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Federal Responses to December 1989  
Heating Fuel Shortages Were Limited

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Before the  
Committee on Governmental Affairs  
United States Senate

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Mr. Chairman and Members of the Committee:

We are pleased to be here today to discuss our report on heating fuel shortages that occurred in December 1989 when the nation experienced a severe and unpredicted cold spell.<sup>1</sup> The report responded to requests from Senators John Heinz and Larry Pressler and Congressman Paul E. Kanjorski.

Our report examined (1) allegations of shortages of heating fuels during that period; (2) the impact of delays in processing waivers of the Jones Act on heating fuel supplies; (3) the type of data collected and the analyses performed on heating fuel supply and demand by the Department of Energy's (DOE) Energy Information Administration (EIA); and (4) the impact of interruptible natural gas contracts on heating fuel supplies and availability.

In summary:

-- Physical shortages of heating fuels--propane and distillate--occurred because of an increase in demand caused by the extremely cold temperatures and the inability of the distribution systems to move heating fuel stocks from refineries and storage terminals to areas with shortages.

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<sup>1</sup>ENERGY SECURITY: Federal Responses to December 1989 Heating Fuel Shortages Were Limited (GAO/RCED-91-78) Feb. 20, 1991.

- Delays in processing Jones Act waivers, which would have allowed the use of foreign-flagged vessels to transport heating fuels between U.S. ports, contributed to supply problems.
  
- Limitations in the data EIA collected on heating oil supplies reduced its ability to predict or respond to supply shortages.
  
- Utilities and commercial and industrial customers with interruptible natural gas contracts had gas services discontinued and entered distillate and propane markets, thus reducing the supplies of these fuels available to residential consumers.

These findings were similar to some of those reached in the National Association of Attorneys General December 6, 1990, Final Report on the December 1989 Energy Crisis, which is also a focus of today's hearing.

During the past year federal agencies have taken actions to address the problems that occurred last winter. However, some limitations in EIA data collection may remain and problems in processing Jones Act waivers may still occur.

## BACKGROUND

The United States experienced a period of extremely cold weather during December 1989 and January 1990. According to EIA, temperatures during this period were the coldest recorded in the last 60 years. Based on heating-degree days (that is, the number of degrees per day the average daily temperature is below 65 degrees Fahrenheit), December 1989 was 27 percent colder than normal nationally and 33 percent colder than normal on the East Coast.

The demand for heating fuels increased sharply during this period. Nationally, the demand for heating distillate increased by 1 million barrels a day (MMBD), or 31 percent, to 4.1 MMBD from November to December 1989. The demand peaked at 4.4 MMBD during the week of December 22. Propane demand also rose from 1.074 MMBD in November to 1.525 MMBD in December 1989, a 42 percent increase. These increases were more dramatic on the East Coast, where distillate and propane demand rose by 53 percent and 83 percent, respectively, between November and December.

Prices for heating fuels also increased dramatically. For example, the spot price of distillate at the New York Harbor increased by 90 percent between November 27 and December 27, 1989. The rise in propane prices was even more dramatic. Between December 1, 1989 and January 2, 1990, the spot price of propane

rose by 305 percent and 211 percent, respectively, at the Conway, Kansas, and Mt. Belvieu, Texas, markets--two major supply points through which a majority of the U.S. domestic supply is marketed and distributed.

SHORTAGES OCCURRED DURING  
THE 1989 HEATING FUEL CRISIS

The December 1989 cold weather revealed weaknesses in the distribution mechanisms of U.S. markets for heating fuels, resulting in short-term shortages and contributing to high prices. The shortages occurred in all segments of the energy supply chain on the East Coast, while propane terminals experienced shortages in South Dakota. We define shortages as including situations in which customers were unable to purchase all the supplies they needed from a heating fuel supplier even though they were willing to pay higher prices.

The energy supply chain consists of three segments: (1) the primary segment--refiners that produce the finished products; (2) the secondary segment--wholesalers and/or retailers of petroleum products that obtain supplies from the primary suppliers or imports; and (3) the tertiary segment--residential, commercial and industrial customers who are the end-users (see attachment I for details). Industry officials we interviewed attributed the shortages to increased demand due to the extremely cold

temperatures and to the inability of the distribution systems to move heating fuel stocks from refineries and storage terminals to areas in need.

I would now like to mention a few examples of the supply problems we found. At a major Mid-Atlantic refining company, demand for distillate and propane in December 1989 exceeded its forecast demand and, therefore, its planned supply for the period. The company told us that it could not supply noncontract customers and, in some cases, could not satisfy the demand of contract customers who wanted distillate and/or propane supplies in excess of their contract amount, even though these customers were willing to pay higher prices. Some secondary suppliers in the Northeast that we contacted also experienced short-term shortages. For example, by the third week in December, only two out of eight wholesalers we contacted in New England had distillate. The two wholesalers rationed available supplies to retailers who, in turn, rationed supplies to residential and/or commercial customers.

Supply problems were not limited to the Northeast. In South Dakota, distillate and propane prices rose sharply and propane terminals experienced shortages. However, secondary suppliers we interviewed were able to obtain distillate and propane. According to state energy officials, both fuels were available, but at substantially higher prices. For example, the average retail price of heating oil rose 20 cents per gallon (a 27 percent increase)

while propane rose by 50 cents per gallon (a 102 percent increase). Propane is the primary heating fuel on the Rose Bud and Pine Ridge Indian Reservations, where many residents could not pay the higher prices. Tribal officials from both reservations said that some families burned wood, tires, and old clothes to stay warm, while others went to a Red Cross shelter or moved in with relatives.

I would now like to discuss some of the problems relating to the heating fuels crisis that were discussed in our report.

#### PROBLEMS WITH JONES ACT WAIVERS

##### AFFECTED ENERGY SUPPLIES

Our report disclosed problems in the processing of Jones Act waivers during the heating fuels crisis. The Jones Act requires the use of U.S. vessels to transport merchandise between U.S. ports. However, a waiver can be granted if it is in the interest of national defense.

The problems discussed in our report relate to the slowness with which federal agencies processed waivers and disagreements among federal agencies concerning the criteria for granting waivers. The federal agencies involved in the waiver process are DOE, the Department of Defense (DOD), Maritime, Customs, and Treasury. The Attorneys General report had similar findings.

We found that over an 8-day period in December 1989, the Customs Service received six applications for waivers of the Jones Act so that foreign vessels could be used to move heating fuels from Puerto Rico and the Gulf Coast to the East Coast. Overall, the federal agencies took 6 to 17 days between the date of application and the date of Treasury's written response to the applicants to process these requests.

Three waiver applications for distillate or residual oil were all denied by Treasury because U.S. vessels were available. Of the three applications for propane, one resulted in 50,000 barrels being shipped to the Northeast in a foreign vessel. However, the foreign vessels named in the other two propane applications became unavailable before Treasury made a decision. In one of those cases, DOD and Maritime took 6 days from the date of application to advise Treasury, but after the fifth day the vessel was no longer available to travel to the Northeast. In the other case, DOD and Maritime took 5 days from the date of application to advise Treasury. Treasury granted the waiver 1 day later, a few hours after the vessel had sailed to another destination.

In July 1990, DOE, Maritime, and Customs Service officials signed a procedural agreement called a "Memorandum of Understanding" to expedite waiver applications during future actual or imminent energy shortages. The Treasury Department, which is responsible for final approval of the Jones Act waivers, and DOD



are not parties to the agreement. The agreement clarifies the roles and responsibilities of DOE and Maritime. Under the agreement, DOE monitors energy supplies and Maritime monitors ship availability. DOE determines whether an actual or imminent energy shortage exists and assesses whether the waiver is necessary in the interest of national defense, while Maritime determines the availability of U.S. vessels. The agreement requires both agencies to respond to the Customs Service regarding these issues within 48 hours. Customs would then make its recommendation to Treasury.

While the Memorandum of Understanding is a positive step, two obstacles may impede the process. The first is the interpretation of the criterion for granting waivers. Treasury's Deputy Assistant Secretary--Regulatory, Tariff, and Trade Enforcement told us that Treasury is concerned about DOE's interpretation of the national defense criterion. While DOE believes that "national defense" encompasses domestic energy shortages, Treasury believes that domestic shortages alone do not satisfy the "national defense" criterion; in the view of the Treasury official, only shortages experienced by DOD installations or strategic suppliers satisfy this criterion. The official said Treasury's Office of General Counsel doubted that the two waivers granted in December 1989 satisfied Treasury's interpretation of the national defense criterion. Treasury said it will more closely examine the national defense interest of future applications.

The second obstacle is whether DOE will have the data it needs to determine whether an energy shortage exists. According to the Director of the Energy Emergencies Planning Division in DOE's Office of Energy Emergencies, the greatest impediment in December 1989 was obtaining sufficient and timely supply data. He acknowledged that quantifying a shortage would be difficult without, at least, secondary inventory data (inventories held by wholesalers and retailers). However, as I will now discuss, EIA does not collect secondary inventory data.

1989 CRISIS REVEALED LIMITATIONS IN  
EIA'S COLLECTION AND ANALYSIS  
OF HEATING FUELS DATA

Our report noted various limitations in EIA data collection and analysis capabilities that existed in December 1989. Since last winter, EIA has recognized some of these weaknesses and has made improvements. First, it now collects weekly data on propane supply and demand for publication between the beginning of October and the end of March. Second, because the Congress reinstated funding, the number of states that provide retail price data on heating fuels to EIA under the EIA/State Heating Oil and Propane Program has increased from 11 in 1989 and 1990 to 26 this winter.

However, one issue that is still unresolved is whether EIA should collect secondary inventory data. In the view of EIA officials, the collection of data on secondary inventory levels was not warranted, although they have not carried out a formal cost-benefit analysis to support this view. They pointed out that inventory capacity for distillate at the secondary level was considerably smaller than at the primary level. As of March 31, 1988, the National Petroleum Council estimated that secondary inventory capacity was 37 million barrels, compared to 261 million barrels for the primary level. EIA officials also said that information EIA currently collects on primary inventory levels could be used to estimate whether secondary inventory levels are likely to be higher or lower than normal. Further, in their opinion, a secondary data collection system would be too costly to implement, because EIA would have to institute a new survey of secondary suppliers. They added that even if EIA can determine that secondary inventories are low going into the heating season, distillate and propane are not regulated and companies cannot be required to maintain specific inventory levels.

In the view of four of the five state energy offices we contacted on the East Coast (where supply problems occurred), secondary inventory information on heating fuels is a useful tool for monitoring supplies during the winter. Officials from four state energy offices (Pennsylvania, New York, Massachusetts, and Maryland) told us that it would be very useful if EIA collected

secondary inventory data for distillate and propane; officials from the fifth state (New Hampshire) believed that, although this information might be useful, it would be too expensive to collect. According to one state energy official, secondary inventory is particularly beneficial to the East Coast because it reduces the region's vulnerability to supply bottlenecks that may arise from dependence on Gulf Coast pipelines and imports during emergencies.

Further, as I mentioned earlier, secondary inventory data would also help DOE carry out its responsibilities under the new "Memorandum of Understanding" for Jones Act waivers. Such data would be valuable in determining whether an energy shortage exists or is imminent.

#### INTERRUPTIBLE NATURAL GAS CONTRACTS

#### AFFECTED ENERGY MARKETS

Another issue that was discussed in both our report and the final report of the Attorneys General is the impact of interruptible natural gas contracts on heating fuel supplies. Natural gas consumers with interruptible contracts (that is, electric utilities and commercial and industrial concerns) were a significant factor in heating fuel price increases in December 1989. These customers had gas service discontinued and entered the distillate and propane markets, competing with residential consumers for available supplies. EIA estimated that this activity

affected the December 1989 heating oil market by at most 141 thousand barrels of distillate per day (MBD) or about 5 percent of total distillate sales for the month. However, EIA officials told us that this was just a rough estimate.

In February 1990, the Senate Subcommittee on Energy Regulation and Conservation, Committee on Energy and Natural Resources, requested that EIA conduct a comprehensive nationwide study to examine the impact of interruptible gas contracts on the demand for heating fuels. EIA subsequently determined that a comprehensive study would cost an estimated \$850,000 and could take up to 2 years to complete. Such a study would involve a survey of interruptible natural gas consumers who may have switched to distillate or propane. In November 1990, EIA advised us that it does not support a comprehensive study but rather will use existing EIA resources to compare what happened last winter to the previous winter, focusing on a representative sample of electric utilities in the Mid-Atlantic area. EIA intends to complete the study by June 1991, although the exact scope and methodology had not been determined as of January 10, 1991.

EIA advised us that it decided on this focus for the study because most of last winter's unanticipated demand for distillate occurred in the Mid-Atlantic states and appeared to be attributable to electric utilities. EIA said that the study would show, among other things, whether these companies switched from natural gas to

distillate and propane last winter; the extent to which the companies maintain inventories of these fuels in case their natural gas supplies are interrupted; and whether state regulations require minimum inventories and allow the costs of the purchases to be passed on to their customers. However, the study will not identify the extent or impact of issues and problems experienced by electric utilities in other geographic areas or identify problems that may have been caused by industrial or commercial gas users with interruptible contracts.

### CONCLUSIONS

Both our report and the Attorneys General's report revealed problems in the way that federal agencies responded to the December 1989 heating fuels crisis. Since then, agencies have recognized many of these weaknesses and have taken actions to address them. However, we believe that some limitations in EIA data collection and analysis may still exist and that problems in processing Jones Act waivers may still occur. To address these problems, our report recommends that the Secretary of Energy (1) determine the costs and benefits of collecting information on secondary inventory data, including whether these data are needed to satisfy DOE's responsibilities under the Memorandum of Understanding on Jones Act waivers and (2) work with the Secretary of Treasury to clarify--either administratively or by seeking legislation if necessary--whether DOE will need to show that

defense installations and suppliers are being affected in order to satisfy the national defense criterion for granting waivers.

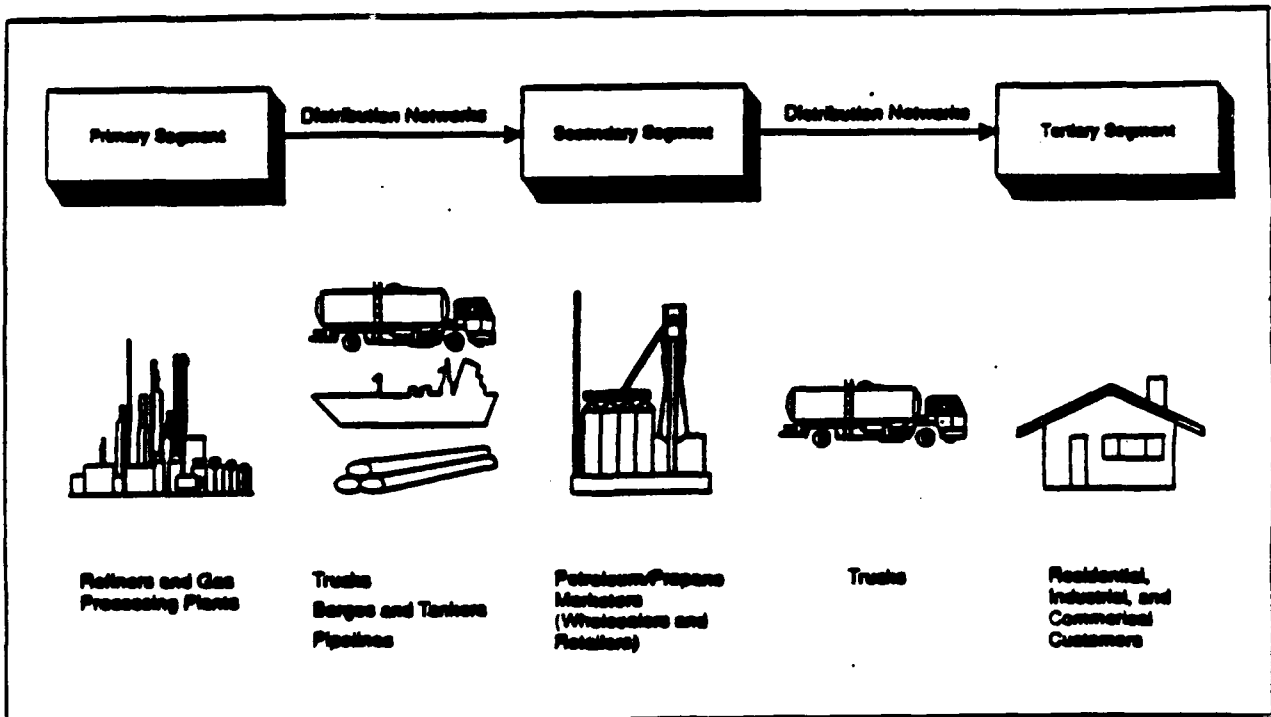
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This concludes my prepared statement. We would be pleased to respond to any questions you or Members of the Committee may have.

THE ENERGY SUPPLY CHAIN

The energy supply chain includes (1) the primary segment--refiners that produce the finished products; (2) the secondary segment--various wholesalers and/or retailers of petroleum products that obtain supplies from the primary suppliers or imports; and (3) the tertiary segment--residential, commercial, and industrial customers that are the end-users. Energy products flow from segment to segment via the various distribution networks illustrated in figure I.1.

Figure I.1: Energy Supply Chain





Distillate is available at most refineries and terminals and is shipped and stored at atmospheric pressure. Propane, a liquified petroleum gas, must be kept under pressure to remain liquid, and thus is stored and transported in pressurized containers.

Domestically refined petroleum products enter the U.S. distribution system at the refinery gate, while imports enter the system at ports of entry. The northeastern states also import refined petroleum products, which are shipped to terminals by pipelines, barges, or tankers. From the terminals, products are transported by truck or rail to smaller bulk storage facilities or directly to service stations or large end-users.