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General Accounting Office
Washington, D.C. 20548

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Resources, Community, and
Economic Development Division

B-278655

December 16, 1997

The Honorable Dale Bumpers
United States Senate

The Honorable Tom Daschle
United States Senate

The Honorable Marion Berry
House of Representatives

Subject: Energy Policy: Propane Price Increases During the Winter of 1996-97

As requested, we are providing you with information on (1) the factors that caused the propane price increases during the 1996-97 heating season and (2) the options available to the government to cushion the potential effects of propane price increases on low-income residential consumers. We used this material to brief your offices on December 2, 1997 (see enc. I).

In summary, several factors have been cited as causing or contributing to the sharply increased residential prices for propane in Arkansas, South Dakota, and elsewhere in the United States during the 1996-97 heating season. These factors include the cold weather, the need to dry wet crops in the Midwest, and the low inventory of propane going into that heating season. Other factors include pipeline problems and the fact that U.S. propane production did not rise much despite higher demand. Without imports, prices would likely have been higher.

The federal government has two programs that offer several options to help cushion the effects of propane price spikes on low-income consumers: the Low-Income Home Energy Assistance Program (LIHEAP), which is administered by the Department of Health and Human Services (HHS), and the Weatherization Assistance Program, which is administered by the Department of Energy (DOE). In 1997, LIHEAP's appropriations were \$1.2 billion, down from \$2.1 billion in 1985. Expenditures for weatherization have also declined from \$191 million in 1985 to \$121 million in 1997.

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According to officials from the propane industry and from state and federal governments, there are several options for using LIHEAP funds, which are disbursed by HHS to states, that could help cushion the effects of propane price increases. LIHEAP's funds could be used to purchase more propane during the summer when propane prices are lower.¹ These funds could also be used to negotiate fixed-price contracts during the summer as a hedge against potential price increases. However, the current federal appropriations cycle does not make funds available to LIHEAP until October 1, too late to take advantage of the lower prices in the summer. According to South Dakota and Arkansas LIHEAP officials, their funds are generally depleted between October and April. In addition, the funds can be used to implement the LIHEAP leveraging incentive program, which is designed to encourage state LIHEAP officials to adopt measures that could help LIHEAP's recipients extend the use of their LIHEAP funds. Such measures could include, for example, negotiating fuel price discounts, paying cash to obtain discounts instead of paying by credit, or buying propane in the summer. States receive extra LIHEAP funds from HHS for the savings achieved through these programs.

The Weatherization Assistance Program provides its recipients with such services as installing insulation and ventilation fans, performing heating and cooling tune-ups and modifications, and replacing units to improve energy efficiency and safety. These activities can increase home heating efficiency by up to 30 percent for the recipients, thus lowering the heating bill that they would otherwise pay.

To prepare the information in this report, we reviewed the Energy Information Administration's (EIA) study on the U.S. propane markets in the winter of 1996-97 and other data on propane from EIA, HHS' documents on LIHEAP, and DOE's documents on its weatherization program. In addition, we interviewed the relevant officials from these federal agencies and the propane industry as well as state officials in Arkansas and South Dakota. We also provided DOE and HHS with a draft of the contents of this report for review and comment. Both DOE and HHS agreed with our findings. We performed our review from September 1997 through November 1997 in accordance with generally accepted government auditing standards.

As agreed with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 15 days from the date of this

¹For example, South Dakota's LIHEAP office saved an average of 59 cents per gallon over winter prices by purchasing propane in the summer for some of its clients during the 1996-97 heating season.

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letter. At that time, we will make copies available upon request. If you have any questions or need additional information, please call me at (202) 512-3841. Major contributors to this report include Charles W. Bausell, Jr.; Godwin M. Agbara; Jonathan T. Bachman; and Araceli Contreras Hutsell.



Susan D. Kladiva
Acting Associate Director
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Enclosure

GAO Resources, Community, and Economic
Development Division

**PROPANE PRICE INCREASES
DURING THE WINTER OF 1996-97**

Briefing for Staffs of Senators Tom
Daschle and Dale Bumpers and
Congressman Marion Berry

GAO Objectives

- What factors caused the propane price increases during the heating season of 1996-97?
 - What options are available to the government to cushion the potential effects of propane price spikes on low-income residential consumers?
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GAO **Scope and Methodology to Determine Causes of Price Increases**

- Reviewed Energy Information Administration's (EIA) study on the U.S. propane markets in the winter of 1996-1997 and EIA's data on propane.
 - Interviewed industry and state officials in Arkansas and South Dakota.
 - Our work focused on Arkansas and South Dakota.
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GAO Background on the South Dakota Market

- Some South Dakota propane dealers have a market area of 40 miles from their bulk storage facilities. Their market areas are limited by their transportation costs.
 - Of 450 propane dealers in South Dakota, about 99% had at least one other dealer within 40 miles of their facilities and 54% had at least 25 other dealers within 40 miles.
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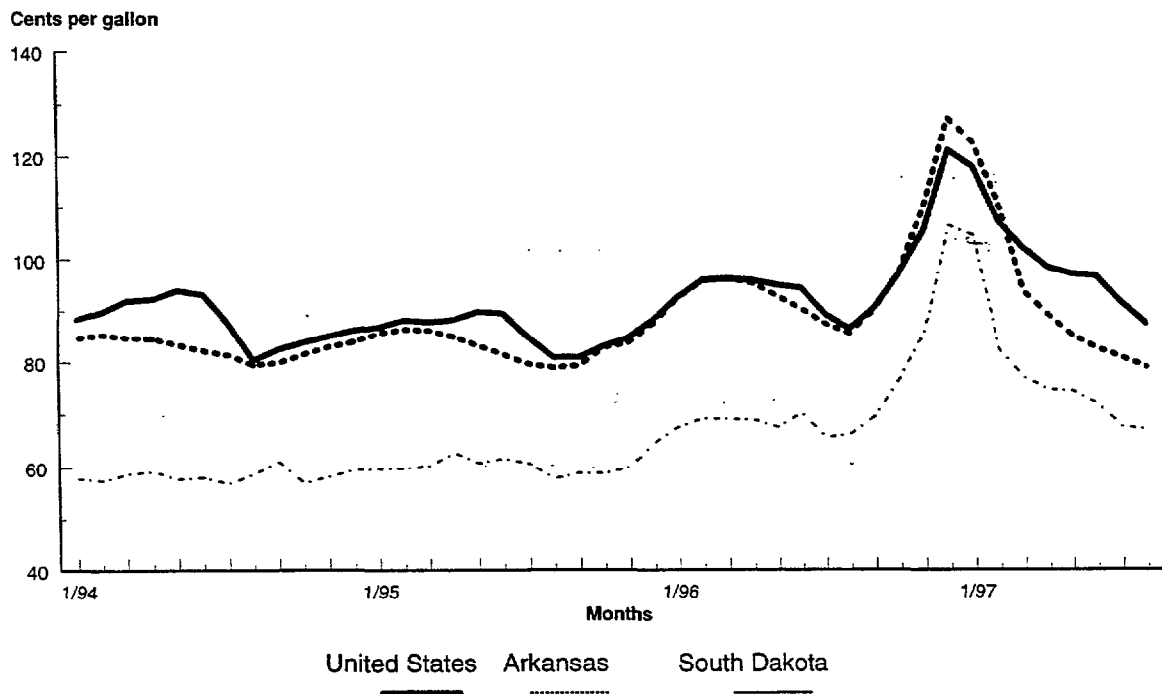
GAO Background on the Arkansas Market

- As a safety measure, Arkansas passed a law limiting a propane dealer's market area to 25 miles from their bulk storage facilities.
 - Of 245 propane dealers in Arkansas, about 98% had at least one other dealer within 25 miles of their facilities and 67% had at least 5 other dealers within 25 miles.
-

GAO Background on Causes of Price
Increases

- Retail prices rose sharply in Arkansas, South Dakota, and elsewhere in the U.S. during the 1996-97 heating season.
 - The spot price of propane doubled from the end of September to mid-December 1996 at Conway, Kansas, a major trading hub supplying South Dakota.
 - The spot price of propane also rose, but not by as much, in Mont Belvieu, Texas, a major trading hub supplying Arkansas.
-

GAO Residential Propane Prices, January 1994 to August 1997



Note: Price data for Ark. and S.D. are not published by EIA.

Source: EIA.

**GAO Factors Causing Spike in Propane
Prices During the Winter of 1996-97**

- Demand and supply factors cited as causing or contributing to this price spike include
 - cold weather,
 - wet crops,
 - low inventory of propane,
 - production and import issues, and
 - pipeline problems.
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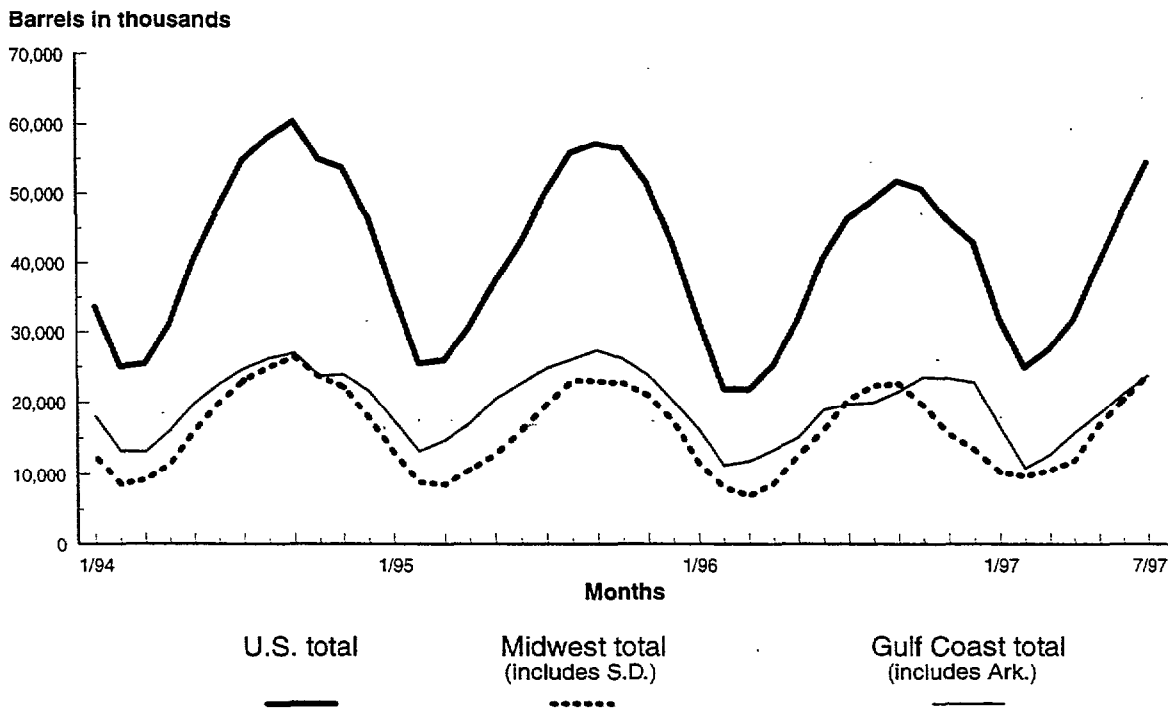
GAO Cold Weather and Wet Crops

- Oct. and Nov. 1996 were 6% and 18% colder than normal, respectively.
 - At the same time, the need to dry wet crops in the Midwest increased demand.
 - Fearing possible winter shortages, marketers bought more propane early.
 - U.S. demand in Oct. 1996 was 12% higher than Oct. 1995, while demand in the Midwest was 32% higher.
-

GAO Lower Than Normal Inventory

- Inventory is typically built up between Mar. and Sept.
 - The Mar. 1996 inventory was the lowest for that month in more than 25 years due to cold weather in the 1995-96 winter.
 - U.S. propane inventory at the end of Sept. 1996 was the third lowest ever at the start of the winter season, and Midwest inventory was 22% below average at the end of Nov. 1996.
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GAO U.S. Propane Inventory, January 1994 to July 1997

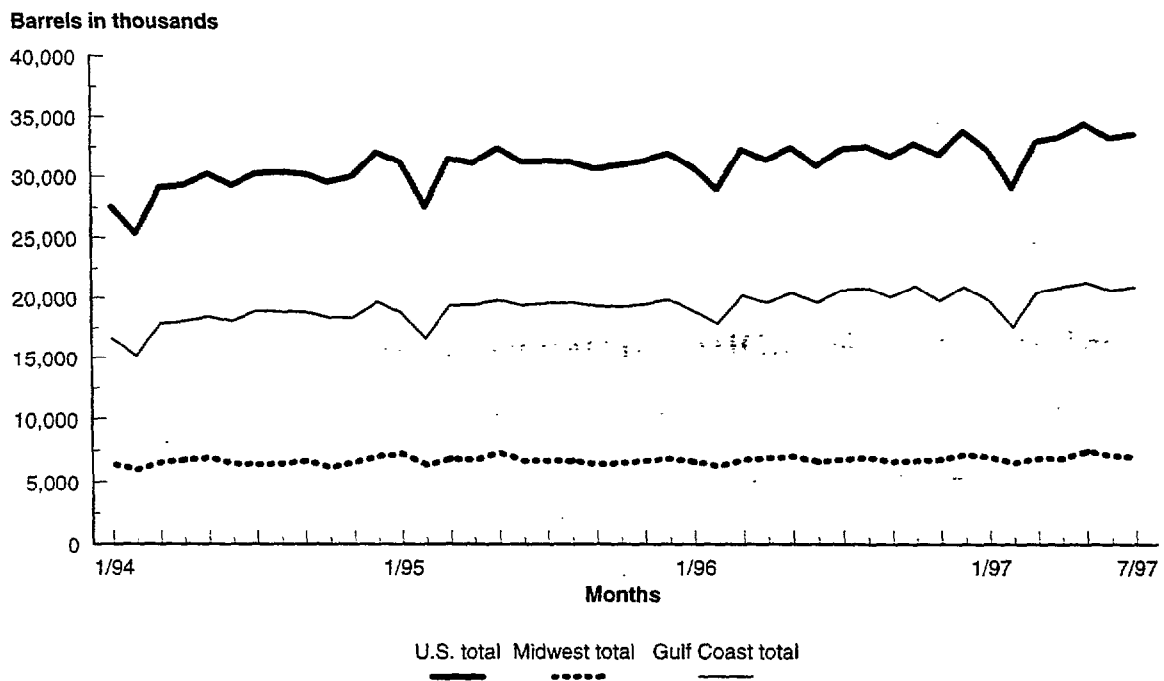


Source: EIA.

GAO U.S. Production Up Slightly as Imports Increase

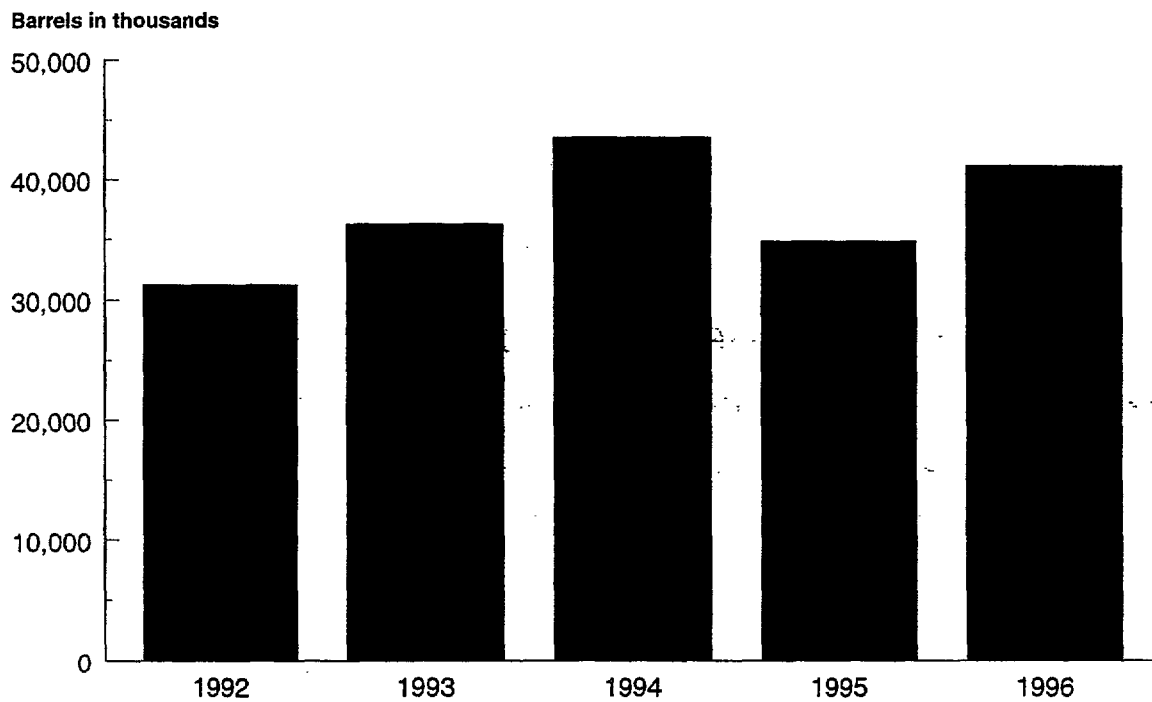
- 1996 U.S. production did not rise much despite higher demand.
 - Propane production is a by-product of natural gas processing and petroleum refining.
 - U.S. imports in 1996 were 18% higher than 1995 and rose 65% from Sept. to Oct. 1996.
 - Without imports, prices would likely have been higher.
-

GAO U.S. Propane Production, January 1994 to July 1997



Source: EIA.

GAO U.S. Propane Imports, 1992-96



Source: EIA.

GAO Production Problem in Mexico

- An explosion in July 1996 at a Mexican gas plant was cited by industry and state officials as contributing to the price spike for propane in the United States.
 - According to industry sources, the explosion reduced Mexico's production of propane by about one-third, forcing Mexico to become a major propane importer in the world market while it ceased exporting to the United States.
-

GAO Pipeline Problems

- Because the only pipeline from Mont Belvieu to Conway exploded during the 1996-97 winter, propane was trucked from Texas, which generally has higher production and inventory, to Conway; this mode of transporting propane is more expensive than using a pipeline.
 - The higher spot prices at Conway than at Mont Belvieu contributed to price increases in South Dakota.
-

GAO Pipeline Problems

- Pipeline problems contributed to propane price increases in Arkansas, even though it had a relatively mild winter.
 - The only pipeline connecting Arkansas to Mont Belvieu could not meet the demand in Arkansas because demand from all its shipping destinations exceeded its capacity.
-

GAO Scope and Methodology on Options to
Cushion the Effects of High Prices

- Reviewed documents and data on HHS' Low-Income Home Energy Assistance Program (LIHEAP) and DOE's Weatherization Assistance Program.
 - Interviewed federal officials and state officials in Arkansas and South Dakota who implement these programs.
 - Interviewed industry officials in Arkansas and South Dakota.
-

GAO Background on Options

- Households in the Midwest spent about 40% more in the 1996-97 heating season on propane for home heating than normal.
 - The federal government has two programs to help low-income consumers meet their home energy needs:
 - LIHEAP and
 - Weatherization Assistance Program.
-

GAO Background on Options (continued)

- LIHEAP, which gives block grants to states to help pay home energy bills, was created by the Low-Income Home Energy Assistance Act of 1981.
 - In 1997, LIHEAP's appropriations were \$1.2 billion, down from \$2.1 billion in 1985.
-

GAO Background on Options

- In 1996, 4.5 million households received average LIHEAP benefits of \$158, down from 6.8 million households that had received average benefits of \$242 in 1985.
 - The Weatherization Assistance Program, created by the 1976 Energy Conservation and Production Act, spent \$121 million in 1997 on about 61,000 homes, down from \$191 million in 1985 spent on about 97,000 homes.
 - Lower fuel bills result from weatherization.
-

GAO Options

- Several options to cushion the effects of price increases were suggested by industry, state, and federal government officials, including
 - a summer fill program,
 - fixed-price contracts,
 - a leveraging incentive program, and
 - weatherization.
-

GAO Summer Fill

- Filling storage tanks in the summer can be cheaper due to lower prices, but the fuel must be paid for at fill-up time.
 - How much more propane can be bought in a summer fill program--and how much the consumer benefits--depends on how much lower propane prices are in the summer than the winter.
 - Some interest income is forgone by the state when purchasing propane early.
-

GAO Summer Fill

- South Dakota's LIHEAP office paid for summer fill for some of its elderly and handicapped clients in 1997.
 - South Dakota summer fill clients saved, on average, 13 cents per gallon and 59 cents per gallon, respectively, in the 1995-96 and 1996-97 heating seasons.
 - Arkansas' LIHEAP office will consider summer fill in the future if a price spike like that of 1996-97 reoccurs.
-

GAO Fixed-Price Contracts

- Fixed-price contracts negotiated by a state guarantee a price as a hedge against price spikes, but dealers require partial payment of the bill in advance.
 - How much the consumer benefits depends on how low the fixed price is and how much interest income is forgone because of advance payment.
 - A mild winter could result in higher fuel bills under a fixed-price contract.
-

GAO Fixed-Price Contracts

- South Dakota's LIHEAP office arranged fixed-price contracts for some of its elderly and handicapped clients for the 1997-98 heating season.
 - Arkansas' LIHEAP office will consider fixed-price contracts in the future if a price spike like that of 1996-97 reoccurs.
-

GAO Leveraging Incentive Program

- Under the LIHEAP leveraging incentive program, states can receive extra funds from HHS for taking actions to help lower fuel bills for LIHEAP recipients.
 - In FY 1996, S.D. LIHEAP office received \$44,000 in extra funds under LIHEAP's leveraging incentive program, mostly from propane summer fill.
 - Six other states took actions to lower propane bills.
-

GAO Leveraging Incentive Program

Program description	State	Savings on propane
Fuel Discount: LIHEAP officials negotiate with vendors for a discount on behalf of LIHEAP customers.	Maryland	Averaged about \$200,000 per year in savings for propane and other fuels from 1991 through 1994
Discount	Oregon	Averaged 10 cents per gallon
Summer Fill: Fuel is purchased in the summer to obtain the lowest seasonal price for LIHEAP customers.	Montana	Cannot estimate savings because program began summer of 1997

**GAO Leveraging Incentive Program
(continued)**

Program description	State	Savings
Cash prices: Lower cash prices instead of credit prices are paid.	North Dakota	Averaged 10 cents per gallon
Vendor inspector fees: Fees collected from propane and oil dealers are used for weatherization and repairs of heating systems that have propane or oil furnaces.	Minnesota	About \$800,000 was collected in FY 1993 and FY 1994.
Donations: Donations are made to LIHEAP recipients from propane and oil vendors as well as local organizations.	Vermont	About \$9,000 worth of donations have been made annually.

GAO Weatherization

- DOE estimates that weatherization can increase home heating efficiency by up to 30% for those served by the program, thus lowering the heating bill that they would otherwise pay during price spikes.
 - S.D. and Ark. LIHEAP officials believe that while using LIHEAP funds to help pay fuel bills offers a short-term cushion against propane price spikes, weatherization offers a long-term cushion against them.
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GAO Constraints on Options

- LIHEAP funds are available for obligation on Oct. 1, too late for summer fill and/or fixed-price contracts that are negotiated in the summer.
 - LIHEAP's appropriations cycle was changed from the federal FY (Oct. 1 to Sept. 30) to "program year" funding (July 1 to June 30) starting July 1, 1993 (P.L. 101-501, sec. 701).
-

GAO Constraints

- Program year funding would have made LIHEAP funds available in the summer to negotiate summer fill and fixed-price contracts.
 - According to HHS, the change was not implemented because money could not be made available to fund both FY 1992 and program year 1993 simultaneously, as called for in the legislation.
-

GAO Constraints

- In 1994, the cycle was changed back to Oct. 1, to coincide with the federal FY (P.L. 103-252, sec. 303).
 - Funds for weatherization are limited to 15% of the state's total funds for LIHEAP but can increase up to 25% upon receiving a waiver from HHS.
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