



America's Hidden Power Bill

Examining Federal Energy Tax Expenditures

Richard W. Caperton and Sima J. Gandhi April 2010

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doing
what works

This publication is a product of CAP's Doing What Works project, which promotes government reform to efficiently allocate scarce resources and achieve greater results for the American people. Doing What Works specifically has three key objectives: (1) eliminating or redesigning misguided spending programs and tax expenditures focused on priority areas such as health care, energy, and education; (2) boosting government productivity by streamlining management and strengthening operations in the areas of human resources, information technology, and procurement; and (3) building a foundation for smarter decision making by enhancing transparency, performance measurement, and evaluation. Doing What Works publications and products can be viewed at http://www.americanprogress.org/projects/doing_what_works.

Introduction and summary

The most important day of the year for the many energy companies that receive federal financial support isn't the day the president releases his proposed budget, or the day appropriations bills get passed, or even the day when government checks get sent out. It's tax day. Why? Because each tax day energy companies—electric utilities, oil refiners, renewable energy developers, coal miners, ethanol producers, and others—record billions of dollars worth of special tax credits and deductions.

Tax expenditures—government spending programs that deliver subsidies through the tax code via special tax credits, deductions, exclusions, exemptions, and preferential rates—are the dominant type of federal support for the U.S. energy industry. Altogether, these spending programs amount to 60 percent of the government's total support to the industry. These tax expenditures are functionally equivalent to direct spending, but they are often subject to less scrutiny.

A quick tax expenditures glossary

- **Tax credit:** A direct reduction in the amount of taxes owed. A taxpayer who originally owed \$10,000 but receives a tax credit for \$3,000 will only owe \$7,000 in taxes.
- **Tax deduction:** A reduction in the amount of income that is subject to a tax. A taxpayer who made \$60,000 in a year but is eligible for a \$10,000 deduction will only pay taxes on \$50,000.
- **Tax exclusion:** An item of income that is excluded from taxable income. For example, health care premiums paid by employers for their employees do not count as the employee's income and are therefore excluded from the income tax.
- **Tax exemption:** A reduction in taxable income offered to taxpayers because of their status or circumstances. For example, every individual taxpayer is entitled to exempt a certain amount of their income each year.
- **Preferential rates:** A reduction of the tax rate on some forms of income, such as capital gains and dividends.
- **Tax deferral:** Allows taxpayers to delay paying their taxes. For example, taxpayers delay paying taxes on income they contribute to an IRA until they withdraw those amounts. This delay, in effect, provides an interest-free "loan" to the taxpayer.

Are these energy programs working? And is implementing programs through the tax code the best way to achieve government goals?

Energy-related tax expenditures serve a broad range of purposes, from promoting renewable electricity generation to encouraging domestic production of oil. But the question is, are these energy programs working? And is implementing programs through the tax code the best way to achieve government goals?

The Center for American Progress demonstrated in “Audit the Tax Code: Doing What Works for Tax Expenditures” (released in conjunction with this paper) that tax expenditures suffer from a lack of transparency, evaluation, measurement, and oversight. Energy-related tax expenditures are not immune to these problems, and in fact they suffer from the same shortcomings as other tax expenditure programs.

The basic problem with tax expenditures is that they are often not thought of as a form of spending, which makes for a dangerous double standard. When considering spending policymakers ask themselves, “Is offering hard-earned taxpayer dollars as a subsidy to a private, profit-making company a good idea?” But if the spending is cast as a tax expenditure the assessment is different. Even though tax expenditures come at a cost to taxpayers—as with any other type of spending—they are viewed through a different, less critical lens. Viewing tax expenditures through the same lens as other government expenditures provides a clearer image of both how they support public policy and use public resources.

This paper will adopt that lens to look at two energy-related tax expenditures: the percentage depletion allowance in the oil industry and the production tax credit, or PTC, in the wind industry. We also consider a program in which a tax expenditure was temporarily converted into direct spending: the cash grant in lieu of the investment tax credit, or ITC, for wind generation.

We chose these three areas both for their political timeliness—the president’s budget proposes the elimination of some fossil fuel subsidies, and ITC provisions will expire unless renewed— and their size (these are all fairly large expenditures). Through these three examples we are able to explore the major issues in tax expenditure design and evaluation.

Through this analysis, we find these tax expenditures lack accountability, transparency, and measurability, yet there is some indication that the wind-related expenditures are effective. We find little justification for the percentage-depletion allowance, but we do find that when tax expenditures are redesigned and offered as direct spending—as with the cash grant in lieu of the ITC—the program can be more effectively monitored and managed.

Our analysis in the pages that follow illustrate that spending programs implemented through the tax code play an important role in supporting energy policies. Accordingly, these programs must be examined with the same level of scrutiny as direct spending. The following recommendations can help the government use its limited financial resources to most effectively promote desirable energy policies:

- **Tax expenditures need to be held to the same standards as other government spending.** This means Congress should clearly state the goals of expenditures, should contain sunset provisions so that they expire and are re-evaluated, and should require periodic reviews of their effectiveness. Any safeguard that is designed to prevent wasteful spending should also be applied to tax expenditures.
- **Tax expenditures are a form of government spending and should be considered as such.** This includes not just considering tax expenditures and direct spending at the same time but thinking about them in the right way. Every time a legislator thinks about a tax expenditure, they should ask themselves, “Is it a good idea for the government to pay someone for this reason?” This will encourage legislators to explore direct spending alternatives when appropriate, which are often better policy tools.
- **Congress should provide a rationale for each tax expenditure.** When Congress decides to provide financial support to an industry through either a tax expenditure or direct spending, they should state why the chosen method is better than the other.
- **Congress should hold agencies responsible for budgeting tax expenditures.** Agency budget requests that are sent to Congress should include the tax expenditure spending programs that support their policy areas. Just as agencies are required to explain and report on their direct spending request, they should perform the same exercise on each tax expenditure within their purview. This exercise would hold agencies responsible for explaining how all forms of government spending it uses support its policy areas, and it would empower Congress with the ability to cohesively examine how spending streams work together.
- **Tax expenditures should be measured and evaluated.** The government collects large amounts of data on many industries, but sometimes this data isn’t sufficient to evaluate a tax expenditure. If an evaluator finds that they don’t have appropriate data for the evaluation, there should be a clear process by which they can communicate that need to Congress. Congress should require beneficiaries of tax expenditures to report all data that is necessary for evaluation.
- **Congress should adopt standard practices for reviewing tax expenditures.** A good start would be to ensure that each expenditure is covered by a requirement that the Joint Committee on Taxation, the Congressional Budget Office, or the relevant agency report on the expenditure’s history, size, and effectiveness.
- **The Department of Energy should be the agency instructed to assess all energy-related tax expenditures.** In particular, the Energy Information Administration is probably the best office within the DOE to conduct this review. Additionally, EIA should periodically issue a report on federal financial supports for the energy industry.

- **The JCT and the Office of Management and Budget should agree on a standardized measurement system for tax expenditures.** There may be value to both of their current methodologies, but congressional review would be easier if they used the same methodology. Congress should work with the JCT and the OMB to determine the appropriate system.

Tax expenditures are an important tool in energy policy

The federal government's 2007 budget provides an incomplete picture of its subsidies to the energy industry. That year, the U.S. government directed \$16 billion in financial support to the energy industry. This support was spread across direct spending—including research and development and support for electricity providers in addition to subsidies for energy production—and tax expenditures, research and development, and support for electricity providers.

The government's budget reflects \$6 billion of that spending, but it fails to include the additional \$10 billion in tax expenditures that were provided to the energy sector. That \$10 billion is indeed reflected in the budget, but only indirectly in that the number shown on the revenue side of the budget for taxes collected is \$10 billion lower than it would be if not for tax expenditures.

In the official budget, there is no itemized listing of the trillion dollars in tax expenditures of which this \$10 billion is part. The only way to find the expenditures is to check section 16 of a supplemental volume to the budget, known as Analytical Perspectives. But unless you seek out the Analytical Perspectives volume, you'll never know that oil companies are receiving a special subsidy by looking at the budget. Analytical Perspectives lists the tax expenditure spending programs—including those provided to oil companies—with an estimate of how much revenue the government foregoes each year because of these expenditures.

To reiterate, a tax expenditure is a government spending program that delivers subsidies through the tax code via special tax credits, deductions, exclusions, exemptions, and preferential rates. This reduction in taxes is the amount of the subsidy provided to that individual or company. In the energy sector, this means specific companies receive credits for investing in renewable energy, deductions related to oil exploration, and credits for production of alternative transportation fuels, among other benefits. Altogether, less than 40 percent of total energy industry support gets counted as “government spending” in the federal budget.¹

How are tax expenditures measured?

Two government agencies produce reports on tax expenditures each year. The Office of Management and Budget—or OMB, in the executive branch—produces the Analytical Perspectives supplemental volume to the president’s budget, and the Joint Committee on Taxation—or JCT, in the legislative branch—produces a report that is delivered to Congress. These reports are intended to give policymakers information on the cost of spending programs executed as tax expenditures.

The JCT and the OMB use different methodologies for estimating the costs of some tax expenditures. In most cases this doesn’t matter all that much, but it does result in differences. For example, the JCT estimates that the production tax credit’s cost is roughly twice as large as that projected by the OMB. One cause for the difference is that the JCT and the OMB base their estimates of tax expenditure costs on different economic forecasts and different projections of government spending and tax collections. The OMB adopts the president’s economic forecast and the JCT relies on the Congressional Budget Office forecast.

The differences in economic forecasts can have a substantial effect on the two estimates and it’s important to take this into consideration when assessing how much an expenditure will cost. Case in point: For a tax expenditure that subsidizes investment, the cost would be much higher

in a stronger economy than a weaker economy because more investment will take place. Thus, the differences in economic forecast could make a substantial difference in the estimate.

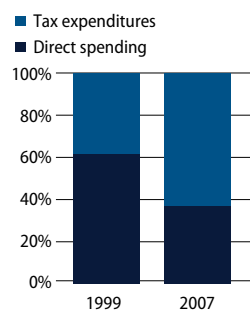
Another reason for discrepancies in estimates is that the JCT accounts for the fact that if one tax expenditure is repealed, and there’s another one the taxpayer can take advantage of, taxpayers will shift to the other tax expenditure. Thus, the savings to the government from repealing a single tax expenditure might not be quite as great as one might think if analyzing it in isolation. Under the OMB methodology, each tax expenditure is measured by the tax savings under current law and the tax savings that would occur if the tax expenditure were removed and the taxpayer were prohibited from taking any alternative tax expenditures.

The estimates also reflect a few other methodological differences, such as different time spans. OMB forecasts cover a seven-year period that includes a projection of the next five fiscal years. In contrast, JCT’s estimates cover a five-year period looks forward only to the next three fiscal years.

In this paper, we generally use JCT measurements, which are the same estimates adopted by the U.S. Energy Information Association report on energy subsidies.

FIGURE 1
Tax expenditures overtake direct spending on energy

The relative size of tax expenditures and direct spending in 1999 and 2007



Source: U.S. Energy Information Administration

As the Figure 1 shows, tax expenditures have taken a more pronounced role in financially supporting the energy industry in recent years. As recently as 1999, the relative sizes of tax expenditures and direct spending were reversed, with spending accounting for 60 percent of energy subsidies and tax expenditures making up the remainder.²

This shift from direct spending to tax expenditures has also coincided with large increases in total energy subsidies. Traditional government spending on energy grew somewhat from 1999 to 2007, but direct spending was dramatically outpaced by tax expenditures. Figure 2 indicates that total energy subsidies doubled over that time period, largely due to bigger tax expenditures.³

Several factors are driving the increase in tax expenditures, including an intense pressure against new spending in an era of budget deficits and the relative ease of passing tax breaks compared to new spending. All direct spending goes through the regular budgeting

process, but tax expenditures are not visible in the budget, which makes them a form of “privileged spending.” This can create a legislative bias toward tax expenditures because policymakers can more easily pass expenditures than they can direct spending, which is subject to greater scrutiny.

Not all sectors of the energy industry rely in equal proportions on tax expenditures and direct spending. Figure 3 shows that certain segments of the industry (refined coal) benefit primarily from tax expenditures while other segments (nuclear) benefit primarily from direct spending.⁴

What this means is that different sectors will receive different treatment from the government depending on which type of subsidy they rely on the most. Because tax expenditures generally receive less oversight, sectors that are heavily dependent on tax expenditures (such as refined coal) likely receive less oversight than sectors that are dependent on direct spending (such as nuclear). Heightened scrutiny of tax expenditures could correct this imbalance.

Further, the range of energy-related tax expenditures cover not just multiple sectors but multiple activities within those sectors. Many of these tax expenditures are intended to encourage specific activities within each sector. Table 1 shows historical data on how many millions of dollars energy companies in various sectors saved because of tax expenditures in 2007.⁵ Note that some of these expenditures that were in effect in 2007 did not have a budget impact because no companies were able to take advantage of these credits in that year.

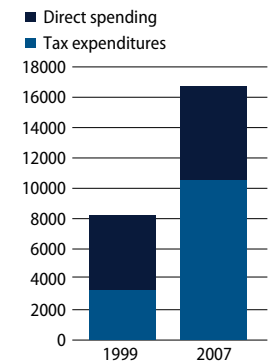
We could analyze any of the expenditures in the chart to offer insight into the problems of using tax expenditures instead of direct spending. But this paper focuses on three areas, which we chose for their political relevancy and their large costs.

Excess of percentage over cost depletion

This is a special subsidy for extractive industries such as oil. Companies are generally allowed to deduct an amount that represents how much their machinery and equipment declines in value each year. This makes sense because declines in value are properly considered a business expense and companies should only pay taxes on their profits. Oil companies, however, are provided a special subsidy that allows them to deduct an amount that greatly exceeds the machinery or equipment’s decline in value. The excess they can deduct over the decline in value is the amount the government spends on this subsidy (the amount the company deducts because of the decline in value is not considered a subsidy because it is the oil company’s cost of doing business).

FIGURE 2
Energy subsidies double in size

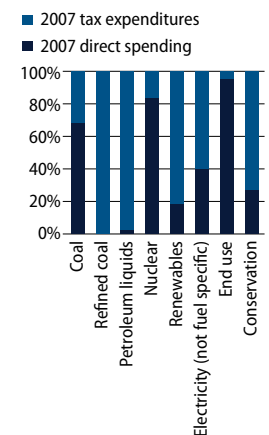
Total energy subsidies in 1999 and 2007



Source: U.S. Energy Information Administration

FIGURE 3
Different sectors garner different kinds of government support

Percentage of tax expenditures and direct spending for different energy sectors, 2007



Source: U.S. Energy Information Administration

TABLE 1
The cost of energy tax expenditures

Estimates of tax expenditures in fiscal year 1999 and fiscal years 2005–2007 (in million 2007 dollars)

Tax expenditure	Year			
	1999	2005	2006	2007
Excise taxes (alcohol fuels exemption/volumetric ethanol excise tax credit)	921	1,578	2,627	2,990
Alternative fuel production credit	1,242	2,441	3,046	2,370
Expensing of exploration and development costs	97	410	695	860
Excess of percentage over cost depletion	321	621	77	790
New technology credit	61	253	521	690
Deferral of gain from disposition of transmission property to implement FERC restructuring policy	0	516	634	530
Credit for energy efficiency improvements to existing homes	0	0	235	380
Credit, deduction for clean fuel vehicles	103	74	112	260
Nuclear decommissioning	0	0	123	199
Deduction for certain energy efficient commercial building property	0	0	82	190
Biodiesel and small agri-biodiesel producer tax credits	0	32	92	180
Capital gains treatment of royalties in coal	79	95	164	170
Exclusion for utility-sponsored conservation measures	103	84	112	110
Credit for business installation of qualified fuel cells and stationary microturbine power plants	0	0	82	90
Credit for energy efficiency appliances	0	0	123	80
Amortization of all geological and geophysical expenditures over two years	0	0	10	60
Credit for holding clean renewable energy bonds	0	0	20	60
Alcohol fuel credit	18	42	51	50
Natural gas distribution pipelines treated as 15 year property	0	0	20	50
Exclusion of special benefits for disabled coal miners	0	0	51	50
Five-year net operating loss carryover for electric transmission equipment	0	0	74	43
Exclusion of interest on bonds for certain energy facilities	139	84	41	40
Exception from passive loss limitation for working interests in oil and natural gas properties	36	42	31	30
Temporary 50 percent expensing for equipment used in the refining of liquid fuels	0	0	10	30
Credit for investment in clean coal facilities	0	0	0	30
Eighty-four-month amortization of certain pollution control facilities	0	2	10	30
Credit for construction of new energy homes	0	0	10	20
Electric transmission property treated as 15-year property	0	0	3	18
Treatment of income of certain electric cooperatives	0	0	0	14
Thirty percent credit for residential purchases/installations of solar and fuel cells	0	0	10	10
Partial expensing for advanced mine safety equipment	0	0	0	10
Expensing of capital costs with respect to complying with EPA sulfur regulations	0	11	10	10
Enhanced oil recovery	273	316	0	0
Expensing of tertiary injectants	0	0	0	0
Alternative fuel and fuel mixture credit	0	158	0	0
Credit for production from advanced nuclear power facilities	0	0	0	0
Pass through low-sulfur diesel expensing to cooperative owners	0	42	0	0
Total (tax expenditures)	3,199	6,798	9,775	10,444

Note: Total may not equal sum of components due to independent rounding

Source: U.S. Energy Information Administration

Oil companies receive a large amount of government spending through the “percentage depletion” system. Without this subsidy, an oil company would only be able to deduct an amount that equals an oil well’s decline in value, as measured by the amount of oil drained from one of their wells in a year (say, 10 percent of the total amount of oil). This is called “cost depletion.”

Percentage depletion, on the other hand, allows an independent oil company to deduct a percentage of revenue (currently, 15 percent per year for the first 1,000 barrels per day) generated from that well even if that amount exceeds the well’s total value. This means that oil companies take deductions as long as a well is producing oil, without regard to how much, or whether, the well is still declining in value.

The JCT estimates the cost of percentage depletion by calculating the difference between the taxes companies owe under a percentage-depletion system and what they would owe under a cost-depletion system. They call the difference “excess of percentage over cost depletion.”

Why is percentage depletion so valuable?

Oil companies enjoy lower taxes under a percentage-depletion system than they would under a cost-depletion system. Suppose an oil company has a well that cost \$1 million to develop. In one year, they take 10 percent of the available oil out of that well and sell it for \$1 million. Under a cost-depletion system, they can deduct \$100,000 (10 percent of the value of the well no matter what revenue the well generates).

Under a “percentage depletion” system, though, they can deduct \$150,000 even though the well has only lost \$100,000 in value. In a typical case, that extra \$50,000 deduction on their tax form would be worth \$17,500 in lower taxes.

How cost depletion works

An oil company can deduct an amount that equals the well’s decline in value, measured by the amount of oil drained from the well in a year

Cost depletion	
Value of oil well	\$1,000,000
Amount of oil removed	10%
Cost depletion	\$100,000

How percentage depletion works

An oil company can deduct a percentage of its revenue regardless of how much the well has declined in value

Percentage depletion	
Revenue from oil well	\$1,000,000
Allowable percentage depletion	15%
Percentage depletion	\$150,000

New technology credit

This is also known as the production tax credit, or PTC, and is found in Section 45 of the tax code. The credit is given to wind generators—as well as to other renewable energy technologies, such as biomass—and is currently worth roughly 2.1 cents for each kilowatt hour of wind power generated.⁶ For each kilowatt-hour of electricity generated by a wind turbine, the company that owns that wind turbine gets a 2.1 cent tax credit.

To put this in perspective, a medium-sized wind turbine can generate 2 million to 3 million kwh per year,⁷ and the average price of electricity sold in the United States is 9.44 cents per kwh.⁸ So if a company has a wind turbine that generates about \$250,000 in revenue, it will receive a PTC subsidy of \$55,000. This subsidy will, in a typical case, increase the company's after-tax profits by \$20,000, which means investors have a higher rate of return than they would without the subsidy.

Cash grant in lieu of investment tax credit

The investment tax credit is found in section 48 of the tax code and subsidizes renewable energy technologies. Under the ITC, some renewable energy projects are eligible for a tax credit for a percentage of the initial capital investment (up to 30 percent depending on the technology). The American Recovery and Reinvestment Act, however, temporarily allows project developers to receive a cash grant from the U.S. Treasury for the same amount. Companies that receive the cash grants are no longer eligible for the tax credit.

The rationale behind the change was that companies that most needed the tax credit had no tax liability to reduce. In order to provide subsidies to these companies, the government needed to use direct spending instead of tax expenditures. This change essentially turned a tax expenditure into direct spending without changing the total amount of government spending.

Some tax expenditures are more effective than others

Tax expenditures are a form of spending and should be subject to the same level of scrutiny as direct spending. The first step to scrutinizing them is to measure how much they cost. More complicated, but still necessary, is to assess how effective they are. The government should know how much it's spending, and it should also know what it's getting in return.

The government already knows how much tax expenditures cost. Both the Joint Committee on Taxation and the Office of Management and Budget release annual tax expenditure budgets. These reports provide useful information about the size of tax expenditure spending.

Measuring effectiveness presents more of a challenge, since most tax expenditure programs do not have a system for performance measurement in place. A performance measurement system collects data on an ongoing basis to assess whether a program is achieving its benchmarks. The lack of performance data can make it challenging to determine how effective a tax expenditure is at accomplishing its purpose. As seen in the percentage depletion section below, sometimes less than ideal proxies must be used as indicators for performance. Imperfect measurement can still provide insight into effectiveness, but more data can make for stronger assessments.

The following sections demonstrate how two tax expenditures—the percentage-depletion allowance and the production tax credit—could potentially be evaluated. To properly assess a tax expenditure's effectiveness, you have to know the policy's goal, the tax expenditure's size, and the extent to which the tax expenditure has shaped behavior. Of these three items, only the size is readily identifiable, while the other two present challenges.

Percentage depletion in the oil industry

It is difficult to determine the legislative intent of percentage depletion, which has existed since 1926. The lack of regular review means Congress hasn't had to provide a rationale since they initially created the program. Even so, both industry and other government sources offer explanations for the program's existence.

One rationale for the percentage-depletion subsidy offered by industry is that it attracts investment and capital. According to the Independent Petroleum Association of America, a trade group for oil companies, "Eliminating percentage depletion would remove capital

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that would have been invested in maintaining and developing American production.”⁹ Obviously, industry groups that benefit from percentage depletion have a strong incentive to find justifications for maintaining this spending program, so this may exaggerate the program’s relevance.

The industry’s explanation is slightly different from the Congressional Budget Office’s viewpoint, which last looked at the percentage-depletion allowance while reviewing potential changes to the tax code in 2003 and found that “percentage depletion has been justified on the grounds that oil and gas are ‘strategic minerals,’ essential to national energy security.”¹⁰

The Congressional Research Service’s biannual compendium finds a third explanation. It tracks the origins of percentage depletion back to 1913 and finds that Congress passed similar legislation during World War I, “to stimulate the wartime supply of oil and gas, compensate producers for the high risks of prospecting, and relieve the tax burdens of small-scale producers.”¹¹

Whatever the explanation, oil is a valuable resource that powers much of the United States’ current energy use. This arrangement will change very slowly, so oil will continue to play an important role in the U.S. energy mix for the foreseeable future. But the above explanations broadly assume that percentage depletion will increase investment, which would increase domestic production, and that domestic production of oil is desirable even when sufficient foreign oil exists. The industry view is that domestic oil is more valuable than oil produced abroad, while the government rationale is that domestic production is vital to our national security. Both of these are problematic.

For starters, money spent on domestic production of oil could be redirected to priority areas like green energy, and investment in new forms of energy is critical to future economic growth. Countries like China, Spain, and Germany, are moving forward with their green energy investments, which have been shown to create new jobs, industries, and better forms of sustainable energy.¹²

In addition to economic policy considerations there are serious environmental consequences to burning oil. Roughly one-third of America’s greenhouse gas emissions come from burning oil. These emissions are a large contributor to global climate change, which will have dramatic effects on all American citizens. Oil is also a leading cause of smog and other air pollution that has harmful consequences for American health. The bottom line: Burning oil is not good for America no matter where it comes from.

Finally, no matter how much we drill for oil in the United States, we will not be self-sufficient. Though the United States has roughly 21 billion barrels of crude oil in proven reserves, 2008 estimates found that the nation consumes about 19.5 million barrels a day, or a little over 7 billion barrels a year.¹³ Under these estimates, domestic reserves would only last for three years.

If the United States' goal is to have a secure supply of oil, percentage depletion may even be counterproductive, since it encourages using finite domestic supplies of oil when imports are available. If national security is a concern, why should the United States deplete its limited oil reserves when they might be more necessary in the future?

There may be a reason for why investment would decrease without percentage depletion, but that reason should be made clear, and it isn't.

Further, data about how oil companies use percentage depletion should be assessed to determine whether percentage depletion effectively addresses such a reason. Even if domestic production of oil is necessary, the oil industry should have to demonstrate that this tax expenditure is necessary because market-based incentives are inadequate to encourage domestic production. Currently, it's not clear why there should be a tax expenditure to encourage investment since the private market would likely meet this goal without public intervention.

High oil prices already reflect, among other things, oil's limited supply and the significant costs of drilling and exploring for oil. These high oil prices also mean oil companies are often very profitable. Exxon Mobil, a leading oil and gas company, earned nearly \$20 billion in profits in 2009. These high profits suggest that investors would enjoy high rates of return even without a subsidy.

Even President George W. Bush acknowledged the strength of market prices in attracting oil investment when he said, "I will tell you, with \$55 oil we don't need incentives to the oil and gas companies to explore."¹⁴ Ironically, that same year Congress passed legislation that increased the amount the government spends on oil companies through the tax code. With oil currently over \$80 per barrel, President Bush's words continue to ring true.

For the purposes of analysis, we still have to figure out if percentage depletion is effective even if we accept that the program's goal is valid and that the oil industry deserves a special subsidy. The JCT estimates this item at \$1.3 billion for 2009 (see the side box on p. 6 for an explanation of why estimates may be different).¹⁵ To determine if this money has influenced behavior the government would need to know how percentage depletion has driven investment that otherwise would not have happened.

One substantial barrier to this, however, is a lack of detailed information. If we had well-by-well information on costs, oil production, revenue, tax expenditure, and other subsidies we would have a data set that would allow us to more fully examine the tax expenditure's role in the market. But even lacking these or other helpful data there are some things we do know.

For one thing, we know that oil exploration and drilling did not begin on the day this tax expenditure came into existence. We also know that the oil industry is profitable and that there is a great deal of money to be made by finding and exploiting oil, with or without

If the United States' goal is to have a secure supply of oil, percentage depletion may even be counterproductive, since it encourages using finite domestic supplies of oil when imports are available.

Until the oil industry can demonstrate a convincing need for the percentage depletion tax expenditure it should be discontinued, as President Barack Obama has proposed in his FY 2011 budget.

tax breaks. Moreover, we know that the percentage depletion allowance doesn't specifically target hard-to-find or difficult-to-extract oil—so clearly the subsidy is overpaying for “cheaper” oil.

We also know that, as an Environmental Law Institute study suggests, “...this particular resource policy has evolved in the absence of a recognizable master plan. Percentage depletion has developed through a continuing political tug-of-war in the U.S. Congress as a seemingly unending array of special interest groups sought and finally gained the prize of percentage depletion for their industry.”¹⁶

We also know that notwithstanding percentage depletion and other generous subsidies, domestic oil production has been declining since 1970. Now, it may be that domestic production would have declined even more but for this subsidy. But the oil industry needs to explain why this subsidy should persist if we're going to face declining production anyway. And more generally, since it hasn't had to prove its case in 1926—and there's little evidence that it did so then—the burden should be on this profitable industry to show (a) why there should be subsidies for oil production at all, and, if they establish that, (b) that percentage depletion is the most effective way to subsidize production.

Percentage depletion has been around since 1926. Since then, the underlying justification for the expenditure hasn't been seriously considered—nor has there been thorough analysis that demonstrates how the expenditure shapes behavior. This lack of oversight is largely because percentage depletion is a tax expenditure that isn't subject to the same rigorous evaluation as government spending. Until the oil industry can demonstrate a convincing need for the percentage depletion tax expenditure it should be discontinued, as President Barack Obama has proposed in his FY 2011 budget.

The production tax credit in the wind industry

The JCT estimates the production tax credit for wind at \$700 million in 2009. Unlike percentage depletion, the PTC does have a commonly understood goal: to increase the amount of electricity generated from renewable resources, including wind power.

This is not, however, authoritatively stated in the legislative history. According to the Congressional Research Service, “[The PTC's] purpose was to encourage the development and utilization of electric generating technologies that use specified renewable energy resources, as opposed to conventional fossil fuels.”¹⁷ It's not clear from this legislative intent whether the PTC is specifically intended to drive investment in wind energy or the amount of energy generated from existing wind turbines. Either way, the PTC's end goal is certainly to increase the total amount of wind generated.

Also, unlike with percentage depletion, three different studies show that the PTC influences behavior. First, we can conduct a “natural experiment,” the results of which are illuminating. Researchers in a laboratory experiment often compare the effects of two different scenarios, one of which is the “control” and one of which has been modified, to determine the effect of the modification. In a “natural experiment” researchers find instances where a policy or similar factor changes and compare the before-change and after-change scenarios to determine the change’s impact.

The PTC has expired and been renewed several times in recent years, giving us a good “natural experiment.” Each time the PTC expires, we observe that investment in wind generation declines. Then, each time the PTC is renewed, investment in wind generation picks back up. Figure 4 indicates five different observation points between 1999 and 2006.¹⁸

This “natural experiment,” however, is potentially flawed because of a simple timing issue. Investors may have concentrated investment into periods when the PTC was in effect but not increased their overall amount of investment. For example, imagine that a wind developer is going to invest in several wind turbines over the next two years no matter what. If they know that the PTC is currently in effect but will expire in one year, they will almost certainly make as many investments as possible in that first year—turning what would have been a constant level of investment into a peak in the first year and a valley in the second year.

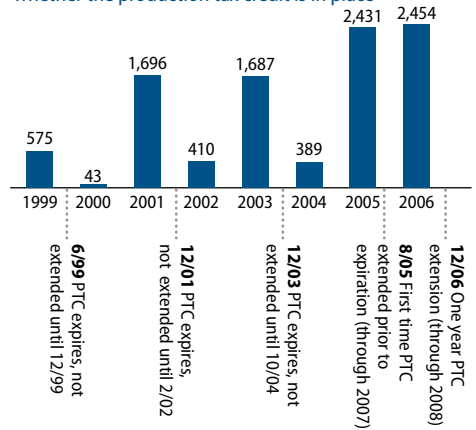
But Gilbert Metcalf, an energy economist at Tufts University, has conducted a more sophisticated econometric analysis of detailed data on wind facility investment that accounts for the possibility of this sort of “gaming” of the system and other factors that could explain the ups and downs of wind investment.¹⁹ His conclusion is unequivocal: “[T]he data suggest that much of the current investment in wind can be explained by the production tax credit for wind.”

Given that the PTC effectively encourages investment, a final way to evaluate it is to assess whether its size could be adjusted so that it more efficiently increases wind power’s competitiveness with conventional sources of electricity. In particular, the cost of wind needs to be compared with natural gas power, since the two are often substitutes for each other.

If the PTC is too small, it may be an underutilized subsidy. And if it’s too large, it may be wasting government money on investments in wind power that would occur even if the PTC were reduced. In another paper, Tufts’s Metcalf calculated the impacts of various tax benefits on the “levelized cost of electricity,” or LCOE, of power from various sources.²⁰ The LCOE represents how much a power generator has to get paid for each kwh of electricity to break even on their investment. Metcalf finds that if the PTC didn’t exist, the LCOE of wind power would be 5.91 cents per kwh, but that the PTC lowers the LCOE to 5.70 cents per kwh, compared to a LCOE for natural gas of 5.47 cents per kwh.

FIGURE 4
Tax credits power wind power

U.S. wind power capacity additions, 1999-2006, detailing how wind investments ebb and flow depending on whether the production tax credit is in place



Source: American Wind Energy Association, 2007.

If a developer is agnostic about fuel choice and is simply looking to invest in the lowest-cost electricity source—which is a reasonable choice, since power generators usually get paid the same amount no matter the fuel source, leading to higher profits with a lower LCOE—the PTC won't affect their decision. But given that developers do invest in wind, it appears that there are other benefits to wind generation for which developers are willing to pay a premium. For example, developers may rather have a slightly more expensive power source that has a very stable fuel cost (for wind, the fuel is free), versus a power source that is slightly less expensive based on current fuel prices but that may have highly variable fuel costs, like with natural gas.

We don't know exactly what premium developers would pay for having a more stable fuel, but we can conclude it is most likely less than 0.44 cents per kwh for those who have invested in wind. We know this because it is the difference between the LCOE of natural gas power and the LCOE of wind power without the PTC. If the premium was more than 0.44 cents per kwh, the PTC would be unnecessary.

This last example points to a challenge with tax expenditure design. At any time, the PTC may be higher or lower than the ideal level, as changes in natural gas prices change the LCOE of natural gas. One way to make sure the PTC is set at the right level would be to have it fluctuate as natural gas prices vary, with the ultimate goal of keeping wind cost competitive with natural gas. That is, if natural gas prices were high, the PTC would be low, and vice versa. This type of system may raise concerns of uncertainty among potential investors, but it may also assuage some other concerns about uncertainty: Now investors would know that wind and natural gas would have the same LCOE no matter how the natural gas price changes.

This style of floating subsidy is less likely to work with tax expenditures, though, because different government agencies have the requisite expertise. A tax credit with a floating value would have to be written into the tax code and be administered similarly to the mileage expense rate. Each year, the Internal Revenue Service changes the amount a taxpayer can deduct for each mile travelled for business based on their analysis of the cost of driving. In the production tax credit's case, Congress would instruct the IRS to determine the size of the PTC based on other information about energy prices, the IRS would consult with energy experts to determine the rate, taxpayers would get the new rate from the IRS, and then taxpayers would have to calculate the credit.

Setting the PTC this way would be especially complex because the cost of natural gas is constantly fluctuating, so the credit would have to be adjusted more often than annually. Since taxes are only calculated once a year this would be almost impossible to effectively administer. On the other hand, if the subsidy were done as direct spending, Congress would give the spending authority to the DOE. The DOE already has the expertise to set the subsidy value and already collects necessary information from electric generators, so it would be easy for them to send payments to companies that qualify for the subsidy.

Direct spending is more transparent government support

Cash grant in lieu of the investment tax credit

The final problem with tax expenditures—the others being lack of measurement, evaluation, and oversight—is that they often lack transparency and accountability. Simply put, it's much easier for the public to get information about direct spending than tax expenditures.

The American Recovery and Reinvestment Act provides a “natural experiment” to show how transparency differs with tax expenditures and direct spending. Certain renewable energy projects are eligible for an ITC under section 48 of the tax code. Depending on the type of project the developer can get a tax credit for as much as 30 percent of their capital investment. ARRA, however, temporarily changed this to allow developers to get a cash grant from the U.S. Treasury in lieu of the ITC.

This temporary change has led to several significant outcomes. The primary result is that developers no longer have to be profitable to take advantage of the tax credit. Previously, developers that didn't have significant tax exposure—which most developers don't since their projects have yet to make money—had to identify a “tax equity partner” to take advantage of the tax credit. This “tax equity partner” would contribute money to the project and, in return, get to use all the available tax credits. But as fewer companies had tax exposure due to the economic downturn, fewer “tax equity partners” were available, making the tax credit less useful to developers.

ARRA's transition to a cash grant in lieu of the ITC has made financing renewable energy projects easier in the absence of a lively tax equity market. Additionally, researchers at the Lawrence Berkeley National Laboratory have found that there are other financing-related benefits to the cash grant that support community-owned and small-scale wind development.²¹

Not only does the cash grant have these financial benefits over the ITC, but there's also a significant transparency benefit. To claim the ITC, a developer simply fills out IRS Form 3468, which only requires information about the cost and size of the project. But to get the cash grant, the developer has to fill out an application for the grant from the U.S. Treasury. This application requires information about the cost and size of the project, too, but it also requires information about electricity generation, job creation, and how the energy will be used.

It's much easier for the public to get information about direct spending than tax expenditures.

Not only is direct spending more transparent, but it is often more equitable, since only certain people or companies with tax exposure can benefit from tax expenditures.

Information on the ITC and cash grant is made available to the public in different ways as well. The IRS doesn't disclose ITC recipients to the public. The U.S. Treasury, on the other hand, has a list of every cash grant recipient posted on the cash grant program's website, along with information about the projects.²² As of March 24, 2010, the website listed 458 grant recipients, ranging in size from \$2,682 for a small wind facility in North Carolina to \$178,004,264 for a wind facility in Texas.

The IRS certainly has a legitimate interest in maintaining taxpayer confidentiality, but there is likely a compromise between full disclosure and complete nondisclosure. For example, the IRS could do a better job of compiling certain tax data not just by industry code, but also by subindustry code—which would give better insights into what types of companies are benefitting from tax expenditures. Even with this improvement, though, the tax expenditure would still be less transparent than direct spending.

The cash grant and the ITC are economically and functionally equivalent to the government. But the cash grant is much more transparent and more effective for renewable project developers. Congress is also more likely to exercise serious oversight of the cash grant program since it represents government spending and not a tax expenditure.

Recent experience with the cash grant in lieu of the investment tax credit demonstrates that in some instances direct spending is more effective than tax expenditures, even though they have the same economic impact. Not only is direct spending more transparent, but it is often more equitable, since only certain people or companies with tax exposure can benefit from tax expenditures.

The budgeting process creates policy misalignment

Tax expenditures and direct spending are not simultaneously considered in the federal budgeting process, even though they're functionally equivalent and should be targeted toward the same policy goals. Spending comes out of the appropriations process, in which congressional committees direct specific amounts of money to specific uses. Tax expenditures, on the other hand, do not require formal appropriations. This has several implications for fiscal planning and energy policy.

First, appropriations are reviewed every year, while no system exists for regularly reviewing tax expenditures. Tax expenditures are only reviewed when they expire, which makes them more difficult to change. Second, direct spending is for a specific, predetermined amount, but the size of a tax expenditure can tremendously vary depending on factors outside of Congress's control. This makes fiscal planning challenging.

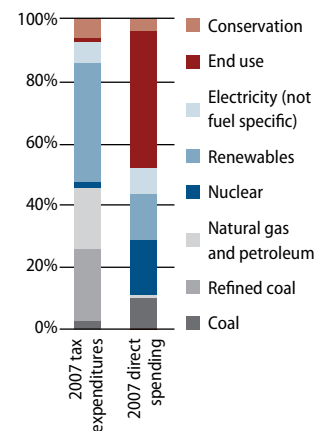
When tax expenditures and direct spending are treated differently—as is currently the case—there's a risk they will support conflicting objectives. This is especially important to be aware of when considering the energy sector because certain segments of the industry are more heavily supported by tax expenditures while others are more heavily supported by direct spending—as shown in the “Tax expenditures are an important tool in energy policy” section above.

The country's energy policies will change and support different goals depending on the administration and who's in charge of Congress. For example, the Obama administration's stated goals include solving the climate change problem and reducing our dependence on foreign oil.²³ These goals will be met through a set of policies including rulemakings, new laws, and financial supports. All of these should be coordinated, and the government should be directing its limited financial resources toward the policies that meet its goals. But the bifurcated nature of spending means that it's difficult to tell exactly how financial supports meet policy objectives.

Figure 5 illustrates this confusion. It shows the proportion of tax expenditures and direct spending that were targeted to different energy sectors in 2007.²⁴ If one were to look at just direct spending, the nation's energy policy appears to be heavily focused on nuclear and end-use management (such as energy efficiency and indoor lighting programs). At the same time, looking just at tax expenditures would lead one to conclude that the nation's energy policy is focused on refined coal, natural gas and petroleum, and renewables.

FIGURE 5
Different energy sectors, different government support

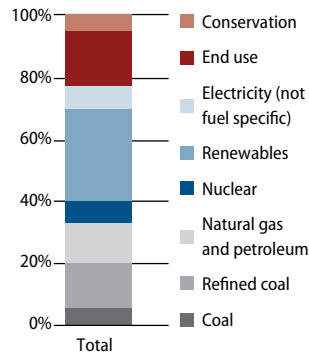
Proportion of tax expenditures and direct spending for different energy sectors, 2007, showing that tax expenditures appear to support different sectors than direct spending



Source: U.S. Energy Information Administration

FIGURE 6
Total government support for energy, by sector

Refined coal, natural gas and petroleum liquids, renewables, and end-use management received the most financial support in 2007



Source: U.S. Energy Information Administration

But neither of these is the full picture. Figure 6 combines tax expenditures and direct spending into total government spending.²⁵ This shows that refined coal, natural gas and petroleum liquids, renewables, and end-use management were the key recipients of financial support in the energy industry in 2007.

Unfortunately, the Energy Information Administration does not collect comprehensive energy spending data each year, and 2007 is the most recent year they conducted a complete analysis. To effectively define the U.S. energy policy, the EIA should be instructed to collect this data on a regular basis.

Direct spending and tax expenditures also have very different implications for fiscal planning in addition to conflicting policy objectives. For example, the JCT lists a tax expenditure called “credit for production from advanced nuclear power facilities” but says it has zero cost to the federal government. That’s because there are no new nuclear reactors. As soon as one is built, this credit’s cost will skyrocket even though the tax credit will not have changed.

The government can’t plan for the future when it can’t predict how much tax expenditures will cost in future years. As it stands, there may be any number of new nuclear reactors in the future, which means that the government will have to spend an unpredictable amount of money on this tax expenditure. If this was direct spending, though, the government could simply put a limit on the amount of spending and eliminate uncertainty.

Recommendations and conclusion

When energy companies pay their taxes, they will receive billions of dollars in special tax credits and deductions. The benefit to these companies is clear. What's not as clear, however, is the benefit to the U.S. government and other taxpayers.

Policymakers need to ask if these tax expenditures are the best use of the government's money. Is it a good idea to spend hundreds of millions of dollars on percentage depletion or more than \$1 billion on the production tax credit—or have an investment tax credit when a cash grant program has been so successful?

If policymakers cannot provide a clear answer to these questions and use data to show that spending is accomplishing its purposes, then arguably government spending should be redirected to support policies and programs with clear purposes and the results to show they're working.

The following recommendations will help policymakers answer these questions. Ultimately, these recommendations can guide the government to better direct its limited financial resources to effectively promote desirable outcomes in energy policy without wasting valuable taxpayer dollars.

Recommendations

- **Tax expenditures need to be held to the same standards as other government spending.** This means Congress should clearly state the goals of expenditures, should contain sunset provisions so that they expire and are re-evaluated, and should require periodic reviews of their effectiveness. Any safeguard that is designed to prevent wasteful spending should also be applied to tax expenditures.
- **Tax expenditures are a form of government spending and should be considered as such.** This includes not just considering tax expenditures and direct spending at the same time but thinking about them in the right way. Every time a legislator thinks about a tax expenditure, they should ask themselves, “Is it a good idea for the government to pay someone for this reason?” This will encourage legislators to explore direct spending alternatives when appropriate, which are often better policy tools.

- **Congress should provide a rationale for each tax expenditure.** When Congress decides to provide financial support to an industry through either a tax expenditure or direct spending, they should state why the chosen method is better than the other.
- **Congress should hold agencies responsible for budgeting tax expenditures.** Agency budget requests that are sent to Congress should include the tax expenditure spending programs that support their policy areas. Just as agencies are required to explain and report on their direct spending request, they should perform the same exercise on each tax expenditure within their purview. This exercise would hold agencies responsible for explaining how all forms of government spending it uses support its policy areas, and it would empower Congress with the ability to cohesively examine how spending streams work together.
- **Tax expenditures should be measured and evaluated.** The government collects large amounts of data on many industries, but sometimes this data isn't sufficient to evaluate a tax expenditure. If an evaluator finds that they don't have appropriate data for the evaluation, there should be a clear process by which they can communicate that need to Congress. Congress should require beneficiaries of tax expenditures to report all data that is necessary for evaluation.
- **Congress should adopt standard practices for reviewing tax expenditures.** A good start would be to ensure that each expenditure is covered by a requirement the Joint Committee on Taxation, the Congressional Budget Office, or the relevant agency report on the expenditure's history, size, and effectiveness.
- **The Department of Energy should be the agency instructed to assess all energy-related tax expenditures.** In particular, the Energy Information Administration is probably the best office within the DOE to conduct this review. Additionally, the EIA should periodically issue a report on federal financial supports for the energy industry.
- **The JCT and the Office of Management and Budget should agree on a standardized measurement system for tax expenditures.** There may be value to both of their current methodologies, but congressional review would be easier if they used the same methodology. Congress should work with the JCT and the OMB to determine the appropriate system.

Endnotes

- 1 This data is from 2007 and does not include any spending from the American Recovery and Reinvestment Act. ARRA's energy-related spending is primarily via grants and is counted as direct spending, but is a one-time expenditure that is outside of the normal annual budgeting process.
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About the authors

Richard W. Caperton is a Policy Analyst with the Energy Opportunity team at American Progress. He works on several issues related to the transition to a clean energy economy, including renewable energy finance and investment in energy infrastructure. Prior to joining American Progress, Richard was a policy fellow at the Alliance for Climate Protection and worked in government relations at the National Rural Electric Cooperative Association.

Richard is a native of rural America, growing up in Virginia and Missouri. He received his M.B.A. from Georgetown University's McDonough School of Business and a B.A. in politics from Pomona College.

Sima J. Gandhi is a Senior Policy Analyst with the economic policy team. She works on a wide range of issues related to government efficiency, behavioral economics, budget analysis, and tax policy. Prior to joining American Progress, Sima was a fellow with the Tobin Project's Regulatory Capacity Initiative where she analyzed the design of independent regulatory agencies, and a tax lawyer at Simpson Thacher & Bartlett, LLP in New York City.

Sima grew up in California and received her J.D. and LL.M. in tax from the New York University School of Law where she was awarded the David F. Bradford Prize. She was also awarded The Brookings Institute's Hamilton Project Economic Policy Innovation Prize for her proposal to cut government subsidies to the private student loan industry. She doubled majored in engineering and science, technology, and society at Stanford University, where she graduated with honors.

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