, in New Mexico, many of the older homes have galvanized steel pipes (generally referred to as "black pipes"), which are underground and subject to corrosion. Regulations in New Mexico mandate that underground black pipe must be replaced due to serious safety concerns about the potential for corrosion. This becomes an issue when the home owner decides to switch marketers, triggering a state inspection that would require pipes found in violation to be replaced. This replacement can be cost-prohibitive for propane users, especially low-income homeowners, and can inhibit them from making a change.

Energy Assistance Programs Are Available to Low-Income Residential Consumers:

According to 1990 decennial data provided by the U. S. Census and furnished by the Department of Health and Human Services (HHS), 26 percent of households across the nation, more than 24 million, meet federal income guidelines to qualify for low-income energy assistance and 8 percent of those, more than 1.8 million households, use propane gas as their primary fuel. In 3 states, 20 percent or more of low-income households use propane gas as their primary fuel. All states operate programs that provide funding to low-income consumers, including households that use propane to heat their homes to assist them with their home energy needs. The federal government provides funding through two block grant programs as follows:

* The Low-Income Home Energy Assistance Program (LIHEAP) administered by HHS provides block grants to states to fund payment assistance to low-income households as well as crisis assistance and some weatherization assistance. As a block grant program, LIHEAP offers much flexibility to states to administer their energy assistance programs in the way that they feel best serves their low-income populations. Each state operates its own program, to include taking applications, establishing eligibility, and making decisions on the kinds of assistance it will offer.

* DOE's Weatherization Assistance Program provides funds to make dwellings more fuel efficient in the long term for low-income households.

In fiscal year 2002, federal funding for LIHEAP was $1.8 billion, about 8 times greater than the $230 million provided for the longer-term DOE weatherization program. However, since LIHEAP's establishment in 1981, its appropriations have significantly decreased. The 2002 appropriation was $1.8 billion, which is more than a 40-percent decrease from its initial funding level after allowing for inflation. Federal funding for DOE weatherization, established in 1976, has fluctuated from 165 percent, based on the 1982 level, in 1983, to 52 percent in 1996, and was at 96 percent of the 1982 level in 2002 after allowing for inflation. However, because the HHS LIHEAP appropriations are much larger than the DOE weatherization appropriations, combined federal funding from both programs for 2002 was still 40 percent less than the 1982 level. Appendix II provides details on the federal appropriations for LIHEAP and DOE weatherization for 1982 through 2002. Figure 8 shows total LIHEAP plus DOE weatherization appropriations for 1982 through 2002 (in 2002 dollars).

Figure 8: Total LIHEAP/Weatherization Appropriations for Fiscal Years 1982 through 2002, Constant 2002 Dollars:

[See PDF for image]

Note: GAO analyzed Congressional Research Service and DOE weatherization appropriation data.

[End of figure]

Many state officials told us that not knowing the federal funding levels during the summer is an impediment to their ability to plan LIHEAP funded activities, including the participation in various price

stabilization programs. In 1990, we suggested the Congress consider forward funding for the program to increase funding flexibility.[Footnote 5] One benefit of forward funding is that states could take advantage of price stabilization options to cushion the effects of price increases, including summer fill programs, and fixed-price contracts, as suggested by industry, state, and federal government officials. As an example of success with these types of programs, in 1997, we reported that the state of South Dakota, through a summer fill program, saved 59 cents per gallon for its customers in the 1996-1997 heating season. The state also arranged fixed-price contracts for elderly and handicapped clients for 1997-1998 heating season.[Footnote 6]

More recently, several groups have requested forward funding through advance appropriations or advance funding[Footnote 7] for LIHEAP. The Coalition of Northeastern Governors in March of 2001 urged the House Committee on Appropriations' Subcommittee on Labor, Health and Human Services, Education, and Related Agencies to provide an advance appropriation and advance funding for LIHEAP for fiscal year 2003 as part of its deliberations for the fiscal year 2002 LIHEAP appropriation. In April of 2002, 129 congressmen, members of the bipartisan Northeast-Midwest Congressional Coalition, requested that the Labor-HHS-Education Appropriations bill include $3 billion in advance appropriations for LIHEAP in fiscal year 2004. They stated "an advance appropriation would enable state LIHEAP directors to plan the use of their state's LIHEAP allocation for the following fiscal year, including prepurchasing winter heating fuels to take advantage of lower prices." As recently as January 2003, 48 senators sent a letter to the President advocating the inclusion of advance funding for fiscal year 2004 in the fiscal year 2003 appropriations request.

Funding for these LIHEAP programs is provided through federal grants and state supplemental sources. While federal LIHEAP funding accounted for the majority of funding nationwide in fiscal year 2002, state supplemental funding can vary significantly by state. In California, federal funds only accounted for 21 percent of total LIHEAP funding in fiscal year 2002. Other states like New Mexico, are much more dependent on federal funds, with 94 percent of total funding in fiscal year 2002 coming from the federal government. Details on federal and state LIHEAP funding for each state in fiscal year 2002, the most recent year available, can be found in appendix II.

Numerous Federal Agencies Are Involved in Various Aspects of the Propane Market, but Consumer Information and Federal Oversight Could Be Improved:

While no single federal agency is solely responsible for overseeing all propane-related activities and programs, numerous federal agencies have specific propane-related responsibilities. Two federal agencies, the Departments of Commerce and Energy, have oversight roles and responsibilities for the Propane Education and Research Council, but this oversight has been lacking. One federal agency, EIA, within the Department of Energy, is responsible for providing the public and various other groups with information on energy, including propane. Although EIA collects propane energy information, it does not report propane price information for all states nor provide information to consumers on the use of different price stabilization options.

Improvements in this information could help more consumers by providing more information on propane prices and buying options. In addition, EIA is working to address concerns that EIA inventory statistics used by industry to make purchasing and pricing decisions are incomplete.

Federal Agencies Are Involved in Various Aspects of the Propane Market:

Several federal agencies have activities and programs that touch on propane-related issues as part of each agency's respective overall mission and objectives. However, no single federal agency is focused specifically on overseeing propane-related activities and programs. These activities and programs include various responsibilities--for example, overseeing the transportation of propane and monitoring the competitiveness of propane markets. Table 2 briefly describes these various federal agencies' roles in the propane market.

Table 2: Federal Agencies and Their Respective Roles within the Propane Market:

Agency: Department of Energy (DOE); Role in Propane Market: DOE's role in the propane market is part of its overall role in fostering a secure and reliable energy system that is environmentally and economically sustainable. The Secretary of Energy has an oversight role regarding the Propane Education and Research Council's (PERC) activities and programs.

Agency: DOE's Energy Information Administration (EIA); Role in Propane Market: EIA serves as the lead federal authority for energy information to meet the needs of Congress, the federal government, industry, and the public for policy making, efficient markets, and public understanding. As part of this larger role, EIA collects and disseminates data on propane prices and supply.

Agency: Federal Energy Regulatory Commission (FERC); Role in Propane Market: FERC is an independent agency responsible for ensuring "just and reasonable rates" for interstate transportation of propane through pipelines.

Agency: Department of Commerce; Role in Propane Market: Commerce has a role in the propane market as part of its overall goal to encourage, serve, and promote the nation's international trade, economic growth, and technological advancement. Commerce is required to monitor and report on the effects of PERC's programs on propane markets.

Agency: Department of Justice; Role in Propane Market: The Antitrust Division of the Department of Justice enforces federal antitrust laws in the propane market as part of its overall role in promoting and maintaining competitive markets.

Agency: Federal Trade Commission (FTC); Role in Propane Market: FTC enforces laws that prohibit business practices that are anticompetitive, deceptive, or unfair to consumers and promotes informed consumer choice and public understanding of the competitive process.

Agency: Securities and Exchange Commission (SEC); Role in Propane Market: As part of SEC's role in securities markets, its overall role

is providing protection for investors to ensure that they are fair and honest and, when necessary, to provide the means to enforce securities laws through sanctions.

Agency: Commodity Futures Trading Commission; (CFTC); Role in Propane Market: CFTC is responsible for overseeing the nation's energy commodity futures and options markets, including propane futures and options markets.

Agency: U.S. Department of Transportation (DOT); Role in Propane Market: Three DOT entities deal with safety issues regarding different modes of transporting propane: the Federal Motor Carrier Safety Administration (preventing commercial motor vehicle-related fatalities and injuries); the Federal Railroad Administration (promoting safe and environmentally sound rail transportation); and the Research and Special Programs Administration (ensuring the safe transportation of packaged hazardous materials by all modes and the safe transportation of natural gas, petroleum, and other gas and liquid hazardous materials by pipeline). DOT grants waivers for motor carrier drivers during emergencies. State governors can petition DOT for these waivers or grant waivers themselves.

Source: GAO presentation.

[End of table]

Federal Oversight of PERC Has Been Lacking:

The Propane Education and Research Act, which was enacted on October 11, 1996, authorized the establishment of PERC to enhance consumer and employee safety and training, to provide for research and development of clean and efficient propane utilization equipment, and to inform and educate the public about safety and other issues associated with the use of propane. PERC's membership is made up primarily of representatives from the propane production and marketing industry. PERC is similar to agricultural commodity check-off programs involving such commodities as beef, pork, and cotton. In a check-off program, a fraction of the wholesale cost of the product is set aside by the product producer and deposited into a common fund that can be employed to the benefit of commodity producers and consumers. Similarly, PERC is funded by an assessment of up to 0.5 cents on each gallon of odorized propane gas. PERC may take no action to pass along to consumers the cost of this assessment, which is currently 0.4 cents per gallon.[Footnote 8] In fiscal year 2003, this assessment is anticipated to support a PERC budget of about $38 million.

The Propane Education and Research Act establishes oversight roles and responsibilities for two Federal agencies, the Departments of Commerce and Energy, but federal oversight has been lacking. The Department of Commerce is required to prepare two reports relating to PERC. First, beginning in 1999, the Commerce Department was to prepare annual analyses of changes in the price of propane relative to other energy sources and to make these analyses available to PERC, the Secretary of Energy, and the public. If in any year the 5-year average rolling price of propane exceeds a certain price composite index by more than 10.1 percent, PERC's activities are to be restricted to research and development, training, and safety matters. [Footnote 9] Second, in 1998

and at least once every 2 years thereafter, the Department of Commerce is to prepare and submit a report to the Congress and the Secretary of Energy examining whether PERC's operation, in conjunction with the cumulative effects of market changes and federal programs, has had an effect on propane consumers. In preparing this report, Commerce is required to consider whether there have been changes in the proportion of propane demand attributable to various market segments. In addition, the Commerce Department is required to consider whether there have been long-term and short-term effects on propane prices as a result of PERC's activities and federal programs. If the Commerce Department determines that there has been an adverse effect on consumers, the Secretary is to include recommendations for correcting the situation. According to Commerce Department officials, however, the department has not completed any of the required analyses or reports because it was unaware of that responsibility.

The Secretary of Energy also has an oversight role in PERC's programs and activities. PERC is required to submit its annual budget to DOE, and DOE may recommend activities and programs it considers appropriate. However, DOE has not conducted in-depth reviews of PERC's budget and has not provided any recommendations to PERC regarding its programs and activities because it does not believe it has a role in the propane market.[Footnote 10] DOE is also authorized to request reports on PERC's activities, as well as reports on compliance, violations, and complaints regarding the implementation of the Propane Education and Research Act. However, DOE has not requested such reports because it believes that the Department of Commerce, not DOE, is responsible for PERC oversight. Since DOE has not directly received any consumer complaints pursuant to which it would take action, it has not considered it appropriate, or necessary, to request reports on PERC activities or on compliance, violations, or complaints. In addition, DOE has not monitored PERC's activities, or taken any other action, to determine whether propane assessment costs are improperly being passed on to consumers. Finally, DOE stated that it has incurred no oversight costs and that it was unaware that it had authority under the Propane Education and Research Act to seek reimbursement for oversight costs incurred by the federal government.

Since its inception, PERC's assessment rate, and therefore its revenue, has continued to increase. Table 3 shows the assessment rates, assessment revenues, and the percentages of the assessment revenues spent on each category of expenditures in each year from 1998 to 2003.

Table 3: PERC Assessment Revenues and Expenditures for 1998 to 2003:

Year: 1998; Assessment rate (cents per gallon): 0.1; Assessment revenues: $ 8,581,329; Communications and consumer education[B] (%): 23; Research and development[B] (%): 13; Safety and training[B] (%): 16; Other[A,B] (%): 11.

Year: 1999; Assessment rate (cents per gallon): 0.1; Assessment revenues: 9,666,889; Communications and consumer education[B] (%): 25; Research and development[B] (%): 16; Safety and training[B] (%): 22; Other[A,B] (%): 17.

Year: 2000; Assessment rate (cents per gallon): 0.1; Assessment revenues: 10,012,106; Communications and consumer education[B] (%): 32;

Research and development[B] (%): 12; Safety and training[B] (%): 19; Other[A,B] (%): 21.

Year: 2001; Assessment rate (cents per gallon): 0.2; Assessment revenues: 19,236,525; Communications and consumer education[B] (%): 49; Research and development[B] (%): 12; Safety and training[B] (%): 16; Other[A,B] (%): 13.

Year: 2002; Assessment rate (cents per gallon): 0.3; Assessment revenues: 29,526,723; Communications and consumer education[B] (%): 53; Research and development[B] (%): 8; Safety and training[B] (%): 17; Other[A,B] (%): 16.

Year: 2003[C]; Assessment rate (cents per gallon): 0.4; Assessment revenues: 38,000,000; Communications and consumer education[B] (%): 54; Research and development[B] (%): 17; Safety and training[B] (%): 13; Other[A,B] (%): 15.

Source: GAO analysis of PERC data.

Note: All assessment revenues may not be spent in any given year but could be carried over to subsequent years if the revenues were not all spent. As a result, expenditures for the four categories may not total 100 percent. At the end of 2002, PERC had $5,163,370 in cash and cash equivalents and $12,457,904 in current and long-term investments.

[A] Other includes agriculture (not less than 5 percent of the funds collected through assessments shall be used for programs and projects intended to benefit the agricultural industry), administrative (costs can not exceed 10 percent of the funds collected in any fiscal year), propane industry relations, and other miscellaneous items such as depreciation, and other administrative costs.

[B] Rebates to state propane councils or similar entities (20 percent of the regular assessment collected by PERC in that state is rebated if the state has its own propane council or similar entity) may be included in all four expenditure categories.

[C] Assessment revenue for 2003 is a budgeted projection. The expenditure percentages are based on the budgeted expenditures and do not include the budgeted expenditures for the state rebates since these rebates have not been finalized.

[End of table]

Of its 2003 budget of $38 million, PERC budgeted about 54 percent for communications and consumer education, which in the past has included an advertising campaign that marketed and promoted propane. This advertising campaign has included television and radio advertisements to promote the safe, efficient use of propane as a preferred energy source. While the Propane Education and Research Act does not prohibit the use of funds for marketing and promotion activities, there is some indication in the legislative history that assessment funds were not intended to be used primarily for these purposes. Specifically, although PERC was modeled after agricultural check-off programs, a June 27, 1996, Senate report stated that, unlike the agricultural check-off programs that focused on marketing and promotion, the emphasis of

PERC's propane assessment was to be research and development.[Footnote 11] In 1996, the Propane Consumers Coalition emphasized the importance of federal oversight in ensuring that marketing and promotional programs designed to develop and preserve markets for propane are not undertaken in the guise of educational programs. In 1995 hearings, Congressman Dan Schaefer voiced his concern that PERC not result in a federal government requirement that customers pay for advertising a product the customers already use and that may ultimately cause an increase in propane prices. Under the Propane Education and Research Act, PERC is prohibited from taking any action to pass the cost of the assessment along to consumers, but as a result of the lack of federal oversight of PERC, the federal government has no assurance that this has not occurred. Moreover, the federal government has no measure of the effect of PERC's operation on propane consumers and is not in a position to recommend appropriate programs and activities.

EIA Propane Information May Be Enhanced:

Over time, EIA has tried to improve its propane market information available to the users of its data; however, some opportunities may exist for further enhancement of the propane information provided. For example, although one of EIA's primary purposes is to provide the public with information on energy, including propane, EIA does not collect propane price information that is reportable for all states at all times of the year or provide information to consumers on different price stabilization options. In addition, EIA is working to address concerns that EIA inventory data used by industry to make purchasing and pricing decisions are incomplete. According to EIA officials, propane consumers constitute a relatively small portion of energy consumers, and, because EIA has limited resources, it has chosen to focus its efforts on more widely used energy sources. EIA may need to reassess the propane market information it provides, although the potential benefit of any improvements must be weighed against the potential cost.

Price Information Is Collected Only for Certain States During the Winter:

The EIA State Heating Oil and Propane Program (SHOPP), a joint effort between state energy offices in the 24 participating states[Footnote 12] and DOE's EIA, collects heating oil and propane pricing data in Midwestern and Northeastern states. This program was originally established in the 1970s to collect heating oil information. EIA began to collect propane price information in 1990 in response to a price spike during particularly cold weather in December 1989 in the Northeast and Midwest areas of the country. According to EIA, their analysis of energy markets during periods of tight supply prove that readily available, state specific information on prices is one factor that can calm energy markets and work to prevent higher price spikes. However, because only 24 states participate in SHOPP, this type of price information is not available for all states, even though other states also have residential propane consumers who experience price spikes. For example, in response to high propane prices in New Mexico, the New Mexico Public Regulation Commission passed a resolution in 2001 requesting an investigation into the adequacy of propane gas supplies and to study the merits of regulating prices. In addition, for those states that are included in the program today, data are only available

for the winter heating season. In implementing the collection of propane price information, EIA decided to limit the propane information data it collected to states in the Northeast and Midwest, most of which were already participating in heating oil price collection. Since this program has a limited budget of $275,000 per year, EIA stated that without additional funding, it could not expand the program to include prices for additional states or for additional months.

EIA Does Not Provide Information on Price Stabilization Options:

EIA does not provide any information regarding residential propane price stabilization programs, such as fixed-price options. For example, the EIA consumer information brochure, Propane Prices: What Consumers Should Know, does not mention price stabilization options. EIA does include a section discussing the reason price spikes may occur but it offers no information on alternatives for consumers to consider to potentially protect themselves from the possibility of price spikes. Alternatively, EIA's information brochure, Residential Heating Oil Prices: What Consumers Should Know--in a section called "What can you do to lower your heating oil bill?"--does discuss the use of price stabilization options as a mechanism to help keep costs down, thus protecting against price spikes. In addition, EIA does not collect price information on price stabilization programs as part of its existing price collection surveys. However, in at least one state, this type of information is collected. In the summer of each year the state of Vermont provides information on different price stabilization options, including the averages and ranges for cap prices, fixed prices, and pre-buy programs for the upcoming winter heating season. If EIA could provide similar information on a wider scale, more consumers may be better informed. Data on different price options could help residential propane consumers determine which price stabilization options are most economical over the long term and which would best fit their needs.

EIA Is Working to Address Industry Concerns That Inventory Data Are Incomplete:

In general, EIA uses its knowledge of the energy market and input from users of its data to decide what data to collect and distribute but does not routinely carry out a formal needs assessment to determine the propane data it should collect and report according to EIA officials. EIA tracks propane inventory maintained at the primary storage centers but does not track secondary, tertiary or petrochemical storage according to EIA officials. Some state energy office and industry representatives reported that EIA data do not provide an accurate picture of the inventory in the propane market. One of the concerns raised by several industry representatives is the lack of data describing the potentially substantial petrochemical industry propane storage. Although petrochemical companies may hold substantial inventories of propane for their feedstock requirements, little is known about the amount of stored propane they hold even though in certain situations petrochemical companies may sell substantial amounts of stored propane within the retail market. Currently, EIA collects primary-stock data, but since petrochemical inventories are considered a secondary stock, the petrochemical inventories are not collected. The petrochemical industry (the second largest purchaser of propane in the market, according to the most recent data provided by EIA) periodically

resells propane, which affects inventory levels and market prices. Thus, an incomplete measurement of propane inventory levels may lead to higher prices because supply, as reflected by inventory levels, is perceived to be less than the actual supply available in inventory.

EIA recently made some improvements to how it reports propane inventory data and also has plans to increase the propane data it disseminates. First, starting April 9, 2003, EIA began reporting propane inventory data year round on a weekly basis. In the past, certain data were available only during the heating season, but as a result of this change propane supply data will be reported weekly. Second, because propane inventory data has included propylene--a gas recovered from the natural gas stream prior to propane being supplied to consumers--EIA recently started listing propylene separately, so users of the data could determine the actual propane inventory immediately available for distribution to residential users. Third, beginning in 2004, according to EIA, it plans to provide additional propane information, including export and product supply data, on a weekly basis, which will make propane data comparable to data on other petroleum products.

Conclusions:

Propane prices can be as volatile and as unpredictable as the weather that drives residential consumers' demand for propane. While prices can move sharply up and down, it is the drastic price spikes upward that grab the attention of consumers, particularly those low-income consumers who represent a significant portion of residential propane users and are the most vulnerable to price increases. Compounding this problem is the fact that prices typically spike when more propane is needed to combat cold weather. While price stabilization options exist to cope with price fluctuations, many consumers may not have opportunities to participate in these programs. This presents a challenge to government programs designed to inform consumers and those that assist low-income consumers with energy needs. Efforts that increase propane market information and make price stabilization options more available to consumers, particularly low-income households, may help mitigate the impact of sudden price spikes to some degree. EIA will have to weigh the benefits of enhancing the information it provides to propane market participants against a backdrop of limited resources. In addition, low-income assistance programs face the challenge of meeting client needs with uncertain and declining federal resources that make it increasingly difficult to mitigate the impact of price spikes. Finally, it is not clear what impact, if any, the federal government could have on the propane market through its oversight of PERC operations because the federal government has not provided active oversight of PERC.

Recommendations for Executive Action:

We recommend that the Secretary of Commerce direct the department to complete its required reports analyzing changes in propane prices and examining the effects of PERC's operation.

In addition, we recommend that the Secretary of Energy do the following:

* Provide more active oversight of PERC, specifically in its review of

PERC's annual budget plan to better position the department to make recommendations regarding appropriate PERC programs and activities as called for in the Propane Education and Research Act of 1996.

* Direct the Administrator of EIA to study the potential cost and benefits of continuing to improve EIA's propane market information. Consideration should be given to improving information for residential consumers regarding prices and different purchasing options as well as continuing to address industry concerns regarding inventory data.

Agency Comments and Our Evaluation:

We provided Commerce, DOE and PERC with a draft of this report for review and comment. Commerce had no comments on the technical content of the report. Further, the Secretary of Commerce stated that he has directed his staff, starting in 2003 and regularly according to the reporting cycle, to prepare reports analyzing changes in propane prices and examining the effects of PERC's operations and related developments on propane consumers. (See app. III for the Department of Commerce's comments.):

Three DOE offices--the Office of Energy Efficiency and Renewable Energy, EIA, and the Office of Fossil Energy--reviewed the report. The Office of Energy Efficiency and Renewable Energy agreed with the report and provided no comments. EIA generally agreed with the report and provided technical clarifications and observations. We made these changes as appropriate. In addition, EIA suggested the following language concerning our recommendation on how EIA might improve its data collection efforts:

In light of the limited scope of data collection efforts by the EIA, due primarily to limited available resources, the potential exists for some level of additional funding for enhancement of propane data collection efforts through the Propane Education & Research Act of 1996. Potential funding options could be modeled after existing programs administered by the EIA, such as the State Heating Oil and Propane Program (SHOPP), where each year individual states apply for grant money from EIA to collect heating oil and propane price data from Midwestern and Northeastern states. The program enlists a cooperative agreement between the EIA and individual state energy offices that collect and forward heating oil and propane price data to the EIA for publication. Within this framework, two options are available. First, PERC could provide funds or grant money directly to states with the intent of expanding the survey to include additional states and/or additional data. These states would work with the EIA as currently done in SHOPP. PERC funding could expand total resources available to the states and still possibly free up a portion of the resources EIA currently contributes to the states, which could be then be used to strengthen parts of the propane effort within EIA. Alternatively, if permitted within the PERC framework, funding could be provided directly to EIA which would then incorporate the funds into its existing state grants program. Either of these options would provide the needed resources to improve information for such items as the collection of wholesale and residential prices on a year-round basis for additional states beyond the current level of 24, provide for information about the different purchasing options afforded propane consumers, as well as to provide for continuing efforts to enhance inventory data.

We do not consider it necessary to expand our recommendation to include this level of detail. While we believe that EIA could potentially improve propane information for consumers, we believe the manner in which EIA funds such efforts is a decision best left to the Department of Energy and Congress.

DOE's Office of Fossil Fuels (the DOE office responsible for DOE support to propane-related activities such as PERC) generally agreed with the report's findings relating to the factors that impact propane prices and the pricing options available to propane consumers to mitigate propane price swings, but disagreed with the report's findings and recommendations regarding DOE's role and responsibilities under the Propane Education Research Act of 1996. The Office of Fossil Fuels commented that the Act conveys PERC oversight responsibility to the Department of Commerce. We agree that the Department of Commerce has oversight responsibilities and our report already discusses these responsibilities. We also agree that the Act does not require DOE to take specific oversight actions. However, we believe that DOE has an oversight role in PERC's programs and activities, as reflected in several provisions of the Act.[Footnote 13] We have added language in the report that clarifies this distinction. The Act authorizes the Secretary to request PERC to submit reports on its activities as well as reports on compliance, violations, and complaints regarding implementation of the Act. The Office of Fossil Fuels commented that to date, the department has not directly received any substantive public complaints pursuant to which it would take such action. However, we do not believe that the Secretary's role is limited to requesting reports from PERC only if DOE receives substantive public complaints. In addition, the Office of Fossil Fuels commented that the Act does not authorize, or require, the Secretary of Energy to approve the PERC budget. We agree; however, we believe that DOE could take a more active role in reviewing PERC's budget and making recommendations, as authorized by the Act. The Office of Fossil Fuels commented that DOE does review PERC's budget and makes recommendations to PERC regarding its programs and activities. The Office of Fossil Fuels stated it had expressed concerns that PERC's fiscal year 2000 budget did not allocate at least 5 percent of that year's funds for projects that benefit the agriculture industry. In response, PERC explained that the Act does not require that the mandated agriculture expenditures be made each year, enabling PERC to carry forward and aggregate on its books any unused agriculture funds, which remain available for future agriculture projects. DOE did not question PERC's explanation that the Act does not require that the mandated agriculture expenditures be made each year, nor did DOE make any recommendations. To our knowledge, this is the only oversight action that DOE has taken, and we have included a note in our report discussing this action. Finally, the Office of Fossil Fuels commented that DOE has no responsibility under the Act to ensure that propane assessment costs are not passed on to consumers. Further, it stated that the section of the Act dealing with this issue, Section 10, does not assign this responsibility to anyone. We agree that the section of the Act dealing with this issue does not specifically assign this responsibility to DOE or to Commerce. However, the Secretary of Energy is authorized to require reports on PERC activities and compliance with the Act. This could include reports on compliance with the requirement in the Act that PERC not take any action to pass the cost of the propane assessment along to consumers.

PERC agreed with our assessment of the propane retail marketers' consumer price stabilization programs and the marketers' experience with these programs, but disagreed with our assessment of propane supply and demand characteristics and the need for federal oversight of PERC. PERC questioned the validity of our assessment that propane supply and demand are inelastic. We believe we have correctly characterized the national market for propane demand and supply as being relatively inelastic, particularly as it relates to residential demand. As we noted in the report, propane is a basic necessity used for home heating (which PERC also states in its response) and switching to alternative sources of heat is costly and not practical during the relatively short period of time in which price spikes occur. In addition, there is no readily available source of incremental production that can increase propane supply when needed, and there are limitations in the capacity of the nation's propane storage and transportation systems. As a result, propane demand and supply are relatively inelastic for residential consumers.

PERC questioned the value of our recommendations regarding federal oversight of PERC. We believe our recommendations that the Departments of Commerce and Energy carry out their oversight roles and responsibilities reflect the congressional determination under the Act that such oversight is both appropriate and necessary. Given recent volatility in prices and congressional concern about the impact of PERC activities on propane prices, these agencies should conduct more active oversight. We revised our report to include PERC's statement that the wholesale price of propane relative to an aggregate fuel price does not exceed the statutory threshold that would limit its funding of consumer education programs, and we agree that the threshold has not been exceeded. Nonetheless, we:

believe that the federal government should provide more oversight of PERC to monitor and assess the effect of its operations on propane consumers. (See app. IV for PERC's comments and our response.):

As agreed with your office, unless you publicly announce the contents of this report, we plan no further distribution of it until 30 days from the date of this letter. At that time, we will send copies of this report to the DOE Secretary, Commerce Secretary, PERC President, and other interested parties. We will make copies available to others upon request. In addition, the report will be available at no charge at GAO's Web site at http:www.gao.gov.

Questions about this report should be directed to me at (202) 512-3841. Key contributors to this report are listed in appendix V.

Sincerely yours,

Jim Wells
Director, Natural Resources and Environment:

Signed by Jim Wells:

[End of section]

Appendix I: Objectives, Scope, and Methodology:

In our study of the propane market, we addressed (1) the factors that cause propane price spikes, (2) the options for residential consumers to mitigate the effects of price spikes, and (3) the federal government's role in the propane market.

To address these objectives, we reviewed pertinent documents and obtained information and views from a wide range of officials in both government and the private sector. Our review encompassed the propane market from production as it moves through the distribution system to residential sales to consumers. We obtained information and views from federal and state agencies and from propane industry officials. We interviewed analysts from the Department of Energy's EIA, the Federal Energy Regulatory Commission, the Department of Transportation, the Department of Commerce, the Department of Justice, the Federal Trade Commission, the Securities Exchange Commission, and the Commodities Futures Trading Commission. In addition, we obtained information and interviewed officials from Health and Human Services' Low Income Home Energy Assistance Program and the Department of Energy's Energy Efficiency and Renewable Energy Department. To gain a state perspective, we interviewed officials from the National Association of State Energy Officials, various states energy offices, state attorney generals, and officials from state low-income assistance programs. We also discussed propane prices and market dynamics with representatives from various industry organizations, including the National Propane Gas Association, regional NPGA groups, American Petroleum Institute, American Gas Association, and Propane Education and Research Council as well as experts within the market. In addition, we obtained information and views from five of the largest propane corporations and a number of smaller independent or corporate retail outlets, which sell within the residential consumer market; a large processor/distributor; and a recognized organization knowledgeable in propane markets.

In addition to our interviews, we obtained and analyzed propane price data supplied by EIA and a major corporate retailer. EIA provided historical retail and market (wholesale) prices, while the retailer provided comparable historical prices for fixed-price contracts offered to residential consumers. To determine the residential price volatility of the propane market, EIA provided monthly retail prices from 1993 to 2003. To determine the reasons for price spikes, we reviewed literature on propane markets and discussed the market with industry experts. We also contacted state energy office officials and state attorney general offices to get their views of propane prices and markets.

To identify the uses of, and availability of, various price stabilization options, we interviewed industry groups, five multistate residential propane corporations and various independent or corporate retail outlets within three states--New Mexico, Vermont, and Minnesota. We chose these states because several officials from government and industry identified Vermont and Minnesota as states representing the Northeast and the Midwest, respectively. In addition, to provide balance to the state choices, we selected New Mexico from among the states that produce propane. To assess whether consumers might benefit from price stabilization programs, we compared wholesale market prices as reported by EIA for Mont Belvieu, Texas, from June 1998 through March 2003, to fixed-price contract values offered by a major, multistate propane marketer during the summer months. After making

assumptions regarding the "typical" residential consumers, we applied these fixed prices to the "typical" consumption levels per year. To determine comparable consumption behavior for consumers buying at the market price, we based their purchases on the percentage of national demand purchased for each year (such that the total volume of propane purchased over the 5 years was the same under both methods). We compared the two purchasing behaviors to determine the yearly difference between different behaviors in our hypothetical example. In addition, we collected and analyzed historical funding data on LIHEAP and collected information on the allocation of these funds through the block grant process. In addition, LIHEAP provided information for the past two years on state low-income energy assistance programs. We also collected and analyzed DOE's weatherization funding from 1982 to 2003. To identify states' views on improvements to the low-income energy assistance programs, we interviewed state low-income energy assistance officials. For state funding, we acquired data from the National Center for Appropriate Technology, which serves as LIHEAP's data clearinghouse.

Finally, to examine the federal government's role in the propane market, we obtained documents and interviewed officials at federal agencies responsible for programs that have a role in some aspect of the propane market. To determine PERC'S mission, we reviewed the Propane Education and Research Act, which established PERC and various congressional records dealing with PERC. We also interviewed officials from PERC regarding PERC's mission, budgets, and allocations from 1998 to 2002 as well as DOE and Commerce Department officials regarding their oversight roles and responsibilities. To determine EIA's data collection and distribution responsibilities, we interviewed EIA analysts and reviewed publicly available information. We also interviewed state energy office officials and industry officials to identify improvements that could be made regarding EIA's data collection and distribution on propane markets.

We performed our review from July 2002 through May 2003 in accordance with generally accepted auditing standards. However, we were unable to access the accuracy of the propane prices and other information provided by the EIA, LIHEAP, or industry sources as no resources exist to verify this data.

[End of section]

Appendix II: Funding for LIHEAP and DOE Weatherization:

The federal government provides funding through two block grant programs: 1) the Low-Income Home Energy Assistance Program (LIHEAP) managed by the Department of Health and Human Services (HHS) provides grants to states to fund fuel payment assistance to low-income households and for making their homes more energy efficient, and (2) the DOE Weatherization Assistance Program to make dwellings more fuel efficient in the long term for low-income households. In fiscal year 2002, federal funding for LIHEAP $1.8 billion (combined regular and emergency funds) was about 8 times greater than the $230 million provided for the longer-term DOE Weatherization. Since LIHEAP's establishment in 1981, the program's appropriations have faced significant reductions. The 2002 appropriation was $1.8 billion, which is about a 40 percent decrease from its initial funding level after

allowing for inflation. Federal funding for the DOE Weatherization Assistance Program, established in 1976, has fluctuated from $240 million in 1982, up to $395 million in 1983, down to $124 million in 1996, and back to $230 million in 2002, after allowing for inflation. However, because the HHS LIHEAP appropriations are so overwhelmingly larger than the DOE Weatherization appropriations, combined federal funding from both programs for 2002 was still 40 percent less than the 1982 level. Table 4 includes the total Federal LIHEAP appropriations, the total DOE Weatherization appropriations, and the combined totals for both LIHEAP and Weatherizaton (in constant dollars) by fiscal year.

Table 4: Federal Appropriations for Health and Human Services Low Income Home Energy Assistance Program and Department of Energy Weatherization Assistance Program for Fiscal Years 1982 through 2002 (Dollars in Thousands):

Year: 1982; LIHEAP: Appropriations: $1,875,000; LIHEAP: Constant 2002 dollars: 3,125,000; LIHEAP: Percentage of 1982 dollars: 100; Appropriations: $144,000; DOE Weatherization: Constant 2002 dollars: 240,000; DOE Weatherization: Percentage of 1982 dollars: 100; Total Constant 2002 dollars: 3,365,000; Total percentage of 1982 dollars: 100.

Year: 1983; LIHEAP: Appropriations: 1,975,000; LIHEAP: Constant 2002 dollars: 3,185,484; LIHEAP: Percentage of 1982 dollars: 102; Appropriations: 245,000; DOE Weatherization: Constant 2002 dollars: 395,161; DOE Weatherization: Percentage of 1982 dollars: 165; Total Constant 2002 dollars: 3,580,645; Total percentage of 1982 dollars: 106.

Year: 1984; LIHEAP: Appropriations: 2,075,000; LIHEAP: Constant 2002 dollars: 3,192,308; LIHEAP: Percentage of 1982 dollars: 102; Appropriations: 190,000; DOE Weatherization: Constant 2002 dollars: 292,308; DOE Weatherization: Percentage of 1982 dollars: 122; Total Constant 2002 dollars: 3,484,616; Total percentage of 1982 dollars: 104.

Year: 1985; LIHEAP: Appropriations: 2,100,000; LIHEAP: Constant 2002 dollars: 3,134,328; LIHEAP: Percentage of 1982 dollars: 100; Appropriations: 191,100; DOE Weatherization: Constant 2002 dollars: 285,224; DOE Weatherization: Percentage of 1982 dollars: 119; Total Constant 2002 dollars: 3,419,552; Total percentage of 1982 dollars: 102.

Year: 1986; LIHEAP: Appropriations: 2,010,000; LIHEAP: Constant 2002 dollars: 2,955,882; LIHEAP: Percentage of 1982 dollars: 95; Appropriations: 182,100; DOE Weatherization: Constant 2002 dollars: 291,324; DOE Weatherization: Percentage of 1982 dollars: 121; Total Constant 2002 dollars: 3,247,206; Total percentage of 1982 dollars: 96.

Year: 1987; LIHEAP: Appropriations: 1,825,000; LIHEAP: Constant 2002 dollars: 2,607,143; LIHEAP: Percentage of 1982 dollars: 83; Appropriations: 161,300; DOE Weatherization: Constant 2002 dollars: 230,429; DOE Weatherization: Percentage of 1982 dollars: 96; Total Constant 2002 dollars: 2,837,572; Total percentage of 1982 dollars: 84.

Year: 1988; LIHEAP: Appropriations: 1,531,840; LIHEAP: Constant 2002

dollars: 2,127,556; LIHEAP: Percentage of 1982 dollars: 68; Appropriations: 161,300; DOE Weatherization: Constant 2002 dollars: 224,028; DOE Weatherization: Percentage of 1982 dollars: 93; Total Constant 2002 dollars: 2,351,584; Total percentage of 1982 dollars: 70.

Year: 1989; LIHEAP: Appropriations: 1,383,200; LIHEAP: Constant 2002 dollars: 1,844,267; LIHEAP: Percentage of 1982 dollars: 59; Appropriations: 161,300; DOE Weatherization: Constant 2002 dollars: 215,067; DOE Weatherization: Percentage of 1982 dollars: 90; Total Constant 2002 dollars: 2,059,334; Total percentage of 1982 dollars: 61.

Year: 1990; LIHEAP: Appropriations: 1,492,950; LIHEAP: Constant 2002 dollars: 1,914,038; LIHEAP: Percentage of 1982 dollars: 61; Appropriations: 162,000; DOE Weatherization: Constant 2002 dollars: 207,692; DOE Weatherization: Percentage of 1982 dollars: 87; Total Constant 2002 dollars: 2,121,730; Total percentage of 1982 dollars: 63.

Year: 1991; LIHEAP: Appropriations: 1,805,000; LIHEAP: Constant 2002 dollars: 2,228,395; LIHEAP: Percentage of 1982 dollars: 71; Appropriations: 198,900; DOE Weatherization: Constant 2002 dollars: 245,556; DOE Weatherization: Percentage of 1982 dollars: 102; Total Constant 2002 dollars: 2,473,951; Total percentage of 1982 dollars: 74.

Year: 1992; LIHEAP: Appropriations: 1,500,000; LIHEAP: Constant 2002 dollars: 1,807,229; LIHEAP: Percentage of 1982 dollars: 58; Appropriations: 194,000; DOE Weatherization: Constant 2002 dollars: 233,735; DOE Weatherization: Percentage of 1982 dollars: 97; Total Constant 2002 dollars: 2,040,964; Total percentage of 1982 dollars: 61.

Year: 1993; LIHEAP: Appropriations: 1,346,030; LIHEAP: Constant 2002 dollars: 1,583,565; LIHEAP: Percentage of 1982 dollars: 51; Appropriations: 185,400; DOE Weatherization: Constant 2002 dollars: 218,118; DOE Weatherization: Percentage of 1982 dollars: 91; Total Constant 2002 dollars: 1,801,683; Total percentage of 1982 dollars: 54.

Year: 1994; LIHEAP: Appropriations: 1,735,408; LIHEAP: Constant 2002 dollars: 1,994,722; LIHEAP: Percentage of 1982 dollars: 64; Appropriations: 206,800; DOE Weatherization: Constant 2002 dollars: 237,701; DOE Weatherization: Percentage of 1982 dollars: 99; Total Constant 2002 dollars: 2,232,423; Total percentage of 1982 dollars: 66.

Year: 1995; LIHEAP: Appropriations: 1,419,000; LIHEAP: Constant 2002 dollars: 1,594,382; LIHEAP: Percentage of 1982 dollars: 51; Appropriations: 214,800; DOE Weatherization: Constant 2002 dollars: 241,384; DOE Weatherization: Percentage of 1982 dollars: 101; Total Constant 2002 dollars: 1,835,766; Total percentage of 1982 dollars: 55.

Year: 1996; LIHEAP: Appropriations: 1,080,000; LIHEAP: Constant 2002 dollars: 1,200,000; LIHEAP: Percentage of 1982 dollars: 38; Appropriations: 111,700; DOE Weatherization: Constant 2002 dollars: 124,111; DOE Weatherization: Percentage of 1982 dollars: 52; Total Constant 2002 dollars: 1,324,111; Total percentage of 1982 dollars: 39.

Year: 1997; LIHEAP: Appropriations: 1,215,000; LIHEAP: Constant 2002 dollars: 1,320,652; LIHEAP: Percentage of 1982 dollars: 42; Appropriations: 120,800; DOE Weatherization: Constant 2002 dollars: 131,304; DOE Weatherization: Percentage of 1982 dollars: 55; Total

Constant 2002 dollars: 1,451,956; Total percentage of 1982 dollars: 43.

Year: 1998; LIHEAP: Appropriations: 1,160,000; LIHEAP: Constant 2002 dollars: 1,247,312; LIHEAP: Percentage of 1982 dollars: 40; Appropriations: 124,800; DOE Weatherization: Constant 2002 dollars: 134,194; DOE Weatherization: Percentage of 1982 dollars: 56; Total Constant 2002 dollars: 1,381,506; Total percentage of 1982 dollars: 41.

Year: 1999; LIHEAP: Appropriations: 1,280,000; LIHEAP: Constant 2002 dollars: 1,347,368; LIHEAP: Percentage of 1982 dollars: 43; Appropriations: 133,000; DOE Weatherization: Constant 2002 dollars: 140,000; DOE Weatherization: Percentage of 1982 dollars: 58; Total Constant 2002 dollars: 1,487,368; Total percentage of 1982 dollars: 44.

Year: 2000; LIHEAP: Appropriations: 1,844,000; LIHEAP: Constant 2002 dollars: 1,901,031; LIHEAP: Percentage of 1982 dollars: 61; Appropriations: 135,000; DOE Weatherization: Constant 2002 dollars: 139,175; DOE Weatherization: Percentage of 1982 dollars: 58; Total Constant 2002 dollars: 2,040,206; Total percentage of 1982 dollars: 61.

Year: 2001; LIHEAP: Appropriations: 1,856,000; LIHEAP: Constant 2002 dollars: 1,874,747; LIHEAP: Percentage of 1982 dollars: 60; Appropriations: 153,000; DOE Weatherization: Constant 2002 dollars: 154,545; DOE Weatherization: Percentage of 1982 dollars: 64; Total Constant 2002 dollars: 2,029,292; Total percentage of 1982 dollars: 60.

Year: 2002; LIHEAP: Appropriations: 1,800,000; LIHEAP: Constant 2002 dollars: 1,800,000; LIHEAP: Percentage of 1982 dollars: 58; Appropriations: 230,000; DOE Weatherization: Constant 2002 dollars: 230,000; DOE Weatherization: Percentage of 1982 dollars: 96; Total Constant 2002 dollars: 2,030,000; Total percentage of 1982 dollars: 60.

Source: GAO analysis.

Note: GAO analyzed annual HHS LIHEAP regular and emergency appropriation data provided by the Congressional Research Service as well as DOE-provided annual weatherization appropriation data.

[End of table]

When combined with the net effect of annual LIHEAP grant carry-over funds,[Footnote 14] HHS leveraging incentive awards,[Footnote 15] and HHS REACH grants,[Footnote 16] the Federal government provided about 54 percent of the total LIHEAP funding available to the states in 2002.[Footnote 17] For example, the combination of 2002 federal funds of more than $1.7 billion with state funds of more than $1.5 billion allowed states to provide eligible low-income households with almost $3.3 billion in LIHEAP benefits. However, the degree of state participation varies from 0 percent to 79 percent, with 9 states contributing more than half of the total funds used to fund LIHEAP activities in their states for fiscal year 2002, as shown in table 5.

Table 5: Total Federal Funds and State Supplemental Funds Available by State for Fiscal Year 2002 LIHEAP Activities:

State: Alabama; Federal LIHEAP funds[A]: $15,424,432; State Supplement to LIHEAP[B]: $5,026,010; Total all funds: $20,450,442; Federal funds

as percent of total funds: 75.

State: Alaska; Federal LIHEAP funds[A]: 7,275,559; State Supplement to LIHEAP[B]: 6,501,634; Total all funds: 13,777,193; Federal funds as percent of total funds: 53.

State: Arizona; Federal LIHEAP funds[A]: 8,613,025; State Supplement to LIHEAP[B]: 10,627,312; Total all funds: 19,240,337; Federal funds as percent of total funds: 45.

State: Arkansas; Federal LIHEAP funds[A]: 10,847,192; State Supplement to LIHEAP[B]: 349,197; Total all funds: 11,196,389; Federal funds as percent of total funds: 97.

State: California; Federal LIHEAP funds[A]: 71,332,158; State Supplement to LIHEAP[B]: 264,628,000; Total all funds: 335,960,158; Federal funds as percent of total funds: 21.

State: Colorado; Federal LIHEAP funds[A]: 30,932,942; State Supplement to LIHEAP[B]: 21,473,836; Total all funds: 52,406,778; Federal funds as percent of total funds: 59.

State: Connecticut; Federal LIHEAP funds[A]: 37,775,387; State Supplement to LIHEAP[B]: 24,471,218; Total all funds: 62,246,605; Federal funds as percent of total funds: 61.

State: Delaware; Federal LIHEAP funds[A]: 5,108,405; State Supplement to LIHEAP[B]: 1,132,463; Total all funds: 6,240,868; Federal funds as percent of total funds: 82.

State: Dist. of Col.; Federal LIHEAP funds[A]: 6,041,751; State Supplement to LIHEAP[B]: 3,324,000; Total all funds: 9,365,751; Federal funds as percent of total funds: 65.

State: Florida; Federal LIHEAP funds[A]: 20,558,541; State Supplement to LIHEAP[B]: 4,602,435; Total all funds: 25,160,976; Federal funds as percent of total funds: 82.

State: Georgia; Federal LIHEAP funds[A]: 19,997,809; State Supplement to LIHEAP[B]: 13,302,172; Total all funds: 33,299,981; Federal funds as percent of total funds: 60.

State: Hawaii; Federal LIHEAP funds[A]: 1,809,061; State Supplement to LIHEAP[B]: 0; Total all funds: 1,809,061; Federal funds as percent of total funds: 100.

State: Idaho; Federal LIHEAP funds[A]: 11,689,651; State Supplement to LIHEAP[B]: 354,804; Total all funds: 12,044,455; Federal funds as percent of total funds: 97.

State: Illinois; Federal LIHEAP funds[A]: 104,631,043; State Supplement to LIHEAP[B]: 74,371,237; Total all funds: 179,002,280; Federal funds as percent of total funds: 58.

State: Indiana; Federal LIHEAP funds[A]: 47,744,961; State Supplement to LIHEAP[B]: 6,676,010; Total all funds: 54,420,971; Federal funds as percent of total funds: 88.

State: Iowa; Federal LIHEAP funds[A]: 30,169,525; State Supplement to LIHEAP[B]: 4,971,043; Total all funds: 35,140,568; Federal funds as percent of total funds: 86.

State: Kansas; Federal LIHEAP funds[A]: 15,291,178; State Supplement to LIHEAP[B]: 0; Total all funds: 15,291,178; Federal funds as percent of total funds: 100.

State: Kentucky; Federal LIHEAP funds[A]: 26,487,237; State Supplement to LIHEAP[B]: 2,699,898; Total all funds: 29,187,135; Federal funds as percent of total funds: 91.

State: Louisiana; Federal LIHEAP funds[A]: 14,900,216; State Supplement to LIHEAP[B]: 7,466,404; Total all funds: 22,366,620; Federal funds as percent of total funds: 67.

State: Maine; Federal LIHEAP funds[A]: 23,475,477; State Supplement to LIHEAP[B]: 10,894,158; Total all funds: 34,369,635; Federal funds as percent of total funds: 68.

State: Maryland; Federal LIHEAP funds[A]: 29,301,538; State Supplement to LIHEAP[B]: 47,536,255; Total all funds: 76,837,793; Federal funds as percent of total funds: 38.

State: Massachusetts; Federal LIHEAP funds[A]: 76,247,501; State Supplement to LIHEAP[B]: 55,721,189; Total all funds: 131,968,690; Federal funds as percent of total funds: 58.

State: Michigan; Federal LIHEAP funds[A]: 99,639,181; State Supplement to LIHEAP[B]: 33,563,111; Total all funds: 133,202,292; Federal funds as percent of total funds: 75.

State: Minnesota; Federal LIHEAP funds[A]: 72,199,490; State Supplement to LIHEAP[B]: 42,780,327; Total all funds: 114,979,817; Federal funds as percent of total funds: 63.

State: Mississippi; Federal LIHEAP funds[A]: 12,327,623; State Supplement to LIHEAP[B]: 1,157,908; Total all funds: 13,485,531; Federal funds as percent of total funds: 91.

State: Missouri; Federal LIHEAP funds[A]: 38,450,066; State Supplement to LIHEAP[B]: 595,719; Total all funds: 39,045,785; Federal funds as percent of total funds: 98.

State: Montana; Federal LIHEAP funds[A]: 11,574,763; State Supplement to LIHEAP[B]: 3,544,445; Total all funds: 15,119,208; Federal funds as percent of total funds: 77.

State: Nebraska; Federal LIHEAP funds[A]: 16,402,504; State Supplement to LIHEAP[B]: 0; Total all funds: 16,402,504; Federal funds as percent of total funds: 100.

State: Nevada; Federal LIHEAP funds[A]: 4,742,990; State Supplement to LIHEAP[B]: 6,850,464; Total all funds: 11,593,454; Federal funds as percent of total funds: 41.

State: New Hampshire; Federal LIHEAP funds[A]: 13,455,967; State Supplement to LIHEAP[B]: 8,241,766; Total all funds: 21,697,733; Federal funds as percent of total funds: 62.

State: New Jersey; Federal LIHEAP funds[A]: 72,227,107; State Supplement to LIHEAP[B]: 125,027,600; Total all funds: 197,254,707; Federal funds as percent of total funds: 37.

State: New Mexico; Federal LIHEAP funds[A]: 8,418,976; State Supplement to LIHEAP[B]: 500,000; Total all funds: 8,918,976; Federal funds as percent of total funds: 94.

State: New York; Federal LIHEAP funds[A]: 235,327,049; State Supplement to LIHEAP[B]: 76,563,749; Total all funds: 311,890,798; Federal funds as percent of total funds: 75.

State: North Carolina; Federal LIHEAP funds[A]: 35,417,925; State Supplement to LIHEAP[B]: 2,540,147; Total all funds: 37,958,072; Federal funds as percent of total funds: 93.

State: North Dakota; Federal LIHEAP funds[A]: 12,066,807; State Supplement to LIHEAP[B]: 0; Total all funds: 12,066,807; Federal funds as percent of total funds: 100.

State: Ohio; Federal LIHEAP funds[A]: 101,705,030; State Supplement to LIHEAP[B]: 180,135,447; Total all funds: 281,840,477; Federal funds as percent of total funds: 36.

State: Oklahoma; Federal LIHEAP funds[A]: 11,960,497; State Supplement to LIHEAP[B]: 1,886,642; Total all funds: 13,847,139; Federal funds as percent of total funds: 86.

State: Oregon; Federal LIHEAP funds[A]: 21,353,738; State Supplement to LIHEAP[B]: 27,801,181; Total all funds: 49,154,919; Federal funds as percent of total funds: 43.

State: Pennsylvania; Federal LIHEAP funds[A]: 120,319,409; State Supplement to LIHEAP[B]: 184,518,237; Total all funds: 304,837,646; Federal funds as percent of total funds: 39.

State: Rhode Island; Federal LIHEAP funds[A]: 13,566,678; State Supplement to LIHEAP[B]: 9,010,676; Total all funds: 22,577,354; Federal funds as percent of total funds: 60.

State: South Carolina; Federal LIHEAP funds[A]: 12,947,229; State Supplement to LIHEAP[B]: 0; Total all funds: 12,947,229; Federal funds as percent of total funds: 100.

State: South Dakota; Federal LIHEAP funds[A]: 9,456,522; State Supplement to LIHEAP[B]: 1,020,272; Total all funds: 10,476,794; Federal funds as percent of total funds: 90.

State: Tennessee; Federal LIHEAP funds[A]: 23,152,034; State Supplement to LIHEAP[B]: 0; Total all funds: 23,152,034; Federal funds as percent of total funds: 100.

State: Texas; Federal LIHEAP funds[A]: 37,918,064; State Supplement to

LIHEAP[B]: 169,000,000; Total all funds: 206,918,064; Federal funds as percent of total funds: 18.

State: Utah; Federal LIHEAP funds[A]: 13,022,184; State Supplement to LIHEAP[B]: 992,043; Total all funds: 14,014,227; Federal funds as percent of total funds: 93.

State: Vermont; Federal LIHEAP funds[A]: 10,122,804; State Supplement to LIHEAP[B]: 6,102,550; Total all funds: 16,225,354; Federal funds as percent of total funds: 62.

State: Virginia; Federal LIHEAP funds[A]: 34,371,058; State Supplement to LIHEAP[B]: 2,986,651; Total all funds: 37,357,709; Federal funds as percent of total funds: 92.

State: Washington; Federal LIHEAP funds[A]: 33,130,576; State Supplement to LIHEAP[B]: 17,924,704; Total all funds: 51,055,280; Federal funds as percent of total funds: 65.

State: West Virginia; Federal LIHEAP funds[A]: 17,716,932; State Supplement to LIHEAP[B]: 3,000,000; Total all funds: 20,716,932; Federal funds as percent of total funds: 86.

State: Wisconsin; Federal LIHEAP funds[A]: 62,977,969; State Supplement to LIHEAP[B]: 32,299,363; Total all funds: 95,277,332; Federal funds as percent of total funds: 66.

State: Wyoming; Federal LIHEAP funds[A]: 5,401,231; State Supplement to LIHEAP[B]: 0; Total all funds: 5,401,231; Federal funds as percent of total funds: 100.

Total; Federal LIHEAP funds[A]: $1,777,026,992; State Supplement to LIHEAP[B]: $1,504,172,277; Total all funds: $3,281,199,269; Federal funds as percent of total funds: 54%.

Source: GAO analysis.

Note: GAO analyzed HHS provided LIHEAP appropriation and funding data and LIHEAP Clearinghouse provided state supplemental funding data.

[A] Includes regular and emergency LIHEAP appropriations as well as the net effect of appropriation funds carryovers, HHS leveraging incentive awards, and HHS REACH grants and excludes federal funds allocated to territories and Indian tribes.

[B] Includes state and local level contributions, state system benefit and utility funds (rate assistance and energy efficiency assistance), church and community fuel funds, bulk fuel discounts, and miscellaneous contributions.

[End of table]

While historical data for all states were not available, LIHEAP's data clearinghouse, the National Center for Appropriate Technology, could provide information for 2001 for most states. From 2001 to 2002, 32 states (plus the District of Columbia) had an increase in their state LIHEAP supplement, 1 state (New Mexico) had no change, and 10 states

decreased (information was not available for 7 states). Of the increases, 10 states increased their supplements by a total of almost $474 million or almost 90 percent of the total increase. For example, Texas increased its LIHEAP funding from about $4 million to $169 million from 2001 to 2002. Of the decreases, one state, Maryland, represented 60 percent of the total decreases (or about $9 million).

[End of section]

Appendix III: Comments from the Department of Commerce:

THE SECRETARY OF COMMERCE Washington, D.C. 20230:

June 12, 2003:

Mr. Jim Wells:

Director, Natural Resources and Environment U.S. General Accounting Office Washington, DC 20548:

Dear Mr. Wells:

We have reviewed GAO's proposed report entitled, "Propane: Causes of Price Volatility, Potential Consumer Options, and Opportunities to Improve Federal Programs" (GAO-03-762) and have no comments on its technical content.

As required by the Propane Education and Research Act of 1996, I have directed Commerce staff to prepare reports in 2003 analyzing changes in propane prices and examining the effects of Propane Education and Research Council's operations and related developments on propane consumers. I have also directed that hereafter similar reports be regularly prepared according to the reporting cycles established in the Act.

Thank you for giving Commerce the opportunity to review GAO's report.

Sincerely,

Donald L. Evans:

Signed by Donald L. Evans:

[End of section]

Appendix IV: Comments from the Propane Education and Research Council:

Note: GAO's comments appear at the end of this appendix.

See comment 3.

See comment 2.

See comment 1.

See comment 4.

PROPANE EDUCATION & RESEARCH COUNCIL:

June 6, 2003.

Mark Gaffigan, Assistant Director.
Natural Resources and Environment.
United States General Accounting Office.
441 G Street, NW.
Washington, D.C. 20548.

Dear Mr. Gaffigan:.

Thank you for the opportunity to comment on the draft report entitled "PROPANE Causes of Price Volatility, Potential Consumer Options and Opportunities to Improve Federal Programs." At the outset, on behalf of my board, I respectfully express my disagreement and disappointment with the report's basic assumption and conclusions..

The basic assumption of the report is that "(s)ince neither propane supply nor propane demand can easily adjust to changes, they are considered inelastic and changes in supply or demand can result in significant changes in the market price."[NOTE 1] We disagree. This assumption in our view is fundamentally flawed and is contradicted by data in the report that shows normal supply, demand and price interactions that demonstrate that propane is not an "inelastic" commodity..

Propane is a basic and essential energy commodity that competes against other major fuels in diverse and vibrantly competitive overall energy and propane markets. As your report acknowledges, the propane market, particularly the industrial market, regularly demonstrates its willingness to fuel switch for both space heating and feedstock purposes from propane to other competitively priced fuels..

We do "agree with the report's observation if... it is not clear what impact, any the federal government could have on the propane market through its oversight of PERC operations..."[NOTE 2] Given that propane is a competitively traded, free market commodity and the requirement that the Propane Education & Research Council's (PERC) assessment may not be passed to consumers by federal mandate, we fail to see how additional federal oversight would be cost-effective for either the government or propane consumers. If the recommendations in the report were adopted in total, they would have no significant benefit to propane consumers.

I have attached for your consideration charts that show basic pricing calculations required under the Propane Education and Research Act of 1996.
The charts clearly demonstrate that the price of propane compared to the prices of No. 2 fuel oil, residential natural gas and residential electricity

does not approach the statutory thresholds that would require a limitation on PERC's
consumer education programs. The obvious absence of this information is a primary source of our disappointment with the report, (see appendices I and II).

Be advised that that a majority of our retail propane companies offer consumer price stabilization programs to their consumers. Many of them have, as you have expressed in the report, experienced mixed results due to a myriad of factors. Despite this experience, propane companies continue to offer, promote and educate the public about the availability of such programs.

Let me again express my gratitude for your request for PERC's comment on the GAO propane report. Although we disagree with its analysis and conclusions we remain committed to working with the GAO or any other agency of the federal government to promote the safe, efficient use of propane.

Sincerely,

Roy Willis
President:

Signed by Roy Willis:

Cc: The Honorable Spencer Abraham, Secretary of Energy The Honorable Don Evans, Secretary of Commerce David M. Walker, Comptroller General of the United States:

Jim Wells, Director, Natural Resources and Environment, General Accounting Office Richard Roldan, President, National Propane Gas Association:

NOTES:

[1] Draft report, p. 10..

[2] Draft report, p. 34..

The following are GAO's comments on PERC's letter dated June 6, 2003.

GAO Comments:

We believe we have correctly characterized the national market for propane demand and supply as being relatively inelastic, particularly as it relates to residential consumers who were the focus of our review. As we noted in the draft report, propane is a basic necessity used for home heating and switching to alternative sources of heat is costly and not practical during the relatively short period of time in which price spikes occur. In addition, there is no readily available source of incremental production that can increase propane supply when needed, and there are limitations in the capacity of the nation's propane storage and transportation systems. As a result, propane demand and supply are relatively inelastic for residential consumers.

We agreed, as stated above, that propane is a basic and essential energy commodity. The emphasis of this report is on the residential propane market and not on the industrial propane market. The petrochemical industry can readily substitute other feedstocks for propane when propane prices are relatively high. However, residential consumers are less likely to switch to alternative fuels, since many are low income and retrofitting or replacing heating units can be time consuming and expensive, and alternative energy fuels may be unavailable in their area.

We believe our recommendations that the Departments of Commerce and Energy carry out their oversight roles and responsibilities reflect the congressional determination under the Propane Education and Research Act that such oversight is both appropriate and necessary. Given recent volatility in prices and congressional concern about the impact of PERC activities on propane prices reflected in the act, these agencies should conduct more active oversight. We revised our report to include PERC's statement that the wholesale price of propane relative to an aggregate fuel price has not exceeded the statutory threshold that would limit its funding of consumer education programs. Nonetheless, as we noted in the report, we believe that the federal government should provide more oversight of PERC to monitor and assess the effect of its operations on propane consumers. In reference to "appendices I and II," PERC provided more than one version of the calculations and resulting graphics associated with this analysis. We did not include PERC's analysis because of the uncertainty associated with the appropriate assumptions and calculations to be used in conducting the analysis that the Department of Commerce is required to complete. However, we agree with their overall conclusion that historically the statutory threshold appears not to have been exceeded.

We agree that price stabilization programs are offered in some areas and stated in the report that only a small percentage of propane residential customers participate in these programs (5 percent to 7 percent of the national retail marketers' customers). We also state that in some areas, the programs are not offered to consumers. One of the reasons retail marketers identified, as to why more consumers do not participate, is the difficulty in educating their customers about the benefits of these programs. Since one of PERC's three mission areas is communication and consumer education, PERC could assist propane consumers and retail marketers by improving the consumers' knowledge of the costs and benefits of all propane price options.

[End of section]

Appendix V: GAO Contacts and Staff Acknowledgments:

GAO Contacts:

Jim Wells (202) 512-3841:

Mark Gaffigan (202) 512-3168:

Acknowledgements:

In addition to the individuals named above, James W. Turkett, Gary Malavenda, James Rose, Amy Webbink, Timothy Guinane, Katherine Raheb,

Nancy Crothers, and H. Lee Cagle made key contributions to this report.

FOOTNOTES

[1] The commercial aspect of this sector includes sales to mostly small businesses, which primarily use propane for space-heating, water heating, and cooking.

[2] Heating degree days can be defined as the number of degrees per day that the daily average temperature (the mean of the maximum and minimum recorded temperatures) is below 65 degrees Fahrenheit.

[3] Mont Belvieu propane prices are the most widely recognized prices in the world propane market according to EIA officials.

[4] These prices do not include transportation costs or profit margins, making them more comparable to the Mont Belvieu price. Sometimes propane marketers charge a participation fee for fixed-price contracts, but this propane marketer included these fees in the contract price.

[5] U.S, General Accounting Office, Low Income Home Energy Assistance: Legislative Changes Could Result in Better Program Management (GAO/HRD -90-165, Sept. 7, 1990).

[6] U.S. General Accounting Office, Energy Policy: Propane Price Increases During the Winter of 1996-1997 (GAO/RCED 98-52R, Dec. 16, 1997).

[7] An advance appropriation is budget authority provided in an appropriation act, which is first available in a fiscal year beyond the fiscal year for which the appropriation act is enacted. Advance funding is budget authority provided in an appropriation act to obligate and disburse (outlay) in the current fiscal year funds from a succeeding year's appropriation.

[8] PERC has increased its per gallon assessment 3 years of the 6 years since it was established. Starting at 0.1 cents per gallon of odorized propane sold at the wholesale level, PERC's assessment has increased to 0.4 cents over its 6-year history. By operation of the law and the rules adopted by PERC, 20 percent of the assessment collections are rebated to state propane councils or similar entities.

[9] This price composite index is the 5-year rolling average price composite index of residential electricity, residential natural gas, and refiner price to end users of No. 2 fuel oil. If PERC's activities are restricted under this provision, the Secretary of Commerce is to conduct the price analysis again 180 days later. PERC's activities are to be restricted until the price index excess falls to 10.1 percent or less. PERC, in its comments on the report, provided information that propane prices have not approached the statutory threshold that would require a limitation on PERC's consumer education programs.

[10] DOE noted only one instance in which it contacted PERC with questions about PERC's annual budget. In early 2001, DOE requested information from PERC concerning PERC's fiscal year 2000 budget. DOE was concerned that the budget did not allocate at least 5 percent of that year's funds for projects that benefit the agricultural industry

as required by the Propane Education and Research Act. In response, PERC explained that the Act did not require the expenditures to be made each year, enabling PERC to carry forward and aggregate on its books any unused agriculture funds, which remain available for future agriculture projects. DOE did not take any further action.

[11] S. Rep. No. 104-298 (1996).

[12] SHOPP states collecting propane prices include Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, Delaware, Maryland, New Jersey, New York, Pennsylvania, North Carolina, Virginia, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. In addition, the District of Columbia collects heating oil prices under SHOPP.

[13] The Act: requires PERC to annually reimburse the Secretary of Energy for costs incurred by the federal government relating to PERC (15 U.S.C. § 6404(j)); requires PERC to annually submit its proposed budget to the Secretary of Energy who may then recommend appropriate programs and activities (15 U.S.C. § 6404(k)); states that the Secretary of Energy shall receive notice of PERC meetings and may require reports on PERC activities, as well as reports on compliance, violations, and complaints regarding implementation of the Act (15 U.S.C. § 6404(l)); states that PERC may recommend changes in the Act or other statutes that would further the act's purposes to the Secretary of Energy (15 U.S.C. § 6407); requires the Secretary of Commerce to make its annual analysis of changes in the price of propane relative to other energy sources available to the Secretary of Energy, as well as to Congress and the public (15 U.S.C. § 6408(a)); requires PERC to inform the Secretary of Energy, along with Congress, of any restriction of its activities resulting from a propane price index exceeding a certain amount (15 U.S.C. § 6408(b); and requires the Secretary of Commerce to submit its biannual report (the Secretary of Energy may request a report more often than every two years) examining the effect of PERC's operations to the Secretary of Energy, as well as to Congress (15 U.S.C. § 6411).

[14] 42 U.S.C. § 8626 allows states to carry over up to 10 percent of their LIHEAP block grant into the next year.

[15] 42 U.S.C. § 8626a authorizes the Secretary to provide supplementary funds to states that have acquired non-federal leveraged resources for the LIHEAP program.

[16] 42 U.S.C. § 8626b authorizes the Secretary to provide some funds to states in support of Residential Energy Assistance Challenge activities that (1) minimize health and safety risks that result from high energy burdens on low-income Americans; (2) prevent homelessness as a result of inability to pay energy bills; (3) increase the efficiency of energy usage by low-income families; and (4) target energy assistance to individuals who are most in need.

[17] This analysis includes only LIHEAP funding since state funding for weatherization was not available.

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