

**THE COST EFFECTS OF ACCELERATING  
OR DELAYING PURCHASES FOR THE  
STRATEGIC PETROLEUM RESERVE**

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## THE COST EFFECTS OF ACCELERATING OR DELAYING PURCHASES FOR THE STRATEGIC PETROLEUM RESERVE

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This staff memorandum contains an analysis of the budgetary effects of suspending purchases to fill the Strategic Petroleum Reserve (SPR). In this analysis, the cost of reaching a 750 million barrel reserve between now and 1991, was compared with two other scenarios in which: (1) the reserve is filled to the 750 million barrel level by 1996; and (2) purchases are suspended until 1992, with the reserve then being filled to 750 million barrels between 1992 and 1996. The results show that any delay in filling the oil reserve will provide net savings (on a discounted present value basis) as long as the price of oil does not rise faster than the average interest rate over the same period. These findings assume that the SPR oil purchase price begins at \$23.43 per barrel at the start of fiscal year 1987, rises to an average of \$23.81 per barrel in fiscal year 1988, and rises thereafter at the general rate of inflation. Such estimates will be greatly affected by continued price volatility in the oil market, a trend which is toward lower than expected prices.

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### CURRENT SPR COSTS

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The SPR will contain roughly 500 million barrels of crude oil by the end of 1986. At the current fill rate of approximately 30,000 barrels per day, the SPR would contain about 550 million barrels at the end of 1991, and would not reach the 750 million barrel level until well after the turn of the century. Using oil prices assumed in our February forecast, which are now higher than actual prices, the Congressional Budget Office (CBO) estimates that continuing the current fill rate would cost approximately \$1.4 billion over the next five years and \$3.1 billion over the next 10 years (both estimates are in nominal dollars). The net present value of these expenditures (in discounted 1986 dollars) is \$1.1 billion for purchases over the next five years, and \$1.9 billion for purchases over the next 10 years.

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### THE COST OF A 750 MILLION BARREL RESERVE

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If the goal of 750 million barrels were to be reached by the end of 1991, a fill rate of 137,000 barrels per day would be necessary. The total cost of this option would be roughly \$4.9 billion (in discounted 1986 dollars). Assuming that the 750 million barrel level is not reached until the end of



fiscal year 1996 (lowering the fill rate to 68,500 barrels per day), the total estimated cost would decline--on a net present value basis--to about \$4.4 billion.

### SAVINGS FROM IMPOSING A MORATORIUM

In contrast, a moratorium on SPR purchases could be imposed. If SPR crude oil purchases were to be suspended for five years after 1986--and later continued over the 1992 through 1997 period--the cost of reaching a 750 million barrel reserve would be \$3.9 billion in discounted 1986 dollars. Thus, suspending purchases for five years would save \$1.0 billion (in discounted 1986 dollars) over the cost of reaching 750 million barrels at the end of 1991, and \$0.5 billion (in discounted 1986 dollars) over the cost of continuing to fill the reserve and reaching this level by the end of 1996. Table 1 summarizes the oil fill data and cost estimates for each option.

TABLE 1. COMPARISON OF OPTIONS FOR FILLING THE STRATEGIC PETROLEUM RESERVE TO 750 MILLION BARRELS

	Fill Rate (In thousands of barrels per day)		Cumulative Fill (In millions of barrels)		Discounted Cost of Oil 1987-1996 (In billions of 1986 dollars)
	1987-1991	1992-1996	1991	1996	
Baseline <sup>a/</sup>	29.3	29.3	553	607	1.9
Fill to 750 by 1991	137	0	750	750	4.9
Fill to 750 by 1996, no moratorium	68.5	68.5	625	750	4.4
Fill to 750 by 1996, five-year moratorium	0	137	500	750	3.9

SOURCE: Congressional Budget Office.

Note: Baseline oil prices are \$23.43 per barrel in 1987, assumed to rise to an average of \$23.81 in 1988, and thereafter to rise at the rate of inflation (as estimated in the CBO baseline forecast).

a. The Strategic Petroleum Reserve will contain approximately 500 million barrels at the end of 1996. Under the baseline assumptions, the reserve would not reach the level of 750 million barrels until 2009.



Alternatively, the Congress could delay filling the SPR to 750 million barrels until after 1996. Table 2 presents some additional SPR fill rates and their costs, all of which leave the reserve with fewer than 750 million barrels by 1996, but which are less costly than reaching the same goal earlier.

## CONCLUSIONS: THE EFFECT OF OIL PRICES

Notwithstanding national security concerns, oil prices would need to rise faster than the average yearly interest rate to preclude a savings from the postponement of oil purchases. Current CBO forecasts call for oil prices to rise at or below the rate of inflation between now and 1992, a pace well below our forecasted range of interest rates for the same period. In fact--under CBO's assumptions--SPR oil costs would have to rise from their estimated 1987 level of \$23.43 per barrel to over \$36 per barrel in 1992 before savings would be denied from delaying further purchases. CBO baseline projections anticipate oil prices will not exceed \$29 per barrel by

TABLE 2. ALTERNATIVE FILL-RATE OPTIONS FOR THE STRATEGIC PETROLEUM RESERVE

	Year in Which Reserve Would Reach 750 Barrels	Cumulative Fill (In Millions of Barrels)		Discounted Cost of Oil 1987-1996 (In billions of 1986 dollars)
		1991	1996	
Baseline fill rate: 29,300 barrels per day	2009	553	607	1.9
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35,000 barrels per day fill, no moratorium	2006	564	628	2.3
35,000 barrels per day fill, five-year moratorium	2011	500	564	1.0
50,000 barrels per day fill, no moratorium	2000	591	683	3.3
50,000 barrels per day fill, five-year moratorium	2005	500	591	1.4

SOURCE: Congressional Budget Office.



1992, with actual prices possibly being much lower. The cost of filling the SPR under alternative fill-rate assumptions would be significantly lower if the recent drop in oil prices (to around \$13 on the spot market) caused contract prices to remain well below the base projections. Table 3 is a summary of estimated costs for filling the SPR using oil price projections that are \$5 per barrel below the CBO baseline estimates.

Finally, it should be noted that the cost of filling the SPR must also be measured against its value as an instrument of energy policy. The SPR was conceived as insurance against disruptions in the flow of foreign oil. The current world oil market, with excess supply, reduced demand, and falling prices, is far less prone to disruption than it was only a decade ago when the SPR was initiated. But falling oil prices invite increased demand while also discouraging domestic production. This could lead to higher U.S. oil imports by the end of this decade and into the next. Although the probability of disruptions may have fallen, previous CBO studies have shown that, if it became necessary to use the SPR, the benefits created for the U.S. economy might far outweigh any savings achieved by filling it to different levels or at different rates.

TABLE 3. COST OF FILLING THE STRATEGIC PETROLEUM RESERVE TO 750 MILLION BARRELS: LOWER OIL PRICE ASSUMPTIONS <sup>a/</sup>

SPR Oil Fill Option	1987-1996 (In billions of discounted 1986 dollars)		
	Baseline Prices	Lower Prices	Difference
Baseline fill rate: 29,300 barrels per day	1.9	1.6	-0.3
Fill to 750 by 1991	4.9	4.0	-0.9
Fill to 750 by 1996, no moratorium	4.4	3.6	-0.8
Fill to 750 by 1996, five-year moratorium	3.9	3.2	-0.7

SOURCE: Congressional Budget Office.

a. For the lower oil price analysis, baseline prices were reduced by \$5.00 per barrel. For example, the baseline assumes \$23.43 per barrel for 1987. Under the lower price analysis, a price of \$18.43 per barrel was used. In both cases, oil prices after 1987 are assumed to rise by only 1.6 percent in 1988, and thereafter to rise at the general rate of inflation (as estimated in the CBO baseline forecast).

