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Good afternoon. Thank you for inviting me to speak before the ATPI today. Addressing the energy and climate challenges facing the United States is a central concern of the President, and I applaud ATPI for supporting research on this important topic.

I will talk today about the Obama Administration's fiscal year 2010 Budget proposals that focus on eliminating oil and natural gas industry tax expenditures, a topic I testified on before the Energy, Natural Resources and Infrastructure Subcommittee of the Senate Finance Committee in September.

I will discuss several aspects of the proposals in the Obama Administration's fiscal year 2010 Budget that are related to the oil and gas industry. First, I will briefly discuss the Administration's environmental and energy policy in order to provide context for the oil and gas related proposals. I'll also note that this is consistent with the recent G-20 agreement to "commit to rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption." Second, I will describe the Administration's proposals related to the oil and gas industry. Third, I will evaluate why, from an economist's perspective, these proposals are good tax policy. Fourth, I will briefly discuss the potential effects of removing these subsidies on consumer prices, productivity and domestic jobs. Finally, I will address possible concerns that removing these tax subsidies will affect our energy security.

Overview of the Administration's Environmental and Energy Policy

The Obama Administration believes that our nation must build a new, clean energy economy, reduce our dependence on oil and limit the emissions of greenhouse gases (GHG). The Intergovernmental Panel on Climate Change (IPCC) estimates that global average air temperature will increase significantly in this century if we proceed with fossil fuel-intensive energy technology development.[1] The costs of such an increase would likely be very significant, as higher temperatures would devastate many ecosystems and negatively impact agricultural output and productivity in many parts of the world. The Administration believes that it is no longer sufficient to address our nation's energy needs by finding more fossil fuels, and instead we must take dramatic steps towards becoming a clean energy economy. These include encouraging the use of, and investment in, clean energy infrastructure and energy efficient technologies.

[1] Intergovernmental Panel on Climate Change, "Climate Change 2007: Synthesis Report," 2008

The Congress took an important step in that direction by providing $16.8 billion in funding for energy efficiency improvement and renewable energy in the American Recovery and Reinvestment Act of 2009.[2] In addition, the Congress recently passed, and the President signed, legislation that will increase fuel economy for all new cars and trucks sold in the United States. As a result, we will save 1.8 billion barrels of oil over the lifetime of the program – the projected equivalent of taking 58 million cars off the road for an entire year. The Administration's Budget further promotes these objectives by investing in a variety of renewable sources of electrical generation, by investing to accelerate deployment of energy conservation measures, and by providing Federal assistance for state-level programs related to clean energy and energy conservation.

In addition to direct investments in clean energy, the Administration's Budget proposed a cap-and-trade program that would provide incentives for firms to reduce GHG emissions and to invest in new, cleaner lines of business. The proposed cap-and-trade program holds the promise of creating new industries and jobs; decreasing our dependence on oil; and limiting the release of pollutants that threaten the health of families and communities and the planet itself.

The Administration's Proposals Related to the Oil and Gas Industry

With this as background, let me describe the proposals included in the fiscal year 2010 budget to eliminate several subsidies that unfairly benefit oil and gas companies.

Repeal existing oil and gas preferences

Current law provides a number of credits and deductions that are targeted towards certain oil and gas activities. The Administration proposes to repeal the tax preferences that are currently available only to non-integrated oil and gas firms:

(1) the use of percentage depletion with respect to oil and gas wells;

(2) the exception to passive loss limitations provided to working interests in oil and natural gas properties; and

(3) two-year amortization of non-integrated producer's geological and geophysical expenditures, instead allowing amortization over the same seven-year period as for integrated oil and gas producers.[3]

[2] Examples of this include: $5 billion for low-income home weatherization projects; $6.3 billion for state and local renewable energy and energy efficiency efforts; $2 billion in competitive grants to develop the next generation of batteries. ARRA also included additional renewable energy incentives. These include extending the production tax credit (PTC) to 2012 for wind and 2013 for other renewable sources of energy; creating a new grant program for clean energy projects; and providing $2.3 billion in credits for investment in advanced energy manufacturing facilities.

[3] A non-integrated company is one that receives nearly all of its revenues from production at the wellhead. The definition contained in the IRS code is that a firm is non-integrated if its refining capacity is less than 50,000 barrels per day on any given day or their retail sales are less than $5 million for the year.

Eliminating these three tax preferences is projected to raise revenues by approximately $10.3 billion from 2010 to 2019.

The Administration also proposes to repeal the tax preferences that are currently available for both integrated and non-integrated oil and gas firms:

(1) the expensing of intangible drilling costs;
(2) the deduction for costs paid or incurred for any tertiary injectant used as part of a tertiary recovery method;
(3) the ability to claim the domestic manufacturing deduction against income derived from the production of oil and gas.

Eliminating these three tax preferences is projected to raise revenues by approximately $20.3 billion from 2010 to 2019.

Finally, the Administration proposes to repeal two tax preferences that are not currently taken by any oil and gas firms because the price of oil exceeds the phase out price. One is the enhanced oil recovery credit for eligible costs attributable to a qualified enhanced oil recovery project, and the second is the credit for oil and gas produced from marginal wells. Eliminating these two tax preferences is projected to have no impact on revenue from 2010 to 2019 because oil prices are projected to remain above the phase out price for the coming ten years.

Levy tax on certain offshore oil and gas production; repeal LIFO

I'll mention two other related tax changes that the Administration has proposed.

The first is the proposal to levy a tax on certain offshore oil and gas production.

According to a review of several existing studies by the Government Accountability Office in 2007, the return received by the federal government from oil production in the Outer Continental Shelf is lower than the return from oil production received by many foreign governments.[4] In the interest of advancing important policy objectives, such as providing a more level playing field among producers, raising the return to the taxpayer, and encouraging sustainable domestic oil and gas production, the Administration is working with Congress to develop a proposal to impose an excise tax on certain oil and gas extracted offshore in the future.

The second related tax proposal is the proposal to repeal the last-in, first-out, or LIFO, method of accounting for inventories.

Under the LIFO method of accounting for inventories, it is assumed that the cost of the items of inventory that are sold is equal to the cost of the items of inventory that were most recently purchased or produced. The Administration proposes to repeal the use of the LIFO accounting method for Federal tax purposes, effective for taxable years beginning in 2012. Assuming inventory costs rise over time, taxpayers required to change from the LIFO method under the

[4] Government Accountability Office, "Oil and Gas Royalties: A Comparison of the Share of Revenue Received from Oil and Gas Production by the Federal Government and Other Resource Owners," May 1, 2007

proposal generally would experience a reduction in their deductions for cost of goods sold and a corresponding increase in their annual taxable income as older inventory with a lower purchase price is taken into account in computing taxable income. In the context of oil and gas this would apply to stocks of already extracted oil and gas stored by refiners and other users of crude product, but not to unextracted stores of oil and natural gas. Upon enactment, taxpayers required to change from the LIFO method also would be required to report their existing inventory at its first-in, first-out (FIFO) value in the year of change, causing a one-time increase in taxable income that would be recognized ratably over eight years.

An Economist's View of Tax Policy for the Oil and Gas Industry

Next, I will outline a few economic principles of good tax policy and evaluate the current tax subsidies for oil and gas production in light of those principles.

Tax Policy Should be Neutral Across Industries

An important first principle of good tax policy is that tax policy should be neutral across industries.

In a competitive market, a tax system free of subsidies will promote investment decisions that reflect an investment's economic returns rather than its tax benefits. Differences in tax treatment across industries give rise to differences in after-tax returns for investments that would otherwise have the same pre-tax returns. These differences in after-tax returns drive important changes in investment and output. For example, tax subsidies that are not designed to correct an existing distortion or market failure lead to an over allocation of resources to the tax-favored industries and an under allocation of resources to other industries. These distortions in resource allocation result in inefficiency and generally reduced economic growth. Maintaining neutrality in economic policy, absent a strong reason otherwise, is a long standing principle that was emphasized by George Washington, who said in his farewell address, "even our Commercial policy should hold an equal and impartial hand: neither seeking nor granting exclusive favours or preferences…".

The tax subsidies that are currently provided to the oil and gas industry lead to inefficiency by encouraging an over investment of domestic resources in this industry. In 2005 the Congressional Budget Office estimated that the effective marginal tax rate on investment in petroleum and natural gas structures was 9.2 percent.[5] This is well below the average effective marginal tax rate for all asset types (26.3 percent). The size of the distortion – equal to the difference between the effective marginal tax rate for investment in the oil and gas industry and the average effective marginal tax rate – is quite large for the oil and gas industry and removing this distortion would improve overall economic efficiency.

In addition to subsidizing an inefficient amount of investment in the oil and gas industry, the tax subsidies result in distortions within the industry by favoring investment in nonintegrated firms. A 2009 study estimated that percentage depletion and the favorable tax treatment for intangible

[5] The effective marginal tax rate is equal to the difference between the before- and after- tax return divided by the before-tax return on the last dollar of investment.

drilling costs, which are available only for individuals and non-integrated firms, reduced the effective marginal tax rate for investment in oil drilling to -13.5 percent for non-integrated firms, compared to 15.2 percent for integrated firms that cannot claim percentage depletion and cannot expense all of their intangible drilling costs.[6] Because of the large subsidy provided by percentage depletion and full expensing of intangible drilling costs, the size of the distortion for non-integrated firms is especially large.

Addressing Externalities through Tax Provisions

This discussion of distortions in the tax system provides a good segue to a discussion of how tax provisions can be used to *reduce* distortions in the economy. As many of you will know, the idea that taxes can be used to address externalities dates back to Pigou.

Tax provisions that encourage investment in a specific industry may be justified in cases where they address a positive externality associated with either production or consumption of certain goods. Conversely, negative externalities justify Pigovian taxes. Private market decisions can be inefficient when market prices do not reflect the full social costs or benefits. Oil and natural gas prices, for example, do not reflect the environmental harm caused by the release of greenhouse gases in the atmosphere associated with oil and gas production and consumption. In addition, the price of oil does not reflect the risks associated with U.S. oil dependency or the costs of traffic congestion. Tax provisions can address this problem by incorporating the social costs into the price of the resources.

However, the current set of tax subsidies for oil and gas production work against the goal of reducing the negative externalities associated with oil and gas production. In their Summit meeting in Pittsburgh in September, G-20 leaders recognized the importance of this point. In the Leaders' Statement following the meeting they said, "Inefficient fossil fuel subsidies encourage wasteful consumption, reduce our energy security, impede investment in clean energy sources and undermine efforts to deal with the threat of climate change." The G-20 Leaders committed to "rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption." I view the Administration proposals, which were made before the G-20, as being in the spirit of this commitment.

The Administration proposes to address the negative externalities associated with GHG production through the use of a cap-and-trade system. To the extent that removing the current tax subsidies for oil and gas production increases energy prices, the Administration's proposals would move prices closer to appropriately reflecting the negative externalities associated with oil and gas production. However, as I will discuss in more detail in a moment, the effect on prices of these tax proposals is unlikely to be sufficient to address the social costs of oil and gas production.

Oil Prices and Percentage Depletion

[6] Gilbert Metcalf, "Taxing Energy in the United States: Which Fuels Does the Tax Code Favor?" Center for Energy Policy and the Environment, 2009. If an investment has a negative effective marginal tax rate, then the benefit from that investment exceeds the tax-free economic return from that investment (i.e. the tax code provides for a net subsidy).

First let me make a brief comment on percentage depletion in particular, and the lack of any good economic rationale for its use.

Under the current tax system, percentage depletion causes tax subsidies to increase as oil and gas prices increase, which lowers the overall effective tax rate when commodity prices are high. This is because the size of the deduction under percentage depletion is equal to a fixed percentage of revenue, and as oil prices rise and revenue increases (assuming the demand elasticity for oil is less than 1) the amount of the deduction also rises, which reduces the effective tax rate on the original investment. There is no rationale for a tax system that reduces the effective marginal tax rate when the price of the good sold increases. Removing percentage depletion will make the tax treatment of this industry more neutral with respect to changes in price.

Economic Impacts of Removing Favored Treatment

Now I will briefly discuss the impact on prices, oil and gas production and employment of repealing these tax preferences, which an important issue not only to the industry and its employees but to American consumers and workers broadly.

In analyzing the impact of repealing oil and gas tax preferences, my staff and I considered the impact on firms' costs and how that might impact prices. We also considered how repealing oil and gas tax preferences may impact output and employment in the oil and gas industries and output and employment in the broader economy. Our analysis used Energy Information Agency statistics on oil and gas finding and lifting costs, production and sales, and estimated supply and demand elasticities from the literature. Note that in the analysis I am about to discuss the costs associated with eliminating LIFO is excluded because eliminating LIFO will have little impact on production at the margin, and to the extent it did have a marginal impact, the impact would be very small.

Tax preferences reduce a firm's cost of doing business, and by lowering costs they can lead to an increase in the firm's production and employment. Whether or not the price of the good produced by a firm is affected by an increase in production depends on the size of the increase in production relative to the market as a whole and on how much a price increase would reduce consumption. To the extent a tax subsidy does not cover an entire industry, production may simply shift from unsubsidized firms within the industry to subsidized ones, without affecting price.

Oil

Impact on Prices: With respect to oil, the domestic price of oil is determined by global supply and demand because oil is an internationally traded commodity. Although the U.S. does constitute a large share of world demand, the U.S. contribution to world oil supply is relatively small: U.S. petroleum production accounts for about 10 percent of the world annual total, and

U.S. proved crude oil reserves represent less than 2 percent of the world total.[7] The relatively small U.S. share of global production means that any change in U.S. domestic oil production will have a limited impact on the world supply of oil. Based on parameters in the literature, we estimate that world supply would fall by less than one-tenth of one percent due to the elimination of these tax subsidies proposed in the Obama Administration's budget.[8, 9] Because we expect little or no effect on the world supply of oil, removing these subsidies would have an insignificant effect on world oil prices.

If the world oil price does not change, U.S. consumers would feel no impact at the pump from removing these tax preferences. *Even if* the full additional cost to domestic oil companies was passed on to consumers through higher gasoline prices, which is highly unlikely because prices are set on the world market, the cost would be equivalent to less than one cent per gallon. To put this in context, consider that since 2000 retail gasoline prices have fluctuated between $1.14 and about $4.10, and over this period crude oil has accounted for only about 50 percent of the price of gasoline.[10] Thus, even in the unlikely case that costs of removing the subsidies were passed on directly to consumers, the increase in prices would certainly be trivial compared to normal fluctuations.

Impact on Domestic Output: Because the price of oil will almost surely not change as a result of eliminating these tax preferences, consumers will not change their demand for petroleum products. On the supply side, a change in domestic producer costs could cause production to shift from domestic non-integrated producers to integrated domestic or foreign suppliers. According to estimates made by the Office of Economic Policy at the Department of Treasury, removing the subsidies for the oil industry would be equivalent to increasing total oil finding and lifting costs by less than 2 percent.[11] Of course, the increase in costs would not translate into a one-for-one decrease in production. Based on estimates of short and long run supply elasticities, we estimate that the decrease in domestic production due to these proposals will be less than one half of one percent, even in the long run.[12]

We have also considered the impact of higher oil prices on macroeconomic outcomes. The economics literature suggests that large increases in energy prices can lead to meaningful reductions in GDP.[13] However, even upper bound estimates suggest that any change in prices due to removing the tax subsidies would be trivial, and as a result the impact on GDP of the Administration's proposals will likely be too small to measure. On the other hand, over the long

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[7] Energy Information Agency, "International Energy Statistics 2005-2009: Production of Crude Oil including Lease Condensate and Crude Oil Proved Reserves"

[8] Oil supply elasticities used here are from Salvatore Lazzari, "The Crude Oil Windfall Profit Tax of the 1980s: Implications for Current Energy Policy," Congressional Research Service, March 9, 2006; and Caldwell and Gordon, "Federal Oil Subsidies: How Can They Best Be Targeted?" May 2004 (prepared for the National Commission on Energy Policy).

[9] The cost associated with eliminating LIFO is excluded from this analysis because eliminating LIFO will have little impact on production at the margin, and to the extent it does have a marginal impact, the impact will be very small.

[10] Energy Information Agency. "A Primer on Gasoline Prices," 2009

[11] Estimates based on U.S. Energy Information Agency, "Performance Profiles of Major Energy Producers 2007," December 2008, which contains data on a large portion of the oil and gas industry.

[12] Congressional Research Service, "The Crude Oil Windfall Profit Tax of the 1980s: Implications for Current Energy Policy," March 2006

[13] Crane et. al, "Imported Oil and U.S. National Security," RAND, 2009.

term, reducing tax preferences will result in a more efficient allocation of capital, which will tend to increase national output.

Impact on Employment: Because domestic crude oil output is not expected to change appreciably, employment in the oil extraction sector would likewise not be expected to change by a significant amount. A rough assumption would be that employment in oil production could fall in the same small proportion as the decline in output, or less than one half of one percent.

In terms of the overall economy, it is also important to note that the oil and gas industry is about ten times more capital intensive than the U.S. economy as a whole. Consequently, subsidizing oil industry production is not an effective policy for raising labor demand. As I noted a moment ago, over the long term, reducing tax preferences will result in a more efficient allocation of capital and labor, which will tend to increase national output.

Natural Gas

Now I'll turn to the impact on natural gas.

Impact on Prices: Unlike oil, a large majority of the natural gas consumed in the U.S. is domestically produced, and global trade in natural gas has a small impact on domestic prices. As a result, changes in domestic natural gas production costs have the potential to influence U.S. prices. To yield an upper bound estimate of the effect on prices, we could assume the full cost of the eliminated tax preferences are passed through to consumers in the price of natural gas. According to estimates made by my staff at the Department of Treasury, the costs of the subsidies for the natural gas industry are equal to about one percent of average total revenues for natural gas over the last two years. Thus, in the upper bound case, removing the tax subsidies might result in about a one percent increase in natural gas prices. Taking into account the demand response if costs increase, any price increase would likely be less than one percent in equilibrium. For context, consider that since 2000, prices for residential natural gas have fluctuated an average of plus or minus 6 percent per month. Thus, the potential effect on prices from removing the tax subsidies for gas production would be small relative to normal price fluctuations, even in the upper bound case.

Impact on Domestic Output: This small increase in price may cause consumers to respond by decreasing their consumption of natural gas. However, the effect is likely to be small: the demand elasticities in the literature suggest that a one percent increase in natural gas prices might result in a reduction in natural gas consumption and production of less than half a percentage point over the long term.[14]

Impact on Employment: Over the long term, employment in the natural gas production and supply industry could change by an amount similar to the change in production. As in the case of oil, eliminating the distortionary influence of the tax preferences for natural gas will result over time in new jobs being created in other sectors. And like oil production, the natural gas

[14] Calculation using long-term residential demand elasticity of -0.41 from Steven Wade, "Price Responsiveness in the AEO2003 NEMS Residential and Commercial Building Sector Models."

industry is highly capital intensive relative to the U.S. economy as a whole, suggesting these tax subsidies are not effective means for domestic job creation.

Other research supports our conclusion that impacts on the industry will be small

I'll note that our conclusion that the impacts on the oil and gas industry of repealing these tax preferences would be very small is supported by other research. For instance, at the same Senate hearing last month where I spoke on this topic, Stephen Brown, a non-resident fellow at Resources for the Future and former director of energy economics and microeconomic policy at the Federal Reserve Bank of Dallas, testified that in his estimation eliminating these tax preferences would increase the world oil price by about 6 cents per barrel—which translates into less than 0.2 cents per gallon of gasoline--and would increase domestic natural gas prices by about 2.4 cents per million Btu. Those increases are equivalent to less than one-tenth of one percent of the current oil price[15] and less than one percent of the price of natural gas, respectively. According to Mr. Brown, domestic oil production could fall by 0.36 percent and natural gas production by about 0.25 percent. Mr. Brown also finds it unlikely that eliminating these tax preferences will have a significant impact on overall U.S. employment.

Further support for the view that repeal of these preferences would have small impacts on the industry comes from a 2007 study by Gilbert Metcalf of Tufts University. Professor Metcalf concluded that tax subsidies for oil and gas have at most a very small impact on prices and production. Using an *ad hoc* assumption that the value of subsidies for oil amount to 10 percent of the price of oil,[16] Metcalf estimated that the price and production impacts of those subsidies would be equal to 0.4 percent and 0.2 percent, respectively. Given that the value of the subsidies in the Administration's proposal is roughly one percent of the value of domestic crude oil production, Metcalf's estimates suggest that the change in prices and production might be less than one-tenth of one percent. [17]

Let me also note that the firms impacted by repeal of these tax preferences are not solely 'mom-and-pop' businesses, as some have claimed. For instance, in 2006, 17 non-integrated oil and gas firms had gross receipts of over $1 billion each, and they accounted for over 63 percent of total corporate gross receipts of non-integrated firms.

The Impact of Tax Preferences on Energy Security

Lastly let me briefly discuss the impact of these tax preferences on energy security.

After I testified on this issue last month, oil and gas industry groups expressed their displeasure at my statement that I believed subsidies for oil and gas actually hurt our energy security rather than reduce the risks we face. Typical responses were along the lines of this statement by the head of a large Texas oil and gas producer group: "Krueger's argument that increased drilling

[15] WTI spot price of $72/bbl as of October 9.
[16] Metcalf calls this a "high estimate," citing a Government Accounting Office study that found a broader set of oil and gas tax subsidies than considered here were equivalent to about two percent of the value of crude oil and gas production in FY2003, when prices were much lower than today.
[17] Gilbert E. Metcalf, "Federal Tax Policy Towards Energy." *Tax Policy and the Economy*. August 2007, p145.

and production of U.S. crude oil and natural gas weakens our national security is not only irrational it is laughable. But this is the type of bureaucrat that the nation has to endure."

Actually that's not quite what I said. What I said in my testimony was the following: "the domestic price of oil will be determined by the world price of oil, and the size of our domestic production has little or no influence on the world price of oil. As such, current tax subsidies that encourage domestic production are very unlikely to affect the domestic price of oil and do not significantly promote our energy security. Policies that reduce our dependence on oil, such as a cap-and-trade system or investing in clean technologies, are a more effective way to reduce our vulnerability to an oil price shock and promote energy security."
My point was that eliminating the subsidies would not weaken our energy security.

If you can indulge an insufferable bureaucrat further, I'll elaborate on this point. Realistically, our energy security risks do not include being blockaded or otherwise cut off from external sources of oil (in which case domestic production would be critical). Rather, concerns about our energy security are focused on the possibility that a sudden and lasting disruption in world oil supplies would lead to a substantial increase in the price of oil. Such an increase in prices could have ripple effects throughout our economy by leading to a decline in output in energy intensive industries, by raising unemployment if real wages do not adjust to higher oil prices, and by making energy intensive capital stock obsolete. Proponents of tax subsidies for the oil industry argue that encouraging domestic production will limit our vulnerability in the event of such an oil price shock.

In my view, the best way to insulate ourselves from an oil price shock is to use less oil. I do not think this view is out of the mainstream. In fact, Bill Nordhaus and a recent Rand Institute study have made similar points. The Rand report, for example, noted, "A large, extended reduction in the global supply of oil would trigger a sharp rise in the price of oil and lead to a sharp fall in economic output in the United States, no matter how much or how little oil the United States imports."

Because they reduce our dependence on oil, policies as a cap-and-trade system or investing in clean technologies are a more effective way to reduce our vulnerability to an oil price shock and promote energy security than are tax subsidies that encourage oil companies to extract more oil from the ground than is economically justified without such subsidies.

Conclusion

In conclusion, let me emphasize that to the extent that current tax subsidies for the oil and gas industry encourage the overproduction of oil and natural gas, they divert resources from other, potentially more efficient investments and they are inconsistent with the Obama Administration's goals to reduce GHG emissions and build a new, clean energy economy. Removing these subsidies is also consistent with the recent G-20 agreement to phase out fossil fuel subsidies. Furthermore, as I have just argued, removing these subsidies will have a very small effect on the price of oil and gas, the production of oil and gas, and domestic jobs. In fact, removing these subsidies would actually make our economy more efficient by reducing

distortions in the tax code. The possibility to promote our broader energy goals at no long-run cost and at a very low short-run cost – in terms of prices, productivity, and jobs – makes removing these subsidies sound economic and public policy.