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U.S. Home Heating Oil Price and Supply During Winter 2000-2001: Policy Options

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Robert L. Bamberger
Specialist in Energy Policy
Resources, Science, and Industry Division

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Summary

During the winter of 1999-2000, historically low stocks of home heating oil, weather that disrupted fuel shipments, and refinery outages contributed to a sharp increase in the price of home heating oil. As the winter of 2000-2001 approached, inventories of home heating oil remained low, and concern has grown about the effect that higher crude prices, colder weather, and anticipated refinery maintenance might have on home heating oil price and supply during the current winter. In the middle of January 2001, prices were roughly $.40/gallon higher than levels of one year earlier. At issue is whether supplies will remain adequate and affordable, and what possible responses are in place or under consideration if shortages develop and push prices higher.

A drawdown of crude oil from the Strategic Petroleum Reserve is one option to address shortages. However, to provide an alternative that would more specifically target home heating oil, President Clinton, in late July of 2000, authorized establishment of a 2 million barrel Northeast Heating Oil Reserve (NHOR) situated in New York and New Jersey. The FY2001 Interior Appropriations (P.L. 106-291) included $8 million for funding the regional reserve, and Congress permanently authorized the NHOR in the Energy Policy and Conservation Act Amendments of 2000 (P.L. 106-469).

Opponents of establishing a regional home heating oil reserve were concerned that the NHOR would be used in circumstances that did not fully warrant it, and that this would discourage private stockbuilding and distort markets. To address this concern, P.L. 106-649 gives the President discretion to tap the NHOR when the price differential between crude oil and home heating oil increases by more than 60% over its five-year rolling average for seven consecutive days, and the differential is continuing to increase. The intention behind this approach is to make the threshold for use of the regional reserve high enough so that oil marketers and distributors are not discouraged from building their own stocks. To the extent that a crude shortage is also contributing to product shortages and high prices, it could be useful to tap the NHOR for refined product while crude is also drawn from the larger SPR. Some have argued, however, that a drawdown or swap of SPR oil should be coordinated with a larger drawdown of stocks worldwide.

Others oppose use of strategic reserves, arguing for reliance upon markets to price and allocate fuel as a more efficient means of coping with spot shortages and price spikes. Policy, from this perspective, should address instead the consequence of high prices on those least able to pay while markets are left to sort out contributing causes for those prices. The Low-Income Home Energy Assistance program (LIHEAP) was originally established in 1981 by Title XXVI of P.L. 97-35 and has been reauthorized several times. It is a block grant program under which the federal government gives states, the District of Columbia, U.S. territories and commonwealths, and Indian tribal organizations annual grants to operate multi-component home energy assistance programs for needy households.

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Introduction

The nation has experienced a persistent period of tight supply for energy, accompanied by steep increases in prices, that began to spread across seasons and fuels in the late spring of 1999. As the summer of 2000 ended, crude oil prices continued to escalate despite boosts in production by the Organization of Petroleum Exporting Countries (OPEC) cartel. Crude prices began to exceed $30 per barrel (bbl) in June 2000. Historically low stocks of home heating oil escalated concern over the effect that higher crude prices, colder weather, and anticipated refinery maintenance might have on home heating price and supply during the winter. This is particularly important for New England. Nationwide, heating oil is relied upon for space heating in 9% of residential homes, but in the Northeast, 36% of homes depend upon heating oil to provide warmth.[1] For the moment, supplies are adequate. Record imports of heating oil and diesel fuel (both of which are middle distillates), estimated at 965,000 barrels daily during the week ending January 5, 2001, eased upward pressure on prices.[2] Heating oil stocks, which in late summer 2000 had been nearly 30 million barrels lower than one year earlier, were slightly more than 8 million barrels lower from year-earlier levels by the first week of January 2001. However, prices are more than $.40/gallon higher than levels of one year ago. At issue is whether supplies will remain adequate and affordable, and what possible responses are in place or under consideration if shortages develop and push prices even higher.

One measure in place this winter that was not available during the winter of 1999-2000 is the Northeast Heating Oil Reserve (NHOR), authorized by Congress in the Energy Policy and Conservation Act Amendments of 2000 (P.L. 106-469). Terminals in New Jersey and Connecticut hold two million barrels of home heating oil that can be drawn down if the price of home heating oil rises sharply in relationship to crude oil prices. The drawdown formula was unusually explicit, partly to settle objections that the NHOR might be used in circumstances that did not fully warrant drawing upon it. The NHOR holds refined product and is considered an adjunct to the larger Strategic Petroleum Reserve (SPR), a stockpile which holds over 550 million barrels of crude oil that can be tapped if shortages of crude are partly responsible for inadequate heating oil supplies. In addition to the SPR and the NHOR, state governors may allocate funds from the Low Income Home Energy Assistance

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[1] U.S. Department of Energy. Energy Information Administration. Office of Energy Markets and End Use. *A Look at Residential Energy Consumption in 1997.* DOE/EIA-06392 (97); p. 1-2.

[2] "Record Imports Ease US Heating Oil Market," appearing in: *Oil Daily*, Vol. 51, No. 8, Thursday, January 11, 2001: p. 1-2.

Program (LIHEAP) to residents whose quality of life is threatened by sharply higher heating bills. LIHEAP was established in 1981.

This report briefly summarizes the underlying conditions for current home heating oil supply and price, and provides an overview of current policy to address heating oil shortages this winter. More generalized policies to boost energy supply or moderate prices are not addressed in great detail.

Home Heating Oil Stocks and Prices

When crude oil is refined, the process yields a range of different products utilizing "heavier" and "lighter" hydrocarbon components of the crude feedstock. Home heating oil is referred to as a "middle distillate," expressly because it comes from the "middle" part of the barrel. The yield of middle distillates from the barrel has recently averaged 23%. Depending upon the season, this percentage may be tweaked slightly to produce more middle distillates and less gasoline or jet fuel, for example.[3] Diesel fuel is also a middle distillate, and accounted for nearly 56% of total middle distillate consumption in 1999 while residential consumption of middle distillates measured 11% of the total.[4] Because the residential and transportation sectors are in potential competition for the same part of the barrel, any unusual circumstances affecting the price and supply of one of these fuels may also affect price and supply of the other until the market achieves equilibration.

Total stocks of middle distillates fell below the three-year average range beginning in late November 1999, and have remained below range ever since.[5] Typically, distillate stocks begin to fall in December of each winter as seasonal demand exceeds current refinery production. Distillate stocks generally continue to decline into April. Replenishing these stocks begins in earnest in the summer. The objective, obviously, is to enter the heating season with adequate stocks; one of the problems during the current and previous winter is that stocks were at historic lows in the United States.

Table 1 presents recent measures of home heating oil stocks, which analysts follow closely. When, at the beginning of December 2000, home heating oil stocks began to firm slightly, it raised some hopes that the growth in stocks during late November might signal that distributor and homeowner inventories of home heating oil were, for the moment, ample and that there might be less call on primary inventories and stocks until later in the season. This would allow primary stocks to

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[3] U.S. Department of Energy. Energy Information Administration. Petroleum: An Energy Profile, 1999. July 1999. DOE/EIA-0545 (99): p. 30.

[4] U.S. Department of Energy. Energy Information Administration. Fuel Oil and Kerosene Sales, 1999. September 2000. DOE/EIA-0535 (99): p. 3-5.

[5] U.S. Department of Energy. Energy Information Administration. Weekly Petroleum Status Report. For the most recent information on total distillate stocks, go to: http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/weekly_petroleum_status_report/current/pdf/figure04.pdf

build later into the winter than has been typical. While the trend, week-to-week, has not been altogether consistent, the disparity between current home heating oil stocks and year-earlier levels has narrowed.[6] The gap, which approached 30 million barrels at the end of summer 2000, had narrowed to slightly more than 8 million barrels by early January 2001.

Table 1. Home Heating Oil Stocks by Petroleum Administration for Defense District (PADD): Recent Weeks Compared With 2000
(million barrels)

District/Date	12/08/00	12/15/00	12/22/00	12/29/00	01/05/01	One Year Ago: 01/05/00
East Coast (PADD I Total)	23.8	25.2	25.3	24.3	25.1	30.5
PADD IX	4.5	4.5	4.6	5.1	5.1	7.2
PADD IY	15.6	16.6	16.6	15.4	15.5	19.2
PADD IZ	3.7	4.2	4.1	3.9	4.5	4.1
Midwest (PADD II)	8.7	8.2	8.4	8.3	7.8	9.2
Gulf Coast (PADD III)	11.8	11.9	11.6	12.1	10.2	11.2
Rocky Mountain (PADD IV)	0.4	0.4	0.4	0.4	0.5	0.5
West Coast (PADD V)	2.6	2.3	2.6	2.9	2.5	2.9
U.S. Total	47.3	48.1	48.4	47.5	46.0	54.2

Source: U.S. Department of Energy. Energy Information Administration. Distillate Watch. January 10, 2001. [http://www.eia.doe.gov/distillate_watch.pdf]

Whatever the state of stocks, severe weather and unforeseen pressures on supplies and the delivery system can always trigger spot shortages and additional price increases. The average U.S. price for heating oil for the week ending January 8, 2001, was $1.568 per/gallon on the East Coast (PADD 1), more than 40 cents above the $1.157 average for the entire month of January 2000.[7]

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[6] There can also be inconsistencies between the weekly numbers reported by DOE's Energy Information Administration and the American Petroleum Institute. For the week ending December 15, 2000, EIA reported an addition of 800,000 barrels to heating oil stocks, while API reported a drawdown of roughly the same magnitude. See: "Bush Calls For OPEC supply as Crude Sinks," appearing in: *Oil Daily*, Vol. 50, No. 244, December 21, 2000.

[7] U.S. Department of Energy. Energy Information Administration. Weekly Petroleum Status Report (for week ending December 8). Distillate Watch: January 10, 2001.

Table 2. Residential Heating Oil Prices by Region

(cents per gallon)

Region	1999/2000 Heating Season					
	October 99	November 99	December 99	January 00	February 00	March 00
Average	100.2	103.6	111.5	140.5	156.6	137.7
East Coast (PADD I)	100.9	104.3	112.5	114.5	161.4	139.8
New England (PADD IX)	97.2	100.7	109.1	145.1	158.7	134.6
Central Atlantic (PADD IY)	104.5	108.0	116.1	147.5	166.4	144.3
Lower Atlantic (PADD IZ)	94.0	96.7	103.8	118.5	136.9	133.6
Midwest (PADD II)	94.4	97.8	103.3	107.5	117.2	119.9

	2000/01 Heating Season														
Region	10/02	10/09	10/16	10/23	10/30	11/06	11/13	11/20	11/27	12/04	12/11	12/18	12/25	1/01	1/08
Average	145.6	146.0	152.6	150.6	150.5	149.8	150.6	154.5	156.4	156.0	156.1	154.5	154.0	155.0	154.2
East Coast (PADD I)	147.0	147.5	154.4	152.2	152.1	151.5	152.5	156.7	158.8	158.5	158.8	157.1	156.7	157.7	156.8
New England (PADD IX)	144.8	145.6	153.0	150.2	150.4	149.2	150.7	155.0	157.4	156.4	156.5	154.6	153.5	154.4	153.5
Central Atlantic (PADD IY)	150.1	150.4	157.2	155.1	154.9	154.4	155.1	159.6	161.6	161.8	162.2	160.6	160.5	161.6	160.6
Lower Atlantic (PADD IZ)	136.8	136.5	141.7	141.6	141.0	142.2	142.8	144.7	145.4	145.2	145.8	145.1	145.9	147.0	146.6
Midwest (PADD II)	134.2	133.9	138.5	138.4	137.9	137.2	136.0	137.1	138.1	137.2	135.7	134.1	133.6	134.3	134.4

P = Preliminary data.
Source: Department of Energy, based on data collected by the Energy Information Administration from state energy offices.
PADD IX: Connecticut, Maine, New Hampshire, Rhode Island, Vermont
PADD IY: Delaware, District of Columbia, Maryland, New Jersey, New York, Pennsylvania
PADD IZ: Florida, Georgia, North Carolina, South Carolina, Virginia, West Virginia

One Thing Leads to Another (1999-2000)

The current market conditions affecting home heating oil price and supply are one more chapter in a string of fuel supply episodes beginning in early 1999. Crude prices began to escalate in March 1999 when the member countries of the Organization of Petroleum Exporting Countries (OPEC) reduced production. Oil prices began making a sharp recovery from the low teens at the beginning of the year to more than $22/bbl by September 1999, and crossed $30/bbl in mid-February 2000. One of the strongest incentives for oil importers and refiners to build stocks is the expectation that it will be more costly to do so later than at the present time. But, importers and refiners anticipated that prices would shortly soften and did not wish to risk being burdened with high-priced inventory on which they might not be able to recover their costs when prices fell, as projected. As a consequence, they relied in greater measure on existing crude stocks and product inventories, and did not replenish stocks as aggressively as they might have otherwise.

Prices not only did not fall, but the recovery of the Asian economies, and general domestic and worldwide prosperity, added to demand for energy and began to strain the infrastructure for refining and delivering refined product. By the winter of 1999-2000, it became apparent that there was little cushion in the distribution system to buffer consumer prices from unexpected additional stresses on the system. Unfortunately, there were several additional stresses. These included prolonged freezing temperatures that made certain ports less accessible, compounding distribution problems. Accidents temporarily idled some refinery capacity.

Warning of high home heating oil prices in the winter in the Northeast, Senator Schumer had made, on September 21, 1999, the first of several requests to Secretary of Energy Richardson to authorize a drawdown from the Strategic Petroleum Reserve to blunt price increases.

The Strategic Petroleum Reserve

To help prevent a repetition of the economic dislocation caused by the 1973-74 Arab oil embargo, Congress authorized the Strategic Petroleum Reserve (SPR) in the Energy Policy and Conservation Act (EPCA, P.L. 94-163), enacted at the end of 1975. Filling of the Reserve began in 1978. The SPR comprises four underground storage facilities, hollowed out from naturally occurring salt domes, located in Texas and Louisiana. The current capacity of the SPR is roughly 690 million barrels. In early January 2001, the SPR held 541 million barrels.

Some urged aggressive use of the SPR during the dislocations of last winter and last summer. Use of the Reserve, however, has been controversial, and dependent upon interpretation of the drawdown authorities. The Energy Policy and Conservation Act (EPCA) authorizes drawdown of the Reserve upon a finding by the President that there is a "severe energy supply interruption." This is deemed to exist if three conditions are joined: If "(a) an emergency situation exists and there is a significant reduction in supply which is of significant scope and duration; (b) a severe increase in the price of petroleum products has resulted from such emergency situation; and

(c) such price increase is likely to cause a major adverse impact on the national economy." [8]

Congress enacted additional drawdown authority in 1990 (Energy Policy and Conservation Act Amendments of 1990, P.L. 101-383) after the *Exxon Valdez* oil spill, which interrupted the shipment of Alaskan oil, triggering spot shortages and price increases. The intention was to provide for an SPR drawdown under a less rigorous finding. This section, 42 U.S.C. § 6241(h), would allow the President to use the SPR for a short period without having to declare the existence of a "severe energy supply interruption" or the need to meet obligations of the United States under the international energy program. Under this provision, a drawdown may be initiated in the event of a circumstance that "constitutes, or is likely to become, a domestic or international energy supply shortage of significant scope or duration" and where "action taken ... would assist directly and significantly in preventing or reducing the adverse impact of such shortage." This authority allows for a limited use of the SPR. No more than 30 million barrels may be sold over a maximum period of 60 days, and this limited authority may not be exercised at all if the level of the SPR is below 500 million barrels. Though this authority has never been formally used, it may have been the model for a swap of 30 million barrels of SPR oil ordered by President Clinton in September 2000.[9]

Many read the authorities as precluding the use of the SPR to influence price; rather, the SPR is intended to be used to ameliorate supply deficiencies that have caused a price increase sufficient to threaten the economy. At issue in the debate over SPR use since the fall of 1999 has been whether there was indeed a supply deficiency and a corollary increase in prices that warranted federal intervention in oil markets, whether such an intervention could help, and how it would be received by international and domestic producers. This debate was caught up in a lingering stalemate during the 106th Congress over extension of the EPCA authorities governing the SPR. Those authorities expired at the end of March 2000, and an extension was not enacted until November 22, 2000 (P.L. 106-469).

During the roughly 7 months that no formal authorities were in place, the Clinton Administration's position was that the existence of an annual appropriation for the SPR conveys Congress' intention to maintain the SPR irrespective of whether the statutes have lapsed. The existence of legislative proposals in both the House and Senate to fund the SPR in FY2001 and to reauthorize the program were also interpreted by DOE counsel as further evidence of Congress' intention toward the SPR.

However, the Clinton Administration initially was reluctant to use the SPR. In response to calls for a drawdown, such as Sen. Schumer's during the fall and winter of 1999-2000, the Administration argued that the high prices prevailing would encourage increased production of home heating oil, a shift of refined product stocks

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[8] 42 U.S.C. § 6241(d)(2).

[9] For additional background on the swap, see CRS Issue Brief IB87050, *Strategic Petroleum Reserve*, as well as p.12 of this report.

to the Northeast, and additional product imports that would arrive in due course. These developments, it was argued, would alleviate the supply problem long before an SPR drawdown would. The Clinton Administration's contention was that an SPR drawdown, while it might have a modest and brief effect on the price of crude, would have a negligible impact on home heating oil prices; only increased supply of refined product (or lower demand) would soften prices. In short, it was argued that high prices in this particular instance were the consequence of a number of temporary factors that could not be resolved any faster by intervention. In the meantime, some governors requested and received additional funds from LIHEAP, the Low-Income Home Energy Assistance Program administered by the Department of Health and Human Services.

What was at first a fairly localized problem became increasingly generalized. Home heating oil and diesel fuel are both "middle distillates" and highly similar to each other. When the price for home heating oil began to escalate, so, too, did the price of diesel fuel, because it was a competing use for the same part of the crude barrel. By early summer, the focus upon supply and price began to shift to gasoline, especially in the Midwest, where shortages of special blending components drove prices briefly over $2.00/gal. As it became increasingly likely that the experience of winter 1999-2000 might repeat itself during the winter to come, the Clinton Administration changed its position toward use of the SPR.

Establishment of a Regional Home Heating Oil Reserve

The sharply lower level of middle distillate stocks going into the winter of 1999-2000 had clearly contributed to the surge in heating oil prices. When crude and product stocks failed to recover during the course of 2000, momentum began to establish a regional reserve of home heating oil that could provide relief to New England in the event of shortages. The Energy Policy and Conservation Act (EPCA, P.L. 94-163) included authority for the Secretary of Energy to establish regional reserves as part of the broader Strategic Petroleum Reserve (SPR); however, the SPR Plan originally presented to Congress in 1977 opted for centralized rather than regional reserves, with no forfeit to the option to establish regional reserves at a later date..

President Clinton endorsed establishment of a regional reserve in his radio address on April 18, 2000, but requested that Congress specifically authorize such a reserve for the Northeast. The reauthorization of the EPCA authorities governing the SPR seemed a likely vehicle for such language, but the House and Senate could not resolve their differences over several provisions in the legislative proposals. On July 10, 2000, the Clinton Administration announced its intention to proceed with establishment of a regional home heating oil reserve on an interim basis. In the absence of an EPCA reauthorization, DOE initiated development of a regional reserve after DOE's General Counsel made the determination that congressional consideration of FY2001 appropriations for the SPR was sufficient authority to proceed. The same day, the Administration submitted to Congress an amendment to the Strategic

Petroleum Reserve Plan to give the regional reserve permanent status.[10] The proposed amendment provided for a regional distillate reserve, not to exceed two million barrels. The FY2001 Interior Appropriations (P.L. 106-291) included $8 million for funding the regional reserve.

DOE invited bids for the provision of storage facilities and distillate. Crude oil from the SPR will be provided in exchange for the product and facilities. On August 20, 2000, DOE announced that the regional reserve would be situated at three sites: [1] Equiva Trading would provide 500,000 barrels of storage at a terminal in New Haven, Connecticut; [2] Morgan Stanley Capital Group, Inc., would provide an additional 500,000 barrels of storage at its own site in New Haven; and [3] 1 million barrels would be stored in a Woodbridge, New Jersey, terminal (considered part of the New York Harbor) operated by Amerada Hess. The terminals in New Haven can distribute product by tanker, barge, tank truck or connection to the Buckeye Pipeline. The New Jersey site, near Perth Amboy, distributes heating oil by barge.

On August 24, 2000, DOE accepted a bid from Equiva to provide 1 million barrels of distillate to the two sites in New Haven, and on August 29, announced that the remaining 1 million barrels of home heating oil would be provided to the Amerada Hess storage terminal by Morgan Stanley Capital Group, Inc. The Northeast Heating Oil Reserve (NHOR) was filled by the middle of October 2000.

Permanent authorization for an NHOR of up to 2 million barrels was enacted in the Energy Policy and Conservation Act of 2000 (P.L. 106-469). The legislation gives the Secretary of Energy latitude to acquire storage capacity and refined product by purchase, contract, exchange or lease. The legislation also resolved a simmering controversy over the language that would govern tapping of the regional reserve.

Drawdown Authority for the Northeast Heating Oil Reserve (NHOR)

Opponents of establishing a regional reserve feared that the regional reserve would be tapped at times when its use was not fully warranted. There was concern as well that the potential availability of the reserve could be a disincentive for the private sector to maintain inventories as aggressively as it would if there were no reserve. Critics of the proposal, noting the sharp increase in product imports that quickly resulted from high prices in the winter of 1999-2000, predicted that anticipated use of a government reserve to hold down prices would hold down the supply response as well.

On the other hand, there was also a growing perception that, in the face of growing demand for energy, inadequate refining capacity and delivery systems were a major factor in the tightness the nation was experiencing with gasoline and home heating oil supply. This came to be an argument against releasing crude from the SPR because the calming effect upon markets would be limited without the capacity to refine the crude into needed product. Advocates of the regional reserve argued that a reserve of refined product would provide far more immediate and direct relief.

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[10] To view the amendment in full, go to: [http://www.fe.doe.gov/spr/planamendment6.html].

They contended that the benefits from measures that would prevent the sort of price increases experienced in home heating oil ultimately are benefits shared by consumers of diesel fuel and gasoline, too.[11]

Corollary to these different perspectives, the design of language governing drawdown of the regional reserve became a major issue. In the Plan amendment it sent to Congress on July 10, 2000, the Clinton Administration proposed that drawdown would be governed by the same authorities that govern a drawdown from the SPR. However, a more precise trigger was enacted in the Energy Policy and Conservation Act of 2000 (P.L. 106-469). Originally proposed by Senator Murkowski, the language predicates drawdown of the Northeast Heating Oil Reserve in the event of a regional shortage of "significant scope and duration." Another qualifying condition is "a dislocation in the heating oil market."

By statute, this is measured as an instance when the price differential between crude oil and home heating oil increases by more than 60% over its five-year rolling average for seven consecutive days, and the differential is continuing to increase. DOE interprets this to mean that "the price differential must continue to exceed the 60-percent threshold for two consecutive weekly (Monday) observations (thus satisfying the 7-day requirement in the law); and the price differential must be increasing as of the most recent observation."[12] The intention behind this approach is to make the threshold for use of the regional reserve high enough so that oil marketers and distributors are not discouraged from stockbuilding.

DOE has posted to the Internet a table that sets out all the measures that go into the calculation of whether the threshold for use of the NHOR has been satisfied (see Table 3). These include the most recently reported average prices for home heating oil in PADD1, the current and historic differentials, and the differential that would satisfy the 60% requirement. DOE starts with the price for crude oil, and calculates a per gallon price for the crude feedstock that goes into the refinery; this is shown in the column "Heating Oil/Crude Oil Differential." That figure is subtracted from the average price of home heating oil given in the column "Avg. PADD 1x/1y." This calculation establishes the differential in cents per gallon between crude oil and heating oil; this is given in the column "5-Year Average Differential."

The current differential is compared with the "5-year Average Differential," and the percentage difference between the two is calculated as a "Current vs. Average Differential." The last column shows the differential that would satisfy the 60% requirement.

However, as with the SPR itself, drawdown of the NHOR is still discretionary upon satisfaction of the trigger's qualifying conditions. The trigger's design did not perhaps envision the dynamic that characterized markets during mid-December 2000

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[11] For further discussion of the problems with energy infrastructure that have contributed to energy supply and price difficulties during this period, see: CRS Report RL30777, "Petroleum Prices: Analysis of Supply and Demand," by Lawrence Kumins.

[12] See [http://www.fe.doe.gov/spr/heatingoil/heatingoil_salebasis.html]

and the first weeks of 2001. Crude prices fell roughly $5/bbl owing to perceptions of adequate crude supplies and growing perceptions that the OPEC nations would need to contemplate a production cut early in 2001. At the same time, the anticipated arrival of Arctic air in the Pacific Northwest, Upper Midwest, and Atlantic and New England coast was maintaining pressure on refined product prices. The average price of home heating oil rose fractionally the week of December 11 – by roughly one-third of one cent – then fell by 1.8 cents the week ending December 18 . But, owing to the much larger drop in crude prices, the differential breached 60% both weeks, reaching 61.4% and 61.0%, respectively.

However, DOE added a note to the Internet indicating that the circumstances responsible for the breech of 60% did not satisfy the statutory requirements for a possible drawdown from the NHOR. When posting the data for the first week, DOE added a note that the differential of 61.4% was attributable to the decline in crude prices and not to the sort of "dislocation" required by the statute. A week later, DOE noted that the differential declined for the week ending December 18 – meaning, that even had DOE observed a dislocation in markets behind the calculation for the week ending December 11, the decline in the differential the second week would have failed to met the stipulation for a possible drawdown.[13] A further decline in crude prices the week ending December 25, 2000, sent the differential even higher, to 67.1%. Once again, however, while the differential increased, it would not have been a "qualifying" week toward a possible drawdown because the average price of heating oil in New England and the Middle Atlantic fell by slightly more than one-half cent.

The differential fell sharply during the first two weeks of 2001 – well below 60.0% – but not because of any sharp swings in crude or heating oil prices. The decline in this instance can be attributed to the change in the "5-Year Average Differential," which rose from 54.9 cents in December to 63.0 cents for January.

(For the most recent version of this table, go to [http://www.fe.doe.gov/spr/heatingoil/heatingoil_salebasis.html].)

[13] DOE's note for the week ending December 18, 2000, reads: DOE analyses indicate that the Current Versus Average Differential for the last two weeks reflects a drop in crude oil prices relative to heating oil prices. The 12/18/00 posting, while exceeding 60%, also represents a decrease in the differential from the previous week. Therefore, the current posting does not satisfy the guidelines of the Energy Act of 2000. The Department is also not observing "a dislocation in the heating oil market," as specified in the statute. Ibid.

Table 3. Energy Guidelines for Release of Heating Oil Reserve
(cents per gallon, except where noted)

	Residential Heating Oil Price (cents per gallon)			Average WTI Crude Oil Spot Price (Previous Week)					
Week	PADD 1x	PADD 1y	Avg. PADD 1x/1y	Dollar per barrel	Cents per gallon	Heating Oil/ Crude Oil Differential	5-year Average Differential	***Percentage*** Difference between Current and 5-Year Average Differential	Differential Required for Release
10/2/00	144.8	150.1	147.5	31.13	74.1	73.3	50.3	45.8	80.5
10/9/00	145.6	150.4	148.0	31.27	74.4	73.6	50.3	46.2	80.5
10/16/00	153.0	157.2	155.1	33.90	80.7	74.4	50.3	47.8	80.5
10/23/00	150.2	155.1	152.6	33.48	79.7	72.9	50.3	45.0	80.5
10/30/00	150.4	154.9	152.6	33.92	80.8	71.9	50.3	42.9	80.5
11/6/00	149.2	154.4	151.8	32.78	78.0	73.8	52.2	41.3	83.5
11/13/00	150.7	155.1	152.9	33.46	79.7	73.2	52.2	40.3	83.5
11/20/00	155.0	159.6	157.3	35.00	83.3	74.0	52.2	41.7	83.5
11/27/00	157.4	161.6	159.5	35.86	85.4	74.1	52.2	42.0	83.5
12/4/00	156.4	161.8	159.1	34.10	81.2	77.9	54.9	41.8	87.9
12/11/00	156.5	162.2	159.4	29.69	70.7	88.7	54.9	61.4	87.9
12/18/00	154.6	160.6	157.6	29.05	69.2	88.4	54.9	61.0	87.9
12/25/00	153.5	160.5	157.0	27.38	65.2	91.8	54.9	67.1	87.9
1/1/01	154.4	161.5	158.0	26.52	63.1	94.9	63.0	50.5	100.9
1/8/01	153.5	160.6	157.1	27.8	66.2	90.9	63.0	44.1	100.9
1/15/01							63.0		100.9
1/22/01							63.0		100.9
1/29/01							63.0		100.9
2/5/01							66.9		107.0
2/12/01							66.9		107.0
2/19/01							66.9		107.0
2/26/01							66.9		107.0
3/5/01							59.9		95.8
3/12/01							59.9		95.8
3/19/01							59.9		95.8

For data that may be more current than found here, go to: [http://www.fe.doe.gov/spr/heatingoil/heatingoil_salebasis.html].
The following data items are used in calculation to determine the occurrence of a dislocation in the heating oil market:
Residential heating oil price - as measured by the Energy Information Administration's State Heating Oil and Propane Program and published in the Weekly Petroleum Status Report from October through March. For purposes of the Northeast Heating Oil Reserve. the average retail (residential) heating oil price for the Northeast is computed as the average of the published price for Petroleum Administration for Defense District (PADD) 1x (New England) and PADD 1y (Central Atlantic). See Tables 1 and 2 for a listing of the states included in each PADD.
Crude oil price - spot price for West Texas Intermediate crude oil at Cushing, Oklahoma, as reported by Reuters Ltd., and republished by the Energy Information Administration in the Weekly Petroleum Status Report. For purposes of these calculations, the unweighted average price for the previous week is calculated from the reported daily closing prices.
5-year Rolling Average Differential - calculated for each month in the heating season (October through March) as the unweighted average price differential for that month over the previous 5 years.

It is impossible to predict what effect a drawdown from the NHOR might have on home heating oil prices because any number of factors – including a reduction in supply from abroad, loss of refining capacity, or deliverability problems – could underlie the need for a drawdown. Experiences in the marketplace suggest, however, that supplemental supply of even 100,000 b/d of a scarce fuel or feedstock can have an enormous soothing effect upon a market that is experiencing imbalances in supply and demand.

Other Policy Options

The Strategic Petroleum Reserve: Drawdown and Swaps

To the extent that tapping the SPR lowers crude prices, some relief probably would be reflected eventually in the price of refined products such as home heating oil. However, the SPR itself is not as direct a tool to affect home heating oil prices as the NHOR which, by directly targeting home heating oil supply, would likely have a more immediate effect on heating oil price. It is possible to imagine a scenario where a crude shortage has led to product shortages and high prices, such that there might be need to tap the NHOR for refined product while crude is also drawn from the larger SPR to spell refiners. As has been noted, the conditions that must be met for a drawdown of the SPR are much less specific than for the NHOR, and much more subject to interpretation. The Clinton Administration resisted calls for an SPR drawdown during the winter of 1999-2000. However, owing to growing concern about the fresh pressure that escalating crude prices, colder weather, and anticipated refinery maintenance might have on home heating price and supply during the winter of 2000-2001, President Clinton, on September 22, 2000, announced a swap of 30 million barrels of oil from the SPR.

On the assumption that roughly 10% of the typically refined barrel of crude becomes home heating oil, the Clinton Administration argued that the swap should add 3 million barrels to product stocks. The swap was controversial, in part, because opponents noted that refineries were already operating at near capacity, so it did not stand to reason that adding crude to the market could appreciably accelerate additions to product stocks. But, others contended that there was a legitimate need to call upon SPR supply, that, by increasing supply, it would exert some stabilizing influence.

Contracts were awarded on the basis of how much oil bidders offered to return to the SPR between August 1 and November 30, 2001. In effect, bidders based their offers on their best models of what it would cost them to acquire replacement crude, weighed against the benefit to them of having additional supply at the beginning of this winter. The preponderant risk in the transaction appears to be borne by the oil companies or refiners who place bids. The volume a refiner has promised to return, and the price at the time the refiner acquired the replacement crude, will clearly affect the refiner's effective return on participating in the swap. However, in the absence of congressional appropriations to acquire oil for the SPR in recent years, the Reserve receives under the swap a net acquisition that it would not have otherwise had. In that sense, it is not especially material whether or not the quantity of oil returned to

the SPR is at price parity with the quantity originally borrowed. Under the contracts accepted by DOE by November 2000, a total of 31.5 million barrels would be returned to the SPR in 2001.

Coordinated Drawdown of Worldwide Stocks

Criticism of the SPR swap was also fueled by reports that higher prices for home heating oil in Europe were likely to draw product refined from the swapped crude to overseas markets. Senator Murkowski, Chairman of the Senate Energy Committee, issued a press release on October 6 underscoring the irony that oil from the U.S. SPR might relieve European, rather than domestic markets. While it can be argued that, in a world market, it does not greatly matter where the product goes, the principal issue here was the reluctance among some European nations to draw upon their own strategic stocks. Officials in Spain and France called for a coordinated stock drawdown by the European Union in light of the U.S. action, but opinion was divided among the membership, and countries more receptive to such a drawdown were disinclined to act independently. An advantage of any European drawdown would be that these stocks are held in the form of refined products, as well as crude, and would reach product markets faster. European Union distillate stocks are reported to cover 100 days' demand.[14] On October 16, 2000, Secretary of Energy Richardson indicated that several domestic refiners had agreed to temporarily cease exporting home heating oil.

Massachusetts Initiative to Build Private Stocks

In an even more local variation on the regional heating oil reserve, in November 2000, the State of Massachusetts awarded contracts to seven companies to purchase 34 million gallons of home heating oil (about 800,000 barrels) by December 8, 2000. Under the program, the firms will add these purchases to their stocks and cannot introduce these stocks to the market until January 15, 2001. If the sales price is less than the purchase price, the state will reimburse the oil companies. If the sales price is higher than the acquisition price, the companies will split the proceeds with the state. The Massachusetts legislature has earmarked $5 million for the program.

The program's intention is to locate additional stocks closer to the consumption point than are the supplies held in the NHOR. Wintertime demand for home heating oil in Massachusetts is estimated at 4.3 million gallons per day, and the state Division of Energy Resources indicates that the initiative will boost statewide inventories of home heating oil by 60% over base levels.[15]

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[14] See: "Euro SPR Release Would Be Tricky But Effective," appearing in Petroleum Intelligence Weekly, Vol. XXXIX, No. 40, Oct. 2, 2000: p. 1-2.

[15] See: "Massachusetts aims to build private heating oil stocks, appearing in: *Platt's Oilgram News*,Vol. 78, No. 227, November 26, 2000: p. 2. See also: State of Massachusetts. Massachusetts Division of Energy Resources. "State Energy Agency Surpasses Heating Oil Goal." November 30, 2000: [http://www.state.ma.us/doer/pub_info/nr001130.htm]

Low-Income Home Energy Assistance Program (LIHEAP)

As has been noted, some have opposed use of strategic reserves, arguing for reliance upon markets to price and allocate fuel as a more efficient means of coping with spot shortages and price spikes. Some taking this point of view will suggest that policy should address instead the consequence of high prices on those least able to pay while markets are left to sort out contributing causes for those prices.

The Low-Income Home Energy Assistance program (LIHEAP) was originally established in 1981 by Title XXVI of P.L. 97-35 and has been reauthorized several times. It is a block grant program under which the federal government gives states, the District of Columbia, U.S. territories and commonwealths, and Indian tribal organizations annual grants to operate multi-component home energy assistance programs for needy households. In recent years, LIHEAP has been funded at $1.1 billion, plus $300 million for weather emergencies. By mid-February 2000, President Clinton had released the entire $300 million in LIHEAP emergency funding that was appropriated for FY2000. The Clinton Administration submitted an emergency supplemental request to Congress for $600 million in additional LIHEAP funds. Supplemental emergency LIHEAP funding for FY2000 was ultimately included in the FY2001 Military Construction Appropriation bill (H.R. 4425/P.L. 106-246). Of those FY2000 supplemental emergency funds, a total of $444 million has been released by the President, including the most recent release on September 23, 2000, of $400 million, allocated to all states for assisting low-income households facing significant price increases for heating oil, natural gas, and propane prices this coming winter.

The Consolidated Appropriations Act, 2001 (H.R. 4577), presented to the President on December 15, 2000, provides $1.4 billion for LIHEAP in FY2001 and $300 million in contingency money; however, forward funding for the program that had been included for FY2002 was cut to help meet overall spending targets. (For additional background, see CRS Report 94-211, “The Low-Income Home Energy Assistance Program (LIHEAP).”)