

each barrel of oil acquired by this process. Concomitantly, however, reserve depletion would yield no revenues for the government since title holders would own the value of the oil.

As stated above, demand for SPR certificates (if sold at the acquisition cost of the SPR oil) might be insufficient to fill the SPR as desired. As seen in Table 2, a 10 or 12 percent interest SPR bond (see below) would allow filling the reserve with a short-term budgetary impact equal to about one-third of the cost of direct federal purchases under the current system. Thus, if the demand for SPR certificates were less than two-thirds of the desired fill rate, and direct federal purchases had to make up the balance, the certificate plan would have a budgetary effect as large as that of the SPR bond plan. This "break-even" point between the two plans would vary with the interest rate and the price of oil.

Debt Financing. Any SPR debt instrument would create a short-term budgetary impact equal to the interest payments on the debt created to fill the reserve. Assuming a long-term interest rate of 12 percent, these costs would amount to about \$6 per barrel per year. Thus, each year in which the SPR is not depleted would require a budgetary outlay of about \$6 per barrel. It should be noted that, under any financing system, a resource cost equal to this amount would be incurred, since funds for the SPR could have been invested at the market rate of interest. Under this plan, however, this implicit cost appears as an outlay in the budget.

While a new issue of standard interest-bearing bonds would result in a relatively stable stream of income to support the SPR, linking the rate of return to some oil price indicator could make budget planning difficult. Table 2 shows the annual outlays required to service several different bonds, with various oil price assumptions. When reserve oil is financed through annual appropriations, the outlays fluctuate with the price of oil, assuming a constant purchase rate. The outlays required to service a series of fixed-yield bonds would fluctuate with the price of oil, insofar as the price of oil at a time of offering would determine the amount of borrowing necessary to finance the SPR. Thus, the amount of any interest-bearing bond offering would depend on the price of oil at the time of the offering, but, once established, the interest payments would be stable. If the rate of return of the bonds were tied to an oil price indicator, however, both the required amount of the offering and the later interest payments would vary. Table 2 shows, for example, that such an issue could require little or no interest payments during a year in which oil prices remain stable, but rather large payments in years marked by large price increases.

The figures in Table 2 are also affected by the success of the SPR bond offering. If SPR bonds bear a yield equal to the rate of oil price

TABLE 2. SIMULATED ANNUAL ON-BUDGET EXPENDITURES FOR ALTERNATIVE SPR OIL FINANCING OPTIONS (By fiscal year, in billions of current dollars) a/

Options <u>b/</u>	1982	1983	1984	1985	1986	1987	1988	Total 1982-1988
On-Budget Purchases (Oil Price Path A)	3.4	3.8	4.3	4.8	5.4	6.0	6.7	34.4
On-Budget Purchases (Oil Price Path B)	3.5	4.1	4.9	5.8	6.8	8.0	9.5	42.6
On-Budget Purchases (Oil Price Path C)	3.5	3.7	4.2	4.8	5.2	5.5	6.4	33.3
On-Budget Purchases (Oil Price Path D)	3.4	3.7	4.9	5.8	6.1	6.7	8.8	39.4
Bond, 10 Percent Coupon (Oil Price Path A)	0.3	0.7	1.2	1.6	2.2	2.8	3.4	12.2
Bond, 12 Percent Coupon (Oil Price Path A)	0.4	0.9	1.4	2.0	2.6	3.3	4.1	14.7
Bond, 12 Percent Coupon (Oil Price Path B)	0.4	0.9	1.5	2.2	3.0	4.0	5.1	17.1
Bond, Oil Appreciation Rate (Oil Price Path C)	0.5	0.0	3.4	0.0	3.2	0.0	10.0	17.1
Bond, Oil Appreciation Rate (Oil Price Path D)	0.4	0.8	6.3	0.0	2.5	3.3	21.3	34.6

a/ All options assume oil purchase rate of 200,000 barrels per day during 1982-1988. All bonds mature after 1988.

b/ Simulated oil price paths for each option are as follows: A--12 percent increase annually, 1982-1988; B--18 percent increase annually, 1982-1988; C--annual increases of 15, 0, 30, 0, 15, 0, and 30 percent, 1982-1988, respectively; and D--annual increases of 10, 10, 50, 0, 10, 10, and 50 percent, 1982-1988, respectively.

appreciation, they might not create sufficient demand to fill the SPR at the desired rate. Presumably, standard federal debt instruments (or direct federal outlays) would have to be offered to take up the slack. Thus, it might be difficult to estimate the new federal debt for budgetary purposes.

Once again, revenues would be realized upon the depletion or dissolution of the reserve. However, over a long enough period of time, the per barrel interest costs might affect the budget as much as the acquisition costs themselves. Ultimately, the depletion or dissolution of the SPR would have to cover both the acquisition costs (the principal of the debt issue) and the annual interest charges. If SPR bonds are allowed the market rate of interest and oil prices do not rise as rapidly as the rate of interest, the payment to SPR bondholders upon depletion might require federal subsidies. Conversely, if SPR bonds are denominated in the rate of oil price increase, and it proved to be higher than the rate of interest, the budget would have to absorb an unnecessary cost equal to the differential.

It should be noted, however, that under existing arrangements there is an implicit interest cost associated with SPR acquisition. Each barrel of SPR oil can be assumed to be purchased at the expense of retiring outstanding federal debt. Thus, the interest costs of SPR acquisition have to be paid, either implicitly through the federal debt, or explicitly through the debt incurred in a targeted SPR borrowing scheme. In addition to the cost of carrying the SPR debt, funds used for SPR acquisition under the current system are not available for other uses.

IPR Options. Both the decree and evidence options to build an IPR would eliminate any budgetary effect of the SPR, to the extent that they were successful. On the other hand, both of these options would entail costs for the oil industry firms forced to carry the IPR inventory. The budgetary effect of an incentives program for private IPR development is uncertain. But as long as the IPR is a genuine addition to the normal level of inventories a firm would maintain in the IPR's absence, some incentive would be required. Estimating these incentives is beyond the scope of this paper. Moreover, the desirability of a policy in which the government subsidizes the one class of actors that would profit from supply interruptions remains unclear.

The evidence plan, again if successful, would raise all funds for the IPR from the speculative demand for oil. To the extent that speculative demand is insufficient to fund a complete IPR, funds would either have to come from the firms themselves, incentives to the firms from the government, or from government acquisition. Thus, the ultimate budgetary impact of this plan is uncertain. Any of the IPR options, however, might entail a higher initial cost--that is a higher cost to society--than the federal SPR

program, because many economies of scale available to the government could not be achieved by individual firms in the private sector.

Mandated Contributions. Mandating oil industry firms to contribute oil to the reserve would transfer the burden of oil purchase costs from the federal government to the firms. The degree to which the government compensates the contributors prior to drawdown would determine the budgetary impact. If, for example, the government were to issue certificates upon receiving oil, the certificates could be treated as they would be in the public capitalization plan, and have no effect on the federal budget. Alternatively, should the government pay the carrying costs of the oil, the short-term budgetary effect would be comparable to that of debt financing the oil purchases. In the long term, and upon depletion, the budgetary impact would depend on the degree to which the government allowed the firms to capture the benefits of oil prices increases.

Speed and Level of Acquisition

All proposals for SPR financing must be evaluated by the speed and level of acquisition they could provide. This section evaluates the four proposals in this light. Neither public capitalization of the SPR, nor debt financing tied to the price of oil, nor the evidence plan would guarantee rapid completion. Debt financing, at the market rate of interest, would offer a strong probability of SPR completion.

Oil acquisition depends, in part, on whether sufficient storage capacity exists. Plans now exist for creation of 400 million barrels of SPR capacity by 1985. New capacity beyond this amount can be obtained from three sources. New centralized facilities, such as the current salt dome storage, could be constructed. Above-ground storage could be constructed more rapidly than salt dome storage, but at greater cost. Existing capacity that is slated for retirement or scrappage could be renovated. Of the three options, the third might be the least expensive, but limited in volume.

Virtually all of the SPR financing options could be fitted to any of these storage types. Under the public capitalization or debt financing plans, the SPR administration could employ any of these storage mechanisms, depending on the amount of storage needed and the time available to obtain it. Similarly, any of the IPR options could be implemented through private storage or through centralized storage, although an IPR held in salt domes would not have the decentralized character its proponents find attractive.

Public Capitalization. Public capitalization of the SPR would not guarantee speedy completion. Offering SPR certificates at a cost equal to

the price of SPR oil when acquired, plus a service fee to cover administrative overhead and/or storage costs, would not guarantee their sale. Public demand for SPR certificates might fall short of the desired fill rate. If this happened, this rate could be achieved only by lowering the price of the SPR certificates below the price at which the SPR is entirely self-financing, or by allowing a government entity to purchase SPR certificates. In either case, federal flexibility in the speed and level of SPR acquisitions could not be maintained except with budgetary cost.

Conversely, the demand for SPR certificates could exceed the rate at which the SPR could be completed. This might happen if the public perceived an imminent need to use the SPR; for example, a rush into SPR certificates could have occurred had this option been in effect in recent months, as the Iraq-Iran war developed. In this case, however, the excess demand could be solved through auction.

The sale of additional certificates after the issuance of the initial group could present another problem. The first group of certificates would be sold, as stated, at a cost necessary to make the SPR self-financing. If there should be any initial appreciation in the value of these certificates, they should command a higher price than would new certificates at issuance. But, issuance of (presumably) lower-priced annual certificates would continually depress the resale value of existing certificates toward the current price needed to acquire and fund the related costs of SPR oil. The full speculative potential of SPR certificates would not be realized, therefore, until the SPR was completed and new certificates were no longer issued.

One possible arrangement to avoid this problem would be to issue new SPR certificates at the actual market price for existing ones. If the market price of SPR certificates exceeded the market price of oil, the SPR administration would receive revenues in excess of oil acquisition and related costs for each new certificate sold. The SPR administration could buy its own certificates with this profit. Thus, the government could develop its own equity interest in the SPR out of the profits of SPR certificate sales, and receive payment upon depletion like any other certificate holder. Under this variation, purchases of SPR oil would depend on the total revenue received for SPR certificates, rather than the number of certificates sold.

A transient glut of world oil supplies could also make it difficult to sell SPR certificates. The existence or expectation of a soft market, most likely during a protracted recession, would depress the resale value of existing SPR certificates below the price at which new certificates were issued. Potential buyers of SPR certificates would then shift from new certificates to existing ones. This would interfere with the completion of

the reserve, and would, again, drive the price of SPR certificates towards the price and acquisition costs of new SPR oil. To attract more investors, new issues could be discounted and the equity that already exists in the 121 million barrels now in the SPR could be sold in order to realize enough funds to continue SPR acquisition during the glut period.

Debt Financing. Debt financing of the SPR at a market rate of interest would offer the greatest flexibility in the rate and level of SPR completion, unless the SPR administrative entity was constrained by a debt limit that restricted purchases. If SPR bonds were offered at the market rate of interest, adequate financing should be available. If the bonds were offered a rate of return tied to the rate of appreciation of oil prices, however, the adequacy of financing would be more uncertain. Financing would then be dependent on public perceptions of oil's future appreciation, as would be the case under public capitalization. Thus, during a transient soft oil market, financing tied to the rate of oil price appreciation could result in insufficient revenues for SPR purchases. Alternatively, queues might form for SPR bonds when perceptions of oil price appreciation are strong.

Yet, on average, unconstrained debt financing offers a strong likelihood of achieving the desired speed and level of SPR completion, particularly if SPR bonds are offered at a competitive rate of return. However, this flexibility might be achieved at the expense of a larger direct budgetary impact, as is discussed above.

IPR Options. Options for developing an Industrial Petroleum Reserve vary in their ability to complete a reserve on a timely basis. A DOE decree to maintain an IPR would lead to compliance problems because of the propensities of firms to count "tank bottoms" and other unusable inventory as IPR. In addition, the financial burden of carrying such an inventory is substantial. The annual interest cost alone of maintaining a 188 million barrel inventory (equal to approximately 3 percent of annual demand and sufficient to allay a shortfall of 1 million barrels per day for six to seven months) could range between \$0.7 and \$1.1 billion. In addition, storing such amounts would call for the construction or renovation of storage facilities. Some firms might weigh penalties for noncompliance against these costs. The potential rate of construction of new facilities is limited. In addition, some firms may reduce ("back out") their own inventories in the knowledge that their needs, should a supply disruption occur, could be met through their IPR inventory.

Federal incentives, through tax credits, grants, or loan guarantees, could result in a prompt filling of the IPR. Yet the magnitude of the incentives that the government would have to offer is unclear. Moreover,

should "backing out" occur, subsidization of an IPR might be tantamount to a limited subsidization of normal inventories.

On the other hand, incentive options would bring new facilities on-line efficiently. The installed storage capacity of SPR is slated to rise to 300 million barrels by fiscal year 1983, less than half of that authorized by the Congress. To achieve a SPR larger than 300 million barrels quickly, above-ground storage would have to be built. An incentives program for an IPR would allow for this expansion, by inducing renovations of marginal storage facilities. Offering an incentive to create new storage facilities (through construction or renovation) equal in value to the per unit cost of SPR storage would rationalize the combined public-private storage system. It should be noted, however, that marginal private-sector storage capacity could be acquired by the SPR administrative body under any other filling arrangement.

The rate of acquisition under the evidence plan, like that of the public capitalization plan, would depend on the willingness of the public to hold oil as a speculative asset. Under the evidence plan, individuals would store oil for one-year terms, granting specific firms the right to claim the oil should an IPR depletion be announced. Should this speculative demand be insufficient, firms would have to pay for their inventories themselves, or subsidize the speculative purchases of individuals. This would once again raise the problem of firms' differing abilities to finance such an inventory.

Finally, under the evidence plan, firms might receive the right of control from the government to utilize IPR oil during a crisis. This "less than arm's length" relationship between a firm and its oil might create the strongest incentives among any SPR or IPR options for firms to reduce their conventional inventories.

Mandated Contributions. Requiring firms to contribute oil to federal SPR facilities, with appropriate noncompliance penalties, would probably assure continued filling of the SPR. The likelihood of completion and the rate of oil acquisition would depend on the requirement placed on industry. Requiring a contribution level commensurate with an aggressive oil acquisition program might be difficult to enforce and might place excessive burdens on the industry. Since firms vary in their ability to pass on the costs to consumers, such requirements would place some firms at a competitive disadvantage within the industry. Further, if such requirements applied only to crude imports, they would provide the incentive to import petroleum products rather than crude oil, effectively subsidizing foreign refiners. Finally, setting a level of contributions according to some historical import level might have adverse effects during periods in which the world oil market changes. During an abrupt tightening of oil supplies,

for example, requiring these contributions might exacerbate isolated shortages and price increases. Some degree of flexibility in the requirement might, therefore, be necessary to allow for these fluctuations. On the other hand, maintaining strict requirements tied to import levels would tend to provide greater contributions to the SPR and a larger stockpile during periods of high levels of imports, when a larger stockpile might be desirable.

Producer Nation Response

A problem common to all financing options to fill the SPR rapidly is the political opposition of producing nations, notably Saudi Arabia, to the reserve's completion. The SPR and IPR options differ in that oil for the SPR is purchased by the federal government, while the IPR is filled by private firms and individuals. The issue of producer nation response, therefore, centers around which of these two groups, governments or firms, is less vulnerable to retaliation by dissatisfied producer nations.

Both firms and governments offer advantages and disadvantages as Strategic Reserve procurers. Because of their regular pattern of crude purchases, firms are thought to be able to make purchases that could be diverted to the reserve without detection. In the long run, however, undetected diversion is unlikely. "Destination" contracts are becoming more common as state-owned firms in the OPEC nations take over crude sales. These contracts stipulate crude destinations, and diversions would constitute an abrogation of contract. Moreover, firms that now find their direct access to crude oil increasingly restricted might be reluctant to endanger their existing supply relationships.

Governments, of course, are obvious SPR purchasers, and thus are at an immediate disadvantage relative to firms. But governments have the advantage of being able to tie political considerations to SPR purchases, or offer countervailing benefits, such as military sales and trade concessions. Thus, governments might be able to overcome the political obstacles to filling the SPR, while firms could only attempt to maneuver around them.

The problem of political opposition, most importantly by Saudi Arabia, cannot be resolved by simply restructuring the mode of SPR procurement. Rather, the appropriate approach to overcome such opposition is probably to address its root causes. Producer nations fear that the SPR would be used as a "buffer stock" to manipulate prices in nonemergencies, and that a completed SPR would compromise the United States' commitment to the political stability of the moderate Persian Gulf states. Direct assurances on these matters and political concessions may be necessary if the SPR is to be filled without adding to the animosity between producing and consuming

nations. ^{5/} Moreover, Saudi objection to the SPR may be qualified if the oil market becomes slack, and SPR purchases help maintain oil demand and prices at levels desired by Saudi Arabia and other producers.

LEGISLATION TO REDUCE FEDERAL SPR COSTS

In response to recent efforts to reduce the federal deficit, much Congressional attention has focused on methods to reduce the federal SPR expenditures by several billion dollars annually. Two recently introduced bills, discussed in this section, would attempt to do this by shifting all or part of the costs to the private sector.

Private Equity Petroleum Reserve Act

On March 4, 1981, Congressman Gramm introduced H.R. 2304, the Private Equity Petroleum Reserve Act (PEPRA). By amending the Energy Policy and Conservation Act, the bill would finance the SPR through speculative private investment.

The bill authorizes the Secretary of Energy to issue to the public negotiable certificates, denominated in barrels of oil. The offering price of these certificates would be, on a per barrel basis, no less than the average weighted price of crude oil imported into the United States during the quarter preceeding the date of issue. The proceeds of certificate sales would be used for acquisition of crude oil for the SPR. Excess funds--generated by either premium prices realized for certificates, or from the sale of certificates backed by oil already in the SPR--would be deposited in the general fund of the Treasury as miscellaneous receipts.

The certificates would be issued for a term of 10 years, at which time they could be redeemed or rolled over. Prior to maturity, holders could transfer certificates, presumably through sale on a secondary market. The Secretary of Energy could call in certificates, but only in the event of reserve drawdown. The redemption value of certificates, at maturity or early retirement, would depend on the prevailing price of crude oil, reduced by certain storage and handling costs. The bill also provides for redemption

^{5/} This issue may become more important after the Iraq-Iran War. Iraq's demonstration of military strength will probably motivate the Saudis to accelerate their acquisition of military equipment, in an effort to ensure their defense and promote a "balance of power" within the Gulf region.

by lottery should too few or too many holders request retirement during a drawdown.

The bill excludes SPR oil from price controls and certain transportation restrictions. It also mandates an increase in the fill rate from 100,000 to 200,000 barrels per day beginning after September 30, 1981. Further, the bill sets a trigger for reserve drawdown, prohibiting the use of the reserve unless oil supplies are reduced by 10 percent or more of projected daily demand.

As introduced, the bill employs some of the elements of a public capitalization plan, and provides methods to reduce some of the problems associated with such a plan. Yet some problems remain unsolved. While the price control exemptions might be necessary for attracting investors, for example, selling SPR oil at uncontrolled prices during a disruption might cause allocation problems if other domestic prices were controlled. In addition, until other details are worked out--such as restrictions or limitations on the size of allowable investments--the financial implications of market competition for funds remain unclear. Further, the bond's relatively long maturity of 10 years might frustrate the efforts of other borrowers, including the Treasury, to lengthen the maturity of their debt issues. Finally, the bill allows the immediate sale of certificates backed by oil already in the reserve. While the sale of shares representing this oil would generate substantial receipts if successfully sold, the immediate sale of these shares would give the SPR administrator less future flexibility. If the oil in the SPR is kept in the name of the U.S. government, it would provide an equity buffer, should the program later encounter financial or technical difficulties.

Strategic Petroleum Reserve Amendments of 1981

On March 12, 1981, Senator Kassebaum introduced S. 707, the Strategic Petroleum Reserve Amendments of 1981. The bill mandates that each importer of more than 75,000 barrels per day must contribute oil to the reserve. It sets the annual amount of oil to be contributed at five times the average daily amount imported. In return, the federal government would pay an annual fee to each contributor for a period of 11 years, equal to 10 percent of the purchase price of the oil contributed. In the event of an emergency drawdown, the contributors would receive either oil or a payment for the oil. The payment would be equal to the world market price at the time of distribution, less the amount of fees paid until that time, but not to exceed the average world market price of the three months immediately preceding the date of distribution. This three-month lag might give firms fewer revenues from SPR sales than they would receive if paid the price prevailing at the time of depletion.

The bill is unclear about whether the government or the firms would own the oil after the 11 years, since it omits any reference to the treatment of the oil after this period. Section 173 stipulates, "all rights, title, and interest to the amounts of crude oil contributed . . . shall remain with the importer of such crude oil." This statement might apply only to the 11 years that the oil is held, during which time the annual fees would be considered installments on the purchase price of the oil. Thus, after 11 years, the oil would belong to the government. "Buying" the oil on this type of installment plan appears to place a serious burden on the importers. The federal government would be forcing the contributors to provide the oil, and a very low interest loan (about 1 percent annually) on the oil.

A strict interpretation of the language, however, may indicate that the oil would revert to the firms, as stated in Section 173. Thus, the federal government would burden the importers with the cost of the oil in the short term, but not the carrying charges. The 10 percent annual fee would then be a payment for the interest charges required to cover the debt for the oil cost.

The Kassebaum bill has the disadvantage of imposing the financial risks of the SPR on the importing firms. Yet, while the bill forces firms to assume these risks, it would not create a decentralized, privately held reserve to complement the SPR. Keeping firms' reserves in the SPR salt dome facilities would, however, reduce the chance that firms would lower their own conventional inventories. The contributing firms might pressure the SPR administrator to manipulate the stockpile to their advantage, since they have both a vested interest in the reserve management and an active role in the oil market. The bill also ignores importers of other petroleum products, effectively subsidizing foreign refiners.

The Kassebaum proposal has the advantage of complementing the current SPR procurement program at minimal cost to the federal government. As introduced, S. 707 could result in the addition of about 25 million barrels of oil to the SPR per year. Crude oil import levels currently run at about 5 million barrels per day, but not all importers would be required to contribute. This bill, if passed, would save about \$1.0 billion in fiscal year 1982.

CHAPTER IV. RELATED ISSUES

In addition to the criteria employed in Chapter III to evaluate SPR financing arrangements, some related issues must be kept in mind. This chapter addresses the following subjects:

- o The design of the SPR financing method and its effect on capital markets;
- o The advantages and disadvantages of retaining the SPR program within the Department of Energy; and
- o How the reserve would be depleted or terminated under each of the alternative financing arrangements.

EFFECTS OF SPR SECURITY STRUCTURE ON THE CAPITAL MARKET

Like any other asset, SPR securities must compete for investors. The asset market is very diverse, and the Congress, in designing SPR securities, will need to determine where, in the market, the securities would compete.

SPR securities can take the form of interest-yielding bonds, bonds based on oil prices, or certificates. Interest-yielding bonds are indistinguishable from other bonds with identical terms and yields. This type of SPR bond would compete directly with other bonds--notes and bonds issued by the U.S. Treasury, state revenue bonds, and utility and corporate bonds. Sales of SPR bonds could displace sales of these other bonds, possibly forcing institutions to raise interest rates in order to finance their required level of debt. Although some industrial borrowing is still done in the bond market, uncertain expectations of inflation have reduced this borrowing dramatically. To the extent that revival of long-term private bond markets are required for accelerated capital formation, competition from SPR bonds might be undesirable. 1/

SPR securities tied to the rate of oil price appreciation would be far more speculative than fixed-yield securities. They would be competitive

1/ For comparative purposes, note that the \$45 billion required for SPR completion equals about 8 percent of the outstanding Treasury notes, bills, bonds, and savings bonds.

with the common "inflationary hedges"--gold, real estate, mineral and agricultural futures--rather than government or private securities. The position of any SPR security in capital markets also depends on the minimum required investment. Marketing SPR securities in small denominations would make them competitive with savings accounts, the predominant source of mortgage funds. Larger denominations, however, might preclude smaller investors from taking advantage of the new investment vehicle.

RETAINING THE SPR PROGRAM WITHIN DOE

An additional issue with regard to the structure of the SPR is whether or not the program should remain within the Department of Energy (DOE). It is not the intention of this paper to evaluate DOE's conduct as administrator of the SPR program. Rather, this section outlines the general advantages and disadvantages of maintaining the SPR within DOE.

Rationale for Establishing a New SPR Entity

As described earlier, the SPR program to date has not been entirely successful. The program appears to have been the victim of political pressure, both domestic and international, and may be subjected to future financial constraints. Therefore, proposals have been discussed that would create a new and separate organization, outside DOE, to manage the purchase of oil for the reserve.

The primary advantage of moving the SPR program outside DOE is to provide some level of independence from the political pressures of the federal government and the operational constraints imposed by agency rules and regulations. If the SPR should be filled using private financing, for example, not only would the independent corporation have greater management flexibility, but funds from the private sector might be more easily generated. Independence would assist in convincing the private sector the SPR program was permanent and free from political interference. Further, an independent entity might be able to attract expert management without some of the Civil Service restrictions on hiring and salaries. The federal system of controls might tend to minimize abuse more than promote efficient operation and goal achievement. Avoiding these constraints might allow a more rapid and efficient SPR buildup.

In recent years, increasing numbers of government-sponsored enterprises, autonomous agencies, and public corporations have been created, the most recent of which is the Synthetic Fuels Corporation. While the intended purpose of creating a new entity to manage the reserve buildup is to allow

operational independence from the federal government, political and fiscal accountability might suffer.

The corporation would be, to some degree, insulated from close Congressional and Administrative control. Such insulation might not always be desirable. Coordination between the corporation's activities and national policy goals might at times be difficult to achieve, and the independent agency may not be responsive to the needs of the federal government. The tradeoff between independence and accountability dominates the debate over what type of entity to establish to manage the purchase of SPR oil.

Compatibility of SPR Administration and Program

The choice of entity to administer the SPR is, in part, dependent on the financing option employed to fill the reserve. Both public capitalization of the SPR and issuance of an SPR debt instrument would call for a direct inflow of private funds. This inflow would depend, to a large extent, on the confidence that private investors place in the SPR administration. Thus, investors must be assured that the SPR would actually be filled efficiently, that it would be sold at a market price, and that no special ex post taxation would be placed on SPR sales. These assurances are difficult to give.

Fair returns on SPR oil might be jeopardized by special legislation requiring the sale of SPR at subsidized or controlled prices. Previous legislation that has employed oil and other fuel prices as a redistributive device--such as oil price controls--might suggest to potential investors that the SPR would also be treated in such a fashion. Thus, the SPR might have to be insulated from the political process to inspire private confidence in the future financial rewards of the program. Creation of a separate SPR entity might achieve this goal. It should be noted, however, that a tax of the "windfall profits" type could still be levied on SPR earnings, despite the administrative form of the SPR.

IPR options might call for different administrative procedures. If a decree approach was used, then the federal role in the SPR would be limited to determining the required size of the IPR and inspection for compliance. These activities might be best carried out within DOE or the Internal Revenue Service (IRS), which maintain a variety of contacts with all oil industry firms, and have the infrastructure necessary to perform this role. If incentives were used to build the SPR, then the administrative role would again be limited to inspection for compliance, which DOE or IRS could perform. In either event, decree or incentive approaches to the IPR might eliminate the need for a separate SPR administration.

The evidence plan, if successful, would call for an inspection and compliance role for the federal government, like other IPR options. It is unclear, however, that the evidence plan would result in a reserve of the desired size (a disadvantage it shares with public capitalization and with oil price-denominated SPR bonds). In any of these plans, should the rate of SPR or IPR acquisition fall short of its goal, back-up financing would be required. Under these circumstances, either an independent SPR entity or a DOE administrator might require public funds to complete the SPR.

DEPLETION AND TERMINATION

Private financing plans involving SPR securities based on oil price appreciation would create a set of claims upon either depletion (as part of a response to an emergency) or termination (determining that the SPR was no longer needed). Both would involve the transfer of billions of dollars. This section describes the issues involved in depletion or termination of the reserve.

Depletion

Price Controls. Emergency depletion of the SPR will occur in a recessionary economic environment, presumably amid great uncertainty and conflict among income claimants. There might be a strong temptation to control oil prices in such an atmosphere. In the next several years, a U.S. shortfall of 1.0 million barrels per day could result in a sudden price increase of \$20 per barrel. ^{2/} Moreover, if the disruption that catalyzed sudden oil price ratchets was clearly temporary, short-term oil price controls might preclude the large income transfers that distort the economy and reduce purchasing power dramatically.

Yet, the possibility of price controls on SPR sales would probably dissuade all potential purchasers of SPR securities. Controls and private financing might be compatible if SPR investors were given contractual guarantees of the equivalent of the world market price of oil upon depletion, rather than being given receipts of SPR oil sales per se.

Reference Prices. Guaranteeing the equivalent of the world oil price raises the issue of the reference price for SPR sales. If SPR oil is sold by auction, payment to SPR investors could be calculated by prorating receipts.

^{2/} See Congressional Budget Office, Managing Oil Disruptions: Fees and Tariffs (forthcoming 1981).

If SPR oil is sold at a price other than that established by this type of competitive process, some reference price would be required. The average price of U.S. imports during the week of transaction could provide a reference. Spot prices could also be employed. The choice of a reference price, presumably made before obligations are entered into, would affect the demand for SPR securities, given the characteristic pattern of higher spot prices during disruptions.

Tax Treatment. The treatment of any SPR security under the U.S. tax code must be established before any public offering. The attractiveness of an investment depends heavily on its tax treatment. For example, the demand for SPR securities would reflect whether deferred interest payments would be subject to a capital gains tax or taxed as ordinary income. In addition to altering the attractiveness or price of a SPR security, such decisions would affect the level of federal subsidy through tax expenditures.

Termination

If the SPR is not depleted during the term of SPR securities, these securities would have to be retired or rolled over. It might also happen that the SPR was never depleted, and the reserve would have to be terminated. This section discusses the termination of the reserve under alternate financing options.

SPR Certificates. Under the SPR certificate plan, termination would involve the sale of the SPR oil and compensation to certificate holders, determined by the sale price of the reserve. This price would be influenced by the rate at which the SPR was depleted--the slower the depletion, the smaller the depressing impact on oil prices. Moreover, investors might eventually be wary of SPR certificates if the federal government retained the power to determine when the SPR would be terminated. A maturation date might have to be assigned to SPR certificates to provide a measure of certainty on this score. Maintaining the SPR beyond the maturation date would require marketing all SPR certificates again. Once again, if demand for these certificates was insufficient to maintain the reserve at the desired level, some new source of financing would be required, or a smaller SPR accepted.

SPR Bonds. Like SPR certificates, SPR bonds might require some maturation date. Such a termination date would allow for an examination of the need for the reserve after that period of time. A decision to maintain the SPR after its securities mature would require rolling over SPR bonds. It is unclear that demand would exist for these bonds if they were denominated by the rate of oil price appreciation. Thus, continuing the SPR at that time

might require federal expenditures. If SPR bonds were denominated by the market rate of interest, it would likely be fairly simple to refinance the reserve.

IPR Options. In the cases in which an IPR is mandated, created by incentives, or contributions decreed, terminating the reserve would require eliminating the mandate or eliminating the incentive. Unlike under SPR certificates or bonds, however, which would be rolled over and, hence retired in a series of annual waves, the elimination of IPR requirements or incentives could free up the entire IPR at once. This would add substantially to oil market volatility. Under the evidence plan, termination would leave IPR title-holders with oil rather than receipts. Since firms would no longer need to find individuals to hold speculative oil, firms would be forced to find new buyers for their oil. Moreover, as is the case under the mandated IPR and incentive IPR plans, termination of the evidence IPR might, by releasing the entire IPR at once, create some temporary market instability. The problems of a disorderly market could be reduced, however, by a gradual phasedown of the IPR storage requirements or incentives.

