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Tax Incentives and Enhanced
Oil Recovery Techniques

Statement of
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Committee on Interior and Insular Affairs
U.S. House of Representative



TAX EXPENDITURES AND
ENHANCED OIL RECOVERY TECHNIQUES

SUMMARY OF STATEMENT BY
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Tax expenditures are often used to achieve economic and social objectives. Their use, although legitimate, raises concerns because they are not explicitly considered as part of the standard budget process. As a result, they may not receive the frequent and careful attention they deserve. In addition, there are not good controls on the overall amount spent for and the budgetary impact of tax expenditures.

The arguments for petroleum production tax incentives usually encompass some combination of enhancing energy security, rewarding risk taking or generating additional investment in new technologies. Generally, however, some portion of any tax expenditure is spent on activities that would have occurred anyway. Thus, there are alternative ways to achieve energy security and reduce risk that may achieve the goals at lower cost. Our review of a selected group of tax incentives for petroleum production indicated that two were of questionable merit. Others, including tax preferences for enhanced oil recovery (EOR) methods, offered the potential for giving better returns on the tax dollar.

Since there is not much oil produced using EOR techniques, there is less chance of spending a lot of tax revenue on something that would have occurred anyway. If new production responds to incentives to a sufficient extent, the tax revenue cost per barrel could be lower than other petroleum-related tax expenditures. To the extent that the techniques are new and relatively untested, the spillover benefits could be significant.

Another issue of interest in evaluating the costs and benefits of the increased use of EOR techniques is their environmental effects. Brines from wells used to inject fluids into oil fields to enhance oil recovery can enter drinking water supplies. While the Environmental Protection Agency has a program to prevent contamination, these safeguards did not always protect against a leading source: improperly plugged abandoned wells. Increased use of EOR techniques could lead to additional environmental costs, and these need to be included in any cost-benefit calculation.

Mr. Chairman and members of the subcommittee,

The United States has become increasingly dependent on imported petroleum products. With this increased level of imports has come concern that the nation's economy is more vulnerable to disruptions in the international market. At least partly in response to this concern, Congress passed into legislation a set of tax preferences that were part of the Omnibus Budget Reconciliation Act of 1990. One preference was a 15 percent tax credit for expenditures related to enhanced oil recovery (EOR) techniques. Since your subcommittee is examining these techniques, Mr. Chairman, you asked us to discuss the use of the tax code to provide incentives for oil production and, in particular, to provide incentives for EOR.

In addition to raising revenue, the United States income tax system has long been used as a device for achieving economic and social objectives. One of the primary devices for achieving these objectives is the tax expenditure--a reduction in income tax liability resulting from a special tax provision. Because tax expenditures represent revenues that could have been collected under a broad-based income tax but were not, they are an implicit, not an explicit part of the budgeting process. In fiscal year 1990, more than \$300 billion in potential tax revenue was foregone by the Treasury through a combination of well over a hundred different deductions, credits, exemptions, and exclusions.

There are legitimate reasons for using tax preferences rather than direct expenditures or subsidies to achieve desirable objectives. However, because these expenditures are not considered as part of the regular annual budget process, there are concerns that they do not receive the same level of examination as other uses of public funds. Other concerns arise because it is often difficult to precisely target those entities or those activities that are meant to receive the benefits or to control the amount of money that is spent for them.

Budgetary Discipline For Tax Expenditures is Weak

The annual budget process is meant to achieve a number of goals. Among these are: (1) defining the nation's fiscal policy, (2) establishing broad priorities among competing goals and objectives, and (3) allocating budgetary resources to specific programs intended to achieve those goals and objectives. The process is meant to look at the various programs and policies of different agencies and determine not only the amount of funding necessary to meet the chosen objectives, but whether those funds should be in the form of direct spending or subsidies.

Tax expenditures, however, are one form of federal spending not subject to this annual process. They are usually accounted for only in the sense that a list--along with the relevant amounts--

is published each year. They do not receive the degree of scrutiny that budgeted program spending receives. In general, tax expenditures are (1) reviewed sporadically, (2) rarely compared to alternative mechanisms for achieving similar goals, and (3) not subject to overall limits so that the total budgetary impact can be controlled.

In an era of large budget deficits, eliminating or capping one or more tax expenditures is often mentioned as a way to reduce deficits or as a source of funds for a new program. However, not since the years immediately preceding the Tax Reform Act of 1986, has Congress examined a wide range of tax expenditures with an eye to the possibility of fundamental change.

In principle, a careful evaluation of an existing or proposed tax expenditure would require asking the following questions:

- what is the purpose of the tax expenditure?
- does the tax expenditure duplicate or overlap with another expenditure or subsidy program?
- if the purpose is legitimate, why not pay for it directly through expenditures or subsidies?
- do the benefits of the tax expenditure outweigh the costs in lost tax revenue?
- how can the impact be measured to evaluate whether the expenditure is achieving its purpose?

-- are the benefits of the tax expenditure sufficient to justify its use compared with other claims on resources?

A primary issue that the use of tax expenditures raises is that of overall budget constraints. Tax expenditures are very similar to open-ended entitlement programs because the amount spent depends on the number of potential beneficiaries who satisfy the criteria and apply for the benefit. The total amount spent does not show up in any budgetary category. Budget projections attempt to measure the amount of tax revenue that will be collected under existing tax laws. These projections are based on assumptions about the amount of income that will qualify for tax preferences. If many more people or companies qualify for the tax preference than was expected, the result will be a shortfall in tax revenue compared with projections. Thus, the government exerts less control over the total amount it spends for a particular purpose.

Why Have Petroleum Tax Incentives?

One purpose of tax incentives provided to domestic oil production is to increase that production. The argument for having the government intervene in the market is usually couched in terms of energy security--that is, a national need to reduce dependence on imported oil or to build up the domestic capacity to survive a major disruption in world oil markets. Several

other approaches are often mentioned as alternatives. One would be to give incentives for domestic users of petroleum to reduce their consumption--for example, taxes on energy use in general or on gas guzzlers in particular. A second way to reduce dependence on foreign oil supply that would both increase domestic supply and reduce domestic use would be a trade restriction such as a tariff or quota. Another approach to reducing the potential effects of disruptions in the world oil market would be to build up the Strategic Petroleum Reserve.

A further argument has been advanced for subsidizing new wells and new technologies, including enhanced oil recovery techniques. Such activities, particularly exploratory and research activities, are considered very risky in terms of profitability. If investors must be paid a higher return to offset the risk, enough of these activities may not take place from a societal perspective. A government subsidy would be intended to induce more of these risky activities to take place. The risk argument is less convincing if opportunities exist for the government or the private sector to establish mechanisms to diversify risk so that a substantially higher return does not have to be paid.

Another argument for subsidizing certain exploration activities or enhanced oil recovery technologies is that such endeavors can lead to benefits in the form of information "spillovers". For example, exploratory drilling in one field can provide some

information about the likelihood of finding oil in an adjacent area. Likewise, discovering or demonstrating the feasibility of a new technique to get more oil from existing wells gives useful information to other producers that can enhance their profitability. But, if the party generating the spillover cannot easily profit from others' use of the information, there is a classic case of "market failure" and an argument for some sort of subsidy.

Assuming that the government wants to induce more of a particular activity, the question still remains whether it should use a direct subsidy or a tax expenditure. Direct subsidies require government decisionmaking about what should be subsidized and by how much. The tax expenditure approach is said to favor projects that were close to being viable without the tax break, over projects that were not even close to being profitable. As a result, the argument goes, fewer very inefficient projects would be generated by a tax expenditure than might be generated by a direct subsidy. In a direct subsidy, however, the government may have the opportunity to target only those projects that would not have gone forward without government help.

The last group of criteria are benefit-cost criteria. For example, even if some subsidy is worthwhile and a tax preference is the best way to implement the subsidy, do the benefits generated by the subsidy outweigh the revenue loss? A related

question is how large should the subsidy be? Also, can we design the tax expenditure to effectively induce the desired change in behavior at minimal budgetary cost? These are all questions that need to be asked about any tax expenditure.

Some Tax Incentives for Petroleum Production

Are of Questionable Merit

In our report entitled Additional Petroleum Production Tax Incentives are of Questionable Merit (GAO/GGD-90-75, July 1990), we argued that some of the tax incentives granted to the petroleum industry last year would be of doubtful effectiveness. The primary reason was that additional domestic petroleum output did not appear to be very responsive to the particular tax inducements we examined. Thus, the tax incentives would simply pay producers to do what they would have done anyway. The estimated additions to output in response to the higher after-tax profits offered by the tax breaks were small. The resulting costs, in terms of revenue lost per barrel, ranged from \$3 to \$14 for two particular incentives. When compared with alternative methods of achieving energy security, such as adding to the Strategic Petroleum Reserve, these tax incentives did not appear to be the most effective approach.

However, in our report, we noted that tax expenditures aimed at certain activities, such as enhanced oil recovery methods,

offered the potential for giving a better return on the tax dollar. If the amount of existing production resulting from these methods is relatively small, less tax revenue would be lost on activities that would have occurred anyway. Provisions targeted to exploration and other new production tend to cause lower revenue loss per barrel of additional production than provisions applying to all existing production. However, even provisions aimed at new production will generally benefit some investments that would occur without additional incentives, in addition to encouraging some genuinely incremental production-- that is, production that would only occur with the incentives.

In our report, we discussed the relatively low effective tax rates faced by independent producers. We said it may also be more cost-effective to target tax incentives at activities that do not already receive substantial tax breaks than at types of investments and producers that already are eligible for favorable treatment. Multiple incentives used by the same taxpayer add to the government's cost in terms of revenues foregone for each new unit of petroleum produced.

Tax Incentives for Enhanced Oil Recovery Methods

The Omnibus Budget Reconciliation Act of 1990 included a 15 percent tax credit for costs incurred in employing enhanced oil

recovery techniques. These costs include: (1) amounts paid for depreciable tangible property, (2) intangible drilling and development costs, and (3) expenses for injectants used in the EOR project. The size of the tax credit is tied to the price of oil. The credit is 15 percent as long as the price of oil is \$28 or less. As the price of oil rises above \$28 the allowable credit percentage falls. For every one dollar increase in the price of oil, the credit falls by 2.5 percentage points, until it reaches zero at a price of \$34. The staff of the Joint Committee on Taxation has estimated that the annual revenue loss will be in the neighborhood of \$40 to \$50 million.

There is not that much oil produced using enhanced recovery techniques, so there is less chance that a substantial amount of the tax expenditure will go toward something that would have occurred anyway. If the responsiveness of new production is high, the tax revenue cost per barrel could be lower than other petroleum-related tax expenditures. Because many of the techniques are new and, in certain cases, the economic feasibility uncertain, the benefits generated by expenditures related to enhanced oil recovery methods could also be higher than those of other petroleum related tax expenditures. However, the argument for a subsidy could be stronger if the subsidy was tied to new techniques rather than to the use of existing enhanced recovery methods.

Even if the benefits of these tax expenditures are higher and the costs are lower than certain other tax expenditures, that does not mean that they are cost-effective. Since these credits are in place, it makes sense to examine their effectiveness after some reasonable period of time, perhaps 3 to 5 years, to see if they have had the desired effect. For example, has production increased substantially using EOR methods? Has it increased relative to what might have otherwise been expected? Have the methods spilled over to other users so that someone other than the initial applicant of the technology is getting the benefit of the new technology?

Evaluating Environmental Effects

Another issue of interest in evaluating the costs and benefits of the increased use of enhanced oil recovery techniques is their environmental effects. Brines from wells used to inject fluids into oil fields to enhance oil recovery can enter drinking water supplies. They can enter directly, through cracks and leaks in the well casing, or indirectly, through nearby wells, such as those once used for oil and gas production that have ceased operating. If these abandoned wells are not properly plugged--that is, sealed off--and have cracked casings, they can serve as pathways for injected brines to enter drinking water.

In a July 1989 report, DRINKING WATER: Safeguards Are Not

Preventing Contamination From Injected Oil and Gas Wastes

(GAO/RCED-89-97, July 1989), we discussed the program administered by states and the Environmental Protection Agency to prevent contamination. We concluded that although the full extent is unknown, EPA is aware of 27 known or suspected cases in which drinking water was contaminated by such wells. Program safeguards detected and prevented further contamination in many of these cases. However, they did not always protect against contamination from a leading source: improperly plugged abandoned wells through which fluids flowed and entered drinking water.

EPA estimates that there may be as many as 200,000 improperly plugged abandoned wells in the United States. Officials in three of the four states we examined believe that the numbers of improperly plugged wells are increasing. Although all four states have programs to plug wells, two said they had more wells to plug than they could afford to pay for and in a third officials feared that with the increased numbers of wells reported each year, their plugging program may not be sufficient in the future.

A companion issue is testing new wells for cracks and leaks before they receive a permit to begin operations. We found that in the four states we reviewed 41 percent of the wells with permits had no evidence that pressure tests had ever been performed.

If increased use of EOR techniques leads to additional environmental costs, including the costs of regulation, these need to be taken into account in any cost-benefit calculation.

That concludes our statement. We will be pleased to answer your questions.